Final Report

Understanding Performance and Impact of Producer Companies: *Cases studies across States and Promoters in India*

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Foreword

The Centre for Management in Agriculture (CMA), IIMA has been actively engaged in research on the management of the agriculture, food, agribusiness and rural sectors of the Indian economy since its inception in 1971. The Centre regularly undertakes research studies for the Ministry of Agriculture as well as other agencies, on policies and institutions related to technology, resources, inputs, production, procurement, processing, marketing, development and regulation in these sectors. It gives me great pleasure to present to the readers another important work of CMA carried out by Prof. Sukhpal Singh.

Linking of small producers with markets is an issue of great academic and policy interest in the developing world for improving livelihoods of farmers and the poor. Difficulties in integrating small producers with modern markets include high transaction costs in dealing with smallholders having small volumes to sell, and lack of collectivisation of small producers. A very small proportion of Indian farmers are a part of any collective action for market buying or selling. The traditional co-operative route to small producer collectivisation has frequently not worked in India, for various reasons. Further, agribusiness markets are changing constantly.

In 2002, India amended the Companies Act to provide legal space for a new form of producer collectivisation called the Producer Company (PC), which is identified as a business entity of small producers registered under the Companies Act, and is relatively free from political or administrative control and regulations unlike co-operatives which suffered from these as well as free rider and horizon problems due to their design. Since then, there has been substantial practical and policy interest in PCs, and stakeholders in agricultural and rural sectors have promoted thousands of PCs across different commodity/crop/enterprise sectors in various states of India. PCs are being seen as an important institutional breakthrough in improving the market linkage and promotion of the interests of small producer in the global marketplace. Prof. Sukhpal Singh carried out the first field based academic study during the early years of last decade published in 2014 (Allied Publishers) under the title of 'Producer Companies in India: Organisation and Performance' co-authored with late Dr. Tarunvir Singh,

Since that study, which was still during the early years of evolution and growth of the PCs in India, Professor Singh strongly felt the need for more extensive and updated examination of this set of entities given that the Government of India has decided to support the promotion of 10,000 new FPOs (mainly PCs) over the next five years and the fact that there are more than 7000 such PCs in India now. This study by Prof. Sukhpal Singh on PCs is particularly important since there is still scant evidence on this domain in India. The study examines the performance and impact of 35 PCs in farm/allied production based businesses across five states of India i.e. U.P. M.P., Rajasthan, Tamilnadu and West Bengal. The PCs covered are promoted by different stakeholders such as the state agencies, NGOs, private sector, and the CSR agencies under different national level promoting agencies like SFAC and NABARD and including some all women member PCs.

The study has examined the performance (physical and financial) and impact on farmer members in a comparative manner across states and promoters within each

state and even within PCs of a given promoter to identify factors in differential performance and impact. It has used 'with and without' (members and non-members) and 'before and after' (before they became members and after the membership and/or atleast over last three years from the study year) methodology to measure and assess this impact. Through this, it has identified major factors important for success, and the policies and business management aspects for improving the performance and sustainability of such innovative institutions. It finds that the performance differs across states, and promoters and even individual PCs in each location. In many cases, they are still dealing in only farm inputs and services and have not been able to help member producers realise better prices for their produce due to various reasons or have only benefitted a part of the membership by buying on behalf of government procurement agencies like NAFED or SFAC. The reasons for poor performance vary across PCs and promoters but there are also PCs which have made innovations at the local level to achieve better performance and impact. The study documents such best practices and recommends a number of policy and management measures to make PCs more robust in their performance in creating better livelihoods as well as more effective and sustainable agribusiness value chains in India. I am sure the study will be found useful by policy makers, researchers, development agencies and farmer agencies interested in understanding and implementing PCs for improving and managing the linkages of smallholders with modern markets in India and abroad.

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Field based research involving multiple stakeholders needs co-operation from so many people and institutions. Given the nature of this study, it was no different and it is the result of positive role played by many people, more so those in the producer collectives sector. It would not have been possible to put it together without their co-operation. Though it may not possible to name them all here, a modest attempt is made below:

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List of Abbreviations

ABPU	Agri Business Promotion Unit
ACF	Ambuja Cement Foundation
ADO	Agricultural Development office
AGM	Annual General Meeting
AIF	Agricultural Infrastructure Fund
AKRSPI	Aga Khan Rural Support Programme India
AEZ	Agri Export Zone
APF	Azim Premji Foundation
AGDP	Agricultural Gross Domestic Product
AI	Artificial insemination
AIC	Agriculture Insurance Company
APG	Agricultural Produce Group
APMC	Agricultural Produce Market Committee
ASA	Action for Social Advancement
ATMA	Agricultural Technology Management Agency
BAIF	Bharatia Agro-Industries Foundation
BBY	Bhavantar Bhugtaan Yojana (deficiency price payment scheme)
BC	Backward class
BCI	Better Cotton Initiative
BCKV	Bidhan Chandra Krishi Vishwavidyalaya
BCTS	Basix consulting and technical services
BIRD	Bankers Institute of Rural Development
BKS	Bhartiya Kissan Sangh
BMC	Bulk Milk Coolers
BoD	Board of Directors
BPL	Below Poverty Line
BRLF	Bharat Rural Livelihood Foundation
BSKL	Basix Krishi samruddhi limited
CA	Chartered Accountant
CBBO	Cluster based business organization
CCD	Centre for Collective Development
C-DAC	Centre for Development of Advanced Computing
CDO	Community Development Officer
CEO	Chief Executive Officer
CHC	Custom hiring centre
CIG	Common Interest Group
CIKS	Centre for Indian Knowledge Systems
CMAP	Centre for Medicinal and Aromatic Plants
CoL	Commonwealth of Learning
CSR	Corporate Social Responsibility
DAC&FW	Department of Agriculture, co-operatives and farmer welfare
DADF	Department of Animal Husbandry, Dairying and Fisheries
DCCB	District Central Co-operative Bank
DCS	Dairy Co-op Society
DIN	Director Identification Number

DOC	De-Oiled Cake
DPIP	District Poverty Initiative Project
ECA	Essential Commodities Act
E-NAM	Electronic National Agriculture Market
FBG	Farmer Business Group
FC	Farmers Club
FIG	Farmer Interest Group
FPC	Farmer Producer Company
FPO	Farmer Producer Organization
FSC	Farmer Specialized Cooperatives
FSSAI	Food Safety Standards Authority of India
FWWB	Friends of Women's World Banking
GCA	Gross cropped area
GCMMF	Gujarat co-op milk marketing federation
GDP	Gross Domestic Product
GDPC	Gram Development PC
GFI	Global Fairness Initiative
GPRS	General Packet Radio service
GSDP	Gross state domestic product
GST	Goods and Services Tax
ICS	Internal Control Systems
IFFCO	Indian Farmers Fertiliser Cooperative
IFFDC	Indian Farm Forestry Development Co-operative
IGS	Indian Gramin Services
IIP	Indian Institute of Packaging
IOPCL	Indian Organic Producer Company Limited
ISAP	Indian society for agribusiness professionals
ITC	Indian Tobacco Company
JLG	Joint Liability Group
KCC	Kissan Credit Card
KTL	Kalanjium Thozhilagam Limited
KVK	Krishi Vigyan Kendra
LIC	Life Insurance Corporation
LRP	Local resource person
LSP	Livelihood support professional
MARKFED	State Agricultural Co-operative Marketing Federation
MBCFPCL	M.P. Consortium of Farmer Producer Companies Limited
MBT	Mutual Benefit Trust
MCA	Ministry of Corporate Affairs
MCC	Milk Chilling Centre
MCX	Multi Commodity Exchange
MDM	Mid-Day Meal
MFI	Micro-Finance institution
MKSP	Mahila Kisan Sasaktikaran Pariyojana
MoAFW	Ministry of Agriculture and Farmers' Welfare
MPDPIP	Madhya Pradesh District Poverty Initiative Project
MGNREGS	Mahatma Gandhi National Rural Employment Guarantee Scheme
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
MIDH	Mission on Integrated Development of Horticulture
MIS	Management information system

M.P.	Madhya Pradesh
MPC	Milk Producer Company
MRG	Member Relation Group
MRP	Maximum Retail Price
MRL	Maximum Residue Limit
MSDA	Mission on Sustainable Development of Agriculture
MSP	Minimum Support Price
NAFED	National Agricultural Cooperative Marketing Federation of India Ltd
NABARD	National Bank for Agriculture and Rural Development
NABCONS	NABARD Consultancy Services
NADP	National Agricultural development Project
NBFC	Non-Banking Financial Company
NCDC	National Cooperative Development Corporation
NCDEX	National Commodities and Derivatives Exchange
NCR	National Capital Region
NDDB	National Dairy Development Board
NeML	Nationale E-market Limited
NFSM	National Food Security Mission
NGC	New Generation Co-operative
NGO	Non Government Organization
NIAM	National Institute of Agricultural Marketing
NIPHM	National Institute of Plant Health management
NKPCL	Navin Kisan PCL
NJPCL	NavJoyti PCL
NPM	Non-Pesticidal Management (of crops)
NRLM	National Rural Livelihoods Mission
NSC	National Seeds Corporation
OBC	Other Backward Classes
OGCF	Onion Growers Co-operative Federation
OPG	Organic Producer Group
PACS	Primary Agricultural Credit Society
PAN	Permanent Account Number
PC	Producer Company
PO	Producer Organisation
PODF	Producers Organization Development Fund
POPI	Producer organisation promoting institution
PPC	Primary Processing Centre
PRADAN	Professional Assistance for Development Action
PUC	Paid Up Capital
RBI	Reserve Bank of India
RCDF	Rajasthan co-op dairy federation
RF	Reliance Foundation
RI	Resource institution
RKVY	Rashtriya Krishi Vikas Yojana
RoC	Registrar of Companies
RSETI	Rural Self-Employment Training Institute
SAU	State Agricultural University
SAIC	State Agro-industries Corporation
SAPCO	Sahaja Aharam PC
SC	Schedule Caste

SCM	Supply Chain Management
SEBI	Securities and Exchange Board of India
SEWA	Self-Employed Women Association
SGDP	State Gross Domestic Product
SHG	Self Help Group
SHPL	Safe Harvest Private Ltd.
SFAC	Small Farmers Agri-Business Consortium
SLCC	State Level Consultative Committee
SMS	Short Messaging Service
SRLM	State rural Livelihoods Mission
SRTT	Sir Ratan Tata Trust
SSC	State Seeds Corporation
ST	Schedule Tribe
TFA	Tank Farmers' Association
T.N.	Tamilnadu
TNAU	Tamil Nadu Agricultural University
TNSFAC	Tamilnadu Small farmers Agribusiness Consortium
TTGB	Tata Tea Global Beverages
TV	Television
UMB	Urea Molasses Block
U.P.	Uttar Pradesh
UPBSN	U.P. Bhumi Sudhar Nigam
VCG	Village Cotton Group
W.B.	West Bengal
WUA	Water Users' Association
WFGP	Women Farmers with Global Potential

Executive Summary

Introduction

Primary Producers' organizations or collectivities are being argued to be the only institutions which can protect small farmers from globalization by helping farmers buy or sell better due to scale benefits, lower transaction cost, technical help in production, and creating social capital. Producers' Organisations (POs) can also help appropriate a part of the value created in the chain by private sector, for their members. But, POs still struggle to become successful, and even a successful PO runs the risk of facing the various challenges from factors like, socio-economic-environmental context, group characteristics, externalities, level of PO, relationship with higher level collective and performance framework for the collective which may prevent it to remain effective and competitive in the local system in the long run. But, the factors affecting the POs are dynamic, and the POs need to continuously innovate to counter those challenges.

POs in India can be registered as either Cooperative Societies Act, Autonomous or Mutually Aided Cooperative Societies Act, Multi-State Cooperative Society Act, Producer Company (PC) or Public Trusts. Until recently, in India and many other developing countries, collectives were mostly organised under the co-operative structure. However, cooperative structure in India doesn't give the needed freedom to operate in complex environment for large scale cooperatives and due to political interference, corruption, elite capture, and similar issues, the cooperatives soon lost their vibrancy and became known for their poor efficiency and loss-making ways. Also, they face higher competition due to privatisation and liberalisation policies. The major problems of traditional cooperatives have been capital constraint due to the withdrawal of financial support by the government, high competition from other players in the market, and access to credit (capital) and technology, besides free riding by members. In fact, internal and external free riding problems originate in the very nature of the co-operative as an institution as it distributes profits based on patronage and not investment. The horizon problem occurs as members can't trade shares at market price, and thus, they can't capitalise their gains when they leave the co-operative. Non-tradability of equity shares at market prices also creates portfolio problem as members can't diversify their portfolio to reflect their risk preferences. Additionally, influence problem distances investors from control as there is only one member one vote.

In order to escape from this difficulty of co-operative enterprise, NGCs had emerged in many parts of the world during the 1990s. This arrangement by cooperatives helps them become economically efficient, financially viable, and obtain member loyalty. In practice, though the NGCs have been able to raise 30-50% of their total capital through delivery rights issues, the problems include: (i) off market purchases to meet contract terms by the growers; (ii) leasing of delivery rights by members; and (iii) dependence on non-producer member equity and non-member business.

An amendment was made to the Companies Act, 1956 in 2003 in India, to include Producer Companies (PCs). India is the second Asian country after Sri Lanka (where they mostly failed) to try this form of PO (Singh, 2016). A similar entity called Farmer Professional Co-operatives-in China were granted clear legal status as independent and democratically administered organisations in 2007 registered under the State Administration of Industry and Commerce (SAIC). PCs try to establish principles of profit-oriented contemporary business organizations within farming communities, to connect them with corporate buyers from the rapidly

transforming Indian retail landscape. It gives more freedom to cooperatives as companies to operate as business entities in a competitive market. For details of PC features and structure and their departure from or similarity with cooperatives, see Singh and Singh, 2014.

The Union Government and certain promoting agencies have now started promoting PCs by creating financial and non-financial aids for them. In 2012, the Ministry of Agriculture had advised all the state governments to treat PCs at par with the co-operatives for various policy incentives. The Department of Animal Husbandry, Dairying and Fisheries (DADF) had declared that in addition to cooperatives, PCs shall also be eligible for assistance under National Dairy Plan (Anonymous, 2018). The Reserve Bank of India had put PCs under priority sector lending upto Rs. 50 million per PC. The Union Budget for 2013-14, had major initiatives to support PCs including the equity grant support of Rs 10.00 lakh per PC, with a provision of Rs. 50 crore and a credit guarantee fund for PCs through Small Farmers' Agribusiness Consortium (SFAC) with allocation of Rs. 100 crore (refer Singh and Singh, 2014 for details). NABARD had been given a mandate to promote 2000 PCs in two years with Rs. 200 crore funds in 2014-15. This led to the State government involvement in direct promotion of PCs e.g. in Karnataka. Development agencies like Friends of Women's World Banking (FWWB) and ICCO have been helping PCs with loans and capacity building grants. In the Union budget 2018-19, Operation Greens with an allocation of Rs. 500 crore to address price fluctuation in three vegetables– Tomato, Onion and Potato (TOP) crops for the benefit of farmers and consumers was announced. It aims at promotion of, agri-logistics, processing facilities and professional management through the FPOs/PCs. Also, 100% income tax exemption for PCs upto annual turnover of Rs. 100 crore was made available for five years in 2018-19.

The SFAC strategy paper (2019) on promoting 10,000 new FPOs lists various challenges in promotion of FPOs and proposes to support 250 new FPOs in the first year and 1000 in second year followed by 2500 in the third and 4500 in the fourth year with 1750 in the 5th year with 25% funds going for FPO formation and incubation with Rs. 25 lakh per FPO for five years and another 30% for FPO management @ Rs. 18 lakh per FPO over three years. Beside, 25% would go for equity grant of Rs. 15 lakh each. It also brings in the concept of cluster based business organisations (CBBOs) for FPO promotion instead of depending on NGOs. This is important departure from the past as in the past majority of FPOs were promoted by local and national NGOs. Therefore, it is important to examine the promotion strategies of the NGO and professional promoters which this study takes into account and therefore focusses on the performance of PCs promoted by different type of promoting agencies like NGOS, professional Agencies like ISAP and IGS.

Only some states of India seem to have a conducive policy environment for PCs which include: Madhya Pradesh, Karnataka, Maharashtra West Bengal and Rajasthan. The states of Karnataka, Orissa and Telangana have state specific FPO policies. Tamil Nadu government allocated Rs.100 crore for the current year to support 200 FPOs. The Doubling of Farmer Income (DFI) committee recommends a minimum of 7000 FPOs by 2020-23. In seven states of Maharashtra, Madhya Pradesh, Uttar Pradesh, Rajasthan, Gujarat, Karnataka, Telangana, 80% of the FPOs were registered as PCs as of 2018. 60% of the PCs were in the states of Maharashtra, Uttar Pradesh, Tamil Nadu, Madhya Pradesh, Rajasthan and Karnataka. In fact, West Bengal and Maharashtra are among those states which have added 50% or more of their PCs during the last three years only. The seven-state study also showed that 92% of the member farmers were marginal or small, 16% women and 12% were tribal farmers. Unlike in Sri Lanka, member farmers in India were sensitized to the need of larger legal entities and then brought on board. Scale and scope of market linkages were important factors in performance. And so,

multi-product based PCs and the ones in high value business were more successful than others. However, there are not many serious academic studies on PCs in India considering the fact that PC Act has existed since 2003, with a few exceptions like Trebbin, 2012, and Singh and Singh, 2014.

There are many types of promoting agencies in India which include: SFAC and NABARD as national level public bodies, State Governments and their agencies leveraging RKVY or the World Bank funds, NRLM Programme (MoRD), Other NGOs/Trust/Foundations like Bill & Melinda Gates Foundation, TATA Trust, Reliance Foundation, Ambuja Cement Foundation, HDFC Foundation, C&A Foundation, HSBC CSR, Axis Bank Foundation, Jindal Steel &Power Ltd. and Syngenta foundation. Each one has its own model of organising and promoting the FPCs. It is important to examine the models of major players especially those supported by SFAC, NABARD and state government agencies and some large independent NGOs like AKRSPI.

There has not been adequate academic and professional examination of the issues facing the PC domain which are practice and policy relevant. Some of these research issues are: How far PCs are an improvement over the existing co-operative or other models of producer organization? How relevant and appropriate are the PCs in the context of globalised markets? Is there a design aspect of the PC which matters and should be provided as an intervention? Is there any specificity about the crop or enterprise which matters e.g. commodities or high value crops? Who is more relevant promoter for a PC– state or civil society or private sector? What conditions are necessary for business and economic viability of PCs? Are PCs with higher levels of skills and capabilities more successful in working with modern markets as scale and scope become important to do viable business? Which model of promotion is more robust and viable? What kind of policy treatment do the PCs need to grow as vibrant producer entities and to make an impact on the livelihoods of small producers? How do innovations in PC take place and what makes them scale up- inclusive or sustainable?

The study examines the performance and impact of PCs across resource institutions and states by-

i. Assessing physical and financial performance of PCs over the years
ii. Understanding the factors that influence the performance of PCs and document the best practices followed by successful PCs and reasons behind those that failed
iii. Comparing and contracting different models of PC organisation and promotion for identifying more robust models for scale up
iv. Comparing the performance of specialised PCs like all women or special domain PC with rest of the PCs and analysing the factors in differential performance
v. Examining economic impact on member farmers, and
vi. Inferring on policy and practice mechanism for improving performance of PCs.

Infact, in 2018, 50% of the members of FPOs were in four states of Karnataka, MP, Tamilnadu and WB. The highest number of RIs/POPIs was in Karnataka (85) which was 9% of all promoting agencies in India. The five study states had 39% of SFAC supported FPOs and 35% of NABARD supported FPOs and in total they accounted for 36% of all FPOS in India supported by these two agencies. These states had 28% of NABARD POPIs and 39% of SFAC RIs and altogether they had 28% of all promoting agencies in India.

These PCs were evaluated in terms of their physical and financial performance by analysing and comparing their net worth, net profit, the ratio of equity capital mobilized to authorised equity capital, payment of dividends, external facilitator support and corporate linkages from annual reports and business plans of past few years, and interviews of CEOs, managers, board members and key person of promoting agency for the respective PC.

In each case study PC and other FPO in neighbourhood (if there), 10 member farmers and 10 non-member farmers were interviewed. This was to compare impact of PC in terms of both, before and after the intervention of PC, and with and without the intervention of PC and even with non-FPC format organisation. The total sample for farmers was 333 member farmers and 332 non-member farmers, totalling to 665 across 33 PCs and 2 non-PC FPOs across U.P. (5 PCs), M.P. (9), Rajasthan (5), WB (7), and Tamilnadu (9) which included four all women PCs, two goatery PCs (all women) and two non-PC FPOs. They were interviewed to assess the involvement of members in PC and if PCs had substantially impacted the economic activity of members and their income based on parameters like proportion of produce sold through PCs, inputs bought from PCs, difference in yield and price of their produce after the intervention of PCs, and significant increase in income due to crop diversification.

PCs in U.P.

The state is a laggard in co-operative performance and even in the setting up the PCs until recently. In U.P., of the PCs promoted by NGO/professional development agencies, the authorized capital was modest (from Rs. 5-15 lakh) and most of them except one (Navjyoti) had mobilised that. Their turnover was significant enough (Rs. 50-88 lakh) except in case of one (Naveen Kisan) which could not go beyond Rs. 16 lakh. Most of them except one (GDPC) had small profits and most of them (except Navjyoti) had reserves as well (table 2.1). These PCs showed average performance on various parameters of input and output business. But, they suffered from lack of scale as all of them had only 1000 members each despite the fact that they had been in existence for more than five years each.

In case of one PC, the equity shares remained confined to a large extent with the promoters and a few members only until recently. 48% of the shares were held by just eight members in 2016-17 which is not a desirable thing for a PC though it may be needed initially but continuing with it for years is not a positive approach.

On the other hand, Saahaj of NDS of NDDB was a class apart in many ways as it had scale in terms of membership, equity base and level of business turnover besides the fact that it dealt with a high value produce- milk. It had profits of the order of Rs. 13 core and had mobilised most of its authorised capital which was of the order of Rs. 30 crore and earlier Rs. 20 crore. 50% members supply milk exclusively to Saahaj. Another reason for Sahaaj's better performance was the governance and business models which were very tight and fool-proof. It relied on low -asset -high turnover model and strictly enforced member discipline besides the professional input it had from the NDDB team which is known for their expertise in promoting milk producer co-operatives. This is one of the 6 PC promoted by the NDS across six states and was one of the first ones.

Seven farmer reported selling milk to PC in case of buffalo milk and 4 farmers selling to PC cow milk where the quantity of milk supplied had increased over the last three years. Four member of buffalo milk and three members of cow milk were still selling to the other FPOs as

the same time. And other channels like local dairy had declined completely as were other co-operatives in the area in the case of members. As against this, in case of non-members, only four farmers out of eight buffalo milk famers reported selling to other milk FPO even now in case of buffalo milk and other 3 continuing with local dairy out of 4 such cow milk producers. There was significant increase (29%) in the number of buffaloes owned by farmer member and also increase in milk yield by 25-50% and therefore, marketed surplus increased by 62-110% in case of buffalo and cow milk respectively. The sale price also had gone up by 16% and 12% over the last few years.

The average owned land for non-milk PC members was only 2.28 acres and operated land 2.91 acres. 90% of the farmers were marginal or small by owned land and 88% by operated land. The small and marginal categories had 64% of the owned land and only 71% of the operated land while there were no medium farmers by ownership or operation. Even semi medium, and medium categories which had more than 35% of the owned land, cultivated only 29%. The average owned land for members was only 2.28 acres and operated land 2.91 acres. 90% of the farmers were marginal or small by owned land and 88% by operated land. The small and marginal categories had 64% of the owned land and only 71% of the operated land while there were no medium farmers by ownership or operation. Even semi medium, and medium categories which had more than 35% of the owned land, cultivated only 29%.

Interestingly, 88% members knew the name of the PC and some others knowing it by some other name (6%). Only 6% did not know the name of the PC. 57% members knew that the PC is owned by the farmer members with others reporting BOD (14%), PC employees (10%) and promoting agency (4%) as the owners. Even 77% non-member farmers knew about the PC but only 13% of them thought it is owned by farmers. 50% of them had learnt about it from the PC and its employees and promoters. 48% also wanted to become a members of the PC but had not become mainly because they were not aware whether they could become member and no one had approached them. Similarly, those who expressed no desire to become members said so because they had no information or they were not interested for various reasons.

56% member farmers purchased seeds from the PC and 27% from both PC and dealers. For chemical fertilisers and chemical pesticides 70% of the members got it from the PC and 15% from dealers and 7% from both. On the other hand, bio-fertilisers and bio-pesticides was used by few farmers, though here too, 2/3rd of them bought from the PC. The seed purchase by non-member farmers was mostly from dealers (33%) or both dealers and PC (31%) with only 12% buying exclusively from the PC. For chemical fertiliser and pesticides, the dealers were the major sources for 54% of farmers each. The PC accounted for 25% and 20% of the farmers for both of these chemical inputs. Bio fertiliser and bio pesticides being used by the small proportionate of the farmers had PC as the important source with 50% or more farmers reporting it as the source of purchase.

Before the intervention of the PC, only some farmers had sold wheat through the PC and one farmer each sold banana and potato. After the PC intervention, the number of potato farmers selling through the PC had increased to two. In terms of proportion of output sold, the PC accounted for 10% of wheat and potato and 9% of banana before the intervention and it had gone up only in case of potato at 13%.

The input services were reported by even non-members to have improved after the intervention of PC to some extent and the area under crops like paddy, wheat, mustard, millets and potato and even maize and garlic had increased in the last few years. The sale price realised had

significantly increased in paddy, potato, millets and garlic after the PC intervention. However, the payments were delayed even further in wheat and paddy and menthe after the intervention. More than 50% PC members had problems with services of the PCs which included inadequate input supply and lack of timely availability, low procurement, low price realisation and not procuring at all. 80% received no information about govt schemes or subsides while others mentioned knowing new schemes, subsidies on farm inputs like seeds and fertilisers and the like. Only 4% had received nay subsidy benefit as a member. 71% had no knowledge about activities of the PCs while others mentioned input supply, knowledge sharing, custom rentals of farm machinery and warehousing facility besides NPM and new crops.

Only 36% members attended meetings regularly with another 56% only sometime and 50% reported monthly meetings being held and 20% only quarterly. Interestingly, 98% waned to continue as members due to benefits like good input supply, benefits of membership, timely supply of inputs, and good quantity of supplies, besides knowledge about farming and markets. 74% also wanted to encourage others to join the PC due to its various benefits while others who were not excited mentioned that already most farmers were members of the PCs, or others were not interested and they did not have time for such activity. 66% had suggestions for improvement which included: procurement of output, farm machinery rentals, better price realisation and warehousing and weighing facilities.

BKSL PC farmers were somewhat larger owners of land but they did not lease in as much as the BCTS PC members and, therefore, the latter were larger operators of land. 57% of the BKSL PC members purchased seeds from PC against 55% of the BCTS PC members. PC and Dealers (19%) and agricultural department & dealers (10%) were other major sources for BKSL PC member farmers while PC & dealers (35%) and PC & local farmers (10%) for BCTS PC member farmer. Just one member farmer each reported selling banana, potato and mint through one of the PCs each in case of each promoter during the last three years.

The PCs were male dominated in their members in all cases and both the promoters worked with mostly marginal and small land owners and operators with average being around 2 or 3 acres of land owned or operated. This is the most comforting aspect of the PCs is that they really represent the marginalised sections of the farming community. Also, the awareness of members regarding PC and its ownership was significant in case of both the promoters who were from the same group of promoters i.e. BASIX. All of them were in loss or made negligible profits. It was only the milk PC which stood apart in every which way in terms of membership, revenue and profits and mobilised capital. It was mostly due to the nature f its business i.e. milk and its governance model which included asset light high turnover strategy and professional management and tight governance of the PC.

PCs in Rajasthan

Rajasthan had 224 FPOs in early 2017 with 1.1 lakh farmer members mostly under NABARD support (63%), SFAC (18%) and RKVY (17%) and a few by private sector CSR(2%) (GoR, 2017). Most of the case study PCs other than Paayas and Molasar could not mobilise enough equity capital from their members. It was not even 70% even after a few years of the existence of the PCs. Two of them were stuck at just 20% and 32% each of the authorised capital which itself was small i.e. Rs. 5 lakh each in case of each of the PCs promoted by ISAP. Further, all of the non-Paayas PCs made losses throughout their existence. Consequently, they had nil or negative reserves and surpluses and minimal assets. The main reason for this was their low turnover which was a few lakh rupees each except one (Shekhawati).

Compared with this, the milk PC had turnover which ran into more than Rs. 100 crore per year and it had generated profits of the order of more than Rs. 10 lakh per year and surplus of Rs. 29-61 crore per year. The low turnover in case of the ISAP PCs was for the reason that they had not undertaken much output side business so far and were mainly supplying farm inputs to members and non-members. Even IGS promoted PCs had undertaken only some procurement for the SFAC at MSP which helped them stay afloat for some time as they received some commission and service charges for it. This helped one of them to receive matching equity grant and another a capacity building grant from SFAC though they had no business plans of any significance.

Average land owned by a member milk producer was 1.3 acres with all of them being marginal or landless farmers. In terms of operated land which was on average 1.4 acres, the distribution of farmers remained the same. The average owned land among non-members was 2 acres with 83% marginal and 17% semi-medium. Due to some leasing in and leasing out, average operated land was of the order of 2.3 acres with 67% operators being marginal scale, 23% small and 8% semi-medium. The latter 8% farmers accounted for 21% of the operated area. Interestingly there was no farmer in the category of medium or large farmer in terms of ownership and operation of land. Most of the members (90%) had buffaloes, and 40% and 30% each respectively had cows and goats with average holding of two buffaloes and one cow or goat each. In fact, buffaloes accounted for 70% of livestock and cows and goats 1% and 13% each respectively. Non -member farmers had large livestock holdings of four buffaloes or cows each and three goats. But buffaloes accounted for only 50% of total livestock and cows and goats 45% and 5% each respectively, all farmers had buffaloes and most had cows but only 15% had goats.

Cattle feed was reported be bought from PC by 90% member farmers as it was door delivered and had better quality, lower price and no other reliable source. On the other hand, only 17% non-members reported buying from PC/DCS and others (33%) buying from dealers and 25% not using it at all. Some others (17%) bought it from other FPOs and 8% from both dealers and DCS. So far as purchase of various crop seeds was concerned, non-members were mostly dependent on dealers and in some cases PACS. Only in case of barley and guar, they reported buying seeds from milk PC in 20% cases were reasons of better quality. Most of the other inputs were also largely bought from dealers with only 36% reporting exclusive purchase of chemical fertilisers from PACS. Only in the case of cattle feed 23% farmers reported buying from the PC because of better quality and timely availability with other important sources besides dealer being other cooperatives like PACS and farmer groups.

All the farmers reported receiving dividends on their share capital and 80% didn't have any complaint against the functioning of the PC. They reported better satisfaction level on the availability, quantity, cost, quality and accessibility of cattle feed, moving from good to very good or excellent on most parameters after the intervention of the PC.

40% farmers also reported PC making them aware of various government schemes and 30% about receiving special subsidy due to the PC. 80% attended the meetings every month and all of them wanted to continue as members of the PC because of its responsiveness, transparency and profitable interface besides quick payment and good service delivery. All of them also wanted others to join the PC because they were getting good benefits including good price and profits on their produce.

There was 60% increase in buffalo milk sale because of the PC intervention though the price came down more recently compared with the alternative channels of sale. Whereas only 60% sold to the PC a few years ago, 100% started selling to it after a few years of it coming in. In terms of channels, earlier they dealt with traditional cooperative and the PC and have since moved over to PC completely.

25% non-member farmers reported membership of another FPO which was the local milk cooperative society (DCS of RCDF) and they had been the members of the same for last many years. None of them reported receiving any information about agriculture or animal husbandry from the PC and depended mostly on private companies, agri department office and the combination of non-personal and personal extension sources. In fact, 83% of them were aware of the milk PC and 42% reported that it was owned by farmers. A significant proportion of them (25% of the total) had learnt about it from PC employees or promoters. Only 33% showed interest in becoming the member of the milk PC. They were not members yet due to reasons like location, presence of other channels and availability of other benefits from those sources and the fact that some of them could not meet the quality standards of the PC.

The milk PC members were really marginal or landless land operators and livestock rearers. The PC made good impact on their livelihoods with various interventions like input supply and milk procurement besides supply of fodder seed and other services.

In case of non-milk PCs the average land ownership was 8.2 acres with 5% being landless and 24% each being small or medium land owners and 29% semi medium farmers. Only 2% were in the large farmer category. Due to the leasing in and leasing out by 15-20% farmers, the operated land was of the order of 10.3 acres. Marginal and small farmers who were 34% of the 14% land whereas 7% large farmers operated 34% of the total land.

Member mostly bought chemical fertilisers form PACS (22%), PC (10%) and dealers (7%). In fact, more of non-members bought more from PC (29%) followed by dealers (33%) and PACS 16%. In chemical pesticides, 51% members from PC and 20% from dealers and very few from PACS and combination of PC and Dealers. As against this, non-members mostly bought from dealers (48%) and from PC (23%). 12% members used biofertilser and bought it from PC and only 2% non-members did so but in biopesticide, it was 12% members and 14% non-members using it and buying from PC and 10% non-members buying it from dealers. 93% of the farmers were not the members of any other FPO and majority of them accessed information from friends and neighbours. Only 7% reported seeking it from the PC and 19% from a combination of PC, Dealers and other Shopkeepers. 51% of members had received share certificates but none of them had ever received dividend on their share capital. 34% members also happened to be members of other FPOs mostly cooperatives and in some cases, self-help groups.

Only 37% were aware that the PC was owned by farmer members with other reporting promoting NGO, PC employees, government as the owners with 29% not being aware at all. In 42% cases each, PC promoters or PC employees had persuaded them to become members of the PC. All of them still wanted to continue as members of the PC due to supply of the inputs especially seeds, benefit of transacting with the PC, and price benefits. 98% of them also wanted to encourage others to become members because it is profitable to be member of the PC.

Most of the farmers (85%) did not have any dislike for the PC services but 8% were unhappy about procurement, price realisation and payment aspects of the transaction. Only in mustard,

sesame, soyabean, and urad one member farmer each in case of ISAP PCs reported selling to PC and in wheat it was six farmers who sold to PC. Thus, 10% farmers reported selling to PC and the number increased only in wheat by 600% after three years mainly due to MSP procurement for SFAC. Among non-members, one farmer sold moong to the PC. In case of IGS PCs, there were no farmer members or non-members selling any produce to the PCs.

The IGS PC members were relatively larger land owners with none of them being marginal and only 20% being small owners compared with 57% of ISAP PC members being small or marginal (table 3.28) and 47% by operated land holders as against only 15% of IGS PC members (table 3.29). The average cultivated area of IGS PC members was higher across all seasons and average cropping intensity was lower than ISAP PC members. Average owned land was only 5.84 acres for ISAP farmers while it was 11.02 acres for IGS farmers. However, operated land was less divergent between the two with ISAP farmers having 9.31 aces and IGS members 11.8 acres. 43% of ISAP farmers were members of other FPOs compared with only 20% in case of IGS and that was mainly co-ops and SHGs whereas it was only Co-ops in case of IGS. More of ISAP members knew that farmers owned the PC (43%) compared with IGS farmers (30%). In case of one PC of ASAP, it was claimed by employees and promoters that 70% members knew that PC belonged to farmer members but our survey showed only 30% were aware.

About 10% members in both promoters' PCs did not like the working of the PCs as they could not procure or offered lower price or delayed payments. Only 20-24% acknowledge PC helping them with information or subsidy or availing of any government schemes. 15% of ISAP PCs reported special subsidy for PC members as against nil in case of IGS PCs. ISAP PC meeting frequency (more of monthly meetings) and participation of members in them (76%) was in general higher than in case of IGS PCs (40% and 45% respectively). All members of all PCs of both promoters wanted to continue as members due to seed supply, profits, and price benefits .All of them in ISAP PCS were keen to encourage others and in IGS with the exception of one member (out of 20) for the same reasons as those for continuing as members.

In the case of ISAP PCs, one farmer in mustard, urad, sesame and soyabean each and six farmers in wheat reported selling to the PC. There was no increase in four crops in number of famers over last three years but the number of member farmers in wheat increased six times. On the other hand, IGS PCs did not undertake any output transactions.

In Rajasthan, except the milk PC which was very vibrant displaying high level of physical and financial performance and impact on marginal producer livelihoods, the other four PCs promoted by so called professional agencies did not show any promise and some were non-starters even after a few years of working. They could not neither mobilise enough resources nor undertake any output activity to make any impact on farmers members. Other than being reliant on government for buying for it from its members and non-members, they could not undertake any other significant activity on the output side and did not have any business plans. They were more like projects undertaken for a fixed period and then abandoned. This is a typical case of external promoters undertaking such activity of FPO promotion without any local base unlike a local NGO which has local presence and reputation and good will which makes all the difference. On the other hand, a lot can be learnt from milk PC in terms of governance and business model which leads to sustainable member relations and business activity besides scale up and viability. But, it also involved public funding in initial mobilisation and handholding which makes a major difference.

PCs in MP

A comparative analysis of the various PCs in MP by various promoters shows that ASA PCs had small size of membership though thy had registered with good amount of authorised capital of Rs. 15 lakh each but one of them could not even 50% of it even after 6 years of working (table 4.1). But their turnover was significant enough (Rs. 45-81 lakh) given the small size of membership. However, they also seem to have passed on the profits to the members as revealed by the small profits and reserves they had. On the other hand, AKRSP promoted PCs which were of more recent origin had really small authorised capital (Rs. 5-10 lakh) and small mobilised equity (only 20-34% of authorised). But, they were able to achieve good level of revenue/turnover (Rs. 24 and 80 lakhs each) and remained in profit almost throughout the period. The performance of goat PC was even more impressive as it was all women member PC and was in an unusual and unorganised sector of meat and animal trade.

PRADAN promoted PC had good start and mobilised a significant amount of equity form members (60% of authorised i.e. of Rs. 25 lakh in 2017-18 raised from earlier Rs. 10 lakh). In fact it had reached 75% of its earlier authorised capital of Rs. 10 lakh. It had high level of revenue (> one crore in 2017-18) and profits throughout and created some small reserve as well (> one lakh).

However, the Mhow PC of IGS had a poor start and working and it was even delisted by the Registrar of Companies (ROC) as it did not file returns. It was defunct for some time and could not even mobile 10% of its authorised equity of Rs. 10 lakh and had conducted no business in 2018-19 and had only Rs. four lakh revenue in previous year. Vrutti promoted PC (Betul) was even in worse condition as it also could not go beyond mobilising 10% of its authorised capital of Rs. 10 lakh and had no business in 2018-19 and therefore no revenue. It showed large revenue in 2017-18 mainly due to the opportunity given by SFAC to procure some procure on it behalf which alsot did not buy from tis members but from a mandi.

A major departure in performance among PCs was that of the RRPPC, promoted by SPS which was all women member PC and had equity of a large order i.e. authorised equity of Rs. 40 lakh in 15-16 which was raised to Rs. one crore in 2017-18 and it had mobilised 100% of it in 16-17 and 60% of the enhanced limit. It had very large turnover (Rs . 2-5 crore) and decent profits (Rs. 1-2 lakh) and surplus of above Rs. 20 lakh. It had also created assets worth Rs. 12 lakh. The recent build up of its warehouse and other facilities shows that it son the path to sustainability.

Of the 71 member farmers interviewed across the state from 8 PCs where 42% per male and 58% female members for the reason that four of the PCs were predominantly women member based or exclusively women PCs. Among the non-members there were 55% female and 45% male farmer respondents. Average size of owned land of members was 5.3 acres and operated land was of the order of 6 acres with the very small amount of leasing as most of the farmers were marginal or small farmers or even landless. 62% of the farmers were marginal or small and another 25% semi medium with only 10% and 3% being medium and large farmers respectively. Interestingly, though 62% of the member farmers were small or marginal, they cultivated only 25% of the total cultivated area. The medium and large farmers which were very tiny percentage of household (10% and 3% respectively) had 26 % and 18% of the cultivated land respectively totalling 44%.

The non-member farmers on an average owned 4.5 acres of land and operated 5.4 acres each with almost 1/3rd of the land being unirrigated. The maximum land ownership was 30 acres and minimum zero. The operated land ranged between 0.5 acres and 33 acres because of leasing in of land. The distribution of land was such that 68% of the total farmers were marginal or small but they operated only 29% of the total operated land. The medium and large farmers which were just 5 and 4 percent of the total had 16% and 21% of the total operated land.

Interestingly, a significant proportion of the members (44%) did not know the number of shares held or owned by them with others reporting 100 or lower number of shares (53%). In only 37% cases, the share certificates were issued by the PCs. A very large proportion of members were also members of self help groups (SHGs) (49%) simply for the reason that many of the PCs specially women focussed had their base in the SHGs. Only 11% farmers reported membership of cooperative society and 5% of another PC.

43% of the members knew that they own the company whereas 27% had no idea about the ownership of the PC. Others ended up reporting promoting agency, PC employees, board of director or govt. as the owners of the PCs. The biggest influence in their becoming member of the PC were the PC promoter (75%) followed by friends and PC employees (15% and 9% respectively). In 94% cases, they had not received any dividend on their shares so far. Surprisingly, very vast majority (73%) did not have any complaint about the services provided by the PC. Most of the members reported an improvement in the quality of inputs compared to the pre-membership days when it was 45% reporting very good or excellent and 70% post PC membership reporting it so. Most of the member farmers still bought their various inputs from dealers which were high in seeds and chemical pesticides but PC accounted for 45%, 44% and 34% of farmers in their source of seeds, chemical fertilizers and chemical pesticides respectively. The farmer mostly bought from the PC for the reason of better quality, easy accessibility and lower price. On the other hand, dealers were preferred for similar reasons by other farmers. Most of the non-member farmers depended on dealers mainly for seeds, fertilizer and chemical pesticides. Some of them did purchase seeds from the PC and a very small percentage also chemical and biofertilizer and cattlefeed. The major reasons for buying seeds from dealers included: easy access and lower cost or a combination of such factors. On the other hand, PC or other cooperatives were used due to lower cost and easy access besides lack of any alternative. The chemical pesticides were bought from dealers for easy availability.

However, from the output side, there was not much improvement as most PC did not deal with output in a significant way and 90% of the members not reporting any output transaction before or after the PC. The price of output was reported to be better only by 8% members as against nil earlier. Similarly, the market availability for output of the members was also reported to be better by only 7% members.

45% of the non-members were aware of the PC and 15% of them were member of a cooperative, PACS or a SHG. Only 20% of them were interested in becoming members of the PC. However, 63% of them did not know who owned the PC with only 5% seeing it as farmers' company and 13% as of the promoting agency or the NGO.

78% of the non-members in case of four women PCs were female and 67% of the total members were illiterate and 22% middle standard literate. The average operated land holding of members was 2.71 acres and owned land 2.55 acres. The average operated land of non-members was 3.9 acres and average owned land 3.7 acres. Only 39% of the all -women PC members had received share certificates and 87% also were members of SHGs with some being members of other

PCs. Interestingly, a majority of the members 53% knew that PC belongs to farmers, the others seeing it as employee owned, promoting agency owned, government owned. 90% of them had no dislike about the services being offered by the PC and 20% even reported the PC helping them in availing of government schemes and subsidies and in some cases 10% it was mainly for PC members. 71% reported attending meeting frequency to be monthly and 17% annual and 10% quarterly. 58% participated in all the meetings and 20% sometimes and another 20% had never participated in any meeting.

All of them wanted to continue as members and also wanted others to join the PC. The only crop in which the area had expanded after the PC intervention was cotton as most of them were focused on cotton. The price realisation in cotton had also gone up at 21% after the PC intervention as was the case in fruits and goat meat. There was also reduced cost of transportation in the case of goats, maize and pulses besides meat. However, the payment term had gone up substantially in cotton and pulses. The farmer member also appreciated the improvement in input quality which move from poor and good to very good and excellent after the intervention of PC. Similarly, the cost rating as well as availability and accessibility besides quantity of inputs had also improved in a similar manner. There was no effect of the presence of PC on the non-member farmers in terms of the sale of their produce or the crops grown.

The average operated land in case of members of non-women PCs was 8.42 acres and owned land 7.27 acres with significant leasing in of land. However, marginal and small farmers who were 60% of the total cultivated only 42% of the area and large farmers being only 8% of the total cultivated 42% of the operated area. Most farmers (78-85%) had cows and bullocks and 32% buffaloes and 53% had goats. But, goats accounted for 32% of all livestock heads and cows and bullocks another 28% each. Average holding was 2 cows, buffaloes or bullocks and 4 goats per household.

There was increase in area reported under wheat due to the PC presence and higher yields in cotton besides higher price realisation in groundnut, pulses and soybean to some extent. There is also significant decline reported in transport cost. In terms of quality of input services, there was a movement from good and very good to very good and excellent in terms of cost, quality, availability and adequacy besides accessibility which moved from good, very good to very good and excellent. On the output services, similarly there was improvement from good to very good in price and market availability in terms of change of channels for sales of farm produce, there was a growth of more than 200 members selling through the PC within three years and direct sales had come down after the PC intervention. The bank payment channel had extended considerably after PC intervention. However, there was literally no change in the sales channel of the non-member farmers after the coming into existence of the PC.

In case of ASA PC members, the average size of land holding of member farmers was 3.4 in terms of operated area and 3.0 in terms of owned land. However, marginal farmers which was 46% of the total, operated only 24% land and semi medium farmers being 23% had 41% of the operated area. In terms of livestock, 82% of the farmer owned goats, 68% cows, 50% buffaloes and 77% bullocks with goats accounting 50% of the total livestock heads followed by oxen 22% and buffalos and cows at 15% and 13% each.

The average size of non-member owned land was 4.43 acres and that of operated land 4.61 acres. 44% each of the farmers were marginal and semi medium farmers with remaining being small farmers. However, in terms of land operated semi medium farmers had 72% of the area and marginal farmers only 16%. The largest ownership was of bullocks (74%) followed by

cows and goats (61% each) and only 35% who had any livestock had buffaloes. In fact, 47% of the livestock was goats, 25% bullocks and 19% cows with buffaloes accounting for 10% of the total livestock. The tube wells were mostly run with an electricity (66%) and diesel engine (25%) with 89% of the electric connections owned or shared.

There were significant price gains reported in cotton, paddy and groundnut due to PC intervention and higher time to receive payment in case of cotton and pulses. Although transaction cost in cotton, pluses and wheat had come down. On the other hand, output price realisation also moved from good to very good as well as in the availability of market. The number of members selling through the PC had tripled over the three years and bank payment became more common.

There was no change in the sales channel used by non-member farmers before and after the intervention of the PC where most of them sold in wholesale with only one reporting sales through the PC. There was also no change in area yield, output or cost of marketing and sales price realisation before and after the introduction of PC.

45% of the members had received share certificates and 2/3rd of the members were members of the SHGs. All of the members had joined these PC during the last 10 years. 23% reported receiving agricultural information from the PC with another 27% each from friends and friends and PC each.

Only 18% members knew that PC was owned by members with 50% having no idea about the ownership of the PC. Rest of the members mentioned promoting agency, BOD or PC employees as the owners.

In case of AKRSP PC members, average operated land for member farmers was 5.31 acres and owned land 5.41 acres (table 4.29). 63% of the members were marginal or small but they operated only 35% of the area compared with semi medium and medium farmers (18% each) accounted for 24 and 50% of the operated area.The livestock ownership varied from 100% in goat and oxen to 22% in buffaloes and 88% in case of cow and bullocks. The share of goats was the highest in the total number of livestock which was almost 44% followed by cow and bullock at 23% and 28% respectively. In general, there were two cows or bullocks per household and six goats per household.

The average operated land by non-member farmers was 3 acres of which 2.86 acres was owned. 47% of the farmers were marginal land owners and 29% small farmers with another 12% each being semi-medium and medium farmers each. There were no large farmers among them. In terms of area, marginal and small had 46% and medium farmers 30% leaving 34% for the semi medium category. There was some amount of leasing in of land and very nominal leasing out reported. The livestock owned by farmers included 66% goat, 10% cows and 16% bullocks by numbers with 40% of the farmers owning goat, 34% bullocks and 21% cows. Buffaloes were owned by only 13% of the farmers with average ownership of one buffalo, two cows or bullocks and seven goats per household. 48% members had received share certificates and 73% were members of SHGs and 26% of other FPOs mainly PCs.

91% of the non-members did not have any problem with the services of the PC but 57% also had no knowledge of it with 38% being aware of the initiative of the PC. None of them reported any negative experience with the PC as none of them had transacted with the PC.

The members did not report any major changes in the cropping pattern yields or output due to the intervention of the PC other than the fact that the cotton and soybean prices were appreciate significantly during the last three years. The transaction cost had also come down in both cotton and goat marketing. All of the members wanted to continue with the PC and 19% of them also wanted to encourage other non-members to join the PC.

Only two non-members farmers reported selling through the PC compared to the pre-PC situation of one farmer selling to it. On the other hand, there was 15% increase in selling through the APMC Mandi and this was the shift from direct wholesale selling to traders.

Except one member of PRADAN PC who reported labour as main occupation, all members of all three PCs reported primary occupation as farming. The cropping intensity of IGS and Vrutti PC member farmers was high (2.08 and 1.99) and low for PRADAN PC member (1.63). 70% of non-member had not even heard of the existence of the PC and 33% did not know who owned it with another 1/3rd each thinking that it is government owned or promoting agency owned.

In case of Betul Krishak PC, none of the farmers bought any inputs from the PC and depended on dealers and PACS for the same and bought fertilisers from the PACS. There was no change in any crop area or yield or output or even sales price realisation as the PC had not intervened in the output market. This PC was almost defunct as it had neither mobilised enough equity nor undertaken any business thus far despite existing for four years. None of the farmers bought any inputs from the PC and depended on dealers and PACS for the same and bought fertilisers from the PACS. There was no change in any crop area or yield or output or even sales price realisation as the PC had not intervened at all.

PRADAN promoted PC had good interface with women members for input supply who all bought from the PC. On the output side, it aggregates crops like soya bean, maize, wheat and gram and had its own brand – Dharti Natural. In terms of livelihood diversification, it introduced soya bean as a cash crop and a new variety of wheat in the last few years. In 2015-16 it bought gram on behalf of SAFC at MSP for 1% commission. It also facilitates sale of its members produce to wholesale traders in various markets in M.P. and Gujarat.

In case of members of Mhow PC, the average owned land was 13 acres and operated land 16.9 acres. This was a PC which had mostly large and semi-medium and medium famer as member and this was the largest average farm size of any PC membership. 75% of the farmers had cows and 50% bullocks with cows accounting for 72% of the total livestock and bullocks another 26%. There were 4 cows and 2 bullocks per household. Most of the farmers bought seeds from dealers and majority of them buying chemical fertilisers from PC and the rest from PACs.

In general, most of the member farmers still bought their various inputs from dealers which were high in seeds and chemical pesticides. The farmer mostly bought from the PC for the reason of better quality, easy accessibility and lower price. On the other hand, dealers were preferred for similar reasons by other farmers.

The best case was that of Ram Rahim Pragati -an all women PC -which had very large capital base and large revenue running in a few hundred million rupees annually beside being in profit all the time and creating some assets including a warehouse with imported technology and a processing facility. On the output side it aggregated various crops like wheat gram and maize from 2600 members. It also makes use of warehouse receipt-based loans for storing its produce

in its own warehouses. It is mainly into NPM produce and link and sells 90% wheat and gram procurement to Safe Harvest Pvt. Ltd which has equity in this PC. The farmers members have been into NPM practices for the last 10 years. It had also done job work for private players like Big Basket. The PC promoted red gram in the area and also reverse selling of pulses to the member farmers by processing it into dal. It is the one of the very few PCs which have participated in futures markets and made profits in maize but lost money in soya in 2016-17.

PCs in WB

In WB, most of the studied PCs had mobilised high %age of authorised capital except Shantiniketan though authorised capital itself was small or modest in most cases (Rs. 10 lakh) except one PC (Hooghly) which had Rs. 25 lakh authorised capital. Further, their revenue remained low (< Rs. 50 lakh) except one case (Chhattna) which was mainly due to the fact it had a franchise of Sufal Bangla and therefore, its turnover could go up to Rs. 3 crore per annum. Therefore, they made negligible profit or net losses except the Chhatna PC which made a small profit after taking franchise of sufal bangla. Except Hooghly PC, most of them had a small size of membership which is problematic given the small size of land holdings in the state. This kind of small membership can't generate large equity capital and large volumes for viability.

84% of the PC members reported farming as primary occupation followed by petty business and salaried job with 5% each with only 3% reporting animal husbandry as the primary occupation and another 3% casual labour being their main source of livelihood. On the other hand, 56% did not report any secondary occupation and 16% reported it as farming, 9% handicrafts and 8% skilled labour. Only 3% reported animal husbandry and 6% casual labour (table 5.3 and 5.4). 77% of the non-members reported farming as primary occupation with 11% reporting business as the primary occupation and 10% casual labour.

56% of the members had received share certificates and 88% of them did not report membership of any other group or collective except a few being members of the PACS. 48% of the members relied exclusively on PC for agricultural information with 27% depending on other farmers and friends. PC also figured along with friends and relatives and mobile groups besides ADO and dealer in another 19% cases.

The members were mostly marginal (72%) and small (20%) in their land ownership with average size of owned land being 1.99 acres and operated just 2.32 acres. The operated land was also distributed similarly with 91% farmers operating marginal or small farms accounting for 73% of the cultivated area and 9% semi medium farmers operating 27% of the land. But, members were larger landholders than their non-member counterparts who had average owned land of 1.29 acres and operated farm of 1.61 acres. The average cropping intensity of non-member was 2.09 which was slightly lower than in the case of members (2.2).

The member farmers reported buying seeds from dealer in 36% cases, from PC in 19% cases and dealer and PC both in 16% cases. Only 5% farmers bought seeds from PACS and others reported various combinations of dealer and PACs or dealer and local farmer or PACs and local farmers. Similarly, 45% of them bought chemical fertilisers from dealers and 28% from PC and only 2% from dealer and PACs and 6% from both dealer and PC. Similarly, 42% bought chemical pesticides from dealer with 13% reported it from the PC. In fact, 42% reported buying no chemical pesticides. Bio fertilisers were bought only by 28% farmers and mostly from dealers, other farmers and the PC. There were even lesser number of farmer buying bio

pesticides (23%) again mostly from dealers and PC (table 5.15). Most of the non-member farmers (60%) bought seeds from the dealers and local farmers (16%) with PACS and PC accounting for only 3% and 2% of the total and in some cases being another source along with dealers and local farmers. 73% of them bought chemical fertiliser from dealers with PACs accounting for 5% and the PC 8% of the total.

59% members could not mention the name of the PC with the other either not knowing or not being able to mention it correctly. 45% of the members did not know the owner of the PC and another 38% reported PC employees as the owners and 8% BoD besides 3% reporting it as promoting agency and 6% government as being the owner of the PC. In 52% cases, it was PC employees who influenced them to become members. 84% of the members were not fully aware of the various activities being carried out by PCs.

96% of the non-member farmers were not member of any other collective with only 3% reporting membership of PACS. 41% of the non-members had no knowledge about the PC and 74% did not know who owned it with only 6% thinking it is owned by farmers and the other 7% reporting promoters or employees as the owners besides 4% thinking it was owned by promoting agency.

89% wanted to continue as member of the PC due to good services and facilities subsidising inputs, availability and such other reasons with only 5% not being satisfied with the services and therefore, not sure they would continue as members. Farmers mostly suggested procurement of their farm produce (9%), timely availability of inputs (9%), irrigation (3%), and agriculture machinery and irrigation another 5% for better functioning of the PC.

The farmers reported significant improvements in moving from good to very good in terms of quality, cost and availability of inputs after the membership of the PC. In terms of cropping pattern shift, there were significant increases in area under vegetables, and fruits and a decline in area under paddy and sesame. Farmers also reported yield increases in vegetables and fruit including chillies and potato besides gram. The output sold had increased significantly in vegetables especially pumpkin and even paddy due to yield increase especially Kharif paddy.

There was higher use of PC channel in vegetables both in terms of number of farmers as well as volume of output sold. But still most of the farmers sold in wholesale ranging from 50% in wheat to as high as 100% in case of vegetables and fruits. This APMC channel was reported to be used only in case of paddy and wheat. 16 (25%) members had sold to PC vegetables and 2 each paddy and fruits (3% each) . This had increased from just three farmers selling to it three years before (5%) to 20 (31%) now. Only one non-member had sold paddy and two potato in the past to the PCs. 77% of PC members had no dislike of any of services offered by the PCs.

BKSL PC member farmers were relatively large in both owned and operated land than their IGS PC counterparts. The members of BKSL PCs had higher cropping intensity than that of IGS PC members, The most trusted source of seed was found to be dealers & PCs- in both types of PCs (IGS and BKSL). Other major sources were dealers and PCs (15%) and dealer and PACS (12 %) for IGS and dealers (23%), PCs (29 %) and dealers and PCs (19%) in case of BKSL.

36% of IGS member farmers either did not know or gave wrong name of the PCs they were members of. This count was higher for BKSL PC members where 48% of the members were not able to provide the information. Farmers were not able to specify the PC owners also. In

case of IGS, more than half of the farmers were not able to identify the owner of the PC. BKSL members have comparatively higher identification of PC owner.

50% of IGS PC members started selling their products through PCs in. fruits, paddy, tomato, and mainly vegetables. In case of IGS PCs, three farmers reported selling fruits to the PC and two paddy and 15 selling vegetables compared with three years before. The vegetable output was important as Sufal Bangla was buying it from the PC or the PC was running the Sufal Bangla store and buying from its members and non-members directly. This was almost 50% of all members in vegetables and 10% in fruits and about 7% in paddy. On the other hand, in case of BKSL PCs there was no output side interface of PCs with the farmers.

PCs in Tamilnadu

The state has a consortium of FPCs registered as a PC like nine more states of India, with 35 FPCs as members with 100 shares worth Rs. 10,000 each since 2015 with paid up capital of Rs. 2.2 lakh and authorised capital of Rs. 10 lakh. This consortium PC members runs shops and retail outlets called farmer supermarket network (Unnatham Uzhavar Angadi) by its member PCs in different places in the state for collectively selling value added products in partnership with the state department of agri marketing and agribusiness. But, none of the study PCs were members of this consortium. The Pudukkottai district website mentions one of the study PCs (Illupur agri PC) as one of the three successfully functioning PCs the district.

One of the three ESAP promoted PCs had not undertaken any business activity in one case even after 4 years of existence, and therefore was into losses technically. Kodai Hills of ESAF was one PC which made small profits every year as its revenue was from high value crops like pepper and coffee. But, still it could also not mobilise more than 61% of its authorised equity from its members. The Theni goat PC which was unique in many ways i.e. all women PC, into goatery and only PC promoted by an NGO achieved one of the largest equity mobilisation by reaching 100% of its authorised capital and revenue of the order of Rs. 54 lakh per year with small profits. This was mainly because it was into high value low cost business of rearing goats and selling meat and live animals locally.

Kottampatti PC by Dhan was a big failure throughout with only coconut trading giving it much needed respite recently. It could not mobilise even 50% of its authorised equity despite being a landowning farmer PC. Both the PCs promoted by KTL of Dhan Foundation had mobilised most of their authorised capital (Rs. 10 lakh and Rs. 25 lakh) and very high levels of revenue in each case which was more than Rs. one crore. But, even their profits were negligible which is more due to the fact that PCs until recently have behaved like the co-operatives passing on the surplus generated as price and other benefits to members to avoid paying income tax on their profits. It is only since last year that their profits have been exempted from income tax for next five years and it remains to be seen whether profits would go up and reserves and surplus would be used more for capacity creation by the PCs.

The SEEDS NGO promoted PCs were the most vibrant and successful as they not only mobilised most of the authorised equity capital (77-90%) which itself was of the order of Rs.20 and Rs. 40 lakh but also had revenue in crores (> 4 crore) in case of SEEDS PC. But, even then its profits were very modest (Rs. 8 lakh). However, the second PC had small revenue and no profits from its operations.

Of the 105 members interviewed in Tamilnadu across 9 PCs, 46% were women farmers with 17% of them being illiterate with most others having school level literacy. 76% of them reported farming as the primary occupation and 60% animal husbandry. 47% of the 91 non-member farmers were women and. 74% of them reported farming as their primary occupation followed by farm labour by 14% and animal husbandry by 10%.

The average owned land of members was 5.12 acres and operated land 6 acres per household. The average owned land of non-members was 3.7 acres and operated land 4.12 acres. The average cropping intensity of the members was 1.16.

The members were more aware of PC name than the non-members (57% versus 24%). Further, only 15% farmers thought or knew the PC belongs to farmers with others mentioning PC employees (24%) or promoting agency (22%) as the owners. There was hardly any awareness of PC ownership among non-members. 76% of the non-member farmers had no knowledge of the PC and 88% did not know who owned the PC

Among the members, dealers emerged as the major source of seed purchase with 35% buying from there. Only 17% farmers bought it from the PC with another 11% from both PC as well as dealers. 9% even reported buying it from other farmers and 5% using home based seed. The reliance on dealers was even higher in case of chemical inputs at more than 60% with only 22-30% farmers buying it from the PC. In fact, even PACs did not figure as a major source or even fertiliser purchase. Seeds were mostly bought by non-members from dealers and local farmers with only 8% farmers reporting buying it from the PC. Similarly, chemical pesticides were largely bought by member farmers from dealers (76%) and local farmers with only 7% of those reporting buying it from the PC. Since most of the PCs did not deal with machinery rentals an equal percentage of farmers accessed it from dealers or local farmers.

83% wanted to continue being members as it was beneficial in various ways like information, loans and subsidies, procurement and timely and lower cost input supply by PC. Those who (17%) did not want to continue said so as they did not find it useful or had not availed any service from the PC. 77% also were keen to encourage others to join the PC as members as it brought benefits.

The only major expansion in crop area was groundnut due to the intervention of PC and yields had improved in cotton and many other pulses, cereals, grams. Major price benefits were realised in pulses, groundnut, cotton and maize.

In terms of channels of sale 29% of the farmers sold 39% of their produce through the PCs, mainly in the crops of black gram, coffee, cotton, green gram and maize. After the intervention of a few years of the PC, many more crops being handed by the PC in both number of the farmers and quantity sold through the PC increased substantially.

So far as effect of PCs on the member business was concerned, there were a few produces like cow milk, black gram, cotton, flat gram, green gram, groundnut, maize, paddy and red gram where the number of farmers selling through the PC increased significantly as well as output sold over 3 years. This was in sharp contrast to the non-member impact where only in one crop green gram. There were some sales by the non-members through the PCs.

In terms of area shift due to the intervention of PCs there was significant increase reported in groundnut, black gram, and to some extent coffee. In terms of marketing channels before and

after the interventions of PC, the number of farmers selling through the PC increase significantly in black gram, flat gram, green gram, groundnut, maize and millets besides paddy. In fact, paddy, pulses, ragi, red gram, and sesame besides sunflower were being sold first time through the PCs. In terms of volume sold, besides these crops, coffee also have substantially increased as did red gram. This was mainly a shift from wholesale channel to the PC channel in most cases. Only two and three farmers each of the 91 reported selling black gram and green gram to the PCs where it was none and only one each three years before respectively.

58% of the Seeds PC members were male which was lower than Dhan/KTL PC members (60%) and ESAF PC members (65%).This meant that the share of female members was the highest for Seeds promoted PC (42%) not very different from Dhan/KTL (40%) PC membership but much higher than in case of ESAF promoted PC (35%). Farming was reported to be the primary occupation of most of the PC members. 91% of Dhan/KTL PC members had agriculture as the primary occupation followed by Seeds PC members (83%) and ESAF PC members (74%).

Average land ownership was the highest in the case of Seeds PC members (8.78 acres) followed by Dhan/KTL PC members (6 acres) and ESAF PC members (3 acres). Similarly, the average operational landholding was also highest for Seeds PC members (12 acres) followed by Dhan/KTL PC members (6 acres) and ESAF PC members (3 acres). ESAF PCs were really those composed of marginal and landless farmer groups compared with those of other two promoters. Goats were owned by member farmers of all PCs. 79% of Seeds PC members owned goats followed by Dhan/KTL (29%) and ESAF PC members (21%). The average number of goats were highest for Dhan/KTL promoted PC (8) followed by Seeds promoted PC (7) and ESAF promoted PC (4).

The cropping intensity was highest for ESAF PC members (1.48) followed by Dhan/KTL PC members (1.09) and Seeds PC members (1.08). 46 % of the Seeds' PC members purchased seeds form dealers followed by ESAF PC members (35%) and Dhan/KTL PC members (23%). PC was identified as another major source for the purchase of seeds. Dhan/KTL PC members (31%) had the highest number of member farmers who were purchasing seeds form PC followed by Seeds PC members (21%). Dealers were identified as major source for chemical fertilizers for member farmers. The highest dependence was reported by Seeds PC members (54%) followed by ESAF PC members (47%) and Dhan/KTL PC members (31%). PC was another major source for purchasing chemical fertilizers. 29% of Seeds PC members were purchasing chemical fertilizers from PC. 23% and 12 % of Dhan/KTL PC members and ESAF PC members had purchased chemical fertilizers form PC. The highest dependence on dealers for seeds was reported by Seeds PC members (54%) followed by ESAF PC members (47%) and Dhan/KTL PC members (31%).

Whereas in case of SEED PCs, 2/3 members could specify the name of the PC they were members of it was only 53% and 46% in case of ESAF and Dhan/KTL. Further, only 11-17% farmers across three promoters PCs knew that PC belonged to them or farmers with others mentioning PC employees (1-29%), promoting agency (8-29%) and BoD (5-6%) (tables 6.37& 6.38). Sadly, the lowest awareness of PC name was in case of NGO Dhan/KTL which is well known NGO in the state. But, in general, the awareness of ownership was very low across all PCs of all promoters.

In case of goat PC, the number of goats per households for Theni member was large at 20 goats with 92% owning goats and goats being 87% of livestock owned by the households. This was

in sharp contract to the MP goat PC where average ownership size was 10 goats though 90% hhs owned them and they were 88% all livestock owned by such hhs. Infact, the MP PC members also reported buying some inputs like biofertilisers through the PC.

The awareness of PC was lower among Theni PC members with 58% not knowing the name of the PC as they were perhaps more familiar with SHGs of women they were first members of and only 25% thought PC was owned by farmers, another 25% thinking PC employees owned it and yet another 17% thought it was owned by promoting agency. This was in sharp contrast to the 90% members knowing the name of PC in MP and 80% knowing it is owned by farmer members. This despite the fact that the MP PC was younger by many years compared with the Theni goat PC.

On the output side, whereas in case of Theni PC in Tamilnadu, the number of farmers selling goats to PC increased from nil to 5 over last three years i.e. 40% farmers were selling through the PC now (sold 112 goats in all) with some of them reporting selling maize and millet crops also through the PC. In case of MP goat PC (Pandhana), it was 30% farmers who were selling through the PC (total of 14 goats) and one of them also reported selling soyabean to the PC.

Overall Summary

The PC performance and impact varies widely depending on the PC, the promoter, and the location. The PC members were generally larger land holders unlike their non-member counterparts both in owned and operated land. In fact, the gap widened in operated land compared with owned land. However, this is not to say that PCs exclude small farmers as still most of the members were owners and operators of around five acres of land. However, non-members were more close to marginal ownership and operation.

The average land ownership was low in WB and UP as expected both among members and non-members and very high in Rajasthan and very different from those of non-members (1.5 times larger for members). The members everywhere had higher average land holding both owned and operated across all states with large difference only in Rajasthan and Tamilandu, both of which also had the highest average size of holding across all states. It was goat owning households which were landless or marginal landowners or operators which moderated the average size in Tamilandu and MP to some extent.

Though more of members knew the name of the PC (62%) compared with non-members (44%), it was still not very high and 27% did not know it at all and another 11% reported it wrong. At the state level, overall awareness of PC name among members hovered around 60% with the exception of U.P. where it was high at 85%. This was much higher than the knowledge of non-members where only 24% in Tamilnadu to as high as 71% of non-members in U.P knew it but it was between 40-60% across the three states of Rajasthan, M P and West Bengal and only 24% in Tamilnadu. Further, whereas 27% farmers knew PC was owned by farmers compared with only 6% of non-members thinking so, the more worrying part was the large proportion of members saying it was owned by PC employees (18%) and BoD (8%) besides the fact that 31% did not have any awareness of this aspect. 80% of non-members were in this category which is not very surprising.

At the state level, with the exception of UP, about 30% members in all states except WB did not know who owned the PC whereas in WB, 45% did not know it. The farmer members in UP, MP and Rajasthan knew that farmers owned it with %age going from 36% in Rajasthan to

as high as 43% in MP and 56% in U.P. In WB, 38% thought it was owned by PC employees and that was stated by 24% farmers in Tamilnadu as well. Promoting agency came next in Tamilnadu (22%) and Rajasthan (15%) and MP (11%). On the other hand, 70-80% non-members had no knowledge of PC ownership. In general, mostly farmer members joined PC due to encouragement and persuasion by PC promoters and PC employees (78%) with some others due to their friends advice.

On the input side, 33% members were buying seeds from the PC compared with only 8% non-members doing so. Also, a few other members (20%) combined buying from PC with other sources like dealers, PACS and other farmers or government outlets. Only 6% non-members reported such a purchase behaviour. Across states, the seed purchase from PCs varied from a low of 18% in Tamilnadu and WB to a high of 40-56% across MP, Rajasthan and U.P. or a combination of dealers and PCs in about 11-26% cases. Non-members mostly relied on dealers in all states especially MP, WB, and Rajasthan (57-59%) with some non-members buying from PCs as well. The reliance on PCs for chemical inputs like fertilisers and pesticides was very high with 31% and 27% buying exclusively from PCs and another 4% and 3% respectively combining it with other sources like dealers and PACS and government outlet. Reliance of members for chemical fertilisers on PCs was high in MP and U.P. (38% and 71% respectively) and very low in Rajasthan, Tamilandu and WB (10, 20 and 28% respectively). PACS wee important source in MP and Rajasthan for about 23% farmers.

The number of farmers selling through the PCs increased from 3 to 15 in black gram and from 5 to 13 in cotton and even in black gram come to 2 to 5 besides red gram from 1 to 4. There was also substantial increase in numbers in green gram and ground nut from 2 to 8 and 3 to 7 respectively. In fact, the biggest increase in numbers was in maize which increase from 6 to 19 farmers and in millets from 1 to 4 farmers over 3 years. Paddy also had a big jump in farmers selling through the PC from 1 to 9 as was the case in soyabean where it increased from 6 to 11 and in wheat from 7 to 18. Among the members, there were also cases of contract farming in avocado, coconut, drumstick, and in the case of non-members, there was contract farming in chilli, and vegetables besides potato contract farming through the PC by two farmers. On the value placed by members on various services offered by PCs, about 22% members disliked them ranging from poor access to some services, lack of timely and adequate availability and no or poor procurement of farm produce. The problem of poor procurement was particularly reported in U.P. (10%).

However, most of the members across states (87% ranging from 70-100%) wanted to continue as members. The lowest was in MP (70%) and the highest in Rajasthan (100%). Further, 80% also were willing to encourage others to become member of the PC ranging from 71% in WB and UP to as high as 98% in Rajasthan.

A majority of members (53%) across states (47-66%) suggested interventions in procurement, (11%), better, timely, and lower cost input supply and procurement (9%) and rentals of farm machinery and equipment (3%). Tamilnadu members were keen to get loans and input subsidies (11%) and see procurement happening (11%) while those in WB, wanted more of better input supply (6%) and their timely availability (8%) and farm improvements support (6%) besides procurement (8%). The UP PC members were particularly keen on better procurement (14%) and farm machinery rentals (14%) and storage and warehousing facility (6%) besides lower cost and timely input supply and procurement at the same time (18%). The MP PC members also emphasised better inputs and extension advice, (14%), procurement (9%) and lower cost and timely input supply along with better procurement (7%). Similarly,

Rajasthan farmers were keen on procurement (16%) better price realisation (6%), value addition (6%), new crops (4%), crop insurance (4%) and lower cost inputs and procurement (4%). This clearly shows output interventions were lacking in most cases and that is what matters the most for farmers as even if they produce at lower cost or higher output from same piece of land, if they are not able to sell it well, the farmer benefit goes missing.

The members suggested various ways to improve governance of the PCs which included more members, more professional resources, better governance at the BoD level and better trust among members about PC and more funding especially in the case of Rajasthan. On the management of the PC, in general, farmer members suggested expansion of membership, better communication among members and PC, and trained and professional staff for business management. The accountability to members came up as a big suggestion in TN along with membership expansion while in WB, it was more about better communication and in UP more employee support for PC and more frequent meetings. In MP too, membership expansion was the main suggestion while some members also mentioned better business plans for making the PCs viable, while in Rajasthan, it was all about better professional management of the PCs.

It is also important to understand what makes some farmers join the PC while others don't. Literacy, ownership of livestock, and being a member of any other farmer collectives like PACS, SHG, or another PC had a significant association with the membership of a PC/FPO.

Interestingly, there was not much variation across promoters and PCs so far as their organising levels and forms were concerned. In U.P. and WB, it was FIGs, WUGs and in one case farmer clubs which were the smallest levels of a PC membership. Since both IGS and BKSL in WB and BCTS and BKSL in U.P. as promoters were a part of the same family of BASIX, they both followed the same approach. In M.P. too, it was all about SHGs, and FIGs, across PCs organised by different promoters which led to evolution of the PC structures. In Tamilnadu too, it was JLGs, FIGs, APGs across various promoters and nine PCs. This happened as government agencies like SFAC and NABARD also recommended and supported such evolution and local NGOS anyway followed such local level mobilisation strategies for their work besides the fact that PCs based on such structures seemed more stable and sustainable.

An assessment of the best practices of PCs across states revealed a varied picture and not so many PCs being confident about calling their practices best practices. In WB, major best practices across PCs were contract farming, value addition, bidding for Sufal Bangla, crop insurance new crops, and market linkages. In Rajasthan and U.P. a few innovative best practice were: no credit sales, new crops, and contract farming.

In Tamilnadu, in case of PCs promoted by SEEDS NGO, some of the best practices followed by its PCs included: direct procurement from farmers and payment at farm gate, no involvement of intermediaries in the transactions, and supply of quality inputs. In the case of Thoothukudi PC, the PC considered contract seed production by 20 farmers for NSC and bio-input business as the best practices. It believed that the best way to help farmers is to intervene in the open market for better realization of price. Kottampatti PC also believed in eliminating intermediate on the output side ass one of its major best practices leading to better price realization for farmers. It also brought new hybrid variety of coconut to the member farmers and had corporate linkage for sale of nuts. Seeds PCs also provided crop and livestock insurance which was innovative as it reduced risk. They also sold to institutions and even arranged loans for members. Theni goat PC trading in goat markets and also franchising meat shop were important innovative best practices.

In M.P., ASA promoted Ranapur Mahila PC stated that its seed production intervention was very successful. Its other innovations included: scaling up and branding of produce. The AKRSPI promoted Nevali PC saw its own brand in bio-inputs and focus on output marketing as best practices. The other innovations included: decentralized procurement and quality seed production. On the process innovations, organic farming practices in cotton and other crops in the same farms including facilitation of market with private market linkages for 7000 of its 12000 farmers in M.P. out of whom 3000 were fully organic across PCs was important innovation.

The Pandhana goat PC treated own production and marketing of some of the inputs as best practice. Besides that, it also considered weight based purchase of goats and other animals as process innovation. Similarly, Theni goat PC using franchisees for meat selling was also an innovation. On the other hand, Chirayu Women Crop PC had best practice innovations which included: seed contract farming, distant market trading, and introduction of mechanical grading. The ram Rahim PPC making use of warehouse receipt based loans for storing its produce in its own warehouses and participation in futures markets were its innovations and best practices.

NDDB's model of promoting milk PCs is based on certain rules of governance to enhance patronise cohesiveness and governance and operating effectiveness which are: one, they will do business with only members, new members can join only during specific windows in each year and only those with minimum supplies of milk can vote. They have to maintain a ratio of 3:1 flush to lean milk supply and they have to increase their shareholding after one year; two, there are classes of membership and face value of the share is revalued periodically and old members can leave the company and retire their equity capital at present valuation besides 20% of the directors being co-opted experts. This is reflected also in the scale of the milk PCs which are state level with membership ranging from 23000 to 87000, women being 12 to 100% of the membership and smallholder 43 to 75% of the membership. The paid up share capital ranged from 13.8 million to 262 million, milk procurement from 1.7 lac litres to 5.36 lac litres and business turnover from Rs.868 million to Rs.5968 million in 2014-15. The elected board members were forbidden from holding any political office and have staggered terms where one third retire every year/two year.

State specific and common problems of PCs

The PCs in U.P. other than the milk PC were modest in their profile and performance with one still making small losses. Though most of them had moved out of loss making but that happened after 5-6 years of existence. Still they were small in membership numbers hovering around 1000 each. In case of at least one of the four, revenue was also very small even after 5 years. But, they had good portfolio of contract farming and banana as new crop in at least two cases and other one had tried contract farming unsuccessfully.

Most of the PCs in U.P suffered shortage of working and some of them even shortage of qualified human resources to manage the PCs besides issues of internal governance which included poor member awareness and poor BoD capability to oversee and guide the affairs of the PC. The poor working and fixed capital led to poor coverage of members for farm services and problems in engaging with produce markets.

In Rajasthan, besides the typical problem of shortage of working capital and professional human across PCs, the governance of the PCs was a major concern in terms of inactive BoD or some members dominating the PC. For example, in one PC, multiple members from same households (250) had membership in PC (500 members). This was further accentuated due to the fact that most promoters were not locally based and had promoted the PCs as projects for SFAC for limited period. Therefore, constant oversight and hand holding from local promoter was missing.

There were also other reported problems in Rajasthan for PCs like high interest loans (13-15%) and lack of storage space as there are only 540 godowns in the state and cold storage exists only in 9% markets, many of which are not covered under warehouse receipts system.

MP PCs also reported working capital shortage and high interest rate for loans in most cases besides the poor member awareness of their stakes and role in making the PC work. This was reflected in poor awareness of the farmer ownership of PC and poor market orientation of members which are more about internal governance. The poor handling of PC busines like unsold stocks, competition from private sector and PACS, lack of availability of organic seeds were other reported challenges. In one case, large farmers and their lack of involvement in PC affairs and political affiliation and interference by large farmers also led to decline of the PC. The PCs in WB faced lack of staff, and working capital, besides poor governance especially at BoD level and lack of awareness among members emerged as major issues. Most of these were internal challenges, though there were also external challenges like spurious seed potato supply in one case, local competition, and lack of government support for engaging in procurement at MSP in some cases.

Tamilnadu was no different on many of these aspects of PC governance and management and problems included: Shortage of working capital and lack of professional staff, poor BoD governance (manipulation and lack of engagement), poor member awareness, poor govt. support for bio inputs, lack of infrastructure like storage space, local competition and even locational disadvantage in one case.

Policy Recommendations

Given the relatively large size of land holdings of the PC members compared with those of non-members, there is need to seek membership of marginal and landless categories proactively to make the FPC journey more inclusive and impactful. This does not deny the fact that mixed membership still retains its rationale to gain scale and scope. This is only to highlight that those already excluded from other networks like institutional credit and produce market or traditional co-operatives need to be roped in as they need the FPCs much more than any other category of land owner or rural producer.

One of the most important findings of the study is that the output linkages still remain poor across most PCs and therefore, the impact on farmers is limited. This was also one of the important suggestions by the farmers when asked about how PC performance could be improved and PCs made more useful for them. There were many cases of PCs procuring for the government in pulses and oilseeds and in cereals in some cases but that was more to avail of the MSP and to earn some revenue for the PC and was limited in coverage and volumes. On the other hand, some PCs engaged in contract farming with private agencies like in potato or drumsticks or even seeds and that benefited farmers in terms of growing a new high value crop as well as realising assured and better prices especially because these crops did not have MSP

protection. This becomes important in the recent context of the new contract farming Act 2020 implemented by the Union Government which provides a freer environment for contracting agencies to work with farmers and it is here that PCs can play an important role as intermediaries or facilitators between the farmer members and contracting agencies to make smallholders attractive to such agencies because PC intervention can lower the transaction cost for the PC and bring large number of producers into the contract farming net which is much needed. In fact, PCs should pro-actively engage in contract farming with their members for their own procurement as well as for supplying to processors and exporters until they have those capacities. This can help build more robust supply chains to earn buyer confidence and also earn farmer goodwill by bringing stable and assured prices to farmer members.

It was also observed that some promoters are too small to make any difference in terms of scale of farmer organization under the PC structure. For example in Uttar Pradesh there were dozens of promoting agencies which had organized only one or two PCs each. Further, many of the promoters not belonging to the local areas, unlike the traditional NGOs, did create large number of PCs but since they were not organically linked with local communities and organized these PCs more as projects, the viability and sustainability of such PCs was in question as seen in many cases in Rajasthan, Uttar Pradesh and Madhya Pradesh. The recent guidelines on promotion of FPOs with the help of cluster based business organization (CBBOs) can lead to multiplication of such PCs which may not have any one to look after them after the project duration and funding ends though the provision of longer term for support provided in the guidelines can help prevent such a phenomenon.

Though most of the PCs were composed of very small and marginal landholders and even landless in some cases, there were a few in Madhya Pradesh and in Rajasthan which had medium and large farmers as members and that was one of the reasons that one of them was a non-starter from the beginning and the other one also could not undertaken any major business activity as there was no felt need for such collectivisation.

The experience of West Bengal and Tamil Nadu also shows that public support in the form of infrastructure and marketing opportunity can also help PCs scale up and turn profitable sooner or later. This was the case with PCs in West Bengal which had franchise rights of Sufal Bangla supermarkets as operational entities which led to many farmers selling vegetables and fruits to these outlets which had very high number of footfalls and turnover. Similarly, in Tamil Nadu, the handing over of Tamil Nadu supply chain management (TNSCM) owned processing and warehouse infrastructure facilities gave a jump start to the PCs. In both cases, this was given on competitive bidding bases.

The new market Acts of the Union Government provide many new opportunities for FPOs like stocking exemption for food products from the ECA which they can use if they have warehousing facilities. Further, the Farmer Produce Trade and Commerce Act, 2020 provides for e-markets by FPOs. This was earlier allowed in the APMC Acts where private wholesale markets could be set up by such collectives and there a few dozen such markets set up by FPC in Maharashtra already operating under the APMC Act. But, the Trade and Commerce Act, 2020 and the contract farming Act, 2020 both include the FPO under the definition of a farmer. But, no FPO is involved in production as most of them are into pre- and post-production aggregation, trading and value addition. This needs to be changed to make FPOs buyers of farm produce in their own right and even contracting agencies which many of them are as they undertake seed contact farming with their members.

Innovations in warehousing close to growing areas like by starts ups like Ergos and Arya Collateral Warehousing and even NCML can help PCs help farmers realise better prices and get out of the compulsion of selling immediately after harvest due to the interlocked transactions with local traders and moneylenders. The warehouse receipts Act provides for this facility of loans against farm produce, but physical infrastructure was missing earlier though it is still inadequate. The PCs should proactively hire or lease in such warehouses or make locals invest in them as managed by Ergos and PC then can manage them for their members and non-members benefit. Also, the new Trade and Commerce Act, 2020 also frees FPOs/PCs from any permission and payment of market fee to the local APMCs and they can buy directly from farmers in the new trade area (non-APMC yard/sub-yard) and even undertake/facilitate contract farming activity to compete and collaborate with private entities.

To deal with working capital and investment capital problems of the PCs, working capital provision under priority sector needs to be activated to give loans w/o collateral for a limited period. The banks should be asked to give collateral free loans to FPCs as they do to the SMEs. The interest charged to FPOs should be priority sector interest rate as applicable to farmer and it should be collateral free upto Rs. 25 lakh. The RBI mandate of extending upto Rs. two crore loans to PCs under priority sector lending as direct agricultural credit and upto Rs. five crore under indirect agricultural finance needs to be enforced. Infact, there could be even sub-targets for FPOs under the PSL norms for indirect finance.

Since FPOs are like MSMEs, it is possible to mandate a pat of all government purchases of food and fibre through FPOs and even food supermarkets required to buy atleast 25% from FPOs like there is a provision in FDI in retail policy for MSMEs.

The NABARD proposal to set up infrastructure fund guarantee subsidiary for FPOs is welcome and it should also cover crop FPOs, not just those in animal husbandry and fisheries.

More training and capacity building for members and BoD required to create awareness and engagement and more equity. Professional training for staff is also required. Infact, there could be tie ups with rural management and agribusiness management colleges to train professionals for such roles which is more than simple agribusiness management. The co-operative training colleges at the state level should move to include FPCs under their mandate and train their BoD and executives as now NCDC is also involved in promoting FPOs.

The state government need to step in as they are located close to these entities and should frame definite policies and programs for organising and supporting FPCs no just implement central schemes about it. Some states like Punjab, Kerala and Odisha have moved in this direction with policy and this needs to be encouraged and supported and Odisha policy which is very comprehensive needs to be emulated elsewhere.

Some states have started supporting FPOs in a big way even without a policy. For example, Tamilandu provided Rs. 266.7 crore for financing FPOs thru TN SFAC which would have three components- mezzanine capital assistance (Rs. 50 crore), credit guarantee (Rs. 50 crore) and revolving fund (Rs. 166.7 crore). This is to support more than 500 PCs in the state of which 130 are promoted by the state department of agricultural marketing and agribusiness itself. The credit guarantee fund would provide easy access to bank credit for FPCs with 50% guarantee against default by the PCs which would be written off eventually by the lending agency. This would be available for first 3-5 years of a PC. The mezzanine capital would be a margin fund corpus with a lending agency which would invest in the FPCs in the form of cumulative

redeemable long term preferential capital or debentures at nominal rates, redeemable after five years. Similarly, Karnataka allocated Rs. 630 lakh in 2017-18 for FPO promotion thru the state SFAC which was Rs. 936.89 crore in 2016-17 but there is no separate policy on FPOs in the state which has directly promoted 73 PCs across the state.

The Government of Bihar provided for 25% of the project cost as capital subsidy for FPOs as against 15% for individuals, partnerships firms and LLPs provided the project cost is at least Rs. 25 lakh, and it is credit linked. Further, under the PMFMFPES, there is grant of 35% of the project cost linked with credit as long as it is ODOP produce and has been into it for at least three years and has turnover of Rs. one crore but they need to put in margin money (10% of the project cost) for working capital and the scheme is also available for common infrastructure creation. Upto Rs. five lakh can be availed for preparing a branding and marketing DPR with a ceiling of 50% of the total cost. Under the AIF, there is interest subvention of 3% up to loans of Rs. two crore and a credit guarantee upto this amount under CGTMSE scheme.

The state governments need to proactively offer APMC licenses to FPOs for commission agency or trading of agricultural produce as well as engage them in setting up farmer consumer market yards (FCMY) as provided in the model APLM Act, 2017. The state governments can also provide initial seed capital in the form of grants to FPOs for undertaking initial business activities and allocate funds for CHCs under ATMA and other schemes based on need and merit.

Further, the government can incentivise private sector to work with PCs when it undertakes procurement through contract farming or direct purchase which are now legal. Rather, state governments can incentivise it by not insisting on bank guarantees or the like or not linking contract price in any way to the MSP.

Chapter 1

Introduction

1.1 Background

Primary Producers' organizations or collectivities are being argued to be the only institutions which can protect small farmers from globalization by helping farmers buy or sell better due to scale benefits, lower transaction cost, technical help in production, and creating social capital. In Mozambique, where 80% farmers were small holders and only 7.3% were members of any farmer organization in 2005, the membership in a farmers' organization led to 50% increase in profits (Bachke, n.d.). In China too, there was a coexistence of smallholder exclusion and favourable impact on co-operative member smallholders (Ito et al, 2012; Ma and Abdulai, 2016). Various farmer organizations in China emerged as farmers needed specialized in production technology and access to markets, and thus Farmer Specialized Cooperatives (FSCs), were set up which provided, both information and direct subsidies for the development of these cooperatives. Cooperative unions, both product and geography based, were developed from FSCs to overcome the problems of scale, finance and competitiveness (Huang et al, 2015). Indeed, such collectivities are needed for small farmers as they help realize better output prices (Roy and Thorat, 2008), improve technology adoption, and get credit terms and thus can help eliminate interlocking of factor and product markets into which small farmers are stuck (Patibandla and Sastry, 2004; Kumar et al, 2013; Kumar et al, 2018; Verma et al, 2019). Producers Organisations (POs) can also help appropriate a part of the value created in the chain by private sector, for their members (Gersch, 2018). In Uttarakhand, the Organic Producer Groups (OPGs) negotiated with buyers for a better price and so, even with decline in crop yields, farmers continued because of the premium price, while, in Kerala, Indian Organic Producer Company Limited (IOPCL) provided support to member producers in the form of subsidised seeds, micro-irrigation equipment and organic certification (Cherukuri, 2014). A field study of Self-Employed Women's Association (SEWA) and Global Fairness Initiative (GFI) launched Women Farmers with Global Potential (WFGP) project involving 2000 women farmers in four districts of Gujarat in terms of its impact on farm and off-farm income, credit uptake, and access to output markets through village producer associations based on a treatment group (n=732) and a control group of farmers (n=743) revealed an increase in total income as statistically significant for members older than six months. But, increase in output for SEWA members had no effect on quantum of output marketed and farmer's knowledge of output prices. The analysis suggested 45% greater likelihood of knowledge of credit options among members and 10-14% more credit offtake and heterogeneity in income effects with regard to SEWA membership with poorer women reporting greater increase in income and output. Overall, the initiatives like rural producer associations in general had a substantial effect on the awareness of members and modest effect on income and output, at least in the short term (Desai et al, 2014).

POs still struggle to become successful, and even a successful PO runs the risk of facing the various challenges from factors like, socio-economic-environmental context, group characteristics, externalities, level of PO, relationship with higher level collective and performance framework for the collective which may prevent it to remain effective and competitive in the local system in the long run. But, the factors affecting the POs are dynamic, and the POs need to continuously innovate to counter those challenges (Jain and Narnaware, 2018).

POs in India can be registered as either Cooperative Societies Act, Autonomous or Mutually Aided Cooperative Societies Act, Multi-State Cooperative Society Act, Producer Company (PC) or Public Trusts. Until recently, in India and many other developing countries, collectives were mostly organised under the co-operative structure. However, cooperative structure in India doesn't give the needed freedom to operate in complex environment for large scale cooperatives and due to political interference, corruption, elite capture, and similar issues, the cooperatives soon lost their vibrancy and became known for their poor efficiency and loss-making ways. Also, they face higher competition due to privatisation and liberalisation policies. The major problems of traditional cooperatives have been capital constraint due to the withdrawal of financial support by the government, high competition from other players in the market, and access to credit (capital) and technology, besides free riding by members (Singh, 2008). In fact, internal and external free riding problems originate in the very nature of the co-operative as an institution as it distributes profits based on patronage and not investment (Giannakas et al, 2016). The horizon problem occurs as members can't trade shares at market price, and thus, they can't capitalise their gains when they leave the co-operative. Non-tradability of equity shares at market prices also creates portfolio problem as members can't diversify their portfolio to reflect their risk preferences. Additionally, influence problem distances investors from control as there is only one member one vote (Rosairo, 2012).

In order to escape from this difficulty of co-operative enterprise, NGCs had emerged in many parts of the world during the 1990s. This arrangement by cooperatives helps them become economically efficient, financially viable, and obtain member loyalty. In practice, though the NGCs have been able to raise 30-50% of their total capital through delivery rights issues, the problems include: (i) off market purchases to meet contract terms by the growers; (ii) leasing of delivery rights by members; and (iii) dependence on non-producer member equity and non-member business (Singh, 2008).

An amendment was made to the Companies Act, 1956 in 2003 in India, to include Producer Companies (PCs). India is the second Asian country after Sri Lanka (where they mostly failed) to try this form of PO (Singh, 2016). A similar entity called Farmer Professional Co-operatives-in China were granted clear legal status as independent and democratically administered organisations in 2007 registered under the State Administration of Industry and Commerce (SAIC) (Vorley, et al, 2012). PCs try to establish principles of profit-oriented contemporary business organizations within farming communities, to connect them with corporate buyers from the rapidly transforming Indian retail landscape. It gives more freedom to cooperatives as companies to operate as business entities in a competitive market (Trebbin and Hassler, 2012).

For details of PC features and structure and their departure from or similarity with cooperatives, see Singh and Singh, 2014.

The main parameters of distinction within the PCs are (1) who promotes these PCs (for profit or not for profit agencies), (2) whether they are inward or outward oriented. Most of the PCs existing in India today are promoted by NGOs, and only a few of them are only concerned with community internal issues. PCs with outward orientation (which are NGO promoted) concentrate on internal group organization with less capital intensive activities like trading and supplying inputs during initial stage and later evolve into developing market linkages. In a very few cases, corporate promoters (for profits- supermarkets, input suppliers or food processing companies) set up these PCs which they are not intending to do business with (inward orientation). These are, in most cases, in early or experimental stages or failed attempts from the corporate sector of organizing farmers into a PC for business purposes. Generally, the challenge for all types of PCs is the balance between inward and outward orientation. While the PCs promoted by NGOs often lack the business skills to develop effective market linkages, in the PCs promoted by corporates, the promoter might be too aggressive in building market linkages that it fails to understand social dynamics within the group or develop long-term welfare effects (Trebbin, 2014).

In India, first set of PCs were promoted and supported by a state government (Madhya Pradesh) under a World Bank Poverty Reduction project (DPIP) in 2005. In the case of PCs in MP, the state government which was also the promoting body provided a one-time grant of Rs. 25 lakh to each PC as fixed deposit revolving fund for obtaining bank loan against it, and also another annual grant of maximum Rs. 7 lakh per year for 5 years for administrative and other expenses. Further, interest subsidy upto a limit of Rs. two lakh was provided on any term loan taken by the PC and a grant of upto 75% of the cost up to a maximum of Rs. 2 lakh was given for any certification expenses (NABCONS, 2011). The membership/shareholding of PCs in India ranges from individual producers to informal self-help groups and individual producers, registered SHGs and individual members, and only institutional members. By September 2015, the number of PCs had gone upto 2090 (Singh, 2015), and as of 2018, there are 3200 registered PCs in India (Anonymous, 2018).

The Union Government and certain promoting agencies have now started promoting PCs by creating financial and non-financial aids for them. In 2012, the Ministry of Agriculture had advised all the state governments to treat PCs at par with the co-operatives for various policy incentives. The Department of Animal Husbandry, Dairying and Fisheries (DADF) had declared that in addition to cooperatives, PCs shall also be eligible for assistance under National Dairy Plan (Anonymous, 2018). The Reserve Bank of India had put PCs under priority sector lending upto Rs. 50 million per PC. The Union Budget for 2013-14, had major initiatives to support PCs including the equity grant support of Rs 10.00 lakh per PC, with a provision of Rs. 50 crore and a credit guarantee fund for PCs through Small Farmers' Agribusiness Consortium (SFAC) with allocation of Rs. 100 crore (refer Singh and Singh, 2014 for details). NABARD created Producers Organization Development Fund (PODF) with initial corpus of Rs. 50 crores during 2011-12, for supporting the existing POs to create innovative financing models. It provided support to POs for facilitating improved credit access; capacity building,

market linkages and need based handholding services to meet their 'end to end' requirements. NABARD created its own subsidiary (NABKISAN Finance Ltd.) for meeting the credit requirements of POs by adopting a flexible approach based on life cycle needs, while it continued to provide promotional support towards capacity building, market linkages and other incubation services to POs through a new fund called Produce Fund. NABARD had been given a mandate to promote 2000 PCs in two years with Rs. 200 crore funds in 2014-15. This led to the State government involvement in direct promotion of PCs e.g. in Karnataka. Development agencies like Friends of Women's World Banking (FWWB) and ICCO are helping PCs with loans and capacity building grants. In the Union budget 2018-19, Operation Greens with an allocation of Rs. 500 crore to address price fluctuation in three vegetables– Tomato, Onion and Potato (TOP) crops for the benefit of farmers and consumers was announced. It aims at promotion of, agri-logistics, processing facilities and professional management through the PCs. Also, 100% income tax exemption for PCs upto annual turnover of Rs. 100 crore was announced (Anonymous, 2018).

This chapter reviews the previous evidence, though limited, on performance and impacts of PCs and other FPOs in section two, states its major objectives in section three and methodology in section four besides brief about the organisation of the report in section five.

1.2 Review of previous studies

There are not many serious academic studies on PCs in India with a few exceptions like Trebbin, 2012, and Singh and Singh, 2014, considering the fact that the PC Act has existed since 2003. Of the 17 PCs promoted by District Poverty Initiative Project (DPIP), eight were financially successful, seven at breakeven point and two were into losses. Of the five studied, two were successful, two at breakeven point and one was into losses. The membership of these PCs ranged from 1059 to 3260 and median size of holdings of the members was 1.1 hac. The member awareness index was low at 34% and knowledge level index was at 30%. 63% of the member farmers were not satisfied with the prices offered by PCs. Savings on input purchase through the PCs were very modest at Rs. 453 as reported by 31% members. The additional sale proceeds realization due to PC was 7.6% of their household income. Thus, compared with members who did not transact with the PC, the members were better off to the extent of Rs. 4193 in their total income. In terms of patronage, only 5% members had sold 100% of their produce through the PC, another 32% only less than 25% of their total produce and 56% did not transact with the PC for the sale of their produce. Only 5% were aware that PC was owned by them (Purushotham, 2012). Areas of specialization of agricultural PCs in India in 2014 showed that about 20% of PCs worked with fruits and vegetables, 14% with seed production, 12% with spices (primarily chilli), and 11% with dairy (Trebbin, 2014).

The performance of PCs in MP differed not so much across promoters as across businesses undertaken and linkages established besides equity mobilization. The PRADAN PC was in profit most of the time, while those promoted by Srijan and Action for Social Advancement (ASA) and MP DPIP made losses, except one PC promoted by ASA which was in profits continuously for two years of its existence. Since most of the DPIP PCs were in similar business (production and sale of certified seeds), their performance was largely dependent on this

business, but some of them were able to make profit due to scale, other businesses and better and professional business and market management. In Gujarat, NGO promoted PCs were not able to raise authorised capital and shareholding was restricted to a few groups and farmers. They did not have many professional managers. They sold mostly inputs and facilitated producer selling. On the other hand, the farmer organisation {(Bhartiya Kissan Sangh (BKS)} and Onion Growers Co-operative Federation (OGCF)} promoted PCs were doing better in terms of business volumes as well as profits. The PCs in Rajasthan were relatively very new and had modest farmer base (300-1200) with mostly individual shareholders (100-500) but had large number of farmer groups associated with them. They had fairly good professional support from the promoter Access Development Services (ADS- an NGO). In some of the PCs, non-member dependence was high (20-60%) though farmer base was really made up of marginal and small farmers, that too, in tribal areas. Though most of them were also into input supply, two of them also ventured into facilitation of seed contract farming and ginger production and marketing. All of them were into modest profits. The PCs in Maharashtra presented a mixed bag with some being extremely genuine and other completely fake. Of the two NGO promoted PCs, capital base was small, number of shareholders was small and professional help was missing. Similar was the case of one farmer group promoted PC which had similar profile. In one case, non-member dependence was very high (70% of business). All of them made losses and suffered from capital shortage. The PCs in India, in general, appeared to be product focused rather than producer/farmer focused (Singh and Singh, 2014). Most PCs were not able to benefit producer members on any significant scale in terms of gross monthly turnover per member per month (Nayak, 2013).

Most of the MP DPIP PCs were into seed production business, which involved a small number of members and a high cost business. Therefore, it did not create member centrality and large patronage needed for the PC to scale up. The viability of the PCs is dependent on different factors. In case of Maha Gujarat Agri cotton PC, it was more of scale, type of farmers, and crops handled. In case of Nimad and Khargone PCs, it was again the high value crop-cotton, which was sustainable because of support from ASA. Another explanation for most PCs being in loss could be that as PC income was taxable, the PCs tended to pass on the surplus generated to members as price benefit to avoid taxation (Singh and Singh, 2014). The Luvkush Crop Producer Company under the MPDPIP in the Raisen district of Madhya Pradesh which engaged its farmer members in seed production from 2007 had, in 2014, 2001 shareholders with the share capital of nearly Rs. 2 lakh, and authorized capital of Rs. 5 lakh. The net profit of the company increased from Rs. 19,000 to Rs. 3,85,000 and the turnover from Rs. 1,25,000 to Rs. 68,25,000 in seven years. The average income of member farmers increased from Rs. 35,000 to Rs. 1,75,000 per season. The company collaborated with several institutions as a contract procurer, with research institutes to provide better agricultural practices to members and with financial institutions for facilitating capital requirements of the farmers. The company has its own brand named Ajeevika and sells whole wheat flour and gram flour under it (Chauhan, 2016).

The health of a farmer organization depends on financial and nonfinancial performance and thus, member, domain and patronise centrality become important. Economic viability depends

on group attributes, leadership, institutional arrangement, business and financing decision and the policy environment. On the other hand, governance and management are crucial determinants of nonfinancial performance which includes shareholding pattern, appointment of Board of Directors, capital mobilization and allocation, leadership style, rules, norms, and decision making processes. The organizational viability and sustainability also depends on the nature of community, its agro ecological and demographic profile and socio economic and behavioural factors which includes the attitude of farming communities towards agribusiness (Dey, 2018).

One of the PCs in Rajasthan promoted by BASIX achieved a marginal net profit within three years. A Reliance Foundation (RF) promoted PC in Maharashtra had share capital of Rs. 28 lakh after five years of set up, and it was able to set up a pulses mill and a godown. Another RF promoted PC with share capital of Rs. 9.1 lakh and 25 members made losses in all four years since its inception, except for one year where it made 1.5% net profits. The farmers had been able to get inputs at 10% lower price and yield improvement of 20% to 30% due to vermicomposting. The PC had a dal mill and small godown. In Tamil Nadu, one of the two PCs was in a tribal area and promoted organic agriculture and marketing of that produce, besides animal insurance. It was able to achieve net profits over the last seven years except once and had assets at the order of Rs.11.95 lakh in 2015 and ROI of the order of 28%. The other PC had 1000 farmers as members of 75 FIGs and it was in the business of procurement, processing and value addition of local paddy, millets, pulses and oilseeds. In 2015-16 it had a turnover of Rs. 36 lakh. It sold its 70% of produce to whole sellers in various cities and 30% in processed form in retail (Bhamra, 2016).

In case of silk, Union Ministry of Rural Development, Central Silk Board and PRADAN collaborated by bringing finance, technology and implementation support respectively to enable over 10,000 families below the poverty line (BPL) to gain robust livelihoods in Tasar sericulture. MASUTA women producer's company was promoted by 60 Mutual Benefit Trusts (MBTs) of women reelers. Scientific rearing practices were promoted to reduce diseases and mortality among silkworms, which improved productivity and resulted in the increase of average annual income to Rs 16,000 per weaver. Eco Taser Silk Pvt Ltd, a subsidiary was established to manufacture and sell value-added products. Members received 75% of consumer price, leading to empowerment of women as well as financially weaker sections of the society besides promoting gender equity (Gupta, 2015).

All women PCs promoted under JEEViKA project of the government of Bihar in maize (2) and multi-commodities (2- vegetables and one even handling litchi) and two of which even registered at the NCDEX and NeML platforms were found to be doing well. In case of one maize PC, members realised 15-20% higher price due to direct marketing by PC and off-season sale at higher prices owing to linkages with warehouses, on time electronic payments and fair weighing practices and the PC made a profit of Rs. 6.3 million in its first two years of active operation and distributed patronage bonuses up to 70% from year one, benefiting nearly 6,000 farmers. The PC was able to leverage institutional credit to the tune of US$ 780,000 from formal financial institutions like State Bank of India and Friends of Women's World Banking (FWWB). The major factors in the performance of the Jeevika PCs included: initial

handholding with high quality technical assistance and on ground extension to compete with prevailing market forces, cohesive social base, following practices to gain trust from formal financial sector and tackling market systems with simple and innovative technological solutions (Vutukuru et at, n.d.).

In Sri Lanka, it was observed that PCs were more likely to attract capital and make investments in value-adding assets when they alleviated the free riding problem by making benefits directly proportional to investment. Indicators such as equity appreciation, viable operations, payment of dividends, low external facilitator support, voluntary development of corporate linkages and growth in the number of shareholders were used to measure performance. Unlike in Sri Lanka, member farmers in India were sensitized to the need of larger legal entities and then brought on board. Scale and scope of market linkages were important factors in performance. And so, multi-product based PCs and the ones in high value business were more successful than others (Singh, 2016).

SAPCO PC consisting of 21 cooperatives whose role was to meet the five conditions needed to set up a successful marketing system: cost effective production; larger volumes; good quality produce; uniform production on individual holdings and across the small farms; and, finally, production through organic, certified methods, created new supply chains by promoting its own shops, online sales, franchises, mobile retail vans, food hubs and brand names. All these marketing initiatives depended critically on CSA (promoter) and SAPCO helping members certify their produce as organic under the PGS. Even though SAPCO generated an annual turnover of Rs 25 million, 90% of its members' produce was sold in local markets at conventional prices. Resistance by the majority of farmers to membership of SAPCO and organic farming was driven by the time it took for organic farming to deliver results, financial constraints on infrastructure for scaling up production and sales, and lack of speedy payments and cash transfers (Vicziany et al, 2017).

A set of two case studies promoted by CIKS in Tamil Nadu showed that one of the companies had membership which was in the range of 4000 members and the other one had 700 members and equity capital of 20-22 lakhs. These companies had 13-16% of their members who were landless and mixed membership of men and women. They were mostly engaged in seed supply, bio-inputs, credit and insurance including 1 PC setting up farm mechanisation centres. One of the companies even owned a combined harvester costing Rs. 20 lakhs. One of the companies was also able to get matching equity grant and credit guarantee from SFAC. It had also obtained loans from FWWD, NABFINS and Ananya Finance (CIKS, 2017).

A study of PCs and their sustainability under agricultural value networks in Punjab and Gujarat showed a more successful case scenario of PCs in Gujarat as compared to Punjab, as lack of trust among farmer members as well as the promoting agencies was quite prominent in Punjab. Apart from that, PCs in Punjab failed to find potential buyers for the produce and matching grant was not utilized properly. Some of the PCs in Gujarat, on other hand, were involved in processing as well as branding of the produce which was a very important factor in their success (Singh et al, 2018).

Membership in PCs (Karnataka) was quite biased towards male (about 87%). Women participation in PCs with animal husbandry as secondary activity was quite prominent compared to others, which reflects the nature of women preferences, who place more emphasis on food self-sufficiency compared to cash crops (Gowda et al, 2018).

PCs emerged as an alternative to the traditional legal entity of co-operatives which were high on social but low on economic performance. The PCs, on the other hand, are high on profits motive but low on social objective due to their limited coverage of producers due to absence of scale and scope which is the manifestation of shortage of working and investment capital.

So far as problems and challenges facing PCs are concerned, one of the core problems is in the outlook of the members as they are not sensitized with the concept of PC. There is no loyalty towards the company. They tend to have an opportunistic behaviour and there exists a problem of free riding. Other challenges include social capital formation, governance and management capabilities, scope and scale of PC business, market landscape and ownership issues of such agencies besides the institutional context and conversion of resources (Mahajan, 2015). The producer organization that achieve economies of scale and scope enter the growth and glory stage, but the maturity stage has issues of member differences and risk-taking abilities which helps separate risk but also leads to problems of free riding on the organization by some members. The membership growth can also lead to member anonymity and the erosion of social capital which leads to cost of monitoring and member incentives and enforcing sanctions which erode profits (Dey, 2018).

Neti et al (2019) examine the number of producer companies in India, their geographic spread, the current status of their registration, their authorized and paid-up capital besides characterising such companies in selected sectors as well as all-women shareholder PCs. It uses spreadsheets published by MCA on their website to compile a dataset of all companies registered between Jan 1, 2003 and March 31, 2019 and selected only those companies with the words 'producer company' or 'producers company' in their name, as the Companies Act requires producer companies to have the words "Producer Company Limited" in their name. A list of 7374 producer companies registered between Jan 1, 2003 and Mar 31, 2019 revealed that 80% of the companies were registered in just last four years (2016 to 2019). This was largely due to many government schemes coming into effect from the middle of the decade and a sudden decline during 2018 seems to go with the conclusion of NABARD's PRODUCE FUND for the promotion of PCs. Further, during the five years from 2015 to 2019, 1/3rd of the companies were registered in the last quarter of the financial year. The PCs are spread across most states and union territories by now with Maharashtra accounting for 26% of the total and Uttar Pradesh, Tamil Nadu, Madhya Pradesh, Telangana, Rajasthan, Karnataka and Orissa accounting for more than 5% of the total each. In fact, Maharashtra along with Uttar Pradesh, Tamil Nadu and Madhya Pradesh accounted for half of the registered companies. However, Madhya Pradesh had the highest percentage of 5 year or older companies as it was also a pioneer in setting up these entities immediately after the coming into the effect of the Producer Company Act. On the other hand, Uttar Pradesh has very few companies which are older than 10 years, though it is the second largest in terms of number of companies with 10% share in the total. By now, 6% of the PCs have also been struck off by the MCA. Most of them were 5

to 10 years old and accounted for 38% of total in that age group while 15% were more than 10 years old accounting for 46% in that age group. This mostly shows that 80% of those struck off were in these two older age groups.

The number of shareholders ranged from a minimum of mandatory 10 to as many as more than Rs. one lakh. Most of the NABARD PCs (86%) had 500 or less shareholders and all of them together (2075) had 7,65,000 shareholders. Only 1% of them had more than 1000 members. The average shareholders per PC was 369 in case of NABRD and 997 in case of SFAC promoted PCs. SFAC had 819 FPOs with 8,20,000 members. The average membership across altogether worked out to be 582 shareholders per company and the total membership was 43 lakh farmers. The average paid up capital per PC worked out to be Rs. 11.7 lakh for all registered PCs and Rs. 12.2 lakh for those with active status. This meant that the average share holding was Rs. 2000 per PC. The paid up capital was very high in Tamil Nadu and very small in Telangana. Only 1% PCs each had paid up capital of Rs. 25-50 lakh and >Rs. 50 lakhs with 86% being in the category of those with <Rs. 10 lakhs each. Further, 39% of these 86% had paid up capital of just Rs. One lakh. Kerala and Maharashtra had large number of PCs with very high paid up capital and Maharashtra figured as the largest with those <Rs. 10 lakhs paid up capital which was almost 90% of the total in that category in Maharashtra. Among the top 20 PCs with the paid up capital, dairy was the biggest sector across the states followed by coconut and one each in fruits and vegetables, poultry, and tea. Interestingly, two of them were all-women PCs. Of the 6926 active PCs, majority had very low paid up capital even after 2-3 years of being in existence (Neti et al, 2019).

Neti et al (2020) find that there exists a disparity in number of PCs spread across districts ranging from 0 to 185. Further, sectorally, there are 210 Milk Producing Companies (MPCs) with active status where more than half of them are concentrated in 4 states of Maharashtra (17%), Rajasthan (13%), Madhya Pradesh (13%) and Uttar Pradesh (12%). Most of MPCs are young as registered less than 5 years ago. About 10% of milk producer companies have Paid Up Capital (PUC) greater than Rs. 50 lakh. Dairies have larger Paid up capital (median PUC is Rs. 2.36L) because of large number of shareholders. While 92% of registered PCs are engaged in agriculture and allied activities, only 1% PCs (75 companies) are working in nonfarm activities like weaving and apparel-making (30), handicraft production (9), food processing (6), agarbatti, footwear, etc. About 68% of active non-farm companies are less than five years in age. Only 4% have PUC greater than Rs.50 lakh. Majority (85%) active non-farm companies have PUC less than 10lakh.

It was observed that while only 3% of PCs were in dairy sector, there were 7% of women-only producer companies (almost double) Milk PCs. Further, 82% of the women-only PCs were engaged in farm-related activities and 4% in non-farm activities. Maharashtra (20%), Madhya Pradesh (18%) and Odisha (13%) were three states with more than half the women-only PCs. Only 4% of women owned PCs had Paid up capital (PuC)of > Rs.50 lakh; majority of them (85%) have PUC less than Rs.10 lakh. Five of the top ten women-only PCs were in the dairy sector and also half of the top 10 women-only PCs in India had PUC of more than Rs. one crore each.

Several women board members were SHG leaders. Though they were trained in basic financial literacy and book-keeping but still their understanding of business decisions is limited. Findings from 100 in-depth interviews of stakeholders in producer companies, such as producers, board members, funders, promoting institutions and others reveal that the purpose served by producer companies and their way of functioning is different in mind of each stakeholder. Such normative imagination of PCs has varied implications. The study reveals that small farmers view themselves as only suppliers and producer companies as non-exploitative buyers. Producer-owners thought of the PC as a service provider of seeds, fertilizers, market linkage services, etc. Some view PCs as government project and thus don't see the need to contribute financially. Many farmers lack clarity regarding their role as owners and view their financial contribution as membership fee rather than share capital. Well to do farmers view Producer companies as business enterprises with main focus on revenue generation.

Some NGO promoters were forming producer companies by inducting already existing SHGs as shareholders in them. In such cases, business decisions were made by viewing producers as 'beneficiaries'. Even farmers viewed themselves as 'beneficiaries' i.e. rather than viewing it as their own business enterprise, they assumed that PCs were part of welfare initiatives taken by NGO. It was observed that in many cases farmers didn't see the need to get involved in decision making and thus were dependent on NGOs without demanding transparency or accountability from them. It was found that having a financial stake in PCs did not necessarily induce sense of ownership in them; rather it was influenced by 'the frequency of transactions and interactions with the producer companies'. Such lack of sense of collective ownership could pose a threat to organizational sustainability of the PCs in the long run.

Because of high dependency of PC on promoters for governance, decision making, raising capital etc, success of PC depended on business competence of promoters and board members. Many promoters established PCs without prior cost benefit and risk analysis. They experimented with different strategies like encouraging farmers to undertake untested activities, thus exposing small and marginal farmers to high risk. The two tier model is proposed as a solution whereby the market facing company can provide surrogate management support to PCs. It is argued that a two tier model can help in procurement of multiple commodities which in turn ensures better utilization of resources. It enables more frequent transactions with members and thus by building familiarity, it leads to reduction of risk arising from moral hazard. Market facing companies provide financial stability to supplier PCs by acting as their assured buyers. They can help establish sales relationship and negotiate favorable prices. Also they can contribute to building strong internal governance and compliance in supplier PCs via training. This model offers exit path for NGOs in their role as mentors and supporters of supplier PCs which will be overtaken by top tier PCs. But, a limitation of the 'two-tier model' is that decisions may be made by the top tier company without consulting suppliers or without them being informed about the same. Therefore, supplier PCs should own a significant stake in market facing companies which will also ensure that their interests are aligned.

There was limited success of PCs which were trying to get benefits from government schemes. It was because of lack of awareness by both government and bank officials and their limited understanding of PCs. They lacked clarity regarding eligibility of PCs for schemes available to cooperatives. PCs required not only government ecosystem but also local business network for achieving efficiency, scale and profitability.

The study reveals that many PCs have weak internal governance. It is because of lack of sense of ownership and lack of understanding about the functioning of the company. Many board members did not know if they had a CEO or if the CEO was accountable to them even if appointed by promoter NGO. Also it is observed that PC shareholders don't have SEBI protection or first-hand knowledge of business, thus raising regulatory concerns related to them. There were also cases where some SHG members were PC shareholders. Though PCs can't borrow from SHG federation, there were many instances where large lending was done to 'sister' PCs by SHG federation due to overlap in membership. Thus, such overlap in membership could have ramifications in terms of risky financial transactions like the misuse of SHG savings.

The compliance requirements was an obstacle that many PCs struggled to meet like GST returns due to lack of expertise, lack of awareness or lack of funds. There was compliance related financial burden imposed on PC shareholders. Various rules and regulations like geo-tagging the location of offices of PCs were important to weed out shell companies or deter fraud. But they also created burden on small producers like geo-tagging requires technological expertise. Even companies with well-educated CEOs found it difficult. Thus, the importance of doing away with burdensome statutory compliance requirements for PCs in initial stage, without diluting them in the long run was highlighted and it was emphasised that PCs need to be recognized as businesses of small producers and not just some 'beneficiaries'. Finally, it is recommended that external investment in PCs should be allowed to address the issue of undercapitalization in them (Neti et al, 2020).

A study of Producer Companies and other FPOs in the states of Punjab and Madhya Pradesh revealed that most of them were still in the incubation stage in Punjab, included those promoted by NABARD under Produce Fund and those by SFAC. Only two were found to be in the emerging and growing stage in Punjab and both of there were more than 5 years old and in vegetables with membership of 1500-2000 each. On the other hand, all the 3 non-PC FPOs were found to be in the matured or business expansion stage as 2 of them were more than 5 years old with membership ranging from 40 to 400 and the other one almost 100 years old with more than 1400 members. In Punjab, most of the FPOs were non-PC structures and those which were registered as PCs were of recent origin and had very small number of members (50-60). Only one PC promoted by ACF had more than 1000 members and was found to be in the emerging stage. On the other hand, in Madhya Pradesh all the 3 PCs were in matured stage with membership ranging from 700-2872 and were engaged in produce aggregation, processing, and marketing unlike the Punjab PCs which were mostly dealing with agri inputs. The study also surveyed 285 farmer members across 19 FPOs of which 45 were from 3 PCs in MP and rest in Punjab mostly from non-PC FPOs. The two vegetable PCs had membership mostly made up of marginal and small farmers unlike the ACF promoted PC which was mostly

medium and large farmer based. The MP PCs were engaged in selling to government through SFAC procurement or direct sale in the market with only one doing FPO to FPO sales of 1/4th of its produce. Majority of the marginal and small farmers in Madhya Pradesh had sold their produce through the PCs and none of the SFAC companies in Punjab had their members selling through the PCs. In Madhya Pradesh, it was mostly pulses growers, the significant proportions of whom had sold through the PCs. In general, across the two states, farmers selling through the FPOs accounted for only 31% of the total and they sold fully or partly through the FPO. However, in mature FPOs, this was especially high (42%) in Madhya Pradesh and more of the produce by more farmers was sold through this channel in Rabi season rather than in Kharif season. In Madhya Pradesh, across the three PCs farmers, mostly sold through the PCs, wheat, Arhar and gram and hardly any crop other than urad and moong in Kharif season. In Punjab, none of the farmers in any PCs or even other FPOs sold any produce through the FPOs except in case of vegetable co-operative where a significant numbers of farmers sold green peas through the FPO. There was an area expansion under sugarcane and paddy after the formation of PCs in MP. There was price increase reported by selling through the PCs in wheat, gram and Urad as they were procured mostly by the state agencies at MSP. There was also improvement in yield in wheat, gram and Urad after the formation of the PCs. In general, there was an increase in the yield from 17% in Rabi to 55% in Kharif in Madhya Pradesh by PC members whereas these increases were very small or even negative in some seasons in case of some FPOs. Overall, only 13% of the total produce of the member farmers was sold through PCs in MP and 15% in case of matured FPOs in Punjab. The net earnings were reported to be 34% higher in MP and 80% in Punjab. In MP 50% of the farmers reported adoption of new technology, diversification of crops, and access to better market linkage in more than 50% cases and even value addition but better price realisation and reduction cost of production and freedom from commission agents was reported by 40% farmers. This was somewhat lower in Punjab being around 40% on most parameters. So far as access to new inputs and crops was concerned this was so in the case of 80% farmers in MP besides 70% reporting access to new crops and 50% new cropping practices. 1/3rd also reported improved access to farm machinery. This was even better in Punjab in case of matured FPOs going up to 90% in seeds, other inputs and farm machineries but only 50% in new crops and practices.

So far as marketing and processing aspects were concerned in Madhya Pradesh, 30-70% reported improvement in market connectivity, transport of produce, reduced exploitation by middlemen, better access to storage and warehousing and testing facilities. This was similar for mature FPOs in Punjab and no improvement was recorded in the case of SFAC promoted FPOs as well as produce fund FPOs in emerging and growing stage with the exception of market connectivity and reduced exploitation besides availability of inputs in the case the latter. The MP PCs also reported improved access to training, extension and government scheme awareness besides better procurement and reduced dependence on money lenders by majority of farmers. This was even better in the case of mature FPOs in Punjab and SFAC promoted FPOs in the emerging state performed well only on training and extension services as did the produce fund FPOs at that state. The MP PCs had also 1/3rd to 58% farmers reporting better price, more regular payment and even bonus and more employment opportunities. Similar was the improvement in the case of matured FPOs in Punjab whereas all other FPOs fared poorly

in this. In most cases in both the states farmers reported much improved awareness levels about various aspects of farming and working of collective agencies including the problem of stubble burning. The MP farmers were satisfied with collection of produce and its pavement and grading and payment by cheque. This was similar in the case of matured FPOs in Punjab except the payment for the produce by cheque. They were also satisfied on production practices, use of chemical pesticides, processing storage and diversification of crops besides dissemination of new technologies by the PCs in MP as well as in Punjab. In the case of Madhya Pradesh, majority of the farmers bought their inputs from the PCs for reasons of economies of scale. A majority of the members attended the general body meeting regularly and another 1/3rd sometimes.

The MP PCs had sales turnover of the order of a million rupees or above and net income in tens of thousands and being only 1-5% of their turnover in 2016. Their equity ranged from 2.9 lakhs to 9.2 lakhs. 75-100% small and marginal farmers sold through the producer companies and 40-80% of the members did so in MP. In crops like wheat and mustard and Arhar and Moong the farmers sold as much as 50-80% through the FPOs and this was 10-30% of the total sales revenue of the farmers. The two SFAC promoted by ACTech agro under NVIUC were found to be defunct and did not undertake any business activities. These producer companies were being provided Rs. 9.06 lakh over 3 years mostly for the salary of the CEO, office expenses and the salaries of the POPI resource person besides training and exposure visits for the farmers and the training for the directors of the company. Almost 50% of the assistance was provided in the 1st year and the remaining in the next 2 years (Verma, 2017).

A study of the Madhya Pradesh Women Poultry farmer PC which had more than 2000 members found that the member growers had somewhat better farming experience, education and income besides memberships in other groups than their non-member counterparts. The company works with 10,000 members and has its retail brand of Sukhtawa chicken present 12 cities of the state. It had a turnover of 290 crores and profit of 60-70 crores starting from turnover of 15 lakhs in 2007. It has 10 producer co-operative as its members. The company was found to be very effective and the political, social, human and economic capital of the members was found to be much higher than those of the non-members. In the case of Tamil Nadu, where the average size of the land holding is 0.8 hectors and 91% of the farmers are marginal or small operators, cultivating 62% of the total area (Mukherjee et al, 2019).

A study of two PCs dealing with vegetables revealed that one of them had a shop in the farmers' markets where the company procured from the farmer members and sold them directly to the consumers at the price fixed by the state agency. The members received prices which were almost double compared with what non-members received and therefore had very high (2.5 times) net income compared with non-members. The company had an agri-input shop as well (Pandian and Ganesan, 2019). Another study of FPCs in organic chilli in Telangana also found the gross returns of FPO members 13.85% compared with those of non-members besides 23.4% higher yields and 9% lower cost of production (Manaswi et al, 2020). A study of all women Mahila Umang PC in Uttarakhand with 1464 members, setup in 2009 showed that the

knowledge levels of women members were high or medium in case of 63% members and very high in case of 20% members (Mukherjee et al, 2019a).

Another study of 10 producer companies in Maharashtra found that 67% of the members joined the companies due to the suggestions from ATMA and other extension personnel mostly for agri-input services and for better marketing of their produce. The companies provide support to the farmers in the selection of crops, availability of good quality inputs, farm mechanisation, training and demonstration and post-harvest facilities and access to the market which were the problems faced by the farmers. However, 30% PCs were involved in agri-input serviced and 11% in farm mechanisation and 15% in seed production. On the other hand, 31% engaged in procurement and 15% in further sales activity in agri-produce, whereas more than 100 farmers each participated in various activities procurement for the most participated activity and forward marketing the least. It was found that all the PCs were able to deliver much higher procurement price than the APMC price. There was a lack of feeling of ownership among the farmer members. Another case study of 5 PCs across 5 states showed that they were at different stages of growth and also promoted by different agencies though mostly by NGOs (Shankar, 2019).

In another recent large scanning survey of FPOs across 49 clusters to identify potential for FPOs, of the 1883 FPOs surveyed, 750 were found to be active and they had 3.6 lakh farmer as members with average land holding of 1.02 hectares. The average number of members per FPO was 491 and the average turnover Rs. 20 lakh in 2017. Of the active FPOs, 47% had some business revenues. This sample was drawn from 4723 PCs and 103 other FPO types across 12 states which had at least 20 FPOs per district and 7 other states which had at least 8 FPOs per district or cluster (table 1.1).

A comparative study of FPOs in Bihar and Maharashtra based on primary data showed that in Bihar the membership of the studied FPOs varied from 300 to 3001. It is also found that the focus on increasing the number of members leads the chances of adverse selection which affects performance. The FPOs in the state had not scaled up lacked product differentiation and new markets due to policy induced adverse selection of members. In fact, the average monthly income of FPO members was lower than that of non-members (14%). On the other hand, Maharashtra, a survey of 400 members and 175 non-members showed that the FPOs have evolved more organically and mostly promoted by NGOs besides some private CSR outfits. However, there was not much FPO activity in the traditionally cooperative dominated areas in both the states upper castes and OBCs were more likely to become members of FPO. In terms of literacy, FPO members were less illiterate (18%) compared with non-members (33%). 70% of the farmers in Bihar and 82% in Maharashtra reported receiving new information about crops, seeds, and technologies and 25% and 68% respectively also reported receiving inputs at right time and at lower cost. However, on the output side only 13% farmer members in Bihar and 29% in Maharashtra reported receiving better prices or access to new markets. The access to better credit and government schemes was even lower reported by only 3% in Bihar and 19% in Maharashtra. Also very small percentage of them saw post-harvest operations

becoming easier after joining the FPO. In Bihar, 32% farmers reported improvement in post-harvest operations after the entry of FPO. 1/3rd of the member farmers in Bihar also wanted to

Table 1.1: Major cluster and crop wise number and proportion of active FPOs

Cluster	Major Crops	Total No. of PCs and (surveyed)	No. of Active PCs (%age of surveyed)
Amravati	Cotton, Tuar, soybean and orange	56 (40)	16 (40)
Chittoor	Mango, tomato, vegetables	20 (20)	7 (35)
Nagpur	Orange, paddy, cotton, soybean	28 (15)	2 (13)
Tehri	Potato, Pease, cabbage, capsicum	28	11 (39)
Agra	Potato, wheat, paddy	19(5)	2 (40)
Alwar	Wheat, pearl millets, muster	14(7)	3(43)
Delhi	Wheat	42	10(24)
Fazilka	Kinnow	0	0
Gwalior	Wheat, paddy, muster, sesame	16(5)	**4(80)**
Jaipur	Wheat, millet, cluster bean, muster	36(24)	4(17)
Kanpur (rural)	Wheat, paddy, red gram	25(10)	**9(90)**
Kanpur (Urban)	Wheat, paddy, potato	24(5)	**5(100)**
Karnal	Wheat, paddy, vegetables	10	4(40)
Lucknow	Wheat, paddy, muster, mango	63(21)	3(14)
Ludhiana	Wheat, paddy	9(7 non-existent)	0
Mandla	Wheat, paddy, gram	18(15)	**10(66)**
Nagaur	Mung, pearl millet, cluster beans	22(8)	**5(63)**
Palanpur	Potato, maize, cucurbits	0	0
Ahmednagar	Onion, pomegranate, Tur	50(40)	**32(80)**
Akola	Cotton, soybean, gram	29(20)	**12(60)**
Aurangabad	Cotton, maize, Tovar, Mousambi	69(36)	**26(72)**
Bhandara	Paddy	19(13)	3(23)
Buldana	Cotton, soybean, tur	48(16)	**13(81)**
Dhule	Cotton, soybean, maize	25(13)	6(46)
Jalna	Cotton, soybean, maize	41(21)	12(57)
Thane	Paddy, Okra, Cucurbits, Brinjal	34(16)	6(46)
Nanded	Cotton, soybean, tur, Gram	28(24)	7(29)
Nasik	Onions, grapes, pomegranate, tomatoes	74(19)	5(26)
Sangli	Grapes, maize, soybean, tomato	28(13)	-
Satara	Strawberry, Jowar, pomegranate	29(12)	5(42)
Solapur	Pomegranate, maize, Tur	42(28)	**20(71)**
Wardha	Cotton, tur, soybean, orange	35(29)	7(24)
Washin	Cotton, tur, soybean, wheat	23(19)	**11(58)**
Yavatmal	Cotton, soybean, tuar, orange	41(37)	8(22)
Ahmedabad	Wheat, paddy, cotton	9(2)	1(50)
Dahod	Wheat, maize, vegetables, soybean	14	2(14)
Dhalai (Tripura)	Pineapple, orange, jackfruit	2	**2(100)**
East Singbhum	Cauliflower, tomato, Okra	7(2)	0
Ganjam	Green gram, maize, b. gram, tomato	16(16)	**13(81)**
Kamrup (Assam)	Pineapple, banana, orange	6(4)	0
Mayurbhanj	Paddy, mango, guava, cashew	19(17)	2(12)
Ranchi	Paddy, cauliflower, brinjal	23(23)	4(17)
Anantpur	Groundnut, red gram, pomegranate	26(26)	**22(85)**
Kolar	Mango, tomato, maize, French beans	21(14)	**12(86)**
Krishna	Paddy, mango, turmeric, banana	20(20)	9(45)
Mehboobnagar	Red gram, paddy, cotton	22(16)	4(25)
Medak	Onion, cotton, red gram	11(11)	2(18)
Pirambalur (TN)	Maize, cotton, small onion	4	**4(100)**
Tumkur	Coconut, Arecanut, banana, tomato, ragi	20(17)	**12(71)**

Source: Arya CWS *and* Tata Trusts (2018).

diversify into vegetables. The technology adoption in Bihar was also simple and low cost. In terms of determination of members of FPO, education farming as primary occupation and interaction with extension agencies seem to matter. In Bihar, the FPOs were able to reduce input cost but were not able to make a difference in bridging the gap between farm and market prices. The farmers still reported market price fluctuations more commonly as a major risk compared with production risk like fraud or famine, high input price or pest attack. There was no performance based incentive for members. The study highlights yield for better mechanism for member selection and right size of the FPO in terms of membership besides greater product differentiation. The only value added activity being undertaken to create product differentiation by some of them was online sales.

Interestingly, though the PCs were categorised into promoted PCs, promoted FPOs and Other FPOs, it was found that FPO members were relatively large in terms of landholding and had 14% higher average monthly expenditure than that of their non-member counterparts. The results also showed experience in farming, prior experience in cooperative membership, and higher reliance on private sources of information as important determinants of FPO membership. In fact, non-promoted PCs had most commonly reported increase in gross income (98% members) as well as increase in productivity. On the other hand, only 32% of the non PC members reported increase in gross income. The members attributed the change in income due to better prices and access to new markets. The Other FPOs (non-promoted) also outperformed FPOs in strengthening small holder position in value chains as 94% of OFPO members reported cost reduction compared with only 27% of PFPO members. As against this, only 29% of non-FPC members reported any improvement in productivity with 40% actually reporting a drop in the same. The FPC members with higher irrigated areas showed even further improvement in their income. The use of mobile phones by information was the significant factors in improving productivity for both members as well as non-members besides only the OFPO membership being critical in the case of members. The FPOs in general performed better than those in Bihar on most counts like better prices, better negotiation capacity, reduction in transaction cost and lower market rejection of produce. Whereas farmers in Bihar attributed increased income to new markets in Maharashtra, it was more about better prices and quality based purchase of produce, the rejection was lower. The heterogeneity of the group in which different skills combined also seems to matter in delivering better results. Also the FPOs in which farmers and managers' incentives are relatively better aligned were more successful in adopting new technology and better risk management. This kind of alignment of objectives and incentives can also reduce intermediation cost. For this leadership and managerial resources matter significantly. Therefore, the performance based system which addresses problems of adverse selection and moral hazard and leave to active member participation can help better performance (Roy et al. 2020).

Another review of literature based assessment of the FPO performance revealed that Andhra Pradesh had an FPO policy. There was not adequate evidence on the participation of small and marginal farmers. The NGO promoted FPOs were found to be operating on a small scale with limited reach when compared with large PC like those promoted by the NDDB. Further, it was found that business model of a majority of the FPOs focused on procuring farm inputs with

limited focus on establishing market linkages for selling the farm produce. Lack of business orientation and limited knowledge of agri value chains nor other important deterrents for FPOs from operating as business entities. The NCDX provides for farmers to store their produce for a free warehouse after taking the sell position on the exchange platform. There is also a lack of agreement whether capacity building should focus on farmer members or employees of such entities. It was also suggested that the assessment of performance of FPOs should be done by themselves and should include besides efficiency and equity, other contextual parameters like environmental indicators to judge their adoption of sustainable agriculture practices which is missing from the existing tools of performance assessment. The rating tools are also bias towards quantitative indicators e.g. membership, size is the only indicator which misses the dynamics of participation. Similarly, financial ratios lack standardisation and therefore do not permit any useful comparison besides affecting the capability of the FPOs to raise resource of financial institutions. (IIIE, 2019).

Only some states of India seem to have a conducive policy environment for PCs which include: Madhya Pradesh, Karnataka, Maharashtra West Bengal and Rajasthan (Dey, 2018). The states of Karnataka, Orissa and Telangana have state specific FPO policies. Tamil Nadu government has allocated Rs.100 crore for the current year to support 200 FPOs. The Doubling of Farmer Income (DFI) committee recommends a minimum of 7000 FPOs by 2020-23. In seven states of Maharashtra, Madhya Pradesh, Uttar Pradesh, Rajasthan, Gujarat, Karnataka, Telangana, 80% of the FPOs were registered as producer companies as of 2018. 60% of the PCs are in the states of Maharashtra, Uttar Pradesh, Tamil Nadu, Madhya Pradesh, Rajasthan and Karnataka. In fact, West Bengal and Maharashtra are among those states which have added 50% or more of their PCs during the last three years only. The seven state study also showed that 92% of the member farmers were marginal or small, 16% women and 12% were tribal farmers (Prasad, 2019).

The seven-state study also showed that 48% of the FPOs had membership below 500. It is pointed out that most FPOs are either too involved in input supply or busy aggregating produce for public procurement or sale to a buyer. It is only some NBFCs like Nav Kissan, Ananya Finance, Samunathi which lend without collateral. Further, more than 50% of the FPO boards had no external experts or independent directors and 68 percent had no female directors (Prasad, 2019).

Almost all of the PCs have suffered from lack of working capital support (NABCONS, 2011), difficulty in access to loans, lack of finance in formative years (Singh and Singh, 2014) and limited access to credit (Raju, et al, 2017). In most cases, vision and direction from the Board of Directors are missing in PCs. Paucity of experts due to lack of resources does not keep the governance and management in place. Lack of experience has led to non-sustainable business plans. Most of the PCs have high operational costs due to high overhead costs and high transactional costs (NABCONS, 2011). Thus, there is a need of major change in the way PCs are made to work. But then, the reality of cooperatives has changed and successful cooperatives can only selectively follow principles of cooperation, seek member centrality, can have large scale with mixed membership, can evolve top down with proper incubation and design, need

not have fertile grounds to begin with, and successful cooperatives can create their own policy engagement and manage it to their advantage (Mahajan, 2015).

1.3 Major research questions and rationale for the study

The above review shows that there has not been adequate academic and professional examination of the issues facing the PC domain which are practice and policy relevant. Some of these research issues are:

i. How far PCs are an improvement over the existing co-operative or other models of producer organization?

ii. How relevant and appropriate are the PCs in the context of globalised markets?

iii. Is there a design aspect of the PC which matters and should be provided as an intervention?

iv. Is there any specificity about the crop or enterprise which matters e.g. commodities or high value crops?

v. Who is more relevant promoter for a PC– state or civil society or private sector?

vi. What conditions are necessary for business and economic viability of PCs?

vii. Are PCs with higher levels of skills and capabilities more successful in working with modern markets as scale and scope become important to do viable business?

viii. Which model of promotion is more robust and viable?

ix. What kind of policy treatment do the PCs need to grow as vibrant producer entities and to make an impact on the livelihoods of small producers?

x. How do innovations in PC take place and what makes them scale up- inclusive or sustainable?

1.3.1 Rationale for the study

There are many types of promoting agencies in India which include: SFAC and NABARD as national level public bodies, State Governments and their agencies leveraging RKVY or the World Bank funds, NRLM Programme (MoRD), Other NGOs/Trust/Foundations like Bill & Melinda Gates Foundation, TATA Trust, Reliance Foundation, Ambuja Cement Foundation, HDFC Foundation, C&A Foundation, HSBC CSR, Axis Bank Foundation, Jindal Steel &Power Ltd. and Syngenta foundation. Each one has its own model of organising and promoting the FPCs. It is important to examine the models of major players especially those supported by SFAC, NABARD and state government agencies and some large independent NGOs like AKRSPI.

The SFAC strategy paper (2019) on promoting 10,000 new FPOs lists various challenges in promotion of FPOs and proposes to support 250 new FPOs in the first year and 1000 in second

year followed by 2500 in the third and 4500 in the fourth year with 1750 in the 5th year with 25% funds going for FPO formation and incubation with Rs. 25 lakh per FPO for five years and another 30% for FPO management @ Rs. 18 lakh per FPO over three years. Beside, 25% would go for equity grant of Rs. 15 lakh each. It also brings in the concept of cluster based business organisations (CBBOs) for FPO promotion instead of depending on NGOs. This is important departure from the past as in the past majority of FPOs were promoted by local and national NGOs. Therefore, it is important to examine the promotion strategies of the NGO and professional promoters which this study takes into account and therefore focusses on the performance f PCs promoted by different type of promoting agencies like NGOS, professional Agencies like ISAP and IGS.

The operational guidelines on Formation and Promotion of 10,000 Farmer Producer Organizations (FPOs) by MoAFW (2020) also aim **to** provide holistic and broad based supportive ecosystem to form new 10,000 FPOs to facilitate development of vibrant and sustainable income oriented farming and for overall socio-economic development and wellbeing of agrarian communities; to enhance productivity through efficient, cost-effective and sustainable resource use and realize higher returns through better liquidity and market linkages for their produce and become sustainable through collective action; and to provide handholding and support to new FPOs up to 5 years from the year of creation in all aspects of management of FPO, inputs, production, processing and value addition, market linkages, credit linkages and use of technology etc. besides providing effective capacity building to FPOs to develop agriculture entrepreneurship skills to become economically viable and self-sustaining beyond the period of support from government.

It defines FPO as a generic term, which means and includes farmer- producers' organization incorporated/ registered either under Part IXA of Companies Act or under Co-operative Societies Act of the concerned States and formed for the purpose of leveraging collectives through economies of scale in production and marketing of agricultural and allied sector. However, FPOs registered under Cooperative Societies Act of the State (including Mutually Aided or Self-reliant Cooperative Societies Act by whatever name it is called) for the purpose of this Scheme, is to be insulated from all kinds of interference including in election process and day today management through suitable provisioning in their Memorandum of Association and Bye-laws with a view to encourage healthy growth and development of FPO.

The formation and promotion of FPO would be based on Produce Cluster Area, which is broadly defined as: "Produce Cluster Monitoring Committee (D-MC), State Level Consultative Committee (SLCC), other Ministries/Departments of Government of India and the States as well as with recommendations of Implementing Agencies (NABARD, NCDC and SFAC) with input from Cluster- Based Business Organization Area" for purpose of FPO formation and management herein means a geographical area wherein agricultural and allied produce such as horticultural produce of similar or of almost similar nature is grown / cultivated; therefore, an FPO can be formed for leveraging economies of scale in production and marketing. This will also cover Organic Produce and Natural Farming. The Produce cluster area is to be identified with the input of District Level (CBBO) and suggestions of relevant Government of India

Organizations. The CBBOs will undertake Feasibility Study in assigned clusters including a prospective Business Plan in order to establish a fit case for formation of an economically sustainable FPO.

FPO with a minimum farmer-member size of 300 shall be eligible under the scheme in plains, while in North-Eastern and Hilly areas (at a height of 1000 metre or above MSL and including such other areas of UTs), size of 100 shall be eligible. Farmer-members cohesively located with almost same interest are to be mobilized to form a group of 15-20 Members, calling the group as Farmer Interest Group (FIG) or Self Help Group (SHG), Farmers Club (FC), Joint Liability Group (JLG), and Rythu Mitra Group. Such 20 or more groups from a produce cluster area or a village/ cluster of neighbouring villages based on certain commonalities are to be put together to form an FPO. It may provide special focus to include small, marginal and women farmers/women SHGs, SC/ST farmers and other economically weaker categories etc. as members to make FPOs more effective and inclusive.

It states that while adopting cluster-based approach for produce or produce mix, formation of FPOs will also focus on "One District One Product" approach for development of product specialization, in case the focused agriculture produce has been declared for that district, whereby FPOs will be encouraged for promoting processing, branding, marketing and export of the product for better value realization. There may be more than one cluster for one product in one district and a cluster also may extend beyond a district.

The scheme on formation and promotion of 10,000 FPOs is to be implemented till 2023-24 with budgetary support of Rs. 4496.00 crore. Since financial support excepting management cost is to be extended for five years, therefore, FPOs formed will be required to be financially supported till 2027-28, with the additional committed liability for period from 2024-25 till 2027-28 of Rs. 2369.00 crore say Rs. 2370.00 crore. Thus, the total budgetary requirement up to 2027-28 would be Rs. 6866.00 crore. The budget requirement is to be met from overall allocations of DAC&FW.

There is a need to do more case studies that can give insights into creating new theories or models for both researchers and practitioners (Prasad, 2019).

1.4 Research objectives and Methodology

The study examines performance and impact of PCs across resource institutions and states by-

i. Assessing physical and financial performance of PCs over the years
ii. Understanding the factors that influence the performance of PCs and document the best practices followed by successful PCs and reasons behind those that failed
iii. Comparing and contracting different models of PC organisation and promotion for identifying more robust models for scale up
iv. Comparing the performance of specialised PCs like all women or special domain PC with rest of the PCs and analysing the factors in differential performance
v. Examining economic impact on member farmers, and
vi. Inferring on policy and practice mechanism for improving performance of PCs.

1.4.1 Methodology

As of December 2014, there were total 462 PCs in India, out of which 15% were in MP, 14% in Maharashtra, 11% in Tamil Nadu and about 9% in Gujarat. (Trebbin, 2014). By 2018, there were 3200 registered PCs and NABARD (48%) and SFAC (38%) had promoted 86% of them. In all major states of India, only less than 2% farmers were members of FPOs ranging from low of 0.5% in AP to high of 2% in West Bengal and 2.3% in Karnataka, with the Indian average being 1.7%. Only hill states like UK, Sikkim and Manipur had high %age of 6.6%, 25% and 5% respectively. Infact, 12 states had less than 1% farmers as members of FPOs, in another 6 states, 1-7% were members. In our study states i.e. MP it was 1.9%, Rajasthan 1.3% and U.P it was 0.18%, WB- 2% and TN it was 1.5% (Rani et al, 2018).

Out of 2294 registered PCs under the NABARD, SFAC and non-SFAC lists, **935** PCs are at least 3 years old (registered before 2016) and are considered for this study frame. Further**,** only those states which had at least 30 PCs were considered.

Infact, in 2018, 50% of the members of FPOs were in four states of Karnataka, MP, Tamilnadu and WB. The highest number of RIs/POPIs was in Karnataka (85) which was 9% of all promoting agencies in India. The five study states had 39% of SFAC supported FPOs and 35% of NABARD supported FPOs and in total they accounted for 36% of all FPOS in India supported by these two agencies. These states had 28% of NABARD POPIs and 39% of SFAC RIs and altogether they had 28% of all promoting agencies in India (table 1.2 and 1.3). Infact, in terms of FPOs per agri GDP value, TN and MP were at high level (0.54 and 0.74), while WB and Rajathan were at medium level (0.38 and 0.37) and U.P,. was at the bottom (0.16 FPOs per billion rupees of AGDP (Manaswi et al, 2018).

These PCs are classified by different Resource Institutions (RIs) and typically, one RI works across PCs across a state/s. RIs which have promoted at least 20 PCs, with at 10 PCs in at least one state, and those who are either crop based, or in allied sector were considered (table 1.4). Some of these PCs are also supported by special agencies, which are large NGOs without state support, or state agencies like NDDB, or have participated in futures markets (through NCDEX) or availed loans from FWWB, and which are into specific and innovative domains like better cotton, or fair trade or organic. Some of the PCs are cases of failures, and some are cases with restructuring of PCs after initial failure. From each promoter in each state, we would study 2-3 PCs, and one or two other FPOs in their local area. Since some of the promoters are across more than one state like IGS, we may take only 1-2 PCs in the second or third state in case the promotion and business model is same/similar across states. The case study PCs /FPOs were picked up from across states and the total PCs/FPOs studied is 35 including two non-PC FPOs (table 1.6).

These PCs were evaluated in terms of their physical and financial performance by analysing and comparing their net worth, net profit, the ratio of equity capital mobilized to authorised equity capital, payment of dividends, external facilitator support and corporate linkages from annual reports and business plans of past few years, and interviews of CEOs, managers, board members and key person of promoting agency for the respective PC.

In each case study PC and other FPO in neighbourhood (if there), 10 member farmers and 10 non-member farmers were interviewed. This was to compare impact of PC in terms of both, before and after the intervention of PC, and with and without the intervention of PC and even with non-FPC format organisation. The total sample for farmers was 333 member farmers and 332 non-member farmers, totalling to 665. They were interviewed to assess the involvement of members in PC and if PCs had substantially impacted the economic activity of members and their income based on parameters like proportion of produce sold through PCs, inputs bought from PCs, difference in yield and price of their produce after the intervention of PCs, and significant increase in income due to crop diversification.

Table 1.2: State wise and RI (SFAC) and POPI (NABARD) wise number of FPOs

State	No. of RIs	FPOs by RIs	No of POPIs	FPOs by POPIs
Andaman & Nicobar			1	2
Andhra Pradesh	8	7	57	106
Arunachal Pradesh		2	1	1
Assam	6	12	27	40
Bihar	9	27	51	105
Chhattisgarh	7	26	35	570
Delhi	2	4	4	
Goa	1	2	0	2
Gujarat	8	20	32	115
Haryana	3	23	13	50
Himachal Pradesh	2	5	18	54
Jammu Kashmir	1	2	7	12
Jharkhand	6	8	37	65
Karnataka	7	119	76	187
Kerala	3		69	105
Madhya Pradesh	15	141	37	160
Maharashtra	16	91	15	118
Manipur	2	4	4	5
Meghalaya	3	3	4	9
Mizoram	2	1	7	15
Nagaland	2	2		
Orissa	7	41	26	100
Punjab	2	7	12	67
Rajasthan	7	40	59	143
Sikkim	3	30	4	4
Tamil Nadu	11	11	21	170
Telangana	3	20	37	74
Tripura	3	4		1
Uttar Pradesh	9	35	76	113
Uttarakhand	4	7	37	52
West Bengal	4	75	22	150
Total	156	769	789	2595
Average FPOs per RI/POPI		4.9		3.3

Source: Wadkar, 2018.

Table 1.3: RIs, POPIs and FPOs in different study states as %age of total in India

State	No. of RIs	FPOs by RIs	No of POPIs	FPOs by POPIs
Madhya Pradesh	9.62	18.34	4.69	6.17
Rajasthan	4.49	5.20	7.48	5.51
Tamil Nadu	7.05	1.43	2.66	6.55
Uttar Pradesh	5.77	4.55	9.63	4.35
West Bengal	2.56	9.75	2.79	5.78
ALL	29.49	39.27	27.25	28.36

Source: Wadkar, 2018

Table 1.4: Average FPOs promoted by RIs/POPIs

State	FPOs per RI	FPOs per POPI
Madhya Pradesh	9.40	4.32
Rajasthan	5.71	2.42
Tamil Nadu	1.00	8.10
Uttar Pradesh	3.89	1.49
West Bengal	18.75	6.82
All States	4.93	3.29

Source: based on Wadkar, 2018

1.5 Chapterisation

The report is organised into 6 chapters besides introductory chapter 1. Chapters 2, 3,4, 5 and 6 analyses the profile, performance and impact of PCs in the states of U.P., Rajasthan, M.P., W.B and Tamilnadu respectively They not only assess physical and financial performance of the PCs but also examine their input and output interface with members as compared with non-member and as three years before. This is done for member and non-members and also promoter wise and for each PC in case of each promoter. The final chapter (7) summaries the findings for the five states altogether and 35 PCs and other FPOs and makes suggestions for policy and practice to improve the performance and impact of PCs on small farmer livelihoods.

Table 1.5: State wise and Resource institution wise list of PCs for sampling

State	Resource Institution	PCs
Uttar Pradesh	Indian Farm Forestry Development Co- operative Ltd (All defunct)	10
	(Non-SFAC) (1 NCDEX)	132
	UP Bhumi Sudhar Nigam under World Bank supported project thru BASIX Consulting and Technology Services Ltd (BCTS) -100; 7 by Basix Krishi Samruddhi and others	
	NDDB	1
Madhya Pradesh	Vrutti Livelihood Resource Centre (VLRC) (1 FWWB)	15
	Action for Social Advancement (ASA) (4 FWWB)	15
	Action for Social Advancement (ASA) (All Women PC) (1 FWWB)	3
	Indian Grameen Services (IGS) (1 NCDEX) (2 Cooperatives)	17
	Professional Assistance For Development Action (PRADAN) (All Women PC)	3
	AKRSP	2
Tamil Nadu	Non-SFAC (1 FWWB)	48
	Non- SFAC - All women PC (1 FWWB)	2
Rajasthan	Indian Society of Agribusiness Professionals	10
	Indian Grameen Services (IGS) (1 NCDEX)	12
	NDDB	1
West Bengal	BASIX Krishi Samruddhi Ltd (BKSL)	20
	Indian Grameen Services (IGS)	22
	Non PCs in districts common with BASIX and IGS	40
Total		**353**

Source:**https://nabfpo.in/images/staticFPO.html**, **http://sfacindia.com/List-of-FPO-Statewise.aspx**, **https://www.ncdex.com/Downloads/NCDEXImpact/PDF/NCDEX_Group_Connecting_Farmers_to_Market_November2018.pdf**, **http://gujpro.co.in/fpos/**

Table 1.6: State wise and Promoter wise number of PCs/FPOs Studied

State > Promoter	MP	Rajasthan	UP	TN	WB	Total
SPS	1 (women PC)					1
AKRSPI	2 (one women, goatery PC)					2
ASA	2 (both women)					2
Vrutti	1					1
IGS (Basix)	1	2			3	6
PRADAN	1 (and one co-op)					2
NDDB		1 (milk)	1(milk)			2
ISAP		2				2
BKSL (Basix)			2		2	4
BCTS (Basix)			2			2
SEEDS				2		2
Dhan/ KTL				3		3
Vidiyal				1 Women goat PC)		1
ESAF				3		3
Srijoni					1	1
Chaltaberia Trust					1 (trust)	1
Total	8	5	5	9	6	35

Chapter 2
Performance and Impact of PCs in Uttar Pradesh

Introduction

Uttar Pradesh is the largest agricultural producer state of India with 17% of all food grain production and ranks first in production of wheat, and sugarcane and potato. The state accounts for 32% of potato acreage and 42% of potato production in India with the second highest yields of potato after Gujarat (GoUP, 2009). It also had one of the largest cold storage capacities (40% of India's total) used mostly for potatoes. The agricultural sector accounted for 59% of the state workforce and 24% of the GDP in 2015-16. Every fourth Indian farmer is placed in U.P. 83% of the net cropped area is irrigated and it has cropping intensity of 155. However, the landholdings are extremely small with 92% holdings being marginal or small in 2010-11 with average size of holding of 0.76 hectares. Further, the three crops of wheat, paddy and sugarcane account for 70% of GCA of the state, and average monthly income of the farming household was only Rs. 4900 in 2012-13 (Tripathi, 2018). Further, the state is a laggard in co-operative performance and even in the setting up the farmer producer companies until recently. In fact, the recent surge in PC numbers in UP was a surprise for the authors and happened mainly because of one state agency i.e. UPBSN. It has promoted 101 PCs by end of 2016 with 44585 shareholders with 445 members per PC. One of our study PCs is the PC with the highest share capital in the state in 2016 at Rs. 10.88 lakh. Most of the PCs had fam input sale licenses and 10 had mandi licenses also in 2016 with 30 others having applied for the same. The average turnover of inputs was Rs. 16 lakh per PC and output turnover Rs. 13 lakh per PC totaling to Rs. 29 lakh per pc (UPBSN). On the other hand, only for NABARD POPIs, which numbered 74, 60% had promoted one PC each, 28% two each and only 12% had promoted 3 or 4 PCs each. On average, one promoter had promoted 1.5 PC each. All our study PCs in U.P. were those supported by SFAC.

The next section of this chapter analyses the profile of all PCs in terms of their physical and financial parameters for at least last three years. The second section focuses on performance and impact of the milk PC on members vis-a-vis non-members and the third section examines the other non-milk PCs in the state promoted by two different but somewhat similar agencies and their impact on farmer members. Section four of the chapter makes a comparison between those two promoters for assessing the differential impact, if any. Section five compares the individual PCs of each promoter. The chapter then concludes in section six with major observations on the performance of the PCs in the state.

2.1 Physical and Financial Performance of PCs

In U.P., of the PCs promoted by NGO/professional development agencies, the authorized capital was modest (from Rs. 5-15 lakh) and most of them except one (Navjyoti) had mobilised that. Their turnover was significant enough (Rs. 50-88 lakh) except in case of one (Naveen Kisan) which could not go beyond Rs. 16 lakh. Most of them except one (GDPC) had small profits and most of them (except Navjyoti) had reserves as well (Table 2.1). These PCs showed average performance on various parameters of input and output business. But, they suffered from lack of scale as all of them had only 1000 members each despite the fact that they had been in existence for more than five years each.

In case of one PC, the equity shares remained confined to a large extent with the promoters and a few members only until recently. 48% of the shares were held by just eight members in 2016-

17 which is not a desirable thing for a PC though it may be needed initially but continuing with it for years is not a positive approach.

On the other hand, Saahaj of NDS of NDDB was a class apart in many ways as it had scale in terms of membership, equity base and level of business turnover besides the fact that it dealt with a high value produce- milk. It had profits of the order of Rs. 13 core and had mobilized most of its authorized capital which was of the order of Rs. 30 crore and earlier Rs. 20 crore. 50% members supply milk exclusively to Saahaj. Another reason for Sahaaj's better performance was the governance and business models which were very tight and food-proof. It relied on low -asset -high turnover model and strictly enforced member discipline besides the professional input it had from the NDDB team. This is one of the six and one of the first PC promoted by the NDS across six states.

Basix- the parent body of BCTS, BKSL, and IGS has promoted 317 FPOs in 17 states as of 2018 (Rani, et al, 2018). There were 10 cases of failure of FPCs promoted by BCTS in U. P. and they mainly failed because some traders create problems which leads to infighting within the Board. Some FPCs were organized just to meet the targets and there was no member involvement and, in some others, there were outright frauds committed by BoDs. Thus, it was more of governance failure. Further, all FPCs in the state had poor staff capacity and there was no money for professional staffing in the project supported by World Bank. In fact, one person was looking after 15 producing FPCs. The BCTS had deployed one project manager in each district. The BCTS had 29 staff under the UPVSN for six years which now number only 5 of whom 4 are in the field.

2.2 Milk PC (Saahaj): member and non-member profile

The members, including only one female, were more literate on an average compared to their non-member counterparts with 70% of them being high and higher secondary school literate. As against this, 30% of the non-members (all male) were graduate though 50% of them were illiterate or middle school pass (Table 2.2). The average years of education were 11.4 in case of members and 8.6 in case of non-members. 50% each of the members had farming and animal husbandry as primary occupations and only 40% of the non-members had farming as primary occupation, 50% were animal rearers and 10% had other businesses. 50% each of the members had animal husbandry and farming as secondary occupation as these were Saahaj members.

Average owned land was 4.82 acres for members and 1.92 for non-members. This means the FPC milk producers were larger landholders relatively and their operated average land area even higher being 10.11 acres where in the case of non-members, it was same as owned land average. The reason for very high operational holding was the fact that one member had 60 acres, mostly leased in. By owned land, though 60% of the members were marginal owners but they owned only 17% of total area and 30% were semi-medium and 10% medium by ownership accounting for 58%, and 26% of all owned land respectively (Table 2.3). By operated land, among members, 50% were marginal and had 8% of all operated land, 10% small with 3% of land, 20% semi-medium with 18% land and 10% each medium and large with 12% and 59% land. The non-members were much small operators with 60% being marginal and operating 27% land with 30% small and 10% semi-medium and medium each operating 47% and 26% of operated land (Table 2.4).

Table 2.1: Profile and performance of various PCs in U.P.

PC>	Gram Development (2013)				Naveen Kisan (2014)				Navjyoti (2014)			Krishi Vikas (2015)				Sahaaj (2014)			
Year> Parameters	**2014-2015**	**2015-2016**	**2016-2017**	**2017-2018**	**2015-2016**	**2016-2017**	**2017-2018**	**2018-2019**	**2016-2017**	**2017-2018**	**2018-2019**	**2015-2016**	**2016-2017**	**2017-2018**	**2018-2019**	**2015-2016**	**2016-2017**	**2017-2018**	**2018-2019**
Members								1034	502	1010	1010	195	352	1139	1139	77568	80952	60901	76540
Authorized Capital (Rs. Lakh)	5	5	5	10	10	10	10	10	10	15	15	5	5	5	5	2000	2000	2000	3000
Paid up Capital (Rs. Lakh)	1.42 (28.00) h *	1.67 (33.40)	1.67 (33.40)	8.71 (87.10)	1.1 (11.0)	1.1 (11.0)	3.18 (31.80)	3.18 (31.80)	10 (100.00)	15 (100.00)	15 (100.00)	1.36 (27.20)	2.33 (46.60)	5 (100.00)	5 (100.00)	897 (44.85)	1533 (76.65)	1856 (92.80)	2303 (76.77)
% of shares with >5% share each (5)	64 (9)	48% (8)	48% (8)									20%	20% (150-250 shares each)	20% (150-250 shares)	20% (150-250 shares each)				
Revenue (Rs. Lakh)	12.7	18.08	63.49	50	6.9	5.51	7.59	16.05	52.44	50.33	70.49		15.34	77.39	87.96	48944	49799	77319	84185
Profit (Loss)	2746	3214	6932	(3046)	313090	(69309)	7145	9087	(192142)	(80422)	47262		1320	25750	20031	99600000	17900000	121500000	134900000
Reserves & Surplus	(10782)	(7568)	449363		313090	243780	260066	269153	(402346)	(482769)	(435506)	0	1152	477000	498000				
Assets (Rs. Lakh)					4.23	5.87	8.44	10.62	22.51	20.73	24.21								

Note: * These figures in brackets are the %age of authorised equity mobilized; Source: PC balance sheets and records

More importantly, the livestock ownership among members was predominantly made up of buffalo (90% farmers having them) and cows with average of three such livestock and making up 46% of all animals. Cows were owned by 80% and average 3 each and were 39% of the total livestock owned by members. The average of three goats per household led to their share of 16% in total livestock though only 30% farmers owned them. The livestock ownership of non-members was more towards goats with 20% owning 21 goats accounting for 43% of all livestock owned by non-members and buffaloes another 41% and cows only 12% with only 50% farmers owning cows and all farmers owning buffaloes. However, the average size of livestock per household was lower here with 2 buffaloes, one cow and 11 goats per household (Table 2.5). 80% members had electric tube wells for irrigation and 20% diesel engines for the same but only 20% each of the non-members had such facilities and 60% did not report assured irrigation.

Table 2.2: Distribution of Milk PC member and non-member farmers by education

Category>	Members		Non-Members	
Parameter> Education	Farmers (No.)	% in total	Farmers (No.)	% in total
Illiterate	1	10	2	20
Middle School	0	0	3	30
Primary School	1	10	0	0
High School	3	30	2	20
Higher Secondary	4	40	0	0
Graduate	0	0	3	30
Postgraduate	1	10	0	0
Total	10	100	10	100

Table 2.3: Distribution of Milk PC member and non-member farmers by Owned Land

Category>	Members				Non- Members			
Parameter> Owned Land	Farmers (No.)	% in total	Land (Acres)	% in total	Farmers (No.)	% in total	Land (Acres)	% in total
Marginal	6	60	8.2	17.01	6	60	5.2	27.08
Small	0	0	0	0	3	30	9	46.88
Semi-M	3	30	28	58.09	1	10	5	26.04
Medium	1	10	12	24.90	0	0	0	0
Total	10	100	48.2	100.00	10	100	19.2	100.00

Chemical fertilisers were reported being bought by two farmers each among members and non-members from dealers, and chemical pesticides were bought by one member (10%) and three non-member farmers (30%) from dealers only and one more member (10%) from both dealers and agricultural university. Only one farmer reported use of biofertiliser among non-members who bought it from dealers. No farmer reported use of biopesticides. One member farmer bought seeds from PC and two (20%) from dealers as compared with three non-member buying seeds from dealers and one from PACS and PC. The most relevant input for the members and non-member milk producers was cattle feed which was bought by 70% members from PC and 10% non-members also buying it from the PC with other non-members buying it from dealers, or PC and dealers both, and dealer and other local farmers or a combination of dealers and

other FPOs. But, 30% and 40% did not report use of cattle feed (Table 2.6). The major reasons among members for purchase of cattle feed from PC included: better and more reliable quality (29% each) and timely availability (15%) in that order.

The cropping intensity of members (1.2) was lower than that of non-members (2). The cropping pattern was dominated by paddy (100% farmers with % 33% of kharif area ND 29% OF GCA) in case of members as well as non-members (60% of farmers with 43% of kharif area and 16% of GCA during the year.

Table 2.4: Distribution of Milk PC member and non-member farmers by Operated Land

Category>	Members				Non- Members			
Parameter> Operated Land	Farmers (No.)	% in total	Land (Acres)	% in total	Farmers (No.)	% in total	Land (Acres)	% in total
Marginal	5	50	7.6	7.52	6	60	5.2	27.08
Small	1	10	3.5	3.46	3	30	9	46.88
Semi-M	2	20	18	17.80	1	10	5	26.04
Medium	1	10	12	11.87	0	0	0	0
Large	1	10	60	59.35	0	0	0	0
Total	10	100	101.1	100.00	10	100	19.2	100.00

Table 2.5: Distribution of Milk PC member and non-member farmers by Livestock Owned

Category>	Members				Non-Members			
Parameter> Animal	Farmers	No. of animals	Average Animals	% Total Animals	Farmers	No. of animals	Average Animals	% Total Animals
Buffalo	9	26	2.89	45.61	10	20	2.00	40.82
Cow	8	22	2.75	38.60	5	6	1.20	12.24
Goat	3	9	3.00	15.79	2	21	10.50	42.86
Oxen	0	0	0	0	1	2	2.00	4.08
Total		57		100.00		49		100.00

The other major kharif crop was bajra grown by 60% member farmers with 30% of kharif area and 12% of GCA compared with similar %age of farmers growing bajra on 50% of kharif area and 18% of GCA (Tables 2.7, 2.8 and 2.9). The non-members also reported 7% of season's area under maize grown by 10% farmers. In Rabi, it was wheat which dominated the cropping pattern with all farmers members growing it on 78% of kharif season area which was 32% of total GCA with other crops being potato (by 40% farmers with 13% of rabi area and 5% of

GCA) and mustard by 10% farmers on 8% of kharif area and 4% of GCA. Among non-members, it was again wheat grown by 80% farmers on 62% kharif acreage and 29% of GCA followed by gram with 20% farmers growing in in 8% of rabi area and 4% of GCA. Potato and mustard were other important crops grown by 20% and 40% on 11% and 18% of rabi area and it was 5% and 8% of GCS respectively. In summer season, it was moong for 30% member farmers and 31% of summer area and 5% of GCA and urad with 20% of farmers, 47% of summer area and 8% of GCA. The non-member farmers mainly grew moong in 30% case and 48% of summer area and 8% of GCA. Other crops in summer by non-member farmers were bajra, maize and potato on 15 of season's area by 10% farmers each and 3% of GCA each. Paddy, mustard and wheat had 3-4 acres per ha in the season while bajra and potato had 1-2 acres each for member farmers. The average crop acreage for non-members was one acre for wheat. Paddy, bajra, moong, maize, and potato each per farmer per season (Tables 2.7, 2.8 and 2.9).

Table 2.6: Distribution of Milk PC member and non-member farmers by source of Cattle Feed

Category>	Members		Non-members	
Parameter> Source	No. of farmers	% in total	No. of farmers	% in total
PC	7	70	1	10
Dealers	0	0	2	20
Dealers, PC	0	0	1	10
Dealers, Other FPOs	0	0	1	10
Dealers, Local Farmers	0	0	1	10
None	3	30	4	40
Total	10	100	10	100

Table 2.7: Kharif cropping pattern of Milk PC member and non-member farmers (area in acres)

Category>	Members						Non- Members					
Parameter> Crop	Farmers	% of total	Kharif Area	% Kharif Area	% total area	Average Area	Farmers	% Farmers	Kharif Area	% Kharif Area	% total area	Average Area
Bajra	6	60	14	29.47	12.14	2.33	6	60	7	50.00	18.28	1.17
Paddy	10	100	33.5	70.53	29.05	3.35	6	60	6	42.86	15.67	1.00
Maize	0	0	0	0	0	0	1	10	1	7.14	2.61	1.00
Total			47.5	100.00	41.20				14	100.00	36.55	

Table 2.8: Rabi cropping pattern of Milk PC member and non-member farmers (area in acres)

Category>	Members						Non- Members					
Parameter> Crop	Farmers	% Farmers	Rabi Area	% Rabi Area	% total area	Average Area	Farmers	% Farmers	Rabi Area	% Rabi Area	% total area	Average Area
Fodder	2	20	0.5	1.03	0.43	0.25	0	0	0	0	0	0
Garlic	1	10	1	2.06	0.87	1.00	0	0	0	0	0	0
Gram	0	0	0	0	0	0	2	20	1.5	8.47	3.92	0.75
Mustard	1	10	4	8.25	3.47	4.00	4	40	3.2	18.08	8.36	0.8
Potato	4	40	6.1	12.58	5.29	1.53	2	20	2	11.30	5.22	1
Wheat	10	100	36.9	76.08	32.00	3.69	8	80	11	62.15	28.72	1.375
Total			48.5	100.00	42.06				17.7	100.00	46.21	

Table 2.9: Summer cropping pattern of Milk PC member and non-member farmers (area in acres)

Category>	Members						Non- Members					
Parameter> Crop	Farmers	% Farmers	Summer Area	% Summer Area	% total area	Average Area	Farmers	% Farmers	Summer Area	% Summer Area	% total area	Average Area
Bajra	1	10	1	5.18	0.87	1	1	10	1	15.15	2.61	1.00
Fodder	1	10	0.8	4.15	0.69	0.8	1	10	0.4	6.06	1.04	0.40
Moong	3	30	6	31.09	5.20	2	3	30	3.2	48.48	8.36	1.07
Mustard	1	10	2.5	12.95	2.17	2.5	0	0	0	0	0	0
Maize	0	0	0	0	0	0	1	10	1	15.15	2.61	1.00
Potato	0	0	0	0	0	0	1	10	1	15.15	2.61	1.00
Urad	2	20	9	46.63	7.81	4.5	0	0	0	0	0	0
Total			19.3	100.00	16.74				6.6	100.00	17.23	

Information regarding general extension about farming came from PC (30%), friends (30%), PC and friends (20%) PC, mobile and Agri dev officer (10%). On the other hand, non-members received their extension from friends (30%), dealers (20%), PC (10%), veterinary worker (10%) and a combination of various sources in case of 10 each (Table 2.10). Where most of the members received information about PC from PC employees (70%), promoters (10%) and friends (20%), the non-members mostly relied on PC employees (40%) and dairy *sahayak* (local milk collection centre operator) in 10% cases with 50% having no source of information (Table 2.11). Still, only 60% members knew that PC is owned by member famers and 20% and 10% though it was owned by PC employees or promoting agency (NDS/NDDB). 10% had no idea about its ownership. Among non-members, awareness was even poorer expectedly as only 20% thought it belongs to farmers, 40% reporting it to be PC employee owned and 4-% not knowing about it at all (Table 2.12).

Table 2.10: Distribution of Milk PC member and non-member farmers by source of general agricultural information

Category>	Members		Non-members	
Parameter> Source	No. of farmers	% of total	No. of farmers	% of total
Friends	3	30	3	30
PC	3	30	1	10
PC, Mobile, ADO	1	10	0	0
PC, Friends	2	20	0	0
Friends, Media	0	0	1	10
Friends, FPO, ADO	0	0	1	10
Friends, Point of purchase	0	0	2	20
Friends, ADO	0	0	1	10
Vet	0	0	1	10
PC, Vet	1	10		
Total	10	100	10	100

Table 2.11: Distribution of Milk PC member and non-member farmers by source of information regarding PC

Category>	Members		Non-members	
Parameter> Source	No. of farmers	% of total	No. of farmers	% of total
Friends	2	20	0	0
PC Employees	7	70	4	40
PC Promoters	1	10	0	0
No One	0	0	5	50
Sahayak	0	0	1	10
Total	10	100	10	100

Table 2.12: Distribution of Milk PC member and non-member farmers by knowledge about PC Owner

Category>	Members		Non-member	
Parameter> PC Owner	No. of farmers	% of total	No. of farmers	% of total
Farmers	6	60	2	20
PC Employees	2	20	4	40
Promoting Agency	1	10	0	0
Don't Know	1	10	4	40
Total	10	100	10	100

2.2.1 Output impact of Milk PC:

Seven farmer reported selling milk to PC in case of buffalo milk and four farmers selling to PC cow milk where the quantity of milk supplied had increased over the last three years. Four members in case of buffalo milk and three members of cow milk sold to the other FPOs earlier and were still selling in those channels as well. And other channels like local dairy had declined completely as were other co-operatives in the area in the case of members. The members reported ap rice increase of 16-20% over the previous channel price. As against this, in case of non-members, only four farmers out of eight buffalo milk famers reported selling to other milk FPO even now in case of buffalo milk and other three out of four cow milk producer continuing with local dairy. There was significant increase (29%) in the number of buffaloes owned by farmer member and also increase in milk yield by 25-50% and therefore, marketed surplus increased by 50-60% in case of cow and buffalo milk respectively.

2.3 Non-Milk PCs: Member and non-member profile and farming

All of the PC members were male and only one among the non-members was a female. Average age of member and non-member farmers was 46 and 43 years respectively.

Most of the members had some level of literacy with only 17% being illiterate and 12% even being graduate and postgraduate. 98% reported farming as a primary occupation and other 2% skilled labour. For 44% of the total who reported any secondary occupation, it was animal husbandry for 22% and agriculture for 2%. The others being grocers, skilled labour, or unskilled labour (Tables 2.13 & 2.14).

Table 2.13: Distribution of UP PC Members and Non-Member farmers by education

Category>	Members		Non-Members	
Parameter> Education	No. of farmers	% of total	No. of farmers	% of total
Graduate	4	9.76	1	2.38
High School	11	26.83	10	23.81
Higher Secondary	5	12.20	6	14.29
Illiterate	7	17.07	12	28.57
Middle	8	19.51	8	19.05
Post Grad	1	2.44	0	0
Primary	5	12.20	5	11.90
Total	41	100.00	42	100.00

27% of the non-members were illiterate and only 8% were graduates. 98% of them reported farming as a primary occupation with other 2% reporting as labour. Of the 50% who had any secondary occupation, 24% were into animal husbandry and 14% worked as labour (Table 2.13 & 2.14).

Table 2.14: Distribution of UP PC Members and Non-Member farmers by Secondary Occupation

Category>	Members		Non-Members	
Parameter> Secondary Occupation	No. of members	% of total	No. of farmers	% of total
Agriculture	1	2.44	0	0
Animal Husbandry	9	21.95	10	23.81
Business	3	7.32	2	4.76
Labor	2	4.88	6	14.29
Retired	1	2.44	0	0
Skilled Labor	2	4.88	3	7.14
None	23	56.10	21	50.00
Total	41	100.00	42	100.00

The average owned land for members was only 2.28 acres and operated land 2.91 acres (Table 2.15). 90% of the farmers were marginal or small by owned land and 88% by operated land. The small and marginal categories had 64% of the owned land and only 71% of the operated land while there were no medium farmers by ownership or operation. Even semi medium, and medium categories which had more than 35% of the owned land, cultivated only 29% (Tables 2.16 & 2.17).

Table 2.15: Average owned and operated land holding of UP PC Member and Non-Member farmers

Category> Average (acres)	Members	Non-Members
Owned Land	2.28	1.53
Operational Land	2.91	2.55

Table 2.16: Category-wise Distribution of UP PC Members and Non-Member farmers by owned land

Category>	Members				Non-Members			
Parameter> Category	Farmers (No.)	% in total	Land (Acres)	% in total	Farmers (No.)	% in total	Land (Acre)	% in total
Marginal	30	73.17	40.45	43.12	35	83.33	35.23	54.68
Small	7	17.07	20.35	21.70	5	11.90	15.2	23.59
Semi Medium	3	7.32	22	23.45	2	4.76	14	21.73
Medium	1	2.44	11	11.73	0	0	0	0
Total	41	100.00	93.8	100.00	42	100.00	64.43	100.00

Table 2.17: Category-wise Distribution of UP PC Members and Non-Member farmers by Operated Land

Category>	Members				Non-Members			
Parameter> Category	Farmers (No.)	% in total	Land (Acres)	% in total	Farmers (No.)	% in total	Land (Acres)	% in total
Marginal	20	48.78	31.35	26.19	31	73.81	37.71	35.10
Small	16	39.02	53.75	44.90	6	14.29	18.52	17.24
Semi Medium	5	12.20	34.6	28.91	3	7.14	19	17.69
Medium	0	0	0	0	2	4.76	32.2	29.97
Total	41	100.00	119.7	100.00	42	100.00	107.43	100.00

95% of the non-member farmers were marginal or small in terms of owned land and 88% in terms of operational holdings. Though there was no medium farmer by ownership but due to the leasing in and leasing out, just two farmers came in this category as operated cultivator. 5% of the farmers were medium who cultivate 30% of the operated land. Whereas small and marginal farmers owned 50% of the total owned land, they operated 56% of the area.

56% of the member farmers owned buffaloes and 39% cow besides 12% owning goats. Buffaloes was 44% of the total livestock and cows 39%. On an average a household had two cows, one buffalo and three goats. On the other hand, non-member farmers had buffalo in 48% cases, cow in 24% and goat in 17% cases. In this group, buffaloes were 53% of all livestock,

cows 21% and goats 26%. The average ownership of various types of livestock was however similar (Table 2.18).

Table 2.18: Distribution of UP PC Members and Non-Member farmers by Livestock owned

Category>	Members					Non-Members				
Parameter> Animals	Farmers (No.)	% in total	Animals (No.)	% in total	Average	Farmers (No.)	% in total	Animals (No.)	% in total	Average
Buffalo	23	56.10	35	44.30	1.52	20	47.62	40	52.63	2.00
Cow	16	39.02	31	39.24	1.94	10	23.81	16	21.05	1.60
Goat	5	12.20	13	16.46	2.60	7	16.67	20	26.32	2.86
Total			79	100.00				76	100.00	

Most of the member farmers had access to ground water-based irrigation with only 15% reporting lack of access to irrigation. 46% had owned tube wells and 17% shared with another 22% buying irrigation water.

Tube wells were the major source of irrigation with 46% of members and 52% of non-members owning the tube wells and 17% and 47% respectively sharing them. Others bought water for irrigation. Only 15% member farmers reported no source of irrigation. The tube wells were both electric motor based and diesel engine operated and both owned and shared (Table 2.19).

Table 2.19: Distribution of UP PC Members and Non-Member farmers by Source of Irrigation

Irrigation Source	Energy Source	Ownership	Members (No.)	% in total	Non-Members (No.)	% in total
Tube well	Diesel Engine	Owned	18	43.90	11	26.19
		Rented	4	9.76	0	0
		Shared	5	12.20	8	19.05
	Electric Motor	Owned	1	2.44	10	23.81
		Rented	5	12.20	0	0
		Shared	2	4.88	11	26.19
Well	Diesel Engine	Owned	0	0	1	2.38
		Shared	0	0	1	2.38
Rainfed			6	14.63	0	0

98% of the members grew paddy and 25% and 20% each maize and bajra with 10% cultivating banana and 6% lady finger. Paddy accounted for 76% of the Kharif area followed by bajra at 10% and maize at 9%. Paddy area worked out be 38% area of the gross cropped area (GCA) during the year while it was 4-5% of the total in case of maize and bajra each. In the Rabi season, 96% farmer grew wheat, 55% potato, 35% mustard and 10% garlic. Wheat accounted for 69% of the season's area followed by potato at 17% and mustard at 12%. Wheat took 31% of the GCA followed by potato at 7% and mustard at 5%. Even summer seasons one of the important crop seasons with 51% of the farmer growing crops like Mentha (21%) of the members and urad 10% and mung and lady finger at 8%. However, Mentha alone accounted

for 51% of the seasons' crop area followed by urad at 25% and mung at 20%. In the gross crop area annually, mentha took 6% and urad 3% of the total.

Banana a new crop in the area especially introduced by one of the PCs was grown by 12% farmers and in 4% of the cropped area.

Paddy was grown by 81`% of the non-member farmers accounting for 57% of the Kharif area. The other major crops in the season were bajra grown by 21% farmers taking 11% of the Kharif area and maize and vegetables grown by 21% and 29% farmers taking up 10% and 15% of the Kharif area. In Rabi, wheat was grown by 90% farmers and potato and mustard 43% and 38% respectively. Garlic was the only other important crop grown by 17% farmers in 8% of rabi area. The crops of wheat, potato, mustard, and garlic accounted for 59%, 13% and 13% of the season's area. In summer, it was mainly mentha and vegetables which was grown by a significant number of farmers and these crops accounted for 29%, and 22% of the summer area. Overall, wheat accounted for 26%, paddy 22%, and bajra and mustard 6% each of the GCA during the year maize and menthe accounting for 6% and 5% each respectively. The average cropping intensity of these non-member farmer was 2.26 as against 2.13 for member farmers (Table 2.20,2.21 and 2.22).

Interestingly, 88% members knew the name of the PC and some others knowing it by some other name (6%). Only 6% did not know the name of the PC. 57% members knew that the PC is owned by the farmer members with others reporting BOD (14%), PC employees (10%) and promoting agency (4%) as the owners.

41% of them relied on PC to get the agricultural information another 16% on PC and friends and 12% on friends who were other farmers. PC employees and promotors had been the biggest influence on the members for joining the PC with 35% and 29% respectively reporting that the other major influences were Board of Directors (18%) and friends (16%).

The major source of information about agriculture for non-members was the friends and other farmers in case of 38% and these combined with dealer in 13% cases with PC and dealer exclusively accounting for only 12% each. Rest of the farmers used various combination of sources of information.

Even 77% non-member farmers knew about the PC but only 13% of them thought it is owned by farmers. 50% of them had learnt about it from the PC and its employees and promotors. 48% also wanted to become a member of the PC but had not become mainly because they were not aware whether they could become member and no one had approached them. Similarly, those who expressed no desire to become members said so because they had no information, or they were not interested because of various reasons.

Table 2.20: Kharif cropping pattern of UP PC Member and Non-Member farmers

Category>	Members					Non-Members				
Parameter> Crop	Farmer (No.)	% in total	Kharif Area	% Kharif Area	% Total Area	Farmer (No.)	% in total	Kharif Area	% Kharif Area	% Total Area
Maize	13	31.71	14.6	13.08	5.73	9	21.43	9.6	10.22	3.96
Mustard	1	2.44	1	0.90	0.39	0	0	0	0	0
Vegetables	6	14.63	2.7	2.42	1.06	12	28.57	14.25	15.18	5.88
Bajra	4	9.76	2.4	2.15	0.94	9	21.43	10.3	10.97	4.25
Banana	5	12.20	5.2	4.66	2.04	0	0	0	0	0
Paddy	40	97.56	85.75	76.80	33.68	34	80.95	53.74	57.24	22.16
Others	0	0	0	0	0	6	14.29	6	6.39	2.47
Total		100	111.65	100.00	43.85		100	93.89	100.00	38.71

Table 2.21: Rabi cropping pattern UP PC Member and Non-Member farmers

Category>	Members					Non-Members				
Parameter> Crop	Farmer (No.)	% in total	Rabi Area	% Rabi Area	% Total Area	Farmer (No.)	% in total	Rabi Area	% Rabi Area	% Total Area
Fruits	3	7.32	0.9	0.79	0.35	0	0	0	0	0
Garlic	4	9.76	1.8	1.59	0.71	7	16.67	7.9	7.58	3.26
Maize	1	2.44	0.3	0.26	0.12	0	0	0	0	0
Mustard	16	39.02	13.4	11.83	5.26	16	38.10	13.29	12.75	5.48
Potato	24	58.54	20.75	18.31	8.15	18	42.86	13.46	12.91	5.55
Ramdana	2	4.88	1	0.88	0.39	0	0	0	0	0
Vegetables	3	7.32	1.1	0.97	0.43	4	9.52	2.2	2.11	0.91
Wheat	39	95.12	74.05	65.36	29.08	38	90.48	61.48	58.98	25.35
Others	0	0	0	0	0	4	9.52	5.91	5.67	2.44
Total		100	113.3	100.00	44.50		100	104.24	100.00	42.98

Table 2.22: Summer cropping pattern UP PC Member and Non-Member farmers

Category	Members					Non-Members				
Parameter> Crop	Farmer (No.)	% in total	Summer Area	% Summer Area	% Total Area	Farmer (No.)	% in total	Summer Area	% Summer Area	% Total Area
Fruits	3	7.32	1.05	3.54	0.41	3	7.14	2.6	5.85	1.07
Moong Dal	1	2.44	2	6.75	0.79	0	0	0	0	0
Peppermint	12	29.27	23.3	78.58	9.15	11	26.19	12.91	29.07	5.32
Urad	3	7.32	1.3	4.38	0.51	0	0	0	0	0
Vegetables	5	12.20	2	6.75	0.79		19.05	9.6	21.62	3.96
Bajra	0	0	0	0	0	2	4.76	1.2	2.70	0.49
Maize	0	0	0	0	0	3	7.14	14.8	33.33	6.10
Mustard	0	0	0	0	0	3	7.14	1.3	2.93	0.54
Others	0	0	0	0	0	1	2.38	2	4.50	0.82
Total		100	29.65	100.00	11.65		100	44.41	100.00	18.31

PC interface for inputs

56% of member farmers purchased seeds from the PC and 27% from both PC and dealers (Table 2.23). For chemical fertilisers and chemical pesticides 70% of the members got it from the PC and 15% from dealers and 7% from both. On the other hand, bio-fertilisers and bio-pesticides was used by few farmers, though here too, 2/3rd of them bought from the PC (Tables 2.24 and 2.25).

The seed purchase by non-member farmers was mostly from dealers (33%) or both dealers and PC (31%) with only 12% buying exclusively from the PC (Table 2.23). For chemical fertiliser and pesticides, the dealers were the major sources for 54% of farmers each (Table 23). The PC accounted for 25% and 20% of the farmers for both of these chemical inputs. Bio fertiliser and bio pesticides being used by the small proportionate of the farmers had PC as the important source with 50% or more farmers reporting it as the source of purchase (Table 24). Most of the agriculture machinery and equipment were rented from other farmers or dealers as PC really did not deal with it. Cattle feed was also bought from dealers by 76% of non-member farmers.

23% non-members farmers were aware of various initiatives being undertaken by the PC and 1/3rd of them had also attended some meetings organized by the PC but 90% of them had no experience of dealing with the PC.

Table 2.23: Distribution of UP PC Members and Non-Member farmers by Source of Seeds

Category>	Members		Non-Members	
Parameter> Source	Farmer (No.)	% in total	Farmer (No.)	% in total
Agri Dept, Dealers	2	4.88	1	2.38
Dealers	0	0	14	33.33
Dealers, PACS, PC	1	2.44	0	0
PC	23	56.10	5	11.90
PC, Dealers	11	26.83	13	30.95
PC, Horticulture Dept	1	2.44	0	0
PC, Local Farmers	3	7.32	0	0
Dealers, Local Farmers	0	0	4	9.52
Dealers, Local Farmers, Agri Dept	0	0	1	2.38
Dealers, Local Farmers, PC	0	0	1	2.38
None	0	0	3	7.14
Total	41	100.00	42	100.00

The reasons for purchase of seed from PC included among others: better quality, lower cost, fair dealing, and easy access. Easy access and lower cost was also reported for purchase of biofertilisers from PC. For chemical fertilisers it was again better quality, fair deal, more reliable source, easy access, and lower cost in that order while for chemical pesticides, it was access, lower cost and better quality and lack of any other source in that order.

Table 2.24: Distribution of UP PC Members and Non-Member farmers by Source of chemical inputs

Type of agrochemical>	Fertilizer				Pesticide			
Category>	Members		Non-Members		Members		Non-Members	
Parameter> Source	Farmer (No.)	% in total	Farmer (No.)	% in total	Farmer (No.)	% in total	Farmer (No.)	% in total
Dealers	6	14.63	23	54.76	5	12.20	23	54.76
Dealers, PACS, PC	1	2.44	0	0	1	2.44	0	0
Dealers, PCs	3	7.32	4	9.52	3	7.32	1	2.38
PACS/DCS, Dealers	1	2.44	0	0	0	0	0	0
PC	29	70.73	10	23.81	26	63.41	8	19.05
Agri Dept	0	0	0	0	1	2.44	0	0
PC, Other farmer groups	0	0	1	2.38	0	0	0	0
None	1	2.44	0	0	5	12.20	10	23.81
Total	41	100.00	42	100.00	41	100.00	42	100.00

Table 2.25: Distribution of UP PC Members and Non-Member farmers by source of Bio inputs

Type of Bio input>	Biofertilizer				Biopesticide			
Category>	Members		Non-Members		Members		Non-Members	
Parameter> Source	Farmer (No.)	% in total	Farmer (No.)	% in total	Farmer (No.)	% in total	Farmer (No.)	% in total
Dealers	1	2.44	0	0	0	0	2	4.76
Dealers, PACS, PC	1	2.44	0	0	0	0	0	0
Local farmers	1	2.44	2	4.76	0	0	0	0
PC	6	14.63	5	11.90	1	2.44	2	4.76
Dealers, PC	0	0	1	2.38	0	0	0	0
None	32	78.05	34	80.95	40	97.56	38	90.48
Total	41	100	42	100.00	41	100.00	42	100.00

76% of the members had received share certificates but 50% of them had various complaints about the services provided by PCs which included lack of timely availability of services, low procurement, low price realisation and the like.

In terms of satisfaction of various input services, there was slight improvement in case of members on quality, cost, availability and quantity after the intervention of the PC, but the output side remained more or less unaffected especially the price realisation. There was significant increase in area under bajra, and banana besides lady finger and potato after the intervention of the PC. Price realisation were reported to be 11-13% higher in bajra, maize and paddy. But the time taken for receiving payment had gone up with most of these crops. The payment was particularly delayed in banana. The yield and price gains were reported only in case of banana to the extent of 33% and 60% respectively by the member who sold it through the PC.

Before the intervention of the PC, only one farmer had sold wheat through the PC and one farmer each sold banana and potato. Two wheat farmers had sold through wholesale markets earlier who later sold through the PC. After the PC intervention, the number of potato farmers selling through the PC had increased to two. In terms of proportion of output sold, the PC accounted for 10% of wheat and potato and 9% of banana before the intervention and it had gone up only in case of potato at 13%.

The input services were reported by even non-members to have improved after the intervention of PC to some extent and the area under crops like paddy, wheat, mustard, millets and potato and even maize and garlic had increased in the last few years. The sale price realised had significantly increased in paddy, potato, millets and garlic after the PC intervention. However, the payments were delayed even further in wheat and paddy and menthe after the intervention.

More than 50% PC members had problems with services of the PCs which included inadequate input supply and lack of timely availability, low procurement, low price realisation and not procuring at all. 80% received no information about govt schemes or subsides while others mentioned knowing new schemes, subsidies on farm inputs like seeds and fertilisers and the like. Only 4% had received nay subsidy benefit as a member. 71% has no knowledge about activities of the PCs while others mentioned input supply, knowledge sharing, custom rentals of farm machinery and warehousing facility besides NPM and new crops.

Only 36% members attended meetings regularly with another 56% only sometime and 50% reported monthly meetings being held and 20% only quarterly. Interestingly, 98% waned to continue as members due to benefits like good input supply, benefits of membership, timely supply of inputs, and good quantity of supplies, besides knowledge about farming and markets. 74% also wanted to encourage others to join the PC due to its various benefits while others who were not excited mentioned that already most farmers were members of the PCs, or others were not interested and they did not have time for such activity. 66% had suggestions for improvement which included: procurement of output, farm machinery rentals, better price realisation and warehousing and weighing facilities.

2.4 Promoter wise comparison of member profile and services

All famers – both of BKSL and BCTS were male and had farming as primary occupation with just one in case of BCTS being skilled worker (Table 2.26). The average age was 49 and 43 years for BKSL and BCTS farmers respectively.

Table 2.26: Distribution of BKSL and BCTS PC member farmers by Education

Promoter>	BKSL		BCTS	
Parameter> Education	Members (No.)	% in total	Members (No.)	% in total
Graduate	2	9.52	2	10.00
High School	7	33.33	4	20.00
Higher Secondary	2	9.52	3	15.00
Illiterate	2	9.52	5	25.00
Middle	3	14.29	5	25.00
Post Grad	1	4.76	0	0
Primary	4	19.05	1	5.00
Total	21	100.00	20	100.00

Table 2.27: Distribution of BKSL and BCTS PC member farmers by Secondary Occupation

Promoter>	BKSL		BCTS	
Parameter> Secondary Occupation	Members (No.)	% in total	Members (No.)	% in total
Animal Husbandry	4	19.05	5	25.00
Skilled Labour	2	9.52	0	0
Labour	1	4.76	1	5.00
Retired	0	0	1	5.00
Agriculture	0	0	1	5.00
Business	0	0	3	15.00
None	14	66.67	9	45.00

Only 33% had some secondary occupation in case of BKSL farmers and that was mostly animal husbandry and skilled labour or jus labour. As against this 55% of the BCTS farmers had secondary occupation which includes animal husbandry in 25% cases, and business in 15% cases besides labour and skilled labour in 5% cases and even 5% reporting agriculture as secondary occupation (Table 2.27). BKSL PC farmers were somewhat larger owners of land but they did not lease in as much as the BCTS PC members and therefore the latter were larger operators of land (Table 2.28).

Table 2.28: Average owned and operated land holding of BKSL and BCTS PC member farmers

Category> Average (in acres)	BKSL	BCTS
Owned Land	2.52	2.03
Operational Land	2.81	3.02

Whereas 90% of the BKSL and BCTS farmers and small and marginal but the former had 60% of owned area, while it was 70% in case of BCTS farmers. However, in operated land terms, BKSL had 86% farmers as small or marginal with 62% operated area as against 80% of BCTS farmers having 79% of area (Table 2.29 and 2.30).

In terms of livestock holding, whereas there was no difference in the percentage of farmers owning buffalo and cows, there was more of goat ownership in case of BKSL (Table 2.31).

The members farmers of BKSL and BCTS PC's owned three livestock animals viz. buffalo, cow and goats. In case of BKSL PC members, buffalo was owned by 48% member farmers followed by cow (43%) and goat (19%). Buffalo (43%) had the highest share in livestock holdings followed by cow (33%) and goat (24%). 55 % of BCTS PC members owned buffalo, followed by cow (7%) and goat (5%). In terms of total livestock, buffalo had the highest share 46%, followed by cow (46%) and goat (8%). Average goat holding per farmer/household for both BKSL PC members (2.5) and BCTS PC members (3) was the highest (Table 2.31).

10 % of BKSL PC member farmers reported no source of irrigation. In the case of BCTS PC members, this was 5%. 48% of BKSL PC members had owned diesel engine. Usage of owned diesel engine for irrigation was 45% in case of BCTS PC members. The share of rented diesel engine was 14 % and 15 % for BKSL and BCTS PC members, respectively. 15% of BKSL PC members were using rented electric engine. None of the BCTS PC members used owned or rented electric engines while 30 % were using shared electric motors (Table 2.32).

95% of the members were growing paddy followed by maize (43%), banana (24%) and okra (14%) in the case of BKSL PC members. For BCTS PC members, paddy was grown by all the farmers followed by maize (20%) and bajra (15%). Similarly, paddy had the highest share in the total kharif acreage (66%) of BKSL PC members followed by maize (19%) and banana (9%) while paddy has 88% share followed by maize (7%) and banana (3%). Paddy had 30% and 37% share in in case of BKSL and BCTS farmers in kharif area respectively. Though banana was grown by considerable number of farmers, but its share was only 4% in the total kharif cultivated land (Table 2.33).

Wheat was the most common crop grown in rabi season grown by 90% of the BKSL PC members followed by potato (76%), mustard (14%) and peas (10%). Wheat also had the largest share in the total rabi area (68%), followed by potato (24%). In case of BCTS PC members, four crops were grown viz. wheat, mustard, potato and ramdana. Wheat (63%) had the highest rabi area followed by mustard (20%) and potato (12%). Wheat accounted for 33% and 26% of the total rabi cultivated area in case of BKSL and BCTS farmers respectively. (Table 2.34).

Peppermint was the most important crop of Zaid (Summer) season grown by 55% farmers in case of BCTS PC farmers and just 5% in case of BKSL farmers, and occupied 91% of the Zaid acreage which was 15.55% of the total cultivated land by BCTS PC members. The cropping pattern was not similar for BKSL PC members where many crops had a considerable share in Zaid acreage. Peppermint had the highest share (36.5%) followed by okra (26%), urad (19%) and banana (12%) (Table 2.35).

Member farmers purchased seed either form a single source or from a combination of sources. 57% of the BKSL PC members purchased seeds from PC against 55% of the BCTS PC members. PC and Dealers (19%) and agricultural department & dealers (10%) were other major

sources for BKSL PC member farmers while PC & dealers (35%) and PC & local farmers (10%) for BCTS PC member farmers (Table 2.36).

Like seeds, chemical fertilizers and pesticides were also purchased from a single source or a combination of sources. PC was the largest source of chemical fertilizers with 52 % of BKSL PC members purchasing fertilizers from there. It was followed by dealers (24%), and dealers and PCs (10%). BCTS PC members preferred buying from PC (90%) followed by dealers (5%) and dealers & PCs (5%). 24% of BCTS PC members had not purchased any pesticide while remaining purchased from PC (38%), dealers (19%), dealers & PCs (10%). 90% BCTS PC members were buying pesticides from the PC (Table 2.37).

Most of the member farmers didn't purchase any bio inputs. In case of bio-fertilizer, 71% of BKSL PC members and 85% of BCTS PC members did not purchase any biofertilizers. Similarly, most of the BKSL PC members (95%) and no BCTS PC members purchased any biopesticides (Table 2.38)

Table 2.29: Category-wise Distribution of BKSL and BCTS PC member farmers by land owned

Category>	BKSL				BCTS			
Member and Area> Category	Members (No.)	% in total	Land (Area)	% in total	Members (No.)	% in total	Land (Area)	% in total
Marginal	14	66.67	17.55	33.08	16	80.00	22.9	56.20
Small	5	23.81	14.5	27.33	2	10.00	5.85	14.36
Semi Medium	0	0	0	0	2	10.00	12	29.45
Medium	2	9.52	21	39.59	0	0	0	0
Total	21	100.00	53.05	100.00	20	100.00	40.75	100.00

Table 2.30: Distribution of BKSL and BCTS member farmers by Operated Land

Category>	BKSL				BCTS			
Member and area> Category	Members (No.)	% in total	Land (Area)	% in total	Members (No.)	% in total	Land (Area)	% in total
Marginal	13	61.90	20.95	35.42	7	35.00	10.4	17.18
Small	5	23.81	16.2	27.39	11	55.00	37.55	62.01
Semi Medium	3	14.29	22	37.19	2	10.00	12.6	20.81
Total	21	100.00	59.15	100.00	20	100.00	60.55	100.00

Table 2.31: Distribution of BKSL and BCTSPC member farmers by livestock owned

Promoter	BKSL				BCTS			
Members and livestock> Type of livestock	Members (No.)	% in total	Animals (No.)	% in total	Members (No.)	% in total	Animals (No.)	% in total
Buffalo	12	48.14	18	42.86	11	55.00	17	45.95
Cow	9	42.86	14	33.33	7	35.00	17	45.95
Goat	4	19.05	10	23.81	1	5.00	3	8.11
Total			42	100.00			37	100.00

Table 2.32: Distribution of BKSL and BCTS PC member farmers by Source of Irrigation

Promoter>	BKSL				BCTS				Total			
Energy source>	Diesel engine		Electric motor		Diesel engine		Electric motor		Diesel engine		Electric motor	
Ownership	No.	% of total	No.	% of total	No.	% of total	No.	% of total	No.	% of total	No.	% of total
Owned	10	47.62	1	4.76	9	45	0	0	19	67.86	1	10
Rented	3	14.29	3	14.29	3	15	0	0	6	21.43	3	30
Shared	2	9.52	0	0	1	5	6	30.00	3	10.71	6	60
No irrigation source	2	9.52	0	0	1	5	0	0	0	0	0	0
All	17		4		14		6		28	100	10	100

The cropping intensity of BCTS farmers was somewhat higher at 2.21 compared with 2.04 in case of BKSL farmers.

Table 2.33: Kharif cropping pattern of BKSL and BCTS PC member farmers

Promoter	BKSL					BCTS				
Parameter> Crop	Farmers	% Farmers	Land	% Kharif Land	% Total Land	Farmers	% Farmers	Land	% Kharif Land	% Total Land
Bajra	1	4.76	0.4	0.71	0.33	3	15.00	2	3.59	1.50
Banana	5	23.81	5.2	9.29	4.30	0	0	0	0	0
Cabbage	1	4.76	0.3	0.54	0.25	0	0	0	0	0
Garlic	0	0	0	0	0	1	5.00	0.8	1.44	0.60
Guard	1	4.76	0.4	0.71	0.33	0	0	0	0	0
Maize	9	42.86	10.8	19.29	8.94	4	20.00	3.8	6.83	2.84
Mustard	1	4.76	1	1.79	0.83	0	0	0	0	0
Okra	3	14.29	1.2	2.14	0.99	0	0	0	0	0
Paddy	20	95.24	36.7	65.54	30.37	20	100.00	49.05	88.14	36.67
Total			56		46.34			55.65		41.61

Table 2.34: Rabi cropping pattern of BKSL and BCTS PC member farmers

Promoter>	BKSL					BCTS				
Parameter> Crop	Farmers	% Farmers	Land	% Rabi Land	% Total Land	Farmers	% Farmers	Land	% Rabi Land	% Total Land
Banana	1	4.76	0.2	0.34	0.17	0	0	0	0	0
Garlic	0	0	0	0	0	4	20.00	1.8	3.25	1.35
Gladiolus	1	4.76	0.2	0.34	0.17	0	0	0	0	0
Maize	1	4.76	0.3	0.52	0.25	0	0	0	0	0
Mustard	3	14.29	2.2	3.79	1.82	13	65.00	11.2	20.25	8.37
Okra	1	4.76	0.4	0.69	0.33	0	0	0	0	0
Peas	2	9.52	0.7	1.21	0.58	0	0	0	0	0
Potato	16	76.19	14.1	24.31	11.67	8	40.00	6.65	12.03	4.97
Pumpkin	1	4.76	0.5	0.86	0.41	0	0	0	0	0
Wheat	19	90.48	39.4	67.93	32.60	20	100.00	34.65	62.66	25.91
Ramdana	0	0	0	0	0	2	10.00	1	1.81	0.75
Total			58	100.00	47.99			55.3	100.00	41.35

T**able 2.35: Summer cropping pattern of BKSL and BCTS PC member farmers**

Promoter>	BKSL					BCTS				
Parameter> Crop	Farmers	% Farmers	Land	% Zaid Land	% Total Land	Farmers	% Farmers	Land	% Zaid Land	% Total Land
Banana	2	9.52	0.8	11.68	0.66	0	0	0	0	0
Guard	1	4.76	0.2	2.92	0.17	0	0	0	0	0
Okra	4	19.05	1.8	26.28	1.49	0	0	0	0	0
Peppermint	1	4.76	2.5	36.50	2.07	11	55.00	20.8	91.23	15.55
Urad	3	14.29	1.3	18.98	1.08	0	0	0	0	0
Watermelon	1	4.76	0.25	3.65	0.21	0	0	0	0	0
Moong Dal	0	0	0	0	0	1	5.00	2	8.77	1.50
Total			6.85	100.00	5.67			22.8	100.00	17.05

Table 2.36: Distribution of BKSL and BCTS PC member farmers by Source of Seeds

Promoter>	BKSL		BCTS	
Parameter> Source	Members (No.)	% in total	Members (No.)	% in total
Agri Dept, Dealers	2	9.52	0	0
Dealers, PACS, PC	1	4.76	0	0
PC	12	57.14	11	55.00
PC, Agri Dept	1	4.76	0	0
PC, Dealer	4	19.05	7	35.00
PC, Local Farmers	1	4.76	2	10.00

Table 2.37: Distribution of BKSL and BCTS PC member farmers by Source of Chemical Inputs

Type of agrochemical>	Fertilizer				Pesticide			
Category>	BKSL		BCTS		BKSL		BCTS	
Parameter> Source	Members (No.)	% in total	Members (No.)	% in total	Members (No.)	% in total	Members (No.)	% in total
Dealers	5	23.81	1	5.00	4	19.05	1	5.00
Dealers, PACS, PC	1	4.76	0	0	1	4.76	0	0
Dealers, PCs	2	9.52	1	5.00	2	9.52	1	5.00
PACS/DCS, Dealers	1	4.76	0	0	0	0	0	0
PC	11	52.38	18	90.00	8	38.10	18	90.00
Agri Dept	0	0	0	0	1	4.76	0	0
Doesn't buy	1	4.76	0	0	5	23.81	0	0

Table 2.38: Distribution of BKSL and BCTS PC member farmers by Source of Bio inputs

Type of Bio input>	Fertilizer				Pesticide			
Category>	BKSL		BCTS		BKSL		BCTS	
Parameter> Source	Members (No.)	% in total	Members (No.)	% in total	Members (No.)	% in total	Members (No.)	% in total
Dealers	1	4.76	0	0	0	0	0	0
Dealers, PACS, PC	1	4.76	0	0	0	0	0	0
Local farmers	1	4.76	0	0	0	0	0	0
PC	3	14.29	3	15.00	1	4.76	0	0
Doesn't buy	15	71.43	17	85.00	20	95.24	20	100.00

Whereas most of the farmer members of the PCs promoted by the two promoters knew the names of the PC it was the ownership aspects which though quite good at 52-60% farmers across two promoter PCs saying it was owned by farmers left more awareness at farmer level desired.

Table 2.39: Distribution of BKSL and BCTS PC members by knowledge of PC name

Promoter>	BKSL		BCTS	
Parameter> Knowledge of PC Name	Members (No.)	% in total	Members (No.)	% in total
Don't know	1	4.76	2	10.00
Wrong Name	0	0.00	2	10.00
Correct Name	20	95.24	16	80.00
Total	21	100.00	20	100.00

Table 2.40: Distribution of BKSL and BCTS PC members by knowledge of PC owner

Promoter>	BKSL		BCTS	
Parameter> PC Owner	Members (No.)	% in total	Members (No.)	% in total
Promoting agency	1	4.76	0	0
BOD	4	19.05	3	15.00
Farmers	11	52.38	12	60.00
Government	0	0	2	10.00
PC Employees	1	4.76	2	10.00
Don't know	4	19.05	1	5.00
Total	21		20	

Output sales through PC

Just one member famer each reported selling banana and potato mint through one of the PCs each in case of each promoter during the last three years.

2.5 Within Promoter PC comparison

2.5.1 BCTS PCs

Further within the two PCs of BCTS, there was no major difference in average age of members (42 and 43 years) but more of Krishi Vikas PC members were illiterate (44% versus 9% for Navjyoti). But, primary and secondary occupational profile of members of the two PCs was similar with large proportion (56% and 35% not having any secondary occupation. Though Navjyoti members had higher owned land but the operated land of Krishi Vikas was higher on average due to leasing in of land by members but in both cases, there was no medium or large farmer even after leasing in. NJ also had only diesel engine based and mostly owned irrigation tools while most of KV members had electric tube well ownership or access. There was more of buffalo ownership in case of KV members as against more of cows in case of NJ. But cropping intensity of Navjyoti was much higher than that of Krishi Vikas members (2.68 versus 1.8) because of cultivation of peppermint as additional crop in summer by most farmers. Cropping patterns differed significantly with only paddy in kharif in case of Navjyoti and maize and bajra in case of Krishi Vikas and only wheat and garlic in vas of NJ and mustard and potato besides these two crops in case of KV.

NJ members also showed higher member awareness of PC name (90% against 67% in case of KV) and somewhat higher number (63% knowing it is owned by famers) whereas only 55% in case of KV knew it. KV was more reliant on PC for general awareness about farming practices and issues and also bought more of inputs than the case with NJ whether seeds or bio fertilisers.

2.5.2 BKSL PCs

Both PC member respondents were all men though NK members were more literate on an average with majority being high school or above which was only 20% in case of GD. All of them in both PCs had farming as primary occupation but 80% in GD did not have any secondary occupation as against only 50% in case of NK. Also, GD PC members were larger landowners and operators with 3.4 and 3.2 acres compared with only 1.5 and 2.4 acres in case of NK. In fact, NK had no members who were not small or marginal but all of the members of both the PCs were only marginal, small or semi-medium in operated land.

Most of the farmers in both PCs had access to groundwater irrigation owned or rented or shared though it was diesel engine based in majority cases. Both significant ownership of livestock especially buffalo and cows and even goat in case of GD with average ownership of 1-2 cows or buffalo and 3 goat per household.

GD PC members also had higher cropping intensity and a cropping pattern dominated by paddy wheat, maize and potato compared with that by paddy, wheat, potato, and banana. More significantly, NK members had peppermint as a summer crop while GD members had more of only watermelon and urad.

Both the PC members were highly aware of the PC name and its ownership with 50-55% in both knowing that it was owned by farmer members and only 20% in both cases being unaware of who owned the PC. C employees and promoters/ BoD were source of influence for members to join the PCs in both cases. More than 50% of the members in both cases were reliant on CP for agriculture related information. 45% of GD and 70% of NK also bought seeds from PC and more of GD members bought chemical fertilisers and pesticides from PC (73% and 63% respectively) than those by NK members (30% and 10% only).

2.6. Summary

The overall physical and financial performance of the PCs with the exception of the milk PC shows that they have small authorised capital base of Rs. 5-15 lakh only even after a few years of existence and paid up capital was still not mobilised up to the authorised level of just Rs. 5 and 10 lakh each in two cases. Their revenue base was small ranging from 50-88 lakh in three cases out of four and only Rs. 16.5 lakh in one case. All of them were in loss or had made negligible profits. It was only the milk PC which stood apart in every which way in terms of membership, revenue and profits and mobilised capital. It was mostly due to the nature of its business i.e. milk and its governance model which included asset light high turnover strategy and professional management and tight governance of the PC.

The members of the four non-milk PCs were really smallholders but much larger than their non-member counterparts in same villages at least in owned land. They were all marginal landowners and just marginally above that for operated land on an average. The awareness about the PCs and its ownership was very high among members and non-members compared with other study states perhaps due to the fact that it was part of a larger project funded by the World bank which has been around for many years in the state. Also, reported high influence of PC employees and promoters seemed to have played a role in this.

The input side interface of the PCs was high but there was not much impact on the output side so far as farmer income impact was concerned as only a few farmers had sold to the PCs some

their output for various reasons like delayed payments. One PC was facilitating contract farming of potato among its members and another had promoted banana cultivation in the local area which was significant activity in terms of crop diversification.

The PCs were male dominated in their members in all cases and both the promoters worked with mostly marginal and small landowners and operators with average being around 2 or 3 acres of land owned or operated. This is the most comforting aspect of the PCs is that they really represent the marginalised sections of the farming community. Also, the awareness of members regarding PC and its ownership was significant in case of both the promoters who were from the same group of promoters i.e. BASIX.

Appendix 2.1: A profile of individual PCs in Uttar Pradesh

2.11 Saahaj milk PC

It is headquartered at Agra, has functional heads under the CEO, followed by incharge at each district. There are Assistant District incharge, followed by Area officer, who has Facilitator (LRP) under him. The PC sells five types of milk, ghee and butter milk besides supplying cattle feed to its members. There were 1034 LRPs in 2015-16 across 1856 villages and 100862 milch animals and 85141 producers. Finally, they have Dairy sahayak (chosen by members) (Rs. 1.2 /litre) at MPP and a consigner (Rs. 1.05 /litre) at BMC level. Members are paid directly in their bank accounts and they receive acknowledgement for the same through SMS. It sells cattle feed, mineral mixture and have a facility for Artificial Insemination. Head office gives targets at district level, and hence the plan is made that way. The staffs are rigorously trained for quality management.

Saahaj was registered on 17/10/2014. Mother Dairy already had its presence in the districts since 2007 there, and all of those milk producers supplying milk to Mother Dairy became members of Saahaj. It is present in 8 districts, where in it overlaps with Amul in 3 districts. Out of the 369 villages, 41 have BMC that are established by Saahaj and run and managed by the consigner. Producers from only those villages can become members where there is MPP (milk pooling point -2661) or a BMC (bulk milk cooler- 366). In 2015-16, it had 80871 supplying members of whom 606062 had been admitted (24% of them being women member and 72% being small producers) as members (Table 2.1), the rest still being provisional members.

It considers farmers with one milch animal as small, with 2-4 as medium and more than 6 as large farmers. The dealing with non-members is negligible at 1% and exclusive members that deal only with PC are at about 55%. Board of Directors (BoD) is selected, not elected, and they must fulfil the primary criteria of member. The BoD also includes 1-3 expert directors among total of 12-15 over different years. Amongst the members, those who supply more than 6000 litres of milk every year for at least 270 days are designated as A grade, those supplying between 4000 to 2000 litres over at least 270 days are called B grade, and those between 500-2000 litres over at least 200 days are called C grade members. Membership criteria include minimum 500 litres of milk in 200 days and lean-to-flush ratio (winter to summer) should not exceed 1:3. A grade membership required purchase of 60 shares of Rs. 100 each, B grade shares worth Rs.2000 and C grade at least 5 shares of Rs. 100 reach. In 2018-19, this was changed to 12000 litres per year milk supply over at least 330 days besides purchase of at least 120 shares of Rs. 100 each (Rs. 12000), 600 litres milk supply over 300 days at least and 60 shares (Rs. 6000) for B grade member. Membership can be cancelled if these criteria are not met and can't be revoked before two years. One needs to buy at least five shares of Rs 100 each to become a member besides application fee of Rs. 100 (Rs. 50 for women), and Re one per litre of milk shareholding is increased once 500 litres is crossed.

In 2016-17 A grade members supplied 57% of total procurement, B grade 18% and C grade 25% and accordingly there were three types of BoD chosen from three categories of members in proportion to the milk supplied by each category of member.

Table 2.1: Profile and performance of Saahaj MPC

Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
Authorized capital (crores)	20	20	20	20	30
Paid up Capital (crores)	2.21(11%)	8.97(45)	15.33(76%)	18.56(93%)	23.03(77%)
Revenue from operations (crore) and total revenue	158.24 (158.70)	489.44 (490.65)	497.99	773.19	841.85
Net Profit after tax (crores)	4.63	9.96	1.79	12.15 (as % of turnover 0.65)	13.49
Dividend (EPS)	22.20 lakhs (375/-)	1.08 crore (Rs. 10 per share) 329/-	1.48 crore Rs.8/share 17.5	1.79 crore 76.3	2.22 crores Rs. 8/share/71.5
Total member shareholders	44999	77568/60606	80952	60901	76540
Women members	21%	24%	27%	31%	32%
BOD	12	15	15	13	14
Women members in BOD	2	2	2	2	0
Total milk pooling points (MPPs)	1855	2661	3455	3455	3455
Milk procurement (LLPD)		3.68	3.45	5.04	5.94
Reserves and surpluses (Crores)	4.36	13.24	15.03	25.71	37.41

The FPC claims that most of the farmers have 1-3 milk animals though there are those with even more than 6 animals who are called large producers.

2.12 Gram Dev FPC

Gram Development Farmers Producer Company Limited promoted by BKSL was registered in 2013. It has 1100 members out of which 150 are women and they come from 8 gram sabhas, with 26 villages in total. Members of 30 Farmer Interest groups joined initially to establish this PC. Share value is Rs 10, and to become a member, one must buy at least 10 shares. Maximum shares that an individual member can buy are 100. The PC was established with 5 BoD out of which one is female, and there were 5 promoters and 6 members. One needs to have at least 0.2 acre of land to be a member. The authorized capital is Rs. 10 lakh and paid up capital is Rs 8 lakh. A very small size of the BoD also seems representing the membership poorly though many meetings were held annually which shows very active BoD though small in size.

The PC has dealership and mandi licenses. They have a Custom Hiring Centre, where they own a tractor (40% subsidy, 40% loan, 20% own) and some other machines and equipment (80% subsidy) valued at Rs. 5.31 lakh as assets excluding subsidy (40%). One of the promoters has

been appointed as CEO, because of financial issues. One driver and one sales boy are the only 2 employees of the PC and get Rs. 5,000 as salary per person per month.

The main crops of the region are wheat and paddy. Some 3-4 years ago, the PC encouraged the production of lemongrass oil. About 5-10 members cultivated lemon grass in 7 Acres of land, but it wasn't successful. The plants for cultivating lemon grass were given for free to the participating members. But the yield was low, and so they couldn't get the right price.

Almost 50 percent of the members buy inputs only from the PC. It procured wheat from farmers at MSP under government procurement programme. In the same village, there is a co-operative society (PACS) which caters to 48 villages for crop loans. It is also a procurement centre for wheat for the government for MSP implementation.

It transacted through NCDEX once, earned a profit of Rs. 800 but later on incurred losses hence stopped, as the market prices were comparatively high. Turnover has become 10-fold from about Rs. 5 lakh at its inception. Though, the PC has been suffering losses since last two years, they received grant of Rs 3,70,000 from SFAC with per farmer limit for the grant at Rs. 1,000.

A business plan regarding wheat and paddy seed production was made. Training for BOD was arranged once in the year 2013-14 for three days by Basix and Agri Department. The training for members, however, has never been arranged. Animal Husbandry training was arranged by Rural Self-Employment Training Institute (RSETI).

As the Table 2.2 below shows though the company has moved towards raising equity capital and has reached 87% of that authorised, the shares remain confined to a large extent with the promoters and a few members only. For example, 48% of the shares were held by just eight members in 2016-17 which is not a desirable thing for a PC though it may be needed initially but continuing with it for years is not a positive development.

Table 2.2: Profile and performance of the GDPC

Year> Particulars	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018
Authorized Capital (Rs. lakh)	5	5	5	5	10
Paid up Capital (Rs. lakh)	1(20%)	1.42(28%)	1.67(33%)	1.67(33%)	8.71 (87%)
No. of shares	10000	14720	16780	16780	87100
Shares (> 5% of total) held by number of members / promoters as % of total and no. of those who owned them		64 (9)	48% (8)	48% (8)	
Total Sales/turnover (Rs.)	1447140	1270731	1808204	6349874	5000588
Reserves/surpluses (Rs.)		(10782)	(7568)	449363	
Profit (Loss) (Rs.)	(13528)	2746	3214	6932	(3046)
BOD		5	5	5	6
Meeting of BoD held (% of BoD attended in no. of meetings)		12 (80% in 5 meetings)	13 (80% in 5 meetings)	7	

Further, though the PC has moved to larger turnover after three years (three times of that in the third year) and was able to receive loans from an MFI (Ananya Finance) and public sector bank (Bank of India), the financial performance remains week with very negligible profits in the three years after first year and then loss in the fifth year. This is again worrying as despite having loans and subsidies for the farm machinery bank, it was not able to earn enough.

The biggest problem that the PC faces is shortage of manpower and working capital, while externally; it is difficult to get permissions for renewals and licenses. It has been in loss for the last two years. It plans to focus on seed production for viability though it faces lack of working capital and human resources.

2.13 Naveen Kisan PC

The promoter BKSL was involved in a World Bank Funded project in 29 districts across 3-4 states as its technical support agency as well as implementing agency. It carried out value chain study and also organized farmer interest groups which later on ended up as 20 registered FPCs. It was a bottom up approach and 100 FPCs were to be set up in three years in production surplus areas, in mostly sodic lands. Later on, the approach was changed to top down where BoDs were mandated to mobilize members and groups. All the FPCs registered in 2014 were based on bottom up approach and had business plans.

Naveen Kisan Producer Company Limited was registered in 2014 in Etaunjha, Lucknow. It operates in 18 villages. It is promoted by BKSL, with technical support from BASIX and also received grants from SFAC but not yet received matching equity grant. The FPC registered in 2015 has 631 shareholders across 32 villages.

Major crops in the area included paddy, both high yielding and hybrid, and banana in Kharif and wheat, tomato, cabbage, potato and onion in Rabi season besides mentha in summer season. The introduction of banana crop in the villages has led to decline in the area under bottle gourd.

Photo 2.1: Office of Navin Kisan PC and banana crop in a member's farm

Initially, out of the 200 members registered, 60% were already members of FIGs. It doesn't have any membership criteria other than that the member must be a farmer. A farmer can buy minimum of 10 and maximum of 100 shares with each share valued at Rs. 10, while a Director has to buy 100 shares. A share certificate is issued for the same. The board had formerly 11 members, which is now at 8, amongst whom one is a female. The FPC has 1034 members, a board of director has to organize FIG of 20 members each to be eligible for applying for membership of the board. There is no expert on the BOD and has one CEO (B.A.) and an assistant to the CEO, both of them paid their salaries by SFAC. Now, the FPC has no CEO and only a chartered accountant is taking care of it. The members of Naveen Kisan FPC had land ranging from 0.5 acre to 4 acres.

As of 2019, there are 1034 members (35 female and 999 male), with target set at 2000. No members have more than 4 acres of land with most of them having 0.5 acre each, making them all either marginal or small farmers. 80% of the members are active who do at least some transactions with the company. Authorized capital initially was Rs. 5 lakh, which has now been increased to Rs. 10 lakh (Table 2.3), whereas the paid-up capital is at Rs 4,37,000.

The PC is majorly into input dealership and sells seeds, fertilizers and pesticides (10% on credit). The PC owns 2 sprayer pumps for pesticide valued at Rs. 2800 each, which are lent to farmers when they buy pesticides. The input sales are restricted to members. 80% of the members buy okra seeds from the PC with about 2% lower than market price. More than 60% of members were into vegetable cultivation like lady finger and bottle gourd, but many of them are now cultivating banana due to high returns. 40% members do banana cultivation, where the banana tissue cultured plants of G9 variety was bought from Jalgaon and sold at Rs. 17.5/plant totalling 20700 plants last year and 35000 plants last year. The entire banana produce is sold through the PC. It has also promoted flower cultivation in the area for which they have an APMC license. A couple of farmers in two villages are into floriculture and are growing Gladiolas and marigold flowers in a total of 5 acres of land.

The PC has received various trainings through KVK and CMAP in floriculture and for NPM in Orissa. NPM of crops is practiced in Okra, Banana and Tomato. The NPM input sales is done by one member farmer, and 50 farmers have participated in NPM crop growing. The fees for this are Rs 500 per season per farmer for 0.5 acre of land, which includes providing inputs (biofertilizers and biopesticides) and supervision (Rs. 100- PC, Rs. 100- BKSL, Rs. 50- entrepreneur, and 250- input cost). An exposure visit was made to Kevali to understand the working of Navjyoti Farmer PC promoted by BASIX (BCTS).

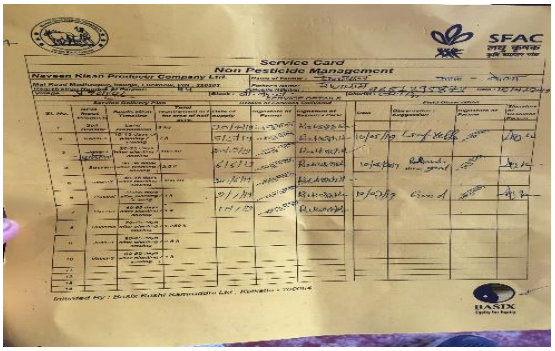

Photo 2.2: NPM promotion and documentation by the PC

The FPC intervention in wheat and paddy was made because farmers were not getting good quality inputs and also wheat farmers were not able to realize MSP. It also registered with MCX for futures trading in mentha oil wherein the futures commodity price was displayed by the FPC at the village level. Even zinc fortified wheat was also attempted to be produced in case of three FPCs. Similarly, kala namak basmati rice and organic farming of paddy and potato was also attempted.

The FPC also undertook contract farming with Pepsi and there were large scale defaults from both sides and the arrangement ended after 3 years. This project had brought for the first-time processing varieties of the potatoes in the local area. The FPC used to get Rs. 1 per kg vendor commission on seed potato and Rs 0.4 per kg commission on output sales. The contract price was broadly communicated to the FPC by Pepsi but actual procurement price was decided only a week before sowing when the actual contract was signed.

The company got into contract farming with Siddhivinayak Agri Processing Pvt Ltd. (SAPPL), where it bought seed potato from them, but it did not deliver them the produce because market prices were higher than the contract price. Also, 20% of the potato produce and Okra (50% member farmers cultivate) is sold in E-NAM and PC is registered on e-NAM. Bottle guard which was cultivated by 70% farmers before pc intervention has now come down due to its replacement with banana. A couple of years back, 24 tonnes of produce was sold to Pune based company- Pick and Serve, which was then discontinued because the price was not good enough.

The PC had a four-year business plan under which it has projected the revenue from different crops being handled by it which included paddy, banana and brinjal in Kharif and potato in rabi and sales of fertilisers during all the three seasons. The PC don't have enough working capital and suffers from staff crunch.

Table 2.3: Profile and performance of Naveen Kisan PC

Year> Particulars	2015-2016	2016-2017	2017-2018
Authorized share capital (Rs. Lakh)	10	10	10
Paid up Share Capital (Rs. Lakh) and (%) of authorised	1.1(11%)	1.1(11%)	3.18(31%)
No. of shares	1100	1100	3181
Total revenue (Rs.)	690090	551280	759589
Profit (Loss) (Rs.)	313090	(69309)	7145
Assets (Rs.)	423090	587804	844868
Reserves & Surplus (Rs.)	313090	243780	260066

The BCTS was of the view that of all the farmer members 30% understand that the FPC belongs to them, another 50% only looked for benefits and rest 20% have no involvement with the FPC. The PC undertook wheat seed contract farming in 20 acres from 18 farmers for state seeds corporation. The SFAC has made matching equity grant to 5 out of 7 FPCs. Of the total FPCs promoted by BCTS, 86 which are more than 3-year-old have received the equity grant. Each FPC had Rs. 100 share value which has been increased to Rs. 500 now and a member has to buy minimum of 5 and can buy maximum of 10 shares.

The FPC has been doing collective selling of banana, bottle gourd and lady finger. It also sold vegetables in E-NAM. The tissue cultured banana has been introduced in the area by this FPC where 40% of the members cultivate this crop and sell it to the FPC. The FPC also supports the production of non-pesticidal farm inputs by some of its members. 50 farmers buy these products.

The FPC faces the problem of shortage of working capital and staff besides issues of governance within the company.

It had a five-year plan (2017-2022) which aimed at expanding the membership to 1400 and share capital to Rs. 7 lakh. The business plan mainly focused on input supply, aggregation and sale of farm produce and value chain interventions. It intended to increase the farmer income by 4-5% by building better market linkages for farmer produce. The FPC has never brought any produce from non-members though it sells farm inputs to them.

2.14 Navjyoti Kisan PC

Navjyoti Kisan Producer Company Limited, promoted by BCTS was registered at Gosaiganj, Lucknow in January 2014. It was formed by the members of 62 Farmer Interest Groups (FIGs) and operates in 12 villages of Gosaiganj block. It is promoted by BCTS. The membership is restricted to farmers that own land and have subscribed to the membership with shares for Rs. 200. The share value is Rs.10 and share certificates have been issued to the members. Out of total of 1010 members, 32 are female. One of the 7 BOD is woman and there are no experts on the BoD. 96% members of the PC are marginal or small landowners and more than 80% are active members who do some or the other transaction with the PC. Besides CEO, it has one marketing officer, one finance and accounts officer besides a service provider and one Kisan Mitra.

The PC have an authorized Capital of Rs. 15 lakh which is same as the paid-up capital (Table 2.4). Promoting agency UPBSN had given Rs 4.5 lakh as Community Investment Fund to meet the initial working capital. The PC also received a matching equity grant of Rs 5 lakh in 2016-17 from SFAC and a loan of Rs.12 lakh at 13.5% interest for working capital was sourced from Ananya Finance Ltd in 2016.

Upto 2019, NKPCL had done total business of Rs.3.36 crore, with input sales turnover at Rs. 2.20 crore and sale facilitation of agricultural produce at Rs.1.16 crore in the last three years, mainly wheat. NKPCL also has registration with e-NAM and NCDEX. There are plans of participating in futures market for mentha and Mustard by 2020-21. NKPCL has recently obtained dealership of UP Beej Vikas Nigam, along with LIC micro insurance agency license and APMC mandi license. NKPCL has multiple channels for input procurement like IFFCO (Urea with MRP of Rs 326 was sold at Rs 400 in black market prior to this), many seed and fertiliser companies and bio fertiliser companies. This has helped farmer members in timely availability, reliable price and adequate quantity.

Activities carried out by NJPCL include Input Sales, Agri produce Sale Facilitation, Farm Machinery Bank, IFFCO Kisan Sanchar Limited, Micro-finance Agency of LIC and Zn fortified wheat seed production.

Table 2.4: Profile and performance of NJ kisan PC

Year> Particulars (all in Rs.)	2016-17	2017-18	2018-19
Members	502	1010	1010
Authorized share capital (Rs. Lakh)	1000000	15000000	1500000
Paid up Capital (Rs. Lakh) & (%) of authorised	1000000 (100)	1500000 (100)	1500000 (100)
Revenue	5244080	5033851	7049085
Profit (Loss)	(192142)	(80422)	47262
Reserves & Surplus	(402346)	(482769)	(435506)
Assets	2251199	2073409	2421006

The PC sold inputs to both members and non-members but procured only from members. 80% members bought seeds, fertilisers and pesticides from PC and it was sold lower than market price and about 45-60% bought exclusively these inputs from PC. Custom rental of machinery and equipment was used by 15-85% members depending on the machine or the equipment with cultivator and rotavator being used by 85% and seed drill and land levellers only by 15% and 30% each. Over the years, more and more members used input services growing from 600 in 16/17 to 830 in 2018/19.

On the output side, it procured wheat at MSP from only 47 members as an agency for govt. procurement and received 2.5% commission for this.

It has only conducted training and exposure programmes for its BoD, staff, and about 100 members on mentha oil market and futures trade with the collaboration of MCX and kisan goshthi in kharif and rabi season for all the above stakeholders with the help of KVK.

2.15 Krishi Vikas FPC

Krishi Vikas Farmers Producer Company Limited promoted by BCTS was established in July 2015. Water user groups mobilized by UPBSNL were already present in the area of operations. About 300-350 members, from 40 such groups, thus, joined the PC as members. All the farmers are registered as individual members and can only be a part of this PC if they own land.

This FPC originated from water user groups numbering 40. It had membership of 300. 80% of the members are active. The FPC had 80 members to begin with which number 1139 now including 100 female members. Most of the farmers had land holding lower than 5 acres each. The input stores have been running since beginning. The two outlets cover 80% of members across 10 villages. Rest of the members are from remaining 16 villages. The FPC claims that its input intervention had led to end of black marketing in inputs and improvement in quality. It claims that 50% of its members buy exclusively from FPC. It had 79 farmers with 87.5 acres in contract farming of processing variety potato for the last three years.

The FPC business is managed by Board Members with each one of them looking into a cluster of farmers and the board member gets commission for the same. The contracting company rejected 20% produce due to the small size of the potatoes. It also plans to get into maize procurement for supplying to field companies.

PC started with mere 80 members and had 1139 members by 2018-19 out of which 100 were female, and all of these members were either marginal, or small farmers. With 10 board

members when initially registered, they are 8 now, and one of them is a woman. To be a part of BOD, one needs to have 10 shares. Chairman looks after this BOD, which in turn has a CEO under them.

The paid-up capital has increased from Rs. 1.36 lakh to Rs. 5 lakh (Table 2.5). Each share is priced at Rs 100, with a cap of 10 shares per member. This is in accordance to SFAC rules, where no member is allowed to invest more than Rs 1000 if the PC wants to avail the grants. Krishi Vikas is yet to avail the grant. Two of these directors manages the input store, whose license is owned by the company, and in turn the profit is shared equally between the two.

Even though 80% members are active, PC faces last mile problem, as there are only two outlets (for agri inputs) which can cater only to 10 villages out of the 26, in which Krishi Vikas is present. It does not have trading license yet, but has dealership of Zortex, IFFCO, Bij Vikas Nigam, Nirmal and Sabri for seeds, fertilizers and pesticides. Zinc fortified seeds were provided to the members. 50% of the members exclusively deal with PC. These service activities have helped in catering to local supply by providing them with good quality products on MRP, which were sold at higher rates before. Potato Contract farming with Pepsico was started 3 years ago (see agreement between PC and farmer members in appendix 2.15A), with 79 farmers working in 35 hectares of land. Out of the 250 packets that are produced from one acre of land, roughly 80% is fit for Pepsico. PC does soil testing and 3 visits are done for inspection while potatoes are sown. PC takes a facilitation fee of Rs 40 per quintal for the same. Net sown area for potatoes has increased because of this.

It received a capital subsidy of Rs. 4.5 lakh each in 2016-17 and 2017-18. PC availed a loan for 5 lakhs at an interest of 23.75% for seeds from Sanmunati in 2017-18. While the company faces problems of funds and is waiting for SFAC matching equity grant, there are also problems in that licenses are not issued timely and IFFCO was unable to meet timely delivery. The area of operations of PC was divided into clusters, where each cluster is managed by one of the BoD on commission basis. This innovation in business model helped them in increase sales.

For future plans, Krishi Vikas wants to set up its own processing plant for potatoes (costs around Rs.1-1.25 lakhs, 40% potatoes can be used). Apart from that, they want to aggregate corn which in turn can be sold to cattle feed plants. They also plan to establish seed processing plants for groundnut and wheat to get better margins for the member farmers.

Table 2.5: Profile and performance of Krishi Vikas PC

Year> Particulars	2015-16	2016-17	2017-18	2018-19
No. of shareholders	195	352	1139	1139
Authorised capital	5	5	5	5
Paid up capital (Rs. lakh)	1.36(27%)	2.33(47%)	5(100%)	5(100%)
Revenue (Rs. lakh)	-	15.34	77.39	87.96
Net profit (Rs.)	-	1320	25750	20031
Reserves & surplus (Rs.)	-	1152	4.77	4.98
% of shares with Shareholders holding with >5% share each (5)	20%	20% (150-250 shares each)	20% (150-250 shares)	20% (150-250 shares each)

Source: PC records

Appendix 2.15A

Contract farming agreement Letter with member farmers

I, _____ son of _____ resident of _____ certify that I have _____ quintal of potato seeds. I will buy _____ quintal of new potato seeds. I will sow my seeds for kachha potato crop and new seed for pakka Potato crop. I will plant these seeds in almost _____ bigha land and will provide Krishi Vikas Farmer Producer Company with _____ Quintal Potato.

Conditions to sell Potato through Company

1. Sowing of Kachha crops must be done between 1-10 October and digging between 20 December and 10 January. Sale price will be decided on the day the produce is weighed and loaded in truck, while the final price will be decided after the produce is accepted by the plant.
2. Sowing of Pakka crops must be done between 15-25 October and digging any time after 5th February. Sale Price will be decided on 30th September.
3. Potatoes will be graded and potatoes of sizes between 40 mm and 85 mm will be bought. Company won't buy green, cut and diseased potatoes.
4. Netted Plastic bags must be used for packing. Produce will be weighed on the scale of one quintal 400 grams.
5. Producers will be fully responsible if potatoes are rejected due to reasons like grading, agricultural chemicals, etc. Company will not pay any kind of compensation for this.
6. Loading in the trucks will be done by the producers themselves, and company will not pay for any kind of labour charges.
7. Pakka Produce is supposed to be sent to Agra and Hathras by farmer at their own expense. All Mandi charges will be paid by the Producer. Mandi charges will be returned once the produce in vehicle is accepted.
8. Payment will be done through bank account once the PC receives the payment from the Company.
9. No urea should be used after 60 days of sowing as it can lead to higher sugar content at the time of testing.
10. If a producer sells seeds to any other person without the consent of the PC, the produce will not be bought by the PC.
11. PC will provide the producer with crop safety kit, which needs to be used by the producer. Producer will need to pay for such a kit.

Witness Farmer Sign

Sign
Farmer
Mobile Number _____

Chapter 3

Performance and Impact of PCs in Rajasthan

Introduction

Rajasthan is the largest state of India, occupying 10.41% of geographic area is an agrarian state where a large part of the population lives in rural areas. More than 70 % of the population is dependent on Agriculture and its allied sector for their livelihood. It is the fourth largest producer of food grains in India after Uttar Pradesh, Punjab, and Andhra Pradesh.

Agriculture contributes 19.88% of Gross Domestic Product of the state. Nearly 65% of the total cultivated area is sown in Kharif season (Goyal, 2017). Rajasthan is India's largest producer of mustard (45%), pearl millet (31%), cluster beans (61%), and isabgol (16%), and the second largest producer of pulses and the third largest producer of soyabean (9%) (Sharma and Sharma, 2013). The state has first rank in the production of cumin, coriander, and fenugreek and ranks second in the production of livestock contributing 10% of India's milk and 30% of mutton production. Farming and livestock production take place in many parts of Rajasthan often in extreme agroclimatic conditions. Of the total cultivated area (20 million hectares), irrigated area is only 20% (Goyal, 2017). Rajasthan had 224 FPOs in early 2017 with 1.1 lakh farmer members mostly under NABARD support (63%), SFAC (18%) and RKVY (17%) and a few by private sector CSR (2%) (GoR, 2017). In this context of high production and market risks, it is important to examine the role and potential of FPCs in the state.

The first section of this chapter analyses the physical and financial performance of the PCs. The second section examines the profile and impact of milk PC on members vis-a-vis non-members. The third section examines the other non-milk PCs in the state promoted by two different professional agencies and their impact on farmer members. Section 4 of the chapter also makes a comparison between those two promoters for assessing the differential impact, if any. Section 5 compares PCs of each promoter between themselves. The chapter then concludes with major observations on the performance of the PCs in the state.

3.1 Physical and financial performance of PCs

Most of the PCs other than Paayas and Molasar could not mobilise enough equity capital from their members. It was not even 70% even after a few years of the existence of the PCs. Two of them were stuck at just 20% and 32% each of the authorised capital which itself was small i.e. Rs. 5 lakh each in case of each of the PCs promoted by ISAP. Further, all of the non-Paayas PCs made losses throughout their existence. Consequently, they had nil or negative reserves and surpluses and minimal assets. The main reason for this was their low turnover which was a few lakh rupees each except one (Shekhawati) (Table 3.1).

Compared with this, the milk PC has turnover which ran into more than Rs, 100 crore per year and it had generated profits of the order of more than Rs. 10 lakh per year and surplus of Rs. 29-61 crore per year. The low turnover in case of the ISAP PCs was for the reason that they had not undertaken much output side business so far and were mainly supplying farm inputs to members and non-members. Even IGS promoted PCs had undertaken only some procurement for the SFAC at MSP which helped them stay afloat for some time as they received some commission and service charges for it. This helped one of them to receive matching equity

grant and another a capacity building grant from SFAC though they had no business plans of any significance.

Rajasthan is the second largest milk producer state in the country despite being dryland region. The major competitor of PAAYAS include RCDF – a state milk cooperative procuring 28 lakhs litre annually with 40 percent coming from non-members and the largest player in buying and selling milk in this state: GCMMF (Amul) 11 lakhs litres procurement, mainly sourcing from neighbouring milk unions in Gujarat: private players which include Modi Dairy with lotus brand, procuring five lakh litres annually through a mix of direct procurement and through intermediaries and Dharampal Satyapal with Ksheer brand handling one lakh litres mainly procured through intermediaries and Patanjali foods procuring 1.5 lakh litres through a mix of direct buying and through intermediaries. The latter two players are of recent origin whereas lotus has been there for more than 25 years and even before Amul entered this market. Reliance and Kwality dairies have shut down their operations while Heritage, Rufil and Dev Milk Foods are new entrants in the state milk market.

However, due to the state government patronage, RCDF offers a subsidy of Rs.2/- per litre which has been increased to Rs.5/- now which leads to unfair competition for the PC. The other private dairies in Rajasthan include: Modi with Lotus brand which has been there for 25 years and sells 5 lakh litres per day. Amul has been selling for the last 15 years about 11 lakh litres per day mostly from neighbouring plants of Mehsana and Sabarkantha in Gujarat. The other significant private player is DS Group from Catch Masala brand which has been around for 7 years and sells one lakh litre per day. Patanjali has also been selling for two years mainly cow milk and is venturing into buffalo milk now.

Table 3.1: Profile and Performance of PCs in Rajasthan

Particulars	Molasar PC				Shekhawati PC			Khandar Agro PC		Shreedev Mahila PC				Paayas PC				
Year	2015-16	2016-17	2017-18	2018-19	2016-17	2017-18	2018-19	2016-17	2017-18	2016-17	2017-18	2018-19	2019-20	2013-14	2015-16	2016-17	2017-18	2018-19
Members (Women)	312	518	518							265	265	690		37800 (.1%)		112000	97816 (38224)	104000 (38%)
BOD																		
Authorized Capital (Lakhs)	10	10	10	10	10	10	10	5	5	5	5	5	5		3000	3500	3500	5000
Paid up Capital (Lakhs)	1(10%)		2.63 (26%)	7.26 (73%)	1(10%)	6.22 (62%)	6.22 (62%)	1 (20%)	1 (20%)	1.7 (32%)	1.7 (32%)	1.7 (32%)	1.7 (32%)		2280 (76%)	3072 (88%)	3389 (97%)	3740 (75%)
No of Shares																		
% of Shares held by promoters			3	3				100	100									
% of Shares held by Directors	50							50										
Revenue (Lakhs)	2.78	8.14	8.24	14.8	21.4	32.7	56.6	0.96	6.95		3.12	0.86			84500	106200	128200	142950
Profit (Loss) (Lakhs)			0.75	-0.62	0.4	0.61	-0.1	-0.02	-0.51		0.21				1289	1115	1684	1303
Reserves & Surplus (Lakhs)	-0.01		0.17	-0.44	0.49	0.11	0	-0.02	-0.53						1.8	2923	4754.1	6119
Assests (Lakhs)					0.04	0.03	0.02								44.26	4511.6	3479.2	2587.5
Loans received (Lakhs)																		
Loans given																		
Milk Procurement (litres in lakhs)														3.39	4.91	6.5	6.45	8.6

3.2 Milk PC (Paayas): Member and Non-Member Profile

All the ten respondent members were women farmers and mostly literate or middle standard pass with only one each being high school literate and postgraduate each (Table 3.2). 70% of them reported farming as the primary occupation and the remaining animal husbandry. The

animal husbandry and dairying was the secondary occupation for 70% of them and farming for another 20% (Tables 3.3 and 3.4). Among the non-members who were all men, only one was illiterate and rest middle high or higher secondary literate with one being graduate. 75% of them reported farming as primary occupation followed by animal husbandry. 17% or a combination of the two. Animal Husbandry was major secondary occupation with 66% followed by farming (8%), and salaried job or self-employment in 25% cases.

Table 3.2: Distribution of Milk PC member and non-member farmers by education

Farmer Category>	Members		Non- Members	
Parameter> Education	Farmers (No.)	% in total	Farmers (No.)	% in total
Illiterate	4	40	1	8.3
Middle School	4	40	5	41.6
High School	1	10	3	25
Higher Secondary	0	0	2	16.6
Graduate	0	0	1	8.3
Postgraduate	1	10	0	0
Total	10	100	12	100

Table 3.3: Distribution of Milk PC member and non-member farmers by Primary Occupation

Farmer category>	Members		Non- Members	
Parameter> Primary Occupation	Farmers (No.)	% in total	Farmers (No.)	% in total
Agriculture	7	70	9	75
Animal Husbandry	3	30	3	25
Total	10	100	12	100

Table 3.4: Distribution of Milk PC member and non-member farmers by Secondary Occupation

Farmer category>	Members		Non- Members	
Parameter> Secondary Occupation	Farmers (No.)	% in total	Farmers (No.)	% in total
Animal Husbandry	7	70	8	66.6
Agriculture	1	10	1	8.3
Skilled Labour	1	10	3	25
None	1	10	0	0
Total	10	100	12	100

Average land owned by a member milk producer was 1.3 acres with all of them being marginal or landless farmers. In terms of operated land which was on average 1.4 acres (Table 3.5), the distribution of farmers remained the same. However due to some leasing in and leasing out, all

the farmers became operated landowners but all of them remained marginal in size (Tables 3.6 & 3.7).

The average owned land among non-members was 2 acres with 83% marginal and 17% semi-medium. Due to some leasing in and leasing out, average operated land was of the order of 2.3 acres with 67% operators being marginal scale, 23% small and 8% semi-medium. The latter 8% farmers accounted for 21% of the operated area. Interestingly there was no farmer in the category of medium or large farmer in terms of ownership and operation of land.

Table 3.5: Average Owned and Operated Land of Milk PC Members and Non-Members

Farmer category> Average land (Acres)	Members	Non- Members
Owned Land	1.33	2.04
Operated Land	1.43	2.29

Table 3.6: Distribution of Milk PC member and non-member farmers by Owned Land

Farmer category>	Members				Non- Members			
Parameter> Land category	Farmers (No.)	% in total	Land (Acres)	% in total	Farmers (No.)	% in total	Land (Acres)	% in total
Marginal	10	100	13.37	100	10	83.33	12.75	52.04
Small	0	0	0	0	0	0	0	0
Semi-medium	0	0	0	0	2	16.67	11.75	47.96
Total	10	100	13.37	100	12	100.00	24.5	100.00

Table 3.7: Distribution of Milk PC members and non-members by Operated Land

Farmers>	Members				Non- Members			
Parameter> Land category	Farmers (No.)	% in total	Land (Acres)	% in total	Farmers (No.)	% in total	Land (Acres)	% in total
Marginal	10	100	14.37	100	8	66.67	10.62	39.72
Small	0	0	0	0	3	25.00	10.62	39.72
Semi-medium	0	0	0	0	1	8.33	5.5	20.57
Total	10	100	14.37	100	12	100.00	26.74	100.00

Most of the members (90%) had buffaloes, and 40% and 30% each respectively had cows and goats with average holding of two buffaloes and one cow or goat each. In fact, buffaloes accounted for 70% of livestock and cows and goats 1% and 13% each respectively (Table 3.8). Non -member farmers had large livestock holdings of four buffaloes or cows each and three goats. But buffaloes accounted for only 50% of total livestock and cows and goats 45% and 5% each respectively, all farmers had buffaloes and most had cows but only 15% had goats.

Table 3.8: Distribution of Milk PC member and non-member farmers by livestock Owned

Farmer category>	Members				Non-Members			
Parameter> Livestock	Farmers	No. of animals	Average Animals	% Total Animals	Farmers	No. of animals	Average Animals	% Total Animals
Buffalo	9	21	2.33	70.00	12	47	3.92	50.00
Cow	4	5	1.25	16.67	11	42	3.82	44.68
Goat	3	4	1.33	13.33	2	5	2.50	5.32
Total		30				94		

Most of the member farmers still depended on dealers for buying seeds of various crops or used home based seeds. Only in case of fodder 17% farmers reported buying seeds from the PC (Table 3.9). About 43% farmers reported PACS as a source of chemical fertilizers and 33% of those who used chemical pesticides reported the PACs as the main source (Table 3.10). Only one member bought biofertilisers from a dealer and others and non-members did not use it. Similarly, in case of biopesticides, only 3 non-members bought them with two buying from dealer and one from the PACS.

Cattle feed was reported be bought from PC by 90% member farmers as it was door delivered and had better quality, lower price, available in time, and no other reliable source. On the other hand, only 17% non-members reported buying from PC/DCS and others (33%) buying from dealers and 25% not using it at all. Some others (17%) bought it from other FPOs and 8% from both dealers and DCS. So far as purchase of various crop seeds was concerned, non-members were mostly dependent on dealers and in some cases PACS. Only in case of barley and guar, they reported buying seeds from milk PC in 20% cases were reasons of better quality (Table 3.9). Most of the other inputs were also largely bought from dealers with only 36% reporting exclusive purchase of chemical fertilisers from PACS (Table 3.10). Only in the case of cattle feed 23% farmers reported buying from the PC because of better quality and timely availability with other important sources besides dealer being other cooperatives like PACS and farmer groups.

Table 3.9: Distribution of Milk PC member and non-member farmers by Source of Seeds

Farmer category>	Members		Non-members	
Parameter> Source	No. of farmers	% of total	No. of farmers	% of total
Dealers	5	50	9	75.00
Dealers, PACS	1	10	1	8.33
PACS, PC	0	0	1	8.33
PACS, Other FGs	0	0	1	8.33
PC	1	10	0	0.00
Dealers, PACS, PC	1	10	0	0.00
Total	10	100	12	100.00

Table 3.10: Distribution of Milk PC member and non-member farmers by Source of Chemical Inputs

Type of Agrochemical>	Fertilizer				Pesticide			
Farmer category>	Members		Non-members		Members		Non-members	
Parameter> Source	No. of Farmers	% of total	No. of Farmers	% of total	No. of Farmers	% of total	No. of Farmers	% of total
Dealer	4	40	4	33.33	2	20	9	75.00
PACS	3	30	4	33.33			0	
Dealers, PACS	0		3	25.00	1	10	0	
None	3	30	1	8.33	7	70	3	25.00
Total	10	100	12	100.00	10	100	12	100.00

The cropping intensity of member farmers was 1.89 and the major crops grown in kharif included bajra groundnut and cluster beans and those in Rabi included wheat, mustard and barley besides vegetables and bajra in summer. Overall, wheat, bajra, Barley, groundnut, cluster beans and mustard accounted for 93% of the gross crop area. 90% of the farmers had electric motor based tube wells.

The cropping intensity of non-members was 2.00. Major crops grown in Kharif by members and non-members were bajra, groundnut and guar. In Rabi, wheat, barley, mustard and fodder and in summer season it was mostly bajra or vegetables ad fodder (Tables 3.11-3.13). In general, wheat and bajra accounted for 15% each of the gross cropped area for members and non-members followed by barley (10%), groundnut (12%), guar (6%) and mustard (6%), and in case of non-members, fodder (3%). All the farmers had groundwater based tube wells run with electric motors.

Table 3.11: Kharif Cropping Pattern of Milk PC members and non- members (acres)

Category>	Members					Non-Members				
Parameter> Crops	Farmers	Cropped area	Avg cropped area	% Kharif Area	% Total Area	Farmers	Cropped area	Avg cropped area	% Kharif Area	% Total Area
Bajra	6	4.43	0.74	33.16	16.33	8	7.625	0.95	30.51	14.29
Groundnut	3	3.5	1.17	26.20	12.91	5	6.87	1.37	27.49	12.88
Guar	4	1.68	0.42	12.57	6.19	3	3	1.00	12.00	5.62
Bajra, Gnut, Guar	1	2	2.00	14.97	7.37	3	5.5	1.83	22.01	10.31
Bajra, Vegetables	0				0.00	1	2	2.00	8.00	3.75
Barley	1	0.5	0.50	3.74	1.84	0				
Bajra, Gnut, Guar, Sesame	1	1.25	1.25	9.36	4.61	0				
Total	16	13.36		100	49.26	20	24.99		100	46.84

Table3.12: Rabi Cropping Pattern for Milk PC members and non- members (in acres)

Farmer category>	Members					Non-Members				
Parameter> Crops	Farmers	Cropped area	Avg cropped area	% Rabi Area	% Total Area	Farmers	Cropped area	Avg cropped area	% Rabi Area	% Total Area
Barley	4	2.65	0.66	20.17	9.77	5	5.25	1.05	20.20	9.84
Fodder	2	0.25	0.13	1.90	0.92	4	1.87	0.47	7.20	3.51
Mustard	3	1.62	0.54	12.33	5.97	2	1.12	0.56	4.31	2.10
Wheat	7	5.37	0.77	40.87	19.80	8	7.5	0.94	28.86	14.06
Barley, Mustard	0	0	0	0	0.00	1	2.75	2.75	10.58	5.15
Barley, Mustard, Wheat	2	3.25	1.63	24.73	11.98	1	2	2.00	7.70	3.75
Wheat, Methi	0	0	0	0	0	1	1	1.00	3.85	1.87
Wheat, Mustard	0	0	0	0	0	1	2	2.00	7.70	3.75
Wheat, Mustard, Onion	0	0	0	0	0	1	2.5	2.50	9.62	4.69
Total		13.14		100	48.45		25.99		100	48.72

Table 3.13: Summer Cropping Pattern for Milk PC members and non- members (in acres)

Farmer category>	Member					Non-member				
Parameter> Crops	Farmers	Cropped area	Avg cropped area	% Summer Area	% Total Area	Farmers	Cropped area	Avg cropped area	% Summer Area	% Total Area
Fodder	0	0	0	0	0	2	2	1.00	84.39	3.75
Onion	0	0	0	0	0	1	0.37	0.37	15.61	0.69
Bajra	1	0.37	0.37	59.68	1.36	0	0	0	0	0
Vegetables	2	0.25	0.13	40.32	0.92	0	0	0	0	0
Total	3	0.62	0.20	100	2.29	3	2.37	0.79	100	4.44

Most of the members of the PC had received share certificates (90%). Only one member reported the membership of another FPO which she joined in 2012. In majority cases, they had become aware of various aspect of livestock and milk production through the PC or a combination of PC and FPO and in other cases even friends and relatives besides formal collective structures. 80% knew that the PCs belongs to the farmers. In 40% cases, it was PC employees who made them join the PC. Another 10% were influenced by promoters, and PC employees and others each and 30% by friends and other farmers.

All the farmers reported receiving dividends on their share capital and 80% didn't have any complaint against the functioning of the PC. They reported better satisfaction level on the availability, quantity, cost, quality and accessibility of cattle feed, moving from good to very good or excellent on most parameters after the intervention of the PC.

40% farmers also reported PC making them aware of various government schemes and 30% about receiving special subsidy due to the PC. 80% attended the meetings every month and all of them wanted to continue as members of the PC because of its responsiveness, transparency and profitable interface besides quick payment and good service delivery. All of them also wanted others to join the PC because they were getting good benefits including good price and profits on their produce.

Before the PC intervention, all farmers sold milk either to other FPOs or did not sell at all. There was 60% increase in buffalo milk sale because of the PC intervention though the price came down more recently compared with the alternative channels of sale. Whereas only 60% sold to the PC a few years ago, 100% started selling to it after a few years of it coming in. In terms of channels, earlier they dealt with traditional cooperative and the PC and have since moved over to PC completely. The member farmers reported a price increase of 13% over the previous channel prices.

25% non-member farmers reported membership of another FPO which was the local milk cooperative society (DCS of RCDF) and they had been the members of the same for last many years. None of them reported receiving any information about agriculture or animal husbandry from the PC and depended mostly on private companies, agri department office and the combination of non-personal and personal extension sources. In fact, 83% of them were aware of the milk PC and 42% reported that it was owned by farmers. A significant proportion of them (25% of the total) had learnt about it from PC employees or promotors. Only 33% showed interest in becoming the member of the milk PC. They were not members yet due to reasons like location, presence of other channels and availability of other benefits from those sources and the fact that some of them could not meet the quality standards of the PC.

33% non-members had no dislike for the services offered by the PC while others reported lack of access or high-quality standard as the barrier. In general, they rated various aspects of input service better after the coming in of the PC except availability and inadequate amount. 92% of them had no bad experience with the PC and some of them even attended the meetings of the PC. They expected doorstep procurement, improve access and other benefits for them to re-stimulate to become members of the milk PC. There were significant increases in cow milk production and marketed surplus even price appreciation besides faster payment after the intervention of the PC. More of them had started supplying milk to the PC than was the case earlier.

The above analysis of member profile shows that the milk PC members were really marginal or landless land operators and livestock rearers. The PC made good impact on their livelihoods with various interventions like input supply and milk procurement besides supply of fodder seed and other services.

Table 3.14: Distribution of Milk PC member and non-member farmers by sales channel for milk

Channel (members)	Total						Cooperative						PC					
Parameter> Type of Milk	Farmers			Produce			Farmers			Produce			Farmers			Produce		
	Before	After	% Difference	Before	After	% Difference	Before	After	% difference	Before	After	% difference	Before	After	% difference	Before	After	% difference
Milk	5	8	60	70	91	30	1	0	-100	11	0	-100	4	8	100.00	59	91	54.24
Cow Milk	2	2	0	32	32	0	1	0	-100	12	0	-100	1	2	100.00	20	32	60.00
Buffalo Milk	2	2	0	28	52	85.71	1	0	-100	24	0	-100	1	2	100.00	4	52	1200.00

Channel> (non-member)	Total						Other FPO						Wholesale					
Parameter> Type of Milk	Farmers			Produce			Farmers			Produce			Farmers			Produce		
	Before	After	% Difference	Before	After	% Difference	Before	After	% difference	Before	After	% difference	Before	After	% difference	Before	After	% difference
Milk	10	10	0	310.5	305.5	-1.61	7	6	-14.29	221.5	197.5	-10.84	3	4	33.33	89	108	21.35
Cow Milk	2	2	0	97.5	177.5	82.05	1	2	100.00	57.5	177.5	208.70	1	0	-100.00	40	0	-100.00
Buffalo Milk	1	1	0	40	40	0	0	1	0	0	40	0	1	0	-100.00	40	0	-100.00

3.3 Non-Milk PC member and non-member farmers: profile and impact

Of the total 41 member respondents across 4 PCs 24% were female. There were only 7% illiterates and 17% each primary literate or graduate degree holders. The largest chunk (29%) were middle standard literate and the rest higher secondary pass (Table 3.15). 95% reported farming as the primary occupation and 5% petty business. 15% reported animal husbandry as secondary occupation and most others rural nonfarm or farm skilled jobs with 49% being dependent only on farming (Tables 3.16 & 3.17).

The average land ownership was 8.2 acres with 5% being landless and 24% each being small or medium landowners and 29% semi medium farmers. Only 2% were in the large farmer category. Due to the leasing in and leasing out by 15-20% farmers, the operated land was of the order of 10.3 acres. Operationally, there were 1/3rd farmers in semi medium categories, 25% in medium categories and 7% were large farmers. On the other hand, marginal and small farmers who were 34% of the total operated only 14% land whereas 7% large farmers operated 34% of the total land (Tables 3.18&3.19).

80% of the non-members were male and 24% illiterate. 90% were high school and 17% middle standard and 12% graduates (Table 3.15). 88% of them reported farming as their primary occupation. The others were mostly into some skilled non-farm occupation (Table 3.16). As usual, animal husbandry emerged as the largest secondary occupation with 40% followed by farming in case of another 12%, 52% did not report and secondary occupation (Table 3.17). Average land ownership was 6 acres with 43% of the farmers being marginal of small and 58% being semi-medium. Only 10% farmers were medium category. The average operated land did not differ from average owned land. The distribution of operational holdings in various farmer categories also remained the same. But marginal and small categories (43%) cultivated only 15% whereas medium category farmers who were only 10% of the total cultivated 24% with 61% of the land being cultivated by semi-medium farmers. Importantly, there were no large farmers among non-member farmers (Tables 3.18 & 3.19).

Table 3.15: Distribution of Non-milk PC member and non-member farmers by education

Farmer category>	Members		Non-members	
Parameter> Education	Farmers (No.)	% in total	Farmers (No.)	% in total
Illiterate	3	7	10	24
Primary	7	17	2	5
Middle	12	29	7	17
High School	6	15	8	19
Higher Secondary	5	12	5	12
Under Grad	0	0	4	10
Graduate	7	17	5	12
Post Grad	1	3	1	2
Total	41	100	42	100

Table 3.16: Distribution of Non-milk PC member and non-member farmers by Primary Occupation

Farmer category>	Members		Non-members	
Parameter> Primary Occupation	Farmers (No.)	% in total	Farmers (No.)	% in total
Farming	39	95	37	88
Business	2	5	1	2
Skilled Labour	0	0	3	7
Student	0	0	1	2
Total	41	100	42	100

Table 3.17: Distribution of Non-milk PC member and non-member farmers by Secondary Occupation

Farmer category>	Members		Non-members	
Parameter> Secondary Occupation	Farmers (No.)	% in total	Farmers (No.)	% in total
Business	2	4.88	3	7.14
Animal Husbandry	6	14.63	6	14.29
Skilled Labour	9	21.95	4	9.52
Labourer	2	4.88	2	4.76
Farming	1	2.44	5	11.90
FPO	1	2.44	0	0.00
None	20	48.78	22	52.38
Total	41	100.00	42	100.00

Table 3.18: Distribution of non-milk PC member and non-member farmers by Land owned

Farmer category>	Members				Non- Members			
Parameter> Land category	Farmers (No.)	% in total	Land (Acres)	% in total	Farmers (No.)	% in total	Land (Acres)	% in total
Marginal	8	19.51	8.025	2.38	10	23.81	11.3	4.49
Small	10	24.39	37.84	11.22	8	19.05	26.7	10.60
Semi-M	12	29.27	88.31	26.19	20	47.62	153.3	60.88
Medium	10	24.39	167.29	49.62	4	9.52	60.5	24.03
Large	1	2.44	35.71	10.59	0	0	0	00
Total	41	100	337.17	100.00	42	100	251.8	100.00

Table 3.19: Distribution of Non -milk PC member and non-member farmers by Land operated

Farmer category>	Members				Non- Members			
Parameter> Land category	Farmers (No.)	% in total	Land (Acres)	% in total	Farmers (No.)	% in total	Land (Acres)	% in total
Marginal	8	19.51	9.425	2	10	23.81	10.1	4.03
Small	6	14.63	20.42	5	8	19.05	26.7	10.65
Semi-M	14	34.15	106.26	25	20	47.62	153.3	61.17
Medium	10	24.39	142.54	34	4	9.52	60.5	24.14
Large	3	7.32	143.57	34	0	0	0	0
Total	41	100	422.21	100	42	100	250.6	100

88% PC members had electric tube well connections and 5% diesel engine based with 7% no source of irrigation as compared with 98% non-members having electric tube wells and only 2% non-members not having irrigation.

Table 3.20: Distribution of non-milk PC member and non-member farmers by Livestock Owned

Farmer category>	Members					Non-Members				
Parameter> Type of livestock	Farmers (No.)	% in total	Animals (No.)	% in total	Average	Farmers (No.)	% in total	Animals (no and % of total)		Average
Cow	28	68.29	88	35	3.14	26	61.90	63	34	2.42
Buffalo	30	73.17	83	33	2.77	30	71.43	74	39	2.47
Sheep	2	4.88	4	2	2.00	0	0.00	0	0	0
Goat	16	39.02	80	31	5.00	15	35.71	51	27	3.40
Total	41	100	255	100		42	100	188	100	

68% and 73% of the members had cows and buffaloes respectively, with 40% having goat and 5% sheep. Cows and Buffaloes were 35% and 33% of the member livestock with 31% being goats. The average number of large livestock was 3 cows and /or buffaloes per household and 5 goats and two sheep per household (Table 3.20).

Among the non-members, 62% and 71% had cows and buffaloes respectively and 36% had goats. Cows and buffaloes were 34% and 39% of the total livestock of non-members and goats accounted for 27%. Average ownership per household was 2 cows or buffaloes and 3 goats. No non-member owned any sheep.

Member mostly bought chemical fertilisers form PACS (22%), PC (10%) and dealers (7%). In fact, more of non-members bought more from PC (29%) followed by dealers (33%) and PACS 16%. In chemical pesticides, 51% members from PC and 20% from dealers and very few from PACS and combination of PC and Dealers. As against this, non-members mostly bought from dealers (48%) and from PC (23%). 12% members used biofertilser and bought it from PC and only 2% non-members did so but in biopesticide, it was 12% members and 14% non-members using it and buying from PC and 10% non-members buying it from dealers (Table 3.21).

Table 3.21: Distribution of non-milk PC member and non-member farmers by Source of Chemical Inputs

Type of Agrochemical>	Fertilizer				Pesticide			
Farmer category>	Members		Non-members		Members		Non-members	
Parameter> Source	Farmers (No.)	% in total	Farmers (No.)	% in total	Farmers (No.)	% in total	Farmers (No.)	% in total
Dealers	3	7.32	14	33.33	8	19.51	20	47.62
PACS/DCS	9	21.95	7	16.67	2	4.88		
PC	4	9.76	12	28.57	21	51.22	10	23.81
Dealers & PACS/DCS	1	2.44	0	0	0	0	0	0
Dealers & PC	1	2.44	0	0	1	2.44	00	0
Total	18	43.90	33	78.57	32	78.05	30	71.43

The members cultivated large acreage on an average in each season except summer that that by non-members (Table 3.22). The cropping intensity was 1.7 and major crops grown in Kharif included bajra (25%of kharif area), guar (24%), oilseeds (11%), moong (9%) and paddy (9%) in that order. Tomato accounted for 5% of the gross cropped area in Kharif. In Rabi, the major crops were wheat (42%), mustard (23%), gram (14%), and onion (11%). The only crop grown in summer in very small way were Vegetables (Table 3.23, 3.24 and 3.25).

For non-members, average cropping intensity was 1.68 and major crops grown in Kharif included bajra, guar, moong and paddy. In Rabi, major crops were wheat, gram, onion, mustard, and isabgul. Vegetables were the only set of crops cultivated in summer and they also accounted for 5% each of the Kharif and Rabi area. In general, Wheat accounted for 27% of the gross cropped area followed by bajra at 22%, guar and Mung at 7% and Vegetables 6%. (Tables 3.23, 3.24 and 3.25).

93% of the farmers were not the members of any other FPO and majority of them accessed information from friends and neighbours. Only 7% reported seeking it from the PC and 19% from a combination of Pc, Dealers and other shopkeepers.

51% of members had received share certificates but none of them had ever received dividend on their share capital. 34% members also happened to be members of other FPOs mostly cooperatives and in some cases, self-help groups. They had mostly received information on agricultural activities from the PC, other cooperatives and the agricultural department besides 1/3rd relying only on friends and neighbours and others on distant media like radio or mobile phone. Only 15% reported getting it from the PC. Only 37% were aware that the PC was owned by farmer members with other reporting promoting NGO, PC employees, government as the owners with 29% not being aware at all. In 42% cases each, PC promoters or PC employees had persuaded them to become members of the PC.

Input purchase

21% of the member farmers bought bajra seeds, 28% other cereals, 40% fodder seeds, 35% guar Seeds, 14% isabgul seeds and moong seeds, 20% mustard seeds, and 43% onion seeds from the PC for reasons of easy availability, better quality, and lower price besides the fact that as members they had to buy from CP as reported by 32% of the members who bought from the PCs. On the other hand, PCs had major role in chemical fertiliser and bio-pesticides where 36% and 55% of the farmers respectively bought chemical fertilisers and bio-pesticides from the PC. 33% reported buying chemical pesticides from the PC for reasons of better quality, easy availability, lower price and timely availability while 45% bought it from PC as it was an obligation as being members. Easy access along with lower cost was major factor for 60% of those who bought biopesticides from the PCs while in biofertilisers, it was more about better quality and lower cost and easy access in that order or a combination thereof (Table 3.21A). In 25% cases, where agricultural machines were used on rental basis by farmers, PC was the source of that due to the timely availability.

Table 3.21A: Type of Input wise Reasons for purchase of inputs from PC by members

Reasons	Seeds		Chemical fertilisers		Chemical pesticides		Biofertilizers		Biopesticides	
Seeds	Number	Percentage	No.	% of total	No.	% of total	No.	% of total	No.	% of total
Better Quality	12	30.00	4	16.0	2	9.0	2	40.0	1	20.0
Better Quality, Lower Price	1	2.50			1	4.6	1	20.0		
Compulsory to buy	13	32.50	10	40.0	10	45.6			1	20.0
Easy Accessibility, Lower Cost	6	15.00	4	16.0	4	18.1	1	20.0	3	60.0
Easy Accessibility, Lower Cost and membership	0		1	4.0	1	4.6			0	
Easy Accessibility, Lower Cost, Better Quality	2	5.00	1	4.0	1	4.6	1	20.0	0	
Fair Deal, More Reliable, Timely Availability, Easy Accessibility, Lower Cost	1	2.50	1	4.0	1	4.6	0		0	
Other Benefits	1	2.50	1	4.0	1	4.6	0		0	
Lower Price	4	10.00	3	12.0	1	4.6	0		0	
Total	40	100.00	25	100	22	100	5	100	5	100

In general, non-member farmers reported an improvement on various parameters of input supply after the intervention of the PC where it moved from good to very good. They were keen to join the PC as a member provided it supply good quality inputs at lower price and made them aware about it services. On the output side, there is no changes reported by the non-members in terms of the effect of the producer company.

Most of the farmers (85%) did not have any dislike for the PC services but 8% were unhappy about procurement, price realisation and payment aspects of the transaction. The input services provided by the PC were rated improved after the PC intervention from good to very good. On the other hand, no farmer reported any improvement on the output side of their transactions. 71% also did not report receiving any information about government subsidy and schemes and 88% did not receive any special benefit being members of the PC. 74% reported that meetings of the company were held monthly and quarterly and 56% attended that every time with others occasionally or sometimes and 15% never attending them. They still wanted to continue as members of the PC due to supply of the inputs especially seeds, benefit of transacting with the PC, and price benefits. 98% of them also wanted to encourage others to become members because it is profitable to be member of the PC.

Table 3.22: Season wise Average Cropped Area (acres) for non-milk PC members and non- members

Category> Season	Members	Non-Members
Kharif	8.8	5.29
Rabi	8.77	4.64
Summer	0.04	0.1

Table 3.23: Kharif Cropping Pattern of non-milk PC members and non- members

Category>	Members			Non-Members		
Parameter> Crop	Cropped area (acres)	% Kharif Area	% Total Area	Cropped area (acres)	% Kharif Area	% Total Area
Bajra	92.67	25.68	12.83	92.67	41.64	21.97
Fodder	21.28	5.90	2.95	4	1.80	0.95
Guar	50.06	13.87	6.93	30.4	13.66	7.21
Moong	30.96	8.58	4.29	29	13.03	6.87
Oilseeds	38.05	10.54	5.27	12.91	5.80	3.06
Other Cereals	23.49	6.51	3.25	9	4.04	2.13
Onion	1.43	0.40	0.20	0	0	0
Pulses	6.88	1.91	0.95	0	0	0
Tomato	17.61	4.88	2.44	0	0	0
Paddy	31.6	8.76	4.38	17.81	8.00	4.22
Urad	27.5	7.62	3.81	15	6.74	3.56
Vegetables	19.38	5.37	2.68	11.76	5.28	2.79
Total	360.91	100	49.97	222.55	100.00	52.75

Table 3.24: Rabi Cropping Pattern of non-milk PC members and non- members

Category>	Members			Non-Members		
Parameter> Crop	Cropped area (In acres)	% Rabi Area	% Total Area	Cropped area (acres)	% Rabi Area	% Total Area
Fodder	4	1.11	0.55	4.03	2.07	0.96
Gram	50.21	13.96	6.95	17.05	8.75	4.04
Isabgul	5.2	1.45	0.72	13.1	6.72	3.11
Mustard	81.76	22.73	11.32	13.9	7.13	3.29
Onion	37.91	10.54	5.25	16.5	8.46	3.91
Other Cereals	8.56	2.38	1.19	4.4	2.26	1.04
Vegetables	22.43	6.24	3.11	10.44	5.35	2.47
Wheat	148.15	41.19	20.51	113.54	58.24	26.91
Fruit	1	0.28	0.14	0	0	0
Tomato	0.47	0.13	0.07	0	0	0
Total	359.69	100	49.80	194.96	100.00	46.21

Table 3.25: Summer Cropping Pattern of non-milk PC members and non- members

Category>	Members			Non-Members		
Parameter> Crop	Cropped area in acres	% Summer Area	% Total Area	Cropped area in acres	% Summer Area	% Total Area
Vegetables	1.65	100	0.23	4.35	100	1.03
Total	1.65	100	0.23	4.35	100	1.03

The area under moong, and paddy has increased significantly after the PC intervention with yields being reported significantly high in case of paddy. However, there was hardly any improvement on the total production, market surplus with only transaction cost coming down in soybean, wheat, mustard and price realised in onion and maize besides wheat significantly. The time to receive the payment had also come down significantly in soybean, tomato and paddy.

The Kharif crops of bajra, guar, paddy and moong which were grown by significant proportion had 30% of the total area under urad followed by bajra at 22%. Similarly, in Rabi, wheat was grown by 40% by the farmers followed by mustard by 20%, onion by 17%, gram by 17% had 50% of the area under wheat and 25% mustard. Overall, it was wheat, urad, bajra, mustard which accounted for more than 60% of the GCA. Two major crops which were handled by PC in comparison with the past included mustard, and wheat.

In case of non-members, the crops grown by more than 10% of the farmers included bajra, guar, moong, paddy and urad in Kharif and wheat, mustard, barley and onion in Rabi. In Kharif, bajra was the major crop followed by moong, guar and paddy besides urad and in Rabi, it was wheat followed by onion, isabgul, barley and mustard, and gram in that order. Overall, wheat and bajra accounted for 47% of the GCA and guar and onion and moong 7% each. The other crops shared ranged between 2-5%.

50% of the non-members were aware of the presence of PC in their area but 52% did not know who owned it with the others reporting 10% each that it is owned by farmers, PC employees, PC Board of Directors and farmer groups. 14% and 10% learnt about the PC from its employees and promoters respectively. 69% of them had never thought of becoming a member of this PC for the reasons of not being aware. The others waiting for an invite from the PC or did not have time for the same.

***Output impact*:**

Three years before, only one farmer each reported selling to PC in case of sesame, soyabean, and wheat. Only in mustard, sesame, soyabean, and urad one member farmer each in case of ISAP PCs reported selling to PC and in wheat it was six farmers who sold to PC. Thus, 10% farmers reported selling to PC and the number increased only in wheat by 600% after three years mainly due to MSP procurement for SFAC. Among non-members, one farmer sold moong to the PC. In case of IGS PCs, there were no farmer members or non-members selling any produce to the PCs. Since thee was not much intervention by PCs on the output front, average price realised compared with three years before was higher only in mustard and wheat by 15-20% which was more about farmers being supported to get MSP through the PCs.

3.4 Promoter wise comparison

The IGS has promoted 12 PCs out of which eight are functional. In this area, there was no PC before the intervention. Most of the failed PCs had to be shut down because either they could not mobilise share capital or had no business plan. One of the PCs in Sikar dealing with vegetable was struck off by the RoC for failure to comply with the requirement. The promoter also had five PCs under the NFSM programme in Rajasthan.

The ISAP which is a POPI of NABARD had set up 11 PCs in the state of which only three were functioning. Under the OCPF (funded by a Morocco based Foundation) project, all sic PCs were functional, but the project ended in 2019.

Whereas 48% of ISAP PC members were women, it was all men in case of IGS PCs. In both cases, major occupation for almost all members was farming with only 2 members (10%) in case of ISAP being non-fam workers in business and skilled labour work. But, IGS PC members were somewhat more literate in terms of level of education (Table 3.26). The secondary occupation was not there in case of 45-52% of IGS and ISAP members but other secondary occupations included animal husbandry and skilled labour (Table 3.27). Average years of schooling of IGS and ISAP farmer did not differ much being 8. 45 and 9.33 years respectively.

The IGS PC members were relatively larger land owners with none of them being marginal and only 20% being small owners compared with 57% of ISAP PC members being small or marginal (Table 3.28) and 47% by operated land holders as against only 15% of IGS PC members (Table 3.29). The average cultivated area of IGS PC members was higher across all seasons and average cropping intensity was lower than ISAP PC members. Average owned land was only 5.84 acres for ISAP farmers while it was 11.02 acres for IGS farmers. However, operated land was less divergent between the two with ISAP farmers having 9.31 aces and IGS members 11.8 acres.

Table 3.26: Distribution of ISAP and IGS members by Education

Category>	ISAP		IGS	
Parameter> Education	Members (No.)	% in total	Members (No.)	% in total
Illiterate	1	4.76	2	10
Primary (1-4)	3	14.29	4	20
Middle (5-8)	8	38.1	4	20
High (9-10)	2	9.52	4	20
HS (11-12)	2	9.52	3	15
Undergraduate	1	4.76	0	0
Graduate	3	14.29	3	15
Others (Postgraduate)	1	4.76	0	0
Total	21	100	20	100.00

Table 3.27: Distribution of ISAP and IGS members by Secondary Occupation

Category>	ISAP		IGS	
Parameter> Secondary Occupation	Members (No.)	% in total	Members (No.)	% in total
Animal Husbandry	2	9.52	4	20
Skilled Labour	6	28.57	6	30
Agriculture	1	4.76	0	0
Business	1	4.76	1	5
None	11	52.38	9	45
Total	21	100	20	100.00

Table 3.28: Distribution of ISAP and IGS members by Owned Land

Category>	ISAP		IGS	
Parameter> Land Category	Members (No.)	% in total	Members (No.)	% in total
Landless	2	9.52	0	0
Marginal	6	28.57	0	0
Small	6	28.57	4	20
Semi-Medium	4	19.05	8	40
Medium	3	14.29	6	30
Large	0	0	2	10
Total	21	100	20	100

The livestock ownership of the two PC members was very different with ISAP PC members having mostly buffalo (57%) and cows (52%) and 10% also both cows and buffaloes (Table 3.30). Further, 15% had no livestock. But IGS PC members had more of cows (68%) and buffaloes (43%) and even goat (55%) and both buffalo and goat (10%).

Table 3.29: Distribution of ISAP and IGS members by Operated Land

Category>	ISAP				IGS			
Parameter> Land Category	Members (No.)	% in total	Area in Acres	% in total	Members (No.)	% in total	Area in Acres	% in total
Landless	1	4.76	0	0	0	0	0	0
Marginal	7	33.33	9.425	5.06	0	0	0	0
Small	3	14.29	11.4	6.12	3	15	9.03	4
Semi-Medium	5	23.81	34.375	18.46	9	45	71.89	30
Medium	3	14.29	46	24.7	7	35	96.54	41
Large	2	9.52	85	45.65	1	5	58.57	25

Table 3.30: Distribution of ISAP and IGS member farmers by livestock owned

Promoter>	ISAP					IGS				
Parameter> Type of Livestock	Members	% Members	No. of Animals	% Total Animals	Average Animals / Member	Members	% Members	No. of Animals	% Total Animals	Average Animals / Member
Buffalo	12	57.14	40	50.00	3.33	18	90.00	43	19.03	2.39
Cow	11	52.38	20	25.00	1.82	17	85.00	68	30.09	4.00
Goat	5	23.81	16	20.00	3.20	11	55.00	64	28.32	5.82
Oxen	1	4.76	1	1.25	1.00	1	5.00	1	0.44	1.00
Sheep	1	4.76	3	3.75	3.00	1	5.00	50	22.12	50.00
Total			80					226		

The average cropped area of IGS farmers was higher across seasons of Kharif and Rabi (10 and 9 acres) as against 7.6 and 8.5 acres in case of ISAP famers except in summer. Therefore, average cropping intensity for ISAP farmers was 1.82 and in case of IGS farmers 1.62. There was only a minor difference in terms of source of irrigation of the two promoters' farmers and sources of energy for extracting water (table3.31&3.32).

Table 3.31: Distribution of ISAP and IGS member farmers by source of irrigation

Category>	ISAP		IGS	
Parameter> Source	Members (No.)	% in total	Members (No.)	% in total
Tube well	10	47.62	9	45
Well	3	14.29	4	20
Well & Tube well	7	33.33	5	25
None	1	4.76	2	10

Table 3.32: Distribution of ISAP and IGS PC farmers by source of energy for irrigation

Category>	ISAP		IGS	
Parameter> Source	Members (No.)	% in total	Members (No.)	% in total
Electric Motor	18	85.71	18	90
Diesel Engine	2	9.52	0	0
None	1	4.76	2	10

The cropping patterns differed significantly with IGS farmers more into bajra, vegetables and gram and ISAP farmers growing more acreage under paddy, sesame, maize soybeans and urad and tomato in kharif. In rabi, it was wheat and mustard for ISAP and wheat gram and onion for IGS farmers. Vegetables were more common among ISAP farmers compared with IGS farmers (Table 3.33 and 3.34) In summer, only some vegetables were grown by a few farmers in a small area in both promoter PC members.

Table 3.33: Kharif cropping pattern of ISAP and IGS PC member farmers

Category>	ISAP Members			IGS Members		
Parameter> Crops	Area (in acres)	% Kharif Area	% Total Area	Area	% Kharif Area	% Total Area
Bajra	11.67	7.29	3.44	81	40.33	21.16
Fodder	0.63	0.39	0.19	20.66	10.29	5.40
Maize	17.77	11.1	5.24	0	0	0
Chilly	7.61	4.75	2.24	0	0	0
Oilseeds	1.21	0.76	0.36	0	0	0
Other Cereals	5.73	3.58	1.69	0	0	0
Paddy	31.6	19.74	9.31	0	0	0
Pulses	6.72	4.2	1.98	5	2.49	1.31
Sesame	11.44	7.15	3.37	0	0	0
Soyabean	17.4	10.87	5.13	0	0	0
Tomato	17.61	11	5.19	0	0	0
Urad	27.5	17.18	8.10	0	0	0
Vegetables	3.2	2	0.94	50.35	25.07	13.15
Groundnut	0	0	0	8	3.98	2.09
Onion	0	0	0	1.43	0.71	0.37
Gram	0	0	0	34.4	17.13	8.99
Total	160.09	100	47.16	200.84	100	52.46

43% of ISAP farmers were members of other FPOs compared with only 20% in case of IGS and that was mainly co-ops and SHGs whereas it was only Co-ops in case of IGS. ISAP farmers had more reliance on PC/FPO for extension than in case of IGS farmers who relied more on traditional sources like govt. dept or FPOs (Table 3.35). More of ISAP members knew that farmers owned the PC (43%) compared with IGS farmers (30%) (Table 3.36). In case of one PC of ASAP, it was claimed by employees and promoters that 70% members knew that PC belonged to farmer members, but our survey showed only 30% were aware.

Also, more of the PC employees (15%) and promoters were the source (10%) for info on PC while in case of IGS, promoters (20%) and govt. agency (15%) were major source (Table 3.37). In both ISAP and IGS, promoters, and PC employees (90% and 75% respectively) and friends and other farmers influenced the farmers (10% and 15%) to become members of the PC (Table 3.37).

Table 3.34: Rabi crop pattern among ISAP and IGS PC member farmers

Category>	ISAP Members			IGS Members		
Parameter> Crop	Area	% Rabi Area	% Total Area	Area	% Rabi Area	% Total Area
Fodder	0.63	0.35	0.19	3.37	1.86	0.88
Fruits	1	0.56	0.29	0	0	0
Chilli	0.47	0.26	0.14	0	0	0
Mustard	66.18	37.16	19.50	15.58	8.58	04.07
Other Cereals	2.35	1.32	0.69	0	0	0
Tomato	0.47	0.26	0.14	0	0	0
Vegetables	10.8	6.07	3.18	0.4	0.22	0.10
Wheat	96.19	54.02	28.34	51.96	28.61	13.57
Fenugreek	0	0	0	14.1	7.76	3.68
Onion	0	0	0	34.57	19.04	9.03
Gram	0	0	0	47.86	26.35	12.50
Barley	0	0	0	8.56	4.71	2.24
Isabagol	0	0	0	5.2	2.86	1.36
Total	178.09	100	52.47	181.6	100.00	47.43

Table 3.35: Distribution of ISAP and IGS PC member farmers by source of general agricultural knowledge

Promoter>	ISAP		IGS	
Parameter> Source	Members (No.)	% in total	Members (No.)	% in total
Friends/Neighbours/Relatives	8	38.10	8	40
Friends/Neighbours/Relatives & PC/FPO	1	4.76	0	0
Friends/Neighbours/Relatives, PC/FPO & Extension workers	1	4.76	0	0
Friends/Neighbours/Relatives & Extension workers	1	4.76	0	0
Agriculture Department Office, PC/FPO & Mobile/Mobile groups	1	4.76	0	0
Agriculture Department Office, PC/FPO	2	9.52	6	30
Others (Dealers)	1	4.76	0	0
Newspapers/Radio & Mobile/Mobile groups	1	4.76	0	0
PC/FPO	5	23.81	1	5
Agriculture Department Office	0	0	2	10
Others (KVK)	0	0	1	5
Newspapers/Radio	0	0	2	10
Total	21	100.00	20	100

About 10% members in both promoters' PCs did not like the working of the PCs as they could not procure or offered lower price or delayed payments. Only 20-24% acknowledge PC helping them with information or subsidy or availing of any government schemes. 15% of ISAP PCs reported special subsidy for PC members as against nil in case of IGS PCs. ISAP PC meeting frequency (more of monthly meetings) and participation of members in them (76%) was in general higher than in case of IGS PCs (40% and 45% respectively). All members of all PCs

of both promoters wanted to continue as members due to seed supply, profits, and price benefits. All of them in ISAP PCS were keen to encourage others and in IGS with the exception of one member (out of 20) for the same reasons as those for continuing as members.

Table 3.36: Distribution of ISAP and IGS member farmers by knowledge of PC owner

Promoter>	ISAP		IGS	
Parameter> Owner	Members (No.)	% in total	Members (No.)	% in total
PC Employees	3	14.29	1	5
Promoting agency	2	9.52	4	20
BOD	1	4.76	0	0
Farmers	9	42.86	6	30
Government	0	0	3	15
Don't know	6	28.57	6	30
Total	21	100.00	20	100

Table 3.37: Distribution of ISAP and IGS PC member farmers by influencer for Membership

Promoter>	ISAP		IGS	
Parameter> Influencer	Members (No.)	% in total	Members (No.)	% in total
PC Promoters	9	42.86	8	40
PC Employees	10	47.62	7	35
Friends/ Neighbours/ Relatives	2	9.52	3	15
PC Promoters & PC Employees	0	0	1	5
PC Employees & Friends/ Neighbours/ Relatives	0	0	1	5
Total	21	100.00	20	100

3.5 Within Promoter PC comparison

This section compares and contrasts two PCs by the same promoter in terms of their member profile and member interface besides member engagement in PCs.

3.51 ISAP PCs

All the member farmer respondents of Shridev PC were female while all members farmers in the case of Khandar PC were male. Member farmers with education upto middle school were higher for Shridev PC (70%) than that in case of Khandar PC (64%). Educational profile of Khandar PC members (55% with high school or above) was higher than that of Shridev PC (30%). (Table 3.38)

All Khandar PC members had agriculture as primary occupation while in case of Shridev PC members, 80% had agriculture as secondary occupation and 20% had business as primary occupation. Most of the Khandar PC members (73%) did not have any secondary occupation while only 30% Shridev PC members didn't have any secondary occupation. 10% and 18% of member farmers of Shridev and Khandar respectively were involved in animal husbandry. Skilled labour was an important secondary occupation for Shridev PC (30%) as compared to Khandar PC (9%). Similarly, business was also an important secondary occupation for Shridev

PC with 20% member farmers involved in it and no member farmer of Khandar PC was reported to be engaged in it. (Table 3.39)

Table 3.38: Distribution of ISAP PC members by Education

PC	Shridev		Khandar	
Parameter > Education	No of Farmers	% of total	No of Farmers	% of total
Illiterate	1	10.00	0	0
Primary	1	10.00	2	18.18
Middle	5	50.00	3	27.27
High School	0	0	2	18.18
Higher Secondary	1	10.00	1	9.09
Undergrad	0	0.00	1	9.09
Graduate	1	10.00	2	18.18
PG	1	10.00	0	0
Total	10	100.00	11	100.00

Table 3.39: Distribution of ISAP PC members by Secondary Occupation

PC	Shridev		Khandar	
Parameter > Secondary Occupation	No of Farmers	% of total	No of Farmers	% of total
Agriculture	1	10.00	0	0
Animal Husbandry	1	10.00	2	18.18
Skilled Labour	3	30.00	1	9.09
Business	2	20.00		0.00
None	3	30.00	8	72.73
Total	10	100.00	11	100.00

Both the average owned, and operated land was higher for Khandar PC members (7 & 14 acres) than that in case of Shridev PC (3.5 & 3 acres). There was a huge difference in the number of marginal landowners for Shridev PC (70%) and Khandar PC (9%). Landownership was also highly different with marginal farmers of Shridev PC owned 21% of land against 1% land owned by Khandar PC marginal farmers. Semi- medium farmers were in the range of 18-20% in the number but the landownership was in the range of 9-22%. Majority of the Khandar PC members were medium farmers owing 43% of the total land. Though, the number of large farmers were in the range of only 10-18% for both PCs but the landownership was 47-57%, largest for both PCs (Table 3.40).

Table 3.40: Distribution of ISAP PC members by Owned Land

PC	Shridev				Khandar			
Parameter > Land category	No of Farmers	% of total	Area in Acres	% of total	No of Farmers	% of total	Area in Acres	% of total
Marginal	7	70.00	7.4	21.14	1	9.09	0.62	0.76
Small	2	20.00	7.6	21.71	2	18.18	7.5	9.16
Semi-M	0	0	0	0	6	54.55	35	42.75
Medium	1	10.00	20	57.14	2	18.18	38.75	47.33
Total	10	100	35	100	11	100	81.87	100

In terms of operational handholding also, marginal farmers (70%) had 28% of land in case of Shridev PC while it was 18% large farmers who had 55% of land in case of Khandar PC and there were hardly any marginal or small farmers among the members (Table 3.41). Buffalo (40%), cow (40%) and goat (30%) were three important animals owned by Shridev PC members. Goats (41%) had the largest in number followed by buffalo (26%) and cow (21%). In the case of Khandar PC members, buffalo and cows (73% and 64%) were more commonly owned by farmers and accounted for 67% and 28% of the total livestock respectively (Table 3.42).

Table 3.41: Distribution of ISAP PC members by Operated Land

PC	Shridev				Khandar			
Parameter> Land category	No of Farmers	% of total	Area in Acres	% of total	No of Farmers	% of total	Area in Acres	% of total
Marginal	7	70.00	8.8	28.21	1	9.09	0.625	0.40
Small	2	20.00	6.4	20.51	0	0	0	0
Semi-M	0	0	0	0	6	54.55	39.37	25.40
Medium	1	10.00	16	51.28	2	18.18	30	19.35
Large	0	0	0	0	2	18.18	85	54.84
Total	10	100	31.2	100	11	100	155	100

Table 3.42: Distribution of ISAP PC members by livestock Owned

PC>	Shridev					Khandar				
Parameter > Livestock	No of Farmers	% of total	No of Animals	% total Animals	Average	No of Farmers	% of total	No of Animals	% total Animals	Average
Buffalo	4	40.00	9	26.47	2.25	8	72.73	31	67.39	3.88
Cow	4	40.00	7	20.59	1.75	7	63.64	13	28.26	1.86
Goat	3	30.00	14	41.18	4.67	2	18.18	2	4.35	1.00
Oxen	1	10.00	1	2.94	1.00	0	0	0	0	0
Sheep	1	10.00	3	8.82	3.00	0	0	0	0	0
Total	10	100	34			11	100	46		

Friends/ neighbors/ relatives was the most important source of general agricultural information for Shridev PC members with 50 % members using it as a source of information. In case of Khandar PC, friends/ neighbors/ relatives and PC were equally important sources of agricultural knowledge for 27% of the member farmers each (Table 3.43).

The cropping intensity was higher (1.94) for Shridev as they were small farmers than that of the Khandar farmer members (1.77). Maize (70%), jowar (40%), black gram (30%) and vegetables (30%) were major crops grown by member farmers of Shridev PC occupying 54%, 14%, 3% and 11% of the kharif area. In case of Khandar PC, paddy (55%), soybean (55%), black gram (36%) and vegetables (36%) were major crops grown by member farmers occupying 16%, 17%, 9% and 8% of the kharif area (Table 3.44).

Table 3.43: Distribution of ISAP PC members by source of general Agri knowledge

PC	Shridev		Khandar	
Parameter > Source	No of Farmers	% of total	No of Farmers	% of total
friends/ neighbours/ relatives	5	50.00	3	27.27
friends/ neighbours/ relatives, PC	1	10.00	0	0
friends/ neighbours/ relatives, PC, Extension Workers	0	0	1	9.09
friends/ neighbours/ relatives, extension workers	0	0	1	9.09
Newspapers/ Radio, Mobile groups	0	0	1	9.09
PC	2	20.00	3	27.27
PC, Mobile groups, Agri Dept	0	0	1	9.09
PC, Agri Dept	1	10.00	1	9.09
Dealers	1	10.00	0	0
Total	10	100	11	100

Wheat and vegetables were two major crops in the case of Shridev PC members grown by 70% and 20% of member farmers, respectively. But, the acreage under vegetables was only 2.65% of the rabi area. In case of Khandar PC, wheat (73%) and mustard (64%) were the major crops grown by most of the farmers. Vegetable was another major crop grown by 18% of the Khandar PC members with 4% of rabi area. Other crops were taken by 9-10 % of the member farmers of both the PCs (Table 3.45). No member farmer of Shridev PC was growing any crop in summer season while in case of Khandar PC, only 9% of member farmers growing vegetables crops in summer season on just 1.25 acres.

Table 3.44: Kharif Cropping Pattern of ISAP PC members

PC	Shridev						Khandar					
Parameter > Crops	No of Farmers	% of total	Kharif Area	% kharif Area	% total area	Avg Area	No of Farmers	% of total	Kharif Area in Acres	% kharif Area	% total area	Avg Area
Bajra	0	0	0	0	0	0	2	18.18	1.56	1.20	0.57	0.78
Bajra, Sesame	0	0	0	0	0	0	1	9.09	2.18	1.68	0.79	2.18
Black gram	3	30	1	3.29	1.65	0.33	4	36.36	11.25	8.68	4.09	2.81
Fodder	0	0	0	0	0	0	1	9.09	0.625	0.48	0.23	0.63
Green Gram	1	10	0.4	1.32	0.66	0.40	0	0	0	0	0	0
Groundnut	0	0	0	0	0	0	1	9.09	0.31	0.24	0.11	0.31
Jowar	4	40	4.4	14.47	7.26	1.10	0	0	0	0	0	0
Maize	7	70	16.4	53.95	27.06	2.34	0	0	0	0	0	0
Maize, Gram, Soyabean	1	10	1.4	4.61	2.31	1.40	0	0	0	0	0	0
Maize, Groundnut, Gram	1	10	3.6	11.84	5.94	3.60	0	0	0	0	0	0
Paddy	0	0	0	0	0	0	6	54.55	21.25	16.39	7.73	3.54
Paddy, Gram, Sesame, Jowar	0	0	0	0	0	0	1	9.09	5.31	4.10	1.93	5.31
Paddy/Sesame/Soyabean/ Gram/ Bajra/Vegetables	0	0	0	0	0	0	1	9.09	50	38.56	18.20	50.00
Sesame, Gram	0	0	0	0	0	0	1	9.09	3.75	2.89	1.36	3.75
Soyabean	0	0	0	0	0	0	6	54.55	22.5	17.35	8.19	3.75
Vegetable	3	30.00	3.2	10.53	5.28	1.07	4	36.36	10.93	8.43	3.98	2.73
Total	10		30.4	100	50.17		11		129.66	100	47.19	

Table 3.45: Rabi Cropping Pattern of ISAP PC members

PC	Shridev						Khandar					
Parameter> Crops	No of Farmers	% of total	Rabi Area	% Rabi Area	% total area	Average Area	No of Farmers	% of total	Rabi Area	% Rabi Area	% total area	Average Area
Banana	0	0	0	0	0	0	1	9.09	1	0.70	0.36	1.00
Fodder	0	0	0	0	0	0	1	9.09	0.625	0.43	0.23	0.63
Gram	1	10.00	0.4	1.32	0.66	0.40	1	9.09	1.25	0.87	0.45	1.25
Mustard	0	0	0	0	0	0	7	63.64	61.87	43.01	22.52	8.84
Mustard+ Wheat	1	10.00	3.6	11.92	5.94	3.60	1	9.09	1	0.70	0.36	1.00
Vegetables	2	20.00	0.8	2.65	1.32	0.40	2	18.18	10.93	7.60	3.98	5.47
Wheat	7	70.00	24	79.47	39.60	3.43	8	72.73	67.18	46.70	24.45	8.40
Wheat+Gram	1	10.00	1.4	4.64	2.31	1.40	0	0	0	0	0	0
Total			30.2	100	49.83				143.85	100	52.35	

Dealer (40%) was the largest source for seed procurement for Shridev PC members. While, in the case of Khandar PC members it was PC (45%). 9-10% of member farmers were purchasing from dealers & PACS while 18-20% were purchasing from dealers & PCs. (Table 3.46)

Table 3.46: Distribution of ISAP PC members by Source of Seeds

PC >	Shridev		Khandar	
Parameter > Seeds Source	No of Farmers	% of total	No of Farmers	% of total
Dealers	4	40.00	3	27.27
PC	3	30.00	5	45.45
Dealers, PACS	1	10.00	1	9.09
Dealers, PCs	2	20.00	2	18.18
Total	10	100	11	100

PACS was a major source of chemical fertilizers for Khandar PC members (73%) while in the case of Shridev PC members, PCs (60%) was the most important source of fertilizers. Other sources were in the range of 9-10% for both the PCs. In case of chemical pesticides, dealers (55%) and PCs (60%) was the most important source for Khandar and Shridev PC members, respectively. (Table 3.47)

Table 3.47: Distribution of ISAP PC members by Source of Chemical inputs

Chemical input >	Fertilizers				Pesticides			
PC Name >	Shridev		Khandar		Shridev		Khandar	
Parameters > Source	No of Farmers	% of total	No of Farmers	% of total	No of Farmers	% of total	No of Farmers	% of total
Dealers	1	10.00	1	9.09	2	20.00	6	54.55
PACS	1	10.00	8	72.73	0	0	2	18.18
PCs	6	60.00	0	0	6	60.00	1	9.09
Dealers, PACS	0	0	1	9.09	0	0	0	0
Dealers, PC	1	10.00	0	0	0	0	1	9.09
Doesn't Buy	1	10.00	1	9.09	2	20.00	1	9.09
Total	10	100	11	100	10	100	11	100

Majority of the member farmers of Shridev PC (80%) and Khandar PC (91%) did not purchase any biofertilizers. The remaining member farmers purchased from only one source viz. PC. In case of pesticides, no member farmer of both the PCs did not purchase any biopesticides.

A large majority of the member farmers of Shridev PC (80%) and majority of Khandar (55%) provided the correct name of PC. 18-20% of the members farmers of both the PCs did not know the PC name and 27% in Khandar gave incorrect name each. 27-30 % of the member farmers did not know the name of PC owner. 30 and 10% of Shridev PC members gave the name of PC employees and BOD for PC owner while no Khandar PC member gave the name of PC

employees and BOD. Member farmers who knew that farmer were PC owners were higher in the case of Khandar PC (55%) and only 30% in case of Shridev mahila PC (30%). (Table 3.48).

Table 3.48: Distribution of ISAP PC members by Knowledge about PC Owner

PC	Shridev		Khandar	
Parameter > PC Owner	No of Farmers	% of total	No of Farmers	% of total
Don't Know	3	30.00	3	27.27
Promoting Agency	0		2	18.18
PC Employees	3	30.00	0	0
BOD	1	10.00	0	0
Farmers	3	30.00	6	54.55
Total	10	100	11	100

64% Khandar PC member farmers were influenced by PC promoter while in the case of Shridev PC, this percentage was 20%. 70% Shridev PC members and 27% Khandar PC members were influenced by PC employees. 9-10% of member farmers of both the PCs were influenced by friends/ neighbours/ relatives to join the PCs. (Table 3.49)

Table 3.49: Distribution of ISAP PC members by PC influencer

PC	Shridev		Khandar	
Parameter > PC Influencer	No of Farmers	% of total	No of Farmers	% of total
PC Promoters	2	20.00	7	63.64
PC Employees	7	70.00	3	27.27
Friends/ neighbours/ relatives	1	10.00	1	9.09
Total	10	100.00	11	100.00

3.52 IGS PCs

All the respondent member farmers of both the PCs were male. 60% Molasar PC members were educated up to higher secondary or graduation while no member farmer of Shekhawati PC was in this category. Rather, 60% of Shekhawati PC members were middle or high school literate while in case of Molasar PC members, this share was only 20%. (Table 3.50)

Table 3.50: Distribution of IGS PC members by Education

PC	Shekhawati		Molasar	
Parameter > Education	No of Farmers	% of total	No of Farmers	% of total
Illiterate	2	20.00	0	
Primary	2	20.00	2	20.00
Middle	3	30.00	1	10.00
High School	3	30.00	1	10.00
Higher Secondary	0		3	30.00
Graduate	0		3	30.00
Total	10	100.00	10	100

All member farmers of both the PCs had agriculture as the primary occupation. 40% and 50% of Shekhawati and Molasar PC members respectively, didn't have any secondary occupation. 30% of Shekhawati PC members, each had animal husbandry and skilled labour as secondary occupation. In case of Molasar PC, 30% of member farmers were working as skilled labour as secondary occupation and only 10% were into animal husbandry as secondary engagement.

The average owned land was similar in case of Molasar PC (11.3 acres) than Shekhawati PC (10.8 acres) while the average operated land holding was higher for Shekhawati PC (14 acres) than that in case of Molasar PC (10 acres). 90% of the Shekhawati PC members were in the category of small, semi-medium and medium category while in the case of Molasar PC, all the member were in the category of small, semi-medium and medium farmers though latter with 50% share had 73% share in land. No large farmers was present for Molasar PC while 10% of Shekhawati PC members were large farmers which owned 36% of the total land. There were no marginal category members in any of the two PCs. (Table 3.51)

Table 3.51: Category wise Distribution of IGS PC members by Owned Land

PC	Shekhawati				Molasar			
Parameter > Land category	No of Farmers	% of total	Area in Acres	% of total	No of Farmers	% of total	Area in Acres	% of total
Small	3	30.00	9.14	8.49	1	10.00	3.6	3.20
Semi-Medium	2	20.00	15.71	14.59	4	40.00	27.6	24.51
Medium	4	40.00	47.14	43.77	5	50.00	81.4	72.29
Large	1	10.00	35.71	33.16	0		0	
Total	10	100	107.7	100	10	100	112.6	100

On the other hand, 40% of the Shekhawati and Molasar PC members were semi-medium farmers by operated land holding with share of 27% in total member land. Medium farmers were dominant in both the PCs with 50% of Molasar PC members operating 69% of the land and 30% of Shekhawati PC with 27% of the land. 10% of the Shekhawati PC members were large farmers but operated 43% of the operational land. (Table 3.52)

Table 3.52: Category wise Distribution of IGS PC members by Operated Land

PC	Shekhawati				Molasar			
Parameter > Land category	No of Farmers	% of total	Area in Acres	% of total	No of Farmers	% of total	Area in Acres	% of total
Marginal	0	0	0	0	0	0	0	0
Small	2	20.00	5.43	4.01	1	10.00	3.6	3.58
Semi-Medium	4	40.00	34.29	25.32	4	40.00	27.6	27.44
Medium	3	30.00	37.14	27.42	5	50.00	69.4	68.99
Large	1	10.00	58.57	43.25	0	0	0	0
Total	10	100	135.43	100	10	100	100.6	100

All the member farmers of Shekhawati PC owned buffalo and cow which were 17% and 32% of the total animals owned. In case of Molasar PC 90%,80% and 70% of the member farmers owned goat, buffalo and cow. The average number of animals owned was higher for all the animals. (Table 3.53).

Table 3.53: Distribution of IGS PC members by livestock Owned

PC	Shekhawati					Molasar				
Parameter > Livestock	No of Farmers	% of total	No of Animals	% total Animals	Average	No of Farmers	% of total	No of Animals	% total Animals	Average
Buffalo	10	100.00	26	16.88	2.60	8	80.00	17	23.61	2.13
Cow	10	100.00	50	32.47	5.00	7	70.00	18	25.00	2.57
Goat	2	20.00	27	17.53	13.50	9	90.00	37	51.39	4.11
Oxen	1	10.00	1	0.65	1.00	0	0	0	0	0
Sheep	1	10.00	50	32.47	50.00	0	0	0	0	0
Total	10	100	154	100		10	100	72	100	

The cropping intensity was higher for Shekhawati PC (1.71) than Molasar PC (1.5). Bajra was grown by all the member farmers of both the PCs. But in case of Shekhawati PC members (34%) kharif area under it was lower than that in case of Molasar PC members (44%). Vegetables was grown by 80-90% of member farmers with the kharif acreage in the range of 22-31%. 50% Shekhawati PC members cultivated gram while in case of Molasar PC, 60% member farmers were cultivating gram in similar area (16%). Fodder was grown by 40% member farmers of both the PCs but the share of kharif acreage much higher for Molasar PC (19%) than Shekhawati PC (3%). (Table 3.54). The number of crops grown in rabi season were higher than kharif season. Wheat (60%), onion (40%), fodder (40%) and gram (30%) was grown by large number of Shekhawati PC members. But the rabi acreage was the highest for gram (32%). In case of Molasar PC, 70% of the member farmers were growing wheat followed by vegetables, mustard and fodder (20% for each crop). The highest rabi acreage was occupied by wheat (45%) followed by inter-and mixed crops. (Table 3.55). Only 20% of only Molasar PC members cultivated summer vegetables in a small area.

Table 3.54 Kharif Cropping Pattern of IGS PC members

PC	Shekhawati						Molasar					
Parameter > Crops	No of Farmers	% of total	Kharif Area	% kharif Area	% total area	Avg Area	No of Farmers	% of total	Kharif Area in Acres	% kharif Area	% total area	Avg Area
Bajra	10	100.00	46.85	44.37	20.23	4.69	10	100.00	32	33.54	21.14	3.20
Bajra, Tur, Moong, Gram	1	10.00	8.75	8.29	3.78	8.75	0	0	0	0	0	0
Fodder	4	40.00	2.86	2.71	1.23	0.72	4	40.00	17.8	18.66	11.76	4.45
Gram	5	50.00	16.57	15.69	7.15	3.31	6	60.00	16.4	17.19	10.83	2.73
Groundnut	0	0	0	0	0	0	1	10.00	8	8.39	5.28	8.00
Vegetables	9	90.00	30.57	28.95	13.20	3.40	8	80.00	21.2	22.22	14.00	2.65
Total			105.6		45.60				95.4		63.01	

Table 3.55: Rabi Cropping Pattern of IGS PC members

PC	Shekhawati						Molasar					
Parameter > Crops	No. of Farmers	% of total	Rabi Area	% Rabi Area	% total area	Average Area	No. of Farmers	% of total	Rabi Area	% Rabi Area	% total area	Average Area
Barley, Onion	0	0	0	0	0	0	1	10.00	3.6	6.47	2.38	3.60
Barley, Onion, Wheat	2	20.00	20.29	16.10	8.76	10.15	0	0	0	0	0	0
Fodder	4	40.00	2	1.59	0.86	0.50	2	20.00	0.8	1.44	0.53	0.40
Gram	3	30.00	40.57	32.20	17.52	13.52	0	0	0	0	0	0
Gram, Methi, Mustard	1	10.00	5.14	4.08	2.22	5.14	0	0	0	0	0	0
Gram, Onion	2	20.00	11.14	8.84	4.81	5.57	0	0	0	0	0	0
Isabgol	0	0	0	0	0	0	2	20.00	5.2	9.35	3.43	2.60
Methi	2	20.00	6.29	4.99	2.72	3.15	0	0	0	0	0	0
Methi, Mustard	1	10.00	2.86	2.27	1.23	2.86	0	0	0	0	0	0
Methi, Mustard, Onion	0	0	0	0	0	0	1	10.00	8	14.39	5.28	8.00
Methi, Wheat	1	10.00	4	3.17	1.73	4.00	0	0	0	0	0	0
Mustard	1	10.00	1.71	1.36	0.74	1.71	2	20.00	3.2	5.76	2.11	1.60
Mustard, Onion, Wheat	1	10.00	8.57	6.80	3.70	8.57	1	10.00	6	10.79	3.96	6.00
Onion	4	40.00	9.71	7.71	4.19	2.43	0	0	0	0	0	0
Vegetables	0	0	0	0	0	0	2	20.00	3.6	6.47	2.38	1.80
Wheat	6	60.00	13.71	10.88	5.92	2.29	7	70.00	25.2	45.32	16.64	3.60
Total			126		54.40				55.6		36.72	

Friends, PC and PC & ADO were important sources for Shekhawati PC members providing information for 80% member farmers. While friends and PC & ADO were source of general awareness for 80% member farmers of Molasar PC. (Table 3.56)

Table 3.56: Distribution of IGS PC members by source of general agricultural knowledge

PC>	Shekhawati		Molasar	
Parameter > Source	No of Farmers	% of total	No of Farmers	% of total
Friends	4	40.00	4	40.00
Newspaper/ Radio	1	10.00	1	10.00
PC	2	20.00	0	0
PC, ADO	2	20.00	4	40.00
ADO	1	10.00	1	10.00
Total	10	100	10	100

Majority of the Shekhawati PC members (90%) and Molasar PC members (60%) purchased seeds from PC. Dealers & PC was another important source for seed purchase for Molasar PC members (30%). All the member farmers of Shekhawati and Molasar PC purchased chemical fertilizer from PC (90%) followed by dealers (10%). In case of chemical pesticides, 40% Shekhawati and 10% Molasar PC members did not buy pesticides. PC supplied to the remaining 60% Shekhawati member farmers and 80% Molasar PC members. 90% of members farmers of both the PCs didn't purchase any biofertilizers. In case of biopesticides, 90% Shekhawati PC members and 70% Molasar PC members did not purchase any biopesticides. The remaining 30% Molasar PC members bought biopesticides from PC.

60% of Shekhawati didn't know the name of PC while the remaining 40% member farmers knew the correct PC name. In the case of Molasar PC, 80% member farmers were aware of the correct PC name while remaining 20% could not give the exact name of the PC.

Half of the Molasar PC members knew that PC was owned by farmers while 20% did not know. 10% each thought it was owned by PC employees or PC promoting agency. 30% and 20% Shekhawati PC members mentioned promoting agency and government respectively as the PC owner. A large number of member farmers didn't know the PC owner. (Table 3.57)

Table 3.57: Distribution of IGS PC members by Knowledge about PC Owner

PC	Shekhawati		Molasar	
Parameter > PC Owner	No. of Farmers	% of total	No. of Farmers	% of total
PC employees	0	0	1	20.00
Promoting Agency	3	30.00	1	10.00
Don't know	4	40.00	2	10.00
Farmers	1	10.00	5	50.00
Government	2	20.00	1	10.00
Total	10	100	10	100

30% Shekhawati PC members each were influenced by PC promoters, employees and friends while in case of Molasar PC members, major influencers were PC promoters (50%) and PC employees (40%) or both of them (10%). (Table 3.58)

Table 3.58: Distribution of IGS PC members by PC influencer

PC	Shekhawati		Molasar	
Parameter > PC Influencer	No of Farmers	% of total	No of Farmers	% of total
PC Promoters	3	30.00	5	50.00
Friends	3	30.00	1	10.00
PC Employees	3	30.00	4	40.00
PC Employees, Friends	1	10.00	0	0
PC Promoters, PC Employees	0	0	1	10.00
Total	10	100	10	100

Output Impact-Promoter wise

In the case of ISAP PCs, one farmer in mustard, urad, sesame and soyabean each and six farmers in wheat reported selling to the PC. There was no increase in four crops in number of famers over last three years but the number of member farmers in wheat increased six times. On the other hand, IGS PCs did not undertake any output transactions.

3.6 Summary

The analysis of case study PCs in Rajasthan shows that except milk PC which was very vibrant displaying high level of physical and financial performance and impact on marginal producer livelihoods, the other four PCs promoted by so called professional agencies did not show any promise and some were non-starters even after a few years of working. They could neither mobilise enough resources nor undertake any output activity to make any impact on farmer members. Other than being reliant on government for buying for it from its members and non-members, they could not undertake any other significant activity on the output side and did not have any business plans. They were more like projects undertaken for a fixed period and then abandoned. This is a typical case of external promoters undertaking such activity of FPO promotion without any local base unlike a local NGO which has local presence and reputation and good will which makes all the difference. On the other hand, much can be learnt from milk PC in terms of governance and business model which leads to sustainable member relations and business activity besides scale up and viability. But it also involved public funding in initial mobilisation and handholding which makes a major difference.

Appendix 3.1

PAAYAS Milk PC

The Paayas Milk PC has its origins in the Mother Dairy (NDDB) project started in 2009 in Rajasthan. However, Mother Dairy didn't have a formal structure of cooperative membership of milk producers. The Paayas was set up in 2012. By 2016, it had covered 2400 villages in 8 districts with a membership of 74533 of whom 39% were small holders and 41%were women. It was procuring 4.91 lakh litres of milk per day (Table 3.1). It had, by then, 2571 milk pooling points and had employed 1228 LRPs and covered 1.44 lakh animals and had covered 2985 villages with Artificial Insemination (AI). For example, one of the villages which was 32 kms from chilling centre (MCC) had 65 registered members and 60 were delivering milk totalling to 570 litres per day. It was supported by a sahayak (assistant) and one facilitator from the PC. It was run by a local farmer.

The mission of PAAYAS includes increasing the income of shareholders by reducing the cost of milk production and enhancing their milk business. There are informal groups of local community – village contact group and member relation group which act as a bridge between the members and the PC as the procurement at the village level is now undertaken by private individual. The VCG has 3 to 5 members at the milk procurements point level whereas MRG has 10 to 12 members at the milk route level. Whereas VCG encourages farmers to become members and make the members adhere to the rules of the PC, the MRG is more about supporting MPC in organizing various campaigns, meetings and workshops.

Paayas is a single tier structure with 1.2 lakh members. At the local level, there are villages contact groups (VCG) and member relation groups (MRL) which are informal structures between the PC and the members. The shareholding is as per quantity of milk delivered and one share gives the right to deliver 100 litres of milk in a year and a member has to buy 5 shares of Rs.100 each (Re 1 per litre of milk) plus pay a membership of Rs.100. The maximum shares which can be held by one member is 1000. A member has to supply a minimum of 500 litres of milk for a minimum of 200 days per year with a flush to lean ratio 3:1. The members who supply for higher number of days in a month/ year are given loyalty incentives.

The PC has three types of members, A, B and C depending on the number of shares held and milk delivered. Most of the turnover of the PC came from raw milk, poly pack, and cattle feed. A C-category member has to buy five shares of Rs.100 each and supply at least 500 litres of milk for at least 200 days. A B-category member should buy at least 40 shares and supply at least 4000 litre of milk for 270 days in a year. An A-category member has to buy 100 shares and supply at least 10,000 litres of milk for 330 days in a year at least. All of them have to maintain a flush lean ratio of 3:1.

The elected board of directors has 10 farmer shareholders based on their category of membership which itself is based on patronize, three expert directors, who are subject matter specialists and CEO. Of the ten elected farmer members, there is a ratio of 7:3 of male female and 3, 2 and 5 each are elected from A, B and C categories. The PC has annually carried out eight programmes for the board and eight exposure visits for them. It also does organize monthly and annual programmes for producer awareness on quality, leadership and business orientation among them. The PC also provides medical insurance, life insurance, child education scholarships and incentives on cattle feeds to offset low milk prices.

The BoD has 15 members composed of 11 elected farmer shareholders, 3 expert directors, and one chief executive. It has village contact group and member relations groups at the village level.

The PC has presence in 3300 villages which covers 38 percent of milch animal owning households in these villages. 40% of the milk in case of Paayas comes from non-members. Its sales are 85% institutional 15% retail. The institutional sales are mainly to mother dairy and a small quantity also goes to RCDF.

Photo 3.1: A milk collection centre of Paayas and details of membership and procurement

The organizational structure includes: procurement head with 5 cluster managers across eight districts and 21 area managers at the chilling centre level and 120 facilitators at the village level (MPP). Overall, there are 400 staff working with the PC. PC makes annual plans for its business. The business models include payment through the bank and GPRS for mobile communication with the members. The major product innovations include: state specific mineral mixture and urea free cattle feed besides a two-litre ghee pack.

As of now it has outsourced facility for processing and packing upto 1.5 lakh litres a day and cold storage capacity of one lakh litres and ghee making capacity of 4.5 metric tonnes per day. The PC has 125 distributors and 4000 retailers. Over the years, it has been gaining market share while RCDF is losing its market share. The PC provides four types of cattle feed which includes mineral mixture and ration balancer besides plain and bold versions of its mudrika animal feed.

The PC supplies cattle feed and various other inputs and services like mineral mixture, fodder seeds, group medical insurance and AI facility, which are availed by 90% of the members. It is also supplying milking machine for large dairy animal holders. It also supplies fodder seed and ration like UMB and other specific types of feed and nutrients for animals. Many of its services are provided to both members and non-members because non-members are potential members which can help expand procurement and turnover of the company. The PC also provides bunkers for biomass and fodder storage at the household level which are provided free or at 50% cost to women dairy farmers.

It claims that the ration balancing intervention has led to 0.22 kg. increase in average milk yield, 0.08 percent increase in milk fat and Rs.2.25 reduction in cost of feeding leading to reduction of Rs.19 per animal per day. This has led to Rs.28 per animal increase in daily income

of farmers and 10 percent reduction in feed cost per kg of milk. The PC has also set up 14 model dairy farms in three districts and more than 800 farmers have been trained in model dairy farming.

Major problems the PC experiences as per promoter's opinion is that the mindset of the Board of Directors is still of the traditional cooperative type which it is trying to change with training and orientation. Further, it has been working on an asset light high turnover business model which would have to change as the scale increases as that would require more reliable systems of handling raw material as well as finished products. More importantly the state does not provide a level playing field for the PC as it subsidises only cooperatives.

Table 3.1: Profile and Performance of Payaas PC

Year > Parameter	2012-13	2013-14	2015-16	2016-17	2017-18	2018-19
Authorised capital (Rs. crore)	30		30	35	35	50
Share capital (Rs. crore)	16(53%)		22.8(76%)	30.72(88%)	33.89(97%)	37.4(75%)
Turnover (Rs. crore)			845	1062	1282	1429.5
Profit (Rs. crore)			12.89	11.15	16.84	13.03
Reserves and Surplus (Rs. lakh)			1.80	2923	4754.1	6119.0
Assets (Rs. Lakhs)			44.26	4511.6	3479.2	2587.5
Number of shareholders (lakhs) (women)		0.378 (0.10%)		1.12	97816 (38224)	1.04 (38%)
Milk Procurement (litres in lakhs)		3.39	4.91	6.5	645	8.6

Shreedev Mahila Kisan PC

This PC was registered in 2016 and deals with procurement of milk and sale of cattle feed. It has 800 members and authorised capital of Rs.5 lakhs. So far, it has issued share for Rs.1 lakh but has mobilised a total of Rs.1.7 lakh share capital (Table 3.2). The PC works 350 self-help groups of women with a monthly contribution of Rs.100 besides Rs.200 membership fee which were organised in 2013. At present, there are 50 such active groups across 80 villages with each member holding 10 to 100 shares.

It has seed licence since 2017 as well as FSSAI licence. It has also been involved in selling tea, maize seed, urea and DAP and weedicide. Its total turnover in 2017-18 was Rs.3.12 lakh with a profit margin of Rs.0.21 lakh. The promoters and BoD have 100 shares each. The major crops

grown in the area include maize, soybean, pulses, mustard, wheat, barley, and vegetables. The PC has still not issued share certificates.

Of the 265 members, most are marginal or small landowners and 10% even landless. 80% of the members of the PC are active it had five BoD members all of whom are women. The PC believes that 70% members know that PC belongs to them. Of the 200 shareholders, 144 had bought 100 shares each, 34 had 50 shares each, two had 20 shares each, and rest had only 10 shares each amounting to Rs.100 each. Though it had 800 members by the 4th year but only 270 shareholders had paid up total capital of Rs.1.7 lakh. The PC had been supported by NABARD for the salary of the CEO and it has no other staff.

Photo 3.2: Office cum godown of Shreedev Mahila KPC

On the input side, 50 to 60% of the sales are to the members and 80% of the tea sales are to non-members. Only 10% of the members buy exclusively from PC. Even cattle feed sales, are equally divided between members and non-members. The PC earns 5% commission on the sale of various inputs. **The PC has not yet dealt with any produce on the output side in terms of buying from member farmers.** The PC has no business plans through it has been able to receive capacity building grants from NABARD for three years and has been supported by the promoting agency to the tune of Rs.50000. It has also not done any training of the BoD other than the use of farm inputs with the help of KVK and NABARD. The PC had taken the members for exposure to other milk PCs promoted by another NGO and another exposure visit to KVK Kota in which 10 members each participated.

In terms of its problems, it faces working capital constraint as well an inactive Board. It is planning to target membership of 1000 and focus on seed production and its sale with a brand name. The CEO of the PC is a commerce graduate and a former employee of the promoter with one of its PCs in Bundi. The PC could hold only three meetings of BoD in the first year but held 12 and 5 meetings in the next two years.

Table 3.2: Profile and Performance of Shree Dev Mahila PC

Year > Parameter	2015-16	2016-17	2017-18	2018-19	2019-20
Authorised capital (Rs. lakh)	5	5	5	5	5
Share capital (Rs. lakh)		1.7(32%)	1.7(32%)	1.7(32%)	1.7(32%)
Turnover (Rs. lakh)			3.12	0.86	
Profit (Rs. lakh)			0.21		
Number of shareholders		265	265	690	

KHANDAR AGRO PC

The PC was registered in 2016 and promoted by ISAP. It was organized from 70 FIGs, from 25 of which and another 5 SHGs, 500 members across 30 villages joined the PC with each member holding 50 to 100 shares. There are mostly male members with only 20 being women and 350 of all are active. It has authorised capital of Rs.5 lakh and paid up capital of Rs.3.5 lakh besides reserves of Rs.2 lakh. It had a turnover of Rs.3.19 lakh in 2018-19 and made some profits. The promoter which started it is a part of the project has now wound up its engagement.

The PC has 5 Directors on the Board of whom 4 are women. Among the ten promoters, there was one woman. The chairperson of the PC is a village council head and a political party local leader. The PC has only a CEO who belongs to the promoting agency and worked as block coordinator.

The 10 seed producers have 40 shares in the PC, and they all operate 10 to 12 acres each. On the other hand, 50%of the members have an average land holding of two acres. But, only 130 households deal with PC in any way. In fact, all 500 members come from only 250 households with multiple membership from the same household in different names. Therefore, more than 50% of the members household have no dealing with the PC. The PC mostly deals with inputs and major inputs provided include: biofertilizers, seeds, and irrigation equipment, 80% of which is bought by the members with 10% exclusively relying on it. It also runs an OCPF funded custom hiring centre (CHC) which has three tractors and many other equipment which are used mostly by members.

On the output side, it promotes market linkages, undertakes warehousing, and processing of spices and their retailing and marketing. It claims that it has introduced new fruit and other high value crops among local farmers. **It has only once facilitated government procurement of pulses and sold 60 member farmers' wheat in wholesale to private traders**. It owns the warehouse and has sold banana to Jaipur traders and organic products to an online buyer. On the output side, it has not yet attempted contract farming but planning to undertake it in spice crops.

It had also undertaken contract production of seed with 15 growers who number 50 now mainly for production of wheat, mustard, pulses, soybean, paddy seeds. Mostly members buy seeds from the PC for lower price for members and for better quality in case of non-members. Only 50 farmers buy exclusively from the PC. It was into losses up to 2017-18 (Table 3.3) and made a small profit in 2018-19 with a turnover of Rs.10.5 lakh. It also treats seed contract farming as a good practice. Its other good practice included: sale to farmer members only on cash

payment. It believes that its warehousing activity also as a good practice which it started in 2017-18. It has not received any support from NABARD or SFAC. It has only taken some progressive farmers for some exposure with the KVK and local agricultural university once.

Table 3.3: Profile and Performance of Khandar Agro PC

Year > Parameters	2016-17	2017-18	2018-19
Authorised capital (Rs. lakh)	5	5	
Share capital (Rs. lakh)	1(20%)	1(20%)	
% of Shares held by promoters	100	100	
Turnover (Rs. lakh)	0.96	6.95	
Profit (Rs.)	-0.02	-0.51	
Reserves and Surplus (Rs. lakh)	-0.02	-0.53	

Shekhawati Farmer PC

The PC originated in 2015 from 60 FIGs across 30 villages. Each member buys 100 shares of Rs.10 each and there are 311 shareholders, most of whom being marginal, small or semi-medium farmers. There are no landless members and by 2019 the membership had increased to 936. Only 40 members are women. The PC had authorised capital of Rs.10 lakh and paid up capital of Rs.9.36 lakh in 2018-19 and reserves of Rs.2.5 lakh (Table 3.4). The PC had never made any loss and its turnover in 2018-19 was Rs.65 lakh.

Among the 12 Board of Directors, four are promoters and only one is a woman. The BOD members are elected by PC members; they have to be active in PC work to get elected. The PC has only a CEO now though earlier, it had five Local Resource Persons (LRPs).

The PC has input selling license as well as output trading licences. On the input side, it mostly deals with seeds, fertilizer, pesticides, besides cattle feed and most of the members buy exclusively from the PC. Only 30% of the sales of inputs are to non-members. The sales of inputs are carried from the office-cum-shop of the PC. There is also a PACS in the village from which farmers buy inputs.

On the output side, of the total turnover, 30% comes from non-members. **It has not undertaken any contract farming or output business so far**. The PC claims that it has promoted isabagul and fennel crops among its farmer members. 50% of the PC members are active. There is PACS in the area which undertakes input supply for its members as well as procurement from the government at MSP.

The PC has received capacity building grant from SFAC. It did not pay any dividends to the members in order to mobilise money for being eligible for matching equity grant. The business plan is made by the promoter and the BOD annually. It has also been able to avail of loan from Sammunathi Finance in 2016-17 for Rs.1.75 lakh at the rate of 18% for undertaking input activities. The CEO had been provided exposure to another PC promoted by another agency (ISAP). However, the Board has not been exposed to much training. The PC believes that it has not undertaken any initiative or activity which can be called a best practice. It plans to focus on pulses and millets for its supply to the government under SFAC procurement mechanism.

Major problems faced by the PC includes: shortage of working capital as there is no bank cash credit limit as of now, absence of output business, lack of professional leadership, especially by BOD and CEO, and lack of state government support. The PC plans to set up a pulse processing unit and also get into onion storage and processing. Unfortunately, it is also selling to farmers on credit up to Rs.one lakh for short period which involves 100 such farmers. There is also absence of local warehouses which does not let the PC make use of the warehouse receipt system.

Table 3.4: Profile and Performance of Shekhawati FPC

Year > Parameters	2016-17	2017-18	2018-19
Authorised capital (Rs. lakh)	10	10	10
Share capital (Rs. lakh)	1(10%)	6.22(62%)	6.22(62%)
Turnover (Rs. lakh)	21.40	32.7	56.6
Profit (Rs.)	0.4	0.61	-0.1
Reserves and Surplus (Rs. lakh)	0.49	0.11	0.00
Assets (Rs. Lakh)	0.04	0.03	0.02

Molasar SKS PC

The PC was registered in 2015 and promoted by IGS. The authorised capital of the PC was Rs.10 lakh and the paid-up capital Rs. 7.26 lakh (Table 3.5).

The PC originated from FIGs (65) which had 1005 members including 106 women members which come from some 40% FIGs only. It has 518 members all of whom were landowners and 13 among them were women, and come from 35 villages. 60% of the shareholders are small or marginal and owners with 40% being medium or large farmers. However, only 350 of the shareholders are active members and only about 400 out of 1005 FIG members are active. It had 10 promoters and had 6 members of the Board of Directors including one woman from 201617 due to SFAC mandate, all of whom are also promoters. They all have 1000 shares each worth Rs.10000 each. The BoD are selected from among the heads of FIGs (22) including chairperson and vice-chairperson. But, those with political positions or elected body positions like Sarpanch are not eligible to be on the BoD as it requires devoting time for PC work. It has all the input sale licenses as well as APMC license as a buyer. It has CEO and one LSP while earlier there were two LSPs. The CEO is a former LRP of the promoter and has worked with MGNREGS as a mate earlier. The administrative cost of the PC including CEO and other staff salary were borne by SFAC for three years some of which is still pending and being used now to sustain the CEO salary.

It sells farm inputs like seed and fertilisers as well as cattle feed. It has no warehouse and runs from a rented shop cum office and have total three rented shops. It had not undertaken any processing even by 2019.

The PC had an agreement with SFAC for procuring pulses under price stabilization fund wherein the PC was to procure at MSP at the procurement centre and pay farmers within three days through electronic bank transfers. The PC was paid 1.5% of the value of pulses procured as administrative charges. All the mandatory charges like Mandi fee, cess, handling charges,

cost of gunny bags and transportation charges were to be either paid or reimbursed by the SFAC. The quality standards for various pulses were specified in terms of foreign matter, admixture, other grains, damage grains, broken split or unhusked grains, pest infected pulses and immature and shrivelled grains which was of the order of 1 to 3% maximum and moisture level of 12% maximum. Further, the FSSAI standards were to be followed for uric acid and aflatoxin. The damaged grain and pest infected pulses exemption level was higher in case of moong i.e. 4%. The farmers were given MSP for three crops of moong, urad and arhar in 2016-17 plus a bonus of Rs.425 per quintal.

This PC participated in procurement of green gram worth Rs.1.68 crore from 186 members. In the next year, it jointly procured 312 tonnes of pulses along with Aman KSPCL and earned 1.5% commission totalling Rs.6.34 lakh. It claims that the average additional benefit worked out to be Rs.17149 per farmer because MSP was Rs.400 per quintal higher than the market price. The government provided a bonus of Rs.425 per quintal to the farmers. Because of this, the share capital of the PC doubled as more farmers joined as members.

The PC earned commission on SFAC driven procurement of moong dal and also availed of matching equity grant of Rs.3.63 lakh from SFAC. The PC was running into loses earlier and has made a small profit of Rs.75000 in 2017-18.

Photo 3.3: Molasar SKS PC office and a share certificate of a shareholder

Table 3.5: Profile and Performance of Molasar SKS PC

Year > Parameter	2015-16	2016-17	2017-18	2018-19
Authorised capital (Rs. lakh)	10	10	10	10
Share capital (Rs. lakh)	1(10%)	-	2.63(26%)	7.26(73%)
Turnover (Rs. lakh)	2.78	8.14	8.24	14.8
Profit (Rs. lakh)			0.75	-0.62
Reserves and Surplus (Rs. lakh)	-0.01	-	0.17	-0.44
Number of shareholders	312	518	518	

Chapter 4
Performance and Impact of PCs in MP

Introduction

In Madhya Pradesh, agriculture contributes 22% of State Gross Domestic Product (SGDP) and provides employment to around 54.6% of its workforce. 48.91% of the total area of the state is cultivated. The cropping intensity of Madhya Pradesh is 146%. 32% of the GCA is irrigated with large parts of the state being dry (Sharma et al, 2013). M.P. is primarily a food grain growing state with around 62% of its gross cropped area (GCA) devoted to food grains and 32% to oilseeds in 2014-15. Within food grains, cereals are 39.4% of GCA and pulses 23%. In MP, food grains (cereals and pulses) is the largest segment constituting around 27.3% of gross value of output followed by livestock (18%), fruits and vegetables (17.4%) and oilseeds (14.3%) (Gulati et al, 2017). The cropping pattern consists of soyabean accounting for 27% of GCA, wheat 22%, gram 14%, paddy 8%, mustard and maize 4% each, urad, masur, tuar and cotton 3% each, jowar and sesame -2% each and bajra, peanut and peas 1% each (Sharma, et al, 2013). Wheat is the major crop grown during the rabi season and it is intercropped with gram. In the Kharif, MP mostly grows oilseeds, specifically soybean (Gulati et al, 2017). In 2010-11, 44% operated land holders were marginal and 28% small with 12% and 22% of area respectively and semi-medium holders were 19% of total with 28% area and only 9% were medium with 29% are and 1% being large with 9% area (Sharma et al, 2013).

There are 4,530 primary agriculture credit societies (PACS) operational in the state. The state has been also a pioneer in the setting up of new form of co-operatives- producer companies- since 2005 (Singh and Singh, 2014). The state was also the first to set up a state level PC as a consortium of farmer producer companies which has 90 members (Rani et al, 2018). The state has put in place a set of incentives to strengthen FPOs through financial support, infrastructure building and relaxation of the provisions of the APMC Act (Gulati et al, 2017).

This chapter examines physical and financial performance of PCs across promoters in section 1, analyses the member and non-member differential impact across all PCs together in section 2, Section 3 focusses women specific PCs and section 4 on other PCs. Section 5 examines promoter specific performance and section 6 the PCs within each promoter and section 7 concludes the chapter.

4.1 Profile and performance of PCs

A comparative analysis of the various PCs in MP by various promoters shows that ASA PCs had small size of membership though thy had registered with good amount of authorised capital of Rs. 15 lakh each but one of them could not even 50% of it even after 6 years of working (Table 4.1). But their turnover was significant enough (Rs. 45-81 lakh) given the small size of membership. However, they also seem to have passed on the profits to the members as revealed by the small profits and reserves they had. On the other hand, AKRSP promoted PCs which were of more recent origin had really small authorised capital (Rs. 5-10 lakh) and small mobilised equity (only 20-34% of authorised). But they were able to achieve good level of revenue/turnover (Rs. 24 and 80 lakhs each) and remained in profit almost throughout the period. The performance of goat PC was even more impressive as it was all women member PC and was in an unusual and unorganised sector of meat and animal trade.

PRADAN promoted PC has good start and mobilised a significant amount of equity form members (60% of authorised i.e. of Rs. 25 lakh in 2017-18 raised from earlier Rs. 10 lakh). In fact, it had reached 75% of its earlier authorised capital of Rs. 10 lakh. It had high level of revenue (> one crore in 2017-18) and profits throughout and created some small reserve as well (> one lakh).

However, the Mhow PC of IGS had a poor start and working and it was even delisted by the Registrar of Companies (ROC) as it did not file returns. It was defunct for some time and could not even mobile 10% of its authorised equity of Rs. 10 lakh and had conducted no business in 2018-19 and had only Rs. four lakh revenue in previous year. Vrutti promoted PC (Betul) was even in worse condition as it also could not go beyond mobilising 10% of its authorised capital of Rs.10 lakh and had no business in 2018-19 and therefore no revenue. It showed large revenue in 2017-18 mainly due to the opportunity given by SFAC to procure on its behalf which also it did not buy from its members but from a mandi.

A major departure in performance among PCs was that of the RRPPC, promoted by SPS which was all women member PC and had equity of a large order i.e. authorised equity of Rs. 40 lakhs in 15-16 which was raised to Rs. one crore in 2017-18 and it had mobilised 100% of it in 16-17 and 60% of the enhanced limit. It had very large turnover (Rs. 5 crore) and decent profits (Rs. 1-2 lakh) and surplus of above Rs. 20 lakhs. It had also created assets worth Rs. 12 lakhs. The recent build up of its warehouse and other facilities shows that it was on the path to sustainability.

Table 4.1: Profile and performance various PCs in M.P.

PC	Ranapur women tribal				Alirajpur PC						Nevali PC				Pandhana PC			
Year Parameter	**2015-16**	**2016-17**	**2017-18**	**2018-19**	**2013-14**	**2014-15**	**2015-16**	**2016-17**	**2017-18**	**2018-19**	**2015-16**	**2016-17**	**2017-18**	**2018-19**	**2015-16**	**2016-17**	**2017-18**	**2018-19**
Members	700	980	1000	1200							1000							
Authorized Capital (Rs. Lakh)	15	15	15	15	15	15	15	15	15	15	10	10	10	10		5	5	5
Paid up Capital (Rs. Lakh)	12.4 (83%)	12.4 (83%)	14.11 (94%)	14.11 (94%)	1 (6%)	4.44 (30%)	7.22(48%)	7.22(48%)	7.22(48%)	7.22(48%)	1 (10%)	1 (10%)	3.38 (34%)	5.38 (54%)		1 (20%)	1 (20%)	2.99 (60%)
No of Shares	124046	12406																
Revenue (Rs. Lakh)	27.54	28.02	64.15	45.22	5.65	24.6	16.4	25	13	81	5.86	50.95	80.4	133		2.78	14.7	23.9
Profit (Loss) (Rs. Lakh)	(2.68)	(2.97)	(1.58)	0.41	0.03	0.49	(1.23)	(1.35)	(1.36)	0.3	(0.026)	0.28	0.21	6.82		0.017	1.79	1.09
Reserves & Surplus (Rs. Lakh)	(3.82)	(6.79)	(8.38)	(7.97)							(0.1)	(0.09)		6.94		0.017	0.25	0.31
Assets (Rs. Lakh)	26.58	50.24									6.41	6.22						

Continued...

Table 4.1: Profile and performance of various PCs in M.P.

PC	Chirayu Women PC			Mhow Agri Pc					Betul PC profile				RR Pragati PC			
Year Parameter	**2016-17**	**2017-18**	**2018-19**	**2014-15**	**2015-16**	**2016-17**	**2017-18**	**2018-19**	**2015-16**	**2016-17**	**2017-18**	**2018-19**	**2015-16**	**2016-17**	**2017-18**	**2018-19**
Members	980	1000	1200													
Authorized Capital (Rs. Lakh)	10	25	25			10	10	10	10	10	10	10	40	40	100	100
Paid up Capital (Rs. Lakh)	7.5 (75%)	15(60%)	15(60%)			1 (10%) (6.73)	1 (10%)	1 (10%) (5.86)	1(10%)	1(10%)	1(10%)	1(10%)	20(50%)	39.02 (98%)	58.8(59%)	58.8(59%)
Revenue (Rs. Lakh)	60.83	139.5	133.23	4.61	7.46	20.46	4.12		0	0	117.82	0	148.47	177.71	268.23	518.12
Profit (Loss) (Rs. Lakh)	0.39	0.31	0.70	0.12	0.207	0.012	0.96		(0.28)	(8.17)	8.65	(0.36)	0.24	2.53	12.01	1.2
Reserves & Surplus (Rs. Lakh)	1.37	1.83	2.61						(0.28)	(8.45)	0.2	(0.16)	(38.91)	(36.37)	24.36	23.15
Assets (Rs. Lakh)		33.18	63.47										0.59	0.79	6.26	12.18

4.2 All PC member and non-member comparison: Profile and impact

Of the 71 member farmers interviewed across the state from 8 PCs where 42% per male and 58% female members (Table 4.2) for the reason that four of the PCs were predominantly women member based or exclusively women PCs. Most of them (47%) were either illiterate, or middle/high school passed (12% each). Only 7% happened to be graduates (Table 4.3). 99% of the members had farming as primary occupation. Among the secondary occupation reported by 30% members, labour again emerged as the largest followed by shop keeping business, *anganwadi* (rural mother and child care centre) workers and other such secondary livelihoods (Table 4.4). Average age of members was 39 and that of non-members 40 years.

Table 4.2: Distribution of PC member and non-member farmers by Gender

Category>	Members		Non-Members	
Parameter> Gender	Farmers (No.)	% in total	Farmers (No.)	% in total
Female	41	57.75	41	54.67
Male	30	42.25	34	45.33
Total	71	100	75	100

Table 4.3: Distribution of PC member and non-member farmers by education

Category>	Members		Non-Members	
Parameter> Education	Farmers (No.)	% in total	Farmers (No.)	% in total
Illiterate	33	46.48	45	60
Primary	6	8.45	6	8
Middle School	10	14.08	14	18.67
High School	9	12.68	7	9.33
Higher Secondary	4	5.63	2	2.67
Undergrad	3	4.23	0	0
Graduate	6	8.45	1	1.33
Total	71	100	75	100

Table 4.4: Distribution of PC member and non-member farmers by Secondary Occupation

Category>	Members		Non-Members	
Parameter> Secondary Occupation	Farmers (No.)	% in total	Farmers (No.)	% in total
Agriculture	1	1.41	0	0
Animal Husbandry	3	4.23	4	5.33
Business	4	5.63	4	5.33
Labour	6	8.45	18	24.00
Skilled Labour	7	9.86	1	1.33
None	50	70.42	48	64.00
Total	71	100	75	100

Among the non-members there were 55% female and 45% male farmer respondents with most of them (58%) being illiterate and another 21% only middle standard educated (Table 4.3). 94% of them reported agriculture as the primary occupation with 3% as labour with another 1% each reporting dairy and animal husbandry each. Among the secondary occupations, which was reported by less than 50% of the total, daily wage labour was the most predominant (26%) followed by animal husbandry & dairying (9%) and petty grocery shops and agriculture (3% each) (Table 4.4).

Average size of owned land of members was 5.3 acres and operated land was of the order of 6 acres with the very small amount of leasing as most of the farmers were marginal or small farmers or even landless. 62% of the farmers were marginal or small and another 25% semi medium with only 10% and 3% being medium and large farmers respectively (Table 4.5).

Interestingly, though 62% of the member farmers were small or marginal, they cultivated only 25% of the total cultivated area. The medium and large farmers which were very tiny percentage of household (10% and 3% respectively) had 26 % and 18% of the cultivated land respectively totalling 44%. (tables 4.6 and 4.7)

Table 4.5: Average Owned and Operated Land of PC Members and Non- Members

Category> Average (in aces)	Members	Non-Members
Owned Land	5.38	4.84
Operated Land	6.09	5.43

Table 4.6: Distribution of PC member and non-member farmers by Owned Land

Category>	Members				Non-Members			
Parameter> Farmer Category	No. of Farmers	% Farmers	Land (in acres)	% Total Land	No. of Farmers	% Farmers	Land (in acres)	% Total Land
Marginal	28	39.44	46	12.03	33	44.00	42.04	4.82
Small	16	22.54	51.8	13.54	15	20.00	560.25	64.18
Semi medium	18	25.35	114.4	29.91	17	22.67	106.36	12.18
Medium	7	9.86	100.3	26.22	8	10.67	107.67	12.33
Large	2	2.82	70	18.30	2	2.67	56.67	6.49
Total	71	100	382.5	100	75	100	872.99	100

Table 4.7: Distribution of PC member and non-member farmers by Operated Land

Category>	Members				Non-Members			
Parameter> Farmer Category	No. of Farmers	% Farmers	Land (in acres)	% Total Land	No. of Farmers	% Farmers	Land (in acres)	% Total Land
Marginal	23	32.39	39.3	9.09	32	42.67	46.03	11.29
Small	21	29.58	71	16.42	16	21.33	54.68	13.41
Semi medium	20	28.17	125.9	29.11	16	21.33	107.33	26.33
Medium	4	5.63	56.3	13.02	8	10.67	107.6	26.40
Large	3	4.23	140	32.37	3	4.00	92	22.57
Total	71	100	432.5	100	75	100	407.64	100

Table 4.8: Distribution of PC member and non-member farmers by livestock Owned

Category>	Members				Non-Members			
Parameter> Type of livestock	No. of Farmers	% Farmers	Animals	% Total livestock	No. of Farmers	% Farmers	Animals	% Total livestock
Buffalo	25	35.21	42	9.31	23	30.67	56	16.00
Cow	53	74.65	130	28.82	38	50.67	74	21.14
Goat	40	56.34	162	35.92	36	48.00	131	37.43
Oxen	57	80.28	117	25.94	45	60.00	89	25.43
Total	71	100	451	100	75	100	350	100

The non-member farmers on an average owned 4.5 acres of land and operated 5.4 acres each with almost 1/3rd of the land being unirrigated. The maximum land ownership was 30 acres and minimum zero. The operated land ranged between 0.5 acres and 33 acres because of leasing in of land. The distribution of land was such that 68% of the total farmers were marginal or small but they operated only 29% of the total operated land. The medium and large farmers which were just 5 and 4 percent of the total had 16% and 21% of the total operated land (tables 4.6&4.7).

The major livestock type owned by members was bullocks, cows and goats with 51-80% owning them and buffaloes were owned by just 35% households. Goats were 36% all livestock and bullocks and cows 26% and 29% each and buffaloes only 9% of total (Table 4.8). Average holding per household was 2 cows or bollocks or buffaloes and 5 goats per household.

A significant proportion of non-members had cows, goats and bullocks with average ownership of 2 cows or bullocks and 5 goats each. Only 15% owned buffaloes with average ownership of 3. In terms of numbers, goats accounted for 42% of the total livestock followed by cows and bullocks at 20% and 23% each and the buffaloes accounting only for 14% of the total (Table 4.8).

54% member farmers reported well as the major source of irrigation and 7% tubewell with others reporting combination of well and canal, well tube and canal, well and tube well (4%, 4% and 7% each respectively). Most of these tubewell owners had electric motors (78%) followed by diesel engine (14%). Only 6% didn't have a source for energy for extracting ground water. The avg. cropping intensity of these farmers was found to be 1.9 (Table 4.9).

The major irrigation sources reported by non-members were wells (39%), tubewell (11%) and a combination of well or tubewell along with another source like canal or pond (9%) and both well and tubewell another 7%. 12% respondents were completely rain fed farmers. Further, of those who reported ownership of any well or tube well, it was mostly electric operated tubewells (85%) followed by diesel (11%) and a combination of the two (4%) (Table 4.9). The major sources of the information of the non-member farmers were friends, neighbours, relatives (32%) followed by only friends and the producer company along with other sources accounted for 9% and exclusively only for 4% of the total. This was as poor as agricultural department office or dealer.

Interestingly, a significant proportion of the members (44%) did not know the number of shares held or owned by them with others reporting 100 or lower no. of shares (53%). In only 37% cases, the share certificates were issued by the PCs. A very large proportion of members were also members of self- help groups (SHGs) (49%) simply for the reason that many of the PCs specially women focussed had their base in the SHGs. Only 11% farmers reported membership of cooperative society and 5% of another producer company. A significant proportion of them had been member of such collectives that (61%) anytime between 1998 and 2015. 30% reported receiving information from the PC for their occupation whether agriculture or animal husbandry and anther 17% from both friends and PC and another 20% from their friends alone. The extension worker and agricultural development officer figured only 1 to 2% cases each exclusively and in another few cases along with friends, PC and non-personal media like mobile and newspaper. 43% of the members knew that they own the company whereas 27% had no idea about the ownership of the PC. Others ended up reporting promoting agency, PC employees, board of director or govt. as the owners of the PCs. The biggest influence in their becoming member of the PC were the PC promoter (75%) followed by friends and PC employees (15% and 9% respectively). In 94% cases, they had not received any dividend on their shares so far.

Surprisingly, very vast majority (73%) did not have any complaint about the services provided by the PC. On the other hand, 80% of them also stated that PC did not bring any information about the govt. schemes and subsidies and 91% did not report any special subsidy or other benefits due to the PC. Most members reported monthly, quarterly and annual frequency of meetings of the PC and a majority of them (52%) taking part every time and 25% sometimes and others (9%) occasionally. Only 15% never participated in any meeting. However, 95% wanted to continue being member of the PC with only 2% reporting intention to withdraw from membership. Further 85% also stated that they will encourage others to become members. Only 9% stating they would not.

Major crops grown by the member farmer in kharif season were soyabean (41%), maize (17%), herbs (7%) and cotton (8%) with average area across most crops in 1 to 2 acres. In Rabi, the major crops grown were potato (29%), wheat (26%), pulses (13%) and spices (10%) besides onion (4%) and other vegetables (11%). In the summer season, it was mostly jowar with 55% (Table 9, 10 and 11). Overall, across seasons, it was soybean, potato, wheat, maize and cotton which were the major crops grown by the farmers.

The average cropping intensity of the non-member farmers was 1.68. Major crops grown by the non-members farmers in terms of the areas sown included: wheat (41%), potato and onion (15% each), gram (9%) and garlic (6%) besides combination of some of these crops as

intercrops in Rabi: soyabean (42%), maize (26%), paddy (5%) and cotton (11%) besides intercropping of cotton and soyabean, and cotton and maize in 3% area each in Kharif season and mostly onion (39%), ladyfinger and fenugreek (18 %each) followed by moong and coriander (9% each) in summer season. In the total crop area for the entire year, wheat accounted for 17%, soyabean 24%, maize 15% and cotton 6%. Other than soyabean which was grown in 6 acres on an average, other crop mostly had 2-3 acres average area per farmer per year (tables 4.10 to 4.12).

Table 4.9: Distribution of PC member and non-member farmers by Source of Irrigation

Category >	Members										Non-Members					
Source of Energy >	Diesel Engine				Electric Motor						Diesel Engine		Electric Motor			
Ownership of system >	Owned		Rented		Owned		Shared		Rented		Owned		Owned		Shared	
Parameters > Source	Farmers (No.)	% in total	Farmers (No.)	% in total	Farmers (No.)	% in total	Farmers (No.)	% in total	Farmers (No.)	% in total	Farmers (No.)	% in total	Farmers (No.)	% in total	Farmers (No.)	% in total
Well	1	1.41	3	4.23	34	47.89	2	2.82	1	1.41	0	0	24	32.00	0	0
Tubewell	0	0	0	0	4	5.63	2	2.82	0	0	1	1.33	7	9.33	1	1.33
Well, Tubewell	0	0	0	0	6	8.45	0	0	0	0	0	0	5	6.67	0	0
Well, Tubewell, Canal	0	0	0	0	2	2.82	0	0	0	0	0	0	0	0	0	0
Well, Canal	1	1.41	0	0	1	1.41	0	0	0	0	0	0	6	8.00	0	0
Well, Tubewell, Lake	0	0	0	0	1	1.41	0	0	0	0	0	0	0	0	0	0
River/ Lake/ Canal	6	8.45	0	0	4	5.63	0	0	0	0	6	8.00	9	12.00	0	0

3 members and 16 non-members are Rainfed farmers with no Source of Irrigation.

Table 4.10: Kharif cropping pattern of PC member and non-member farmers

Category>	Members					Non-Members				
Farmer and land parameter> Crop	No. of Farmers	% Farmers	area under crop	% Kharif area	% Total area	No. of Farmers	% Farmers	area under crop	% Kharif area	% Total area
Cotton	22	30.99	34.2	8.14	4.17	17	22.67	40.4	10.16	5.88
Maize	36	50.70	71	16.91	8.66	48	64.00	106.33	26.75	15.49
Soyabean	33	46.48	171.8	40.91	20.96	27	36.00	160.1	40.27	23.32
Paddy	9	12.68	8	1.91	0.98	12	16.00	18.8	4.73	2.74
Tuvar	9	12.68	14.9	3.55	1.82	3	4.00	2.21	0.56	0.32
Vegetables	5	7.04	9.3	2.21	1.13	1	1.33	2.5	0.63	0.36
White Musli	2	2.82	31	7.38	3.78	1	1.33	2.5	0.63	0.36
Jowar	6	8.45	6.9	1.64	0.84	1	1.33	2	0.50	0.29
Cotton, Maize	5	7.04	9.6	2.29	1.17	6	8.00	16	4.02	2.33
Soyabean, Maize	8	11.27	22.6	5.38	2.76	2	2.67	5.45	1.37	0.79
Groundnut	4	5.63	4.4	1.05	0.54	5	6.67	8	2.01	1.17
Maize mixed cropping	5	7.04	9.6	2.29	1.17	4	5.33	10.68	2.69	1.56
Sesame	3	4.23	3	0.71	0.37	0	0	0	0	0
Soyabean Intercropping	4	5.63	7.1	1.69	0.87	1	1.33	7.5	1.89	1.09
Urad	4	5.63	9	2.14	1.10	3	4.00	1.4	0.35	0.20
Groundnut intercropping	0	0	0	0	0	4	5.33	3.9	0.98	0.57
Others	6	8.45	7.5	1.79	0.91	7	9.33	9.78	2.46	1.42
Total	71	100	419.9	100.00	51.22	75	100	397.55	100.00	57.91

Table 4.11: Rabi cropping pattern of PC member and non-member farmers

Category>	Members					Non-Members				
Farmer and land parameter> Crop	No. of Farmers	% Farmers	Area under crop	% Rabi area	% Total area	No. of Farmers	% Farmers	Ara under crop	% Rabi area	% Total area
Gram	36	50.70	43.5	11.90	5.31	30	40.00	24.34	8.76	3.55
Wheat	50	70.42	91.7	25.09	11.19	47	62.67	110.38	39.71	16.08
Garlic	7	9.86	33.6	9.19	4.10	4	5.33	17.83	6.41	2.60
Potato	9	12.68	119.1	32.59	14.53	8	10.67	44.26	15.92	6.45
Vegetables	10	14.08	39.8	10.89	4.85	4	5.33	2.7	0.97	0.39
Maize	4	5.63	1.8	0.49	0.22	1	1.33	0.8	0.29	0.12
Onion	3	4.23	14	3.83	1.71	5	6.67	44.11	15.87	6.43
Wheat Intercropping	5	7.04	11	3.01	1.34	6	8.00	20.35	7.32	2.96
Garlic, Gram	0	0	0	0	0	2	2.67	10.6	3.81	1.54
Others	4	5.63	11	3.01	1.34	2	2.67	2.6	0.94	0.38
Total	71	100	365.5	100.00	44.58	75	100	277.97	100.00	40.49

Table 4.12: Summer cropping pattern of PC member and non-member farmers

Category>	Members					Non-Members				
Farmer and area parameter> Crop	No. of Farmers	% Farmers	Area under crop	% Summer area	% of Total area	No. of Farmers	% Farmers	Area under crop	% of Summer area	% of Total area
Onion	3	4.23	12	34.88	1.46	2	2.67	4.3	39.09	0.63
Wheat	3	4.23	9	26.16	1.10	0	0	0	0	0
Gram	2	2.82	7	20.35	0.85	0	0	0	0	0
Jowar	1	1.41	2.4	6.98	0.29	0	0	0	0	0
Vegetables	1	1.41	4	11.63	0.49	5	6.67	5.7	51.82	0.83
Green Gram	0	0	0	0	0	1	1.33	1	9.09	0.15
Total	71	100	34.4	100.00	4.20	75	100	11	100.00	1.60

Most of the members reported an improvement in the quality of inputs compared to the pre-membership days when it was 45% reporting very good or excellent and 70% post PC membership reporting it so. Similarly, in input cost and availability, very significant gains were reported by more than 45% saying very good and excellent for the pre PC phase moving to 68% saying so for input cost and 70% as against 47% in the availability of inputs after and before the PC membership respectively. The input accessibility and quantity had also improved significantly after the intervention of PC.

However, from the output side, there was not much improvement as most PCs did not deal with output in a significant way and 90% of the members not reporting any output transaction before or after the PC. The price of output was reported to be better only by 8% members as against nil earlier mainly in crops of soyabeans, maize and cotton by 10-25%. Similarly, the market availability for output of the members was also reported to be better by only 7% members. Only wheat and maize experienced area expansion over the last few years, and yields had improved significantly in cotton, gram, and soyabean (18,41 and even more than 100% respectively) after PC intervention.

Before the intervention of the PC, 55% farmers sold directly to traders and 31% through the APMC with only 12% reporting selling through PC. Of the farmer member selling through the PC now, only 40% in wheat, 36% in soyabeans, 45% in maize, 25% in gram and 44% in cotton had sold though the PC. Then the PC and the wholesale channels were getting almost equal patronage by farmer members in these crops. This proportion of APMC and direct sales reduced to 28% and 44% and the PC channel accounting for 26%. There was also improvement in the payment mode with 6% more farmers reporting bank payment though the mode still accounted for only 25% for all the farmers. So far as the diversification of crop area due to the PC intervention is concerned the area increased marginally (2%) under maize and soyabean (3%) and decreased under cotton by 3%. Not only the area, but also the number of farmers growing these crops increased due to the PC intervention by a small percentage.

Similarly, significant increase in yield was reported only in cotton, soyabean wheat and gram. The marketed surplus went up in cotton (5%) and soyabean (6%) and wheat (4%) and the price realized improved in maize, cotton, soyabean and wheat besides gram. (6-17%). However, the time taken to receive payments became longer for maize and garlic. The average transaction cost increased in potato and maize significantly.

Most of the member farmers still bought their various inputs from dealers which were high in seeds (Table 4.13) and chemical pesticides (Table 4.14) but PC accounted for 45%, 44% and 34% of farmers in their source of seeds, chemical fertilizers and chemical pesticides respectively. The farmer mostly bought from the PC for the reason of better quality, easy accessibility and lower price (Table 4.15A). On the other hand, dealers were preferred for similar reasons by other farmers. Bioinputs (biofertilizers and biopesticides) were not used by most of the members (95% and 85%) and non-members (83% and 87%) and only 1-3% members bought them from the PC (Table 4.15).

So far as the purchase of farm inputs was concerned, most of the non-member farmers depended on dealers mainly for seeds, fertilizer and chemical pesticides. Some of them did purchase seeds from the PC and a very small percentage also chemical and biofertilizer and cattlefeed. The major reasons for buying seeds from dealers included: easy access and lower cost or a combination of such factors. On the other hand, PC or other cooperatives were used due to lower cost and easy access besides lack of any alternative. The chemical pesticides were bought from dealers for easy availability.

Table 4.13: Distribution of PC member and non-member farmers by Source of Seeds

Category>	Members		Non-Members	
Parameter> Source	Farmers (No.)	% in total	Farmers (No.)	% in total
PC, Agri Uni	1	1.41	0	0
PC	32	45.07	6	8.00
PACS	1	1.41	0	0
Dealers, PACS	1	1.41	2	2.67
Dealers, Local Farmers	1	1.41	3	4.00
Dealers	16	22.54	46	61.33
Dealer, PC	15	21.13	3	4.00
Agriculture Department	3	4.23	1	1.33
Agri Dept, PACS	0	0	1	1.33
Dealers, Agri Dept	0	0	1	1.33
Local Farmers	0	0	1	1.33
PC, Other FPO	0	0	1	1.33
None	1	1.41	10	13.33
Total	71	100	75	100

Table 4.14: Distribution of PC member and non-member farmers by Source of Agrochemicals

Chemical Input	Fertilizers				Pesticides			
Category>	Members		Non-Members		Members		Non-Members	
Parameter> Source	Farmers (No.)	% in total	Farmers (No.)	% in total	Farmers (No.)	% in total	Farmers (No.)	% in total
Dealers	7	9.86	31	41.33	22	30.99	40	53.33
PACS	18	25.35	13	17.33	0	0	2	2.67
PC	31	43.66	4	5.33	24	33.80	2	2.67
PC, PACS	1	1.41		0.00	0	0	0	0
Agriculture Department	0	0	3	4.00	1	1.41	0	0
Dealers, Local farmers, PACS	0	0	1	1.33	0	0	0	0
Dealers, PC	0	0	1	1.33	0	0	0	0
Local farmers	0	0	1	1.33	0	0	1	1.33
None	14	19.72	21	28.00	24	33.80	30	40.00
Total	71	100	75	100	71	100	75	100

Table 4.15: Distribution of member and non-member farmers by Source of Bio inputs

Input type	Biofertilizers				Bio-Pesticides			
Category>	Members		Non-Members		Members		Non-Members	
Parameter> Source	Farmers (No.)	% in total	Farmers (No.)	% in total	Farmers (No.)	% in total	Farmers (No.)	% in total
Local Farmers	0	0	1	1.33	0	0	0	0
Dealers	0	0	7	9.33	0	0	8	10.67
PACS	1	1.41	2	2.67	2	2.82	0	0
PC	3	4.23	3	4.00	9	12.68	2	2.67
None	67	94.37	62	82.67	60	84.51	65	86.67
Total	71	100	75	100	71	100	75	100

Table 4.15A: Input wise reasons for buying Inputs from PC by members

Reason	Seeds		Chem fertilisers		Chem pesticides		Biofert		biopesti	
Seeds	No. of farmers	% of total	No. of farmers	% of total	No. of farmers	% of total	No. of farmers	% of total	No. of farmers	% of total
Better Quality	12	21.05	8	25	6	20	0		1	50
Better Quality,Easy Accessibility, Lower Cost	1	1.75					0		0	
Better Quality,Easy Accessibility, Lower Cost,Lower Price	1	1.75	1	3.1	1	3.3	1	11.1	0	
Better Quality,Easy Accessibility, Lower Cost,Lower Price,Timely Availability	1	1.75	2	6.2	1	3.3	0		0	
Better Quality,Easy Accessibility, Lower Cost,Timely Availability	6	10.53			0		0		0	
Better Quality,Lower Price	1	1.75	3	9	4	13.4	2	22.2	0	
Better Quality,Lower Price,Timely Availability	2	3.51	1	3.1	1	3.3	0		0	
Better Quality,Timely Availability,Lower Price	1	1.75	1	3.1	0		0		0	
Easy Accessibility, Lower Cost	11	19.30	8	25	8	26.7	4	44.4	0	
Easy Accessibility, Lower Cost,Lower Price	1	1.75	0		2	6.7	1	11.1	0	
Easy Accessibility, Lower Cost, Lower Price,Timely Availability	1	1.75	3	9.4	3	10	0		0	
Fair Deal/ More Reliable	1	1.75	0		0		0		0	
Lower Price	6	10.53	4	12.5	3	10	1	11.1	1	50
Timely availability	0		1	3.1	0		0		0	
No other Source	11	19.30	0		1	3.3	0		0	
Timely Availability, Lower Price	1	1.75	0		0		0		0	
Total	57	100.00	32	100	30	100	9	100	2	100

45% of the non-members were aware of the PC and 15% of them were member of a cooperative, PACS or a SHG. Only 20% of them were interested in becoming members of the PC. However, 63% of them did not know who owned the PC with only 5% seeing it as farmers' company and 13% as of the promoting agency or the NGO. Most of them had become members of the non-PC group or collective after 2001. 60% did not receive any information about the PC from anyone, with another 10% receiving it from the promoters and PC employees, and promoters each and 15% receiving it from the PC meetings. They really didn't have much to say about the services provided by the PC and 28% of them had attended some meeting convened by the PC. 80% of them had no idea of any activities undertaken by the PC in the local area. Only 4% respondents had some negative experience with the PC or heard about it as 97% had not dealt with it.

There was no major change in the cropping pattern after the organization of the PC in case of non-members. Only in potato, they reported lower transaction cost as well as transport cost. They also reported some improvement in time taken to receive payment in cotton and maize besides wheat and soyabean. Most of them still reported cash transactions.

So far as sale of the sale of produce by non-members was concerned, of the total transactions, it was mostly direct sales which accounted for 70% of the transactions followed by wholesale market transactions (20%). The PC transactions were less than 10% of the total (Table 4.16 and 4.17).

4.3 Women PC Member and Non-member profile and impact

Of the 41 all-female members of five PCs across three promotors 2/3rd of the members were illiterate and rest with various school level literacy level (Table 4.18). 80% reported agriculture as the primary occupation followed by goatry and labour respectively. Average age of members was 41 years and that of non-members 45 years. The major secondary occupation was animal husbandry and farming besides labour. Majority of the members had wells as source of irrigation with 9% having tube wells while others depended on rivers, lakes and rainfall. The well and tube well owners had mostly electric source of energy and in some other cases diesel engines.

Table 4.16: Distribution of member famers by crop and channel of sale (excluding goat PC)

Channel	Total						APMC						Wholesale						PC						Retail					
Parameter>	Farmers			Produce			Farmers			Produce			Farmers			Produce			Farmers			Produce			Farmers			Produce		
Crop	Before	After	% Difference	Before	After	% Difference	Before	After	% difference	Before	After	% difference	Before	After	% difference	Before	After	% difference	Before	After	% difference	Before	After	% difference	Before	After	% difference	Before	After	% difference
Cotton	23	24	4.35	182.75	208	13.82	2	2		32	32		16	13	-18.75	101.75	85	-16.46	5	9	80.00	49	91	85.71						
Garlic	7	7		1087	832	-23.46	7	7		1087	832	-23.46																		
Gram	20	21	5.00	100.2	103.2	2.99	2	2		17	17		17	15	-11.76	81.7	66.7	-18.36	1	4	300.00	1.5	19.5	1200.00						
Groundnut	5	5		32	32.5	1.56	1	1		10	10		4	4		22	22.5	2.27												
Maize	29	34	17.24	756	837	10.71	5	6	20.00	115	155	34.78	18	15	-16.67	483	431	-10.77	6	13	116.67	158	251	58.86						
Onion	6	6		2581	2581		5	5		2570	2570		1	1		11	11													
Organic Cotton		3			21															3			21							
Potato	11	12	9.09	4998	5348	7.00	8	9	12.50	4448	4798	7.87	3	3		550	550													
Pumpkin	4	4		487	487								4	4		487	487													
Red Tuar	2	2		6	6														2	2		6	6							
Soyabean	41	42	2.44	1158.5	1182.5	2.07	13	13		465	477	2.58	22	18	-18.18	595.5	549.5	-7.72	5	10	100.00	78	136	74.36	1	1		20	20	

Urad	4	4		24.5	24.5		3	3		22.5	22.5		1	1		2	2													
vegetables	7	7		2665.5	2665.5		5	5		2165	2165		1	1		500	500								1	1		0.5	0.5	
Wheat	28	30	7.14	543.5	593.5	9.20	6	6		155	155		17	12	-29.41	277	227	-18.05	5	12	140.00	111.5	211.5	89.69						
White Musli	2	2	0.00	57	57								2	2		57	57													

Table 4.17: Distribution of non-member farmers by crop and channel of sale (excluding goat PC).

Channel	Total						APMC						Wholesale						PC						Retail					
Parameter>	Farmers			Produce			Farmers			Produce			Farmers			Produce			Farmers			Produce			Farmers			Produce		
Crop	Before	After	% Difference	Before	After	% Difference	Before	After	% difference	Before	After	% difference	Before	After	% difference	Before	After	% difference	Before	After	% difference	Before	After	% difference	Before	After	% difference	Before	After	% difference
Cotton	25	25		318.5	318.5		2	2		66	66		23	23		252.5	252.5													
Garlic	5	5		434	434		3	3		224	224		2	2		210	210													
Gram	14	14		142.5	142.5		1	1		30	30		9	9		71	71		3	3		41	41		1	1		0.5	0.5	
Groundnut	9	8	-11.11	33.9	31.4	-7.37	1	1		10	10		8	7	-12.50	23.9	21.4	-10.46												
Maize	31	31		657	657		5	5		150	150		22	22		457	457		3	3		47	47		1	1		3	3	

Onion	5	5		669	669		4	4		561	561		1	1		108	108														
Paddy		2			17								1	1		7	7									1	1		10	10	
Potato	8	7	-12.50	1838.4	1836	-0.13	2	2		850	850		6	5	-16.67	988.4	986	-0.24														
Pumpkin	2	2		100	100		1	1		50	50		1	1		50	50														
Soya bean	29	29		672	672		8	8		475	475		20	20		187	187		1	1		10	10								
Urad	4	4		11.3	11.3		1	1		2.5	2.5		3	3		8.8	8.8														
vegetables	3	3		555.5	555.5		2	2		55.5	55.5		1	1		500	500														
Wheat	26	26		1145	1145		2	2		500	500		18	18		404	404		5	5		121	121		1	1		120	120		

78% of the non-members in case of four women PCs were female and 67% of the total members were illiterate and 22% middle standard literate. There was only one member who was graduate. 81% of the farmers reported farming as primary occupation, 12% animal husbandry and 7% labour. On the other hand, 65% reported no secondary occupation with 12% being into farming and poultry and 7% reporting wage labour as the major secondary occupation .(tables 4.19 and 4.20) There was not much difference in occupational pattens of non-members and even their literacy levels but 24% had labour engagement as secondary occupation and only 4% labour.

Table 4.18: Distribution of Women PC Members and Non-member farmers by education

Category>	Members		Non-Members	
Parameter> Level of Education	Farmers (No.)	% in total	Farmers (No.)	% in total
Illiterate	27	65.85	30	66.67
Primary	4	9.76	2	4.44
Middle School	6	14.63	10	22.22
High School	3	7.32	2	4.44
Higher Secondary	0	0	0	0
Undergrad	1	2.44	0	0
Graduate	0	0	1	2.22
Grand Total	41	100	45	100

Table 4.19: Distribution of Women PC Members and Non-member farmers by Primary Occupation

Category>	Members		Non-Members	
Parameter> Primary Occupation	Farmers (No.)	% in total	Farmers (No.)	% in total
Agriculture	33	80.49	40	88.89
Animal Husbandry	5	12.20	2	4.44
Labour	3	7.32	3	6.67
Grand Total	41	100.00	45	100.00

Table 4.20: Distribution of Women PC Members and Non-member farmers by Secondary Occupation

Category>	Members		Non-Members	
Parameter> Secondary Occupation	Farmers (No.)	% in total	Farmers (No.)	% in total
Agriculture	3	7.32	2	4.44
Skilled Labour	2	4.88	1	2.22
Labour	3	7.32	12	26.67
Animal Husbandry	5	12.20	2	4.44
Business	1	2.44	1	2.22
None	27	65.85	27	60.00
Total	41	100.00	45	100.00

The average operated land holding of members was 2.71 acres and owned land 2.55 acres (Table 4.21). 53% of the members were marginal farmers and 32% small with the rest 15% being semi medium farmers. However, this 15% accounted for 35% of the cultivated area and marginal category only 26% of the total area. 1/3rd to 3/4th of the farmer members owned buffaloes, goats, cow and bullocks each with goats accounting for 35% of the total livestock followed by cows and oxen. On an average each household has two cows or bullocks and six goats (Table 4.22).

Table 4.21: Average owned and operated land holding of Women PC Members and Non-members

Category> Average (acres)	Members	Non-Members
Owned Land	2.55	3.72
Operational Land	2.71	3.92

Table 4.22: Distribution of Women PC Members and Non-member farmers by livestock owned

Category>	Members					Non-Members				
Parameter> Type of livestock	Farmers	%farmers	Animals	% Animals	Average	Farmers	%farmers	Animals	% Animals	Average
Buffalo	12	29.27	15	5.02	1.25	9	20.00	19	9.50	2.11
Cow	26	63.41	61	20.40	2.35	16	35.56	28	14.00	1.75
Goat	30	73.17	175	58.53	5.83	22	48.89	112	56.00	5.09
Oxen	25	60.98	48	16.05	1.92	20	44.44	41	20.50	2.05
Total	41	100	299	100		45	100	200	100	

The average operated land of non-members was 3.9 acres and average owned land 3.7 acres. 79% of the non-member farmers were marginal or small and only 2.5% were medium category farmers. However, small and marginal farmers had only 55% of the cultivated area and medium farmers had 9% of total. The non-member farmers had mostly goats which was 55% of the total livestock followed by bullocks at 20%, cows 14%, and buffaloes 9%. 49% of the farmers had goats with average of 5 goats per household and 45%, 35% and 20% each had two bullocks, cows or buffaloes (Table 4.22).

47% of the non-member farmers reported well as the source of irrigation and another 42% were rainfed farmers. Only 3% had tube wells (Table 4.23). 44% received information of agricultural activities from friends and neighbours with only 7% accessing it from the PC. 45% did not know about the PC and 66% did not know who owned it with others reporting promoting agency or the farmers as the owners of the same. 60% of them had not received any information about the PC and the other source for 21% of the farmers was the meetings of the PC and in some cases promoters (13%). Only 13% of them had aspiration to become a member of the PC as they had some awareness about the activities of the PC.

54% bought seeds from PC while 58% non-members bought it from dealers and majority also bought chemical fertilisers (and 20% from PACS) and pesticides from PCs among member and

mostly dealers among non-members. Bio inputs were not bought by 83-100% of members and 93% of non-members with only 15% member buying biofertilisers from PCs and 3% from PACS (tables 4.23-4.25).

Table 4.23: Distribution of Women PC Members and Non-member farmers by Source of irrigation

Category>	Members		Non-Members	
Parameter> Source	Farmers (No.)	% in total	Farmers (No.)	% in total
Canal	1	2.44	1	2.22
Lake	5	12.20	1	2.22
Pond, Tubewell	0	0	1	2.22
River	4	9.76	6	13.33
Tubewell	3	7.32	1	2.22
Well	19	46.34	16	35.56
Dam	1	2.44	0	0
Rainfed	8	19.51	19	42.22
Total	41	100.00	45	100.00

Table 4.24: Distribution of Women Members and Non-members by Source of Seeds

Category>	Members		Non-Members	
Parameter> Source	Farmers (No.)	% in total	Farmers (No.)	% in total
Dealers	4	9.76	26	57.78
PC	22	53.66	7	15.56
Other PC	5	12.20	2	4.44
Dealer, PC	6	14.63	0	0
None	4	9.76	10	22.22

Table 4.25: Distribution of Women Members and Non-member farmers by source of Chemical Inputs

Type of Agrochemical>	Fertilizers				Pesticides			
Category>	Members		Non-Members		Members		Non-Members	
Parameter> Source	Farmers (No.)	% in total	Farmers (No.)	% in total	Farmers (No.)	% in total	Farmers (No.)	% in total
PC	21	51.22	2	4.44	21	51.22	1	2.22
PACS	8	19.51	3	6.67	0	0	1	2.22
Other PC	1	2.44	0	0	1	2.44	0	0
Dealers	2	4.88	24	53.33	9	21.95	22	48.89
Agri Dept.	0	0.00	1	2.22	0	0	0	0
None	9	21.95	15	33.33	10	24.39	21	46.67

Table 4.26: Distribution of Women Members and Non-member farmers by source of Bio inputs

Type of Bio input>	Fertilizers				Pesticides			
Category>	Members		Non-Members		Members		Non-Members	
Parameter> Source	Farmers (No.)	% in total	Farmers (No.)	% in total	Farmers (No.)	% in total	Farmers (No.)	% in total
Dealers	0	0	2	4.44	0	0	3	6.67
PC	6	14.63	0	0	0	0	0	0
PACS	1	2.44	1	2.22	0	0	0	0
None	34	82.93	42	93.33	41	100.00	42	93.33

Major kharif crops grown by a significant part of member farmers included maize, soybean, pulses and cotton accounting for 33%, 19%, 13% and 11% of the cropped area respectively. In the Rabi season, major crops grown included wheat and pulses which accounted for 50% and 28% of the crop area (Table 4.27 and 4.28). Only one member famer grew Jowar in summer. Overall, it was maize and wheat accounting for 20% of the gross cropped area each followed by pulses at 19%, soybean at 11% and cotton at 6%. The cropping intensity of these farmers was 1.86.

Overall, 42% of the Kharif area of non-members was under maize, 20% under soybean and 25% under cotton. Similarly, in Rabi season wheat had 22% area and wheat and gram together another 28%, with another 22% being under gram. Thus, maize, soybean, cotton and gram were the crops which accounted more than 10% of the gross cropped area. The average cropping intensity was 2.0.

Only 39% of the all -women PC members had received share certificates and 87% also were members of SHGs with some being members of other PCs. Most of the members had joined the PCs in the last 10 years. They obtained agriculture information from PC in 48% and from a combination of friends and PCs in 20% and only friends in another 22% cases. Interestingly, a majority of the members 53% knew that PC belongs to farmers, the others seeing it as employee owned, promoting agency owe, government owned. 90% of them had no dislike about the services being offered by the PC and 20% even reported the PC helping them in availing of government schemes and subsidies and in some cases 10% it was mainly for PC members. 71% reported attending meeting frequency to be monthly and 17% annual and 10% quarterly. 58% participated in all the meetings and 20% sometimes and another 20% had never participated in any meeting.

All of them wanted to continue as members and also wanted others to join the PC. The only crop in which the area had expanded after the PC intervention was cotton as most of them were focused on cotton. The price realisation in cotton had also gone up at 21% after the PC intervention as was the case in fruits and goat meat. There was also reduced cost of transportation in the case of goats, maize and pulses besides meat. However, the payment term had gone up substantially in cotton and pulses. The farmer member also appreciated the improvement in input quality which move from poor and good to very good and excellent after the intervention of PC. Similarly, the cost rating as well as availability and accessibility besides quantity of inputs had also improved in a similar manner.

On the output side also, there was movement from good to very good in majority of the cases especially on market availability. The number of members selling to the PCs had almost

doubled over the three years which had declined in the other channel i.e. direct wholesale. Similar was the change in mode of payment which moved to bank and cheque instead of cash (Table 4.29).

There is no effect of the presence of PC on the non-member farmers in terms of the sale of their produce or the crops grown (Table 4.30).

Table 4.27: Kharif cropping pattern of Women PC Members and Non-members

Category>	Members						Non- Members					
Parameter> Crop	Farmers	% Farmers	Area under crop	% kharif Area	% total area	Average Area	Farmers	% Farmers	Area under crop	% kharif Area	% total area	Average Area
Cotton	13	31.71	15.2	12.74	7.36	1.17	10	22.22	19.4	17.03	10.43	1.94
Fruit	2	4.88	2	1.68	0.97	1.00	0	0	0	0	0	0
Groundnut	1	2.44	0.4	0.34	0.19	0.40	3	6.67	3.8	3.34	2.04	1.27
Jowar	3	7.32	2.4	2.01	1.16	0.80	0	0	0	0	0	0
Maize	23	56.10	46.2	38.71	22.37	2.01	28	62.22	48.47	42.55	26.06	1.73
Paddy	5	12.20	4	3.35	1.94	0.80	4	8.89	3.80	3.34	2.04	0.95
Pulses	9	21.95	15.9	13.32	7.70	1.77	2	4.44	1.71	1.50	0.92	0.86
Sesame	3	7.32	3	2.51	1.45	1.00	1	2.22	2.00	1.76	1.08	2.00
Soyabean	19	46.34	30.05	25.18	14.55	1.58	10	22.22	22.50	19.75	12.10	2.25
Urad	1	2.44	0.2	0.17	0.10	0.20	1	2.22	0.40	0.35	0.22	0.40
Cotton, Maize	0	0	0	0	0	0	1	2.22	1.20	1.05	0.65	1.20
Cotton, Soyabean	0	0	0	0	0	0	2	4.44	4.00	3.51	2.15	2.00
Cotton, Toor	0	0	0	0	0	0	1	2.22	1.50	1.32	0.81	1.50
Maize, Soyabean	0	0	0	0	0	0	1	2.22	2.86	2.51	1.54	2.86
Maize, Toor	0	0	0	0	0	0	1	2.22	2.29	2.01	1.23	2.29
Grand Total			119.35		57.78				113.93		61.26	

Table 4.28: Rabi cropping pattern of Women PC Members and Non-members

Category>	Members						Non- Members					
Parameter> Crop	Farmers	% Farmers	area under crop	% Rabi Area	% total area	Average Area	Farmers	% Farmers	area under crop	% Rabi Area	% total area	Average Area
Maize	5	12.20	2.3	2.71	1.11	0.46	0	0	0	0	0	0
Mustard	1	2.44	1	1.18	0.48	1.00	0	0	0	0	0	0
Pulses	18	43.90	23.5	27.71	11.38	1.31	0	0	0	0	0	0
Vegetables	2	4.88	3.2	3.77	1.55	1.60	0	0	0	0	0	0
Wheat	33	80.49	54.8	64.62	26.53	1.66	25	55.56	37.85	52.54	20.35	1.51
Gram	0	0	0	0	0	0	19	42.22	15.84	21.99	8.52	0.83
Wheat, Gram	0	0	0	0	0	0	6	13.33	18.35	25.47	9.87	3.06
Grand Total			84.8		41.06				72.04		38.74	

4.3.1: Ram Rahim PPC: member and non-member profile and impact

All the 8 female members of the PC were mostly (75%) illiterate and others high school or middle school literate. All the members were into farming with no one reporting any other occupation. All of them had wells as source of irrigation and mostly electric motor based. None of them knew the number of shares they had owned and none of them reported that share certificates were issued. They were all members of the SHGs of women which had been aggregated into PC. 63% of them had joined the PC during 2009-2013 and 12% even before that and others after 2014. 88% of them knew that PC is owned by the farmers and they had become members due to the influence of promoters and friends.

Of the eleven women non-member farmers, 72% were illiterate, 18% middle standard literate and all of them reported farming as primary occupation with 50% reporting some secondary occupation. It happened to be wage labour. 63% had well based irrigation with others depending on rains or rivers for access to irrigation water. 55% of these farmers knew about the existence of the PC but none of the them knew who owned it as most of them had not been informed about it. Only 22% wanted to become its member as 27% knew about some of the initiatives of the PC.

A majority of the members received agricultural information from other farmers with 13% each receiving it from the PC or the promoting NGO. Others used a combination of various sources. Most of them did not receive any benefit of government scheme or subsidy due to the PC. The only special subsidy they reported was availability of loan for maize crop @ 1% which was reported by 25% of the members. They reported the frequency of meeting to be monthly, quarterly or twice a year and 50% participated in every meeting with others never (37%) or occasionally. They all wanted to continue the membership of PC and also wanted others to join.

63% of the member farmers were small and 25% marginal operating 73% of the land. There was only one semi medium farmer operating 27% of land. The average size of owned land was 2.9 acres and operated land 3 acres per farmer which was one of the lowest among MP PC members. Almost all the members had buffaloes, cows, bullocks with goats accounting for 39% of the total livestock, cows 24%, bullocks 20% and buffaloes 17%. On an average, there was one cow or buffalo or bullock per household and three goats per household. All of the farmers had received the seeds from the PC and fertilisers from the PACS.

All of the non-member farmers were either marginal (64%) or small (36%) operating 44% and 56% of the total area. The average land ownership was 1.6 acres and operated land 2.31 acres because of some leasing in. But this was half of member average land holding size. Further, cultivated land was much lower at 1.7 acres and irrigated only 0.9 acres. Wheat and maize were the major crops grown by most of the farmers with a few also taking up gram cultivation. 73% farms had goats and 63% bullocks and 54% cows with only 36% having buffaloes but goats were 38% of all livestock heads and bullocks 26% and cows and buffaloes 18% each.

50% of the Kharif area of members was under maize and 30% under pulses and remaining 17% under soybean. In Rabi season it was 57% area under wheat and 43% under pulses. Overall, pulses took 36% of area, maize 31%, soybean 10% and wheat 24%. The cropping intensity of member farming was 2.49. The members reported 4% increase in wheat yield and 6% increase in wheat output. The time taken to receive payment had gone down substantially in maize and pulses.

Major kharif crops for non-members was maize which accounted for 72% of the area followed by maize and soybean (11%), maize and tuar 9% with 7% being under tuar alone. In Rabi, wheat took 64% of the cropped area, gram 22% and wheat and gram 12%. There were no crops grown in summer season. During the year, maize accounted for 38% of the gross cropped area, wheat 38%, gram 11% and wheat and gram 6% besides maize and soybean taking up 6% and maize and Tuar 5% of the GCA. The cropping intensity of these farmers was 1.91.

4.4: All other (non-women) PC members

Of the 40 members of 4 different PCs across four promoters, 75% members were male and 32% were illiterate. Most others had school level or undergraduate level of literacy. All of the members reported agriculture as a primary occupation and 27% wage work and another 40% petty business.

2/3rd of the farmers had ground water- based irrigation with others have access to a combination of wells, tube wells, canals and none of them reported completely rainfed farming. Almost everyone had pump sets with electric and diesel energy.

Only 1/3rd of the members reported having received share certificates and 59% were member of SHGs and another 41% of other cooperatives in the area. They had received the information about agriculture activities from PC in 25% cases, friends and PC in 15%, promoting agency in 10% and from friends in 17% cases. Only 35% knew at farmers are owners of the PC with others thinking it is owned by the Bard, promoting agency or PC employees and 28% had no idea about it. Only 15% reported PC providing information about various government schemes and subsidies and 55% reported monthly meeting being held with other 18% and 23% reporting quarterly and annual meeting respectively. However only 45% attended regularly and 35% sometimes, 10% never attended any meeting. 95% members wanted to continue as members and 80% also wanted others to join.

The average operated land was 8.42 acres and owned land 7.27 acres with significant leasing in of land. However, marginal and small farmers who were 60% of the total cultivated only 42% of the area and large farmers being only 8% of the total cultivated 42% of the operated area. Most farmers (78-85%) had cows and bullocks and 32% buffaloes and 53% had goats. But goats accounted for 32% of all livestock heads and cows and bullocks another 28% each. Average holding was 2 cows, buffaloes or bullocks and 4 goats per household.

Major Kharif crops were soybean at 50%, maize at 10% and cotton at 8% of the season area. Surprisingly herb crops accounted for 10% of the seasons area and soybean had another 6% area as inter or mixed crop with other crops. In the Rabi season, potato was the largest crop occupying 37% of the area followed by wheat at 20% and spices and onion at 10% and 8% respectively. Overall, it was soybean which accounted 25% of the gross crop area followed by wheat at 10% and potato at 19%. The other significant crops in terms of area were cotton, maize, onion and pulses, and spices accounting for 4%-6% of the gross crop area. Average cropping intensity of the farmers was 1.96.

There was increase in area reported under wheat due to the PC presence and higher yields in cotton besides higher price realisation in groundnut, pulses and soybean to some extent. There is also significant decline reported in transport cost. In terms of quality of input services, there was a movement from good and very good to very good and excellent in terms of cost, quality, availability and adequacy besides accessibility which moved from good, very good to very good and excellent. On the output services, similarly there was improvement from good to very good in price and market availability in terms of change of channels for sales of farm produce, there was a growth of more than 200 members selling through the PC within three years and direct sales had come down after the PC intervention. The bank payment channel had extended considerably after PC intervention.

4.4.1 All other (non-women) PC non-members

Of the 41 non-members across 4 PCs, 71% were male and 49% illiterate with 20% each being higher secondary and middle standard literate. All of them had agriculture as a primary occupation with 54% non-reporting any secondary occupation. 12% had daily wage labour and 12% each animal husbandry and casual labour besides paddy business in the case of some others.

91% of the farmers reporting irrigation and electric motors and others diesel engine- based wells and tube wells which were owned or shared in case of 89% farmers. The farmers mostly relied on friends and other farmers for access to agriculture information (66%).

65% of the farmers had not heard about the PC and 62% did not know who owned it with others mostly suggesting promoting agency as the owner (70%). In 60% cases, nobody had given the information about the PC and others had mostly picked it up from PC, promoter and employees besides PC meetings. Only 28% wanted to become members of the PC and 25% has some awareness about the initiatives of the PC with 29% even having attended some meeting of the same.

32% each of the farmers were marginal and semi-medium and 22% were small farmers. There were 7% large farmers and medium farmers each and they operated 30% and 19% of the total area respectively. Of the rest, 33% area was with semi medium category of farmers and marginal and small farmers despite being 54% of the total operated only 19% of the total land. The average size of operated land holding was 4.4 acres and owned land 4.33 acres which was

half of that of the PC member average landholding size. Majority of farmers (60-70%) had cows and bullocks and 36% buffaloes and 46% had goats. But goats accounted for 34% of all livestock heads and cows another 23% each. Buffaloes were only 16% of all livestock. Average holding was 2 cows, buffaloes or bullocks and 4 goats per household.

15% of the farmers grew wheat and maize each and 14% cotton. Other major crops i.e. soybean and potato that are grown by 19% and 7% of the total farmers. In the Kharif season, soybean is accounted for 15% of the crop area and maize 19% followed by cotton at 9% and cotton and maize together 5%. Onion was the major summer crop grown by two farmers accounting for 39% of the area with another three farmers growing vegetables which accounted for 45% of the total summer area. Only 20% of the farmers undertook summer crops. In Rabi season, it was wheat which were grown by 86 farmers with 38% area, potato and onion by 44% farmers with 19% of the total area each and garlic by 18% farmers devoting 8% of the gross crop area of the season. The other significant crops in Rabi were garlic and gram grown by 10% farmers being 4% of the total area of the season each. Therefore, across the year, it was 28% under soybean, 16% area under wheat, 11% under maize, 9% under onion and 8% under potato. The cropping intensity of these farmers worked out to be 5.2.

There was literally no change in the sales channel of these farmers after the coming into existence of the PC.

Table 4.29: Distribution of women PC member farmers by crop and channel wise produce sales

Channel	Total						Wholesale						PC						APMC					
Parameter>	Farmers			Produce			Farmers			Produce			Farmers			Produce			Farmers			Produce		
Crop	Before	After	% Difference	Before	After	% Difference	Before	After	% difference	Before	After	% difference	Before	After	% difference	Before	After	% difference	Before	After	% difference	Before	After	% difference
Cotton	9	9		59.25	62	4.64	8	9	12.50	50.25	62	23.38							1		-100.00	9		-100.00
Gram	12	12		51.2	51.2		11	9	-18.18	49.7	35.7	-28.17	1	3	200.00	1.5	15.5	933.33						
Maize	15	19	26.67	345	412	19.42	9	6	-33.33	187	133	-28.88	6	12	100.00	158	239	51.27		1			40	
Red Tuar	2	2		6	6								2	2		6	6							
Soyabean	13	13		249	247	-0.80	6	6		130	116	-10.77	6	6		113	126	11.50	1	1		6	5	-16.67
Wheat	13	14	7.69	269.5	299.5	11.13	7	4	-42.86	87	72	-17.2	3	7	133.3	26.5	71.5	169.8	3	3		156	156	

Table 4.30: Distribution of women PC non-member farmers by crop and channel wise produce sales

Channel	Total						Wholesale						PC						APMC						Retail					
Parameters>	Farmers			Produce			Farmers			Produce			Farmers			Produce			Farmers			Produce			Farmers			Produce		
Crop	Before	After	% Diff	Before	After	% Diff	Before	After	% diff	Before	After	% dif	Before	After	% diff	Before	After	% diff	Before	After	% diff	Before	After	% diff	Before	After	% diff	Before	After	% diff
Cotton	14	14		149.5	149.5		13	12	-7.69	134.5	129.5	-3.72							1	2	100	15	20	33.33						
Gram	9	9		89.5	89.5		6	6		48.5	48.5		3	3		41	41													
G’nut	3	2	-33.3	8.5	6	-29.4	3	2	-33.3	8.5	6	-29.4																		
Maize	14	14		263.5	263.5		8	8		133.5	133.5		3	3		47	47		2	2		80	80		1	1		3	3	
Soyabean	12	12		125	125		10	9	-10	105	100	-4.7	1	1		10	10		1	2	100	10	15	50						
Wheat	13	13		366	366		7	6	-14.3	220	205	-6.8	5	5		121	121		1	2	100	25	40	60						

4.5.1 ASA and AKRSP promoted PCs: Members and non-member profile and impact

ASA which had 53 PCs across four states of M.P, Jharkhand, Bihar and Chhattisgarh including 37 PC in M.P has an organisational structure which includes seven managers at the headquarters, 15 Area and HUB managers and 42 business facilitators. ASA has 37 PCs in different parts of Madhya Pradesh with membership of more than 53000 farmers, with nine of them in Shahdol hub. On the other hand, in Bhudelkhand and Betul hubs, there were only one or two PCs promoted by it. In western MP, there were 4 PCs each in Nimmad and Ratlam and two to three each in Petlavad, Ranakpur and Jobat hubs. Some of these PCs had BCI cotton and organic cotton projects supported by global buyers like C&A Foundation. ASA promoted PCs have also worked with BioRe India limited, Carrefour and Welspun. ASA has 22 PCs engaged in organic cotton cultivation involving 12,000 farmers.

The major crops grown in the area included wheat and gram in Rabi season and Soyabean, maize, urad and cotton in kharif season besides vegetable in summer.

In case of AKRSPI, in the area, major crops grown are maize, cotton, urad, soya bean, groundnut, moong, and chana. It has promoted 8 PCs in M.P. besides its presence with many PCs in Gujarat earlier and in Bihar more recently.

4*.5.1.1. ASA PCs*

95% of the members of these two PCs were women and 73% illiterate with all of them reporting agriculture as a primary occupation. 62% were dependent on wells and another 14% on tube wells for irrigation with the rest using lakes and canals for irrigation. 19% of the well owners had electric or diesel operated pump sets. ASA PC members were on an average 35 years old compared with AKRSP promoted PC which had average member age of 40 years. In both Promoter PCs, primary occupation of all members was farming.

70% of the non-member farmers interviewed in the two PC areas were female and 83% of them did not report any secondary occupation whereas all of them reported agriculture as a primary occupation. 74% of them were illiterate and 9% were engaged in labour as threshold work. 32% of them had heard about the PC and 10% wanted to become members. The farmers were depended for irrigation mainly on wells (28%), lakes and canals (11%) each and tube well (6%). A very large proportion were also rain fed. Their major sources of information were friends and other farmers besides the government office and the dealer in few cases (10%). A majority of them (56%) did not know who owned the PC with 12% reporting it as promoting agency. They had hardly any knowledge about the initiatives undertaken by the PC and 81% had never attended any meeting. In 71% cases, no one had given any information to them about the PC and others had picked it from PC meetings and promotors.

The average size of land holding of member farmers was 3.4 in terms of operated area and 3.0 in terms of owned land. However, marginal farmers which was 46% of the total, operated only 24% land and semi medium farmers being 23% had 41% of the operated area. In terms of livestock, 82% of the farmer owned goats, 68% cows, 50% buffaloes and 77% bullocks with goats accounting 50% of the total livestock heads followed by oxen 22% and buffalos and cows at 15% and 13% each.

The average size of non-member owned land was 4.43 acres and that of operated land 4.61 acres. 44% each of the farmers were marginal and semi medium farmers with remaining being small farmers. However, in terms of land operated semi medium farmers had 72% of the area and marginal farmers only 16%. The largest ownership was of bullocks (74%) followed by

cows and goats (61% each) and only 35% who had any livestock had buffaloes. In fact, 47% of the livestock was goats, 25% bullocks and 19% cows with buffaloes accounting for 10% of the total livestock. The tube wells were mostly run with an electricity (66%) and diesel engine (25%) with 89% of the electric connections owned or shared.

The major crops cultivated by the member farmers included cotton (28% of the GCA), soybean (16%), soybean with intercrop (14%) and with mixed cropping (9%) and cotton with intercrop (11%) of the kharif area. Other significant area occupying crops were maize and pulses at 6% and 7% each. In the rabi season, it was wheat accounting of 54% of the area followed by pulses at 25% and wheat and other crops 13% and maize 4% of the crop area. Over the year, it was wheat with 20%, GCA followed by cotton at 17% and pulses at 14% besides soybean at 10% of the area. The cropping intensity of the two promoters' PCs did not differ much being 1.5 for AKRSP and 1.6 for ASA PC members.

Cotton was the crop grown by largest number of non-member farmers (52%) followed by soyaben (21%) and groundnut (11%). Other crops grown by some other farmers included: gram, wheat, maize and urad. Major kharif crops were: cotton (27%), soybean (17%), maize (21%) and cotton and maize together (16%). On the other hand, wheat accounted for 56% of the Rabi area followed by gram (28%) with the other crops being jawar, bajra and vegetables. In general, during the year, cotton took up 20% of the GCA, maize 17%, and soybean and wheat 13% each. The cropping intensity of these farmers was 1.1 which was much lower than that of the member farmers.

The members perceived the input service of the PC improving its quality from poor, average or good to very good, good and even excellent mainly in terms of cost availability, accessibility and adequate quantity. All the women wanted to continue as members and wanted to bring other farmers as new members. There were significant price gains reported in cotton, paddy and groundnut due to PC intervention and higher time to receive payment in case of cotton and pulses. Although transaction cost in cotton, pluses and wheat had come down. On the other hand, output price realisation also moved from good to very good as well as in the availability of market. The number of members selling through the PC had tripled over the three years and bank payment became more common.

There was no change in the sales channel used by non-member farmers before and after the intervention of the PC where most of them sold in wholesale with only one reporting sales through the PC. There was also no change in area yield, output or cost of marketing and sales price realisation before and after the introduction of PC.

45% of the members had received share certificates and 2/3rd of the members were members of the SHGs. All of the members had joined these PC during the last 10 years. 23% reported receiving agricultural information from the PC with another 27% each from friends and friends and PC each.

Only 18% members knew that PC is owned by members with 50% having no idea about the ownership of the PC. Rest of the members mentioned promoting agency, BOD or PC employees as the owners. 18% acknowledge PC providing information about government schemes and subsidies and 80% reported the frequency of meeting to be monthly and 10% each quarterly and annual. 55% participated in the meetings every time and the rest only sometimes or never.

4.5.1.2 AKRSP PC members and non-members

The members of the AKRSP promoted PC were mostly men with only one being a woman, 45% illiterate and another 27% only primary literate (Table 4.27). All of them reported farming as a primary occupation. For 45% of them who had a secondary livelihood, 36% it was labour and for 9% carpentry as the secondary source of livelihood (Table 4.28). All of them had well or tubewell based irrigation. All of the tube well owners had electric motors.

Of the 21 non-members interviewed across two PCs, 2/3rd were men and the rest women with 57% being illiterate and 24% middle standard literate (Table 4.27). There were only 5% who were graduate. 76% reported their primary occupation as farming and 9% allied activities like dairy, poultry, and goatery besides 14% being primarily casual labour. The major secondary occupation reported by 21% of the total was daily wage labour followed by farming and goatery by 10% each. Interestingly, 42% did not report any secondary occupation (Table 4.28).

Average operated land for member farmers was 5.31 acres and owned land 5.41 acres (Table 4.29). 63% of the members were marginal or small but they operated only 35% of the area compared with semi medium and medium farmers (18% each) accounted for 24 and 50% of the operated area (tables 4.30 and 4.31). The livestock ownership varied from 100% in goat and oxen to 22% in buffaloes and 88% in case of cow and bullocks (Table 4.32). The share of goats was the highest in the total number of livestock which was almost 44% followed by cow and bullock at 23% and 28% respectively. In general, there were two cows or bullocks per household and six goats per household.

The average operated land by non-member farmers was 3 acres of which 2.86 acres was owned (Table 4.29). 47% of the farmers were marginal land owners and 29% small farmers with another 12% each being semi-medium and medium farmers each. There were no large farmers among them (Table 4.30). In terms of area, marginal and small had 46% and medium farmers 30% leaving 34% for the semi medium category. There was some amount of leasing in of land and very nominal leasing out reported (Table 4.31). The livestock owned by farmers included 66% goat, 10% cows and 16% bullocks by numbers with 40% of the farmers owning goat, 34% bullocks and 21% cows (Table 4.32). Buffaloes were owned by only 13% of the farmers with average ownership of one buffalo, two cows or bullocks and seven goats per household.

48% members had received share certificates and 73% were members of SHGs and 26% of other FPOs mainly PCs. All of the members had joined PC in the last 10 years.

48% of the members received their agriculture related information from the PC. 10% from the promoting agency and friends each with the rest using multiple sources for receiving. 15% of the member knew that the PC owned by the farmer members with other 35% feeling it was owned by promoting agency, PC employee, or Board of Directors. The member generally had no problem with the services offered by the PC and 45% also acknowledged PC bringing government schemes and subsidies.

92% of the non-member farmers who had access to irrigation (66%) relied on wells and tube-wells with only 7% reporting access to canal water. 92% of the tube well and well owners had electric motor and the rest diesel based pump sets.

Major kharif crops grown by members included cotton with 28% share, soybean with 21% share, maize 14% and jowar 7% of the season's cropped area. There were many cases of inter- and mixed- cropping especially in maize, soybean and cotton. In Rabi, it was mainly wheat which accounted for 2/3rd of the season's area followed by vegetables (11%) and pulses (10%). There were no crops grown in the summer season. Overall, it was mainly wheat, soybean and

cotton which accounted for 16% of the GCA with other significant crops being maize and leafy vegetables besides jowar which accounted for another 17% of the GCA. There were many cases of intercropping in maize, cotton, potato, soybean and urad besides wheat and also cases of mixed cropping in cotton, groundnut, maize, potato and wheat. The average cropping intensity of the farmer members is 1.65. Only one farmer each (10% of all) reported growing spices in case of AKRSP promoted PCs in 4% of GCA of all members and in ASA PCs jowar which took only 2% of GCA of all of its PC members.

In terms of cropping pattern of non-member farmers, soybean emerged as the largest crop grown by 23% of the farmers followed by cotton (19%) and wheat (16%). The next important crop was maize. It was grown by 14% farmers and 12% farmers reported goat rearing. In terms of area, soybean accounted for 44%, cotton 15% and cotton and soybean together as intercrops 8% of the total area with the other major crop being groundnut with 6% area as was the case with maize. The rest of the area was under intercrops in Kharif season. On the other hand, in Rabi, grown by 25% of the farmers, it was wheat mainly which took 72% of the area followed by wheat and gram together at 21%. There were hardly any crops grown in summer season. Overall, wheat accounted for 31%, soybean 21% and wheat and gram 9% besides cotton accounting for 8% of the total area cultivated during the year. The cropping intensity turned out to be 1.4%. The sales price had increased by 11% in the case of only goat.

91% of the non-members did not have any problem with the services of the PC but 57% also had no knowledge of it with 38% being aware of the initiative of the PC. None of them reported any negative experience with the PC as none of them had transacted with the PC. For the access to information about agriculture and allied activities, majority of them relied on friends and relatives and other farmers besides the agricultural department office. Only 10% reported receiving this information from the PC directly and 5% each indirectly through the promoter or as a combination of friends, neighbouring farmers and the PC. 79% knew about the existence of the PC in their area but 59% did not know who owns it with only 12% being aware that it is owned by farmers. 18% thought it is owned by the promoting agency and other 6% seeing it as owned by Board of Directors and employees of the PC. This was so because in 39% cases, nobody had provided them any information with the rest picking it at from PC meetings and from their interaction with the promoters. Only 19% desired to become a member of the PC.

57% members reported monthly meetings of the PC members and 24% and 19% each annual and quarterly meeting respectively. Majority of them (52%) attended every meeting. Another 20% sometimes only. 5% members had never attended the meeting.

The quality of inputs delivered by the PC and other channels had improved from good to very good and excellent and the cost had also moved to the same direction as was availability and to some extent quantity. On the output side, in general there was an improvement in prices and availability of the market for the output in terms of sales channels there was tripling of sell transaction through the PC and some reduction in the APMC channel sales.

The members did not report any major changes in the cropping pattern yields or output due to the intervention of the PC other than the fact that the cotton and soybean prices were appreciate significantly during the last three years. The transaction cost had also come down in both cotton and goat marketing. All of the members wanted to continue with the PC and 19% of them also wanted to encourage other non-members to join the PC.

Only two non-members farmers reported selling through the PC compared to the pre-PC situation of one farmer selling to it. On the other hand, there was 15% increase in selling through the APMC Mandi and this was the shift from direct wholesale selling to traders.

Table 4.31: Distribution AKRSP and ASA PC members by Education

PC Promoter	AKRSP		ASA	
Parameter> Education	Members (No.)	% in total	Members (No.)	% in total
High School	1	9.09	1	4.55
Higher Secondary	1	9.09	0	0.00
Illiterate	5	45.45	16	72.73
Middle School	1	9.09	2	9.09
Primary	3	27.27	2	9.09
Undergrad	0	0.00	1	4.55
Total	11	100.00	22	100.00

Table 4.32: Distribution of AKRSP and ASA PC members by Secondary Occupation

PC Promoter>	AKRSP		ASA	
Parameter> Secondary Occupation	Members (No.)	% in total	Members (No.)	% in total
Carpenter	1	9.09	0	0
Labour	4	36.36	0	0
Anganwadi Worker	0	0	2	9.09
Shopkeeper	0	0	1	4.55
None	6	54.55	19	86.36
Total	11	100.00	22	100.00

Table 4.33: Average Owned and Operational Land of AKRSP and ASA PC member farmers

PC Promoter> Average Land (Acres)	AKRSP	ASA
Owned	5.31	3.01
Operated	5.45	3.42

Table 4.34: Distribution of AKRSP and ASA PC member farmers by Owned Land

PC Promoter>	AKRSP				ASA			
Parameter> Farmer category	Farmers	% Farmers	Land	% Total Land	Farmers	% Farmers	Land	% Total Land
Marginal	3	27.27	4.5	7.69	13	59.09	21.8	32.83
Small	4	36.36	11	18.80	4	18.18	14.6	21.99
Semi Medium	2	18.18	14	23.93	5	22.73	30	45.18
Medium	2	18.18	29	49.57	0	0	0	0
Total	11	100.00	58.5	100.00	22	100.00	66.4	100.00

Table 4.35: Distribution AKRSP and ASA PC member farmers by Operated Land

PC Promoter>	AKRSP				ASA			
Farmer category	Farmers	% Farmers	Land	% Total Land	Farmers	% Farmers	Land	% Total Land
Marginal	2	18.18	3.5	5.83	10	45.45	18.2	24.14
Small	5	45.45	16.5	27.50	6	27.27	21.2	28.12
Semi Medium	2	18.18	17	28.33	6	27.27	36	47.75
Medium	2	18.18	23	38.33	0	0	0	0
Total	11	100.00	60	100.00	22	100.00	75.4	100.00

Table 4.36: Distribution of AKRSP and ASA PC member farmers by livestock Owned

PC Promoter>	AKRSP				ASA			
Parameter> Type of livestock	Farmers	% farmers	Animals	%total animals	Farmers	% farmers	Animals	%total animals
Buffalo	3	27.27	5	5.43	11	50.00	23	14.94
Goat	11	100.00	40	43.48	18	81.82	77	50.00
Oxen	11	100.00	26	28.26	17	77.27	34	22.08
Cow	9	81.82	21	22.83	15	68.18	20	12.99

Table 4.37: Distribution of AKRSP and ASA PC member farmers by Source of Irrigation

Ownership	Source	Energy	AKRSP		ASA	
			Farmers	% farmers	Farmers	% farmers
Shared	Well	Electric Motor	1	9.09	0	0
Owned	Well	Electric Motor	9	81.82	11	50.00
Owned	Tubewell	Electric Motor	1	9.09	2	9.09
Shared	Tubewell	Electric Motor	0	0	1	4.55
Shared	Lake	Diesel Engine	0	0	2	9.09
Owned	Lake	Diesel Engine	0	0	2	9.09
Owned	Lake	Electric Motor	0	0	1	4.55
Owned	Well	Diesel Engine	0	0	1	4.55
	None		0	0	2	9.09

Table 4.38: Kharif cropping pattern of AKRSP and ASA PC members

PC Promoter>	AKRSP					ASA				
Parameter> Crop	Farmers	% Farmers	Land	% Kharif Land	% Total Land	Farmers	% Farmers	Land	% Kharif Land	% Total Land
Bajra	1	9.09	1.5	2.80	1.66	0				
Maize, Jowar	1	9.09	2	3.74	2.21					
Cotton	7	63.64	13.5	25.23	14.92	14	63.64	20.2	27.90	16.75
Groundnut	2	18.18	2	3.74	2.21	1	4.55	0.4	0.55	0.33
Groundnut, French Beans, Jowar	1	9.09	2	3.74	2.21	0	0.00			
Jowar	3	27.27	4.5	8.41	4.97	1	4.55	0.4	0.55	0.33
Maize	7	63.64	8.5	15.89	9.39	5	22.73	4	5.52	3.32
Organic Cotton	1	9.09	0.5	0.93	0.55	0	0.00			
Soyabean	4	36.36	9.5	17.76	10.50	10	45.45	11.6	16.02	9.62
Soyabean, Corn	1	9.09	2.5	4.67	2.76	0	0.00			
Soyabean, Juvar	1	9.09	0.5	0.93	0.55	0	0.00			
Soyabean, Maize, Juvar	1	9.09	1.5	2.80	1.66	0	0.00			
Toordal	1	9.09	1	1.87	1.10	0	0.00			
Urad, Jowar	1	9.09	4	7.48	4.42	0	0.00			
Cotton, Maize						4	18.18	7.6	10.50	6.30
Cotton, Maize, Moong	0					1	4.55	2	2.76	1.66
Maize, Tuvar	0					1	4.55	0.4	0.55	0.33
Paddy	0					4	18.18	3	4.14	2.49
Soyabean, Maize	0					3	13.64	7.2	9.94	5.97
Soyabean, Maize, Cotton, Jowar	0					1	4.55	4.8	6.63	3.98
Soyabean, Maize, groundnut	0					1	4.55	1.6	2.21	1.33
Soyabean, Tuver	0					2	9.09	3	4.14	2.49
Sugarcane	0					1	4.55	1	1.38	0.83
Tuver	0					1	4.55	2	2.76	1.66
Urad	0					2	9.09	3	4.14	2.49
Urad, Maize, Thura	0					1	4.55	0.2	0.28	0.17
Total			53.5		59.12			72.4	100.00	60.03

Table 4.39: Rabi cropping pattern of AKRSP and ASA PC members

PC Promoter>	AKRSP					ASA				
Parameter> Crop	Farmers	% Farmers	Land	% Rabi Land	% Total Land	Farmers	% Farmers	Land	% Rabi Land	% Total Land
Gram	6	54.55	4.5	13.64	4.97	13	59.09	11.3	24.67	9.37
Maize, Wheat	1	9.09	2	6.06	2.21	0	0.00		0.00	
Vegetables	3	27.27	2	6.06	2.21	2	9.09	1.2	2.62	1.00
Wheat	11	100.00	24.5	74.24	27.07	19	86.36	24.5	53.49	20.32
Wheat, Gram	0	0.00				2	9.09	6	13.10	4.98
Maize	0	0.00				4	18.18	1.8	3.93	1.49
Sugarcane	0	0.00				1	4.55	1	2.18	0.83
Total	11	100	33	100.00	36.46	22	100	45.8	100.00	37.98

Further, only 18% of AKRSP and 5% of ASA PC members used biofertilisers which was bought from the PC. Only 18% of AKRSP members used biopesticides and had bought from the PC.

Table 4.40: Distribution of AKRSP and ASA PC member farmers by Source of Seeds

PC promoter>	AKRSP		ASA	
Parameter> Source	Farmers (No.)	% in total	Farmers (No.)	% in total
Agri University, PC	1	9.09	0	0
Dealers	3	27.27	5	22.73
Dealers, PC	2	18.18	8	36.36
PC	5	45.45	9	40.91

Table 4.41: Distribution of AKRSP and ASA PC members by Source of Chemical Inputs

Input>	Fertilizer				Pesticide			
PC promoter>	AKRSP		ASA		AKRSP		ASA	
Parameter> Source	Farmers (No.)	% in total	Farmers (No.)	% in total	Farmers (No.)	% in total	Farmers (No.)	% in total
PC	2	18.18	13	59.09	0	0	8	36.36
PACS	2	18.18	0	0	0	0	0	0
Dealers	1	9.09	4	18.18	2	18.18	8	36.36
Doesn't use	6	54.55	5	22.73	9	81.82	6	27.27

4.52: Vrutti, PRADAN and IGS Promoted PCs- A comparison

All respondent members of Vrutti promoted PC Betual Krishak (7) and IGS promoted PC Mhow (12) were male while all of the Pradan promoted Chirayu Women PC members (11) were female.

4.521 Chirayu members and non-members

All the 11 members of the PC were women and 45% of them being literate. 36% had milled school literacy and 9% each were primary and high school literate (Table 4.38). 91% of them reported farming as a primary occupation and 9% labour. Farming, animal husbandry and labour were three equally important secondary occupation reported by one member each (Table 4.39). 44% of the members depended on river for irrigation and 22% each on wells and tube wells with 78% of the tube wells being electric operated (Table 4.44).

All the non-members were women farmers with 82% being literate and 62% reporting daily wage labour as secondary occupation besides agriculture being reported as primary occupation by all of them. Most of the farmers reported dependence on rain and rivers for irrigation and only a few had electric or diesel operated wells. They mostly learnt about agricultural issues from their neighbouring farmers or friends.

64% members had received share certificates and 100% of them were members of SHGs. 50% of the members had joined only in the last 5 years. 1/3rd of them did not know the owner of the PC and 36% reported farmers as the owners with 9% each mentioning government, promoting agency or the employees as the owners. They had mostly learnt about the PC from promoters (45%), friends (36%) and employees (18%). None of them had received any information or availed of any subsidy or scheme because of the PC. However, 55% of them reported PC as a source of agricultural information with 37% mentioning a combination of PC and friends and another 9% various other sources including PC. The meetings were reported to be monthly by 82% members and annual by the rest. 2/3rd of them reported attending it every time, 27% sometimes and 9% never. All of them wanted to remain members as well as encourage others to become members of the PC.

64% of the members were marginal and 9% small with rest 27% being semi medium farmers. But, marginal farmers had only 37% of the area and semi medium farmers had 54% of the total operated area of the members (Table 4.41 and 4.42). Average owned land was 2.95 acres and operated land 3.2 acres per farmer (Table 4.40). 91% of them had bullocks and 45% and 27% each had cow and goats. Cows accounted for 42% of the livestock with average ownership of 6 cows per household followed by goats accounting for 31% with average ownership of 8 goats per household. The rest of the livestock were bullocks with average ownership of two bullocks per household.

In terms of landholding, all of the non-member farmers were either marginal (82%) or small (18%) and all of the land was operated equally between these two categories with 18% small farmers accounting for 51% of operated area. Accordingly, operated land was 1.6 acres on an average which was not very different from owned land (1.5) acres. This was in fact the lowest average fam size among all PC non-members and was half of the member average land holding size. Only 10% farmers each owned any livestock and this was mostly bullocks in case of 36% households and accounted for 53% of all livestock with cows only 27% owned by just 10% of households.

54% of the kharif area of members was under maize and another 18% maize inter-cropped with other crops. Fruits, jowar and sesame accounted for 6% each of the kharif area and pulses and paddy 4% and 3% respectively. In the Rabi season, it was mostly wheat (60%), followed by pulses (23%), vegetables (13%) and mustard (4%). During the year, maize had 42% of the GCA, wheat 20%, pulses 12% and vegetables 5% of the GCA. The average cropping intensity of the farmer was 1.63.

The cropping intensity of IGS and Vrutti PC member farmers was high (2.08 and 1.99) and low for PRADAN PC member (1.63).

38% non-member farmers grew maize and 8% each wheat or gram. In Kharif, 88% area was under maize and the rest under sesame and other such crops and in Rabi, it was only wheat (32%), gram (22%) and wheat and gram (44%). There was no summer crop reported by any farmer. On an average, during the year, maize accounted for 44% of the area, gram 12%, wheat 16% and gram and wheat together 22%.(tables 4.45, 4.46 and 4.47) The cropping intensity turned out to be 1.9% which was higher than that of the members.

All the member farmers bought seeds as well as fertiliser from the PC (Table 4.48). The members reported significant increase in area under pulses and maize due to the intervention of the PC and improvement in yields of pulses as well besides wheat. There was also price benefit in pulses, maize and wheat ranging from 10%-400% before and after the PC intervention.

70% of non-member had not even heard of the existence of the PC and 33% did not know who owned it with another 1/3rd each thinking that it is government owned or promoting agency owned. This information was reported by only three farmers. 2/3rd of the farmers also reported nobody making them aware of the activities of PC most of them (88%) had no desire to become member of such an entity though they had knowledge about the initiatives of the PC.

Table 4.42: Distribution of Vrutti, IGS and PRADAN PC member farmers by Education

PC promoter>	Vrutti		IGS		PRADAN	
Parameter> Education	Farmers (No.)	% in total	Farmers (No.)	% in total	Farmers (No.)	% in total
Illiterate	0	0	1	8.33	5	45.45
Primary	0	0	0	0	1	9.09
Middle School	1	14.29	1	8.33	4	36.36
High School	3	42.86	2	16.67	1	9.09
Higher Secondary	1	14.29	2	16.67	0	0
Undergrad	1	14.29	1	8.33	0	0
Graduate	1	14.29	5	41.67	0	0
Grand Total	7	100	12	100	11	100

Except one member of Pradan PC who reported labour as main occupation, all members of all three PCs reported primary occupation as farming.

Table 4.43 Distribution of Vrutti, IGS and PRADAN PC member farmers by Secondary Occupation

PC Promoter>	Vrutti (		IGS		PRADAN	
Parameter> Occupation	Farmers (No.)	% in total	Farmers (No.)	% in total	Farmers (No.)	% in total
Skilled Labour	3	42.86	1	8.33	0	0
Labour	0	0	0	0	1	9.09
Animal Husbandary	0	0	2	16.67	1	9.09
Business	0	0	4	33.33	0	0
Agriculture	0	0	0	0	1	9.09
None	4	57.14	5	41.67	8	72.73

Table 4.44: Average owned and operated land holding of Vrutti, IGS and PRADAN PC member farmers

PC Promoter> Average land (acres)	Vrutti	IGS	Pradan
Owned Land	6.5	13.05	2.95
Operated Land	4.85	16.94	3.22

Table 4.45: Category wise Distribution of Vrutti, IGS and PRADAN PC members by owned land

PC Promoter >	Vrutti				IGS				PRADAN			
Parameter> Category	Members (No.)	% in total	Acres	% in total	Members (No.)	% in total	Acres	% in total	Members (No.)	% in total	Acres	% in total
Marginal	1	14.29	2	4.40	0	0	0	0	8	72.73	12.5	38.46
Small	1	14.29	3	6.59	3	25.00	11.7	7.49	0	0	0	0
Semi Medium	4	57.14	25.5	56.04	3	25.00	18.3	11.71	3	27.27	20	61.54
Medium	1	14.29	15	32.97	4	33.33	56.3	36.02	0	0	0	0
Large	0	0	0	0.00	2	16.67	70	44.79	0	0	0	0
Total	7	0	45.5	0	12	0	156.3	0	11	0	32.5	0

Table 4.46: Category-wise Distribution of Vrutti, IGS and PRADAN PC members by Operated Land

PC>	Vrutti				IGS				PRADAN			
Parameter> Category	Members (No.)	% in total	Acres	% in total	Members (No.)	% in total	Acres	% in total	Members (No.)	% in total	Acres	% in total
Marginal	1	14.29	2	5.88	1	8.33	0	0.00	7	63.64	13	36.62
Small	1	14.29	3	8.82	3	25.00	11.7	5.76	1	9.09	3.5	9.86
Semi Medium	5	71.43	29	85.29	3	25.00	18.3	9.00	3	27.27	19	53.52
Medium	0	0	0	0	2	16.67	33.3	16.38	0	0	0	0
Large	0	0	0	0	3	25.00	140	68.86	0	0	0	0
Total	7	100	34	100	12	100	203.3	100	11	100	35.5	100

Table 4.47: Distribution of Vrutti, IGS and PRADAN PC member farmers by livestock ownership

PC Promoter>	Vrutti				IGS				PRADAN			
Parameter > Type of livestock	No.	% in total	No.	% in total	No.	% in total	No.	% in total	No.	% in total	No.	% in total
Buffalo	4	57.14	5	15.63	1	8.33	1	2	0	0	0	0
Cow	7	100.00	10	31.25	9	75.00	36	72	5	45.45	32	41.56
Goat	1	14.29	3	9.38	0	0	0	0	3	27.27	24	31.17
Oxen	7	100.00	14	43.75	6	50.00	13	26	10	90.91	21	27.27

Table 4.48: Distribution of Vrutti, IGS and PRADAN PC member farmers by Source of Irrigation

Ownership	Source	Energy	Vrutti		IGS		PRADAN	
			Farmers (No.)	% in total	Farmers (No.)	% in total	Farmers (No.)	% in total
Owned	Dam	Diesel Engine	0	0	0	0	1	9.09
Rented	River	Diesel Engine	1	14.29	0	0		0.00
Owned	River	Diesel Engine	0	0	0	0	1	9.09
Owned	River	Electric Motor	0	0	0	0	1	9.09
Shared	River	Electric Motor	0	0	0	0	2	18.18
Shared	Tubewell	Electric Motor	0	0	0	0	1	9.09
Owned	Tubewell	Electric Motor	0	0	0	0	1	9.09
Shared	Well	Electric Motor	0	0	1	8.33	1	9.09
Owned	Well	Electric Motor	5	71.43	2	16.67	1	9.09
Owned	Well	Diesel Engine	1	14.29	0	0	0	0
Owned	Well, Tubewell	Electric Motor	0	0	9	75.00	0	0
Rainfed			0	0	0	0	2	18.18

Table 4.49: Kharif cropping pattern of Vrutti, IGS and PRADAN PC members

PC Promoter>	Vrutti					IGS					PRADAN				
Parameter > Crop	Farmers	% Farmers	Land	% Kharif Land	% Total Land	Farmers	% Farmers	Land	% Kharif Land	% Total Land	Farmers	% Farmers	Land	% Kharif Land	% Total Land
Maize	6	85.71	14.5	42.65	21.48	1	8.33	8	4.18	1.89	10	90.91	18.5	54.41	31.90
Maize, Soya bean	1	14.29	5	14.71	7.41	0	0	0	0	0	0	0	0	0	0
Paddy	4	57.14	4	11.76	5.93	0	0	0	0	0	1	9.09	1	2.94	1.72
Soya bean	5	71.43	8.5	25.00	12.59	10	83.33	136.4	71.30	32.28	0	0	0	0	0
Urad	1	14.29	2	5.88	2.96	0	0	0	0	0	0	0	0	0	0
White Musli	0	0	0	0	0	2	16.67	31	16.20	7.34	0	0	0	0	0
Guard	0	0	0	0	0	4	33.33	8.3	4.34	1.96	0	0	0	0	0
Others	0	0	0	0	0	4	33.33	7.6	3.97	1.80	4	36.36	9.5	27.94	16.38
Jowar	0	0	0	0	0	0	0	0	0	0	2	18.18	2	5.88	3.45
Cashewnut	0	0	0	0	0	0	0	0	0	0	1	9.09	1	2.94	1.72
Seasame	0	0	0	0	0	0	0	0	0	0	2	18.18	2	5.88	3.45
Total			34	100.00	50.37			191.3	100.00	45.27			34	100.00	58.62

Table 4.50: Rabi cropping pattern of Vrutti, IGS and PRADAN PC members

PC Promoter>	Vrutti					IGS					PRADAN				
Parameter> Crop	Farmers	% Farmers	Land	% Rabi Land	% Total Land	Farmers	% Farmers	Land	% Rabi Land	% Total Land	Farmers	% Farmers	Land	% Rabi Land	% Total Land
Gram	7	100.00	10	35.09	14.81	1	8.33	2	0.95	0.47	5	45.45	5.5	25.00	9.48
Wheat	6	85.71	18.5	64.91	27.41				0.00	0.00	7	63.64	9.5	43.18	16.38
Potato	0	0	0	0	0.00	9	75.00	119.1	56.63	28.18	0	0	0	0.00	0.00
Garlic	0	0	0	0	0.00	7	58.33	33.6	15.98	7.95	0	0	0	0.00	0.00
Onion	0	0	0	0	0.00	3	25.00	14	6.66	3.31	0	0	0	0.00	0.00
Others	0	0	0	0	0.00	5	41.67	41.6	19.78	9.84	4	36.36	7	31.82	12.07
Total	7	100	28.5	100.00	42.22	12	100	210.3	100.00	49.76	11	100	22	100.00	37.93

Table 4.51: Summer cropping pattern of Vrutti, IGS and PRADAN PC members

PC Promoter>	Vrutti					IGS					PRADAN				
Parameter> Crop	Farmers	% Farmers	Land	% Summer Land	% Total Land	Farmers	% Farmers	Land	% Summer Land	% Total Land	Farmers	% Farmers	Land	% Summer Land	% Total Land
Green Gram	1	14.29	5	100.00	7.41	0	0	0	0	0	0	0	0	0	0
Onion	0	0	0	0	0.00	3	25.00	12	57.14	2.84	0	0	0	0	0
Gram	0	0	0	0	0.00	1	8.33	2	9.52	0.47	0	0	0	0	0
Wheat	0	0	0	0	0.00	1	8.33	5	23.81	1.18	1	9.09	2	100.00	3.45
Wheat, Gram	0	0	0	0	0.00	1	8.33	2	9.52	0.47	0	0	0	0	0.00
Total	7	100	5	100.00	7.41	12	100	21	100.00	4.97	11	100	2	100.00	3.45

Table 4.52: Distribution of Vrutti, IGS and PRADAN PC members by Source of Seeds

PC>	Vrutti		IGS		PRADAN	
Parameter> Source	Members (No.)	% in total	Members (No.)	% in total	Members (No.)	% in total
Agriculture Department	3	42.86	0	0	0	0
Dealers	1	14.29	7	58.33	0	0
Dealers, Local Farmers	1	14.29	0	0	0	0
Dealers, PACS	1	14.29	0	0	0	0
PACS	1	14.29	0	0	0	0
PC, Dealers	0	0	4	33.33	0	0
PC	0	0	0	0	11	100.00
All	7	100	12	100	11	100

Table 4.53: Distribution of Vrutti, IGS and PRADAN PC members by Source of Chemical Inputs

Agrochemical input>	Fertilizer						Pesticide					
PC>	Vrutti		IGS		PRADAN		Vrutti		IGS		PRADAN	
Parameter >Source	Members (No.)	% in total	Members (No.)	% in total	Members (No.)	% in total	Members (No.)	% in total	Members (No.)	% in total	Members (No.)	% in total
PC	0	0	6	50.00	10	90.91	0	0	7	58.33	9	81.82
PACS	6	85.71	3	25.00	0	0	0	0	0	0	0	0
Dealers	0	0	1	8.33	0	0	4	57.14	3	25.00	0	0
Agri Dept	0	0	0	0	0	0	1	14.29	0	0	0	0
PC, PACS	0	0	1	8.33	0	0	0	0	0	0	0	0
Doesn't use	1	14.29	1	8.33	1	9.09	2	28.57	2	16.67	2	18.18
Total	7	100.00	12	100.00	11	100.00	7	100.00	12	100.00	11	100.00

4.5.2.2: Betul Krishak members and non-members

All the 7 members of the PC were high school literate (43%) or higher secondary, middle school, undergraduate or graduate each (14%) each. All of them were into farming as primary activity and a few into small petty business or skilled occupation like tailoring. 71% of them had well as the source of irrigation with others using a combination of canal and well and just river. All the farmers had sources of energy for pumping water.

82% of the interviewed non-member farmers in the case of this PC were men. 1/3rd of them were illiterate, 27% middle standard pass, and 11% primary literate. All of them reported agriculture as the main occupation and 25% daily casual labour as the secondary occupation. The major source of irrigation was tubewell in case of 36% and well in case of another 27%

and one farmer reporting both well and tubewell. Canal only and along with well was reported as source of irrigation by 27% of farmers. Most of the tubewell and well owners had electric motor connection. 73% had no knowledge of the PC and 33% did not know who owned it with others reporting promoting agency and employees as its owners. 57% did not get any information about the PC from anywhere and 29% reported receiving it from PC promoters and 40% from PC employees. Only one farmer expressed interest in becoming member as he had knowledge of its initiatives.

57% of the members had not received share certificates and 67% of them were not member of any other group or collective. PC was one of the sources only in the case of one farmer exclusively and another one along with other sources like mobile and agricultural essential staff. One farmer also mentioned promoting agency as the source of information.

57% of the member farmers were aware that farmers own the PC with others mentioning Board of Directors (29%) and the promoting agency as the owner. Most of them were encouraged to become members by the promoters. None of them received any information about various government scheme or subsidies with one farmer reporting availing of agricultural equipment subsidy. All the members reported monthly meetings and 71% participating in them every time. All of them wanted to continue member and encourage other to become members.

71% of the members were marginal or small farmers and the rest semi-medium farmers but 29% (semi medium farmers) operated 41% of total land. The average operated was 6.5 acres and operated land 4.86 acres. This gap is due to the large amount of uncultivated land which was of the order of 1.6 acres on an average. This was a semi-medium size of holding and one of the largest among all MP PCs. All of the farmers had cows and bullocks with 57% having buffalo and 15% goat and poultry each. Of the total livestock owned, 41% were bullocks, 29% cows and 15% buffalos. On an average, a household had 2 bullocks and one buffalo and/or cow each and 3 goats per household.

46% of the non-member farmers were small and 18% each marginal, semi medium and medium category each. However, 18% (medium) farmers operated 50% of the land and marginal farmers (18%) only 6% of land. Marginal and small farmers accounting for 63% of the total operated 31% of total land. The average farm size was high at 6.3 acres which was lower than owned land because some of the land was reported to be uncultivated. Only 27% to 55% farmers had livestock and bullocks were the most prevalent with 34% of the total livestock followed by 25% being goats and cows each and 20% buffaloes.

In Kharif season, maize accounted for 58% of the cropped area of members and soybean 25% followed by paddy and pulses 26% each. In Rabi, it was just two crops of wheat and pulses accounting for 55% and 45% respectively. Wheat emerged as the largest crop for these farmers (27%) closely followed by pulses (25%) and maize (29%) including inter-crops. Soybean took 13% of the GCA and paddy 6%. The average cropping intensity was 1.98.

50% non-member farmers grew maize, 19% wheat and 15% soybean with only 10% reporting paddy cultivation. In terms of Kharif cropping pattern, maize accounted 55% of the area, paddy 22% and soybean 20%. In summer, only small area was put largely under ladyfinger (66%) and Moong (33%). On the other hand, in Rabi season, wheat took 55% of the area, gram 18% and wheat and gram together 26%. Overall, cropping pattern across the year was marked by maize 34%, wheat 20%, paddy 14%, soybean 12% and gram 6%. The average cropping intensity for the farmer was 1.58 similar to that among the members.

None of the farmers bought any inputs from the PC and depended on dealers and PACS for the same and bought fertilisers from the PACS. There was no change in any crop area or yield or output or even sales price realisation as the PC had not intervened in the output market.

4.5.2.3 Mhow Members and non-members

Of the 12 male members 42% were graduates and only 8% literate with the rest being high or higher secondary literate (17%) each or middle school or under grad literate (8%) each. All of them were engaged in farming with 25% reporting business as secondary occupation and 15% milk vending. 50% of the members had wells or tube wells and other 25% also canal irrigation. All of them had electric operated tube wells.

50% had not received share certificate and 33% were not aware. Most of them were member of the PACs. 50% of the farmers knew the PC is owned by members with other 8% each mentioning government, IFFCO or promoting agency as the owner. 25% did not know who owned the PC. 83% had become members due to the persuasion by the promoters and others by PC employee and friends.

58% reported that meetings were held only once in a year and only 25% participated in them regularly with others occasionally 33%, sometimes 23% and never 17%. 92% of them wanted to remain as members and 83% wanted to encourage others to become members.

Of all the nine non-member male farmers interviewed, 44% were high school literate, 33% middle standard literate and 11% being graduate. All of them reported agriculture as a main occupation with 22% reported animal husbandry as a secondary occupation. 63% did not report any secondary occupation. The irrigation access was mainly from wells and tubewells (44%), wells (22%), canal and well (22%) and only canal (11%). All of the well owners had electric connections. These farmers mostly relied on friends and dealers for information about agricultural issues. 2/3rd of them did not know about the PC and 78% did not know who owned it. In fact, in these cases, nobody had provided them any information. 44% of them wanted to become members of the PC and 33% of all were aware of the initiatives undertaken by the PC.

1/3rd of the member farmers were small and 17% each semi medium or medium with 25% being large farmers who operated 69% of the total land with small and marginal farmers operating only 8%. The average owned land was 13 acres and operated land 16.9 acres. This was a PC which had mostly large and semi-medium and medium famer as member and this was the largest average farm size of any PC membership. 75% of the farmers had cows and 50% bullocks with cows accounting for 72% of the total livestock and bullocks another 26%. There were 4 cows and 2 bullocks per household.

Average operated land for non-members turned out to be 17.2 acres with 3.9 acres being leased in land. In terms of landholding, all of the farmers were semi-medium (56%), medium (11%) or large farmers (33%). Further, in terms of area operated, large farmers had 59% of the total semi medium 26% and medium farmers 25%. Major livestock was cows owned by 67% households and buffaloes by 33% households with cows and buffaloes accounting for 42-44% of the total livestock with average 3 cows and 5 buffaloes per household. 42% of the total livestock owned was buffaloes and 44% cows with the rest being bullocks and goats.

Soybean was the predominant kharif crop for member farmers occupying 71% of the area followed by herbs, maize and vegetables. In Rabi, it was potato accounting for 60% of the area followed by spices at 15% and vegetables at 6%. Therefore, soybean and potato took away

32% each of the gross crop area during the year and spices another 16% followed by vegetables at 6%. The cropping intensity of the farmers was 2.08.

19% of the non- member farmers grew potato, 11% each onion and wheat, 22% soybean and 14% garlic. In terms of Kharif area, 74% was under soybean, 9% each under cotton and maize whereas in Rabi, potato and onion accounted for 29% each, wheat 25% and garlic 12%. In general, during the year, soybean accounted for 38% of the area, onion 15%, potato 14% and wheat 12% of the GCA. The other important crops were: cotton and maize at 5% each and garlic exclusively and along with gram 9% of the GCA. The average cropping density is 2.1 and similar to that of the PC members.

Most of the farmers bought seeds from dealers and majority of them buying chemical fertilisers from PC and the rest from PACs. The chemical pesticides were mostly bought from PC and some other bought from dealers. Farmers reported very significant increase in vegetable area during the last three years (four times) and significant increase in potato yields beside vegetables. The sales price had also significantly improved in vegetables and spices.

4.6 Summary

A comparative analysis of the various PCs in MP by various promoters shows that ASA PCs had small size of membership, but their turnover was significant enough given the small size of membership. AKRSP promoted PCs had really small authorised capital and small mobilised equity (only 20-34% of authorised). But they were able to achieve good level of revenue/turnover and remained in profit almost throughout the period. The performance of goat PC was even more impressive as it was all women member PC and was in an unusual and unorganised sector of meat and animal trade.

Average size of owned land of members was 5.3 acres and operated land was of the order of 6 acres. The non-member farmers on an average owned 4.5 acres of land and operated 5.4 acres each with almost 1/3rd of the land being unirrigated.

In only 37% cases, the share certificates were issued by the PCs. A very large proportion of members were also members of self help groups (SHGs) (49%) simply for the reason that many of the PCs specially women focussed had their base in the SHGs. Only 11% farmers reported membership of cooperative society and 5% of another PC. Only 43% of the members knew that they owned the PC. The biggest influence in their becoming member of the PC were the PC promoters (75%). In 94% cases, they had not received any dividend on their shares so far.

Surprisingly, very vast majority (73%) did not have any complaint about the services provided by the PC. 95% wanted to continue being member of the PC. Further 85% also stated that they would encourage others to become members.

Before the intervention of the PC, 55% farmers sold directly to traders and 31% through the APMC with only 12% reporting selling through PC. This proportion of APMC and direct sales reduced to 28% and 44% and the PC channel accounting for 26%. So far as the diversification of crop area due to the PC intervention is concerned the area increased marginally (2%) under maize and soyabean (3%) and decreased under cotton by 3%. Not only the area, but also the number of farmers growing these crops increased due to the PC intervention by a small percentage.

Most of the member farmers still bought their various inputs from dealers which were high in seeds and chemical pesticides. The farmer mostly bought from the PC for the reason of better quality, easy accessibility and lower price. On the other hand, dealers were preferred for similar reasons by other farmers.

Women PC member on the other hand, on an average operated land holding of 2.71 acres and owned land 2.55 acres.

Only 39% of the all -women PC members had received share certificates and 87% also were members of SHGs with some being members of other PCs. 53% knew that PC belonged to farmers which was higher than those among all PC members. 90% of them had no dislike about the services being offered by the PC and 20% even reported the PC helping them in availing of government schemes and subsidies. 71% reported attending meetings. 58% participated in all the meetings and 20% sometimes, and another 20% had never participated in any meeting.

All of them wanted to continue as members and also wanted others to join the PC. The only crop in which the area had expanded after the PC intervention was cotton as most of the PCs were focused on cotton. The price realisation in cotton had also gone up by 21% after the PC intervention.

On the output side also, there was movement from good to very good in majority of the cases especially on market availability. The number of members selling to the PCs had almost doubled over the three years. There was no effect of the presence of PC on the non-member farmers in terms of the sale of their produce or the crops grown.

65% of the non-women PC non-member farmers had not heard about the PC and 62% did not know who owned it Only 28% wanted to become members of the PC and 25% has some awareness about the initiatives of the PC with 29% even having attended some meeting of the same. The ASA PC members perceived the input service of the PC improving its quality from poor, average or good to very good, good and even excellent mainly in terms of cost availability, accessibility and adequate quantity. There was no change in the sales channel used by non-member farmers before and after the intervention of the PC where most of them sold in wholesale with only one reporting sales through the PC. 45% of the members have received share certificates and 2/3rd of the members were members of the SHGs. Only 18% members knew that PC was owned by members with 50% having no ideal about the ownership of the PC.

91% of the AKRSPI PC non-members did not have any problem with the services of the PC but 57% also had no knowledge of it with 38% being aware of the initiative of the PC. None of them reported any negative experience with the PC as none of them had transacted with the PC. Only 10% reported receiving this information from the PC directly and 5% each indirectly through the promoter or as a combination of various sources including the PC. 79% knew about the existence of the PC in their area but 59% did not know who owned it with only 12% being aware that it is owned by farmers. This was so because in 39% cases, nobody had provided them any information with the rest picking it at from PC meetings and from their interaction with the promoters. Only 19% desired to become a member of the PC.

The quality of inputs delivered by the PC and other channels had improved from good to very good and excellent and the cost had also moved to the same direction as was availability and to some extent quantity. On the output side, in general, there was an improvement in prices and availability of the market for the output in terms of sales channels there was tripling of sale transaction through the PC and some reduction in the APMC channel sales.

The members did not report any major changes in the cropping pattern yields or output due to the intervention of the PC other than the fact that the cotton and soybean prices were appreciate significantly during the last three years. The transaction cost had also come down in both cotton and goat marketing. All of the members wanted to continue with the PC and 19% of them also wanted to encourage other non-members to join the PC. Only two non-members farmers reported selling through the PC compared to the pre-PC situation of one farmer selling to it.

The cropping intensity of IGS and Vrutti PC member farmers was high (2.08 and 1.99) and low for PRADAN PC members (1.63) as some Pradan PC farmers were rainfed and other dependent on rivers and shared wells. But, IGS PC farmers were medium land operators with average being 16 acres compared with only 5 acres for Vrutti promoted PC members and 3 acres for Pradan PC. This was also one of the reasons for failure of the IGS promoted PC.

The Vrutti promoted Betul Krishak was almost defunct s it has neither mobilised enough equity nor undertaken any business so far despite being there for 4 years. None of the farmers bought any inputs from the PC and depended on dealers and PACS for the same and bought fertilisers from the PACS. There was no change in any crop area or yield or output or even sales price realisation as the PC had not intervened at all.

Pradan promoted PC had good interface with women members for input supply who all bought from the PC. The PC mobilised Rs. 10 lakhs paid up capital within three years. The PC has been undertaking seed contract farming in soya bean and wheat with 150 farmers and selling it to the seed corporation or back to the farmer members for growing crops. It also sells maize, cotton seed at lower than market price and claims that 75% of the members buy exclusively from the PC. Major innovations of the PC included: seed contract farming, distant market trading, and introduction of mechanical grading. On the external front, it faced problems of lack of finance and high cost of loans. It also perceived competition from PACS and routing of fertilizers through this mechanism by the Govt. as external competition.

On the output side, it aggregated crops like soya bean, maize, wheat and gram and had its own brand – Dharti Natural. In terms of livelihood diversification, it introduced soya bean as a cash crop and a new variety of wheat in the last few years. In 2015-16 it bought gram on behalf of SAFC at MSP for 1% commission. It also facilitates sale of its members produce to wholesale traders in various markets in M.P. and Gujarat.

The best case was that of Ram Rahim Pragati -an all women PC -which had very large capital base and large revenue running in a few hundred million rupees annually beside being in profit all the time and creating some assets including a warehouse with imported technology and a processing facility. On the output side it aggregated various crops like wheat gram and maize from 2600 members. It also makes use of warehouse receipt based loans for storing its produce in its own warehouses. It is mainly into NPM produce and link and sells 90% wheat and gram procurement to Safe Harvest Pvt. Ltd which has equity in this PC. The farmers members have been into NPM practices for the last 10 years. It has also done job work for private players like Big Basket. The PC has promoted red gram in the area and also reverse selling of pulses to the member farmers by processing it into dal. It is the one of the very few PCs which have participated in futures markets and made profits in maize but lost money in soya in 2016-17. It plans to continue futures trading NCDEX in maize, out of the more 4000 members, 2600 sells some produce to the PC. It has been able to get loans and grants from APF, Axis bank and Nabkisan through promoting NGO though working capital and interest rates are still a constraint.

Appendix 4.1

ASA PCs

ASA which had 53 PCs across four states of M.P, Jharkhand, Bihar and Chhattisgarh including 38 PC in M.P has an organisational structure which includes seven managers at the headquarters, 15 area and Hub managers and 42 business facilitators. ASA has 38 PCs in different parts of Madhya Pradesh with 9 of them in Shahdol hub. On the other hand, in Bhudelkhand and Betul hubs, there were only one or two PCs promoted by it. In western MP, there were 4 PCs each in Nimmad and Ratlam and two to three each in Petlavad, Ranakpur and Jobat hubs. Some of these PCs had BCI cotton and organic cotton projects supported by global buyers like C&A Foundation. ASA has 22 PCs engaged in organic cotton cultivation involving 12,000 farmers.

The major crops grown in the area included wheat and gram in Rabi season and Soyabean, maize, urad and cotton in kharif season besides vegetable in summer.

Ranapur Mahila Tribal PC

The Ranapur PC promoted by ASA in Jhabua district was registered in 2012 and originated from 125 SHGs existing since 2000 with 500 members who all became members of the PC. Presently, the PC operates across 79 villages with 1442 members. The PC allows only land owners to become members and average land holding was reported to be 1.25 acres. The shares held by members range from 50 – 100 and all the members had been issued share certificates. All the members are reported to be marginal and small landowners and women of whom 70% were active members. The company had authorised capital of Rs. 20 lakh and paid up capital of Rs. 14.11 lakh (Table 4.1). It also had reserves of Rs. 41,000. The PC had an APMC license and most input sale licenses.

The BoD had five members (all women) to begin with and in 2017-18 had nine members of whom six are women. It pays its CEO and the PC provides seeds of various crops to members and also fertilizers and pesticides and mainly farmers buy from it because of lower price. The company has a warehouse since 2014-15 which is used for aggregating and storing the produce. It has a wholesale brand of its products called Dharti Natural. The PC has promoted larger cultivation of soyabean and a new variety of wheat during the last four to five years. It undertakes seed contract farming in soya and wheat seed for the state seed corporation which involves 125 hectors and 500 tons of seeds. It has also been procuring gram for the SFAC at MSP (50 tonnes) for which it received one percent commission. It also sells some of the soyabean, chana and wheat produce procured from members in wholesale markets in M.P and Gujarat like Devas, Dahod, Indore and Ujjain directly to traders.

Whereas all of the members transact with PC for input purchase, only about 70% of members transacted with PC on the output side. 60% of its revenues come from output and 40% from input sales. It agrees that 30% of members are not aware of the fact that they own the company. The Company has had business plans since 2012 which are prepared by ASA and BOD together. The PC has been able to receive the grants of the order of Rs. 7 lakhs in 3 instalments in 2013-14 and has availed loans from NABkisan, FWWB, Ananya Finance and even ASA. The BoD and SHGs have been provided training and exposure twice a year and the PC believes that its seed production intervention is very successful. Its other innovations include: scaling up and branding of produce. The PC faces shortage of working capital and therefore, not able

to meet all the demand for inputs from the members. It plans to focus on scaling up and tie ups with govt. agencies for enhancing its revenues.

Table 4.1: Profile and performance of Ranapur Mahila Tribal PC

Year > Parameter	2015-16	2016-17	2017-18	2018-19
Authorised Capital (Rs. Lakh)	15	15	15	15
Paid up Capital	12.4 (83%)	12.4 (83%)	14.11 (94%)	14.11(94%)
Revenue (Rs. lakh)	27.54	28.02	64.15 l	45.22
Profit (Rs. Lakh)	-2.68	-2.97	-1.58	.41 l
Reserve and Surplus (Rs. lakh)		-6.79	-8.38	-7.97
Members (Nos.)	700	980	1000	1200

In 2017-18 the PC had receivables from many PCs as well as Samunati Finance, MBCFPCL and revolving fund support from ASA of the order of Rs. 2 lakhs. In 2016-17 the company had 25 lakh loan from NABkisan and in 2015-16 it had Rs. 3.5 lakh loan from FWWB. The PC reported inventories of the order of Rs.12.09 and Rs. 26 lakhs in each 2016 and 2017.

Photo 4.1: Small farmers in MP

Alirajpur Tribal PC

This PC was registered in 2013 from the existing self help groups (SHGs) of farmers and had five board members. At present, the company has 808 members across 35 villages. Its membership includes multiple members from the same household in some cases, and most of the members are marginal or small landowners. 90% members are women, 70% members are active. A board member needs to be a member self-help group, a farmer and should not hold any Panchayat position. At present, the PC has no CEO.

It has authorised capital of Rs.15 lakh and paid up capital of Rs. 7.22 lakh (Table 4.2). It has licenses for sale of seed, fertilizers and agrochemicals besides an APMC licence. The total area of the members was 3800 hectares and these farmers are organized into groups of 25 to 500 for organic group certification. There are 8 Internal Control System (ICS) teams for this project

being carried out for C&A Foundation. Besides input sales, it also runs a farm machinery rental service for the last 1.5 years, which has been set up with 40% subsidy, but it has mainly a thresher for various crops. It engages in seed contract farming besides trading of agricultural produce.

The PC sells various bio inputs to members of which 25 to 60% buy these products mainly due to lower price. Only about 25% input business comes from non-members. However, no members exclusively buy any input from PC despite lower price, better quality, and easier availability.

Table 4.2: Profile and performance of Alirajpur PC

Year > Parameter (Rs. Lakh)	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Authorised Capital	15	15	15	15	15	15
Share capital	1 (6%)	4.44 (30%)	7.22(48%)	7.22(48%)	7.22(48%)	7.22(48%)
Total Revenue	5.65	24.6	16.4	25.00	13.00	81.00
Profit	0.03	.49	(1.23)	(1.35)	(1.36)	0.3

The PC aggregates various crop produce and has rented a warehouse. 25% of its output purchase comes from non-members. The PC claims that it has brought organic cotton to the area. The PC has done only institutional sales specially selling of 80 tons of Urad to SFAC at MSP in 2014-15. It has also sold in wholesale to ITC once and even sold in the APMC from its members farmers under Bhavantar Bhugtaan Yojana (BBY) not only soya but also wheat once. 40% of the members participated in inputs purchase as well as output sale to the PC. The PC received matching equity grants from SFAC and loan of Rs 30 lakh from NABkisan in 2017-18. It has also been able to receive financial assistance for the first few years under DPIP and Mahila Kisan Sasaktikaran Plan (MKSP) projects. The BoD is trained every six months. It is planning to limit input business and expand output purchase for larger impact on the members. It is also planning ginning of cotton. The major problems faced by the PC internally include: low awareness and literacy among the members, poor agricultural infrastructure like irrigation and lack of finance. On the external front, competition from the private sector traders who buy from Mandi level is an issue as PC incurs an additional cost of farmer doorstep procurement.

AKRSP PCs

Nevali PC

This is the oldest PC in the state promoted by AKRSP. This PC was registered in 2014 and is a block level PC covering 28 villages. It originated from 75 farmer interest groups organised in 2013, 57 of whom are part of the PC. There are 1078 FIG members and 947 of them are shareholders in the PC. Each group has 10 to 20 with average of 15 members. Originally, 10 promoters registered the company. All the shareholders are landowners owning 100 shares valued at Rs. 10 each totalling Rs. 1000 per member. 150 of the shareholders have been given share certificates and others are still pending. Of the total members, 200 are women who are in most cases spouses of ex-members. The company has authorised capital of Rs. 10 lakhs, paid

up capital of Rs.5.38 lakh in 2018-19 and reserves of about Rs. 7 lakh (Table 4.3). At present, the paid capital is Rs. 6.46 lakh. The PC has direct dealership only in bio-fertilizes from one company and has APMC licence as a commission agent in the fruit and vegetable market as there are no commission agents in the grain markets in M.P.

The PC has 5 board members elected for two terms of three years each right from the beginning including one women member. The shareholders who intent to become directors need to be motivators, and local influencers with no political background. The PC pays for its CEO who is a Master's degree holder but there is no other staff. The promoting NGO helps the PC in its operations and office premises are also rented. The average land holding of the shareholder is 2.5 acres.

Photo 4.2: Office cum retail outlet of Nevali FPC

The PC is involved in the supply of various inputs like seed, biofertilizer, spray pumps and irrigation equipment besides animal feed to member as well as non-member farmers. The inputs business accounts for 45% of PC turnover and 20% of the input business comes from the non-members. About 350 farmers buy inputs from the PC and 150 members buy their inputs exclusively from the PC. Most of the cotton seed sold is non-BT and only a small percentage of BT cotton seeds are sold to cater to the needs of farmers. 842 out of 947 farmers members are also part of the organic cotton farming project which has 1500 farmers who are supplied organic cotton seed. On the output side, the company gets processing of groundnut and cotton done on job work basis which accounts for 60% of total turnover. Cotton accounts for 40% of the output transactions and organic cotton 22% of it, with the rest being BT cotton. Some of the farm inputs which are produced by the PC like bio-inputs account for 10% of the total input sales. 30% of the total turnover of the company comes from the non-members. It is involved in certification of organic farms on behalf of farmer groups. Even non-members contribute to organic cotton procurement.

The PC has sold organic produce to global players like CARREFOUR and Non-Pesticidal Management (NPM) pulses to domestic players like Safe Harvest India Pvt. Ltd., and BT cotton to local players like Pratibha Syntex. The PC has promoted organic cotton cultivation among both members and non-members and jowar and raagi (millets) among 150 farmers by not only encouraging them to grow it but also buying this produce from the farmers. It has tried contract farming of pulses with Green Gold Agri Biotech two years ago engaging 40 members. The company did not buy as the produce did not meet the quality standards. But, most of the organic

cotton and organic chillies for Prathiba Syntex are under contract farming arrangements as farms require conversion and certification over a number of years. The seed from organic cotton is sold to local oil millers. The PC gets a facilitation fee of Rs. 50 per quintal after meeting all expenses. 97 farmers produced and supplied organic cotton to CARREFOUR. Similarly, NPM groundnut produced from 40 members was sold to Safe Harvest India at 5% premium over market price and all the costs of purchase were met by the buyer. The PC has also been selling organic produce of member farmers in retail in local markets. The PC gets a premium of 10% on organic lint price compared with conventional lint price. In the retail market, it has been selling sweet potato, beetroot and organic product.

The PC is registered on National commodities and derivatives Exchange (NCDEX) but has never traded. It has received management support of two staff for three years, but not matching equity grant as of now. However, it has been able to receive a Corporate Social Responsibility (CSR) grant through the promoting agencies from Azim Premji Foundation. The business plan of PC was prepared by another professional NGO-BASIX. In 2018-19, the PC also availed a short term loan from Cotton Federation for Rs. 6 lakhs for cotton procurement and also similar loans from other PCs promoted by AKRSP. One staff of the PC is funded by the promoter who looked after another two PCs as well. The promoter had also given training to BoD on leadership, business management and to CEO and the staff on accounts related matters. It also organized exposure visits to other PC in M.P. and Gujarat. It saw its own brand in bio-inputs and focus on output marketing as best practices which other PCs should follow. The other innovations included: decentralized procurement and quality seed production. On the process innovations, organic farming practices in cotton and other crops in the same farms including facilitation of market with private market linkages for 7000 of its 12000 farmers in M.P. out of whom 3000 are fully organic across PCs was an important innovation. It was also planning to move from NPM to organic gradually as there is overlap between NPM and organic farmers.

In terms of challenges faced by PC major ones include: lack of availability of adequate organic seeds and low risk capability of the PC besides unsold stocks of various inputs. On the output side, limited market and poor bargaining powers besides poor govt. linkage is also problematic. The local resource persons (LRPs) provided extension to the farmers on behalf of the promoting NGO. It believes in having multiple channels for farmer produce in the local area. it is also planning to open 6 retail outlets for selling input and output products.

Table 4.3: Profile and performance of Nevali PC

Year > Parameter	2015-16	2016-17	2017-18	2018-19
Authorised Equity (Rs. Lakh)	10	10	10	10
Paid up capital (Rs. Lakh)	1 (10%)	1 (10%)	3.38 (34%)	5.38 (54%)
Revenue (Rs. Lakh)	5.86	50.95	80.4	133.1
Profit (Rs.)	-2664	28272	21111	682979
Reserves and Surplus (Rs.)	-10584	-9312		694778
% of shares held by Promoters	100	100	30	
% of shares held by Directors	50	50	15	
Total Assets (Rs. Lakh)	6.41	6.22		

Pandhana PC

Pandhana Pashu Palik PC in Khandva district was registered in 2016. The NGO-AKRSPI had organised women SHGs across 25 villages. Now there are 672 shareholders of the company each contributing Rs. 1000. The authorised capital of the PC was Rs. 5 Lakh and paid up capital Rs. 2.99 lakh in 2018-19 (Table 4.4). At present, the PC has membership across 46 villages and 40% of the members have livestock. The members have been given only receipt of share money and not a share certificate as of now. Most of the members (400) rear goats of local breed for the purpose of meat, 200 also do poultry and others do both. Each member has 5-6 goats and in the case of poultry 15- 20 birds. 400 members are active. The animals are sold in the Pashu Bazaars organised by the village panchayats.

In 2016, it had 250 SHGs of which 46 groups become members of the PC. The local area is known for Barihi breed of goat. 80% of the households also have some land ownership. The Pashu Sakhis keep an account of animals which can be sold to PC and bring in the buyers. 30% of the goats and 50% chicken are sold through the PC. A shed costs Rs. 3000 to 4000, the major cost being the cost of the jaali (fence). The member farmers also grow crops like soya bean, maize, cotton, tuvar, onion, wheat, and green peas.

The PC has five Directors of the Board all of whom are original promoters of the PC. All of them are also working as Pashu Sakhis. The PC has one CEO paid by it who is helped by Pashu Sakhis.

The PC provides poultry birds, goats and feed. The day old chicks are sold @ Rs. 20 each. 15% of the poultry birds and 30% of the goats are bought from or through the PC. 30% of the input business of the PC comes from the non-members. There is no animal insurance for the members. However, vaccination and de-worming of the goats is done at regular intervals. The PC does not directly buy output or animals but facilitates the sale while working with traders after making an assessment of the supplies. A trader then either physically inspects the animals or sees a photo before agreeing to buy. PC gets 5% commission on sales. The members also received 40 goats under the fight hunger funds project. The meat is sold in wholesale @ Rs. 150 per/kg. The PC also started selling fresh meat at weekly heats where two goats meat is sold @ Rs. 400 per/kg. The cost of rearing is about Rs. 90 per/kg. The goats are mostly feed chaapad (wheat husk and bran) and mineral mixture- UMB. The Muskan Brand of Urea Molasses Blocks (UMB) as well as mineral mixture and poultry feed are produced by the members who are organized into Pashu Palak (livestock rears) groups of 20 to 25 each.

The PC buys only 10% of the output from non-members. During Eid, 30% of the total sales are realised. Earlier, the animals were being sold by assessing their weight visually. An average animal of 30 kg was sold @ Rs. 250 per/kg giving Rs. 7000 on weight basis compared with only Rs. 6000 on visual assessment. 70% of the revenue of the PC comes from commission received on wholesale transaction with the traders and 30% from the animals bought from the members and sold by PC in retail for meat.

An average goat gives two cycles of delivery with 2 to 3 kids in each cycle of pregnancy and a kid takes 8 months to become adult. A goat has an average age of 11 years. The cost of a kid of 4 to 5 months is Rs. 2000 to 4000 and Rs. 5000 to 6000 after 8 months. The cost of rearing a kid for sale on the occasion of Eid is Rs. 1500 to 2000 compared with general cost of Rs. 500 to 700. However, a kid specially raised for Eid is sold for Rs. 10000 to 15000 each. Major

disease of a goat includes foot and mouth and dart and in poultry it is in Ranikhet. The non-members are offered Rs. 20 to 30 lower prices in the case of goat and Rs. 5 per/kg lower in case of poultry bird compared to those offered to members.

The major components of its turnover include: sale of goats, mineral mixture, UMB, poultry feed and chicken. In 2017-18, the company operated across 28 villages with 600 shareholders and Rs. 2.9 lakh share capital. In 2018-19, its shareholders had gone upto 684 and share capital to Rs. 3.45 lakh. In 2018-19, the PC also added new source of revenue which includes buffaloes, maize, soya Deoiled Cake (DoC) but sale of goats still remains the most significant activity in terms of revenue.

The PC had not made profit until last year (2019-20) because the goats bought for Eid could not be sold locally and even in Indore which led to loss of Rs. 2 lakh. The PC had availed of a bank loan of Rs. 5 lakhs for revolving fund and a grant of Rs. 3 lakh from a Foundation. The company aims to reach a membership of 1000. Its Board has been given a five day training and 100 members were taken for exposure trip once. The PC claimed that 50% of the members were aware that the PC belonged to them. The PC treats own production and markets of some of the inputs as best practices. Besides that, it also considers weight based purchase as innovation and thinks that it can survive even after promoter support is withdrawn. The farmers sell to PC on advance payment basis or a week's credit. The major constraint faced by the PC is lack of financial resources. The PC plans to scale up to achieve viability of its operations. The company has so far not given dividend to members.

Table 4.4: Profile and performance of Pandhana PC

Year > Parameter	2016-17	2017-18	2018-19
Authorised Equity (Rs. Lakh)	5	5	5
Paid up capital (Rs. Lakh)	1 (20%)	1 (20%)	2.99 (60%)
Revenue (Rs. Lakh)	2.78	14.7	23.9
Profit (Rs. lakh)	0.01719	1.79	1.09
Reserves and Surplus (Rs.)	1719	25369	31041

Chirayu Women Crop PC

This PC registered in 2015 has its origins in the self-help groups (SHGs) of women operating since 2008 dealing with water sheds, poultry and other farm inputs. It operates across 32 villages of two blocs in Betul district and has 1000 members. Most of the members are from marginalised categories like SC, ST, BC and small or marginal land owners. The board of directors has 10 women members and they are representatives of farmer groups. The members of the PC also have membership of Primary Agricultural Co-op Societies (PACS) in some cases as most of the members are landowners. 75% women members are active. The authorised capital of the PC has been raised from Rs. 10 lakh in 2017-18 (Table 4.5) to Rs. 25 lakh. The PC paid up capital is Rs. 20 lakhs including 50% of it contributed by Small Farmer Agribusiness Consortium (SFAC) as matching equity contribution. The PC also has reserves of the orders of Rs. 25 lakhs. It has various licences for sale of farm inputs and purchase of

farm output though it has no warehouse facility. The PC mobilised Rs. 10 lakh paid up capital within three years. The PC has seven field staff besides the CEO and their salaries are paid by the PFC for the last two years thought initially for three years paid by SFAC and before that by the promoting agency. The PC has been undertaking seed contract farming in soya bean and wheat with 150 farmers and selling it to the seed corporation or back to the farmer members for growing crops. It also sells maize, cotton seed at lower than market price and claims that 75% of the members buy exclusively from the PC.

On the output side, it aggregates crops like soya bean, maize, wheat and gram and has its own brand – Dharti Natural which will be used to promote its wholesale business. In terms of livelihood diversification, while introducing soya bean as a cash crop and a new variety of wheat in the last few years. 7% of its input sale and 20% of output turnover comes from non-members. In 2015-16 it bought gram on behalf of SAFC at MSP per 1% commission. It also facilitates sale of its members produce to wholesale traders in various markets in M.P. and Gujarat. Inputs supplies which are bought by all the members account for 40% of turnover where 60% of this turnover comes from 70% of the membership. The PC has received loans from Navkissan and Ananya Finance and ASADAS and most of the previous loans have been repaid and new ones acquired from Navkissan and ASADAS. The promoting agency still provided technical and financial support to the PC. The promoter has trained BoD twice every year on issues of membership, ownership, legal aspects and business plan; and members have been taken to other PCs in Maharashtra for exposure. It claims that the introduction of high-quality maize seeds has led to quadrupling of the yields. It is of the view that the innovations of the PC include: seed contract farming, distant market trading, and introduction of mechanical grading. Major problems faced by the PC include: lack of awareness and market orientation among the shareholders of whom only 75% think it is their company. On the external front, it faces the problems of lack of finance and high cost of loans. It also perceives competition from PACS and routing of fertilizers through this mechanism by the Govt. as external competition. The company has not yet engaged in NPM and organic production, but it plans of expand seed contract farming and build govt. linkage for sale of its seed besides expanding the membership to 3000.

Table 4.5: Profile and performance of Chirayu Women Crop PC

Year > Parameter	2015-16	2016-17	2017-18	2018-19
Authorised Equity (Rs. Lakh)		10	25	25
Paid up capital (Rs. Lakh)		7.5 (75%)	15(60%)	15 (60%)
Revenue (Rs. Lakh)		60.83	139.5	133.29
Profit (Rs.)		39850	31800	70000
Reserves and Surplus (Rs Lakh.)		-	1.31	2.09
No. of shareholders		980	1000	1200

The PC has planned to provide inputs for various cereal and vegetable crops during 2015-20. However, it was doing so only in wheat, maize, gram, onion and cauliflower. On the output side, it did not plan to increase its purchase of wheat and gram due to working of the MSP based procurement in the area and lack of storage facility with the PC. The PC plans to buy about 100 tons of each of the paddy wheat and maize crop and 300 tons of gram and half ton of onion in the first year of the plan. Overall, the PC plans to handle Rs. 217.75 lakh of produce

and earn a profit of Rs. 10.87 lakh. The PC would require Rs. 38 lakhs as working capital and could provide for 25% from its own sources. It had budgeted for 10% income decline and still hoped to earn profit every year. The business plan had profits of Rs. 7.6 lakh in the first year going upto Rs. 23.7 lakh at the end of the five-year plan and the membership increasing from 1000 to 1500 over five years. It also planned to collect a service fee Rs. 200 per farmer per year giving it Rs. 2 lakh in the first year and Rs. 3 lakhs by the fifth year totalling to Rs. 13.4 lakh over five years. It planned to capture 50- 70% of the input supply of the major crops like tomato, chilly, brinjal, onion, maize and wheat. An equivalent amount of its revenues was expected to come from output trading and from input supply each.

Photo 4.3: Maize being dried in MP after harvesting and threshing

Mhow Agri PC

The PC registered in 2014 emerged from SHGs and covers 20 villages. In 2017, the share money was withdrawn by the members and 7 out of 10 board members resigned. There are 600 members with share capital of Rs. 6.8 lakh and authorised capital of Rs. 10 lakh but only Rs. one lakh worth of shares had been issued (Table 4.6). By the time, it was made inoperative, it had a turnover of Rs. 4.5 lakh in 2016-17. The PC was struck of by the MCA as it did not file returns.

As per Grant Thompson report, 1000 farmers across 14 villages were organized into 50 FIGs with 20 members each and an executive committee of FIG leaders selected first five directors and promoters for the registration of the PC. The catchment area of the PC is 3250 households and 13 889 hectares of farm land in a radius of 30 kilometres. The average land holding of the members is 4.27 hectares.

It was revived in 2019-20 with 25% old and rest being new members. 75% of the members are vegetable growers. Only 100 members are allotted share certificates of the 800 farmers. Most are medium and large farmers and only 50% are active. 20% members are women. The PC has APMC trading and machinery agency (CHC) licence. The Board members are politically affiliated and become members depending on how many members they bring in. Now, there are three women members of the board out of 10 which was two in 2018. The PC has a CEO and a marketing officer. On the input side, it mostly deals with seeds fertilizers and pesticides and the 75% of the sales are to the members. On the output side only in 2018-19 it undertook procurement for the SFAC worth Rs. 20 lakhs. Earlier in 2017 it had also dealt with potato and onions while facilitating their sale to the SFAC and last year it facilitated sale of garlic to

Mumbai traders and earned a commission of 2%. PC will be shut down if there is no transaction continuously for two years. The SFAC which has given land for godown, has appointed Grant Thompson as consultants, to the PC to develop market linkages. This agency has prepared and submitted a report in 2019 which details of the profile of the PC. The authorised capital of the PC was Rs. one lakh and as of 2018, the PC had collected Rs. 5.86 lakh share money from farmers. It had proposed to increase the authorised capital to Rs. 10 lakh and was planning to apply for matching equity grant from the SFAC. In 2019, PC had 686 farmers from 14 villages with an average land holding of 4 hectares each. Major crops of interest of the PC include: soya bean in kharif and onion, potato and garlic and rabi season. The engagement of Grant Thompson (GT) India LLP was for a period of two years from July 2018 to May 2020 through an agribusiness promotion unit (ABPU). The GT India analysed 332 PCs under SFAC in the states of M.P. West Bengal and Karnataka and shortlisted 149 of them based on turnover and current operations besides RI request. Finally, 10 promising PCs in each state were taken up for support under ABPU.

Photo 4.4 Office cum farm input sales outlet of Mhow APC

Mhow agri farmers PC is one of the 11 shortlisted for support in M.P. The report states that PC is operational only for one year and into input and output trading. The 14 villages which have 100 to 500 producers in the cluster has three to as many as 191 shareholders in the village where PC is registered and an area of minimum of 1-4.5 hectares per share holder going upto 7 hectares in another village. The BoD has five members of whom one was a woman in 2018-19, had landholdings ranging from 2 to 6 hectares. Each board member had different roles ranging from overall responsibility of maintenance of PC and legal responsibility and executive responsibility and maintaining day-to-day operations besides community mobilization.

Business Plan

GT made a five-year plan for the PC which included interventions on the input as well as output side of the major crops identified for intervention. It was projected that by the end of 5 years the PC would have 1499 members of whom 450 would be active members and PC would also deal with 150 non-members starting with 137 active members and 34 non-members in the first

year of the plan. Based on the average land holding and seed rate and other inputs used for various identified crops the projected revenue for different crop input over 5 years was generated on the output side, with similar assumptions of active members and non-members procurement led to revenues from procurement and sale of the agriculture produce. It was stated the PC was aggregating only 5% of the marketable surplus of the targeted farmers. 80% of the procured produce is targeted in the business plan to be sold to processing units and traders in terminal markets. The company assumes employment of CEO and 3 supporting staff. It came out with working capital requirement of Rs. 14.73 lakh in the first year going upto Rs. 103.56 lakh by the fifth year, most of which (80%) was to be met by loans. It had planned to generate revenue of the order of Rs. 176.8 lakh in the first year going upto Rs. 1242.7 lakh by the fifth year and this would generate profits of the order of Rs. 5.4 lakh in the first year and Rs. 37.2 lakh in the fifth year.

The equity of the company was assumed to be Rs. 12.35 lakh in the first year of the plan and Rs. 146.2 lakh by the end of fifth year. The BoDs of the PC were given training by the promoter on the management, and governance of the PC only once. The major problem identified by the IGS representative was that since the farmers are medium and large land owners, they only need market linkage and not many other services. This has become a hurdle in the progress of the PC, but the area was picked up because of the production of the vegetables in the area under the vegetable clusters programme of the SFAC.

Table 4.6: Profile and Performance of Mhow Agri PC

Year > Parameter	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20 revived
Authorised Equity (Rs. Lakh)			10	10	10	
Paid up capital (Rs. Lakh)			1 (10%) (6.73)	1 (10%)	1 (10%) (5.86)	
Revenue (Rs. Lakh)	4.61	7.46	20.46	4.12	-	
Profit (Rs.)	12576	20700	1297	96283	-	
Reserves and Surplus (Rs.)	6576	27288	28585	124869		

Betul KUPCL

BKUPCL promoted by Vrutti with the help of an international NGO -PACS- which was funded by BFID during 2004-6. This NGO learnt about the PC concept in 2013 and roped in Vrutti to promote the PC in the area which covered 20 villages across 7 panchayats. Originally the Grameen Vikas Samsthan (GVS) which worked with UNICEF and Govt. of India on women and children was handling the project.

In the case of Betul P.C promoted by Vrutti, there were 506 members with authorised capital of Rs. 10 lakh and paid up to capital of Rs. one lakh (Table 4.7). All the members of the PC are landowners and have minimum shares of Rs. 500 with the board members having between 100 to 10000 shares out of the 506 members now 18 are women and all of them are inactive now. It had 9 board members including three women. It had never undertaken any transaction on the input side and had only bought produce from 77 non-members only once. The PC has also had an APMC licence. The procurement was for the SFAC and had to be met by procuring from non-members from other mandis as none of the members were active. It also facilitated

once 197 farmers under BBY in 2018-19 to sell their pulses under this scheme. The PC had only the CEO who is a graduate and had a week long training from BIRD in 2019. It had not received any grants ever and had not paid any dividends though it had a business plan which was prepared by Vrutti. It had received financial assistance of Rs. 5.04 lakhs from NABARD through its POPI (Vrutti). The BOD members were provided training by the POPI and members were taken to other PC, KVK and to Dahod for exposure visits. The PC is a member of MP consortium of PCs.

Major problems faced by the PC from within included: lack of capital and farmer mindset whereas on the external front it was still being not treated as a cooperative and a procurement centre under MSP policy was not being allowed. The CEO was not sure about the survival of PC until a conducive policy environment is created. The CEO could not name any Vrutti PC in Madhya Pradesh which was working well and ended up naming ASA PCs in eastern MP and was of the view of that they were working well because the farmer landholdings are larger there. He was not aware of any other PCs which were doing well. The area grows mainly wheat, soya bean, maize and chana which were planned to be targeted by PC but continuous drought during the last few years led to decline in the production of these crops.

The authorised capital of the PC is Rs. 1 lakh and paid up capital of Rs. 50600. The PC was a member M.P. Consortium of PCs. The PC intervened to purchase various pulses at MSP from the farmers or the SFAC which gave working capital advance for the same. However, since local farmers did not produce this crops the PC bought it from the market and supplied it to the SFAC. It was given a loan by the Nabard of Rs. 5 lakh and the promoter agency had taken the board members and other farmers members on exposure visit to other PCs and *Krishi Vigyan Kendras* (KVKs).

Table 4.7: Profile and Performance of Betul PC

Year > Parameter	2015-16	2016-17	2017-18	2018-19
Authorised Equity (Rs. Lakh)	10	10	10	10
Paid up capital (Rs. Lakh)	1(10%)	1(10%)	1(10%)	1(10%)
Revenue (Rs. Lakh)	0	0	117.82	0
Profit and Loss (Rs.)	-0.28	-8.17	8.65	-0.36
Reserves and Surplus (Rs.)	-0.28	-8.45	0.2	-0.16
% of shares held by Promoters			100	100

In 2016-17 it had purchase moong worth Rs. 17.82 lakh and received commission of Rs. 1.62 lakh for the same. Besides reimbursement of expenses from FSAC of the order of Rs. 3.9 lakh besides NABARD loan it has also received a grant of Rs. 1.74 lakh from Vrutti. In 2018-19 it once again received a grant of Rs. 2 lakh from Vrutti. It had an APMC licence as a wholesale trader for which it had paid 10000 and the license was valid for five years.

The promoter made one year business plan for the PC which was mainly about sale of seeds fertilizers and feticides besides spray pumps and the procurement of crops of moong gram soya bean and wheat. It had projected monthly cash flows and capital costs of shop rent and working

capital cost for sale of various input for three months. By handling Rs. 1319.6 lakh of purchasers was to sell for Rs. 1372.8 lakh earning very meagre profit of Rs. 53 lakh.

Ram Rahim Pragati PC

This PC promoted by SPS was registered in 2012. It had its origins in the all women self-help groups which is 20-year-old which used to aggregate its produced and sell together. The PC has 304 groups across 400 villages who are members of the PC with each paying Rs. 500 per members. All the members are land owners and average land holding is 4 acres. 50 to 60% of the members are tribal households. The authorised capital of the PC is Rs. one crore and paid up capital Rs. 58.82 lakh (Table 4.8). The share certificates are in the names of SHGs and directors of the board who have contributed Rs. 10000 each. The company made losses for the first four years and now has been profits for three years. It has licenses for sale of seed and trading of output. The board has 7 members including one male the members are elected by the share holders, Besides the CEO there are 4 supports staff. The company has its own warehouse and processing facility. The members and non-members are given the same price on output purchase. On the input side, it sells seed to about 250 members on advanced booking and payment of 30% of the price. On the output side it aggregated various crops like wheat gram and maize from 2006 members. It also makes use of warehouse receipt based loans for storing its produced in its own warehouses. It is mainly into NPM produce and link and sells 90% wheat and gram procurement to Safe Harvest Pvt. Ltd. The farmers members have been into NPM practices for the last 10 years and so far, only wheat has been rejected once by safe harvest based on sample tests for which the buyer pays.

Photo 4.5: Newly constructed modern warehouse of RRPPC

The PC has promoted crop of red gram in the area and also reverse selling pulses to the member farmers by processing it into dal. It has also dealt with non-members in maize procurement upto 10% of total procurement. It is the one of the very PCs which has participated in futures markets and made profits in maize but lost money in soya in 2016-17. It plans to continue futures trading NCDEX in maize, out of the more 4000 members, 2600 sells some produce to the PC. It had also received match equity grant to Rs. 9.55 lakh in 2014 itself from the SFAC besides it has been able to receive loans and grants from APF, Axis bank and NABkisan through promoting NGO. The promoting agency has never given any exposure to the board of directors and its promoters in the past. 250 groups purchase inputs from the PC and sale of seeds to non-members is less than 5%. The PC had also dealt with 6000 quintals of sweet corn to private buyers. It also undertook grading of gram last year for Big Basket. It is exploring

supply of wheat flour to local restaurants. The major problem it faced was availability of working capital loan at very high rate of interest.

It also had Rs. 2.5 lakh equity investment from Safe harvest India pvt ltd which is a unique arrangement as SHI is a private civil society promoted company and buys from RRP PC.

Table 4.8: Profile and Performance of RR Pragati PC

Year > Parameter	2015-16	2016-17	2017-18	2018-19
Authorised Equity (Rs. Lakh)	40	40	100	100
Paid up capital (Rs. Lakh)	20(50%)	39.02 (98%)	58.8(59%)	58.8(59%)
Revenue (Rs. Lakh)	148.47	177.71	268.23	518.12
Profit and Loss (Rs.)	0.24	2.53	12.01	1.20
Reserves and Surplus (Rs.)	-38.91	-36.37	24.36	23.15
Total Assets (Rs. Lakh)	0.59	0.79	6.26	12.18

Chapter 5
Performance and Impact of PCs in West Bengal

Introduction

West Bengal is one of the major agricultural states of India with the agricultural sector accounting for 18% of its GDP and 45% of workforce. It is the 4th largest state economy in India, the largest producer of paddy, jute, pineapple and brinjal and cabbage. It also has 14% of India's fish production and ranks second in its production in India. WB accounts for 20% of India's paddy production and 33% of potato being the second largest producer (Rani et al, 2018). It is also the second largest producer of tea and has the second largest cold storage capacity (Mondal et al, 2017). It has cropping intensity of 185 much above the national average of 142. It has six agroclimatic zones.

70% of its food grains area is under rice of three different seasons of aman, boro and aus with wheat and pulses taking only 4% and 3% of cropped area. The major non-food cereals include oilseeds, jute and potato (9%, 7% and 5% share in GCA each) respectively and vegetables account for 14% of India's total production. In fact, its rice production is 16% of India's total and oilseeds 7% of total and jute and mesta as high as 75% of India' total production. Potato production of the state makes almost 20% of India's total production. Rice and wheat have grown at a very high rate during the last three decades and higher than that in U.P and Punjab respectively. Potato too grew higher than that in Bihar and as high as in MP. The area under fruits and vegetables has increased from 12% in the late 1980s to 16.7% in 2014-15. It has irrigation intensity of 59% (Mondal et al, 2017) and mostly farmers use tubewells for irrigation in kharif and rabi (32% and 45% of GCA respectively) followed by canals (10% in each season) and tanks, rivers and wells (3-6%, 3-5% and 2-3% each) respectively.

As many as 97% holdings was marginal or small mostly marginal (90%) and there are no large farmers with only 2% farmers being semi-medium and o.2% medium. The area operated by S&M farmers is 85% and those by other categories only 15%. Therefore, land inequality compared with India average is only half and very low (0.31 versus 0.56 Ginni for India). More farmers lease in land than in India (14% compared with 10% in India) (GoI, 2010). The average operated land size is 0.77 hacs and farmer income is one of the lowest (27th rank) in India, below national average and above only that of Bihar. The farmers have rarely received MSP and harvest prices of paddy have been even lower than the cost of production during the last 10 years (Mondal et al, 2017). It had 478 FPOs majority of which were promoted by NABARD (296) and 182 by SFAC. Only 295 were farm produce based FPOs which is about 40% of all FPOs (Rani et al, 2018).

In this context, it is crucial to examine the role and potential of farmer PCs in enhancing farmer income or reducing production and marketing risk. The first section of this chapter profile and analyses the physical and financial performance of the case study PCs in a comparative manner. Section 2 examines member and non-member profile and the member impact from PC intervention. Section three compared the profile and performance of PCs organised by different promoters. Section four concludes the chapter.

5.1 Profile and Performance of PCs in West Bengal

It can be seen from Table 5.1 that in WB, most of the PCs had mobilised high %age of authorised capital except Shantiniketan, though authorised capital itself was small or modest in most cases (Rs. 10 lakh) except one PC (Hooghly) which had Rs. 25 lakh authorised capital. Further, their revenue remained low (< Rs. 50 lakh) except one case (Chhatna) which was mainly due to the fact it had a franchise of Sufal Bangla and therefore, its turnover could go up to Rs. 3 crore per annum. Therefore, they made negligible profit or net losses except the Chhatna PC which made a small profit after taking franchise of Sufal Bangla. Except Hooghly PC, most of them had a small size of membership which is problematic given the small size of land holdings in the state. This kind of small membership can't generate large equity capital and large volumes for viability.

Table 5.1: Profile and Performance of various PCs in WB

PC	Shimplapal Agro (IGS)				Chhatna Agro (IGS)				Hooghly Vegetable Growers (IGS)				Birbhum PCL (BKSL)				Shantiniketan (BKSL)			
Year	2015-16	2016-17	2017-18	2018-19	2015-16	2016-17	2017-18	2018-19	2015-16	2016-17	2017-18	2018-19	2015-16	2016-17	2017-18	2018-19	2015-16	2016-17	2017-18	2018-19
Autho. Cap (Lakh)	10	10	10	10	10	10	10	20	25	25	25	25	10	10	10	10	10	10	10	10
Paid up Cap (Lakh)	2.53 (25%)	3.17 (32%)	7.19 (71%)	9.71 (97%)	3.36 (34%)	3.36 (34%)	7.36 (74%)	13.36 (65%)	10 (40%)	20 (80%)	20 (80%)	20 (80%)	4.07(41%)	4.19(42%)	4.19(42%)	7.55(76%)	2.08(21%)	2.08(21%)	2.97(30%)	5.04(50%)
Revenue (Lakhs)	3.1	19.37	29.15	30.2	30.73	41	97.52	321.65	26.04	23.6	8.9	21.1	5.27	15.88	5.85	29.85	1.71	1.4	2.36	19.63
Profit (Loss) (Lakhs)	-0.46	1.04	0.65	1.46	-0.45	1.44	2.53	6.23	0.93	1.44	-1.27	0.16	0.88	0.57	0.34	1.04	2.58	-1.04	-4.37	3.99
Reserves & Surplus (Lakh)		1.43	1.31	4.16	0.76	2.6	3.95	9.65	2.25	3.7	2.42	2.54	0.88	1.46	1.8	2.85	2.58	1.53	-2.83	
Assets (Lakh)		0.77				0.58	1.72	8.26	0	0.28	0.19	3.4	1.09	0.88	1.49	1.49	0.76	0.58	0.8	0.75

5.2 Analysis of PC Member and Non-member Profile and Impact

83% of the members of the PCs in the state were male and the average age of the member farmers was 46 years with only 13% of them being illiterate. There was significant proportion (36%) which was middle standard literate followed by high school (27%). There were 5% under graduates and the similar proportion were graduates with only 9% primary literate (Table 5.2). 86% of the non-member farmers were men with an average age for all famers including women farmers being 44 years. 29% of the farmers were middle school literate. 23% high school and 10% graduates. The others were either illiterate (21%) or higher secondary or primary level literate (8% and 10%) respectively.

84% of them reported farming as primary occupation followed by petty business and salaried job with 5% each with only 3% reporting animal husbandry as the primary occupation and another 3% casual labour being their main source of livelihood. On the other hand, 56% did not report any secondary occupation and 16% reported it as farming, 9% handicrafts and 8% skilled labour. Only 3% reported animal husbandry and 6% casual labour (Table 5.3 and 5.4). 77% of the non-members reported farming as primary occupation with 11% reporting business as the primary occupation and 10% casual labour. Amongst secondary occupation reported by only 37% farmers farming again emerged as a major secondary occupation reported by 19% followed by business and labour at 8% and 10%. Surprisingly, animal husbandry did not come in as either primary or secondary occupation.

Table 5.2: Distribution of PC member and non-member farmers by education

Category	Members		Non-members	
Parameter > Level of Education	No. of farmers	% of all	No. of farmers	% of all
Illiterate	8	12.5	13	20.97
Primary	6	9.38	6	9.68
Middle School	23	35.94	18	29.03
High School	17	26.56	14	22.58
Higher Secondary	4	6.25	5	8.06
Under Grad	3	4.69	0	0
Graduate	3	4.69	6	9.68
Total	64	100	62	100

Table 5.3: Distribution of PC member and non-member farmers by Primary Occupation

Category	Members		Non-members	
Parameter > Primary Occupation	No. of farmers	% of all	No. of farmers	% of all
Agriculture	54	84.38	48	77.42
Animal husbandry	2	3.13	0	0
Labourer	2	3.13	6	9.68
Skilled Worker	3	4.69	1	1.61
Business	3	4.69	7	11.29
Total	64	100	62	100

Table 5.4: Distribution of PC member and non-member farmers by Secondary Occupation

Category	Members		Non-members	
Parameter > Secondary Occupation	No. of farmers	% of all	No. of farmers	% of all
Agriculture	10	15.63	12	19.35
Animal husbandry	2	3.13	0	0
Handicraft	6	9.38	0	0
None	36	56.25	39	62.9
Service	1	1.56	0	0
Skilled Labour	5	7.81	0	0
Labourer	4	6.25	6	9.68
Business	0	0	5	8.06
Total	64	100	62	100

56% of the members had received share certificates and 88% of them did not report membership of any other group or collective except a few being members of the PACS. 48% of the members relied exclusively on PC for agricultural information with 27% depending on other farmers and friends. PC also figured along with friends and relatives and mobile groups besides ADO and dealer in another 19% cases.

The members were mostly marginal (72%) and small (20%) in their land ownership with average size of owned land being 1.99 acres and operated just 2.32 acres (Table 5.5) with only 8% being semi medium landholders who accounted for 26% of land with the rest 75% being with the small and marginal category farmers (Table 5.6). The operated land was also distributed similarly with 91% farmers operating marginal or small farms accounting for 73% of the cultivated area and 9% semi medium farmers operating 27% of the land (Table 5.7). But, members were larger than their non-member counterparts who had average owned land of 1.29 acres and operated farm of 1.61 acres (tale 5.5).

Table 5.5: Average Owned and Operated Land of PC Members and Non- Members

Average Land (acres)	Members	Non-Members
Owned	1.99	1.29
Operated	2.32	1.61

Table 5.6: Distribution of PC member and non-member farmers by Owned Land

Category	Members				Non-Members			
Parameter > Owned Land (Acres)	No. of farmers	% of all	Owned Land	% of all	No. of farmers	% of all	Owned Land	% of all
Marginal	46	71.88	53.45	41.81	55	88.71	57.96	72.43
Small	13	20.31	41.72	32.63	6	9.68	17.06	21.32
Semi-medium	5	7.81	32.67	25.56	1	1.61	5	6.25
Total	64	100	127.84	100	62	100	80.02	100

Table 5.7: Distribution of PC member and non-member farmers by Operated Land

Category	Members				Non-Members			
Parameter > Operated Land (Acres)	No. of farmers	% of all	Operated Land	% of all	No. of farmers	% of all	Operated Land	% of all
Marginal	41	64.06	55.46	37.3	50	80.65	61.34	61.35
Small	17	26.56	52.57	35.35	11	17.74	33.64	33.65
Semi-medium	6	9.38	40.67	27.35	1	1.61	5	5
Total	64	100	148.7	100	62	100	99.98	100

Table 5.8: Distribution of PC member and non-member farmers by livestock Owned

Category	Members					Non-Members				
Parameter > Livestock	No. of farmers	% of all	No of Animals	% of animals	Average Animals per farmer	No. of farmers	% of all	No of Animals	% of animals	Average Animals per farmer
Buffalo	2	3.13	5	1.81	2.5	1	1.61	2	2	1.03
Cow	46	71.88	135	48.91	2.93	33	53.23	95	2.88	48.72
Goat	26	40.63	129	46.74	4.96	24	38.71	94	3.92	48.21
Sheep	1	1.56	4	1.45	4	0	0	0	0	0
Oxen	2	3.13	3	1.09	1.5	2	3.23	4	2	2.05
Total			276					195		100

The land holdings of non-members were marginal with an average own land of 1.29 acres for farmer and operated land of 1.61 acres per household. There was significant leasing in land to the extent of 0.30 acres on an average. In terms of owned land, 99% of the farmers were marginal (89%) or small (10%) with the rest also being only semi medium owners. 94% of the owned land was with these marginal and small holders and another 6% with the semi medium farmers. There was not much change in the operated land distribution as well as 99% farmers were in the category of marginal and small operating 95% of the land. Still there was only one

farmer to the semi medium category who operated 5% of the land of total operated of the sample farmers.

69% of the member farmers had tube wells either owned or shared with electric connections or diesel engine based with another 9% reporting ownership of wells and 11% reported buying of water from other tube well owners. Only 6% had access to canal water and 3% to ponds. For non-members, there were various sources of irrigation including canal, river, submersible tube wells operated by electricity or diesel or just wells and many of them shared or rented in terms of farmers buying water for irrigation. Most of the livestock comprised of cows, and goat accounting for 50% each of the total besides poultry being an important source of livelihood. Cows and goats were owned by 53% and 39% of the household on an average, there were 3 cows and 4 goats per household.

In terms of livestock ownership, 72% of the members had cows and 41% goat with only 3% each having bullocks or buffaloes. Most of the livestock was equally divided with cows and goats in terms of numbers of livestock (Table 5.8). However, 28% farmers also had poultry birds with an average ownership of 10 birds. The average ownership of cows and goats per household was 3 and 5 each. Only one member reported owning 4 sheep.

The Kharif cropping pattern was mostly dominated by paddy and vegetables with 95% members growing paddy and 44% vegetables. These two crops accounted for 97% of the seasons area. The only other Kharif crop reported was jute grown by 3% farmers accounting for 2% of area. On the other hand, in Rabi season, it was mustard grown by 64% farmers and potato grown by 70% farmers besides onion by 30% and vegetables by 48%. Mustard and potato accounted for 26% each of the season's area, followed by vegetables at 25% and onion at 50%. Wheat grown by only 3% farmers accounted for 1% of the area and green and red gram by another 6% farmers accounted for 3% of the area (Table 5.9, and 5.10).

The major summer crops grown by significant number of member farmers included paddy on 65% of the season's area by 44% farmers, vegetables on 20% of the area by 45% of the farmers. The other significant crops in the season are sesame grown on 8% of the area by 9% of the farmers. Fruits and jute each grown by 8% farmers accounted for 2% and 7% of the cropped area in summer (Table 5.11). Overall, paddy accounted for 59% of the GCA followed by vegetables 15% of the area excluding potato and onion which accounted for another 7% and 4% of the gross cropped area. The gross cropped area was almost equally divided across three seasons with Kharif accounting for 44%, summer 29%, and Rabi 27%.

The average cropping intensity of non-member was 2.09 which was slightly lower than in the case of members (2.2). The Kharif cropping pattern of non-members was mostly dominated with paddy with 83% of the area being this crop grown by 94% farmers. Another major crop was vegetables accounting for 15% of the Kharif area. In Rabi, it was potato which took 20% of the seasons area followed by vegetables at 31% and mustard at 8% of the total area. 40-50% of the farmers had grown potato, vegetables or mustard each. The major summer crops were paddy which took 42% of the area, and vegetables another 28% of the total cropped area in summer season. The only other significant crop in this season was sesame accounting for 5% of the total cropped area of the season. Overall, it was paddy with 48% share, potato at 11% and vegetables at 22% of the gross cropped area. Interestingly, the gross cropped area was almost equally divided between three seasons with Kharif at 43%, Rabi at 32% and summer 25% of the GCA.

Table 5.9: Kharif cropping pattern of PC Member and Non-Member Farmers

Category>	Members						Non- Members					
Parameter> Crop	Farmers	% Farmers	Kharif Area	Avg Area	%Kharif Area	% Total Area	Farmers	% Farmers	Kharif Area	Avg Area	% Kharif Area	% Total Area
Jute	2	3.13	2	1.00	1.40	0.61	2	3.23	1	0.50	1.07	0.48
Jute, Paddy	1	1.56	0.67	0.67	0.47	0.20	0					
Maize	0						1	1.61	0.5	0.50	0.53	0.24
Paddy	61	95.31	126.12	2.07	88.05	38.48	58	93.55	77.73	1.34	82.97	37.26
Sesame	0						1	1.61	0.33	0.33	0.35	0.16
Vegetables	28	43.75	14.44	0.52	10.08	4.41	21	33.87	14.12	0.67	15.07	6.77
Total	64	100	143.23	2,23	100	43.70	62	100	93.68	1.51	100	44.91

Table 5.10: Rabi cropping pattern of PC Member and Non-Member Farmers

Category>	Members						Non-Members					
Parameter> Crop	Farmers	% Farmers	Rabi Area	Avg Area	% Rabi Area	% Total Area	Farmers	% Farmers	Rabi Area	Avg Area	% Rabi Area	% Total Area
Fruits	3	4.69	1.31	0.44	1.48	0.40						
Gram	6	9.38	2.51	0.42	2.83	0.77						
Jute	1	1.56	0.67	0.67	0.76	0.20	1	1.61	0.59	0.59	0.91	0.28
Mustard	41	64.06	23.46	0.57	26.49	7.16	33	53.23	17.01	0.52	26.23	8.15
Onion	19	29.69	13.49	0.71	15.23	4.12	5	8.06	3.17	0.63	4.89	1.52
Paddy	1	1.56	1	1.00	1.13	0.31	3	4.84	4.66	1.55	7.19	2.23
Potato	45	70.31	22.69	0.50	25.62	6.92	20	32.26	12.55	0.63	19.36	6.02
Potato/Pumpkin							1	1.61	3.3	3.30	5.09	1.58
Sesame	1	1.56	1	1.00	1.13	0.31						
Sunflower	2	3.13	0.26	0.13	0.29	0.08						
Vegetables	29	45.31	21.18	0.73	23.91	6.46	30	48.39	21.97	0.73	33.88	10.53
Wheat	2	3.13	1	0.50	1.13	0.31	4	6.45	1.59	0.40	2.45	0.76
Total	64	100	88.57	1.38		27.02	62	100	64.84	1.04		31.08

Table 5.11: Summer cropping pattern of PC Member and Non-Member Farmers

Category>	Members						Non-Members					
Parameter> Crop	Farmers	% Farmers	Summer Area	Avg Area	%Summer Area	% Total Area	Farmers	% Farmers	Summer Area	Avg Area	%Summer Area	% Total Area
Fruits	5	7.81	2.01	0.40	2.09	0.61	4	6.45	6.62	1.66	13.22	3.17
Jute	5	7.81	6.32	1.26	6.59	1.93	2	3.23	1	0.50	2.00	0.48
Jute, Vegetables	1	1.56	0.67	0.67	0.70	0.20						
Paddy	28	43.75	62.61	2.24	65.25	19.10	20	32.26	26.94	1.35	53.78	12.91
Sesame	12	18.75	8.02	0.67	8.36	2.45	5	8.06	3	0.60	5.99	1.44
Vegetables	29	45.31	16.32	0.56	17.01	4.98	18	29.03	12.53	0.70	25.01	6.01
Total			95.95			29.28			50.09			24.01

The member farmers reported buying seeds from dealer in 36% cases, from PC in 19% cases and dealer and PC both in 16% cases. Only 5% farmers bought seeds from PACs and others reported various combinations of dealer and PACs or dealer and local farmer or PACs and local farmer (Table 5.13). Similarly, 45% of them bought chemical fertilisers from dealers and 28% from PC and only 2% from dealer and PACs and 6% from both dealer and PC. Similarly, 42% bought chemical pesticides from dealer with 13% reported it from the PC. In fact, 42% reported buying no chemical pesticides (Table 5.14). Bio fertilisers were bought only by 28% farmers and mostly from dealers, other farmers and the PC. There were even lesser number of farmers buying biopesticides (23%) again mostly from dealers and PC (Table 5.15). The reasons for members buying from the PCs are given in Table 5.15A.

Most of the non-member farmers (60%) bought seeds from the dealers and local farmers (16%) with PACs and PC accounting for only 3% and 2% of the total and in some cases being another source along with dealers and local farmers. 73% of them bought chemical fertiliser from dealers with PACS accounting for 5% and the PC 8% of the total. 10% did not use chemical fertilisers and 5% bought it from the agriculture department outlet. In chemical pesticides, 44% farmers did not report using them with 48% buying it from the dealers and 8% from the PCs. The bio-pesticides were used by only 24% of the farmers which mostly bought from the dealers (18%) of the total and only 6% from the PCs.

59% members could not mention the name of the PC with the other either not knowing or not being able to mention it correctly. Most of them (89%) could not report the number of shares held and the value of shares. 45% of the members did not know the owner of the PC and another 38% reported PC employees as the owners and 8% BOD besides 3% reporting it as promoting agency and 6% government as being the owner of the PC. In 52% cases, it was PC employees who had influenced them to become members. In other, 27% cases, it was other farmers, and in 20% cases it was promoters of the PC who had persuaded them to become members.

84% of the members were not fully aware of the various activities being carried out by PCs with others mostly reporting about crop practices, input sales, and subsidies. 64% of them reported that the meetings of the PCs are held every month with another 11% reported it to be quarterly and 9% weekly. However, only 48% attended all the meetings and 31% only sometimes and 13% occasionally. 5% never attended any meeting. The major topic of discussion in these meetings were reported to be agricultural practices and technology in 61% cases and seeds and crop procurement in another 5% cases with other reporting various combinations of these another issues. 58% did not ask any questions and 16% mainly raised questions and inquiries about farming and 5% about farm inputs. They were all satisfied with the response received from the PC.

77% of the members had no complaint against the services provided by the PC with others reporting an adequate availability of inputs and not at right time as the major problems. 70% of them also did not report to have received any information about government schemes and subsidies with others reporting various schemes about seeds, crop insurance, credit, and agricultural machinery about which the information was provided. In only 6% cases, it was only agricultural machinery and loans which were reported to be specific subsidies availed by PC members.

89% wanted to continue as member of the PC due to good services and facilities subsidising inputs, availability and such other reasons with only 5% not being satisfied with the services and therefore, not sure they would continue as members.

So far as suggestions for improving the functioning of the PCs was concerned, farmers mostly suggested procurement of their farm produce (9%), timely availability of inputs (9%), irrigation (3%), and agriculture machinery and irrigation another 5%.

The farmers reported significant improvements in moving from good to very good in terms of quality, cost and availability of inputs after the membership of the PC. In terms of cropping pattern shift, there were significant increases in area under vegetables, and fruits and a decline in area under paddy and sesame. Farmers also reported yield increases in vegetables and fruit including chillies and potato besides gram. The output sold had increased significantly in vegetables especially pumpkin and even paddy due to yield increase especially Kharif paddy. However, they also reported higher transaction cost in the case of vegetables, and fruits. The sale price realisation had gone up in most of the vegetables and to some extent in fruits as well. Further, time taken to receive payment had come down across commodity with exception of only potato. So far as use of different marketing channels are concerned, there was higher use of PC channel in vegetables both in terms of number of farmers as well as volume of output sold. But still most of the farmers sold in wholesale ranging from 50% in wheat to as high as 100% in case of vegetables and fruits. This APMC channel was reported to be used only in case of paddy and wheat.

96% of the non-member farmers were not member of any other collective with only 3% reporting membership of PACS. 2/3rd of them accessed agricultural information from friends, relatives and other farmers with only 1% availing it from the PC. In fact, 10% access it from the point of purchase i.e. dealers and 5% from the agricultural department office.

41% of the non-members had no knowledge about the PC and 74% did not know who owned it with only 6% thinking it is owned by farmers and the other 7% reporting promoters or employees as the owners besides 4% thinking it was owned by promoting agency. In fact, 59% of them have not been provided the information by any source with 21% receiving it from the employees of the PC. 11% from PC meetings and 6% from promoters. 80% of them were not aware of the activities carried by it with only 14% knowing about the supply of inputs including potato seeds. 67% of them had never participated in any meetings of the PC and 14% reported these meetings related to the agriculture. 95% of them had no negative experience with the PC with others thinking that timing and quality of inputs is not appropriate and there are no subsidies be given. 29% of them desired to become members and 71% want to become members because either they had no information or not enough land.

The farmers reported significant improvements in input quality, cost, and availability due to the presence of PCs. On the output side, there was again good improvement on output price being realised by the farmers. However, there were no cropping pattern change due to the presence of PCs although farmers reported significant improvement in yield of sesame and better price realisation in vegetables.

So far as farmers channel preferences were concerned, there was not much change where a few farmers had used the PC to sell their paddy and potato crops but that was so even three years before.

Table 5.12: Distribution of PC member and non-member farmers by Source of general agricultural knowledge

Category	Members		Non-members	
Parameter > Source	No. of farmers	% of all	No. of farmers	% of all
Friends/ Neighbours/ Relatives	17	26.56	43	69.35
Friends/ Neighbours/ Relatives, point of purchase	1	1.56	0	0
Friends/ Neighbours/ Relatives, PC	5	7.81	0	0
Friends/ Neighbours/ Relatives, ADO	1	1.56	1	1.61
Friends/ Neighbours/ Relatives, ADO, Krishi college	1	1.56	0	0
PC	31	48.44	1	1.61
PC, Mobile Groups	2	3.13	0	0
PC, ADO	4	6.25	0	0
ADO, Point of Purchase	1	1.56	0	0
PC, Point of Purchase	1	1.56	0	0
Point of Purchase	0	0	5	8.06
Other FPO	0	0	4	6.45
Mobile/ Mobile Groups	0	0	2	3.23
ADO	0	0	3	4.84
ADO, Panchayat	0	0	1	1.61
Friends/ Neighbours/ Relatives, Other FPO	0	0	2	3.23
Total	64	100	62	100

Table 5.13: Distribution of PC member and non-member farmers by Source of Seeds

Category>	Members		Non-members	
Parameter > Source	No. of farmers	% of all	No. of farmers	% of all
Dealers	23	35.94	37	59.68
Local Farmer	3	4.69	10	16.13
PACS	3	4.69	2	3.23
PC	12	18.75	1	1.61
Dealer, Local Farmer	2	3.13	2	3.23
Dealer, Local Farmer, ADO	1	1.56	0	0
Dealer, PACS	5	7.81	1	1.61
Dealer, PC	10	15.63	1	1.61
Dealer, ADO	2	3.13	1	1.61
Local Farmer, PACS	2	3.13	1	1.61
PC,ADO	1	1.56	0	0
Local Farmer, PC	0	0	1	1.61
ADO	0	0	6	9.68
Total	64	100	62	100

Table 5.14: Distribution of PC member and non-member farmers by Source of Chemical Inputs

Type of Input> Category>	Fertilizers				Pesticides			
	Members		Non-members		Members		Non-members	
Parameter > Source	No. of farmers	% of all	No. of farmers	% of all	No. of farmers	% of all	No. of farmers	% of all
Dealer	29	45.31	45	72.58	27	42.19	30	48.39
PACS	7	10.94	3	4.84	1	1.56		
PC	18	28.13	5	8.06	8	12.5	5	8.06
Agri Dept	1	1.56	3	4.84	0	0	0	0
Dealer, PACS	1	1.56	0	0	0	0	0	0
Dealer, PC	4	6.25	0	0	1	1.56	0	0
Doesn't buy	4	6.25	6	9.68	27	42.19	27	43.55
Total	64	100	62	100	64	100	62	100

Table 5.15: Distribution of PC member and non-member farmers by Source of Bio Inputs

Type of Input> Category	Biofertilizers				Biopesticides			
	Members		Non-members		Members		Non-members	
Parameter > Source	No. of farmers	% of all	No. of farmers	% of all	No. of farmers	% of all	No. of farmers	% of all
Dealers	8	12.5	10	16.13	9	14.06	11	17.74
Local Farmers	3	4.69	3	4.84	1	1.56	0	0
PACS	1	1.56	0	0	1	1.56	0	0
PC	5	7.81	1	1.61	3	4.69	4	6.45
ADO	1	1.56	0	0	1	1.56	0	0
Doesn't Buy	46	71.88	48	77.42	49	76.56	47	75.81
Total	64	100	62	100	64	100	62	100

Table 5.15A: Input wise Reasons for purchase of inputs by member farmers from PCs

Input>	Seeds		Chem fert		Chemical pesti		biofert		biopesti	
Parameter Reasons	No.	% in total	No.	% in total	No.	% in total	No.	% in total	No.	% in total
Better Quality	6	24.00	7	31.8	3	33.3	2	40	2	66.7
Better Quality, Easy Accessibility, Lower Cost	3	12.00	1	4.6	0		1	20	0	
Better Quality, Easy Accessibility, Lower Cost,No other Source	1	4.00			0		0		0	
Better Quality, Lower Price	2	8.00			0		0		0	
Better Quality, Timely Availability	3	12.00	1	4.6	0		0		0	
Compulsary	1	4.00								
Easy Accessibility, Lower Cost	2	8.00	3	13.6	3	33.3	1	20	1	33.3
Easy Accessibility, Lower Cost,Lower Price	1	4.00	1	4.56	0		0		0	
Fair Deal, More Reliable	1	4.00			0		0		0	
Lower Price	3	12.00	7	31.8	2	22.2	1	20	0	
Lower Price, No other Source	1	4.00	1	4.6	1	11.1	0		0	
Timely Availability	1	4.00	1	4.6	9	100	0		0	
Total	25	100.00	22	100			5	100	3	100

Table 5.16: Distribution of PC member and non-member farmers by their knowledge of initiatives taken by PC

Category	Members		Non-members	
Parameter > PC Initiatives	No. of farmers	% of all	No. of farmers	% of all
Agricultural Techniques	2	3.13	1	1.61
Don't Know	1	1.56	50	80.65
HYV Seeds, Pesticide usage	1	1.56	0	0
Input Sales	2	3.13	5	8.06
Mustard Seeds	1	1.56	0	0
None	54	84.38	1	1.61
Seeds, Linkages with ADO	1	1.56	0	0
Subsidized Inputs	1	1.56	2	3.23
Vermicompost	1	1.56	0	0
Facility and accessibility	0	0	1	1.61
Increasing Yield	0	0	1	1.61
Pond wall	0	0	1	1.61
Total	64	100	62	100

Table 5.17: Distribution of PC members and non-member by knowledge of PC name

Category>	Member		Non-Member	
Parameter> Knowledge of PC Name	No of Farmers	% of Total	No of Farmers	% of Total
Correct Name	38	59.38	36	58.06
Wrong Name	7	10.94	0	0
Don't Know	19	29.69	26	41.94
Total	64	100	62	100

Table 5.18: Distribution of PC members and non-members by knowledge of PC owner

Category>	Member		Non-Member	
Parameter> Knowledge of PC Owner	No of Farmers	% of Total	No of Farmers	% of Total
Don't Know	29	45.31	45	72.58
BOD	5	7.81	5	8.06
PC Employees	24	37.50	5	8.06
Promoting Agency	2	3.13	3	4.84
Government	4	6.25	0	0
NGO	0	0	1	1.61
Farmers	0	0	3	4.84
Total	64	100	62	100

Output side impact of PCs

15 (25%) members had sold to PC vegetables and 2 paddy and 3 fruits each respectively (3% each). Three years before, 11 out of 15 had sold in wholesale mandi and two did not sell at all. This had increased from just two farmers selling to PCs three years before (5%) to 20 (31%). Only one non-member had sold paddy and two potatoes in the past to the PCs.

After the PC intervention, the area under fruits and vegetables grew significantly (18 and 41% respectively) and that under paddy declined and farmer members even realised 30-75% higher prices in these crops including in paddy compared with pre-PC situation.

Member perceptions

77% of PC members had no dislike of any of services offered by the PCs with 6% only mentioning inadequate quantity of supplies of purchases. 70% also said they did not receive any information from PCs about government schemes or subsidies but 19% also received information about subsidy schemes like farm equipment or seeds or crop insurance or other inputs. But, there was no special subsidy for PC members in 94% cases. 84% members were not aware of any PC initiatives while others knew about input supplies, bio-inputs and new farming technologies and techniques.

About 30% farmers attended monthly meetings every time and another 27% sometimes only. 91% members wanted to continue as members of the PC for various reasons but mainly as it offered good services and lower cost inputs. Only 9% were not keen to continue as they either did not use its services. 67% also were keen to encourage others to become members with 30% feeling that enough members had already joined the PC.

53% of them who suggested any improvements suggested better procurement, timely availability of inputs and services and even loans besides irrigation facilities support.

5.3 Promoter wise comparison

IGS promoted 4 PCs in Bankura, 5 each in Purulia and Midnapur districts of West Bengal. All were working and were registered in 2015. The Midnapur (Datun PC) was supposed to be the best as it had fertiliser business. The Damodar PC in Bankura also runs Sufal Bangla supermarkets like its counterpart - Chhatna PC. Simlapal PC was not doing well whereas the other two in the district were doing well largely due to Sufal Bangla. All four PCs in Bankura promoted by IGS had availed of matching equity grant partly (Rs.2.326 lakh each) from SFAC.

5.3.1 Profile of IGS and BKSL PC members

39% of the member farmers of IGS promoted PC's were educated up to High school as against 14 % of those of BKSL PC's. The member farmers of IGS had an educational level up to Middle level in case of 33% whereas it was 52.18 % for BKSL PC member farmers. BKSL member having education up to Higher secondary were 14 % but only 3% of IGS PC members has such education (Table 5.19).

Agriculture was the primary occupation of almost all of IGS PC member farmers. But in case of IGS, 62% of members reported agriculture as a primary occupation. The remaining were engaged in skilled labour (14%), animal husbandry (9.5%), business (9.5 %), and labour (5 %). (Table 5.20)

Most of the member farmers reported no secondary occupation. Only 10 % BKSL PC members has animal husbandry as secondary occupation. Agriculture was the secondary occupation of only 3% for IGS but as many as 38% for BKSL PC members. (Table 5.21).

Table 5.19: Distribution of IGS and BKSL PC member farmers by education

Category >	IGS		BKSL	
Parameter > Level of education	No. of farmers	% of all	No. of farmers	% of all
Graduate	2	6.06	1	4.76
High School	13	39.39	3	14.29
Higher Secondary	1	3.03	3	14.29
Illiterate	5	15.15	1	4.76
Middle	10	30.3	9	42.86
Primary	1	3.03	2	9.52
Under Grad	1	3.03	2	9.52
Total	33	100	21	100

Table 5.20: Distribution of IGS and BKSL PC member farmers by Primary Occupation

Category	IGS		BKSL	
Parameter > Primary Occupation	No. of farmers	% of all	No. of farmers	% of all
Agriculture	32	96.97	13	61.9
Animal Husbandry	0	0	2	9.52
Business	0	0	2	9.52
Skilled Labour	0	0	3	14.29
Labourer	1	3.03	1	4.76
Total	33	100	21	100

Table 5.21: Distribution of IGS and BKSL PC member farmers by Secondary Occupation

Category	IGS		BKSL	
Parameter > Secondary Occupation	No. of farmers	% of all	No. of farmers	% of all
Animal Husbandry	0	0	2	9.52
Skilled Labour	4	12.12	2	9.52
Labourer	3	9.09	1	4.76
Agriculture	1	3.03	8	38.1
None	25	75.76	8	38.1
Total	33	100	21	100

The average owned land and operational holding of IGS PC members was found to be 1.84 acre and 2.06 acre, respectively whereas it was 2.51 acres and 3.06 acres, for BKSL farmers. This shows that BKSL PC member farmers were relatively large in both owned and operated land (Table 5.22)

Most of the IGS member farmers fall in the category of marginal farmers (73%) as owners followed by small (21%) and semi- medium farmers (6%). However, in case of BKSL farmers 62% members farmer were marginal farmers followed by small farmers (24%) & semi-medium (14 %) (Table 5.22). As far as actual farm size was concerned, small (46%) & semi-medium (39%) farmers for IGS & BKSL, respectively. Similarly, in the case of operated land holding, 70% were marginal farmers followed by small farmers (24 %) & semi- medium farmers (6%) for IGS member farmers. Semi- medium farmers were the largest operated land group 45% of the total land in case of BKSL member farmers (Table 5.23 and 5.24).

Table 5.22: Average owned and operated land holding of members of IGS and BKSL PCs

Promoter> Average Land (acres)	IGS	BKSL
Owned	1.84	2.51
Operated	2.06	3.06

Table 5.23: Category wise distribution of IGS and BKSL PC members by land owned

Category	IGS				BKSL			
Parameter > Land (Acres)	No. of farmers	% of all	Owned Land	% of all	No. of farmers	% of all	Owned Land	% of all
Marginal	24	72.73	26.49	38.53	13	61.9	15.99	30.28
Small	7	21.21	29.93	43.53	5	23.81	16.46	31.18
Semi-Medium	2	6.06	12.33	17.93	3	14.29	20.34	38.53
Total	33	100	68.75	100	21	100	52.79	100

Table 5.24: Category wise distribution of IGS and BKSL PC members by operated land

Category	IGS				BKSL			
Parameter > Operated Land (Acres)	No. of farmers	% of all	Operated Land	% of all	No. of farmers	% of all	Operated Land	% of all
Marginal	23	69.7	31.11	45.58	10	47.62	14	21.79
Small	8	24.24	25.49	37.34	7	33.33	21.25	33.07
Semi-Medium	2	6.06	11.66	17.08	4	19.05	29.01	45.14
Total	33	100	68.26	100	21	100	64.26	100

Table 5.25: Distribution of IGS and BKSL PC members by livestock ownership

Category	IGS					BKSL				
Parameter> Livestock	No. of farmers	% of all	No of Animals	% of animals	Average Animals per farmer	No. of farmers	% of all	No of Animals	% of animals	Average Animals per farmer
Cow	28	84.85	72	53.73	2.57	12	57.14	49	56.98	4.08
Buffalo	2	6.06	5	3.73	2.5	0	0	0	0	0
Goat	12	36.36	54	40.3	4.5	7	33.33	37	43.02	5.29
Oxen	2	6.06	3	2.24	1.5	0	0	0	0	0
Total	33	100	134	100		21	100	86	100	

The highest share in the livestock population was of cattle followed by goat in both IGS & BKSL PC members. The average number of cows & goats owned by each farm was 2.57 and 4.5 respectively, for IGS members. For BKSL, average number of cow and goat per household was reported to be 4.08 and 5.29, respectively. It was observed that no members of BKSL PCs owned buffalo or oxen (Table 5.25).

Member farmers exhibited a pattern in which seed was purchased from a single source or through a combination of sources. The most trusted source was found to be dealers & PCs- in both types of PCs (IGS and BKSL). Other major sources were dealers and PCs (15%) and dealer and PACS (12 %) for IGS. In case of BKSL, major sources were dealers (23%), Producer companies (29 %) and dealers and PCs (19%) (Table 5.26)

Table 5.26: Distribution of IGS and BKSL PC member farmers by Source of Seed

Promoter>	IGS		BKSL	
Parameter > Seed Source	No. of farmers	% of all	No. of farmers	% of all
Dealers	10	30.3	5	23.81
PC	6	18.18	6	28.57
Local Farmers	2	6.06		0
PACS	2	6.06	1	4.76
Dealers, PACS	4	12.12	1	4.76
Dealers, PC	5	15.15	4	19.05
Local Farmers, PACS	2	6.06	0	0
Dealer, Other FG	1	3.03	0	0
Dealer, Local Farmers, DOA	1	3.03	0	0
Dealers, Local Farmers	0	0	1	4.76
Dealers, DOA	0	0	2	9.52
PC, DOA	0	0	1	4.76
Total	33	100	21	100

More than half of the member farmers of IGS purchased chemical fertilizers from dealers followed by PACS (15%), PC (12%) and dealers & PC (12%). The member farmers of BKSL preferred PC (67%) followed by dealers (14%) and PACS (10%). Dealers and PCs were equally preferred sources for chemical pesticide with the rest being non- user of chemical pesticides. (Table 5.27).

Table 5.27: Distribution of IGS and BKSL PC member farmers by Source of Chemical Inputs

Input> Promoter>	Fertilizers				Pesticides			
	IGS		BKSL		IGS		BKSL	
Parameter > Chemical Input Source	No. of farmers	% of all	No. of farmers	% of all	No. of farmers	% of all	No. of farmers	% of all
Dealers	17	51.52	3	14.29	16	48.48	7	33.33
PACS/DCS	5	15.15	2	9.52	1	3.03		
PC	4	12.12	14	66.67	1	3.03	7	33.33
Dealers & PACS	1	3.03	0	0	0	0	0	0
Dealers & PC	4	12.12	0	0	1	3.03	0	0
Agri Dept	0	0	1	4.76	0	0	0	0
Doesn't buy	2	6.06	1	4.76	14	42.42	7	33.33
Total	33	100	21	100	33	100	21	100

Bioinputs were used only by a handful of members. The use of biopesticides was more prominent than biofertilizers. 82 % of IGS members were not using any of the bio-inputs whereas in the case of BKSL the non-usage was 48% for Bio fertilizers and 67 % for Biopesticide. The major sources for those who use these bio inputs were dealers, producer companies, PACS and local farmers. (Table 5.28)

Table 5.28: Distribution of IGS and BKSL PC member farmers by Source of bio-input

Type of bioinput> Category	Biofertilizers				Biopesticides			
	IGS		BKSL		IGS		BKSL	
Parameter > Source	No. of farmers	% of all	No. of farmers	% of all	No. of farmers	% of all	No. of farmers	% of all
PC	1	3.03	4	19.05	1	3.03	2	9.52
Dealers	3	9.09	4	19.05	3	9.09	4	19.05
Local Farmers	1	3.03	2	9.52	1	3.03	0	0
PACS	1	3.03	0	0	1	3.03	0	0
Agri Dept	0	0	1	4.76	0	0	1	4.76
Doesn't Buy	27	81.82	10	47.62	27	81.82	14	66.67
Total	33	100	21	100	33	100	21	100

The average cropping intensity of BKSL member farmers (2.4) which was higher than IGS member farmers (1.95)

The members of BKSL PCs had higher cropping intensity than that of IGS PCs members, so the gross cropped area of BKSL member farmers exceeds that of IGS member farmers (Table 5.25). The average Kharif, Rabi and Zaid (Summer) was thus much higher of BKSL members than that by IGS PC members. (Table 5.29)

In case of IGS farmers, the diesel & electric engine was used by 33% and 27% member farmers, respectively. On the contrary, in case of BKSL PC members, 57% members were using electrically powered tube wells followed by diesel operated tube wells (43%) (Table 5.30)

Table 5.29: Season wise Average Cropped Area of members of IGS and BKSL PCs

Category Parameter > Season	IGS	BKSL
Kharif	1.91	3.04
Rabi	1.25	1.66
Summer	0.92	3.07

Table 5.30: Distribution of IGS and BKSL PC member farmers by source of Irrigation

Parameter > Source of irrigation	Source of Energy	IGS		BKSL	
		No. of farmers	% of all	No. of farmers	% of all
Rented	NA	3	9.09	0	0
Canal	NA	2	6.06	0	0
Pond	NA	2	6.06	0	0
Tube well	Electric Motor	9	27.27	12	57.14
Tube well	Diesel Engine	11	33.33	9	42.86
Well	Diesel Engine	6	18.18	0	0
Total		33	100	21	100

The kharif cropping was dominated by paddy and vegetables crops. 94 % of the farmers were reported to have cultivated paddy followed by vegetables (42 %) and cucumber (18%) for IGS members. Paddy (79%) and vegetables (13%) were two major crops occupying large area in total kharif acreage. Paddy was found to be significant crop in the cropping pattern of members occupying 38 % of total acreage. Similar pattern was observed for BKSL members as well where paddy (95%) was grown by most of the farmers followed by vegetables (14 %) and chilly (14 %). Paddy is the most important crop occupying 95% of total kharif acreage and 39 % of total area (Table 5.31).

The number of crops grown in rabi season were higher than the kharif season. Crops taken by most of the IGS farmers were potato (66%), mustard (58%), onion (36%) and vegetables (33%). Cucumber and gram were two additional major crops grown by BKSL PC members with the rabi acreage of 7 % and 6%, respectively. Though the acreage was low but 24 % of the members reported to have cultivated these crops (Table 5.32).

Diversity in the crop grown during summer (zaid) season is higher for IGS PC member than BKSL PC members. But in the case of BKSL, acreage is highly skewed towards two crops viz. paddy and vegetable occupying 95 percent of total summer area (Table 5.33)

Table 5.31: Kharif cropping pattern of IGS and BKSL PC members

Category	IGS						BKSL					
Parameter > Kharif Crops	Farmers	% total farmers	Cropped Area	% Kharif Area	% Total Area	Average Area	Farmers	% total farmers	Cropped Area	% Kharif Area	% Total Area	Average Area
Cucumber	6	18.18	1.99	3.15	1.5	0.33	0	0	0	0	0	0
Jute	2	6.06	1.99	3.15	1.5	1	0	0	0	0	0	0
Jute, Paddy	1	3.03	0.67	1.06	0.5	0.67	0	0	0	0	0	0
Paddy	31	93.94	50.17	79.47	37.76	1.62	20	95.24	60.76	95.1	39.42	3.04
Vegetables	14	42.42	8.31	13.16	6.25	0.59	3	14.29	1.97	3.08	1.28	0.66
Chilli	0	0	0	0	0	0	3	14.29	1.16	1.82	0.75	0.39
Total	33	100	63.13		47.51	1.91	21	100	63.89		41.45	3.04

Table 5.32: Rabi cropping pattern of IGS and BKSL PC members

Category	**IGS**						**BKSL**					
Parameter > Rabi Crops	Farmers	% total farmers	Cropped Area	% Rabi Area	% Total Area	Average Area	Farmers	% total farmers	Cropped Area	% Rabi Area	% Total Area	Average Area
Cucumber	5	15.15	1.37	3.33	1.03	0.27	2	9.52	2.43	6.96	1.58	1.22
Gram	3	9.09	0.35	0.85	0.26	0.12	3	14.29	2.16	6.19	1.4	0.72
Jute	1	3.03	0.67	1.63	0.5	0.67	0	0	0	0	0	0
Mustard	19	57.58	10.29	25.02	7.74	0.54	15	71.43	9.8	28.09	6.36	0.65
Onion	12	36.36	11.41	27.75	8.59	0.95	4	19.05	0.24	0.69	0.16	0.06
Potato	22	66.67	10.32	25.1	7.77	0.47	16	76.19	10.12	29.01	6.57	0.63
Sesame	1	3.03	1	2.43	0.75	1	0	0	0	0	0	0
Sunflower	2	6.06	0.26	0.63	0.2	0.13	0	0	0	0	0	0
Vegetables	11	33.33	5.45	13.25	4.1	0.5	9	42.86	10.14	29.06	6.58	1.13
Total	33	100	41.12		30.94	1.25	21	100	34.89		22.65	1.67

Table 5.33: Summer cropping pattern of IGS and BKSL members

Category	IGS						BKSL					
Parameter > Crop	Farmers	% total farmers	Cropped Area	% Summer Area	% Total Area	Average Area	Farmers	% total farmers	Cropped Area	% Summer Area	% Total Area	Average Area
Chilli	0	0	0	0	0	0	2	9.52	0.82	1.48	0.53	0.41
Cucumber	5	15.15	1.62	5.66	1.22	0.32	0	0	0	0	0	0
Fruits	1	3.03	0.17	0.59	0.13	0.17	3	14.29	1.76	3.18	1.14	0.59
Jute	5	15.15	6.32	22.09	4.76	1.26	0	0	0	0	0	0
Jute, Vegetables	1	3.03	0.67	2.34	0.5	0.67	0	0	0	0	0	0
Paddy	5	15.15	6.32	22.09	4.76	1.26	15	71.43	47.95	86.65	31.11	3.2
Sesame	11	33.33	7.69	26.88	5.79	0.7	1	4.76	0.33		0.21	0.33
Tomato	3	9.09	1.1	3.84	0.83	0.37	0	0	0	0	0	0
Vegetables	11	33.33	4.72	16.5	3.55	0.43	3	14.29	4.48	8.1	2.91	1.49
Total	33	100	28.61		21.54	0.87	21	100	55.34		35.9	2.63

36% of IGS member farmers either did not know or gave wrong name of the PCs they were members of. This count was higher for BKSL PC members where 48% of the members were not able to provide the information (Table 5.34). Farmers were not able to specify the PC owners also. In case of IGS, more than half of the farmers were not able to provide the name of owner (Table 5.35). Those who answered gave the names of PC employees (42%), promoting agencies (3%) and BoD (3%). BKSL members have comparatively higher awareness of the PC owner. 33% of the members were not able to provide the name of PC owner. Similar pattern like that of IGS PC members was reported where 29 %. members reported PC employees followed by government (14 %) and BoD (19%) (Table 5.35).

Table 5.34: Distribution of IGS and BKSL member farmers by knowledge of PC Name

Category	IGS		BKSL	
Parameter > PC Name Knowledge	No. of farmers	% of all	No. of farmers	% of all
Correct Name	21	63.64	11	52.38
Don't Know	9	27.27	8	38.1
Wrong Name	3	9.09	2	9.52
Total	33	100	21	100

Table 5.35: Distribution of IGS and BKSL PC member farmers by knowledge of PC Owner

Category	IGS		BKSL	
Parameter > PC Owner Knowledge	No. of farmers	% of all	No. of farmers	% of all
Don't Know	17	51.52	7	33.33
Government	0	0	3	14.29
PC Employees	14	42.42	6	28.57
Promoting Agency	1	3.03	1	4.76
BOD	1	3.03	4	19.05
Total	33	100	21	100

Table 5.36: Distribution of IGS and BKSL PC member farmers by PC Influencer

Category	IGS		BKSL	
Parameter > PC Influencer	No. of farmers	% of all	No. of farmers	% of all
Friends/ Neighbours/ Relatives	10	30.3	2	9.52
PC Employees	18	54.55	13	61.9
PC Promoters	5	15.15	6	28.57
Total	33	100	21	100

Members were encouraged by friends/ relatives/ neighbours, PC employees and promoters to join the PCs. PC employees had been the major influencer for farmers (56%) followed by friends/ relatives/ neighbours (30%) and PC promoters (15%) for IGS members. PC employees (62 %) and PC promoters (29 %) were reported to be major influencers in the case of BKSL. (Table 5.36).

17 additional members farmers (50% of total) of IGS started selling their products through PCs dealing in four commodities viz. fruits, paddy, tomato, and vegetables. Vegetables has been a major agriculture commodity sold through the channel of PC, showing exponential growth followed by tomato.

Promoter-wise Output impact of PCs

In case of IGS PCs, three farmers reported selling fruits to the PC and two paddy and 15 vegetables compared with three years before. The vegetable output was important as Sufal Bangla was buying it form the PC or the PC was running the Sufal Bangla store and buying from its members and non-members directly. This was almost 50% of all members in vegetables and 10% in fruits and about 7% in paddy. On the other hand, in case of BKSL PCs there was no output side interface of PCs with the farmers.

Promoter -wise PC comparison

BKSL PCs

All the member farmers of Birbhum PC were male while in case of Shantiniketan PC, 10 member farmers were male and one was a female. Average age of Birbhum PC members (50 years) was higher than Shantiniketan PC members (44 years). The largest %age of member farmers in the case of Birbhum PC was educated up to High school (30%) followed by Middle school and Higher secondary level (20% each) while in the case of Shantiniketan PC, majority of member farmers (64%) were educated up to middle school and 18% were even illiterate or primary literate.

Agriculture was the primary occupation for the majority 55-70% of the member farmers in both the PCs. In case of Birbhum PC, animal husbandry was another important occupation for 20% member farmers. In case of Shantiniketan PC, business and skilled jobs was the primary occupation for 18% member farmers each. 55% of the Shantiniketan PC members didn't have any secondary occupation but in the case of Birbhum PC members, this share was only 20%. Largest number of the member farmers for Shantiniketan PC (45%) and Birbhum PC (30%) had agriculture as the secondary occupation. Animal husbandry (20%) and skilled job (20%) were other major secondary occupation reported for Birbhum PC members.

The average owned and operational landholding was higher for Birbhum PC (3.69 and 3.67 acres respectively) than in case of Shantiniketan PC (1.43 and 2.5 acres). Most of the Shantiniketan PC members (91%) were marginal farmers owning 64% of the total land. In the case of Birbhum PC, the largest category in terms of number of farmers was of small farmers (50%) followed by marginal farmers (30%) and semi-medium farmers (20%) owning 45%, 16% and 40% respectively, of the total land. Similarly, in terms of operated land holding, Shantiniketan PC had largest share of marginal farmers (64%) followed by small and semi-medium farmers (18% in each case). However, the largest proportion of operated land was with semi-medium farmers (52%) followed by marginal farmers (30%) and small farmers (18%). For Birbhum PC, small farmers (50%) were highest in number followed by marginal farmers (30%) and medium farmers (20%). Small farmers had the largest share in land (44%) followed by semi-medium farmers (40%) and marginal farmers (16%).

70% and 50% Birbhum PC member owned cows and goats which was 52% and 48% each of total livestock owned respectively. In case of Shantiniketan PC, the number of member farmers who owned cows was 45% and 18% had goats lower than Birbhum PC. Also, cows were 75% of total livestock.

PCs were source of awareness on agricultural topics for 60% farmers and friends for another 20% in Birbhum PC members while in the case of Shantiniketan PC, 64% of the member

farmers obtained information through PC and rest from other multiple sources like ADO, mobile, ad combinations of PC and other sources.

The cropping intensity was lower for Birbhum PC (2.26) than that in case of Shantiniketan PC (2.58) though it was quite high in general in both cases. All the member farmers of Birbhum PC grew paddy in kharif season which occupied 99% of the kharif area and 44% of the total area. The remaining member farmers grew vegetables. In case of Shantiniketan PC, 91% of the member farmers grew paddy followed by chilli (27%) and vegetables (18%). Paddy (90%) had the highest share in kharif acreage. Mustard (80%), potato (70%), vegetables (50%) and onion (40%) were grown by large number of Birbhum PC members occupying 38%, 15%, 31% and 2% respectively, of the rabi acreage. In case of Shantiniketan PC potato (82%), mustard (64%) and vegetables (55%) were the major crops grown occupying 40% of the rabi acreage in case of potato and other vegetables each and 20% in mustard.

Paddy (90%) was grown by most of the Birbhum PC members followed by vegetables while in the case of Shantiniketan PC members, paddy (55%) was also the most important crop grown in 79% of summer acreage by majority followed by fruits (18%) in 7% area and vegetables by 2% farmers in 19% summer area. Surprisingly, the summer acreage was 30-40% of GCA in both cases which explains high cropping intensity.

PC was the most important source reported for Birbhum PC and Shantiniketan PC supplying seeds for 40-45% member farmers. Dealers and PC was another major source of seed purchase for 18-20% of member farmer of both PCs. 18% of Shantiniketan PC members also purchased seeds from dealers alone.

50% of the Birbhum PC member farmers did not purchase any biofertilizer while this share was 45% in the case of Shantiniketan PC member. PC and Dealers was the most importance source of biofertilizers for 10-20% and 18-27% member farmers respectively in Birbhum and Shantiniketan PC respectively. Most of the member farmers (60-73%) did not purchase any biopesticide. However, majority of the remaining member farmers were purchasing biopesticides from dealers (18-20%) and only 10% each from PC.

50% and 82% of the member farmers purchased chemical fertilizers from Birbhum and Shantiniketan PCs respectively. In the case of Birbhum PC, dealers (20%) and PACS (20%) were also important sources of chemical fertilizer purchase. 30% and 36% of the member farmers did not purchase any chemical pesticides in Birbhum and Shantiniketan PCs. PC was a source of chemical fertilizers for 30-36% of the member farmers respectively and dealers were another major source for the purchase of chemical pesticides in case of 27-40% of the member farmers.

30% of Birbhum and 45% of Shantiniketan PC members didn't know the name of PC while 45% and 60% of the member farmers respectively provided the correct name of the PC.

40% Birbhum PC members and 27% Shantiniketan PC members didn't know the name of PC owner. 27% and 30% member farmers in case of birbhum and shantiniketan respectively provided the name of PC employees while the Board of Directors were mentioned as owners by 10% and 27% of the member farmers. 10% and 128% respectively thought PC was owned by the government. 60% and 64% of the member farmers were influenced by PC employees to become members in case of Birbhum and Shantiniketan respectively. Other major source of

influence were PC promoters (40%) for Birbhum PC and friends/family (18%) and PC promoters (18%) in case of Shantiniketan PC.

IGS PCs

All members were male in all three cases. The average age of members was the highest for Hooghly Vegetable PC members (55 years) followed by Chhatna PC members (50 years) and Simlapal PC members (44 years).

Highest number of illiterates were reported for Chhatna PC (20%) followed by Simlapal PC (17%) and Hooghly vegetables PC (9%). The members who were educated up to middle school were highest for Simplapal PC (33%) followed by Chhatna PC (30%) and Hooghly vegetables PC (27%). High school qualified members were highest in Hooghly vegetables PC (64%) followed by Simlapal PC (33%) and Chhatna PC (20%). (Table 5.37)

Table 5.37: Distribution of IGS PC members by Education

PC	Chhatna		Hooghly Vegetable		Simlapal	
Parameter > Education	No of Farmers	% of total	No of Farmers	% of total	No of Farmers	% of total
Illiterate	2	20.00	1	9.09	2	16.67
Primary	0	0	0	0	1	8.33
Middle	3	30.00	3	27.27	4	33.33
High School	2	20.00	7	63.64	4	33.33
Higher Secondary	1	10.00	0	0	0	0
Undergrad	0	0	0	0	1	8.33
Graduate	2	20.00	0	0	0	0
Total	10	100	11	100	12	100

Primary occupation was agriculture in all case in case of Chhatna and Hooghly and in case of 92% in case of Simlapal PC with one farmer reporting labour.

Most of the member farmers didn't have any secondary occupation. However, for the remaining labour and skilled jobs was reported as an important secondary occupation. (Table 5.38)

Table 5.38: Distribution of IGS PC members by Secondary Occupation

PC	Chhatna		Hooghly Vegetable		Simlapal	
Parameter > Secondary Occupation	No of Farmers	% of total	No of Farmers	% of total	No of Farmers	% of total
Agriculture	0	0	0	0	1	8.33
Labour	0	0	2	18.18	1	8.33
Skilled Job	3	30.00	0	0	1	8.33
None	7	70.00	9	81.82	9	75.00
Total	10	100	11	100	12	100

The owned as well as operated land was the highest for Hooghly Vegetables PC (2.35 acres) followed by Chhatna PC (2.14 acres) and Simlapal PC (1.1 acres). (Table 5.39)

Table 5.39: Average Owned and Operated land of IGS PC members

PC > Average Land (acres)	Chhatna	Hooghly Vegetable	Simlapal
Owned	2.14	2.35	1.1
Operated	2.14	2.59	1.52

All the member of Simlapal PC were marginal farmers followed by Chhatna PC (60%) and Hooghly vegetables PC (55%). The share of small farmers was higher for Hooghly Vegetables PC (36%) than Chhatna PC (30%). The share of land holding by small farmers was also higher for Hooghly Vegetables PC members (50%) than Chhatna PC members (41%). (Table 5.40).

Most of the members of all the PCs were in the category of marginal farmers in terms of operational land i.e. Simlapal PC members (83%), Hooghly vegetables PC members (64%) and Chhatna PC members (21%). Land holding was also distributed in a similar pattern. But in case of small operational landholding, Chhatna PC (40%) was highest followed by Hooghly vegetables PC (27%) and Simlapal PC (17%) with a share of 53%, 40% and 29% respectively, in the operational land holding (Table 5.41).

Cow was owned by the majority of the member farmers of all three PCs. All members of Chhatna PC followed by Simlapal PC (92%) and Hooghly vegetables (64%) owned cows which was 47%, 88% and 44% respectively, of the total animals owned by each PC members. The second most important was goat which was owned by 58% Simlapal, PC members, 30% Chhatna PC members and 18% Hooghly vegetables PC members with the share of 54%, 40% and 12% respectively, of the total animals. Buffalo was owned by only 20% of Chhatna PC members which was 9% of the total animals owned (Table 5.42).

Table 5.40: Category-wise Distribution of IGS PC members by Owned Land

PC	Chhatna				Hooghly Vegetable				Simlapal			
Parameter > Owned Land	No of Farmers	% of total	Area in Acres	% of total	No of Farmers	% of total	Area in Acres	% of total	No of Farmers	% of total	Area in Acres	% of total
Marginal	6	60.00	6.33	29.46	6	54.55	6.85	26.40	12	100.00	13.31	100.00
Small	3	30.00	8.83	41.09	4	36.36	13.1	50.48	0	0	0	0
Semi-Medium	1	10.00	6.33	29.46	1	9.09	6	23.12	0	0	0	0
Total	10	100	21.49	100	11	100	25.95	100	12	100	13.31	100

Table 5.41: Category-wise Distribution of IGS PC members by Operated Land

PC	Chhatna				Hooghly Vegetable				Simlapal			
Parameter > Operated Land	No of Farmers	% of total	Area in Acres	% of total	No of Farmers	% of total	Area in Acres	% of total	No of Farmers	% of total	Area in Acres	% of total
Marginal	5	50.00	4.49	20.90	7	63.64	11.19	39.24	10	83.33	12.93	70.81
Small	4	40.00	11.33	52.75	3	27.27	11.33	39.73	2	16.67	5.33	29.19
Semi-Medium	1	10.00	5.66	26.35	1	9.09	6	21.04	0	0	0	0
Total	10	100	21.48	100	11	100	28.52	100	12	100	18.26	100

Table 5.42: Distribution of IGS PC members by livestock Owned

PC	Chhatna					Hooghly Vegetable					Simlapal				
Parameter > Livestock	No of Farmers	% of total	No of Animals	% total Animals	Average	No of Farmers	% of total	No of Animals	% total Animals	Average	No of Farmers	% of total	No of Animals	% total Animals	Average
Buffalo	2	20.00	5	9.09	2.50	0	0	0	0	0	0	0	0	0	0
Cow	10	100.00	26	47.27	2.60	7	63.64	22	88.00	3.14	11	91.67	24	44.44	2.18
Goat	3	30.00	22	40.00	7.33	2	18.18	3	12.00	1.50	7	58.33	29	53.70	4.14
Oxen	1	10.00	2	3.64	2.00	0	0	0	0	0	1	8.33	1	1.85	1.00
Total	10	100	55			11	100	25			12	100	54		

PC was the source of general awareness for 42% Simlapal PC members, 40% Chhatna PC members and 27% Hooghly vegetables PC members. 42% Simlapal and 36% Chhatna PC members obtained information through friends. Other major sources were PC & ADO providing information to 27% Hooghly vegetables PC members and Friends & PC providing information to 30% Chhatna PC members and 8% Simlapal PC members (Table 5.43).

Table 5.43: Distribution of IGS PC members by source of General agricultural knowledge

PC	Chhatna		Hooghly Vegetable		Simlapal	
Parameter > General Awareness	No of Farmers	% of total	No of Farmers	% of total	No of Farmers	% of total
Friends	0	0	4	36.36	5	41.67
PC	4	40.00	3	27.27	5	41.67
Friends, ADO	1	10.00	0	0	0	0
PC, ADO	0	0	3	27.27	0	0
Friends, PC	3	30.00	0	0	1	8.33
PC, Mobile	0	0	1	9.09	0	0
ADO, Point of Purchase	1	10.00	0	0	0	0
PC, Point of Purchase	1	10.00	0	0	0	0
Friends, Point of Purchase	0	0	0	0	1	8.33
Total	10	100	11	100	12	100

Highest cropping intensity was reported for Hooghly vegetables OC (2.08) closely followed by Simlapal PC (2.05) and Chhatna PC (1.75).

Majority of the member farmers were reported to cultivating paddy. 100% Chhatna & Simlapal PC member and 91% Hooghly vegetable PC members cultivating paddy crop. Kharif acreage of paddy was highest for Simlapal PC (94%) followed by Chhatna PC (85%) and Hooghly vegetables PC (67%). Vegetable was another major cop grown by member farmers with highest kharif acreage was reported for Hooghly vegetables (22%) followed by Chhatna PC (15%) and Simlapal PC (7%). Jute and jute & paddy were other two crops grown by 18% and 9% of the Hooghly vegetables PC members. (Table 5.44)

80% Chhatna PC members, 58% Simlapal PC members and 36% Hooghly vegetables PC members were reported to be growing mustard which occupied 3-4% of the rabi area. All Hooghly vegetables PC members were reported to be growing onions which occupied 11% of the rabi area. Potato was a major crop grown by member of IGS promoted PCs. Simlapal PC (83%) had the highest number of onion growers followed by Hooghly vegetables PC (73%) and Chhatna PC (40%) occupying 50%, 18% and 19% respectively, of the rabi acreage. The number of vegetables growers were very high for Chhatna PC (70%) followed by Hooghly vegetables PC (18%) and Simlapal PC (17%). Sunflower was a major crop for Chhatna PC members only grown by 30% member farmers. (Table 5.45)

Vegetables were grown by all Chhatna PC members followed by 63% Hooghly vegetables PC members and 25% Simlapal PC members occupying 89%, 22% and 6% of the summer acreage. Sesame was an important crop for Chhatna PC and Simlapal PC grown by 20% and 67% of the member farmers. 25% Simlapal and 18% Hooghly vegetables PC members cultivated paddy which occupied 26% of the summer acreage in each case. Jute was a major crop for Hooghly PC members only grown by 55% of the total members occupying 49% of the summer acreage. (Table 5.46)

Table 5.44: Kharif Cropping Pattern of IGS PCs members

PC	Chhatna						Hooghly Vegetable						Simlapal					
Parameter > Kharif Crops	No of Farmers	% of total	Kharif Area	% kharif Area	% total area	Avg Area	No of Farmers	% of total	Kharif Area in Acres	% kharif Area	% total area	Avg Area	No of Farmers	% of total	Kharif Area in Acres	% kharif Area	% total area	Avg Area
Paddy	10	100	18.3	85.3	48.6	1.8	10	90.9	16.4	66.78	27.67	1.64	12	100	16.78	93.53	44.81	1.4
Vegetables	7	70	3.1	14.7	8.3	0.4	9	81.8	5.49	22.35	9.26	0.61	4	33.3	1.16	6.47	3.10	0.3
Jute	0	0	0	0	0	0	2	18.1	2	8.14	3.37	1	0	0	0	0	0	0
Jute, Paddy	0	0	0	0	0	0	1	9.09	0.67	2.73	1.13	0.67	0	0	0	0	0	0
Total	10	100	21.47		56.96	2,15	11	100	24.56		41.44	2.23	12	100	17.94		47.90	1.5

Table 5.45: Rabi Cropping Pattern of IGS PC members

PC	Chhatna						Hooghly Vegetable						Simlapal					
Parameter > Rabi Crops	No of Farmers	% of total	Rabi Area	% Rabi Area	% total area	Average Area	No of Farmers	% of total	Rabi Area	% Rabi Area	% total area	Average Area	No of Farmers	% of total	Rabi Area	% Rabi Area	% total area	Average Area
Gram	3	30	0.35	3.05	0.93	0.12	0	0	0	0	0	0	0	0	0	0	0	0
Mustard	8	80	3.7	31.9	9.71	0.46	4	36.3	3.98	19.38	6.72	1.00	7	58.3	2.65	29.09	7.08	0.38
Onion				0	0		11	100	11.25	54.8	19	1.02	0	0	0	0	0	0
Potato	4	40	2.13	18.6	5.6	0.53	8	72.7	3.6	17.82	6.18	0.46	10	83.3	4.53	49.73	12.10	0.45
Vegetables	7	70	5.1	44.2	13.5	0.73	2	18.1	0.8	4.0	1.40	0.42	2	16.7	0.26	2.85	0.69	0.13
Fruits	0	0	0	0	0	0	1	9.1	0.67	3.26	1.13	0.67	1	8.3	0.67	7.35	1.79	0.67
Jute	0	0	0	0	0	0	1	9.1	0.1	0.73	0.25	0.15	0	0	0	0	0	0
Sunflower	3	30	0.3	2.2	0.7	0.1	0	0	0	0	0	0	0	0	0	0	0	0
Sesame	0	0	0	0	0	0	0	0	0	0	0	0	1	8.3	1	10.9	2.67	1.0
Total	10	100	11.4		30.4	1.14	11	100	20.5		34.7	1.86	12	100	9.1		24.3	0,76

Table 5.46: Summer Cropping Pattern of IGS PCs members

PC	Chhatna						Hooghly Vegetable						Simlapal					
Parameter > Summer Crops	No of Farmers	% of total	Summer Area	% Summer Area	% total area	Average Area	No of Farmers	% of total	Summer Area	% Summer Area	% total area	Average Area	No of Farmers	% of total	Summer Area	% Summer Area	% total area	Average Area
Jute	0	0	0	0	0	0	6	54.55	7	49.44	11.81	1.17	0	0	0	0	0	0
Fruits	0	0	0	0	0	0	1	9.09	0.17	1.20	0.29	0.17	1	8.3	0.08	0.77	0.21	0.08
Paddy	0	0	0	0	0	0	2	18.18	3.66	25.85	6.18	1.83	3	25	2.66	25.58	7.10	0.89
Sesame	2	20	0.5	10.5	1.3	0.25	1	9.09	0.2	1.41	0.3	0.20	8	66.7	7	67.31	18.7	0.88
Vegetables	10	100	4.24	89.4	11.2	0.4	7	63.6	3.13	22.10	5.28	0.45	3	25	0.66	6.35	1.76	0.22
Total	10	100	4.74		12.6	0.47	11	100	14.16		23.9	1.29	12	100	10.4		27.7	0.87

Dealers was the most important source for the purchase of seeds supplying seeds to 42% Simlapal PC members, 40% Chhatna PC members and 27% Hooghly vegetables PC members. Other major sources reported were dealers & PACS and dealers & PC. PC was supplying seeds to 36% Hooghly PC members followed by 10% Chhatna PC members and 8% Simlapal Pc members. (Table 5.47).

Table 5.47: Distribution of IGS PC members by Source of Seeds

PC >	Chhatna		Hooghly Vegetable		Simlapal	
Parameter> Seeds Source	No of Farmers	% of total	No of Farmers	% of total	No of Farmers	% of total
Dealers	4	40.00	3	27.27	5	41.67
Dealers, ADO			1	9.09		
Dealers, PACS	2	20.00	2	18.18	2	16.67
Dealers, PC	3	30.00	1	9.09	2	16.67
PACS					2	16.67
PC	1	10.00	4	36.36	1	8.33
Total	10	100	11	100	12	100

Dealers was a major source of chemical fertilizers supplying to 75% Simlapal PC members, 40% Chhatna PC members and 36% Hooghly vegetables PC members. PACS were supplying to 20% of the Chhatna PC members followed by 17% Simlapal PC members and 9%Hooghly vegetables PC members. Dealers & PC was supplying to 30% Chhatna PC members and 9% Hooghly vegetables PC members. Majority of the Hooghly vegetables PC members (55%) and Chhatna PC members (50%) were not purchasing any chemical pesticides. For the members buying pesticides, dealers were the most important source for 67% Simlapal PC members, 40% Chhatna PC members and 36% Hooghly vegetables PC members (Table 5.48).

Most of the member farmers of IGS promoted PC didn't purchased any bio inputs. 25% of Simlapal PC members were reported to be purchasing biofertilizers from dealers. 10% of Chattna PC members were purchasing each from local farmers and PACS. While dealers were a major source for biopesticides supplying to 17% Simlapal PC members and 10% Chhatna PC members. 9% of Hooghly vegetables PC members each purchasing from local farmers and dealers (Table 5.49).

Majority of the member farmers of IGS promoted PC gave correct name of the PC. Highest share was reported for Hooghly vegetables (82%) followed by Chhatna PC (60%) and Simlapal PC (50%). While remaining 50% Simlapal PC members did not know the PC name followed by Chhatna PC members (20%) and Hooghly vegetables PC members (9%) (Table 5.50). Large number of member farmers did not know the name of the PC owner. Highest percentage was reported in the case of Simlapal PC (58%) followed by Hooghly vegetables PC (55%) and Chhatna PC (40%). 50% of the Chattna PC members gave the name of the PC employees for PC owner followed by Simlapal PC (42%) and Hooghly vegetables PC (36%) (Table 5.51).

A large number of member farmers answered PC employees and friends/family when asked about the PC influencer. 67% Simlapal PC members answered PC employees followed by Hooghly vegetables PC members (45%) and Chhatna PC members (40%). Friends/family was provided by 40% Chhatna, 27% Hooghly vegetables and 25% Simlapal PC members. Other provided the name of PC promoters and PC employees and friends (Table 5.52).

Table 5.48: Distribution of IGS PC members by Source of Chemical inputs

Chemical based >	Fertilizers						Pesticides					
PC Name >	Chhatna		Hooghly Vegetable		Simlapal		Chhatna		Hooghly Vegetable		Simlapal	
Parameters > Buying source	No of Farmers	% of total	No of Farmers	% of total	No of Farmers	% of total	No of Farmers	% of total	No of Farmers	% of total	No of Farmers	% of total
PC	0	0	4	36.36	0	0	0	0	1	9.09	0	0
Dealers	4	40.00	4	36.36	9	75.00	4	40.00	4	36.36	8	66.67
PACS	2	20.00	1	9.09	2	16.67	0	0	0	0	1	8.33
Dealers, PACS	1	10.00	0	0	0	0	0	0	0	0	0	0
Dealers, PC	3	30.00	1	9.09	0	0	1	10.00	0	0	0	0
Doesn't Buy	0	0	1	9.09	1	8.33	5	50.00	6	54.55	3	25.00
Total	10	100	11	100	12	100	10	100	11	100	12	100

Table 5.49: Distribution of IGS PC members by Source of Bio inputs

Bio input >	Biofertilizers						Bio-pesticides					
PC Name >	Chhatna		Hooghly Vegetable		Simlapal		Chhatna		Hooghly Vegetable		Simlapal	
Parameters > Buying source	No of Farmers	% of total	No of Farmers	% of total	No of Farmers	% of total	No of Farmers	% of total	No of Farmers	% of total	No of Farmers	% of total
Dealers	0	0	0	0	3	25.00	1	10.00	0	0	2	16.67
Local Farmers	1	10.00	0	0	0	0	0	0	1	9.09	0	0
PC	0	0	1	9.09	0	0	0	0	1	9.09	0	0
PACS	1	10.00	0	0	0	0	1	10.00	0	0	0	0
Doesn't Buy	8	80.00	10	90.91	9	75.00	8	80.00	9	81.82	10	83.33
Total	10	100	11	100	12	100	10	100	11	100	12	100

Table 5.50: Distribution of IGS PC members by Knowledge about PC Name

PC	Chhatna		Hooghly Vegetable		Simlapal	
Parameter > Knowledge of PC Name	No of Farmers	% of total	No of Farmers	% of total	No of Farmers	% of total
Don't Know	2	20.00	1	9.09	6	50.00
Wrong Name	2	20.00	1	9.09	0	0
Correct Name	6	60.00	9	81.82	6	50.00
Total	10	100	11	100	12	100

Table 5.51: Distribution of IGS PC members by Knowledge about PC Owner

PC	Chhatna		Hooghly Vegetable		Simlapal	
Parameter > PC Owner	No of Farmers	% of total	No of Farmers	% of total	No of Farmers	% of total
BOD	0	0	1	9.09	0	0
Don't Know	4	40.00	6	54.55	7	58.33
PC Employees	5	50.00	4	36.36	5	41.67
Promoting Agency	1	10.00	0	0	0	0
Total	10	100	11	100	12	100

Table 5.52: Distribution of IGS PC members by PC influencer

PC	Chhatna		Hooghly Vegetable		Simlapal	
Parameter > PC Influencer	No of Farmers	% of total	No of Farmers	% of total	No of Farmers	% of total
Friends/ Family	4	40.00	3	27.27	3	25.00
PC Employees	4	40.00	5	45.45	8	66.67
PC Promoters	2	20.00	2	18.18	1	8.33
PC Employees, Friends	0	0	1	9.09	0	0
Total	10	100	11	100	12	100

Summary

Most of the PCs had mobilised high %age of authorised capital except Shantiniketan, though authorised capital itself was small or modest in most cases. Therefore, they made negligible profit or net losses except the Chhatna PC which made a small profit after taking franchise of Sufal Bangla. Except one, most of them had a small size of membership which is problematic given the small size of land holdings in the state.

The members were mostly marginal (72%) and small (20%) in their landholdings with average size of owned land being 1.99 acres and operated just 2.32 acres which was higher than that of non-members. 88% of them did not report membership of any other group or collective except a few being members of the PACS. They grew mostly paddy and vegetables with 95% members growing paddy and 44% vegetables in Kharif and these two crops accounted for 97%

of the season's area. On the other hand, in Rabi season, it was mustard grown by 64% farmers and potato grown by 70% farmers besides onion by 30% and vegetables by 48%. Mustard and potato accounted for 26% each of the season's area, followed by vegetables at 25% and onion at 50%. The average cropping intensity of non-member was 2.09 which was slightly lower than in the case of members (2.2).

The PC interface with members for farm inputs was in general not very strong while on the output ide it was even weaker reaching only a few farmers. 16 (25%) members had sold to PC vegetables and 2 each paddy and fruits (3% each). This had increased from just three farmers selling to it three years before (5%) to 20 (31%).

Only 9% were not keen to continue as they did not use its services. 67% also were keen to encourage others to become members. A majority (53%) of them who suggested any improvements suggested better procurement, timely availability of inputs and services and even loans besides irrigation facilities support.

Farming was the primary occupation of almost all of IGS PC member farmers. But in case of IGS, 62% of members reported agriculture as a primary occupation. Most of the member farmers reported no secondary occupation. Only 10% BKSL PC members has animal husbandry as secondary occupation. Agriculture was the secondary occupation of only 3% for IGS but as many as 38% for BKSL PC members.

The BKSL PC member farmers were relatively large in both owned and operated land though all were only marginal or small in both cases. The average number of cows & goats owned by each farm was 2.57 and 4.5 respectively, for IGS members. For BKSL, average number of cow and goat per household was 4.08 and 5.29, respectively. No member of BKSL PCs owned buffalo or oxen. Within each Promoter's PCs, there were significant variation of farmer profile e.g. in case of IGS PCs, aall the member of Simlapal PC were marginal farmers but only 60% in case of Chhatna PC and 55% in case of Hooghly PC.

The member farmers of BKSL preferred PCs much more than IGS PC member for purchase of inputs. The average cropping intensity of BKSL PC member farmers (2.4) was higher than that of IGS member farmers (1.95).

59% members did not know the name of the PC and 45% of the members did not know who owned the PC 36% of IGS PC member farmers did not know name of the PCs they were members of. This count was higher for BKSL PC members where 48% of the members were not able to provide the correct name. In case of IGS, more than half of the farmers did not know who owned the PC. Hooghly PC members were also aware of the name of the PC (in 82% cases). BKSL PC members had comparatively higher recall of the PC owner.

In case of IGS PCs, three farmers reported selling fruits to the PC, two paddy and 15 vegetables compared with three years before. The vegetable output was important as Sufal Bangla was buying it from the PC or the PC was running the Sufal Bangla store and buying from its members and non-members directly. This was almost 50% of all members in vegetables and 10% in fruits and about 7% in paddy. On the other hand, in case of BKSL PCs there was no output side interface of PCs with the farmers.

Appendix 5.1

IGS promoted PCs

IGS believes that PC structure is culturally agonistic concept and for mor organisation and not necessarily suited and relevant in all local situations. The promoter has organized 170 PCs in India so far, mostly in UP, MP, West Bengal, Telangana and earlier in Karnataka, Rajasthan also. It was expanding to north-east and eastern India. It claimed that for the last five years, 70% of the PCs were assigned to promoter by SFAC. The IGS has three levels of personnel starting with local service providers, associates, and executives.

Hooghly Vegetable PC

The Hooghly PC promoted by IGS has its regions in the vegetable clusters promoted in 2010 by NABARD which also had promoted farmer clubs. The six farmer clubs had members ranging from 15 to 100 within an average of 75 members. The PC covers 10 villages in four blocks and has 1124 members since 2003 starting with 1000 members in 2012 at the time of registration. IGS is an RI of SFAC only landowners can become members of the PC with the payment of Rs.1000/- per 100 shares of Rs.10 each. 80% of the members were marginal landowners and remaining small and semi medium landowners. At the farmer club level there are about 15 percent members who are completely landless. In fact, the additional 121 members of the PC are still not shareholders though they are members of the farmer clubs. Ninety-five percent of the members are men but only 45% were active because the vegetable cluster subsidy which was there for five years up to 2017 is over now. This subsidy was available for hybrid and local vegetable production and one could avail up to a maximum of Rs.15400 per acre and another Rs.8000 for the second time.

The PC has authorised capital of Rs.25 lakh which was Rs.10 lakh to begin with and paid up capital of Rs. 20 lakh which was Rs.10 lakh in 2015-16 (Table 5.1).

The company has 10 members of the Board of whom one is female. It has no seed or fertilizer licenses though it has been selling fertilizers and has no APMC licence. Still it bought standard rice from 50 farmers to sell in Krishi Mela retail shop and also bought onions from 50 farmers and sold to private companies. Besides the acting CEO who is one of the board members, the company has no other staff. It had two staff from IGS in 2012 and had one staff until 2018. A member to become a director on the board has to be matriculate.

Major inputs being sold by the PC include seeds, fertilizers, crops like paddy, onion, potato and vegetables. Most of which are bought by the members for reasons of low price and assured quality. 25% members bought exclusively from PC. PCs sold seeds worth Rs.10 lakh in 2018-19 of which 25% was potato seed and 40% onion seed. It also bought potato seed from farmers in 2014 to supply it to PC in Manipur. On the output side, it buys paddy from member and non-member farmers and branded it as Hooghly PC rice. It has retail outlet at its office premises besides a separate shop.

Photo 5.1: Paddy being threshed (semi-mechanically) in a village in West Bengal

The PC attempted to introduce Kharif onion to the areas in 2013 with 150 farmers for which the horticulture department supplied free seed. Now there are 30 member and 20 non-member farmers growing this crop in one block. The PC also supply onion seeds to other PCs and the department of horticulture. It also introduced capsicum starting with few farmers in 2018 which has expanded to 100 farmers including 30 non-members. It had also introduced apple cool to ten farmers and Grand 9 banana variety in 2012 which has spread to 50 farmers now.

On the market linkage front, it tempted contract farming of potato for Pepsi with 200 farmer members in 2015 on 400 bighas and 15 percent of the produce were rejected. This arrangement had expanded to 500 farmers, but the company did not honour the contract. The PC has also sold paddy, onion and potato in wholesale to 2 to 3 private companies and traders each from its retail outlets. It sells aromatic rice which is bought from 50 farmers and processed before being sold to its retail outlets and in Krishi Mela for the last few years. It has even attempted in 2015 mango sales in Delhi Haat. In some of these transactions it lost money while in other it made money.

Most of the turnover of the PC came from input sale where only 15% came from non-members. The company has never paid dividends but it received matching equity grant of Rs.10 lakh in 2016. The business plan for the PC was made by the promoter only to avail the grant from the SFAC. However, the annual plan is made by the BoD and members at the time of general body meeting of the PC. The board of directors and members or staff have never been trained or taken for any exposure visits and the PC is perhaps the only PC in the state to not get any support from anywhere other than the SFAC. It thinks that provision of good quality seeds and new crops are the best practices of the PC.

The major problem of the PC is absence of CEO, non-payment for honorarium for the acting CEO, no other staff, no office space and no grants or loans. On the external front, the political distribution of subsidy only to members because of which non-members bad mouth the PC and lack of direction of the PC were major problems.

Table 5.1: Profile and Performance of Hooghly Veg growers PC

Year > Parameters	2015-16	2016-17	2017-18	2018-19
Authorised capital (Rs. lakh)	25	25	25	25
Share capital (Rs. lakh)	10(40%)	20(80%)	20(80%)	20(80%)
Turnover (Rs. lakh)	26.04	23.6	8.9	21.1
Profit (Rs. lakh)	0.93	1.44	-1.27	0.16
Reserves and Surplus (Rs. lakh)	2.25	3.7	2.42	2.54
Assets (Rs. Lakh)	0	0.28	0.19	3.4
Number of shareholders	1000	2000	2000	2000

The PC registered in 2012 had nine directors. The PC had sold paddy and onion seeds to a large number of farmers in 2018-19 amounting to Rs.19.6 lakh. It also had assets of the order of Rs.7.8 lakh in the same year. It is also selling vermicompost, lubricant, seed and pesticide from its retail store.

Shimlapal Agro PC

This PC registered in 2015 has its origins in the 60 FIGs of which 30 were members of the PC with each one having 20 members and total membership of the PC being 650 across 25 villages in one block of the district. The PC membership increased from 317 in 2016-17 to 654 in 2018-19. Each village had a minimum of 15 and maximum of 50 members. Each member had to buy 100 shares of Rs.10 each. 85% percent members of the PC were marginal farmers and remaining 15% small landowners. The PC had no landless farmers as members as land was a must for membership. Due to the SFAC mandate, 30% of the members happened to be women. 85% of the members of the PC were active. The PC had authorised capital of Rs. 10 lakh and paid capital of Rs. 9.71 lakh in 2018-19 (Table 5.2). It had reserves of Rs.1.5 lakh in fixed deposits and Rs.4.5 lakh as working capital mainly for procuring seed potatoes for 100 farmers across five FIGs. Among the five members of the Board, one was a woman and a farmer member to become BOD had to be at least a matriculate. The number of BOD had been reduced from 10 to 5 because of the non-involvement of the members in the PC. The present CEO of the PC worked with the promoter (IGS) for three years as a marketing officer.

Major licenses the PC had were for seed dealership, seed certification and the APMC licence for direct purchase from farmers. 99% of the seed sales in potato and paddy were to the members who bought it from the PC because of better quality and lower price. 30% of the members bought exclusively from the PC. The PC had a small storage space for the purpose of storing seeds and agri produce temporarily. It had a retail outlet at its office premises. It had also tried to promote new crops like Kharif onion and potato seed production in 2017 which was later stopped due to losses it incurred.

On the output side, it attempted contract farming of seed potato for Alps Agri with 40 farmers in 50 bighas as a facilitator but it didn't succeed as the yield was very low.

Box- Contract Farming by PC

It was a tripartite agreement between Alps Agri, IGS, and the PC under which the Alps Agri provided foundation seed to the PC for multiplication at the farmer level under the supervision of IGS and the PC. It was mandated that neither the AA variety mother seed material nor the seed potato multiplied from it shall be disposed of elsewhere by the two partners. In case the seeds were used for any other purpose than the specified purpose, then the IGS would pay Rs.600/- per bag. The AA had agreed to buy the multiplied produce as per the agreement and the PC was to acquire a seed licence for undertaking seed production with its members. The AA was to provide three bags of foundation seed of 25 to 35 mm or five bags of 35 to 45 mm for sowing 33 decimals each. Cost of these seeds was assumed to be equivalent to that of a reputed Punjab brand of foundation seeds and was to be paid in advance in the second week of November. The AA also agreed to provide a crop card to be filled by the farmers and followed up by the IGS and the PC failing which the company had the right to reject the contracted fields of farmers. The PC was also not supposed to hold AA liable or responsible for any failure in the crop or lower yield arising out of AA supplied foundation seeds unless it was proven that the seeds had not germinated. At harvesting, all defected seed potatoes were to be removed. Otherwise, it could be done by the buyer at the time of grading and sent back to farmer.

The price of purchase of seed potato was based on average market price of potato in the first two weeks of March in the local potato market with an addition of Rs.0.95 per kg. This price was for seed potato of 25 to 35 mm size. The buyer was to pay a commission of Rs.10 per bag to IGS. The larger size seeds were to be bought at the prevailing market price as the buyer had agreed to buy back entire production. 50% of the payment was to be made within a week or ten days after receiving the seeds at the cold storage and the rest by the end of March 2018. The price included all charges until the truck was loaded at Simlapal after grading. The grading of the seed potato was to be done by a grader provided free of cost on returnable basis by the buyer at a location made available by the PC. The contracting company had also given guidelines for production of seed potato including use of chemical and bio-fertilizers, field preparation, seed treatment, weed control, disease control and pest attack and harvesting over the cropping cycle of 85 days. The planting instructions were also given.

It had sold farmer produce of potato, bitter gourd, and cucumber to wholesalers but made losses and therefore, discontinued. It has only once sold some oilseed in APMC markets but since there was no auction based discovery of price, it ended up selling at lower than the MSP. The PC was running the supermarket store of Sufal Bangla along with another PC under the same promoter in 2016-17 but due to problems with the other PC, it moved out of its partnership.

70% of its turnover came from inputs. It received a matching equity grant of Rs.3.17 lakh in 2017-18 and availed another similar grant in 2018-19. It also engaged in palm jaggery purchase from farmers and sold it to Sufal Bangla and another PC. It availed a loan of Rs.5 lakh under LAMP fund from its promoter for engaging in seed potato business.

The Board of Directors and the PC management had been exposed to management and governance of the PC and E-NAM through training at various places by BIRD, Lucknow and NIAM, Jaipur supported by Government of West Bengal.

It thinks that contract farming of seed potato is a good practice though the PC could not manage it well. It was also getting into paddy seed processing based on contract farming based paddy seed production by the member farmers. The only problem it faced in its major activity of seed potato supply was the local competition and spurious seed potato.

Table 5.2: Profile and Performance of Shimlapal Agro PC

Year> **Parameters**	2015-16	2016-17	2017-18	2018-19
Authorised capital (Rs. lakh)	10	10	10	10
Share capital (Rs. lakh)	2.53(25%)	3.17(32%)	7.19(71%)	9.71(97%)
Turnover (Rs. lakh)	3.1	19.37	29.15	30.2
Profit (Rs.)	-0.46	1.04	0.65	1.46
Reserves and Surplus (Rs. lakh)		1.43	1.31	4.16
Assets (Rs. Lakh)		0.77		

Chhatna Agro PC

This PC registered in 2015 is based on farmer's interest groups (FIGs) promoted by IGS since 2013 which number 69 now across 27 villages of the block. There are 1014 shareholders at present starting with 336 members in 2015. Each member has to buy minimum of 100 shares of Rs.10/- each. All of the farmers are marginal landowners or landless and 30% are women members due to the SFAC mandate for matching equity grant, under which one third of the BOD and the Chairperson also has to be a women/woman. The PC claims that all its members are active. It has eight members of Board of Directors and various committees.

The PC had an authorised capital of Rs.20 lakh and paid capital of Rs.13.36 lakh (Table 5.3). It has reserves of Rs.8 lakh and has already received a matching equity grant of Rs.3.36 lakh based on number of shareholders in 2015. It has added new members and raised the paid up capital to Rs.10 lakhs and therefore awaiting for a second instalment of equity grant of Rs. 6.64 lakh.

The PC has seed production licence from the Seeds Certification authority. It has input selling licences from the local panchayat valid for one year. It has dealership of IFFCO and also runs Sufal Bangla store. Out of the total turnover of Rs.3.5 crore of Sufal Bangla, 40% of the sales are of farm produce. It receives 400 footfalls every day and pays 1.1% of the sales turnover to the government (Sufal Bangla). The monthly turnover of Sufal Bangla store at the farmer's market is Rs.25 lakh per month. It also sells farm supplies which make 10% of its turnover. It has 11-member Board of whom the only woman member is also the President. The only criteria for membership of the BOD is that one has to be a farmer and 8th grade pass. Other than the CEO, the PC has one marketing officer and nine salespersons.

Photo 5.2: Exterior of a PC run Sufal bangla supermarket in Bankura

The PC deals with various farm inputs, 90% of which is sold to member farmers who buy it for lower price and better quality with 50% of the members buying exclusively from the PC. It also runs a custom hiring centre (CHC) which received 80% subsidy and mostly serves member farmers with relatively lower fee than that for non-members. It was one of the two PCs promoted by IGS to have an CHC, the other being in Midnapur district. The turnover from custom hiring entre (CHC) is Rs. six lakh. The PC proposed to expand CHCs and reported no problem in its functioning. The PC also sells many bio inputs which are produced locally.

It has two retail outlets- one each for input and outputs and another wholesale outlet for buying vegetable. It also buys vegetables from farmers and sells in wholesale charging a commission of 5%. It has promoted new crop of black rice, gram and sweet corn besides some pulses in 2019-20 which are cultivated by about 100 farmers each. It is also doing PGS certification for the last three years especially in black rice. It had a franchise from IFFDC for sale of fertilizers. It also had input sale licence from the local agriculture office.

Photo 5.3: Interiors of Sufal Bangla Store and its price list

On the output side, it has facilitated contract farming of tomato last year for Simons with 40 farmers including 10 non-members where the contractor provided all the inputs. The contract was oral and could not be continued because the farmers could not produce quality output. Its direct retail sales of farmer produce are through Sufal Bangla.

Sufal Bangla has helped Chhatna PC in a big way as earlier it was in loss. The PC also participated in monthly melas-22 in one year, for 5 days each and govt. subsidised it up to Rs.27000/mela. The PC saved Rs. 22000 out of this as the real cost was only Rs. 5000. Govt. fixes rate of produce and mostly grains and non-perishable are sold. Chhatna has no brand as of now. Now, it sells under sufal bangla brand like in honey. The PC had a wholesale vegetable business licence from the Chhatna Gram Panchayat since 2015.

It has also been selling some of the perishable produce like onion and potato from Sufal Bangla at much lower than the market price due to provision of government subsidy for the same. It also collects farmer produce from their doorsteps with only 20% bringing on their own to the Sufal Bangla centres. The farmers are given local market prices and paid instantly. There are 142 Sufal Bangla stores in this state and 19 in Bankura district alone. In the district, only this store is working because it has been handed over to the PC, all others are defunct. The PC has a vegetable stall in Chhatna bazar from where vegetables are sold to traders. The daily turnover is Rs. 20,000/- and margin is 5%. This outlet has been functioning since 2015.

20% of this turnover comes from farm inputs and services which are made up of 90% from members and 10% from non-members. 80% of its turnover is on the output side where 50% of the members transact with PC. It has not paid dividends so far and bought land for Rs.8 lakh.

The members of the BoD had been taken for an exposure visit to a few places by the Department of agriculture. The PC claims that its best practices include: soil testing, facilitation of crop insurance scheme and removal of intermediaries in farmer produce training. It plans to set up pulses, paddy, oilseeds and spice processing units.

Table 5.3: Profile and Performance of Chhatna Agro PC

Year > Parameters	2015-16	2016-17	2017-18	2018-19
Authorised capital (Rs. lakh)	10	10	10	20
Share capital (Rs. lakh)	3.36(34%)	3.36(34%)	7.36(74%)	13.36(65%)
Turnover (Rs. lakh)	30.73	41.00	97.52	321.65
Profit (Rs. lakhs)	-0.45	1.44	2.53	6.23
Reserves and Surplus (Rs. lakh)	0.76	2.60	3.95	9.65
Assets (Rs. Lakh)		0.58	1.72	8.26

The Sufal Bangla sales from its store were of the order of Rs.1.57 lakh per day. On the day of the visit to one of its large stores in district town of Bankura's Krishak Bazaar, the sale of the day was of the order of Rs. 43856/- from 8.30 am to 5.30 pm and it had 233 bills generated representing footfalls. The grant from the SFAC permitted not only individual members with a shareholding of Rs.1000 each but also groups of individual shareholders like SHG, FIG or JLG subject to a maximum of Rs.20000 and institutional shareholders like farmer produce companies with a limit of Rs.one lakh. The member equity contributed by grant is non-convertible and has to be issued as additional shares to the existing members within 45 days. The PC also conducted a value chain analysis of tomato crop and the requirements at the pre harvest like CHCs and post-harvest facilities like pack house or a cold refer van till the value additional stage which included processing plant.

Photo 5.4: vegetables being sold from a sufal bangla supermarket

Box: The Sufal Bangla Scheme

During a potato price hike way back in 2014, market intervention by the State Government helped stabilize potato prices to the desired satisfaction of both producers and consumers. Subsequently when there was a pre-puja hike in vegetable prices the Government was committed to ensure a fair play in agricultural marketing practices whereby the interests of both growers and consumers must be safeguarded, thus paving the way for the birth of Sufal Bangla, with the assistance of Safal (NDDB, New Delhi), and financial support of RKVY (Rashtriya Krishi Vikash Yojana), the implementing agency being Paschimbanga Agri Marketing Corporation Ltd.

The venture started in 2014 with 14 mobile shops. According to the state agricultural marketing department, which runs the Sufal Bangla chain, there are now 72 stalls in Kolkata and 32 in the districts. In 2019, there were 104 stalls across the state including both permanent and mobile. A major demand for affordable vegetables, grains and fruits of a number of big housing complexes in Kolkata is fulfilled by Sufal Bangla. Currently there are 39 Sufal Bangla stalls in housing complexes, 21 of which are in Rajarhat - the IT hub of Bengal. 141 products are sold from these stores. The PCs are given these stores to run them as franchisees. There are 5 static and 2 mobile outlets in Birbhum district and 2 static outlets in Bankura and Hooghly has 5 outlets (static).

Though the overall running of the Sufal Bangla stalls are monitored by the state agriculture marketing department, but various farmers' producers' companies (FPCs) are involved in day-to-day operations. The state government distributes the stalls to FPCs through a tendering process.

The government also constructs the stalls and provide vehicles for bringing the goods from the farmers' places to the stalls. The state government said that the direct transport of the goods without the involvement of middlemen being the key to the very reasonable prices offered to customers (ET, Nov. 12, 2018).

It was quite a challenge to mobilize producers into collectives such as Farmer Producer Company (FPC), Farmer Producers Organization (FPO), Farmers Interest Group (FIG), Farmers Club and Self Help Groups (SHGS). It empowered the producers and gave them the bargaining power. Assured market and assured payment were prioritized giving rise to a

robust procurement network across the districts of the state with Tapasi Malik Krishak Bazar at Singur in the Hooghly District of West Bengal having emerged as a procurement hub, modelled on the Hub & Spokes system, with an IT-enabled state-of-the-art laboratory for grading and quality control.

As the tastes and preferences of consumers changed and diversified, it became imperative to tie up with Mother Dairy, Kolkata and West Bengal Live Stock Development Corporation Limited to make the range of products wide enough. State Fisheries Development Corporation Ltd extends its services in some front end stores across the state.

In its bid at digitization, Sufal Bangla has entered into a partnership with C-DAC for finding IT solutions for its problems. In order to address the issue, C-DAC, Kolkata, has launched a drive to ensure optimum induction of IT and Electronics for improvement of services, quality and transparency of agricultural products especially the exotic varieties of rice such as Radhatilak, Gobindobhogh, Kalonunia, Kalabhat and Tulaipanji.

Sufal Bangla has made a tie-up with Indian Institute of Packaging for total solution to the problems of loss, damage etc. IIP offered packaging solutions by installing machines and offering commodity-specific consultancy.

Paschimbanga Agri Marketing Corporation Limited has also entered into an agreement with BCKV (Bidhan Chandra Krishi Viswavidyalaya) to the effect that their exotic varieties of rice, pulses, uni-floral honey, spices, mustard oil, wheat, flour etc will be marketed by Paschimbanga Agri Marketing Corporation Limited under SUFAL BANGLA brand.

Sufal Bangla Static (brick & mortar) outlet at Shantiniketan in Bholpur appeared in the guise of a full-fledged department store as part of a pilot scheme with a wide range of products including fresh fruits, vegetables, potato, milk, ice-cream, paneer, ghee, edible oil, rice, pulses, chicken, lamb and rabbit meat and processed food. It has weighing scale, crates and perforated vehicles for transportation of vegetables. It is operated by the FPC which is determined through bidding on this condition that a certain percentage of the sale proceeds would go to the Government as royalty and the said percentage would be fixed by financial bidding. As this business model proved successful, it was replicated elsewhere.

Sufal Bangla soon became popular among the consumers because it uploads the procurement and retail prices of commodities on its website and mobile App in advance to enable the consumers to take decisions as to their marketing on their own.

A unique experiment clicked as the FPC-operated retail sale of agricultural produce to the residents of Uniworld city in New Town became very popular. It also got replicated elsewhere. Sufal Bangla's online presence through PC and mobile App turned marketing into an interactive experience. As a pilot scheme one retail outlet for organic produces has been opened at New Town.

Photo 5.5: Sufal Bangla supermarket Birbhm (Bholpur)

The Sufal Bangla agreement included the PC depositing 1.1% of the total sales as an institutional overhead as determined during the bidding process. The Sufal Bangla agency was to provide a covered space for the store and central space for aggregation, storage and grading of products including decorating and furnishing the store at its own cost. It also provided crates, weighing scales, visi coolers. The PC also had to give a security deposit of Rs. 25,000 to the state livestock development corporation for deep freezers to be supplied by them. The work force for the store was to be employed by the PC and it was to mainint the store and obtain all licences from the local bodies. The franchisee is about to sell products from other agencies as per written communication with the respective agencies. But sale and stocking of other than notified products was not permitted without permission from the Sufal Bangla agency. It was also mandated that the PC would procure vegetable and other agri produce from individual farmers or groups or their collectives or from Sufal Bangla in other districts. The franchiser also retains the right to direct the franchisee to sell any specific products or to procure farm produce from any farmer or group facing distress. In fact, the first party also retain the right to utilize the entire infrastructure or part of it for market intervention programme as directed by the state government. The franchisee has to notify the minimum procurement price and maximum retail price for the next day daily by 2 p.m. The franchisee would also submit a consolidated statement of sales to the franchiser and also monthly statement. The PC had to deposit Rs.20000/- in addition to the regular deposit. The franchisee will get the benefit of whole sale price not less than 10 percent of the MRP for products procured from livestock development corporation. These products will have to kept properly in deep freezer and products once sold by the corporation to the franchisee could not be taken back and only at the time of delivery any rejection can be pointed out and products return to the corporation. The franchisee would also mention shelf life of these products and would sell it only during that period. In the case of products supplied by the Mother Dairy Kolkata, a margin cum cost sharing amount would be borne by the franchisee to the MDC. The agreement was signed by project director of Sufal Bangla and the CEO of the producer PC.

The project aimed to directly procure fruits and vegetables from farmers and sell them to consumers. The state government was committed to fair play in agricultural marketing practices in order to safeguard the interests of both the growers and the consumers, thus paving

the way for Sufal Bangla, which is being run with the assistance of Safal (National Dairy Development Board, New Delhi), and the financial support of Rashtriya Krishi Vikash Yojana, the implementing agency being Paschimbanga Agri Marketing Corporation Ltd.

At present, the state has 47 static counters and 97 mobile counters. Kolkata has the highest concentration of these counters; the city has 24 static counters and 92 mobile counters out of the total 144 counters. These counters are located all across the city.

A pricing committee, consisting of officials from the Directorate of Agricultural Marketing, was set up to analyse daily market prices and declare the Procurement price and the Consumer Price to be followed by Sufal Bangla.

To aggregate and store vegetables, Singur was designated as the main hub; now there are 20 such hubs. Alongside, more than sixty thousand farmers have been enrolled. The scheme has also generated a lot of new jobs, for instance, in order to run the stalls. Moreover, there is indirect employment as well.

By March,2020, the government was planning to open 56 more Sufal Bangla counters and in the next two years, the total counters would reach 500. The plan was to expand the number of products as well (IE, Jan 13, 2020).

BKSL PCs

Birbhum PC

The promoter BKSL has set up 8 PCs in the district since 2015. This PC registered in 2015 in Dubrajpur block of the Bhirbhum district has its origins in FIGs which numbered 55 and were spread across 25 villages promoted by BKSL since 2013. There were total 1011 members who were contributing Rs.100 each per month and this money was transferred to the PC as shares for 700 farmers when the PC was registered. Many other farmers joined later on taking the total to 1025 members. The members mostly are marginal or small landowners. About 15% of the members are women and 99% members are active, only one FIG of 20 members is not active because it is located far away from the PC. PC has authorised capital of Rs.10 lakh and paid capital of Rs.7.55 lakh (Table 5.4). The PC has reserves of Rs.2 lakh. Each BoD member had bought shares of Rs. 10,000 each compared with only Rs. 1000 for each ordinary member. It has 9 members of Board of directors including one woman. The criteria for being appointed on the BOD is that a member should represent five FIGs totalling 100 farmers and should be acceptable to all farmers. It has also various licences. for selling various inputs as well as registration on E-NAM. The PC has a CEO and one lady marketing assistant.

70 % of its input turnover comes from members and 80% of the members buy exclusively from PC for lower price and better quality. It has supplied paddy and wheat seeds, seed potato and banana tissue cultured plant besides pulses and groundnut seeds. It has IFFCO dealership for the last two years and it also sells bio fertilizers supplied by IFFCO and other companies. On the output side which includes potato, mustard, and vegetables including onion, 75% of its turnover comes from members. It has shop cum office cum godown and has supplied to local schools and anganwadis vegetables for Mid-day meal (MDM) for two years.

Photo 5.6: Office- cum-godown-cum retail outlet of Birbhum FAPC

It claims that it has brought in new crops of Kharif onion, mushroom, tissue cultures banana plants, Table potato and aromatic rice to its members as new crops. 200 households are involved in mushroom production and 800 farmers in potato production and few dozen farmers each in black rice and kharif onion production.

It had engaged a contract farming in fish and banana last year where fish was directly contracted by BKSL. It had eight members for fish for BKSL and for bananas for Coventar Agro, five farmers producing under contract. The PC received a commission of 20% of farmer's price for its facilitation service in banana. In the case of fish, besides, 20% of the consumer price retained by the PC, the organizer of the programme i.e. BKSL also received 20% of it leaving 60%for the farmer. It has also facilitated leasing of six ponds from individual farmers for the FIGs for fishing at the rate of Rs.1 lakh per year for ten years. It has also supplied banana once to the Sufal Bangla stores. It was produced by two members. Besides it has sold vegetables in local Haat to recover loans after procuring from farmers.

Eighty per cent of the turnover of the PC (total Rs. 35 lakh) comes from input sales of which members account for 70 per cent. The remaining 20% of the turnover comes from output handling involving 200 members. The company has for the first time made a profit of Rs.2 lakhs last year and have received a matching equity grant of Rs.3.29 lakh from SFAC. The business plan of the company was made for the first time in 2018-19 by the promoter, CEO and the Board of Directors. The promoter has also supported the PC with the salary of the staff for the first two years, and then supported by SFAC for next three years. At present, the PC pays the salary of its staff.

The BoD had been exposed to business management and business linkage by the promoter as well as NABARD. Similarly, the staff have been also trained in day to day business management accounting and food safety regulations by the promoter and NABARD.

The PC claims that introduction of hybrid seeds, tissue culture banana and fisheries intervention can be considered its best practices. It also thinks contract farming and its introduction of Kharif onion as innovative practices. It feels that the tenure of BoD being five years is a problem as every new batch of BoD need to be trained in their roles. The PC did not

report any internal problems. On the external front, it reported shortage of fixed capital and local trader opposition to its activities as major problems.

Table 5.4: Profile and Performance of Birbhum PC

Year > Parameter	2015-16	2016-17	2017-18	2018-19
Authorised capital (Rs. lakh)	10	10	10	10
Share capital (Rs. lakh)	4.07(41%)	4.19(42%)	4.19(42%)	7.55(76%)
Turnover (Rs. lakh)	5.27	15.88	5.85	29.85
Profit (Rs. lakhs)	0.88	0.57	0.34	1.04
Reserves and Surplus (Rs. lakh)	0.88	1.46	1.80	2.85
Assets (Rs. Lakh)	1.09	0.88	1.49	1.49

The PC also received a grant from the SFAC for infrastructure under MIDH for a pack house costing Rs.2 lakhs and zero energy cool chamber costing Rs. 2,000.00. The PC had seed selling licence and fertiliser licence. It had also received a mini dal mill with a moisture meter from the State Agro Industries Corporation costing Rs.2.2 lakhs in 2017-18. It had a trade licence for its two shops from the local panchayat. The PC had a business plan for the period 2017-22 submitted to SFAC.

The PC covered 26 villages and had 649 shareholders in 2017-18 which were to go up to 2000 by the end of the Plan and share capital of the order of Rs.10.9 lakhs. It was looking at roping in a few hundred farmers every year reaching up to 844 with an average landholding of 1.5 acres. The plan had demand projections for various crop, seed, fertilizers and pesticides including fish. The marketing plan included selling of inputs as well as output targeting four to five percent higher income for the farmer from output sale. The Plan also mentions packaging, promotion, and multi-channel strategy for availing better prices for farmer produce. The PC had a marketing manager and a finance officer besides a CEO and service provider and Kissan Mitra to help the marketing manager.

Box: Contract Farming by PC

The PC had a contract farming agreement for banana cultivation for BKSL under which it was mandated that the PC would provide all the required inputs, supervise the farms and undertake post-harvesting work besides recording the produce and marketing it. The contracting company (PC) agreed to provide basic inputs i.e. banana plants – 400 plants per one bigha and technical guidance to the farmer for two years. The cost of various inputs including leasing of land at the rate of Rs. 16,000 per bigha (0.33 acre) for the farmer was Rs. 36,000 and Rs. 12,000 each for the contracting agency, and the PC. The contracting agency charges also included Rs. 4,000 as service charge besides Rs.8000 for 400 plants. It was assumed that 400 plants with a mortality rate of five percent in the first phase of 14 months would provide a total production of 7.60 tons and price that Rs. 8,000 per ton would give Rs. 60,800 grass income to the farmer. The second phase of eight months the same number of plants plus two per cent mortality would give 6.70 tons and gross income of Rs. 53,568. This total to Rs.1.14 lakh income for the farmer for the full cropping cycle. The contracting agency and the PC made 20 per cent each of the total investments and shared similar percentages from the revenue which

came to Rs.10,874 each for company and the agency. The company agreed to facilitate only the graded material and the under size inferior quality and damaged material was to be sold in local market or any other market at prevailing price by mutual agreement among all parties.

Shantiniketan KUPC

This PC set up in 2015 originated from 58 FIGs organized by BKSL with 1028 members in 2013. At the time of registration 620 members which has now increased to 1012 shareholders and 60 FIGs across 22 villages in three gram panchayats in the block of Shantiniketan in Birbhum district. Anyone with own land or leased land cultivation can become member and has to buy 50 shares of 10 rupees each. Now it has been increased to 100 shares per member. The Board of Directors need to pay Rs. 10,000/- for 1000 shares. Majority of the farmers are marginal and others small or semi medium and there are no landless members as of now. The average landholding of the members is 3.3 acres. Most of the members are men with only 20 women farmers and only 40 percent of the members were active in 2017-18. But after the PC started selling fertilizer, 90 percent of the farmers have started transacting with the PC.

The PC has authorised capital of Rs.10 lakh and paid up capital of Rs. 5.04 lakh in 2018-19. It has reserves of Rs.75000/- and working capital of the order of 7.8 lakh. The PC has various input licenses, panchayat level trading licence and supplier arrangement with Sufal Bangla. There are six board members and one of them being woman since beginning, due to the SFAC mandate. A member should also represent at least 100 farmers to be eligible to be appointed as a board member. The PC has one CEO and one marketing assistant. The present CEO was earlier NLRP with the promoting agency for organizing FIGs.

In the first year, the PC had 404 shareholders. It was planned to take this membership to 1200 shareholders and equity capital of Rs.8 lakhs by 2022. It planned to undertake three major activities – input supply, aggregation and sale of produce and value chain intervention in major crops of the local area like paddy, potato, onion, other vegetables, and fish. It planned to get farmers, four to five percent higher price by its intervention on the output side. The company had facilitated input output sale of the order of Rs.72.7 lakhs in the first of plan going up to Rs.1.9 crore by 2021-22. Hope to make a profit of Rs.95700 in the first year and Rs.5.36 lakhs by the end of five-year plan. Its business plan mainly focussed on Kharif paddy, banana and more importantly potato which made the major chunk of the total business handling besides fish which was very significant in itself. It had also prepared a month wise plan for each of the crops and products.

The input business of the PC includes seeds, fertilizers and that too mainly potato and paddy seeds besides onion and mustard. It also supplies banana and papaya plants. Fifty percent of the inputs are bought by the members for reasons of lower price and better quality and availability. 80 percent of the members buy exclusively from the PC. The PC delivers inputs at the village level if pre-ordered by the grower from distant villages. Last year, PC sold inputs worth Rs.4.5 lakhs out of which Rs.2 lakhs was potato seed.

Photo 5.7: Office-cum- retail outlet of Shantiniketan KUPC

On the output side, it has undertaken contract farming of potato and also uses its office premises as warehouse in two places on rental basis. It has two such outlets for selling inputs. It has in the last two years, promoted banana tissue culture cultivation, papaya cultivation and Kharif onion with 24 farmers upto last year annually. The banana and papaya experiments are only with two and one farmer each. Like the other BKSL PC it has also ventured into fisheries contract farming with two fish farmers and banana contract farming with one farmer. In both cases, the produce was not bought by the contracting agencies due to small quantities or low quality. It has also helped farmers sell their produce at MSP after registering with the APMC which numbered 35 last year and 10 this year. It has also facilitated wholesale transactions in paddy and potato by bringing in wholesale buyers though it was more from non-members especially in the case of paddy where out of the total transaction of Rs.7 lakhs, 80 percent was from non-members. It also buys paddy at MSP and sells at higher price. In the case of potato, it bought worth Rs.4 lakhs from 25 non-member farmers and sold to fresh produce retailers earning a profit of Rs. 20,000. It has no direct retail presence though it plans to sell vegetables directly.

Forty percent of the total turnover of the PC came from input business of which 85% was from fertilizers and 60% from non-members. On the output side, again 60 to 80% of the transactions were with non-members. The PC had received matching equity grant of Rs.2.07 lakhs last year. It has also received some support under MIDH for a pack house and from West Bengal agricultural department for setting up a fruit processing unit. The promoter prepared a five-year plan in 2017 for the PC.

The PC has been supported first three years by the BKSL and SFAC with the latter extending its support two more years and upto 2019-20. The board of directors and FIG leaders have been trained at various places over the last three years in PC management by the promoter and NABARD training centres. The CEO rather received training in plant health management at NIPHM Hyderabad.

The PC used marketing linkage development, agricultural production season training, and drum seeder and direct seeded paddy as its major best practices. It also looks at 100% coverage

of its members for input supply and complete integration of value chain in high value crop like potato as the way forward viable business model for the PC.

In terms of problems, the PC management thinks that the BoD is still not confident of managing RoC compliances and on the external front, it is still not able to get the benefit of MSP procurement for all its members. All of its member farmers grow paddy and 20 to 25 percent each growing mustard and vegetables. It is also planning to become a franchisee of Sufal Bangla. At present, NABARD PC runs one such store in Bholpur.

Table 5.5: Profile and Performance of Shantinikatan PC

Year > Parameter	2015-16	2016-17	2017-18	2018-19
Authorised capital (Rs. lakh)	10	10	10	10
Share capital (Rs. lakh)	2.08(21%)	2.08(21%)	2.97(30%)	5.04(50%)
Turnover (Rs. lakh)	1.71	1.40	2.36	19.63
Profit (Rs.)	2.58	-1.04	-4.37	3.99
Reserves and Surplus (Rs. lakh)	2.58	1.53	-2.83	
Assets (Rs. Lakh)	0.76	0.58	0.80	0.75

The PC received a grant of Rs.2.11 lakhs towards FPO management cost under special project during 2013 to 2016. The PC had seven directors at the time of registration, each one holding 1000 shares.

Non-PC FPOs

Saptarishi FPO

Saptarishi FPO is registered trust in 2015 originating from farmer clubs which numbered 5 with membership of 524. In 2015, it started with two farmer clubs and 145 members in one block which has now expanded to five blocks of the district. These farmer clubs were promoted by NABARD through the local PACS. The local NGO *Chalta Beria* has taken over these clubs and the trust since 2017 as a POPI of NABARD. The NGO itself is 20-year-old. All the members of the trust have to have land and need to buy equity share of 500 each. The members are mostly marginal and small farmers and even include 60 landless members.

Ninety percent of the members were male, and 50 percent of the members are active. The FPO has a paid up capital of Rs. 3.5 lakh and assets Rs. 76 lakh. It has seed potato licence and APMC trader licence from Gram Panchayat. The Trust had earlier done business in seed potato worth Rs.40 lakh under a NABARD project and sold these seeds to members of PACS. The PACS has 2500 members, 60 percent of whom get the benefit of Paddy MSP through the PACS. The overlap of members between PACS and Saptarishi is 50%. The Trust has nine members of the board including two women. The farmer members of the Trust on the Board generally are required to be land owning and formally educated. The FPO has a secretary who is 8th standard pass, a treasurer, who is a graduate and homemaker and two assistant staff.

The input business of the PC includes seed potato, supply and fish links. Forty percent of the potato is bought by the members with 10-20 of the members buying exclusively from the Trust. It also supplies breeder and foundation seed to farmers to produce seed for sale to other farmers. On the output side, it undertakes aggregation of potato and fish. Latter comes from fish ponds

lease from private owners at the rate of Rs.40000 per year. Forty percent of the potato supply comes from member farmers. It has facilities for processing of groundnut and paddy seeds which is used for supplying upto 60 percent to the member farmers. It has its own brand of seed potato and plans to get into American sweet corn also.

The Trust doesn't have permission to procure at MSP as the PACS do it in this state. It is only in potato seed that it has been buying from 500 farmers for selling to private traders. It has sold in the past brinjal in the whole vegetable market which came from 10 farmers and has also sold potato in Kissan Mandi. The brinjal produce was aggregated and sold on behalf of famers. However, more recently. Farmers have stopped growing it as it is not possible compared with potato and groundnut.

Only about one third turnover of the FPO come from input sales of which only 40 percent is sold to its members. Similarly, of the two third of total turnover coming from the output side, only 40% comes from members.

The Trust has no business plan as of now. However, it has been receiving capacity building support from NABARD for the last three years. It had also availed of a loan of Rs.76 lakh at the rate of 12% interest from NABARD for engaging in seed potato business. This loan was repaid after borrowing from the DCCB in the name of farmers through PACS at the rate of 7% interest -an amount of Rs.82 lakh. Since the Trust is being converted into PCs structure now due to PC being found being better business structure, it will also help it get SFAC matching equity grant. The *Chalta Beria* NGO is an RI of SFAC and POPI of NABARD. The Trust has been able to receive a grant Rs.3.8 lakh from NABARD in 2017-18 for setting up a groundnut shelling unit.

The staff of FPO have been exposed to its management by NABARD and KVK including a visit to Gujarat for the same. The FPO considers seed certification facilitation as its practice the NGO which was registered in 2000 was involved in forming SHGs on the process innovation side it considers leasing of its pond as an innovation by an FPO.

The major problem of the FPO include lack of awareness among members with forty percent not being interested in the working of FPO at all. On the external front, it lacks financial support to undertake new activities. It also plans to get into poultry farming on its own as a high value business. In 2015-16, it had sold seed potato worth Rs.15.87 lakhs and had procured seeds worth Rs.105.74 lakhs. It sold this produce for Rs.131.29 lakhs earning a net profit of Rs.16.74 lakhs. For this, it had a loan of Rs.114.55 lakh from NABARD with a repayment period of 10 months.

Table 5.6: Profile and Performance of Saptarishi FPO

Year> **Parameter**	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
Turnover (Rs. lakh)	.585	69.35	29.92	69.98	14.21	42.47
Profit (Rs. Lakhs)	--	--	(-) 25.83	--	.51	3.1
Authorised capital (Rs. lakh)	--	--	--	--	--	--
Share capital (Rs. lakh)	0.55	.55	.57	.85	2.5	3.5
Reserves and Surplus (Rs. lakh)	0.02	0.02	--	0.02		
Assets (Rs. Lakh)	.58	69.35	74.02	80.30	82	77.76
Number of shareholders	20	31	143	257	500	528

Gram Saathi

This PC was registered in 2019 with an authorised capital of Rs.10 lakh and paid up capital of Rs.5 lakh. It had a turnover of Rs.12.51 lakh in 2018-19 and net profit of Rs.2.68 lakh. The PC has been converted from a farmer club federation trust (*Srijoni Uttaran*) supported by NABARD, since 2015-16 (Table 5.7) which included the payment of salary of the CEO and other office expenses. The rationale for converting the Trust into a PC structure was to get into a for-profit legal structure, get access to matching equity grant from the SAFC and the attraction of the recent (2019-2020 budget) income tax exemption offered by the government to the PCs for five years.

The company had a CEO and one more staff handling accounts. Over four years, it had received total grant of Rs. 6.43 lakh including a revolving fund of Rs. 50,000. It had also received 50% subsidy amounting to Rs.1.5 lakh from the District Department of Horticulture for the construction of onion storage structure. The Trust which was registered in 2015 had 40 farmer clubs which increased to 48 by 2017-18 covering 48 villages, 10 panchayats and four blocks of the district of Hooghly. All the members of the clubs were now the PC members and mostly women, numbering 624 in 2017-18. Each member had 50 to 150 shares of Rs.10 each. Most of its members were marginal land owners and 10 percent even landless. More than 80% of its members were active. The Srijoni NGO which promoted this Trust and now the PC was registered in 1999 and is POPI of NABARD. It had earlier along with LWS – a missionary organization based in Kolkata, promoted 1000 self-help groups (SHGs) in 175 villages across five blocks of the district. In 2019, it started with 278 members and reached 920 members by 2020.

It had 1016 members of which 920 were already approved shareholders. About 45 of its farmers were into onion cultivation and 100 farmers were into turmeric cultivation. It was also handling cashew selling supplied by 100 women farmers who collected it from the forest. Some of its farmers were also into SRI methods of paddy cultivation and some also grew other vegetables. The PC was planning to get into goat rearing and duckery as these animals and birds were already reared by 50% of its member households.

The PC had 10 members on the Board of Directors out of which four were women. The Board members had to buy a minimum of 100 shares each (Rs. 1000 per member). The Directors and

the CEO have been exposed to PC management and governance by NABARD a few times at the local centre of BIRD.

The PC has a business plan for the next three years which includes various activities like onion, goat, input supply, turmeric and vegetable cultivation which would lead to a turnover of Rs.42.5 lakh in 2019-20, going upto Rs.77 lakh in 2021-22.

The PC has not undertaken any input activities so far. On the output side, it claims that it has encouraged cultivation of onion, groundnut and pulses. It has also helped a few dozen farmers sell their onions for a commission. It had attempted some retailing of cashew and pulses in the rural markets in the past.

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Photo 5.8: Sarojini brand of spices of Gram Saathi PC

It thinks that building of onion storage structure, processing of pulses and rural retailing of food products were its best practices which other PCs should follow. The promoters claimed that this was the weakest PC among all promoted by NABARD in the state.

Major problems faced by the PC included: lack of awareness among the members of whom only 10% knew that the company belonged to them. Further women members couldn't spare much time attending to the affairs of the PC. Its staff also had poor exposure. Most of these problems were internal, rather than external.

Table 5.7: Profile and Performance of Gram Saathi PC

Year > Parameters	2016-17	2017-18	2018-19
Share capital (Rs. lakh)	0.29	1.41	1.72
Turnover (Rs. lakh)	0	1.73	8.65
Profit (Rs.)	1.35	0.30	2.68
Assets (Rs. Lakh)	0.47	0.47	0.47

Chapter 6

Performance and Impact of PCs in Tamilnadu

Introduction

Tamil Nadu is one of the relatively developed and fast growing states in India, with considerable progress achieved in various facets of development. Although agriculture accounts for only 15.7% of total GSDP and 44% of the total employment in Tamil Nadu. Farm income accounts for about half of household income. 20.6% of the rural population is poor. For the poorest rural quintile (approximately 1.5 million households), more than three-quarters of income is derived from agriculture, with agricultural wage labour alone accounting for half of household income

Of the total gross cropped area of 57.53 lakh hectares, the gross irrigated area was 56% and the rest (44%) was under rainfed cultivation. Paddy accounts for about a third of the GCA of the state and nearly 60% of irrigated area in Tamil Nadu (over 90% of paddy is irrigated). Pulses (18% of GCA), millets (11%), and groundnut (10%) require less water than rice or sugarcane, and millets and pulses are grown almost exclusively on non-irrigated land. About 5% of GCA is devoted to sugarcane, all of it irrigated (accounting for almost 10% of irrigated land). Cotton occupies about 3% of GCA, and about a third of the cotton crop is irrigated. The state accounts for nearly 6% of the area under fruits and 4% of the area under vegetables in India. In terms of production, the State's share is nearly 10% in fruits and 6% in vegetables. The state is also a leading producer of flowers.

In all, crop agriculture, livestock, and animal husbandry account for 92.2% of total value added in agriculture and allied activities, with fishing accounting for 4.5% and forestry for 3.3%. Cropping intensity was at 1.18 during 2011-12.

The average size of individually held farms is only 0.91 hectares, with over half the farms smaller than 0.5 hectares Nearly three-quarters of farms are smaller than one hectare, accounting for only 30.2% of total cultivable land. In comparison, the average farm size in India is 1.41 hectares, with 62% of farmers holding being less than one hectare.

The marginal and small farmers who constituted 91% of the total farmers held 59% land, whereas medium and large farmers (2.3% of the total farmers) possessed a larger chunk of 20% of land (Sivagnanam, 2014).

The state has a consortium of FPCs registered as a PC like nine more states of India, with 35 FPCs as members with 100 shares worth Rs. 10,000 each since 2015 with paid up capital of Rs. 2.2 lakh and authorised capital of Rs. 10 lakh. This consortium PC members run shops and retail outlets called farmer supermarket network (Unnatham Uzhavar Angadi) by its member PCs in different places in the state for collectively selling value added products in partnership with the state department of agri marketing and agribusiness. But, none of the study PCs were members of this consortium. The Pudukkottai district website mentions one of the study PCs (Illupur agri PC) as one of the three successfully functioning PCs the district. The state government is also setting up and handing over 64 primary processing centres (PPCs) costing Rs. six crore each to PCs across 10 districts. These facilities are provided to PCs for three years

at concessional rentals and providing salary of the staff of PPCs of the order of Rs. 15-20 lakh per annum each (ToI, October 24, 2019).

In this background and context, this chapter examines the physical and financial performance of various case study PCs in section followed by member non-member comparison in profile and impact across all PCs together. Section 3 then profiles the PCs across various promoters and section 4 compares the performance of PCs of the same promoters. Section 5 compares the goat PC in Tamilnadu with a similar PC in M.P. as they both belong to a unique business and both are women owned. The chapter then concludes with a summary.

6.1 Profile and Performance of PCs in Tamilnadu

Table 6.1 for all PCs studied in the state shows that all the three ESAP promoted PCs which had small mobilised equity base of Rs. 10 lakh, Rs. 6 lakh and Rs. one lakh against authorised capital of Rs. 10 lakh in each case, had not undertaken any business activity in one case even after 4 years of existence, and therefore was into losses technically. The other two had decent turnover of Rs. 67 lakh and Rs. 17 lakhs but their profits were negligible.

Kodai Hills of ESAF was one PC which made small profits every year as its revenue was from high value crops like pepper and coffee. But still it could also not mobilise more than 61% of its authorised equity from its members. The Theni goat PC which was unique in many ways i.e. all women PC, into goatery and only PC promoted by an NGO achieved one of the largest equity mobilisation by reaching 100% of its authorised capital and revenue of the order of Rs. 54 lakh per year with small profits. This was mainly because it was into high value low cost business of rearing goats and selling meat and live animals locally.

Kottampatti PC by Dhan was a big failure throughout with only coconut trading giving it much needed respite recently. It could not mobilise even 50% of its authorised equity despite being a landowning farmer PC. Both the PCs promoted by ITL of Dhan Foundation had mobilised most of their authorised capital (Rs. 10 lakh and Rs. 25 lakh) and very high levels of revenue in each case which was more than Rs. one crore. But even their profits were negligible which is more due to the fact that PCs until recently have behaved like the co-operatives passing on the surplus generated as price and other benefits to members to avoid paying income tax on their profits. It is only since last year that their profits have been exempted from income tax for next five years and it remains to be seen whether profits would go up and reserves and surplus would be used more for capacity creation by the PCs.

The SEEDS NGO promoted PCs were the most vibrant and successful as they not only mobilised most of the authorised equity capital (77-90%) which itself was of the order of Rs.20 and Rs. 40 lakh but also had revenue in crores (> 4 crore) in case of SEEDS PC. But, even then its profits were very modest (Rs. 8 lakh). However, the second PC had small revenue and no profits from its operations.

Table 6.1: Profile and performance of various PC in Tamilnadu

Particulars	Kodai Hills PC (ESAF)			Perriyakulam PC (ESAF)			Theni Goat (Vidyal)				Usilampatti (ESAF)				Kottampatti (DHAN)		
Year	2016-17	2017-18	2018-19	2016-17	2017-18	2018-19	2015-16	2016-17	2017-18	2018-19	2015-16	2016-17	2017-18	2018-19	2016-17	2017-18	2018-19
Authorized Capital (Lakhs)	10	10	10	10	10	10	12	20.5	20.5	20.5	10	10	10	10	10	25	25
Paid up Capital (Lakhs)	1 (10%)	3 (30%)	6.11 (61%)	1 (10%)	10 (100%)	10(100%)	10.5 (88%)	20.47 (100%)	20.47 (100%)	20.47 (100%)	1 (10%)	1 (10%)	1 (10%)	1(10%)	1(10%)	10 (40%)	10(40%)
% of Shares held by promoter	100	33	20	100	100										100	1	1
Revenue (Lakhs)	3.13	3.64	17.4	29.61	67.17	125.07	3.19	14.47	26.94	54.65	0	0	0	0.11	0.011	3.03	56.45 (50.72 - coconut)
Profit (Loss) (Lakhs)	0.09	0.18	0.28	0.07	0.25	0.13	0.01	0.18	0.43	0.84	(0.03)	(0.05)	(0.05)	(1.51)	0.00038	(0.39)	0.21
Reserves & Surplus (Lakhs)	0.8	0.27	.57	0.07	0.2	0.34	0.01	0.19	0.62	1.47	(0.03)	(0.08)	(0.13)	(1.64)	0.00038	(0.29)	(0.08)
Assets (Lakhs)				0.83	1.24		0	0	0	0	0	0	0	0.072	0	0	2.44

Continued…

Table 6.1: Profile and Performance of various PCs in Tamilnadu

Particulars	Illupur PC (KTL)				Thotukkudi Pulses PC (KTL)				V AFPC (SEEDS)				Seeds PC (SEEDS)			
Year	2015-16	2016-17	2017-18	2018-19	2015-16	2016-17	2017-18	2018-19	2015-16	2016-17	2017-18	2018-19	2015-16	2016-17	2017-18	2018-19
Authorized Capital (Rs. Lakh)	10	10	10	10	10	10	25	25	20	20	20	20	40	40	40	100
Paid up capital (Rs. lakh)	10(100%)	10(1005)	10(100%)	10(100%)	10(100%)	10(100%)	20(80%)	20(80%)	13.94 (70%)	7.7 (38%)	10 (50%)	15.37(77%)	35.94(90%)	35.94(90%)	35.94(90%)	47.15
Revenue (Rs. Lakh)	48.06	62.33	116.82	136.06	49.5	71.9	99.51	95.98	0	44	6.41		5.3	117.8	272.3	470.8
Profit (Loss) (Rs. Lakh)	0.4	0.22	0.059	5.69	0.09772	0.4832	0.67999	0.48391	0	0.00932	0.01637		0.23	4.11	(4.8)	8.17
Reserves & Surplus (Rs. Lakh)	0.33	0.55	0.72	116.92	0.09772	0.58092	1.14	1.52					0.27	3.11	14.47	22.64
Assets (Rs. Lakh)	19.07	40.82	43.55	164.5	0.59	0.47	0.2	4.67							0.7	52.7

6.2 PC member and non-member farmers: Profile and Impact

Of the 105 members interviewed in Tamilnadu across 9 PCs, 46% were women farmers with 17% of them being illiterate with most others having school level literacy. 76% of them reported farming as the primary occupation and 60% animal husbandry (Tables 6,.2& 6.3). Farming and animal husbandry (14% each) and labour (13%) happened to be major secondary occupations among those 49% who reported any secondary occupation (Table 6.4).

47% of the 91 non-member farmers were women and 30% each of them were illiterate or middle school literate with another 13% each being primary or high school literate. 74% of them reported farming as their primary occupation followed by farm labour by 14% and animal husbandry by 10%. More than half of them did not report any other occupation with 10% and 12% reporting farming and animal husbandry and another 18% farm labour as secondary occupation. There were a few farmers each into petty business or skilled labour besides 5% also being MGNREGA workers.

Table 6.2: Distribution of PC member and non-member farmers by education

Category>	Members		Non-members	
Parameter> Education	No. of farmers	% of all	No. of farmers	% of all
Illiterate	18	17.14	27	29.67
Primary	7	6.67	12	13.19
Middle	30	28.57	27	29.67
High School	27	25.71	12	13.19
Higher Secondary	16	15.24	7	7.69
Undergrad	6	5.71	3	3.30
Graduate	1	0.95	0	0
Diploma	0	0	3	3.30
Total	105	100.00	91	100.00

Table 6.3: Distribution of PC member and non-member farmers by Primary Occupation

Category>	Members		Non-members	
Parameter> Primary Occupation	No. of farmers	% of all	No. of farmers	% of all
Agriculture	80	76.19	67	73.63
Animal Husbandry	17	16.19	9	9.89
Business	1	0.95	0	0
Cash collector in Bank	1	0.95	0	0
Labour	6	5.71	13	14.29
Skilled Labour	0	0	2	2.20
Total	105	100.00	91	100.00

Table 6.4: Distribution of PC member and non-member farmers by Secondary Occupation

Category>	Members		Non-members	
Parameter> Secondary Occupation	No. of farmers	% of all	No. of farmers	% of all
Agriculture	15	14.29	9	9.89%
Animal husbandry	15	14.29	11	12.09%
Business	1	0.95	2	2.20%
Construction Supervisor	1	0.95	0	0
Service/Govt Job (Revenue)	1	0.95	2	2.20%
Labour	14	13.33	17	18.68%
Medicinal Plant Dealer	1	0.95	0	0
None	54	51.43	47	51.65%
Retired Teacher	1	0.95	0	0
Skilled Labour/Tailor	2	1.90	3	3.30%
Total	105	100.00	91	100.00%

The average owned land of members was 5.12 acres and operated land 6 acres per household (Table 6.5). The members were mostly marginal, small and semi medium farmers (90%) of the total owning 53% of land. However, in terms of operated land, they accounted for only 82% of all farmers and 43% of the operated land (Tables 6.6 and 6.7)). 48% had owned ground water resource of irrigation and 50% were rain fed. Only 2% reported access to canal water these farmer members mostly owned goat and cows with goats accounting for 68% of the total animals, cows 20% and sheep another 7%.

The average owned land of non-members was 3.7 acres and operated land 4.12 acres. 73% of non-member farmers were marginal or small farmers owning 30% land. There were no large landowners with the rest 14% and 13% each being semi medium or medium category farmers but they had 21% and 48% of total land. There was not much difference in the operated land distribution with 73% still being marginal or small operators cultivating 31% land. On the other hand, semi medium and medium farmers who were 26% of the total cultivated only 61% land though they had owned 70%. This was due to the leasing in and out of land where one farmer ended up being in the large farmer category operating 8% of total land. 58% of the farmers were rainfed and only 4% had access to canal irrigation with the rest depending on wells and tube wells for irrigation with some being shared and some also buying water from other farmers. 39% and 37% of the farmers owned cows and goat respectively with 18% having poultry with others owning bullocks and one farmer sheep. In terms of number of livestock, goats accounted for 61% with an average of 10 goats per household and cows and poultry 18% of the total.

Table 6.5: Average Owned and Operated Land of PC Members and Non- Members

Category> Average Land (acres)	Members	Non- Members
Owned	5.13	3.7
Operational	6.04	4.12

Table 6.6: Category-wise Distribution of PC member and non-member farmers by Owned Land

Category>	Members				Non- Members			
Parameter> Farmer category	No. of farmers	% of all	Land in acres	% of total	No. of farmers	% of all	Land in acres	% of total
Marginal	48	45.71	50.7	9.42	49	53.85	43.15	12.83
Small	29	27.62	107.5	19.96	17	18.68	58.25	17.32
Semi-med	17	16.19	126.25	23.45	13	14.29	72	21.40
Medium	8	7.62	124	23.03	12	13.19	163	48.45
Large	3	2.86	130	24.14	0	0.00	0	0.00
Total	105	100.00	538.45	100.00	91	100.00	336.4	100.00

Table 6.7: Category-wise Distribution of member and non-member farmers by Operated Land

Category>	Members				Non- Members			
Parameter> Farmer category	No. of farmers	% of all	Land in acres	% of total	No. of farmers	% of all	Land in acres	% of total
Marginal	46	43.81	56.2	8.27	46	50.55	48.35	12.89
Small	24	22.86	83.5	12.29	20	21.98	66.75	17.80
Semi-Med	16	15.24	150.75	22.19	13	14.29	76	20.26
Medium	14	13.33	178	26.20	11	12.09	154	41.06
Large	5	4.76	211	31.05	1	1.10	30	8.00
Total	105	100.00	679.45	100.00	91	100.00	375.1	100.00

Table 6.8: Distribution of member and non-member farmers by livestock Owned

Category>	Members					Non-Members				
Parameter> Livestock type	No. of farmers	% of all	No. of livestock	% of all	Average	No. of farmers	% of all	No. of livestock	% of all	Average
Cow	43	40.95	134	19.34	3	32	39.02	94	22.60	2.94
Cow(shared)	1	0.95	35	5.05	35	0	0	0	0	0
Goat	47	44.76	468	67.53	10	30	36.59	311	74.76	10.37
Oxen	3	2.86	6	0.87	2	4	4.88	6	1.44	1.5
Sheep	5	4.76	50	7.22	10	1	1.22	5	1.20	5
Total	105	100	693	100.00		91	100	416	100.00	

64% of them relied on friends and other farmers for agricultural information with only 7% relying exclusively on PC. As against this, non-members relied only on informal networks for this (Table 6.9).

Table 6.9: Distribution of member and non-member farmers by Source of general agricultural knowledge

Category>	Members		Non-Members	
Farmers Source of info	No. of farmers	% of all	No. of farmers	% of all
Friends/ Neighbours/ Relatives	67	63.81	84	92.31
Newspapers/ Radio	1	0.95	0	0
PC	7	6.67	0	0
Friends/ Neighbours/ Relatives, PC	18	17.14	2	2.20
Friends/ Neighbours/ Relatives, Mobile groups	2	1.90	0	0
PC, Mobile/ Mobile Groups	2	1.90	0	0
ADO, Extension Workers	1	0.95	0	0
Friends/ Neighbours/ Relatives, Newspapers/ Radio, PC	1	0.95	0	0
Friends/ Neighbours/ Relatives, Newspapers/ Radio, PC, ADO	1	0.95	0	0
Friends/ Neighbours/ Relatives, Newspapers/ Radio, Mobile/ Mobile Groups, ADO	1	0.95	0	0
Friends/ Neighbours/ Relatives, PC, Mobile/ Mobile Groups	1	0.95	0	0
Friends/ Neighbours/ Relatives, PC, ADO	2	1.90	0	0
Coffee Board	1	0.95	0	0
Mobile/ Mobile Groups	0	0	1	1.10
Friends/ Neighbours/ Relatives, Newspaper/ Radio	0	0	1	1.10
Friends/ Neighbours/ Relatives, Newspaper/ Radio, ADO, exhibition	0	0	1	1.10
Friends/ Neighbours/ Relatives, ADO	0	0	1	1.10
Friends/ Neighbours/ Relatives, Newspaper/ Radio, ADO	0	0	1	1.10
Total	105	100.00	91	100.00

The average cropping intensity of the members was 1.16. Major crops grown in Rabi season included coffee, coriander, maize and paddy in terms of share of cropped area but only about 35% of farmers took any crop in this season. There were even fewer crops grown in summer season mostly maize, vegetables and coffee, sorghum and jasmine being grown in more than 10% of the area each but buy only about 10% of the farmers. The major cropping season was Kharif were most of the farmers grew multiple crops with 15% farmer each growing chilli, and green gram, 18% paddy, 23% vegetables and 13% black gram. The crops of maize, vegetables and chilies and green gram accounted for 14%, 11% and 8% and 8% respectively of the Kharif area. Paddy accounted for 9% and millets another 5% like sorghum (Tables 6.11- -6.12).

So far as the cropping pattern in Kharif was concerned, 21% of the member farmers grew maize, 18% paddy, 24% vegetables, 15% chilli and 13% black gram and 15% green gram. Cotton was planted by 10% of the farmers as where millets and sorghum many farmers had various crops inter-cropped and mixed cropped. Vegetables accounted for 11% of the Kharif area and maize 14% with paddy accounted for 9% (Table 6.13). The other significant crops in terms of Kharif area were chilli and gram (8%) each, millets and sunflower and sorghum (5% each). The Kharif crops which accounted for significant of the gross crop area during the area were maize at 12%, paddy at 7%, vegetables 9%, and green gram and chilli at 7% of the total area during the year. In Rabi season, large number of farmers planted paddy (5%), vegetables (4%), and black gram 3%. In fact, only 30% farmers grew crops in Rabi. In terms of area, major crops were maize and paddy at 12% and coffee at 11% besides chilli and ragi at 5%. Surprisingly coriander accounted for 11% of the season area and cotton along with green and red gram 12%. In terms of the gross crop area, this was only 13% of the total with coffee, maize and paddy accounting for a major chunk besides coriander. Very few farmers took a summer crop which was mainly the plantation crop of coffee accounting for 45% of the total area followed by sorghum and vegetables at 10% and jasmine flowers another 10% besides ragi and black gram along with some intercrops 9% each. Summer area were only 5% of the total cropped area during the year with Kharif accounting for 83% of the total.

In terms of cropping pattern, in Rabi season, very few non-member farmers grew any crops, and they were mostly pulses, cotton and oilseeds. Cotton accounted for 28% of the area followed by sesame at 13% and black, green and red gram another 13%. Bitter guard also took another 13% of the area and beans were another major crop with 9% of the area. Tamarind had 9% and paddy and cucumber accounted for 6% of the Kharif area each. Altogether this season had only 4% of the GCA of the year and cotton was the only crop which had more than 1% of the GCA. In Kharif, major crops grown by significant number of farmers included: black gram, green gram, cotton, millets, paddy, banana and chilli. Pulses were the major group of crops grown during the season accounting for 20% of the area followed by maize, cotton and sorghum at 11% and banana and groundnut at 5% and 4% respectively. This season had 96% of the GCA accounted for mostly by pulses crops, maize, cotton, paddy and sorghum besides banana, chillies, and millets.

Table 6.10: Kharif Cropping Pattern of PC Members

Parameters> Crop	Members	% members	Area	% of Kharif Area	% of total area	Average Area
Avocado	2	1.90	2.5	0.41	0.34	1.25
Banana	7	6.67	10	1.63	1.35	1.43
Black gram	14	13.33	25.5	4.17	3.45	1.82
Chilli	16	15.24	47.5	7.76	6.43	2.97
Coconut	7	6.67	11.55	1.89	1.56	1.65
Coffee	4	3.81	17.5	2.86	2.37	4.38
Cotton	11	10.48	25	4.08	3.38	2.27
Green Gram	16	15.24	48.2	7.88	6.53	3.01
Maize	22	20.95	85.45	13.96	11.57	3.88
Paddy	19	18.10	52.15	8.52	7.06	2.74
Groundnut	10	9.52	23	3.76	3.11	2.30
Millet	11	10.48	32.5	5.31	4.40	2.95
Sunflower	5	4.76	28	4.57	3.79	5.60
Sorghum	11	10.48	30.75	5.02	4.16	2.80
Red gram	3	2.86	5	0.82	0.68	1.67
Flat Gram	3	2.86	2.5	0.41	0.34	0.83
Jasmine	4	3.81	4.25	0.69	0.58	1.06
Mango	2	1.90	3	0.49	0.41	1.50
Orange	1	0.95	0.5	0.08	0.07	0.50
Vegetables	25	23.81	68.8	11.24	9.31	2.75
Black Gram, Bengal Gram	1	0.95	1	0.16	0.14	1.00
Brinjal, Sorghum	1	0.95	0.3	0.05	0.04	0.30
Coffee, Avocado	1	0.95	3	0.49	0.41	3.00
Coffee, Pepper, Orange, Banana	1	0.95	1	0.16	0.14	1.00
Coffee, Pepper	4	3.81	7.9	1.29	1.07	1.98
Coffee, Pepper, avocado, Orange	2	1.90	8.5	1.39	1.15	4.25
Coffee, Pepper, Banana	1	0.95	1.5	0.25	0.20	1.50
Coffee, Pepper, Orange	2	1.90	6	0.98	0.81	3.00
Coriander, Maize	1	0.95	4	0.65	0.54	4.00
Cotton, Groundnut, Black Gram	1	0.95	3	0.49	0.41	3.00
Cotton, Red Gram, black Gram, Green Gram	1	0.95	2	0.33	0.27	2.00
Cotton, Red gram, Maize, Green Gram, Black gram	1	0.95	6.5	1.06	0.88	6.50
Flat gram, Groundnut	3	2.86	3.9	0.64	0.53	1.30
Fodder	3	2.86	4	0.65	0.54	1.33
Green gram, Red Gram, Maize	1	0.95	2	0.33	0.27	2.00
Green Gram, Black Gram	1	0.95	2	0.33	0.27	2.00
Maize, Black Gram	1	0.95	4	0.65	0.54	4.00
Maize, Black gram, Red Gram	1	0.95	4	0.65	0.54	4.00
Maize, Green Gram	1	0.95	1	0.16	0.14	1.00
Maize, sorghum	1	0.95	1	0.16	0.14	1.00
Onion, Maize	2	1.90	12	1.96	1.62	6.00
Pepper, Orange	1	0.95	2	0.33	0.27	2.00
Red Gram, Sorghum	2	1.90	2.8	0.46	0.38	1.40
Sunflower, Chilli	1	0.95	3	0.49	0.41	3.00
Teak	1	0.95	2	0.33	0.27	2.00
Total		100	612.05	100	82.86	

Table 6.11: Rabi cropping pattern of PC members

Parameter> Crop	Members	% members	Area	% rabi area	% total area	Average Area
Banana	1	0.95	1	1.07	0.14	1.00
Black Gram	3	2.86	2.5	2.67	0.34	0.83
Chilli	2	1.90	4	4.28	0.54	2.00
Coffee	1	0.95	10	10.70	1.35	10.00
Coffee, Banana	1	0.95	5	5.35	0.68	5.00
Coriander	1	0.95	10	10.70	1.35	10.00
Cotton	3	2.86	3.5	3.74	0.47	1.17
Cotton, Green Gram	1	0.95	5	5.35	0.68	5.00
Cotton, Red Gram	1	0.95	6.5	6.95	0.88	6.50
Flat gram	1	0.95	1.5	1.60	0.20	1.50
Green Gram	2	1.90	1.5	1.60	0.20	0.75
Green/Red gram/maize	1	0.95	2	2.14	0.27	2.00
Groundnut	3	2.86	3.5	3.74	0.47	1.17
Jasmine	2	1.90	3.25	3.48	0.44	1.63
Maize	3	2.86	11	11.76	1.49	3.67
Vegetables	4	3.81	6.5	6.95	0.88	1.63
Paddy	5	4.76	11	11.76	1.49	2.20
Ragi	1	0.95	4.5	4.81	0.61	4.50
Red Tuar, Kova	1	0.95	0.8	0.86	0.11	0.80
Total		100	93.5	100	12.66	

Table 6.12: Summer cropping pattern of PC members

Parameter> Crop	Members	% members	Area	% Summer Area	% total area	Average Area
Banana	1	7.69	1	2.98	0.14	1.00
Black gram, Groundnut	1	7.69	3	8.94	0.41	3.00
Coffee	1	7.69	12	35.77	1.62	12.00
Coffee, Pepper	1	7.69	3	8.94	0.41	3.00
Cotton	1	7.69	0.5	1.49	0.07	0.50
Jasmine	2	15.38	3.25	9.69	0.44	1.63
Ragi, Pearl gram	1	7.69	3	8.94	0.41	3.00
Red Tuar, Kova	1	7.69	0.8	2.38	0.11	0.80
Sorghum	1	7.69	3.5	10.43	0.47	3.50
Vegetables	3	23.08	3.5	10.43	0.47	1.17
Total		100	33.55	100	4.54	

In the case of non-members, major kharif crops in terms of number of farmers growing them an the area under them were: black gram (12% of kharif area), maize (11%), cotton, sorghum, and paddy (7% each) green gram and millets (6% each) banana (5%), chillies (4%) and some planation crops like coffee and pepper. In Rabi, which had only 4% of cropped area, cotton, sesame, tamarind, various type of gram and vegetables were major corps. The summer season

crops were grown by only two farmers with tomato and beans and just 2.5 acres of GCA (Table 6.14).

Table 6.13: Kharif Cropping Pattern of Non-Members

Parameter> Crop	Non-member farmers	% of non-member farmers	Total Area	Average Area	% Kharif Area	% Total Area
Avocado	1	1.10	0.5	0.50	0.13	0.13
Banana	7	7.69	20.5	2.93	5.39	5.14
Black Gram	15	16.48	44.5	2.97	11.71	11.17
Chilli	7	7.69	15.5	2.21	4.08	3.89
Coconut	2	2.20	4	2.00	1.05	1.00
Coffee	1	1.10	4	4.00	1.05	1.00
Coriander	4	4.40	11	2.75	2.89	2.76
Cotton	13	14.29	27.5	2.12	7.23	6.90
Flat Gram	4	4.40	3	0.75	0.79	0.75
Fodder	4	4.40	3	0.75	0.79	0.75
Green Gram	10	10.99	22.5	2.25	5.92	5.65
Groundnut	10	10.99	14	1.40	3.68	3.51
Horse Gram	3	3.30	2	0.67	0.53	0.50
Maize	11	12.09	41	3.73	10.79	10.29
Millets	7	7.69	23.5	3.36	6.18	5.90
Orange	1	1.10	0.5	0.50	0.13	0.13
Paddy	16	17.58	26.1	1.63	6.87	6.55
Pearl Millet	4	4.40	11	2.75	2.89	2.76
Pulses	1	1.10	1	1.00	0.26	0.25
Red Gram	1	1.10	2.5	2.50	0.66	0.63
Sesame	2	2.20	2.5	1.25	0.66	0.63
Sorghum	10	10.99	26	2.60	6.84	6.52
Sunflower	3	3.30	7.5	2.50	1.97	1.88
Urad	1	1.10	2	2.00	0.53	0.50
Vegetables	5	5.49	8.75	1.75	2.30	2.20
Watermelon	1	1.10	2	2.00	0.53	0.50
Coffee, Pepper	3	3.30	16.5	5.50	4.34	4.14
Banana, coconut	1	1.10	1	1.00	0.26	0.25
Chilli, Cotton	1	1.10	1	1.00	0.26	0.25
Chilli, Millet	1	1.10	2	2.00	0.53	0.50
Chilli, Onion	1	1.10	10	10.00	2.63	2.51
Coffee, orange	1	1.10	2	2.00	0.53	0.50
Groundnut, Flat gram	1	1.10	1	1.00	0.26	0.25
Pepper, Orange	1	1.10	2	2.00	0.53	0.50
Ragi, Black gram	1	1.10	1	1.00	0.26	0.25
Coffee, Pepper, Orange	2	2.20	12.25	6.13	3.22	3.07
Black gram, Green gram, red gram	1	1.10	2	2.00	0.53	0.50
Coffee, Banana, Orange, Avocado	1	1.10	3	3.00	0.79	0.75
Total		100	380.1		100	95.38

Table 6.14: Rabi cropping pattern of Non-Members

Parameter> Crop	Non-member farmers	% of non-member farmers	Total Area	Average Area	% Rabi Area	% Total Area
Beans	1	1.10	1.5	1.5	9.43	0.38
Bitter Gourd	1	1.10	2	2	12.58	0.50
Black gram, Green gram, red gram	1	1.10	2	2	12.58	0.50
Cotton	2	2.20	4.5	2.25	28.30	1.13
Cucumber	1	1.10	1	1	6.29	0.25
Paddy	1	1.10	1	1	6.29	0.25
Ragi	1	1.10	0.5	0.5	3.14	0.13
Sesame	1	1.10	2	2	12.58	0.50
Tamarind	1	1.10	1.4	1.4	8.81	0.35
Total		100	15.9		100	3.99

The members were more aware of PC name than the non-members (57% versus 24%). Further, only 15% farmers thought or knew the PC belongs to farmers with others mentioning PC employees (24%) or promoting agency (22%) as the owners. There was hardly any awareness of PC ownership among non-members (Tables 6.15 and 6.16).

Table 6.15: Distribution of TN members and non-members by Knowledge of PC Name

Category>	Members		Non-Members	
Parameter> PC Name	No. of farmers	% of all	No. of farmers	% of all
Don’t Know	37	35.24	77	76.24
Wrong Name	8	7.62	0	0
Correct Name	60	57.14	24	23.76
Total	105	100	101	100

Table 6.16: Distribution of TN members and non-members by Knowledge of PC Owner

Category>	Members		Non-Members	
Parameter> PC Owner	No. of farmers	% of all	No. of farmers	% of all
Don't Know	33	31.43	89	88.12
BoD	7	6.67	0	0
Farmers	16	15.24	4	3.96
PC Employees	25	23.81	3	2.97
Private Company	1	0.95	0	0
Promoting Agency	23	21.90	5	4.95
Total	105	100	101	100

Among the members, dealers emerged as the major source of seed purchase with 35% buying from there. Only 17% farmers bought it from the PC with another 11% from both PC as well as dealers. 9% even reported buying it from other farmers and 5% using home based seed (Table 6.17). The reliance on dealers was even higher in case of chemical inputs at more than 60% with only 22-30% farmers buying it from the PC. In fact, even PACs did not figure as a major source or even fertiliser purchase (Table 6.18). The bio inputs which were used by the very small percentage of farmers was bought more from the PC ranging from 75% in case of bio pesticides and 31% in case of bio fertilisers (Table 6.19). Since the PCs were not into machinery or equipment selling or renting out, it was mostly bought from dealers and renting took place from dealers and local farmers with only 4% farmers reporting renting it from PC. The PCs had higher presence in cattle feed with 1/3rd of the farmers who bought in reporting as source of purchase was only 10% farmers reporting purchase of cattle feed. 91% farmers had no complaint about the PC services with 70% even reporting that the PC did help get to them government schemes and subsidies with 39% specifically reporting crop and other agri and allied loans.

So far as purchase of inputs were concerned, the seeds were mostly bought by non-members from dealers and local farmers with only 8% farmers reporting buying it from the PC. On the other hand, bio-fertilisers and bio-pesticides were mostly bought from dealers and local farmers. In case of chemical fertiliser, 79% bought it from the dealers and only 8% from the PC and 2% each from PACs and department of agriculture (Tables 6.17-6.19). Similarly, chemical pesticides were largely bought from dealers (76%) and local farmers with only 7% of those reporting buying it from the PC. Since most of the PCs did not deal with machinery rentals an equal percentage of farmers accessed it from dealers or local farmers. Members bought form PC for different reasons as listed in table 6.19A.

Table 6.17: Distribution of member and non-member farmers by Source of Seeds

Category>	Members		Non-Members	
Parameter> Source	No. of farmers	% of all	No. of farmers	% of all
Dealers	36	34.29	47	51.65
Local Farmers	9	8.57	19	20.88
PACS/ DCS	2	1.90	1	1.10
PC	18	17.14	7	7.69
Other FGs	1	0.95	1	1.10
Agri Dept	4	3.81	4	4.40
Dealers, Local Farmers	5	4.76	0	0
Dealers, PACS	1	0.95	0	0
Dealers, PC	12	11.43	0	0
Dealers, Agri Dept	2	1.90	0	0
Local Farmers, PC	2	1.90	0	0
Local Farmers, Agri Dept	1	0.95	0	0
PC, Agri Dept	1	0.95	0	0
None (Home based)	5	4.76	0	0
Don’t cultivate	6	5.71	12	13.19
Total	105	100.00	91	100.00

Table 6.18: Distribution of member and non-member farmers by Source of Chemical Inputs

Type of Input	Fertilizer				Pesticide			
Category>	Members		Non-Members		Members		Non-Members	
Parameter> Source	No. of farmers	% of all	No. of farmers	% of all	No. of farmers	% of all	No. of farmers	% of all
Dealers	45	60.00	50	79.37	35	67.31	32	76.19
Local Farmers	2	2.67	5	7.94	1	1.92	6	14.29
PACS	2	2.67	1	1.59	0	0	0	0
PC	21	28.00	5	7.94	11	21.15	3	7.14
Agri Dept	1	1.33	1	1.59	1	1.92	0	0
Dealers, PC	3	4.00	0	0	3	5.77	0	0
PC, Agri Dept	1	1.33	0	0	1	1.92	0	0
Dealers, PACS	0	0	1	1.59	0	0	1	2.38
Total	75	100.00	63	100.00	52	100.00	42	100.00

Table 6.19: Distribution of member and non-member farmers by Source of Bio Inputs

Type of bioinput>	Biofertilizer				Biopesticide			
Category>	Members		Non-members		Members		Non-members	
Parameter> Source	No. of farmers	% of all	No. of farmers	% of all	No. of farmers	% of all	No. of farmers	% of all
Dealers	5	31.25	3	37.50	1	12.50	1	33.33
Local Farmers	6	37.50	4	50.00	1	12.50	1	33.33
PC	5	31.25	0	0	6	75.00	1	33.33
Agri Dept	0	0	1	12.50	0	0	0	0
Total	16	100.00	8	100.00	8	100.00	3	100.00

However, 85% could not report any initiatives undertaken by the PC (Table 6.20). Only 14% were aware of any PC initiatives like agri equipment, loans, training for goat rearing and procurement or new business, like poultry.

91% members has no dislike for any of the services of the PCs while a few others pointed out poor access to some of the services like availability or high cost. 60% had not received any subsidy or information about it from PC while 16% had received subsidised inputs and 6% various farm equipments like MIS or implements. 2% also reported learning drumstick farming and 4% reported received SMSs from the PC. 50% even reported receiving loans from/through the PCs.

45% reported monthly meeting and 34% attended it every time with 17% mentioning quarterly meeting and 9% attending it every time and another 8% only sometime. More than 2/3rd thought that PC meeting are held monthly and quarterly and 49% attended them every time and 25% never and other sometimes or occasionally. The major issues discussed at perceived by the members came out to the agri related about the working of the PC and provisions of loans. 59% had never asked any questions in the meetings with 36% were satisfied with the response.

Table 6.19A: Distribution of PC members by reasons for purchase of inputs from PC

Type of Input>	Seeds		Chem. Fert.		Chem. Pesti		Biofert		Biopest	
Parameter> Reason	No. of farmers	% of total	No. of farmers	% of total	No. of farmers	% of total	No. of farmers	% of total	No. of farmers	% of total
Better Quality	4	12.12	3	12	1		1	20	2	33.3
Better quality and lower price			1	4			0		0	
Better Quality, Easy Accessibility, Lower Cost	1	3.03	2	8	3		0		0	
Better Quality, Easy Accessibility, Lower Cost, Lower Price	5	15.15	2	8	0		0		1	16.7
Better Quality, Easy Accessibility/ Lower Cost, Lower Price, Fair Deal/ More Reliable	2	6.06	1	4	0		0		0	
Better Quality, Easy Accessibility, Lower Cost, Lower Price, Timely Availability	3	9.09	2	8	0		0		0	
Better Quality, Easy Accessibility, Lower Cost, Timely Availability	1	3.03	1	4	1		0		0	
Better Quality, Fair Deal/ More Reliable, Timely Availability	2	6.06	1	4	0		0		0	
Better Quality, Lower Price ,Fair Deal/,More Reliable, Timely Availability	1	3.03	0		0		0		1	16.7
Better Quality, Lower Price, Timely Availability	1	3.03	0		0		0		0	
Better Quality, Timely Availability	1	3.03	0		0		1	20	0	
Easy Accessibility/ Lower Cost	2	6.06	1	4	2		1	20	0	
Easy Accessibility, Lower Cost and timely availability	0		3	12	1	6.7	1		0	
Easy Accessibility, Lower Cost, Fair Deal, More Reliable	2	6.06	1	4	0				0	
Easy Accessibility, Lower Cost, Lower Price, Timely Availability	1	3.03	1	4	0		1	20	1	16.7
Easy Accessibility, Lower Cost, Timely Availability	3	9.09	1	4	1	6.7	0		0	
Fair Deal/ More Reliable	1	3.03	1	4	0		0		0	
Fair Deal/ More Reliable, Timely Availability	1	3.03	2	8	2	13.3	0		0	
Lower Price	1	3.03	1	4	0		1	20	1	16.7
Timely availability	0		0		1	6.7				
Lower price and timely availability	0		0		1	6.7	0		0	
Lower price and more reliable, fairdeal	0		1	4	0		0		0	
No other Source	1	3.03	0		0		0		0	
Total	33	100.00	25	100	15	100	5	100	6	100

Table 6.20: Distribution of member and non-member farmers by their knowledge of initiatives taken by PC

Category>	Members		Non-members	
Parameter> PC initiative	No. of farmers	% of all	No. of farmers	% of all
No	89	84.76	85	93.41
Goat rearing	2	1.90		
Loan	2	1.90	1	1.10
Business Plans to avail Bank loans	1	0.95	0	0
Helping for Dairy and Poultry (financial and technical), water harvesting, irrigation facilities	1	0.95	1	1.10
Procurement	1	0.95	1	1.10
Inputs	2	1.90	2	2.20
Cultivation ideas	1	0.95	1	1.10
Drip irrigation	1	0.95	0	0
Drip irrigation, Saplings, Motor engine loan	1	0.95	0	0
Loan and Procurement	1	0.95	0	0
Loan, Subsidy, Proper system, Livestock details, Advice over Phones, New variety, Subsidized input	3	2.86	0	0
Total	105	100.00	91	100.00

83% wanted to continue being members as it was beneficial in various ways like information, loans and subsidies, procurement and timely and lower cost input supply by PC. Those who (17%) did not want to continue said so as they did not find it useful or had not availed any service from the PC. 77% also were keen to encourage others to join the PC as members as it brought benefits. While 53% did not suggest any new product or services, others suggested loans and input supply, procurement and market linkage for farm produce, timely supply of inputs and more training of farmers and value addition to farm produce. A few others also suggested expanding the membership of the PC and making staff more accountable to members.

The only major expansion in crop area was in black gram due to the intervention of PC and yields had improved in cotton, groundnut, maize and many pulses and vegetables by 10-25% compared with that before the PC intervention. Major price benefits (15-40%) were realised in pulses, coffee, sunflower, millets and maize by members selling to or through the PC.

Three years before, only one or two farmers each had used the PC channel in flat gram, green gram, maize, paddy or millets which increased to 5-8 farmers across all of these crops. The highest jump was in case of black gram which increased to 16 farmers from just 3 farmers three years earlier. In terms of channels of sale, 29% of the farmers sold 39% of their produce through the PCs, mainly in the crops of black gram, coffee, cotton, green gram and maize (Table 6.21). After the intervention of a few years of the PC, many more crops being handed by the PC in both number of the farmers and quantity sold through the PC increased substantially.

So far as effect of PCs on the member business was concerned, there were a few produces like cow milk, black gram, cotton, flat gram, green gram, groundnut, maize, paddy and red gram where the number of farmers selling through the PC increased significantly as well as output sold compared with that three years earlier. This was in sharp contrast to the non-member impact where only in one crop green gram. There were some sales by the non-members through the PCs.

In terms of area shift due to the intervention of PCs there was significant increase reported in groundnut, black gram, and to some extent coffee. In terms of marketing channels before and after the interventions of PC, the number of farmers selling through the PC increase significantly in black gram, flat gram, green gram, groundnut, maize and millets besides paddy. In fact, paddy, pulses, ragi, red gram, and sesame besides sunflower were being sold first time through the PCs. In terms of volume sold, besides these crops, coffee also have substantially increased as did red gram. This was mainly a shift from wholesale channel to the PC channel in most cases.

76% of the non-member farmers had no knowledge of the PC and 88% did not know who owned the PC with others mentioning farmers promoting agency and employees in 3 to 4 cases each. In fact, 81% reported that no one had informed them about the PC with only 6%-7% mentioning PC employees, friends and meetings as the source. 77% farmers did not want to become members of the PC and 57% of them were not sure that they wanted to become members of the PC. 23% wanted to take membership of the PC and of this 11% wanted to become members to avail of loans and subsidies. 93% had no idea about the activities of the PC and others mentioned the supply of fertilisers, dairy animals, seeds and other inputs as its services. 86% had not attended any of the meetings of the PC and others mentioned that it was more about farming and input supply besides loans, data collection, and prices. 96% had no experience with the PC and a few others talked about loans and high interest rates. 49% of them expected only more inputs and subsidies. The non-member farmer accessed agricultural information from farmers, farmer friends and relatives in 92% cases, and none of them reported PC as the source with others depending on multiple sources with personal and non-personal including radio, mobile and newspapers.

Non-member farmers reported improvement in input quality, cost, availability, and adequacy and very significant improvement in price realise for the output besides small improvement in output market availability and accessibility. In terms of marketing channels, there was no big change in the channels used by these non-member farmers except in green gram where earlier, only one farmer had sold through the PC which increased to three after three years. On the other hand, in terms of amount of produce sold, it increased from 5% of the total to 64% overtime. Further, in yellow gram, farmers had been selling through the PC for some time. There were also cases of contract farming in case of chilli and vegetable where one farmer each was undertaking contract farming.

In terms of cropping pattern impact of the PCs on non-member farmers, more area was being grown with maize, millets, coriander and black gram. In terms of yield, significant improvement was reported in black and green gram crops and in maize and millets besides sorghum. In fact, the highest yield improvement was reported in vegetables. Due to this, marketed surplus had gone up significantly in black gram, green gram, maize, red gram and vegetables. So far as price realisation was concerned, after-PC prices were higher in chillies, maize, onion, red gram, sorghum and vegetables. However, there was significant delay in receiving payment in many of these crops compared to pre-PC situation.

Only two and three farmers each of the 91 reported selling black gram and green gram to the PCs where it was none and only one each three years before respectively.

Table 6.21: Distribution of farmer members and produce by crop-wise channel of sales

Channel	Total						Wholesale						Retail						CF						APMC						PC					
Parameters	Respondents			Produce			Respondents			Produce			Respondents			Produce			Respondents			Produce			Respondents			Produce			Respondents			Produce		
Crop	Before	After	Difference	Before	After	% Difference	Before	After	% difference	Before	After	% difference	Before	After	% difference	Before	After	% difference	Before	After	% difference	Before	After	% difference	Before	After	% difference	Before	After	% difference	Before	After	% difference	Before	After	% difference
Cow Milk	6	6		194	194		2	0	-100	84		-100	1	1		10	10		1	1		50	50								2	4	100	50	134	168
Goat	9	10	11.1	49	149	204	7	3	-57.1	33	21	-36.3	1	1		10	10								1	1		6	6			5			112	
Avocado	4	4		325.5	315.5	-3.07	4	3	-25	325.5	15.5	-95.2								1			300													
Black gram	26	26		102.55	135.55	32	22	9	-59	92.25	30	-67.4	1	1		0.75	0.75														3	16	433	9.55	104.8	997
Brinjal	4	4		618.6	618.6		4	4		618.6	618.6																									
Chilli	17	18	5.8	200.3	211.5	5.5	17	16	-5.8	200.3	194.5	-2.9																			2			17		
Coconut	5	5		15600	15600		4	4		13100	13100								1	1		2500	2500													
Coffee	14	14		97.5	97.75	0.26	13	13		92.5	94.75	2.4																			1	1		5	3	-40
Coriander	7	7		83	89.5	7.83	7	7		83	89.5	7.8																									
Cotton	19	18	-5.2	489	512.75	4.86	18	16	-11.1	189	197.75	4.6																			1	2	100	300	315	5
Drumstick	3	3		65	85	30.7	1	1		25	25								2	2		40	60	50.00%												
Flat Gram	7	11	57.1	22.8	24.28	6.5	6	6		21.3	16.2	-23.9																			1	5	400	1.5	8.08	438.6

G. Gram	18	18		81.8	84.55	3.3	15	9	-40	73.5	60	-18.3	1	1		1.5	0.75	-50														2	8	300	6.8	23.8	250.
Ground Nut	13	13		99.1	121	22.1	10	6	-40	78.3	69.1	-11.7																				3	7	133.3	20.8	51.9	149.5
jasmine	4	4		4.8	5.3	10.4	2	2		3.5	3.1	-11.4	2	2		1.3	2.2	69.2																			
Maize	30	30		1050.75	1148.65	9.3	28	21	-25	952.5	820.5	-13.8	1	1		0.75	0.75															1	8	700	97.5	327.4	235.8
Mango	2	2		17	17		1	1		2	2		1	1		15	15																			
Millet	6	6		159.5	208.5	30.7	6	5	-16.6	159.5	118.5	-25.7																					1			90	
Okra	4	4		226	226		3	3		224.5	224.5		1	1		1.5	1.5																			
Onion	8	8		217	230	5.99	8	7	-12.5	217	200	-7.8																					1			30	
Orange	7	7		224	218	-2.68	6	6		209	208	-0.48	1	1		15	10	-33.3																			
Paddy	20	19	-5	901	987.75	9.63	19	12	-36.8	853	602.75	-29.3																				1	7	600	48	385	702
P. gram	6	6		117.5	121.42	3.34	4	4		113	115	1.7																				2	2		4.5	6.42	42.6
Pepper	10	10		90	98.5	9.44	10	10		90	98.5	9.4																									
Pulses	2	2		11	11		2	1	-50	11	3	-72.7																					1			8	
Ragi	2	2		42.5	42.5		2	1	-50	42.5	20	-52.9																					1			22.5	
Red Gram	8	8		26.7	28.5	6.7	6	4	-33	17.2	13	-24.4																				2	4	100	9.5	15.5	63.1
Sunflower	6	6		117.5	122.5	4.2	6	5	-16.6	117.5	115	-2.1																					1			7.5	
Tomato	3	3		93.2	93.2		2	2		63.2	63.2		1	1		30	30																			
Sorghum	1	1		75	60	-20																										1	1		75	60	-20
Vegetables	1	1		600	700	16.6	1	1		600	700	16.6																									

6.3 Comparison across Promoters

58% of the Seeds PC members were male which was lower than Dhan/KTL PC members (60%) and ESAF PC members (65%). This meant that the share of female members was the highest for Seeds promoted PC (42%) not very different from Dhan/KTL (40%) PC membership but much higher than in case of ESAF promoted PC (35%). (Table 6.22). The average age of Dhan/KTL's PC members was highest (53 years), followed by ESAF PC members (46 years) and Seeds PC members (45 years).

Table 6.22: Promoter and gender wise distribution of PC members

Promoter>	Seeds		Dhan/KTL		ESAF	
Parameter> Gender	No. of farmers	% of all	No. of farmers	% of all	No. of farmers	% of all
Male	14	58.33	21	60.00	22	64.71
Female	10	41.67	14	40.00	12	35.29
Total	24	100	35	100	34	100

18% of ESAF PC members were illiterate followed by Dhan/KTL PC members (17%) and Seeds (17%) PC members. Most of the Seeds' PC members were educated up to Middle school (46%). This share was 29 % and 20 % for ESAF PC members and Dhan/KTL PC members, respectively. The member farmers having the education up to High school were highest for Dhan/KTL promoted PC (31 %) followed by Seeds promoted PC (25%) and ESAF promoted PC (18%). Similar pattern was reported for High school educational level where Dhan/KTL PC members had highest number (31.43%) followed by Seeds' PC members (25%) and ESAF PC members (18%). Dhan/KTL promoted PC also had highest number of member farmers qualified up to higher secondary which was 17% of the total member farmers followed by ESAF promoted PC (15%) and Seeds promoted PC (8%). No member farmer was reported to have completed undergraduate and graduate degrees in the case of Seeds promoted PC while 12 % and 3 % of ESAF PC members had completed undergraduate and post graduate degrees. In the case of Dhan/KTL PC members, 6% had completed undergraduate degree while no member was reported to have completed graduate degree (Table 6.23).

Table 6.23: Promoter wise Distribution of PC members by Education

Promoter>	Seeds		Dhan/KTL		ESAF	
Parameter> Education	No. of farmers	% of all	No. of farmers	% of all	No. of farmers	% of all
Illiterate	4	16.67	6	17.14	6	17.65
Primary	1	4.17	3	8.57	2	5.88
Middle	11	45.83	7	20.00	10	29.41
High School	6	25.00	11	31.43	6	17.65
Higher Secondary	2	8.33	6	17.14	5	14.71
Undergrad	0	0	2	5.71	4	11.76
Graduate	0	0	0	0	1	2.94
Total	24	100	35	100	34	100

Farming was reported to be the primary occupation of most of the PC members. 91% of Dhan/KTL PC members had agriculture as the primary occupation followed by Seeds PC members (83%) and ESAF PC members (74%). Labour was another major primary occupation reported with 8% of Seeds' PC members involved in it. This was followed by ESAF promoted PC (6%) and Dhan/KTL promoted PC (6%). Animal husbandry was the primary occupation of 15% ESAF PC members followed by Seeds PC members (4 %). None of the Dhan/KTL PC members were reported to be having animal husbandry as primary occupation. (Table 6.24).

Table 6.24: Promoter wise Distribution of PC members by Primary Occupation

Promoter>	Seeds		Dhan/KTL		ESAF	
Parameter> Primary Occupation	No. of farmers	% of all	No. of farmers	% of all	No. of farmers	% of all
Agriculture	20	83.33	32	91.43	27	79.41
Animal Husbandry	1	4.17	0	0	5	14.71
Business	1	4.17	0	0	0	0
Labour	2	8.33	2	5.71	2	5.88
Skilled Job	0	0	1	2.86	0	0
Total	24	100	35	100	34	100

Most of the farmers were reported to have no secondary occupation. 62 % of ESAF PC members were reported to have no secondary occupation. In the case of Dhan/KTL PC members and Seeds PC members, 60% and 38 % of member farmers had no secondary occupation. Dhan/KTL PC members had the highest number of farmers working as Labour as a part of secondary occupation (17%) followed by Seeds PC members (17%) and ESAF PC members (12%). Animal husbandry had been practiced by 21 % of Seeds' PC members which was higher than ESAF PC members (18%) and Dhan/KTL PC members (9%). Agriculture was the secondary occupation for the members of all the three producer companies with a share of 13%, 6% and 9% for Seeds, ESAF and Dhan/KTL promoted PC. None of the members of ESAF promoted PC were reported to be services of skilled labour as their secondary occupation. But in the case of Seeds and ESAF promoted producer companies it was 9% and 8%, respectively (Table 6.25).

Table 6.25: Distribution of PC members by Promoter and Secondary Occupation

Promoter>	Seeds		Dhan/KTL		ESAF	
Parameter> Secondary Occupation	No. of farmers	% of all	No. of farmers	% of all	No. of farmers	% of all
Agriculture	3	12.50	2	5.71	3	8.82
Animal husbandry	5	20.83	3	8.57	6	17.65
Business	1	4.17	0	0	0	0
Labour	4	16.67	6	17.14	4	11.76
Skilled Labour	2	8.33	3	8.57	0	
None	9	37.50	21	60.00	21	61.76
Total	24	100	35	100	34	100

Friends/ Neighbours/ Relatives were reported to be a major source of general information. 79 % ESAF PC members had friends/ neighbours/ relatives as source of information followed by

Seeds PC members (79%) and Dhan/KTL PC members (43%). Friends/ Neighbours/ Relatives, PC was the source of information for 31% Dhan/KTL PC members (highest) followed by ESAF PC members (9%) and Seeds PC members (8%). PC was also reported to be a key source of information only in case of Dhan/KTL PC members. Other sources were reported to be less important sources of information for member farmers (Table 6.26).

Table 6.26: Distribution of PC members by Promoter and source of general agricultural knowledge

Promoter>	Seeds		Dhan/KTL		ESAF	
Parameter> Source of info	No. of farmers	% of all	No. of farmers	% of all	No. of farmers	% of all
Friends/ Neighbours/ Relatives	19	79.17	15	42.86	27	79.41
PC	1	4.17	4	11.43	1	2.94
Newspaper/ Radio	1	4.17	0	0	0	0
Friends/ Neighbours/ Relatives, PC	2	8.33	11	31.43	3	8.82
Friends/ Neighbours/ Relatives, Mobile Groups	1	4.17	1	2.86	0	0
Friends/ Neighbours/ Relatives, PC, ADO	0	0	1	2.86	1	2.94
Friends/ Neighbours/ Relatives, Radio/TV/Newspaper, PC	0	0	1	2.86	0	0
ADO, Extension workers	0	0	1	2.86	0	0
Friends/ Neighbours/ Relatives, Newspaper/ Radio, Mobile Groups, ADO	0	0	1	2.86	0	0
Friends/ Neighbours/ Relatives, Radio/TV/Newspaper, PC, ADO	0	0	0	0	1	2.94
Coffee Board	0	0	0	0	1	2.94
Total	24	100	35	100	34	100

Average land ownership was highest in the case of Seeds PC members (8.78 acres) trailed by Dhan/KTL PC members (6 acres) and ESAF PC members (3 acres). Similarly, the average operational landholding was also highest for Seeds PC members (12 acres) followed by Dhan/KTL PC members (6 acres) and ESAF PC members (3 acres). ESAF PCs were really those composed of marginal and landless farmer groups compared with those of other two promoters (Table 6.27). On the factors in scale up and better performance of the SEEDS PCs could be large size of farmer holdings both owned and operated compared with that of the other two promoters PCS.

Table 6.27: Promoter wise average owned and operated land of PC members

Promoter> Average Land (acres)	Seeds	Dhan/ KTL	ESAF
Owned	8.78	6.02	2.9
Operational	12.26	6.43	2.72

The highest number of marginal farmers were reported for ESAF promoted PC which were 56% of the total farmers followed by Seeds PC members (42%) and Dhan/KTL PC members (31%). There was no small farmer among Seeds promoted PC members while ESAF promoted and Dhan/KTL promoted PC each had 35% small member farmers having 16% and 36 % respectively, of the total owned area member farmers of these PC. Member farmers falling in the category of semi- marginal land holding were highest for Dhan/KTL prompted PC (23%) followed by Seeds promoted PC (21%) and ESAF promoted PC (12%) with share of 22%, 15% and 25% respectively, in the owned land. 29 % of the Seeds PC members were medium farmers having 43 % of the total owned area. It is followed by Dhan/KTL PC members (11%) owing 21 % of the owned land. Only 3 % of the member farmers of ESAF PC were in the category of medium farmers owing 15 % of the total owned land. In the case of large farmers, 8 % of the Seeds PC members were reported to be large farmers owing 38 % of the total owned land. It was followed by Dhan/KTL PC members in which 6 % of the member farmers were large farmers owing 36 % of the total land. No member farmer of ESAF PC was reported to be falling in the category of large farmers (Table 6.28).

Table 6.28: Category-wise Distribution of PC members by Promoter and Owned land

Promoter >	Seeds				Dhan/ KTL				ESAF			
Parameter> Category	No. of farmers	% of all	Land (Acres)	% of all	No. of farmers	% of all	Land (Acres)	% of all	No. of farmers	% of all	Land (Acres)	% of all
Marginal	10	41.67	10	4.74	11	31.43	11.3	5.36	19	55.88	24.15	24.48
Small	0		0		10	28.57	34.5	16.37	10	29.41	35	35.48
Semi-M	5	20.83	30.75	14.59	8	22.86	46	21.82	4	11.76	24.5	24.84
Medium	7	29.17	90	42.7	4	11.43	44	20.87	1	2.94	15	15.21
Large	2	8.33	80	37.96	2	5.71	75	35.58	0	0	0	0
Total	24	100	210.75	100	35	100	210.8	100	34	100	98.65	100

ESAF promoted PC (62 %) has highest proportion of marginal farmers followed by Dhan/KTL promoted PC (31%) and Seeds promoted PC (21%) comprising 30%, 5 % and 3 %, respectively, of the operational land holding. But small farmers were highest for Dhan/KTL promoted PC (29%) followed by ESAF promoted PC 26%) and Seeds promoted PC (13%) covering 34%, 15% and 4 % respectively, of the operational land holding. In the case of semi-medium category, Seeds promoted PC (21%) have the highest number of member farmers falling in the category of semi-medium operational land handholding having 11 % of the operational landholding. Though, the semi- medium farmers make up only 20% of Dhan/KTL PC members but had an operational landholding of 21 %. 9% of ESAF PC members were semi-medium farmers occupying 20% of the operational land holding. Seeds PC had highest number of medium farmers (33%) having 36 % of the operational land holding. It was followed by Dhan/KTL PC members (14%) occupying 25% of the operational land holding. Only 3% of ESAF PC members were reported to be as medium farmers but had a considerable share of 16 % in the operational landholding. No large farmers were reported in case of ESAF PC members while Seeds promoted PC (13%) had highest followed by Dhan/KTL promoted PC (6%). The operational land holding of large member farmers of Seeds promoted PC and Dhan/KTL promoted PC was 46 % and 33% of the total (Table 6.29).

Table 6.29: category-wise Distribution of PC members by Promoter and Operational land

Promoter>	Seeds				Dhan/ KTL				ESAF			
Parameter> Category	No. of farmers	% of all	Land (Acres)	% of all	No. of farmers	% of all	Land (Acres)	% of all	No. of farmers	% of all	Land (Acres)	% of all
Marginal	5	20.83	8	2.72	11	31.43	12.3	5.46	21	61.76	27.65	29.84
Small	3	12.5	11	3.74	10	28.57	34.5	15.31	9	26.47	31.5	34
Semi-M	5	20.83	33.25	11.3	7	20	46.5	20.64	3	8.82	18.5	19.97
Medium	8	33.33	106	36.02	5	14.29	57	25.3	1	2.94	15	16.19
Large	3	12.5	136	46.22	2	5.71	75	33.29	0		0	
Total	24	100	294.25	100	35	100	225.3	100	34	100	92.65	100

51 % of the member farmers of Dhan/KTL promoted PC owned cows which was followed by ESAF (50%) and Seeds promoted PC (21%). But the average was highest for ESAF promoted PC (3) followed by Dhan/KTL (3) and Seeds promoted PC (3). Goats were owned by member farmers of all PCs. 79% of Seeds PC members owned goats followed by Dhan/KTL (29%) and ESAF PC members (21%). The average number of goats were highest for Dhan/KTL promoted PC (8) followed by Seeds promoted PC (7) and ESAF promoted PC (4). Sheep were not owned by member farmers of ESAF promoted PC. However, 4 % of Seeds PC members and 9% of Dhan/KTL PC members owned sheep with the average owned population of 4 and 7 respectively (Table 6.30).

Table 6.30: Distribution of PC members by promoter and livestock owned

Promoter>	Seeds					Dhan/ KTL					ESAF				
Parameter> Livestock	No. of Members	% of all	No. of animals	% of all	Average	No. of Members	% of all	No. of animals	% of all	Average	No. of Members	% of all	No. of animals	% of all	Average
Cow	5	20.83	13	8.33	2.6	18	51.43	56	34.57	3.11	17	50	56	46.28	3.29
Cow (Shared)	0	0	0	0	0	0	0	0	0	0	1	2.94	35	28.93	35
Oxen	1	4.17	2	1.28	2	2	5.71	4	2.47	2	0	0	0	0	0
Goat	19	79.17	137	87.82	7.21	10	28.57	81	50	8.1	7	20.59	30	24.79	4.29
Sheep	1	4.17	4	2.56	4	3	9	21	12.96	7	0	0	0	0	0
Total	24	100	156	100	6.5	35	100	162	100	4.63	34	100	121	100	3.56

Seeds were purchased either form a single source or a combination of sources. 46 % of the Seeds' PC members purchased seeds form dealers followed by ESAF PC members (35%) and Dhan/KTL PC members (23%). PC was identified as another major source for the purchase of seeds. Dhan/KTL PC members (31%) had the highest number of member farmers who were purchasing seeds form PC followed by Seeds PC members (21%). Agriculture department was supplying seeds to approximately 6 % of Dhan/KTL PC members and ESAF PC members. No member was reported to have purchased seeds from dealers & PC. However, 25 % of Seeds PC members and 17 % Dhan/KTL PC members were purchasing seeds from Dealers & PC. Only 6 % of ESAF PC members were found to have purchased seeds from dealers & agriculture department with members of no other PC were reported to be doing so. The member farmers of ESAF PC had a special feature in which 26% of member farmers did not identify any source for procurement of seeds perhaps for the reasons that they were landless or not into farming (Table 6.31).

Table 6.31: Distribution of PC members by Promoter and Source of Seeds

Promoter>	Seeds		Dhan/ KTL		ESAF	
Parameter> Source	No. of farmers	% of all	No. of farmers	% of all	No. of farmers	% of all
Dealers	11	45.83	8	22.86	12	35.29
Local Farmers	1	4.17	2	5.71	3	8.82
PC	5	20.83	11	31.43	1	2.94
PACS	0	0	0	0	2	5.88
Other FGs	0	0	1	2.86	0	0
Agri Dept	0	0	2	5.71	2	5.88
Dealers, PC	6	25.00	6	17.14	0	0
Dealers, Local Farmers	1	4.17	2	5.71	1	2.94
Dealers, PACS	0	0	1	2.86	0	0
PC, Agri Dept	0	0	1	2.86	0	0
Local Farmers, Agri Dept	0	0	0	0	1	2.94
Local Farmers, PC	0	0	0	0	1	2.94
Dealers, Agri Dept	0	0	0	0	2	5.88
None	0	0	1	2.86	9	26.47
Total	24	100.00	35	100	34	100

Dealers were identified as major source for chemical fertilizers for member farmers. The highest dependence was reported by Seeds PC members (54%) followed by ESAF PC members (47%) and Dhan/KTL PC members (31%). PC was another major source for purchasing chemical fertilizers. 29% of Seeds PC members were purchasing chemical fertilizers from PC. 23% and 12 % of Dhan/KTL PC members and ESAF PC members had purchased chemical fertilizers form PC. Dealers & PC was a major source of chemical fertilizers for 8% Seeds PC members. None of the members of other PC were reported to be purchasing chemical fertilizers from there. Some members didn't identify any source for fertilizer procurement. This category comprises of 37.17 % Dhan/KTL PC members, 32 % ESAF PC members and 8% Seeds PC members. Responses noted towards the preference for chemical pesticides were similar to that of chemical fertilizers. 42% Seeds PC members, 41% ESAF PC members and 20% Dhan/KTL members were reported to be purchasing from dealers. Similarly, PC was another major source adopted by 57% Dhan/KTL PC members, 13% Seeds PC members and 6% ESAF PC members. 8% of Seeds PC members purchased from Dealers & PC with no significant purchased made by member of other PC through this channel. 50% Seeds PC members, 38% Seeds PC members and 17% Dhan/KTL PC members were reported to have not identified any source for the purchase of chemical pesticides (Table 6.32).

Table 6.32: Promoter-wise Distribution of PC members by Source of Chemical inputs

Types of Agrochemicals>	Fertilizer						Pesticide					
Promoter>	Seeds		Dhan/KTL		ESAF		Seeds		Dhan/KTL		ESAF	
Parameter > Source	No. of farmers	% of all	No. of farmers	% of all	No. of farmers	% of all	No. of farmers	% of all	No. of farmers	% of all	No. of farmers	% of all
Dealers	13	54.17	11	31.43	16	47.06	10	41.67	7	20.00	14	41.18
PC, Agri Dept	0	0	1	2.86	0	0	0	0	1	2.86	0	0
PACS	0	0	0	0	2	5.88	0	0	0	0	0	0
PC	7	29.17	8	22.86	4	11.76	3	12.50	20	57.14	2	5.88
Dealers, PC	2	8.33	1	2.86	0	0	2	8.33	1	2.86	0	0
Local Farmers	0	0	1	2.86	0	0	0	0	0	0	0	0
Agri Dept	0	0	0	0	1	2.94	0	0	0	0	1	2.94
None	2	8.33	13	37.14	11	32.35	9	37.50	6	17.14	17	50.00
Total	24	100.00	35	100.00	34	100.00	24	100.00	35	100.00	34	100.00

Biofertilizers and biopesticides were two major bio inputs purchased by member farmers. Most of the farmers were reported to be not purchasing any bio inputs. The range of non-usage for bio fertilizers and bio pesticides was 83- 88% and 82- 97% of the member farmers respectively, for different producer companies. PC emerged out as a key source of procuring bio inputs from where 8% Seeds PC members, 6 % Dhan/KTL PC members were purchasing bio fertilizers and 17% of Dhan/KTL PC members were purchasing bio pesticides. Approximately, 6 % of Dhan/KTL PC members and ESAF PC members were purchasing bio fertilizers. Dealer was also another source providing bio fertilizers 6% Dhan/KTL PC members, 4% Seeds PC members and 3% ESAF PC members. (Table 6.33).

Table 6.33: Promoter wise Distribution of PC members for source of Bio inputs

Types of Bio inputs>	biofertilizer						biopesticide					
Promoter > Parameter> Source	Seeds		Dhan/KTL		ESAF		Seeds		Dhan/KTL		ESAF	
	No. of farmers	% of all	No. of farmers	% of all	No. of farmers	% of all	No. of farmers	% of all	No. of farmers	% of all	No. of farmers	% of all
Dealers	1	4.2	2	5.7	1	2.9	1	4.17	0	0	0	
Local Farmers	1	4.2	2	5.7	2	5.9	0	0	0	0	1	2.9
PC	2	8.3	2	5.71	1	2.94	0	0	6	17.1	0	0
None	20	83.3	29	82.8	30	88.2	23	95.8	29	82.8	33	97.1
Total	24	100	35	100	34	100	24	100	35	100	34	100

The cropping intensity was highest for ESAF PC members (1.48) followed by Dhan/KTL PC members (1.09) and Seeds PC members (1.08).

The number of crops grown by the member farmers in the kharif season were much higher than the rabi and Zaid season. Banana was grown in 10% of the kharif area of ESAF PC members. The kharif acreage reported for Seeds and Dhan/KTL PC members was found to be insignificant. Chilli as reported to be grown by the member farmers of all three PCs. Highest share in the kharif acreage was of Seeds promoted PC (13%) followed by Dhan/KTL promoted PC (5%) and ESAF promoted PC (3%) with the share of 11%, 5% and 3 % in the total area. Chilli and Onion was grown by members farmers of Seeds PC covering 10% and 8% of the kharif and total acreage. No other member farmers were reported to be growing chilli and onion. Coffee was grown by ESAF PC members having a share of 19% and 13 % in kharif and total acreage. 14% of the total acreage was under maize crop in case of Seeds PC members followed by Dhan/KTL PC members (12%) and ESAF PC members (7%). Sunflower was grown by member farmers of Seeds and Dhan/KTL promoted PC only having 6 % share in kharif acreage for both PC. Paddy was reported as an important crop for the member farmers of Dhan/KTL promoted PC covering 20% of the kharif acreage and 19% of the total acreage (Table 6.34).

Table 6.34: Promoter wise Kharif Cropping Pattern of PC members

Promoter>	Seeds					Dhan/KTL					ESAF				
Parameter> Crop	Farmers	Cropped area	Average cropped area	% Kharif Area	% Total Area	Farmers	Cropped area	Average cropped area	% Kharif Area	% Total Area	Farmers	Cropped area	Average cropped area	% Kharif Area	% Total Area
Avocado	0	0	0	0	0	0	0	0	0	0	2	2.5	1.25	2.73	1.83
Banana	1	1	1.00	0.37	0.31	0	0	0	0	0	6	9	1.50	9.82	6.57
Brinjal	0	0	0	0	0	0	0	0	0	0	1	0.4	0.40	0.44	0.29
Brinjal, Sorghum	0	0	0	0	0	0	0	0	0	0	1	0.3	0.30	0.33	0.22
Chilli	6	34	5.67	12.6	10.7	6	11	1.83	4.81	4.47	4	2.5	0.63	2.73	1.83
Chilli, Onion	2	27	13.5	10.0	8.5	0	0	0	0	0	0	0	0	0	0
Coconut	0	0	0	0	0	6	10.3	1.72	4.50	4.18	0	0	0	0	0
Coffee	0	0	0	0	0	0	0	0	0	0	4	17.5	4.38	19.09	12.78
Coffee, Avocado	0	0	0	0	0	0	0	0	0	0	1	3	3.00	3.27	2.19
Coffee, Pepper, Orange, Banana	0	0	0	0	0	0	0	0	0	0	1	1	1.00	1.09	0.73
Coffee, Pepper	0	0	0	0	0	0	0	0	0	0	4	7.9	1.98	8.62	5.77
Coffee, Pepper, avocado, Orange	0	0	0	0	0	0	0	0	0	0	2	8.5	4.25	9.27	6.21
Coffee, Pepper, Banana	0	0	0	0	0	0	0	0	0	0	1	1.5	1.50	1.64	1.10
Coffee, Pepper, Orange	0	0	0	0	0	0	0	0	0	0	2	6	3.00	6.55	4.38

Coriander	4	11	2.75	4.08	3.46	1	2	2.00	0.87	0.81	0	0	0	0	0
Coriander, Maize	1	4	4.00	1.49	1.26	0	0	0	0	0	0	0	0	0	0
Cotton	4	10.5	2.63	3.90	3.30	2	1.5	0.75	0.66	0.61	3	4.5	1.50	4.91	3.29
Cotton, Gram	1	2	2.00	0.74	0.63	0	0	0	0	0	0	0	0	0	0
Cotton, Gram, Maize	1	6.5	6.50	2.41	2.04	0	0	0	0	0	0	0	0	0	0
Cotton, Groundnut, Black Gram	1	3	3.00	1.11	0.94	0	0	0	0	0	0	0	0	0	0
Drumstick	0	0	0	0	0	0	0	0	0	0	3	3	1.00	3.27	2.19
Flat gram, Groundnut	0	0	0	0	0	3	3.9	1.3	1.70	1.58	0	0	0	0	0
Fodder	0	0	0	0	0	1	2	2.0	0.87	0.81	1	1	1.00	1.1	0.73
Ginger	0	0	0	0	0	1	0.5	0.5	0.22	0.20	0	0	0	0	0
Gram	15	32	2.13	11.9	10.1	17	44.7	2.6	19.5	18.15	1	1	1.00	1.1	0.73
Gram, Maize	3	7	2.33	2.6	2.2	0	0	0	0	0	0	0	0	0	0
Green Gram, Urad	1	2	2.00	0.7	0.63	0	0	0	0	0	0	0	0	0	0
Groundnut	0	0	0	0	0	8	20.5	2.56	8.96	8.32	1	2	2.00	2.18	1.46
Jasmine	2	3.25	1.63	1.2	1.02	0	0	0	0	0	0	0	0	0	0
Lemon	0	0	0	0	0	1	1.5	1.50	0.66	0.61	0	0	0	0	0
Maize	8	45	5.63	16.7	14.15	7	28.5	4.0	12.5	11.6	5	10.2	2.04	11.1	7.45
Maize, Black Gram	0	0	0	0	0	1	4	4.0	1.7	1.6	0	0	0	0	0
Maize, sorghum	1	1	1.00	0.37	0.31	0	0	0	0	0	0	0	0	0	0
Mango	0	0	0	0	0	2	3	1.5	1.3	1.2	0	0	0	0	0

Millet	8	32.8	4.10	12.18	10.32	10	26.5	2.65	11.58	10.76	0	0	0	0	0
Okra	0	0	0	0	0	0	0	0	0	0	3	2	0.67	2.18	1.46
Onion	3	15	5.00	5.57	4.72	1	1	1.00	0.44	0.41	0	0	0	0	0
Onion, Maize	2	12	6.00	4.46	3.77	0	0	0	0	0	0	0	0	0	0
Orange	0	0	0	0	0	0	0	0	0	0	1	0.5	0.50	0.55	0.37
Paddy	1	2.5	2.50	0.93	0.79	14	45.9	3.28	20.06	18.64	4	3.75	0.94	4.09	2.74
Pepper, Orange	0	0	0	0	0	0	0	0	0	0	1	2	2.00	2.18	1.46
Red Gram	0	0	0	0	0	2	4	2.00	1.75	1.62	0	0	0	0	0
Red Tuar, Kova	1	0.8	0.80	0.30	0.25	0	0	0	0	0	0	0	0	0	0
Sorghum, Red gram	1	2	2.00	0.74	0.63	0	0	0	0	0	0	0	0	0	0
Sunflower, Chilli	0	0	0	0	0	1	3	3.00	1.31	1.22	0	0	0	0	0
Sunflower	2	15	7.50	5.57	4.72	3	13	4.33	5.68	5.28	0	0	0	0	0
Teak	0	0	0	0	0.00	1	2	2.00	0.87	0.81	0	0	0	0	0
Tomato	0	0	0	0	0.00	0	0	0	0	0.00	2	1.6	0.80	1.75	1.17
Total		269.35			84.71		228.8			92.89		91.65			66.95

Table 6.35: Promoter wise Rabi Cropping Pattern of PC members

Promoter>	Seeds					Dhan/KTL					ESAF				
Parameter> Crop	Farmers	Cropped area	Average cropped area	% Rabi Area	% Total Area	Farmers	Cropped area	Average cropped area	% Rabi Area	% Total Area	Farmers	Cropped area	Average cropped area	% Rabi Area	% Total Area
Banana	1	1	1.00	2.47	0.31	0	0	0	0	0	0	0	0	0	0
Black Gram	2	2	1.00	4.93	0.63	0	0	0	0	0	0	0	0	0	0
Chilli	1	3	3.00	7.40	0.94	0	0	0	0	0	1	1	1.00	3.31	0.73
Coffee	0	0	0	0	0	0	0	0	0	0	1	10	10.00	33.06	7.30
Coffee, Banana	0	0	0	0	0	0	0	0	0	0	1	5	5.00	16.53	3.65
Coriander	1	10	10.00	24.66	3.15	0	0	0	0	0	0	0	0	0	0
Cotton	1	1.5	1.50	3.70	0.47	0	0	0	0	0	1	0.75	0.75	2.48	0.55
Cotton, Gram	2	11.5	5.75	28.36	3.62	0	0	0	0	0	0	0	0	0	0
Gram	0	0	0	0	0	2	1	0.50	9.52	0.41	1	1	1.00	3.31	0.73
Groundnut	1	1.5	1.50	3.70	0.47	1	1	1.00	9.52	0.41	1	1	1.00	3.31	0.73
Jasmine	2	3.25	1.63	8.01	1.02	0	0	0	0	0	0	0	0	0	0
Maize	0	0	0	0	0	0	0	0	0	0	2	3.5	1.75	11.57	2.56
Maize, Gram	1	2	2.00	4.93	0.63	0	0	0	0	0	0	0	0	0	0
Okra	0	0	0	0	0	0	0	0	0	0	1	1	1.00	3.31	0.73
Okra, Brinjal	1	1	1.00	2.47	0.31	0	0	0	0	0	0	0	0	0	0
Onion	1	3	3.00	7.40	0.94	0	0	0	0	0	0	0	0	0	0
Paddy	0	0	0	0	0	1	4	4.00	38.10	1.62	4	7	1.75	23.14	5.11
Millet	0	0	0	0	0	1	4.5	4.50	42.86	1.83	0	0	0	0	0
Red Tuar, Kova	1	0.8	0.80	1.97	0.25	0	0	0	0	0	0	0	0	0	0
Total		40.55			12.75		10.5			4.26		30.25			22.10

Table 6.36: Promoter wise PC member Summer Cropping Pattern

Promoter>	Seeds					Dhan/KTL					ESAF				
Parameter> Crop	Farmers	Cropped area	Average cropped area	% Summer Area	% Total Area	Farmers	Cropped area	Average cropped area	% Summer Area	% Total Area	Farmers	Cropped area	Average cropped area	% Summer Area	% Total Area
Banana	1	1	1	12.42	0.31	0	0	0	0	0	0	0	0	0	0
Brinjal	0	0	0	0	0	1	0.5	0.5	7.14	0.20	0	0	0	0	0
Coffee	0	0	0	0	0	0	0	0	0	0	1	12	12	80.00	8.77
Coffee, Pepper	0	0	0	0	0	0	0	0	0	0	1	3	3	20.00	2.19
Cotton	0	0	0	0	0	1	0.5	0.5	7.14	0.20	0	0	0	0	0
Groundnut, Gram	0	0	0	0	0	1	3	3	42.86	1.22	0	0	0	0	0
Jasmine	2	3.25	1.625	40.37	1.02	0	0	0	0	0	0	0	0	0	0
Millets	0	0	0	0	0	1	3	3	42.86	1.22	0	0	0	0	0
Red Tuar, Kova	1	0.8	0.8	9.94	0.25	0	0	0	0	0	0	0	0	0	0
Vegetables	2	3	1.5	37.27	0.94	0	0	0	0	0	0	0	0	0	0
Total		8.05			2.53		7			2.84		15			10.96

The number of crops grown in rabi season were higher than summer season. Paddy was a major crop grown by members of Dhan/KTL PC members & ESAF PC members. No member farmer of Seeds promoted PC was reported to have grown paddy. Share in the acreage was 38% for Dhan/KTL PC members and 23 % for ESAF PC members. Millet had a share of 43% in rabi acreage of Dhan/KTL PC members with no members of other PCs were reported to be cultivating it. Coffee was reported to be grown by the member farmers of ESAF promoted PC having an average cropped area of 10 acres occupying 33 % of the rabi acreage. No other PC members were reported to be growing coffee. Chilli was grown by member farmers of Seeds promoted PC and ESAF promoted PC covering 7% and 3% of acreage, respectively. Coriander was a major crop grown by Seeds PC members covering 25% of the rabi acreage. Groundnut was grown by members of all promoted PCs covering the rabi acreage in the range of 3-10 %. Gram was cultivated by member farmers of Dhan/KTL promoted PC and ESAF PC members with a share of 10% and 3% respectively, of the rabi acreage. Jasmine and onion were also grown by Seeds PC members covering 8% and 7% of the acreage. (Table 6.35)

Summer acreage of the member farmers was dominated by few crops. Cotton occupied 12.4 % acreage of the summer cropping season. Coffee was grown by ESAF PC members covering 80% of the summer acreage and 9% of the total area. 43 % of summer acreage of Dhan/KTL PC members was occupied by each by millets and groundnut & gram. Jasmine was reported to be grown by Seeds PC members occupying 40% of the summer acreage occupying 1% of the total area. Vegetable was another major crop reported to be grown on 37 % of Seeds PC member's summer acreage. (Table 6.36).

Whereas in case of SEED PCs, 2/3 members could specify the name of the PC they were members of it was only 53% and 46% in case of ESAF and Dhan/KTL. Further, only 11-17% farmers across three promoters PCs knew that PC belonged to them or farmers with others mentioning PC employees (1-29%), promoting agency (8-29%) and BoD (5-6%) (tables 6.37& 6.38). Sadly, the lowest awareness of PC name was in case of NGO Dhan/KTL which is well known NGO in the state. But, in general, the awareness of ownership was very low across all PCs of all promoters.

Table 6. 37: Promoter-wise Distribution of PC members by Knowledge of PC Name

Promoter>	Seeds		Dhan/KTL		ESAF	
Parameter> PC Name	No. of farmers	% of all	No. of farmers	% of all	No. of farmers	% of all
Don't Know	7	29.17	11	31.43	14	41.18
Wrong Name	1	4.17	8	22.86	2	5.88
Correct Name	16	66.67	16	45.71	18	52.94
Total	24		35		34	

Table 6.38: Promoter-wise Distribution of PC members by Knowledge of PC Owner

Promoter>	Seeds		Dhan/KTL		ESAF	
Parameter> PC Owner	No. of farmers	% of all	No. of farmers	% of all	No. of farmers	% of all
BOD	1	4.17	2	5.71	2	5.88
Don't Know	10	41.67	10	28.57	11	32.35
Farmers	4	16.67	4	11.43	5	14.71
PC Employees	7	29.17	9	25.71	6	17.65
Private Company	0	0.00	1	2.86	0	0
Promoting Agency	2	8.33	9	25.71	10	29.41
Total	24		35		34	

6.4 Within Promoter PC Comparison

6.4.1 SEEDS NGO PCs

The share of male and female members was same for both the PCs. 58% of the member farmers were reported to be male while 42% were female member farmers. The average age of the Seeds PC and the Vizhuthugal PC members was 45 and 46 years respectively. 17 % of the member farmers were illiterate for both PCs. 50% Seeds and 42% PC members were educated up to middle level. 25% and 8% member farmers of both PCs were educated up to high school and higher secondary level (Table 6.39)

Table 6.39: Distribution of SEEDS PC members by Education

PC>	Seeds		Vizuthugal	
Parameter> Education	No. of farmers	% of all	No. of farmers	% of all
Illiterate	2	16.67	2	16.67
Primary	0	0	1	8.33
Middle	6	50.00	5	41.67
High School	3	25.00	3	25.00
Higher Secondary	1	8.33	1	8.33
Total	12	100	12	100

58 % of Seeds PC members had agriculture as the primary occupation in comparison to 92% of Vizuthugal PC members. 8 % of Seeds PC members and 8 % of Vizuthugal PC members had animal husbandry and business as primary occupation. 17% of Seeds PC members were working as labour for their primary occupation while no member farmer of Seeds PC was reported to be doing so. No member farmers were working as skilled labour for both the PCs (Table 6.40).

Table 6.40: Distribution of SEEDS PC members by Primary Occupation

PC>	Seeds		Vizuthugal	
Parameter> Primary Occupation	No. of farmers	% of all	No. of farmers	% of all
Agriculture	7	58.33	11	91.67
Animal Husbandry	1	8.33	0	0
Business	0	0	1	8.33
Labour	2	16.67	0	0
Skilled Labour	0	0	0	0
Total	12		12	

17% and 8% of Seeds and Vizuthugal PC members respectively, had agriculture as secondary occupation while 8% Seeds PC members and 33% Vizuthugal PC members had animal husbandry as secondary occupation. 33 % of Seeds PC members were working as labour for their secondary occupation. No member farmers were reported labour as secondary occupation in the case of Vizuthugal PC. The skilled labour was secondary occupation for 17% Vizuthugal PC members which was 8% in the case of Seeds PC members. Many member farmers were reported to have no secondary occupation which was 42% in the case of Vizuthugal PC members and 33% for Seeds PC members (Table 6. 41).

Table 6.41: Distribution of SEEDS PC members by Secondary Occupation

PC>	Seeds		Vizuthugal	
Parameter> Secondary Occupation	No. of farmers	% of all	No. of farmers	% of all
Agriculture	2	16.67	1	8.33
Animal husbandry	1	8.33	4	33.33
Labour	4	33.33	0	0
Skilled Labour	1	8.33	2	16.67
None	4	33.33	5	41.67
Total	12	100	12	100

Friends/ Neighbours/ Relatives was the major source of agriculture information for most of the PC members for both PCs. 83 % and 75 % of Vizuthugal and Seeds PC members respectively, obtained information about agriculture from Friends/ Neighbours/ Relatives. 8 % of Seeds PC members obtained agriculture information through PC and Radio/TV/Newspaper each. 8 % of both Seeds and Vizuthugal PC members obtained information through Friends/ Neighbours/ Relatives, PC. No member farmers of both the PCs obtained information through Friends/ Neighbours/ Relatives, PC, or ADO (Table 6.42).

Table 6.42.: Distribution of SEEDS PC members by Source of general agricultural knowledge

PC>	Seeds		Vizuthugal	
Parameter> Source	No. of farmers	% of all	No. of farmers	% of all
Friends/ Neighbours/ Relatives	9	75.00	10	83.33
PC	1	8.33	0	0
Friends/ Neighbours/ Relatives, PC	1	8.33	1	8.33
Friends/ Neighbours/ Relatives, ADO	0	0	1	8.33
Friends/ Neighbours/ Relatives, PC, ADO	0	0	0	0
Radio/TV/Newspaper	1	8.33	0	0
Total	12	100	12	100

The average owned and operational land for Seeds PC members was reported to be 4 acres and 5 acres, respectively. In the case of Vizuthugal PC, the average owned and operational land was 14 acres and 20 acres, respectively (Table 6.43).

Table 6.43: Average owned and operated land of SEEDS PC members

PC> Average Land (acres)	Seeds	Vizuthugal
Owned	3.89	13.66
Operational	4.72	19.79

Marginal farmers were higher for Seeds PC (58%) than Vizuthugal PC (25%) owning 19% and 1% of the total land, respectively. No small farmers were reported for both PCs. 33% Seeds PC members were semi-medium having 49% of the owned land while 8% of Vizuthugal PC members were semi-medium owning 5 % of the land. 8% Seeds PC members were medium farmers owning 32% of the total land while in case of Vizuthugal PC, 50% of member farmers were medium and owned 46% of the total land. No member farmer of Seeds PC fell in the category of large farmers. In case of Vizuthugal PC, 17% of the members were large farmers who owned 49% of the total land (Table 6.44).

Table 6.44: Category-wise Distribution of SEED PC members by owned land

PC>	Seeds				Vizuthugal			
Parameter> Category	No. of farmers	% of all	Land (Acres)	% of all	No. of farmers	% of all	Land (Acres)	% of all
Marginal	7	58.33	9	19.25	3	25.00	1	0.61
Small	0	0	0	0	0	0.00	0	0
Semi-M	4	33.33	22.75	48.66	1	8.33	8	4.88
Medium	1	8.33	15	32.09	6	50.00	75	45.73
Large	0		0		2	16.67	80	48.78
Total	12	100	46.75	100	12	100	164	100

42% of Seeds PC members were reported to be marginal farmers having a share of 14% of the total operational land. No member farmers falling in the category of marginal farmer were reported for Vizuthugal PC members. Small farmers were 17% of the Seeds PC members having a share of 12% of the operational land. But in case of Vizuthugal PC, 8 % of the member farmers had a share of only 2% of the operational land. Semi-medium farmers were higher for Seeds PC (33%) than Vizuthugal PC (8%). The share of operational land was also higher for Seeds PC (77%) than Vizuthugal PC (3%). But the medium farmers were higher for Vizuthugal PC (58%) than Seeds PC (8%). The operational land was also higher for Vizuthugal PC (38%) in comparison with Seeds PC (26%). No large farmer was reported in case of Seeds PC while it was 25% for Vizuthugal PC members which had a large share of 57% of the operational land (Table 6.45).

Table 6.45: category-wise Distribution of SEED PC members by operated land

PC>	Seeds				Vizuthugal			
Parameter> Category	No. of farmers	% of all	Land (Acres)	% of all	No. of farmers	% of all	Land (Acres)	% of all
Marginal	5	41.67	8	14.10	0	0	0	0
Small	2	16.67	7	12.33	1	8.33	4	1.68
Semi-M	4	33.33	26.75	47.14	1	8.33	6.5	2.74
Medium	1	8.33	15	26.43	7	58.33	91	38.32
Large	0	0	0	0	3	25.00	136	57.26
Total	12	100	56.75	100	12	100	237.5	100

83% of the member farmers of Seeds PC owned goats while 17% owned cows. The average number of goats, cows and sheep owned were 5, 2 and 4 for Seeds PC members. In case of Vizuthugal PC, 75% of the member farmers owned goats followed by cows (25%) and oxen (8%). The population of goats, cows and oxen was 88%, 10% and 2% of the total animal population. The average population of livestock owned by Vizuthugal PC members was 9 goats, 3 cows and 2 oxen per household. (Table 6.46)

Table 6.46: Distribution of SEED PC members by livestock owned

PC>	Seeds					Vizuthugal				
Parameter> Type of animal	No. of farmers	% of all	No. of Animals	% of all	Average	No. of farmers	% of all	No. of Animals	% of all	Average
Cow	2	16.67	3	5.08	1.5	3	25.00	10	10.31	3.333333
Oxen	0	0	0	0	0	1	8.33	2	2.06	2
Goat	10	83.33	52	88.14	5.2	9	75.00	85	87.63	9.444444
Sheep	1	8.33	4	6.78	4	0	0	0	0	0
Total	12	100	59			12	100	97		

The awareness of the PC name was almost similar for both the PCs. 33 % of Seeds PC members and 25% of Vizuthugal PC members didn't know the name of PC. 8% of the member farmers of both the PCs gave wrong name when asked about the name of PC. Member farmers who gave the correct name of PC were reported to be 58% and 67% for Seeds and Vizuthugal PC members, respectively (Table 6.47).

Table 6.47: Distribution of SEEDS PC members by Knowledge of PC Name

PC>	Seeds		Vizuthugal	
Knowledge of PC Name	No. of farmers	% of all	No. of farmers	% of all
Don't know	4	33.33	3	25.00
Wrong Name	1	8.33	1	8.33
Correct Name	7	58.33	8	66.67
Total	12	100	12	100

25% Seeds PC members and 58% Vizuthugal PC members didn't have any knowledge of owner's name of the PC. No member farmers reported private company as the owner of PC. 33% of Seeds PC members and 25% of Vizuthugal PC members reported PC employees as PC owner while 25% Seeds PC members and 8% Vizuthugal PC members reported farmers as PC owner. 8% of both Seeds and Vizuthugal PC members named promoting agency as the PC owner (Table 6.48).

Table 6.48: Distribution of Seeds PC members by Knowledge of PC Owner

PC>	Seeds		Vizuthugal	
Parameter> PC Owner	No. of farmers	% of all	No. of farmers	% of all
BOD	1	8.33	0	0
Don't Know	3	25.00	7	58.33
Farmers	3	25.00	1	8.33
PC Employees	4	33.33	3	25.00
Promoting Agency	1	8.33	1	8.33
Total	12	100	12	100

Dealers emerged as an important source for procuring the seeds. 67% of Vizuthugal PC members procured from dealers while in the case of Seeds PC, this share was reported to be 25% of the member farmers. PC was a source of seed purchase for 33% Seeds PC members and 8% Vizuthugal PC members. Dealers & PC was a major source of seeds for Seeds PC members (42%) while it was 8% for Vizuthugal PC members. 8 % of the Vizuthugal PC members were reported to be purchasing seeds from local farmers and dealers & local farmers. No member farmer was reported to be purchasing seeds from agriculture department and dealers & PACS (Table 6. 49).

Table 6.49: Distribution of SEED PC members by source of seed

PC>	Seeds		Vizuthugal	
Parameter> Source	No. of farmers	% of all	No. of farmers	% of all
Dealers	3	25.00	8	66.67
Local Farmers	0	0	1	8.33
PC	4	33.33	1	8.33
Dealers, PC	5	41.67	1	8.33
Dealers, Local Farmers	0	0	1	8.33
Total	12	100.00	12	100.00

In case of chemical inputs, the usage of the inputs was much higher than bio-inputs. 8 % of the member farmers for both the Seeds and Vizuthugal PC were reported not to purchasing both chemical fertilizers and pesticides. 83% and 25 % of Vizuthugal and Seeds PC members were reported to be purchasing chemical fertilizers form dealers. No member farmer was reported to be purchasing any chemical inputs from PC & agriculture department. 58% of the Seeds PC members were sourcing chemical fertilizers from PC while no member farmers purchased chemical fertilizers from PC. For pesticides, 50 % and 33 % of Vizuthugal and Seeds PC members respectively, were reported to be purchasing chemical pesticides from dealers. While 17% and 8% of Seeds and Vizuthugal PC members were reported to purchasing chemical inputs from PC. 8% of member farmers for both the PCs were reported to be purchasing chemical pesticides from dealers & PC (Table 6.50).

Table 6.50: Distribution of SEED PC members by source of chemical inputs

Type of agro chemical>	Fertilizers				Pesticides			
PC>	Seeds		Vizuthugal		Seeds		Vizuthugal	
Parameter> Source	No. of farmers	% of all	No. of farmers	% of all	No. of farmers	% of all	No. of farmers	% of all
Dealers	3	25.00	10	83.33	4	33.33	6	50.00
PC	7	58.33			2	16.67	1	8.33
Dealers, PC	1	8.33	1	8.33	1	8.33	1	8.33
None	1	8.33	1	8.33	5	41.67	4	33.33

No member farmer of Vizuthugal PC was reported purchasing any bio inputs. However, 67% and 92 % of Seeds PC members were reported not to purchasing biofertilizers and biopesticides, respectively. 8% of Seeds PC members were purchasing biofertilizers from dealers and local farmers each while 17 % purchased biofertilizers from PC. In the case of biopesticides, 8% of the Seeds PC members were reported to be purchasing bio-inputs from dealers (Table 6.51).

Table 6.51: Distribution of SEED PC members by source of Bio Inputs

Types of Bio Inputs>	biofertilizers				biopesticides			
PC>	Seeds		Vizuthugal		Seeds		Vizuthugal	
Parameter> Source	No. of farmers	% of all	No. of farmers	% of all	No. of farmers	% of all	No. of farmers	% of all
Dealers	1	8.33	0	0	1	8.33	0	0
Local Farmers	1	8.33	0	0	0	0	0	0
PC	2	16.67	0	0	0	0	0	0
None	8	66.67	12	100.00	11	91.67	12	100.00
Total	12	100	12	100.00	12	100.00	12	100.00

The net sown area of Vizuthugal PC members (238 acres) was higher than Seeds PC members (57 acres). Cropping intensity was reported to be higher for Seeds PC members (1.40) than Vizuthugal PC members (1.00).

58% of Seeds PC members were able to provide the correct name of the producer company which was higher in the case of Vizuthugal PC (67%). 33% of member farmers for both the PCs didn't have any knowledge about the name of PC. 8% of Seeds PC members provided wrong name of the PC while no member farmer was reported to have given wrong name for Vizuthugal PC (Table 6.52).

Table 6.52: Distribution of SEEDS members by knowledge of PC Name

PC>	Seeds		Vizuthugal	
Parameter> PC Name	No. of farmers	% of all	No. of farmers	% of all
Correct Name	7	58.33	8	66.67
Don't Know	4	33.33	4	33.33
Wrong Name	1	8.33	0	0
Total	12	100	12	100

25 % and 58 % of Seeds and Vizuthugal PC members didn't have any knowledge about the name of the PC owner. 33% of the member farmers gave the name of PC employees followed by farmers (25%), BOD (8%) and promoting agency (8%) as the owners of the PC. In case of Vizuthugal PC, 25 % of the member farmers provided the name of PC employees followed by farmers (8%) and BOD (8%) when asked about the PC owners (Table 6.53).

Table 6.53: Distribution of SEEDS members by knowledge of PC Owner

PC>	Seeds		Vizuthugal	
Parameter> PC Owner	No. of farmers	% of all	No. of farmers	% of all
Farmers	3	25.00	1	8.33
BOD	1	8.33	0	0
Promoting Agency	1	8.33	1	8.33
PC Employees	4	33.33	3	25.00
Don't Know	3	25.00	7	58.33
Total	12	100	12	100

Table 6.54: Kharif Cropping Pattern of SEEDS PC members

PC>	Seeds					Vizuthugal				
Parameter> Crop	Farmers	Cropped area	Avg cropped area	% Kharif Area	% Total Area	Farmers	Cropped area	Avg cropped area	% Kharif Area	% Total Area
Banana	1	1	1	1.93	1.26	0	0	0	0	0
Chilli	0	0	0	0	0	6	34	5.67	15.6	14.3
Chilli, Onion	0	0	0	0	0	2	27	13.50	12.4	11.3
Coriander	0	0	0	0	0	4	11	2.75	5.06	4.61
Coriander, Maize	0	0	0	0	0	1	4	4.00	1.84	1.68
Cotton	2	6	3.00	11.6	7.55	2	4.5	2.25	2.07	1.89
Cotton, Gram	1	2	2.00	3.86	2.52	0	0	0	0	0
Cotton, Groundnut, Gram	1	3	3.00	5.79	3.78	0	0	0	0	0
Cotton, Maize, Gram	1	6.5	6.50	12.5	8.18	0	0	0	0	0
Gram	5	10	2.00	19.3	12.6	9	21	2.33	9.66	8.81
Jasmine	2	3.25	1.63	6.27	4.09					
Kova	1	0.8	0.80	1.54	1.01					
Maize	1	3	3.00	5.79	3.78	7	42	6	19.3	17.6
Maize, Gram	3	7	2.33	13.5	8.81	0	0	0	0	0
Maize, sorghum	1	1	1.00	1.93	1.26	0	0	0	0	0
Moong	1	1	1.00	1.93	1.26	0	0	0	0	0
Moong, Urad,	1	2	2.00	3.86	2.52	0	0	0	0	0
Millet	0	0	0	0	0	2	10	5	4.60	4.19
Onion	0	0	0	0	0	3	15	5	6.90	6.29
Onion, Maize	0	0	0	0	0	2	12	6	5.52	5.03
Paddy	1	2.5	2.5	4.82	3.15	0	0	0	0	0
Red Tuar, Kova	1	0.8	0.8	1.54	1.01	0	0	0	0	0
Sorghum, Gram	1	2	2	3.86	2.52	0	0	0	0	0
Sorghum	0	0	0	0	0	5	22	4.4	10.1	9.22
Sunflower	0	0	0	0	0	2	15	7.5	6.90	6.29
Total		51.85			65.3		217.5			91.2

Gram was the most important crop grown by Seeds PC members occupying 19% of the kharif area followed by maize & gram (14%), cotton, maize & gram (13%), jasmine (6%), maize (6%), cotton, groundnut & gram (6%) and paddy (5%). Other crops were crops of little importance which were either not cultivated or had a very small cultivated area. In case of Vizuthugal PC members, 19% of the kharif area was occupied by maize occupying 18% of the total area. Chilli was grown on 16% of the kharif area followed by chilli & onion (12%), sorghum (10%) and gram (10%). Other major crops grown by the member farmers of Vizuthugal PC members were onion (7%), onion & maize (6%) coriander (5%) and millet (5%). No member farmers were reported to be cultivating moong, paddy, cotton & gram, cotton, maize & gram etc.(Table 6.54).

Kharif acreage was dominated by fewer crops as compared to kharif season. 53% of the rabi area was occupied by cotton & gram which was 14% of the total area. No member farmer of Vizuthugal PC was reported to by cultivating cotton & gram. Jasmine was the second most important crop in the case of Seeds PC occupying 15% of the rabi area which was 4% of the total area. Maize and gram and groundnut occupied 9% and 7% respectively, of the rabi area. No Seeds PC members were reported to be cultivating chilli, coriander, cotton, gram and onion. In case of Vizuthugal PC, Coriander was the most important crop and occupied 53% of the rabi area followed by chilli and onion both occupying 16 % of the rabi area. Cotton and gram each occupied 8% of the rabi area and 1% of the total area. No member farmers of Vizuthugal PC were reported to be cultivating banana, groundnut, jasmine, moong etc. (Table 6.55).

Table 6.55: Rabi Cropping Pattern of SEEDS PC members

PC>	Seeds					Vizuthugal				
Parameter> Crop	Farmers	Cropped area	Avg cropped area	% Rabi Area	% Total Area	Farmers	Cropped area	Avg cropped area	% Rabi Area	% Total Area
Banana	1	1	1	4.6	1.26	0	0	0	0	0
Chilli	0	0	0	0	0	1	3	3	15.8	1.26
Coriander	0	0	0	0	0	1	10	10	52.6	4.19
Cotton	0	0	0	0	0	1	1.5	1.5	7.89	0.63
Cotton, Gram	2	11.5	5.75	53.4	14.47	0	0	0	0	0
Gram	0	0	0	0	0	1	1.5	1.5	7.89	0.63
Groundnut	1	1.5	1.5	6.9	1.89	0	0	0	0	0
Jasmine	2	3.25	1.6	15.1	4.09	0	0	0	0	0
Maize, Gram	1	2	2	9.3	2.52	0	0	0	0	0
Moong	1	0.5	0.5	2.3	0.63	0	0	0	0	0
Okra, Brinjal	1	1	1	4.6	1.26	0	0	0	0	0
Onion	0	0	0	0	0	1	3	3	15.8	1.26
Red Tuar, Kova	1	0.8	0.8	3.7	1.01	0	0	0	0	0
Total		21.55			27.1		19			7.97

Few crops were cultivated by the member farmers of PCs viz. banana, jasmine, vegetables, red tuar, okra, brinjal etc. Highest share of summer acreage was occupied by jasmine (54%) followed by banana (17%), okra & brinjal (17%) and red tuar & kova (13%), in just 6 acres

which was just 7% of GCA in case of Seeds PC members. In case of Vizuthugal PC members, vegetables were the only crop grown by the member farmers in two acres which was one percent of the GCA.

6.4.2 DHAN/KTL PCs

The Illupur PC has the highest number of males as compared to all other PCs promoted by Dhan/KTL. It was followed by Thootukudi PC (55%) and Kotampatti PC (54%). Highest number of females were reported in the case of Kotampatti PC (46%) closely followed by Thootukudi PC (45%). Lowest share of females was reported in the case of Illupur PC (27%) (Table 6.56).

Table 6.56: Distribution of Dhan/ KTL PC members by Gender

PC>	Illupur		Kotampatti		Thootukudi	
Parameter> Gender	No. of farmers	% of all	No. of farmers	% of all	No. of farmers	% of all
Male	8	72.73	7	53.85	6	54.55
Female	3	27.27	6	46.15	5	45.45
Total	11	100	13	100	11	100

Average age of member farmers was reported to be highest in the case of Thootukudi PC members (57 years) followed by Illupur PC members (55 years) and Kotampatti PC members (49 years).

Large number of Kotampatti PC members were reported to be illiterate (38%) while in the case of Illupur PC members only 9% PC members were reported to be illiterate. No member farmer of Thootukudi PC was reported to be illiterate. 9 % of both Illupur and Thootukudi PC members were reported to be educated up to primary level followed by Kotampatti PC whose 8% members were educated up to primary level. Highest number of member farmers educated up to middle level were of Thootukudi PC (45%) followed by Kotampatti PC (15%). No member farmer of Illupur PC was reported to be educated up to middle level. The highest number of member farmers educated up to high school were present in the case of Illupur PC (45%) followed by Kotampatti PC (31%) and Thootukudi PC (18%). No member farmer was reported to be educated up to higher secondary in the case of Kotampatti PC. While in the case of Illupur and Thootukudi PC this share was 36% and 18%, respectively. Highest number of graduate member farmers were reported for Thootukudi PC members (9%) followed by Kotampatti PC members (8%). None of the Illupur PC members were reported to be educated up to graduation level (Table 6.57).

Table 6.57: Distribution of Dhan/ KTL members by Education

PC>	Illupur		Kotampatti		Thootukudi	
Parameter> Education	No. of farmers	% of all	No. of farmers	% of all	No. of farmers	% of all
Illiterate	1	9.09	5	38.46	0	0
Primary	1	9.09	1	7.69	1	9.09
Middle	0	0	2	15.38	5	45.45
High School	5	45.45	4	30.77	2	18.18
Higher Secondary	4	36.36	0	0	2	18.18
Undergrad	0	0	1	7.69	1	9.09
Total	11	100	13	100	11	100

All the member farmers of Illupur PC had agriculture as the primary occupation. Thootukudi PC falls second after it with 91% of member farmers engaged in agriculture followed by Kotampatti PC members (85%). 15 % of Kotampatti PC members and 9% of Thootukudi Pc members were reported to be working as labour and skilled labour respectively, as a part of their primary occupation. No member farmer of any PC promoted by Dhan/KTL had animal husbandry and business as primary occupation.

Most of the member farmers of PCs promoted by Dhan/KTL did not have any secondary occupation. 82% of the Thootukudi PC members did not have any secondary occupation which was highest among all the PCs. It was followed by Illupur PC members (55%) and Kotampatti PC members (46%). Agriculture was the secondary occupation for 9% and 8% of Thootukudi PC members and Kotampatti PC members, respectively while animal husbandry was reported to be secondary occupation for 18% and 8% of Illupur and Kotampatti PC members., respectively. Highest number of member farmers of Kotampatti PC (31%) were working as labour as a part off their secondary occupation followed by Illupur PC (18%). Skilled labour was another major secondary occupation reported from these PCs with 9% of member farmers of both Illupur and Thootukudi PC and 8% of Kotampatti PC members farmers were working as skilled labour (Table 6.58).

Table 6.58: Distribution of Dhan/ KTL members by Secondary Occupation

PC>	Illupur		Kotampatti		Thootukudi	
Parameter> Secondary Occupation	No. of farmers	% of all	No. of farmers	% of all	No. of farmers	% of all
Agriculture	0	0	1	7.69	1	9.09
Animal husbandry	2	18.18	1	7.69	0	0
Labour	2	18.18	4	30.77	0	0
Skilled Labour	1	9.09	1	7.69	1	9.09
None	6	54.55	6	46.15	9	81.82
Total	11	100	13	100	11	100

Friends/ Neighbours/ Relatives was most crucial source of information for Kotampatti PC members (62%) followed by Thotukudi PC members (336%) and Illupur PC members (27%). Friends/ Neighbours/ Relatives, PC was reported to be another major source of agriculture

information from where 36% Thootukudi PC members, 31% Kotampatti PC members and 27% Illupur PC members obtained general information. Friends/ Neighbours/ Relatives, ADO was source of information only for 9% Thootukudi PC members while Friends/ Neighbours/ Relatives, PC, ADO was source of information for 9% of both Illupur and Thootukudi PC members. 9% of Illupur PC members had Friends/ Neighbours/ Relatives, Radio/TV/Newspaper, PC as source of general information with no member farmer of any other firm using it as an information source. 8 % of the member farmers of Kotampatti PC had ADO, Extension workers as a source of general information (Table 6.59).

Table 6.59: Distribution of Dhan/ KTL members by source of general agricultural knowledge

PC>	Illupur		Kotampatti		Thootukudi	
Parameter> Source of info	No. of farmers	% of all	No. of farmers	% of all	No. of farmers	% of all
Friends/ Neighbours/ Relatives	3	27.3	8	61.5	4	36.3
PC	3	27.3	0	0	1	9.09
Friends/ Neighbours/ Relatives, PC	3	27.3	4	30.8	4	36.3
Friends/ Neighbours/ Relatives, ADO	0	0	0	0	1	9.1
Friends/ Neighbours/ Relatives, PC, ADO	1	9.1	0	0	1	9.1
Friends/ Neighbours/ Relatives, Radio/TV/Newspaper, PC	1	9.1	0	0	0	0
ADO, Extension workers	0	0	1	7.7	0	0
Total	11	100	13	100	11	100

The owned land was reported to be highest in the case of Thootukudi PC members (8.9 acres) followed by Kotampatti PC members (5.41 acres) and Illupur PC members (4 acres). Similarly, the operated land holding was also highest for Thootukudi PC members (10 acres) followed by Kotampatti PC members (5 acres) and Illupur PC members (4 acres) (Table 6.60).

Table 6.60: Average owned and operated land of Dhan/ KTL PC members

PC> Average Land (Acres)	Illupur	Kotampatti	Thootukudi
Owned	3.86	5.41	8.9
Operational	4.04	5.41	10.04

The number of member farmers falling in the category of marginal farmers was the highest for Kotampatti PC (62%) followed by Illupur PC (27%). In case of small farmer category, the highest share was for Illupur PC members (26%) followed by Kotampatti PC members (31%)

and Thootukudi PC members (18%). In terms of land ownership too, the maximum land ownership was of small farmers (33%) followed by Kotampatti PC members (19%0 and Thootukudi PC members (7%). No semi- medium member farmer was present in the case of Kotampatti PC members. 36% of each Illupur and Thootukudi PC members were semi-medium farmers owing 56% and 36% of the total owned land. No member farmer was in the category of medium farmers for Illupur and Kotampatti PC while 36% of Thootukudi PC members were medium farmers owning 45% of the total area. Large farmers were not present in case of Illupur PC while 8% of Kotampatti PC members and 9% of Thootukudi PC members were large farmers owning 71% and 26% of the land, respectively (Table 6.61).

Table 6.61: Category-wise Distribution of Dhan/ KTL members by Owned land holding

PC	Illupur				Kotampatti				Thootukudi			
Parameter > Land Category	No. of members	% of all	Land (Acres)	% of all	No. of members	% of all	Land (Acres)	% of all	No. of members	% of all	Land (Acres)	% of all
Marginal	3	27.27	4.5	10.59	8	61.54	6.80	9.67	0	0	0	0
Small	4	36.36	14	32.94	4	30.77	13.50	19.20	2	18.18	7	7.14
Semi-M	4	36.36	24	56.47	0	0	0	0	4	36.36	22	22.45
Medium	0	0	0	0	0	0	0	0	4	36.36	44	44.90
Large	0	0	0	0	1	7.69	50	71.12	1	9.09	25	25.51
Total	11	100	42.5	100	13	100	70.3	100	11	100	98	100

In terms of operated landholding, 62% Kotampatti PC members and 27% Illupur PC members were marginal farmers having 10% and 12% of the operational landholding. Member farmers falling in the category of small farmers were present in case of all the PCs. Illupur PC (45%) had the highest percentage of the small farmers followed by Kotampatti PC (40%) and Thootukudi PC (9%) with the share of 40%, 31% and 9% respectively, in operational land holding. 36% and 27% of the Thootukudi and Illupur PC members were semi-medium farmers. No medium farmer was reported in the case of Illupur and Kotampatti PC members. 45% of Thootukudi PC members were medium farmers having an operational landholding of 52%. 9% Thootukudi PC members and 8% Kotampatti PC members were large farmers having a share of 22% and 71% of the operational landholding.(Table 6.62).

Table 6.62: category-wise Distribution of Dhan/KTL PC members by Operational land holding

PC>	Illupur				Kotampatti				Thootukudi			
Parameter> Land Category	No. of members	% of all	Land (Acres)	% of all	No. of members	% of all	Land (Acres)	% of all	No. of members	% of all	Land (Acres)	% of all
Marginal	3	27.27	5.5	12.36	8	61.54	6.80	9.67	0	0	0	0
Small	5	45.45	18	40.45	4	30.77	13.50	19.20	1	9.09	3	2.71
Semi-M	3	27.27	21	47.19	0	0	0	0	4	36.36	25.5	23.08
Medium	0	0	0	0	0	0	0	0	5	45.45	57	51.58
Large	0	0	0	0	1	7.69	50	71.12	1	9.09	25	22.62
Total	11	100	44.5	100	13	100	70.3	100	11	100	110.5	100

Goat was the most important livestock owned by member farmers of Dhan/KTL promoted PCs. 36% of Illupur PC members owned goats which was the highest followed by Thootukudi PC members (18%) and Kotampatti PC members (15%). But the average number of goats per member farmer was highest in case of Illupur PC (13) followed by Thootukudi PC (11) and Kotampatti PC (2). 18% of Illupur PC members owned sheep while in case of Kotampatti PC members 8% of the member farmers owned sheep. Similarly, oxen were owned by 9% Illupur PC members followed by Kotampatti PC members in which 8% member farmers owned oxen. No member farmer of Thootukudi PC was reported to have owned sheep and oxen. Also, no member farmer of Illupur and Kotampatti PC owned cows. 9% of Thootukudi PC members owned cows with the average population of 2 per member farmer (Table 6.63).

Table 6.63: Distribution of Dhan/ KTL members by livestock owned

PC>	Illupur					Kotampatti					Thootukudi				
Parameter > Livestock	No. of farmers	% of all	Animals (No.)	% of all	Average	No. of farmers	% of all	Animals (No.)	% of all	Average	No. of farmers	% of all	Animals (No.)	% of all	Average
Cow	0	0	0	0	0	0	0	0	0	0	1	9.09	2	8.33	2
Oxen	1	9.09	3	4.00	3	1	7.69	1	20.00	1	0	0	0	0	0
Goat	4	36.36	52	69.33	13	2	15.38	3	60.00	1.5	2	18.18	22	91.67	11
Sheep	2	18.18	20	26.67	10	1	7.69	1	20.00	1	0	0	0	0	0
Total	11	100	75	100		13		5			11		24		

55% of Thootukudi PC members procured seeds form PC followed by Illupur PC members (36%) and Kotampatti Pc members (8%). The role of dealers for the supply of seeds to member farmers was highest for Kotampatti PC (38%) followed by Illupur PC (18%) and Thootukudi PC members (9%). Member farmers of Illupur PC (9%) and Kotampatti PC (8%) purchased seeds form dealers & local farmers. Agriculture department emerged out as a source of seeds for 9% Thootukudi PC members and 8% Kotampatti PC members. Kotampatti PC members also obtained from other sources like local farmers (15%), PC & agriculture department (8%) along 8% of member farmers who did not provide any source (Table 6.64).

Table 6.64: Distribution of Dhan/ KTL PC members by Source of Seeds

PC>	Illupur		Kotampatti		Thootukudi	
Parameter> Source	No. of farmers	% of all	No. of farmers	% of all	No. of farmers	% of all
Dealers	2	18.18	5	38.46	1	9.09
Local Farmers	0	0	2	15.38	0	0
PC	4	36.36	1	7.69	6	54.55
Other FGs	1	9.09	0	0	0	0
Agri Dept	0	0	1	7.69	1	9.09
Dealers, PC	3	27.27	1	7.69	2	18.18
Dealers, Local Farmers	1	9.09	1	7.69	0	0
Dealers, PACS	0	0	0	0	1	9.09
PC, Agri Dept	0	0	1	7.69	0	0
None	0	0	1	7.69	0	0
Total	11	100	13	100	11	100

Most of the member farmers of Dhan/KTL promoted PC didn't provide any source for both chemical inputs viz. chemical fertilizers and chemical pesticides. 55%, 46% and 9% of Illupur, Kotampatti and Thootukudi PC members respectively, didn't provided any source for he purchases of chemical fertilizers. While 82%, 77% and 18% of Illupur, Kotampatti and Thootukudi PC members didn't provide any source for the purchase of chemical pesticides. In the specific case of chemical fertilizers, 54% Kotampatti PC members, 27% Thootukudi PC members and 18% Illupur PC members purchased from dealers. 9% of Thootukudi PC members purchased from each PC & Agriculture department and dealers & PC. PC was an important source for Illupur and Thootukudi PC members from where 27% and 45 % of members farmers respectively, were reported to be purchasing chemical fertilizers. In case of chemical pesticides, dealer was the source of purchase for 23% Kotampatti PC members, 18 % Illupur and Thootukudi PC members. PC (45%), PC & agriculture department (9%) and dealers & PC (9%) were other major sources identified for Thootukudi PC members (Table 6.65).

Table 6.65: Distribution of Dhan/ KTL PC members by Source of Chemical inputs

Type of Agrochemical Input>	Fertilizers						Pesticides					
PC>	Illupur		Kotampatti		Thootukudi		Illupur		Kotampatti		Thootukudi	
Parameters> Source	No. of farmers	% of all	No. of farmers	% of all	No. of farmers	% of all	No. of farmers	% of all	No. of farmers	% of all	No. of farmers	% of all
Dealers	2	18.1	7	53.8	3	27.2	2	18.1	3	23	2	18.1
PC, Agri dept	0	0	0	0	1	9.09	0	0	0	0	1	9.09
PC	3	27.2	0	0	5	45.4	0	0	0	0	5	45.4
Dealers, PC	0	0	0	0	1	9.09	0	0	0	0	1	9.09
None	6	54.5	6	46.1	1	9.09	9	81.8	10	76.9	2	18.1
Total	11		13		11		11		13		11	

Most of the member farmers of Dhan/KTL promoted PCs didn't use both the bio-inputs viz. biofertilizers and biopesticides. Kotampatti PC has the largest number of non-users of biofertilizers (92%) followed by Thootukudi PC (91%) and Illupur PC (64%). Local farmers were the most important source of procurement of bio fertilizers for Illupur PC (18%) followed Thootukudi PC (9%) and Kotampatti PC (8%). 18 % of the Illupur PC members were purchasing from dealers with no member farmer of Kotampatti PC and Thootukudi PC were reported to be purchasing from dealers. No member farmer of any PC was procuring biofertilizers from PC. In case of biopesticide, the non-usage was highest in the case of Thootukudi PC (100%) followed by Kotampatti PC (92%) and Illupur PC (55%). 45 % and 8 % of Illupur and Kotampatti PC members were reported to be purchasing from dealers. No member from all PCs was reported to be purchasing biopesticides from dealers and local farmers unlike biofertilizers where local farmers and dealers were a major source of procurement (Table 6.66).

Table 6.66: Distribution of Dhan/ KTL members by Source of Bio inputs

Type of Bio Input>	bioertilizers						biopesticides					
PC>	Illupur		Kotampatti		Thootukudi		Illupur		Kotampatti		Thootukudi	
Parameters> Source	No. of farmers	% of all	No. of farmers	% of all	No. of farmers	% of all	No. of farmers	% of all	No. of farmers	% of all	No. of farmers	% of all
Dealers	2	18.1	0	0	0	0	0	0	0	0	0	0
Local farmers	2	18.1	1	7.69	1	9.09	0	0	0	0	0	0
PC	0	0	0	0	0	0	5	45.4	1	7.69	0	0
None	7	63.6	12	92.3	10	90.9	6	54.5	12	92.3	11	100
Total	11	100	13	100	11	100	11	100	13	100	11	100

The cropping intensity was reported to be lowest in the case of Thootukudi PC (1.00) succeeded by Kotampatti PC (1.04) and Illupur PC (1.33).

Kharif was reported to be a major season in terms of number of crops sown. Both Thootukudi and Illupur PC members reported to be growing black gram which was 6% of the kharif acreage. Chilli was grown in 9% kharif area of Thootukudi PC members. Coconut was grown in 5% and 12% kharif area of Illupur and Kotampatti PC members, respectively. Fodder was grown in 5% of the kharif area of Illupur PC members occupying 3% of the total area. Gram was reported to be a major crop grown by Kotampatti PC members with the coverage of 23% kharif area and 22% of the total area. Similarly, green gram was a major crop for Thootukudi PC members covering 10% of both the kharif area and total area. Groundnut was grown in 25%

of Kotampatti PC members kharif area covering 25% of the total area. In case of Illupur PC members, the kharif coverage of groundnut was 7%. Similarly, mango also occupied 7% and 5% of the kharif and total area, respectively. 23% of the kharif and total area of Thootukudi PC members area was under millet. Paddy was reported to be a major crop for Illupur and Kotampatti PC members covering 47% and 36% of the kharif acreage. Sunflower was grown in 12% of both the kharif and total area of Thootukudi PC members (Table 6.67).

Table 6.67: Kharif Cropping Pattern of Dhan/KTL members

PC>	Illupur					Kotampatti					Thootukudi				
Parameter > Crop	Farmers	Cropped area	Average cropped area	% Kharif Area	% Total Area	Farmers	Cropped area	Average cropped area	% Kharif Area	% Total Area	Farmers	Cropped area	Average cropped area	% Kharif Area	% Total Area
Black gram	3	2.5	0.83	5.68	4.24	0	0	0	0	0	3	6.5	2.17	5.88	5.88
Chilli	0	0	0	0	0	1	1	1.00	1.42	1.37	5	10	2.00	9.05	9.05
Coconut	1	2	2.00	4.55	3.39	5	8.3	1.66	11.8	11.4	0	0	0	0	0
Coriander	0	0	0	0	0	0	0	0	0	0	1	2	2.0	1.8	1.8
Cotton	1	0.5	0.50	1.14	0.85	1	1	1.00	1.42	1.37	0	0	0	0	0
Flat Gram	1	0.5	0.5	1.14	0.85	0	0	0	0	0	0	0	0	0	0
Fodder	1	2	2.0	4.5	3.4	0	0	0	0	0	0	0	0	0	0
Ginger	1	0.5	0.5	1.14	0.8	0	0	0	0	0	0	0	0	0	0
Gram	0	0	0	0	0	2	16.2	8.1	23.0	22.2	2	3.5	1.75	3.17	3.2
Green Gram	0	0	0	0	0	0	0	0	0	0	5	11.5	2.30	10.41	10.4
Groundnut	4	3	0.75	6.8	5.08	5	17.9	3.5	25.4	24.5	0	0	0	0	0
Groundnut, Flat gram	1	3	3.00	6.8	5.08	1	0.5		0.7	0.7	0	0	0	0	0
Lemon	1	1.5	1.5	3.4	2.5	0	0	0	0	0	0	0	0	0	0
Maize	0	0	0	0	0	0	0	0	0	0	7	28.5	4.07	25.8	25.7
Maize, Black Gram	0	0	0	0	0	0	0	0	0	0	1	4	4.0	3.6	3.6
Mango	2	3	1.5	6.8	5.08	0	0	0	0	0	0	0	0	0	0
Millet	1	1	1.0	2.2	1.7	0	0	0	0	0	9	25.5	2.83	23.1	23.1
Onion						0	0	0	0	0	1	1	1.0	0.9	0.9
Paddy	8	20.5	2.5	46.5	34.7	6	25.4	4.2	36.1	34.9	0	0	0	0	0
Red gram	1	2	2.0	4.5	3.4	0	0	0	0	0	1	2	2.0	1.8	1.8
Sunflower, Chilli	0	0	0	0	0	0	0	0	0	0	1	3	3.0	2.7	2.7
Sunflower	0	0	0	0	0	0	0	0	0	0	3	13	4.33	11.7	11.7
Teak	1	2	2.00	4.55	3.4										
Total		44			74.6		70.3			96.6		110.5			

No member farmer of Thootukudi PC was reported to be cultivating any rabi crop. Black gram and groundnut were reported to be major crops grown by Kotampatti PC members both occupying 50% of the kharif area and one percent of the total area. Similarly, paddy wand ragi were two major crops reported for Illupur PC members. The share of paddy was 47% of the rabi area and 7% of the total area while in case of ragi it was 53% of the rabi area and 8% of the total area (Table 6.68).

Table 6.68: Rabi Cropping Pattern of Dhan/KTL members

PC>	Illupur					Kotampatti					Thootukudi				
Parameter> Crop	Farmers	Croppedarea	Avgcroppedarea	%RabiArea	%TotalArea	Farmers	Croppedarea	Avgcroppedarea	%RabiArea	%TotalArea	Farmers	Croppedarea	Avgcroppedarea	%RabiArea	%TotalArea
Black Gram	0	0	0	0	0	2	1	0.5	50	1.4	0	0	0	0	0
Groundnut	0	0	0	0	0	1	1	1.0	50	1.4	0	0	0	0	0
Paddy	1	4	4.0	47.1	6.78	0	0	0	0	0	0	0	0	0	0
Ragi	1	4.5	4.5	52.9	7.6	0	0	0	0	0	0	0	0	0	0
Total		8.5			14.4		2			2.75		0			0

None of the Thootukudi PC member was growing any crop in summer season. In case of Kotampatti PC members, only cotton crop was grown covering 100% of the kharif area and 1% of the total area. Black gram and millets were two major crops grown in summer season by Illupur PC members each occupying 46% and 5% of the summer area and total area. Brinjal was another crop reported in case of Illupur PC members occupying 8% of the kharif area and 1% of the total area.

73% of Illupur PC members provided the correct name of the PC when asked. This was followed by Thootukudi PC members (45%) and Illupur PC members (38%). 46% of the Kotampatti PC members did not know the name of the PC being highest in the list followed by Illupur PC members (27%) and Thootukudi PC members (18%). No member farmer of Illupur PC gave the wrong name of PC. In case of Thootukudi PC and Kotampatti PC it was 36% and 15% (Table 6.69).

Table 6.69: Distribution of KTL/Dhan PC members by knowledge of PC Name

PC>	Illupur		Kotampatti		Thootukudi	
Parameter> Knowledge of Name	No. of farmers	% of all	No. of farmers	% of all	No. of farmers	% of all
Correct Name	8	72.73	5	38.46	5	45.45
Don’t Know	3	27.27	6	46.15	2	18.18
Wrong Name	0	0	2	15.38	4	36.36
Total	11	100	13	100	11	100

36% of Illupur PC members along with 23% PC members and 18% PC members provided the name of promoting agency when asked about the name of PC owner. Thootukudi PC (36%) had the highest share among the number of farmers who provided PC employees name followed by Kotampatti PC (23%) and Illupur PC (18%). 18% Illupur PC members provided name of BOD while 23% Kotampatti PC members and 9% PC members provided the name of farmers. 36% Thootukudi PC members followed by Illupur PC members (27%) and Kotampatti PC members (23%) did not provided any name when asked about the name of PC owner. But, paradoxically, the Illupur PC had no farmers reporting it belonged to them (Table 6.70).

Table 6.70: Distribution of KTL/Dhan members by knowledge of PC Owner

PC >	Illupur		Kotampatti		Thootukudi	
Parameter> Owner	No. of farmers	% of all	No. of farmers	% of all	No. of farmers	% of all
Farmers	0	0	3	23.08	1	9.09
BOD	2	18.18	0	0	0	0
Promoting Agency	4	36.36	3	23.08	2	18.18
PC Employees	2	18.18	3	23.08	4	36.36
Don't Know	3	27.27	3	23.08	4	36.36
Private Company	0	0	1	7.69	0	0
Total	11	100	13	100	11	100

6.4.3 ESAF PCs

All the PCs had some women members unlike PCs in the north Indian states like Rajasthan (Table 6.71). The average age of two PC members was 38 and 43 years but one had particularly high average age i.e. 54 years in case of Kodai Hills which was into plantation crops.

Table 6.71: Distribution of ESAF PC members by Gender

PC>	Periyakulam		Kodai Hills		Usilampatti	
Parameter> Gender	No. of farmers	% of all	No. of farmers	% of all	No. of farmers	% of all
Male	3	33.33	13	92.86	6	54.55
Female	6	66.67	1	7.14	5	45.45
Total	9	100	14	100	11	100

Male member farmers were the highest in the case of Kodai Hills PC member respondents (93%) followed by Usilampatti PC members (55%) and Periyakulam PC members (33%). The largest share of female member farmers was in the case of Periyakulam PC members (67%) followed by Usilampatti PC members (45%) and Kodai Hills PC members (7%) (Table 6.71).

Large number of member farmers of ESAF promoted PCs had agriculture as the primary occupation. In case of Kodai Hills PC members, all the member farmers were having agriculture as the primary occupation followed by Usilampatti PC members (82%) and Periyakulam PC members (44%). 44% of the Periyakulam PC members had animal husbandry as the primary occupation while on member farmers of Kodai Hills PC and Usilampatti PC had animal husbandry as the primary occupation. None of the Periyakulam and Kodai Hills PC

members had poultry as primary occupation while only 9% of Usilampatti PC members were having poultry as primary occupation. 11% Periyakulam PC members and 9% Usilampatti PC members were working as labour for their primary occupation. No member farmer of Kodai Hills PC was reported to be working as labour as a part of its primary occupation (Table 6.72).

Table 6.72: Distribution of ESAF PC members by Primary Occupation

PC>	Periyakulam		Kodai Hills		Usilampatti	
Parameter> Primary Occupation	No. of farmers	% of all	No. of farmers	No. of farmers	% of all	No. of farmers
Agriculture	4	44.44	14	100.00	9	81.82
Animal Husbandry	4	44.44	0	0	0	0
Poultry	0	0	0	0	1	9.09
Labour	1	11.11	0	0	1	9.09
Total	9	100	14	100	11	100

A very large proportion of the member farmers of two ESAF promoted PCs (36% and 44% did not have any secondary occupation and the third one (Kodai Hills) had 93% of member farmers who did not have any secondary occupation. Agriculture was the secondary occupation for 18% Usilampatti PC members and 11% Periyakulam PC members. Similarly, 36 % of Usilampatti PC members had animal husbandry as secondary occupation followed by Periyakulam PC members (22%). No member farmer of Kodai Hills PC had agriculture or animal husbandry as secondary occupation as this a plantation crops PC. Many of the member farmers of ESAF promoted PC were working as labour for their secondary occupation. The share was highest in the case of Periyakulam PC members (22%) followed by Usilampatti PC members (9%) and Kodai Hills PC members (7%) (Table 6.73).

Table 6.73: Distribution of ESAF PC members by Secondary Occupation

PC>	Periyakulam		Kodai Hills		Usilampatti	
Parameter> Secondary Occupation	No. of farmers	% of all	No. of farmers	% of all	No. of farmers	% of all
Agriculture	1	11.11	0	0	2	18.18
Animal husbandry	2	22.22	0	0	4	36.36
Labour	2	22.22	1	7.14	1	9.09
None	4	44.44	13	92.86	4	36.36
Total	9	100	14	100	11	100

The highest %age of illiterates was in the case of Periyakulam PC (44%) followed by Usilampatti PC (9%) and Kodai Hills PC (7%). 14% of Kodai Hills PC members were educated up to primary level with no member farmer reported for Periyakulam PC and Usilampatti PC. Largest share of member farmers educated up to middle level was reported in the case of Kodai Hills PC (43%) followed by Periyakulam PC (33%) and Usilampatti PC (9%). High graduates were 21% and 27% in the case of Kodai Hills PC and Usilampatti PC, respectively. 36% Usilampatti PC members and 11% Periyakulam PC members were educated up to higher secondary. The member farmers who were undergraduate were reported for all the PCs ranging

from 18% in case of Usilampatti PC to 11% in Periyakulam PC and 7% in Kodai Hills PC (7%). But, Kodai Hills PC has 7% member farmers who were graduate while no other PC had graduate member farmers (Table 6.74).

Table 6.74: Distribution of ESAF PC members by Education

PC>	Periyakulam		Kodai Hills		Usilampatti	
Parameter> Education	No. of farmers	% of all	No. of farmers	% of all	No. of farmers	% of all
Illiterate	4	44.44	1	7.14	1	9.09
Primary	0	0	2	14.29	0	0
Middle	3	33.33	6	42.86	1	9.09
High School	0	0	3	21.43	3	27.27
Higher Secondary	1	11.11	0	0	4	36.36
Undergrad	1	11.11	1	7.14	2	18.18
Graduate	0	0	1	7.14	0	0
Total	9	100	14	100	11	100

Kodai Hills PC members (4.2 acres) had the largest owned landholding followed by Usilampatti PC members (2.7 acres) and Periyakulam PC members (1.1 acres). The operational land holding was also highest for Kodai Hills PC members (4.2 acres) followed by Usilampatti PC members (2.6 acres) and Periyakulam PC members (0.9 acres) (Table 6.75).

Table 6.75: Average owned and operated land of ESAF PC members

PC> Average Land (acres)	Periyakulam	Kodai Hills	Usilampatti
Owned	1.11	4.2	2.7
Operational	0.94	3.92	2.65

The share of marginal farmers was the largest in case of all the three PCs. The highest share was there in the case of Periyakulam PC (78%) followed by Kodai Hills PC (43%) and Usilampatti PC (55%). The small farmers were having a highest share for Usilampatti PC (36%) followed by Kodai Hills PC members (29%) and Periyakulam PC members (22%) having the share of 45%, 26% and 60% of the owned land holding. Semi-medium farmers were highest in case of Kodai Hills PC (21%) followed by Usilampatti PC (9%). None of the Periyakulam PC member was present in the category of semi-medium farmer. The land ownership was 33% and 17% for Kodai Hills PC and Usilampatti PC, respectively. Also, none of the member farmer of Periyakulam PC and Usilampatti PC had any medium farmers. Only 7% of Kodai Hills PC members were medium farmer which owns 25 % of the land (Table 6.76).

Table 6.76: Category-wise Distribution of ESAF members by Owned land

PC>	Periyakulam				Kodai Hills				Usilampatti			
Parameter> Category	No. of farmers	% of all	Land (Acres)	% of all	No. of farmers	% of all	Land (Acres)	% of all	No. of farmers	% of all	Land (Acres)	% of all
Marginal	7	77.8	4	40	6	42.9	8.9	15.1	6	54.5	11.25	37.8
Small	2	22.2	6	60	4	28.6	15.5	26.3	4	36.3	13.5	45.4
Semi-M	0	0	0	0	3	21.4	19.5	33.1	1	9.1	5	16.8
Medium	0	0	0	0	1	7.1	15	25.4	0	0	0	0
Total	9	100	10	100	14	100	58.9	100	11	100	29.7	100

In the case of operated land holding, the categorial distribution of farmers was almost like the owned land holding distribution. 90%, 50% and 55% of Periyakulam PC members, Kodai Hills PC members and Usilampatti PC members were marginal farmers which owned 71%, 20% and 37% of the land holding. But the highest number of small farmers were reported in the case of Usilampatti PC members (36%) followed by Kodai Hills PC members (29%) and Periyakulam PC members (11%). The share of operational land holding was highest for Usilampatti PC (46%) followed by Periyakulam PC (29%) and Kodai Hills PC (28%). Semi-medium farmers had highest share in case of Kodai Hills PC (14%) followed by Usilampatti PC (9%) with a share of 25% and 17% of the total land holding. No member farmer was in the category of medium farmer for Periyakulam and Usilampatti PC while only 7% of Kodai Hills Pc members were medium farmers which owned 27% of the operational land (Table 6.77).

Table 6.77: Category-wise Distribution of ESAF members by Operated land

PC>	Periyakulam				Kodai Hills				Usilampatti			
Parameter> Category	No. of farmers	% of all	Land (Acres)	% of all	No. of farmers	% of all	Land (Acres)	% of all	No. of farmers	% of all	Land (Acres)	% of all
Marginal	8	88.89	6	70.59	7	50	10.9	19.85	6	54.55	10.75	36.75
Small	1	11.11	2.5	29.41	4	28.57	15.5	28.23	4	36.36	13.5	46.15
Semi-M	0	0	0	0	2	14.29	13.5	24.59	1	9.09	5	17.09
Medium	0	0	0	0	1	7.14	15	27.32	0	0	0	0
Total	9	100	8.5	100	14	100	54.9	100	11	100	29.25	100

90% of Periyakulam PC members owned cows which were 40% of the animal owned by Periyakulam PC members. While 82% of Usilampatti PC members owned cows, which was 58% of animals owned by Usilampatti PC members. No member farmer of Kodai Hills PC owned cows. The average number of cows owned was higher for Usilampatti PC members (4)

than Periyakulam Pc members (3). 45% of Usilampatti PC members owned goats which had the highest share amongst all the PC followed by Periyakulam PC members (11%) and Kodai Hills PC members (7%) which was 42%, 2% and 100% respectively, of the total animal population. Cow (shared) was owned by 11% of Periyakulam PC members which was 58% of the total animal population owned by Periyakulam PC members (Table 6.78).

Table 6.78: Distribution of ESAF members livestock owned

PC	Periyakulam					Kodai Hills					Usilampatti				
Parameter > Type of livestock	No. of farmers	% of all	Animals (No.)	% of all	Average	No. of farmers	% of all	Animals (No.)	% of all	Average	No. of farmers	% of all	Animals (No.)	% of all	Average
Cow	8	88.89	24	40.00	3	0	0	0	0	0	9	81.82	32	58.18	3.56
Cow (shared)	1	11.11	35	58.33	35	0	0	0	0	0	0	0	0	0	0
Goat	1	11.11	1	1.67	1	1	7.14	6	100	6	5	45.45	23	41.82	4.6
Total	9	100	60			14	100	6			11	100	55		

Friends/ Neighbours/ Relatives was the most important source of general information which provided information to 86% Kodai Hills PC members followed by Periyakulam PC members (78%) and Usilampatti PC members (73%). PC, Friends/ Neighbours/ Relatives, Newspapers/ Radio, Pc, ADO and Friends/ Neighbours/ Relatives, PC, ADO each was the source of information for 9% of Usilampatti PC members. Coffee board was reported to be the source of information for 7% Kodai Hills PC members (Table 6.79).

Table 6.79: Distribution of ESAF members by source of general agricultural knowledge

PC>	Periyakulam		Kodai Hills		Usilampatti	
Parameter> Source of info	No. of farmers	% of all	No. of farmers	% of all	No. of farmers	% of all
Friends/ Neighbours/ Relatives	7	77.78	12	85.71	8	72.73
PC	0	0	0	0	1	9.09
Friends/ Neighbours/ Relatives, PC	2	22.22	1	7.14		
Friends/ Neighbours/ Relatives, Newspapers/ Radio, Pc, ADO	0	0	0	0	1	9.09
Friends/ Neighbours/ Relatives, PC, ADO	0	0	0	0	1	9.09
Coffee Board	0	0	1	7.14		
Total	9	100	14	100	11	100

Dealers were the major source of seeds for ESAF promoted PCs. 72% of Usilampatti PC members, 33% of Periyakulam PC members and 7% of Kodai Hills PC members were purchasing from dealers. Local farmers had the largest share for Kodai Hills PC (14%) followed by Periyakulam PC (11%) and Usilampatti PC (9%). Kodai Hills Pc had many sources for the supply of seeds. PACS/DCS, Agri dept, dealers & agri dept were source for 14%, 7% and 7% Kodai Hills PC members, respectively (Table 6.80).

Table 6.80: Distribution of ESAF members by Source of Seeds

PC>	Periyakulam		Kodai Hills		Usilampatti	
Parameter> Source	No. of farmers	% of all	No. of farmers	No. of farmers	% of all	No. of farmers
Dealers	3	33.33	1	7.14	8	72.73
Local Farmers	1	11.11	2	14.29	1	9.09
PACS/ DCS	0	0	2	14.29	0	0
PC	0	0	0	0	1	9.09
Agri Dept	0	0	1	7.14	1	9.09
Dealers, Agri Dept	0	0	2	14.29	0	0
Local Farmers, PC	0	0	1	7.14	0	0
Local Farmers, Agri Dept	0	0	1	7.14	0	0
None (Home based)	5	55.56	4	28.57	0	0
Total	9	100	14	100	11	100

82% of Usilampatti PC members were reported to be purchasing from dealers followed by Periyakulam PC (33%) and Kodai Hills PC (29%). PACS was the source of chemical fertilizers for 7% Kodai Hills PC members and 9% Usilampatti PC members. 29% and 7% of Kodai Hills PC members were purchasing chemical fertilizers from PC and agriculture department, respectively. No other member farmers of any other PC was purchasing from PC and agriculture department. 67% Periyakulam PC members, 29% Kodai Hills PC members and 9% Usilampatti PC members were not purchasing chemical fertilizer. In case of chemical pesticides, 78% Periyakulam PC members, 57% Kodai Hills PC members and 18% Usilampatti PC members were reported to be not purchasing chemical pesticides. Dealers was the major source of chemical pesticides for member farmers of PCs promoted by ESAF. 65% Usilampatti PC members, 36% Kodai Hills PC members and 22% Periyakulam PC members purchased form dealers. 18% of Usilampatti PC members and 7 % of Kodai Hills PC members purchased from PC and agriculture department, respectively. No member farmer of all the three PCs were purchasing from PACS (Table 6.81).

Table 6.81: Distribution of ESAF members by Source of Chemical inputs

Type of agrochemical >	Fertilizer						Pesticide					
Parameter > Source	Periyakulam		Kodai Hills		Usilampatti		Periyakulam		Kodai Hills		Usilampatti	
	No. of farmers	% of all	No. of farmers	No. of farmers	% of all	No. of farmers	No. of farmers	% of all	No. of farmers	No. of farmers	% of all	No. of farmers
Dealers	3	33.33	4	28.57	9	81.82	2	22.22	5	35.71	7	63.64
PACS	0	0	1	7.14	1	9.09	0	0	0	0	0	0
PC	0	0	4	28.57	0	0	0	0	0	0	2	18.18
Agri Dept	0	0	1	7.14	0	0	0	0	1	7.14	0	0
None	6	66.67	4	28.57	1	9.09	7	77.78	8	57.14	2	18.18
Total	9	100	14	100	11	100	9	100	14	100	11	100

Majority of the member farmers of ESAF promoted PCs did not purchase any bio-inputs. 89% Periyakulam PC members, 86% Kodai Hills PC members and 64% Usilampatti PC members did not purchase any bio fertilizers while 93% of Kodai Hills PC members and all the members of Periyakulam PC members and Usilampatti PC members didn't purchased any biopesticides. In case of bio fertilizers, 11% Periyakulam PC members purchased from dealers, 14% Kodai Hills PC members purchased from purchased from local farmers and 36% Usilampatti members purchased from PC. But in case of biopesticides, only 7% of the member farmers of Kodai Hills PC were reported to have purchased from the local farmers (Table 6.82).

Table 6.82: Distribution of ESAF members by Source of Bio inputs

Type of bio input>	biofFertilizer						biopesticide					
PC> Parameter> Source	Periyakulam		Kodai Hills		Usilampatti		Periyakulam		Kodai Hills		Usilampatti	
	No. of farmers	% of all	No. of farmers	No. of farmers	% of all	No. of farmers	No. of farmers	% of all	No. of farmers	No. of farmers	% of all	No. of farmers
Dealers	1	11.11	0	0	0	0	0	0	0	0	0	0
Local Farmers	0	0	2	14.29	0	0	0	0	1	7.14	0	0
PC	0	0	0	0	4	36.36	0	0	0	0	0	0
None	8	88.89	12	85.71	7	63.64	9	100	13	92.86	11	100.00
Total	9	100	14	100	11	100	9	100	14	100	11	100

Large %age of member farmers of ESAF promoted PCs knew the correct name of PC. The share was reported to be highest in case of Usilampatti PC (73%) followed by Periyakulam PC (44%) and Kodai Hills (43%). But, 56%, 43% and 27% of Periyakulam PC members, Kodai Hills PC members and Usilampatti PC members did not know have any knowledge of the name of PC. But in the case of Kodai Hills PC members, 14% of member farmers provided the wrong name of PC (Table 6.83).

Table 6.83: Distribution of ESAF PC members by Knowledge of PC Name

PC>	Periyakulam		Kodai Hills		Usilampatti	
Parameter> PC Name	No. of members	% of all	No. of members	% of all	No. of members	% of all
Don't know	5	55.56	6	42.86	3	27.27
Wrong Name	0	0	2	14.29	0	0
Correct Name	4	44.44	6	42.86	8	72.73
Total	9	100	14	100	1	100

56% Periyakulam PC members, 36% Kodai Hills PC members and 9% Usilampatti PC members did not have the knowledge of PC owner. The name of promoting agency was given by many of the member farmers which was in the range of 21-36%. The name of board of directors was given in only one case by 14% of Kodai Hills PC members. The name of the PC employees was also provided on response to the name of PC which was in the range of 21-27%. None of the member farmer provided the name of private company when asked about the name of PC owner (Table 6.84).

Table 6.84: Distribution of ESAF PC members by Knowledge of PC Owner

PC>	Periyakulam		Kodai Hills		Usilampatti	
Parameter> Knowledge of PC Owner	No. of members	% of all	No. of members	No. of members	% of all	No. of members
BOD	0	0	2	14.29	0	0
Don't Know	5	55.56	5	35.71	1	9.09
Farmers	1	11.11	1	7.14	3	27.27
PC Employees	0	0	3	21.43	3	27.27
Private Company	0	0	0	0	0	0
Promoting Agency	3	33.33	3	21.43	4	36.36
Total	9	100	14	100	11	100

6.5 Goat PC comparison Theni and Pandhana (12 and 10 members each respectively)

So far as Theni Goat PC was concerned, it was a stand alone PC, the only one promoted by the NGO and was keen on leveraging the Theni goat breed for its meat.

A comparison of the PC member profile with the goat PC (both all women) showed that age profile was similar (42 v/s 41 for MP goat PC) and Theni goat PC women were more literate (58% high or higher secondary school and only 17% illiterate) than their MP goat PC (Pandhana) members of whom 70% were illiterate. Further, 92% of them reported goatery as primary occupation compared with only 50% in case of MP goat PC who reported it as secondary occupation in 40% cases (table 6.85 and 6.86).

The Theni goat PC relied on friends, and friends and pc, and Pc and mobile groups (50, 17 and 17% each) for information compared with only PC in case of 60% in case of MP Pc. The land ownership and operational land profiles were similar with average owned and operated land being 1.52 and 1.85 acres for Theni and 1.47 and 1.6 acres for MP PC. In fact, 67% of Theni PC member were marginal with 29% land and rest 33% small with 71% of owned land. The operated land was also mostly marginal and small and only 8% farmers had semi-medium farms which had 33% of operated land with 37% and 29% being with marginal and small operators respectively. As against this, though 60% of MP PC members were marginal owners and rest 20 and 10% each being small and semi-medium but their operated lands were marginal in 60 %cases and 30% and 10% being small and semi-medium with 12%, 56% and 31% of operated land respectively (tables 6.87 and 6.88).

More importantly, the number of goats per households for Theni member was large at 20 goats with 92% owning goats and goats being 87% of livestock owned by the households. (table 6.89). This was in sharp contrast to the MP goat PC where average ownership size was 10 goats though 90% households owned them and they were 88% all livestock owned by such households. In fact, the MP PC members also reported buying some inputs like bio fertilisers through the PC.

The cropping intensity of members in both cases was similar at 1.69 in case of Theni and 1.8 in case of MP PC though cropping pattern differed. Maize and cotton were major crops in terms of area in rabi and kharif and some millets in summer season in case of Theni, it was wheat in rabi, soyabean in kharif in case of MP goat PC members.

The awareness of PC was lower among Theni PC members with 58% not knowing the name of the PC (table 6.90) as they were perhaps more familiar with SHGs of women they were first members of and only 25% thought PC was owned by farmers (table 6.91), another 25% thinking PC employees owned it and yet another 17% thought it was owned by promoting agency. This was in sharp contrast to the 90% members knowing the name of PC in MP and 80% knowing it is owned by farmer members. This despite the fact that the MP PC was younger by many years compared with the Theni goat PC.

Table 6.85: Distribution of Goat PC members by Primary Occupation

PC>	Pandhana		Theni	
Parameter> Primary Occupation	No. of members	% of all	No. of members	% of all
Agriculture	3	30	1	8.33
Goatery	5	50	11	91.67
Labour	2	20	0	0
Total	10	100	12	100

Table 6.86: Distribution of Goat PC members by Secondary Occupation

PC>	Pandhana		Theni	
Parameter> Secondary Occupation	No. of members	% of all	No. of members	% of all
Agriculture	2	20	7	58.33
Goatery	4	40	1	8.33
Labour	2	20	1	8.33
Skilled Job	0	0	1	8.33
None	2	20	2	16.67
Total	10	100	12	100

Table 6.87: Category-wise distribution of Goat PC members by Owned land

PC>	Pandhana				Theni			
Parameter> Owned Land	No. of members	% of all	Land (Acres)	% of all	No. of members	% of all	Land (Acres)	% of all
Marginal	7	70	3.25	22.03	8	66.67	5.25	28.77
Small	2	20	6.5	44.07	4	33.33	13	71.23
Semi-medium	1	10	5	33.9	0	0	0	0
Total	10	100	14.75	100	12	100	18.25	

Table 6.88: Category-wise Distribution of Goat PC members by Operated land holding

PC>	Pandhana				Theni			
Parameter> Operated Land	No. of members	% of all	Land (Acres)	% of all	No. of members	% of all	Land (Acres)	% of all
Marginal	6	60	2	12.5	9	75	8.25	37.08
Small	3	30	9	56.25	2	16.67	6.5	29.21
Semi-medium	1	10	5	31.25	1	8.33	7.5	33.71
Total	10	100	16	100	12	100	22.25	100

Table 6.89: Distribution of Goat PC members of livestock owned

PC>	Pandhana					Theni				
Parameter> Livestock	No. of members	% of all	Animals (No.)	% of all	Average	No. of members	% of all	Animals (No.)	% of all	Average
Cow	4	40	8	7.92	2	3	25.00	9	3.54	3.00
Goat	9	90	89	88.12	9.89	11	91.67	220	86.61	20.00
Oxen	2	20	4	3.96	2	0	0	0	0	0
Sheep	0	0	0	0	0	1	8.33	25	9.84	25.00
Total			101					254		

Table 6.90: Distribution of Goat PC members by knowledge of PC Name

PC>	Pandhana		Theni	
Parameter> PC Name	No. of members	% of all	No. of members	% of all
Correct Name	9	90	3	25.00
Don't Know	1	10	7	58.33
Wrong Name	0	0	2	16.67
Total	10	100	12	100

Table 6.91: Distribution of Goat PC members by knowledge of PC Owner

PC>	Pandhana		Theni	
Parameter> PC Owner	No. of members	% of all	No. of members	% of all
Don't Know	2	20	2	16.67
Farmers	8	80	3	25.00
PC Employees	0	0	3	25.00
Promoting Agency	0	0	2	16.67
BOD	0	0	2	16.67
Total	10	100	12	100

On the output side, whereas in case of Theni PC in Tamilnadu, the number of farmers selling goats to PC increased from nil to 5 over last three years i.e. 40% farmers were selling through the PC now (sold 112 goats in all) with some of them reporting selling maize and millet crops also through the PC. In case of MP goat PC (Pandhana), it was 30% farmers who were selling through the PC (total of 14 goats) and one of them also reported selling soyabean to the PC.

6.6 Summary

As the PC data show there were wide variations in performance of PCs in Tamilnadu across PCs and within each promoter's PCs. Some were vibrant (like SEEDS ones) and others struggling (Dhan and KTL) while some others non-starters (one of the ESAF promoted). Of the 105 members interviewed in Tamilnadu across 9 PCs, 46% were women farmers despite not many PCs studied being Women PCs except one in goatery. This is quite different from that found in other states PCs.

The average owned land of members was not too small with 5.12 acres and operated land being 6 acres per household. The members were mostly marginal, small and semi medium farmers (90%) of the total owning 53% of land. However, in terms of operated land, they accounted for only 82% of all farmers and 43% of the operated land. Though 48% had owned groundwater resource for irrigation still other 50% were rainfed which was the highest across states. Therefore, average cropping intensity of the members was only 1.16 but still crop diversity was very high.

The SEEDS PC members were much larger than their other Dhan/KTL and ESAF PC member counterparts. There was no small farmer among Seeds promoted PC members while ESAF promoted and Dhan/KTL promoted PC each had 35% small member farmers having 16% and 36 % respectively, of the total owned area member farmers of these PC. But the cropping intensity was the highest for ESAF PC members (1.48) followed by Dhan/KTL PC members (1.09) and the lowest for Seeds PC members (1.08).

The members were more aware of PC name than the non-members (57% versus 24%). Further, only 15% member farmers thought or knew the PC belonged to farmers with others mentioning PC employees (24%) or promoting agency (22%) as the owners. There was no difference in this across three promoters' PCs. There was hardly any awareness of PC ownership among non-members.

The input interface of PCs showed that among the members, dealers emerged as the major source of seed purchase with 35% buying from there. Only 17% farmers bought it from the PC with another 11% from both PC as well as dealers. The reliance on dealers was even higher in case of chemical inputs at more than 60% with only 22-30% farmers buying it from the PC. In fact, even PACs did not figure as a major source for even fertiliser purchase. The bio inputs which were used by the very small percentage of farmers was bought more from the PC ranging from 75% in case of bio pesticides and 31% in case of bio fertilisers. Only 8% non-members bought seeds and chemical inputs from PCs.

The highest dependence on dealers for seeds was reported by Seeds PC members (54%) followed by ESAF PC members (47%) and Dhan/KTL PC members (31%).

91% members has no dislike for any of the services of the PCs 60% had not received any subsidy or information about it from PC while 16% had received subsidised inputs and 6% various farm equipments like MIS or implements. 50% even reported receiving loans from/through the PCs. 45% reported monthly meeting and 34% attended it every time. 83% wanted to continue being members as it was beneficial. 77% also were keen to encourage others to join the PC as members as it brought benefits. While 53% did not suggest any new product or services, others suggested loans and input supply, procurement and market linkage for farm produce, timely supply of inputs and more training of farmers and value addition to

farm produce. A few others also suggested expanding the membership of the PC and making staff more accountable to members.

The only major expansion in crop area was groundnut due to the intervention of PC and yields had improved in cotton and many other pulses, cereals, grams. Major price benefits were realised in pulses, groundnut, cotton and maize. In terms of channels of sale 29% of the farmers sold 39% of their produce through the PCs, mainly in the crops of black gram, coffee, cotton, green gram and maize. Only two and three farmers each of the 91 reported selling black gram and green gram to the PCs where it was none and only one each three years before respectively.

This was mainly a shift from wholesale channel to the PC channel in most cases. This was in sharp contrast to the non-member impact where only in one crop green gram. there were some sales by the non-members through the PCs.

In terms of area shift due to the intervention of PCs there was significant increase reported in groundnut, black gram, and to some extent coffee.

Appendix 6.1

SEEDS NGO PCs

Seeds NGO has been in existence since 1995 and started PC intervention in 2014. It had promoted 11 PCs so far in TN with a total turnover of Rs. 30 crore in 2018-19 covering eight districts, 850 self-help groups, 10200 members and 16099 PC members. Of these shareholders, 61% were women and 78% small and marginal farmers. These members cultivate 45300 acres. It has also engaged in crop insurance and cattle insurance for its members. The NGO is supported by SFAC and NABARD and works with Samunnati Finance, Ananya Finance, Avanthi Finance, FWWB, South Indian Bank and Indian Overseas Bank besides State Bank of India and SVA Karma Finance on the financing side, and Safe Harvest Pvt. Ltd. on the output side. The 12 PCs together had share capital of Rs. 1.75 crore and SFAC has provided matching equity grant of Rs. 10 lakh each to six of them. Some of the PCs have been recognized by NABARD and Access Foundation and Rabo Bank. The major focus crops of the PCs include: pulses in one case, millets and coriander in two cases each, coconut and paddy in the case of two other PCs each, and Banana, chilly and maize in case of one each. The NABARD support was Rs. 9.06 lakh for three years and Rs. 40 lakh was from SFAC. The NGO (SEEDS) has two wings: Seeds RI (resource institution of SFAC) and Seeds Agro. Both of them have 5 and 4 staff each whereas RI also works as POPI of NABNZRD besides doing watershed and Non-Pesticide Management practices (growing crops without use of chemical pesticides) promotion. The Seeds Agro focuses on coffee exports and rural distribution of various products.

Its model of PC organization includes a CEO, administration manager, and procurement and marketing officers under him and inventory controller and salespersons under each of them besides the various committees to help them with business and day to day management of the PC affairs. Altogether, the 11 PCs have 11 CEOs, ten procurement and marketing staff, seven agronomists, ten administration staff and 30 credit officers. The 11 PCs focus on millets (2), pulses (1), coriander (2), coconut (3), banana (1), paddy (2), chilli (1), and maize (1). The NGO also has presence across eight other states in central, west and east India besides Tamil Nadu as it is a partner of the BRLF for two years (2019-21) for the purpose of organizing farmers around NPM. The number of shareholders across PCs range from minimum of 200 to as many as 3600 in the case of the PC under case study (SEEDS Farmer PC). The share capital of the PCs ranges from minimum of Rs.2 lakh to a high of Rs.36 lakh (case study PC). It has already received matching equity grant for five PCs – three supported by NABARD and two by SFAC. The various PCs have been receiving credit from Sammunati Finance since 2017-18 and some credit also from Ananya Finance. Interestingly, most of the loans across various PCs during 2016-19 have gone for livestock (60%) and equally for farm investments and working capital (15% each).

The Seeds Agro production services pvt. Ltd registered in 2013 mainly works with Tata Tea Global Beverages (TTGB) for its CSR scheme – *Gaon chalo* which started in 2011 in Tamil Nadu under which this PC implements in Virudhunager district. It had turnover of Rs. 25 crore. Over the years, it has expanded to 13 districts and 1752 villages with 4260 outlets and 84 rural distributors employing 94 rural youth. Its coffee business involves domestic sales Rs. 12.56 crore and exports of the order of Rs. 6.96 crore. It has an agreement with Thara coffee curing

works in Wayanad in Kerala, and Ara processing for its coffee for exports, besides other suppliers like Thomas and Sons, TH Traders and Sunshine Enterprises.

The PCs have market linkages with Namboodiris in Kerala, Nilon in Pune, Phallada and Natural Remedies, and Himalaya Drug Company in Bangalore and IMPCOPS, Chennai besides Safe Harvest, Hyderabad. One of its PCs had brought crop insurance since 2016-17 and 2017-18 covering 2000 and 6000 farmers with 4000 and 15000 acres insured with the AIC of India. It claims that its farmers have been able to receive Rs.500 -1000 per quintal have price across crops than the local market price. It claims that the cattle population has doubled, and goat population increased four times in the areas of intervention. It calculates the net worth of Seeds PC at 1.06 crore which is third highest among PCs and Rs.0.47 crores in the case of Vizuthugal which is one of the lowest among all PCs.

Each PC has an administrative manager and finance manager each and procurement, processing, marketing, and credit officers under whom there are inventory controllers value addition incharge and sale persons besides a community development officer who in turn work with the procurement, agribusiness, marketing and finance committees of the PCs. The Seeds has 11 CEOs across 12 PCs, 30 credit officers, 10 procumbent and marketing staff, 7 agronomists and 10 administrative staff. It has 7 PCs supported by SFAC and 4 by NABARD across 9 districts. It started with 4 PCs supported by NABARD in 2015-16 and engaged in 7 more PCs supported by SFAC in 2016-17 and 2017-18. It has partnerships with Bharat Rural Livelihoods Foundation (BLRF) for promoting NPM in 9 states targeting 1 lakh farmers during 2019-21. These states are mostly in central, western and eastern India besides Tamil Nadu.

The shareholders for the 11 PCs range from 480 (SFAC) to as many as 3594 (NABARD PC). The share capital ranges from Rs. 4.8 lakh to as high as Rs. 35.94 lakh (Seeds PC/NABARD). 6 out of 11 PCs which are more than 3-year-old have ever received matching equity grant from SFAC of Rs. 10 lakh each. 75% of its loan portfolio from 2016-19 was made up of Samunnathi Finance loans and other 24% of Ananya Finance loans. It has been able to channelize credit to 53% its member farmers across PCs. For 8 of its PCs, it has been able to leverage various Govt. schemes for value addition and processing. These schemes included mainly SPU, MSDA, NFSM and NADP mainly for creating land, building and machinery assets. It has an agri business centre at its main office which sells groceries to member farmers.

Some of the best practices followed by its PCs include direct procurement from farmers and payment at farm gate, no involvement of intermediaries in the transactions, and supply of quality inputs. It plans to set up 33 more PCs in 2019-20 for NABARD (23) and SFAC (10) from the existing four and seven each respectively. The farmer coverage would go up from 16700 to 49700 and area covered from 66000 acres to two lakh acres and villages from 700 to 2800.

SEEDS FPC

Seeds FPCs was registered in 2014 with 476 members, 95% of whom are women and 25% landless and others mostly marginal and small farmers with more than 40% being SC/ST category. They are spread across 70 panchayats and 117 villages across its blocks of the district of Virudhunagar and Madurai. The PC has authorised capital of Rs. 50 lakh and paid up capital of Rs. 47.15 lakh (Table 6.1). It has 10 Board members and only 3 of them are women despite most of the members being women, and three of the board members are from reserved

categories. The company has various inputs licences and FSSAI licence. It has taken 60 farmers on five training and exposure visits in zero budget chilli farming and millets value addition training. The Board of directors were taken on two training programmes in Kodaikanal on strategic business planning and PC management. The CEO attended five training programmes across various training centres besides exposure to the business of Safe Harvest pvt. Ltd. The company has three-year business plan covering pulses, chilli and millets crops and their procurement, processing, grading, packing, trading, and marketing.

This PC with 10 Directors has a CEO who is assisted by administration and marketing manager each and an agronomist. The PC has an MoU with Safe Harvest under which it procures various commodities worth Rs.1.47 crore with the condition that these commodities will be supplied with proper primary value addition and it paid 50% advance for the same.

Table 6.1: Profile and Performance of SEEDS PC

Year> Parameters	2015-16	2016-17	2017-18	2018-19
Authorised capital (Rs. lakh)	40	40	40	50
Paid up capital (Rs. lakh)	35.94 (90%) *	35.94(90%)	35.94(90%)	47.15
Turnover (Rs. lakh)	5.3 lacs	117.8	272.3	470.8
Profits (Rs. lakh)	0.23	4.11	(4.8)	8.17
Reserves and surplus (Rs. lakh)			14.47	22.64
Assets (Rs. lakh)			0.7	52.7
Share holders	189	1140	2799	3563

Note: *- share capital mobilised as %age of authorised capital

The PC originated from farmers clubs promoted by NABARD which numbered 11 with 20 farmers each and also Self-Help Groups (150) promoted under SRLM which initially started with micro finance. The PC has 5439 members across 117 villages of three blocks of two districts. It initially started with Rs. one lakh authorised capital which was later increased to Rs.10 and Rs.50 lakh. 27 staff work with the PC and it is claimed that 75 % members know that PC belongs to them. It has given away share certificates to 3698 members but has not yet paid any dividend. The office of the PC is rented in from ASEFA NGO @ Rs. 25000 per year. Most of its inputs business include sale of seeds, cattle feed and fertilizers where 70% of the buyers are members and 20% of the members buy exclusively from the PC. Its major input sales come from cattle feed supply to 56 farmers which accounts for more than 60% of the turnover, the rest mainly coming from fertilizers sold to over 200 farmers. The sales of cattle feed were throughout the year as were for home products and groceries, whereas the procurement of various crops mostly happened from September to April.

It has a warehouse constructed with a loan from NABARD. It also runs 2 vegetable markets which were originally set up and run by ASEFA NGO since 2015 on a weekly basis. It has five retail shops. It has discouraged the growing of a medicinal plant in five villages as it was harmful for soil and health and has moved these farmers to black gram and millets with high yielding varieties. It has been selling more and more to SHPL ranging from Rs. 50 lakh in 2015-16 to Rs. 182 lakh in 2017-18 and Rs. 311 lakh in 2019-20. It claims that 60% of the farmers follow NPM practices.

It has also undertaken organic produce contract farming for PHALADA Agro in the past and has supplied to hotels in Madurai directly. It claims that 80% of its inputs buyers are members and 75% output comes from the members. Its major loan portfolio also consists of loan for livestock including goats to 2555 members (50% of the total) accounting for 65% amount disbursed.

It claims it has been able to give Rs. 400 per quintal higher price than the market in barnyard millets, Rs. 300 per quintal in black gram and green gram, Rs. 400 per quintal in coriander, Rs. 500 per quintal in chilly, and Rs. 200 per quintal in maize and Rs. 600 per quintal in red gram. For the year 2018-19, its procurement was mainly made up of black gram, green gram, and chillies. The total procurement was Rs.2.68 crore.

It has trained its board members twice. It feels that value addition to farm produce and selling in rural markets besides promotion of NPM practices are best practices which should be taken up by other PCs. It plans to scale up, do more value addition besides producing ready to eat foods. It has trained 250 farmers in livestock management with the help of KVKs, 185 farmers in millet value addition with the help of TNAU, 305 in kitchen gardening with the help TNAU, 250 in crop, animal, and life insurance and 135 in vermicompost and bee keeping.

The business plan of the PC for 2019-20 included credit needs of Rs. 20 crore for new shareholders, fertilizer sale of Rs. 25 lakh, procurement of various crops of the order of Rs. 1023 crore and home products of Rs. 1 crore besides cattle feed sales and grocery sales of Rs. 40 lakh each.

Vizhuthugal agri farmer PC

The PC registered in 2015 across 62 villages and 31 panchayats had a membership of 1394 in 2018-19 and shareholding of 1537 in 2019-20 out of whom 45% were women and most of the farmers were marginal and small farmers and 13% even landless. The PC had 25 FIGs and 10 JLGs. The PC has authorised capital of Rs.20 lakh and share capital of Rs.15.37 lakh (Table 6.2). It has also received equity grant from SFAC for Rs.10 lakh. The PC has made loans of Rs.2.3 crore to 462 farmers and goat loans of the order of Rs.1.3 crore to 263 farmers besides cattle and agri allied loans to another 122 and 77 farmers respectively, totalling Rs.4.36 crores across 920 farmers. company served more than 900 farmers for agri business transactions and 700 farmers for credit.

95% of the members are active, 65% of the business in agri inputs came from members and 40% members bought exclusively from PC. It had a warehouse and a processing facility besides running a retail outlet. It had only sold to private and corporate in wholesale. Of the 7 Board members, one is a woman and four also promoting members.

Photo 6.1: TNSCM provided office, warehouse and cold room at Vizhuthugal AFPC

The PC supplied mostly fertilizers and transacted in the procurement of chillies, coriander and black and green gram. The major crops dealt by the PC included pulses maize, and chillies. 98% of its turnover came from output transactions. The value addition was also mostly in these commodities.

Photo 6.2: A spice processing facility and a retail outlet of Vizhuthugal AFPC

The PC has besides the CEO an administration and finance manager each and a procurement and marketing officer at the next level who are helped by various committees like purchase and marketing committee. The finance portfolio is managed by a credit manager with the help of CDOs and finance committee. It had provided training to Board directors of two days each locally and to the CEO at BIRD Mangalore for three days.

It has been allotted a primary processing centre (PPC) from the Govt. of Tamilnadu under TN Supply Chain Management project. Its business model revolves around scaling up and value addition besides diversification into new products.It still faces problems of getting adequate markets for farmers produce and the dryland conditions and lower MSP on the external front as the major challenges.

Photo 6.3: Dry chillies at the local APMC market yard

As a future strategy, it plans to remain focussed on NPM and engage in edible oil and various spices. The PCs also tries to rope in large farmers as they are the opinion leaders whom small farmers imitate. The BoD is of the view that more export thrust is needed, and high value enterprises like poultry and goatery should be added to the PC business for the benefit of

women farmers. They were also concerned that many of the govt. scheme benefits go mostly to large farmers, therefore, PC should focus on small farmers. The PC has been allotted an office in the APMC complex under the Tamilnadu supply chain management (SCM) project which also includes a primary processing centre. The market which is 20 years old cotton and chilli market has 3000 square feet unit leased out for 3 years extendable by 2 years. The PC has total staff of 11 people including a CEO, two marketing managers and one credit and administration manager each. 60% of the processing capacity is used for member produce. The processing facility also carries out job work for the members on payment basis in oil, spices and flour.

Table 6.2: Profile and performance of VAFPC

Year> Parameters	2015-16	2016-17	2017-18	2018-19
Authorised capital (Rs. Lakh)	20	20	20	20
Paid up capital (Rs. Lakh)	13.94 (70%) *	7.7 (38.5%)	10(50%)	15.37(77%)
Turnover (Rs. Lakh)	0	44	6.41	
Profits (Rs.)	0	932	1637	

Note: *- share capital mobilised as %age of authorised capital

Dhan/KTL PCs

Thoothukudi pulses PC

KTL has promoted 30 PCs supported by NABARD SFAC and Tamil Nadu SFAC in Tamil Nadu. This PC, promoted by KTL – a for-profit arm of the Dhan Foundation which has promoted five SFAC and seven Tamilnadu SFAC supported PCs in the state, was registered in 2015. It is all women member PC with 52 farmer interest groups (FIGs) across 22 villages of two blocks of the district. It has 1000 members who are either owner cultivators or tenant farmers. 3% of the members are landless and 50% members are active. *The PC has wrongly categorised its farmer members into marginal and small categories besides large where it mistakenly categorizes marginal as small and small as marginal as against the official categorization of farmers in India.* The authorised capital of the PC is Rs. 25 lakh and paid up capital Rs. 20 lakh (Table 6.3). Besides, it has received a matching equity grant of Rs. 10 lakh from the SFAC. It has all the input sale licences and the APMC licence. Any farmer has to have support of 100 farmers to become the members of the BoD. it has a manager, one accountant, one procurements unit manager, and two Local Resource Persons (LRPs), besides the CEO. It has a warehouse in the regulated market yard and one processing unit besides its own brand – Kharisal Bhoomi. The office complex also has a retail outlet. It has five members of the Board of Directors of whom only one is women and there is an advisory committee of 15 persons.

Various inputs are bought mostly by non-members upto the extent of 70% while only 300 members buy exclusively from the PC. On the output side, its buys various crop produce like pearl millet, jowar, minor millets, spices like chilli, and coriander besides maize from a few members each worth Rs. 20 lakh per year. The farmers sell to it because of the field pick up and cash payment. It has earlier procured various pulses from 470 farmers at MSP for NAFED for which it received 1% commission. 60% of its turnover it made up of inputs and the rest

from output handling**. It has paid with bonus of Rs. 300 per share last year for three years.** It has also received a grant of Rs. 60 lakh for seed processing plant from the state (TN) SFAC. It has a cash credit limit of Rs. 60 lakh from Canara Bank. The BoDs have been trained for three days in 2015-16 at the Tata Dhan Academy by Dhan Foundation. They were also taken to an exposure visit at Mulkanoor Cooperative in Andhra Pradesh. The CEO and other professionals of the PC were also given three days training by the Dhan Foundation. The present CEO is a former employee of Dhan Foundation and he has no professional business training. The PC considers contract seed production by 20 farmers for NSC and bio-input business as the best practices. It believes that the best way to help farmers is to intervene in the open market for better realization of price for the benefit of the farmers. It has faced problems with governance wherein three members of BoD were removed as they defaulted on payments. On the external front, it feels lack of government support for bio-inputs and competition as major challenges.

Table 6.3: Profile and performance of Thoothukudi pulses PC

Year > Parameters	2015-16	2016-17	2017-18	2018-19
Authorised capital (Rs. lakh)	10	10	25	25
Share capital (Rs. lakh)	10 (100%) *	10(100%)	20 (80%) (Rs. 25000 by KTL)	20(80%)
Turnover (Rs. lakh)	49.5	71.9	99.51	95.98
Profit (Rs.)	9772	48320	67999	48391
Reserves and Surplus (Rs. lakh)	0.09772	0.58092	1.14	1.52
Assets (Rs. Lakh)	0.59	0.47	0.20	4.67

Note: *- share capital mobilised as %age of authorised capital

Box: Safe harvest private Limited

Safe Harvest Private Ltd. (SHPL), founded in 2009 as a SE, was conceptualised by a group of eight grassroots NGOs with the twin objectives of strengthening the NPM (Non Pesticide Management of Agriculture) movement by enabling farmers shift to sustainable agriculture by creating a market for their 'pesticide-free' produce, and offering consumers a safe and affordable alternative to food produced through conventional farming. SHPL aims to provide remunerative market for one lakh small and marginal farmers by reaching out to one million consumers by 2023.

After facing challenges both in procurement and sales in its initial years, it is now in its turn-around phase, with sales improving from just Rs 0.25 crores to nearly Rs 18 crores since inception. SHPL partners with about 25 producer organisations comprising of farmers' collectives with a membership base of about one lakh farmers spread over 13 states, to procure 50 commodities in the 5 categories of cereals, millets, pulses, spices, and flavourings worth more than Rs 25 crore (2018-19).

The 8 founding partners of the NPM movement were:

1) *Samaj Pragati Sahayog (SPS), Madhya Pradesh*
2) *Chirag, Uttarakhand*
3) *Watershed Support Service and Activities Network (WASSAN), Andhra Pradesh*
4) *Samarthak Samiti, Rajasthan*
5) *Chetna Organic, Hyderabad*
6) *The Covenant Centre for Development (CCD), Tamilnadu*
7) *Samuha, Karnataka*
8) *Satvik, Gujarat*

The partners formed the NPM Network to promote pesticide-free sustainable agriculture at grassroots. Ford Foundation, a USA based international philanthropic organisation evinced interest in supporting NPM. The grant funding from Ford Foundation was extremely critical to the NPM movement as it catalysed the NPM Network's partner organizations' efforts to help farmers switch to practicing pesticide-free sustainable agriculture.

To retail the 'pesticide-free' produce in consumer markets, V.K. Madhavan, Ganesan Balachander, Muthuvelayutham Nagamalai, Shailesh Vyas, and Rajesh Sahadevan each pooled Rs 20,000 and registered Safe Harvest Private Limited as a for-profit company in 2009. Ganesan Balachander, former head of Ford Foundation, India played a unique role in SHPL first as an investor and later as a chairman of the company's Board. V.K.Madhavan, who headed Chirag-one of the founding partners of the NPM movement- steered SHPL in its formative years.

The Vision of SHPL is to: To boost the NPM movement at grassroots and accelerate farmers' switch to sustainable agriculture by creating a market for their 'pesticide-free' produce; and to offer urban consumers a safe, credible and affordable alternative to food produced through conventional, input intensive agriculture.

Almost all partner Farmer Producer Companies (FPCs) of Safe Harvest were accessing organized markets for the very first time. Some of the FPCs promoted by founding NGOs (e.g. SPS, Samuha, Chetna Organic) had the ability to procure commodities at scale, but were not conversant with the workings of organized retail. It was therefore natural for each FPC to defend its own farmers' quality of goods and demand higher prices. This put SHPL at a disadvantage in the highly competitive consumer markets.

Rangu Rao joined as CEO in 2013 when SHPL was on the verge of closure. It was during this time that the board was also restructured. The shareholders of SHPL include: one individual with 52.46%, another pvt, ltd. entity with 36.73%, two individuals with 4.89% and 2.29% and FPCs with 3.63% share as of March 2018.

SHPL has been able to make a mark on platforms of emerging E-commerce players such as Grofers, Big Basket and Flipkart. Likewise, SHPL has been able to negotiate better terms of trade with Modern Trade partners and also been able to intensify its presence in existing and new General Trade outlets across geographies. Earlier confined to southern Indian urban markets SHPL expanded its operations to NCR (Delhi). In 2016, SHPL also entered into a 'co-branding' agreement with Metro Cash and Carry, an international retail giant and has successfully established a niche pesticide-free category in their stores.

With a monthly sales turnover of over Rs. 2 crore and with a retail presence in Bengaluru, Hyderabad, Chennai and NCR, Safe Harvest today is a recognized brand in the safe food category.

SHPL also trains and provides handholding support to partner FPCs in the following areas: a) Best practices to be followed during aggregation b) Weighing practices and commodity specific quality parameters c) Safe storage practices d) Grading, cleaning and processing of aggregated commodities to achieve market standards and e) Value addition.

With an improved working capital base and with assistance from Safe Harvest, many of these FPCs have been able to move up the agricultural value chain and take up post-harvest activities resulting in higher returns for farmers and enhance the efficiency of SHPL's supply chains.

Recognizing that farmer organisations can learn from each other and also contribute to the larger policy environment SHPL revived and expanded the NPM Network. The Network as of today comprises 35 farmer organizations, agricultural research institutions and policy makers committed to further the agenda of NPM in Indian agriculture.

Ananya finance was the first direct lender to the company and debt from them allowed the company to make timely procurement from FPCs. Ananya moved many steps forward when it decided in partnership with Safe harvest to advance credit to partner organisations so that procurement could take place on behalf of Safe harvest by the FPCs. Tripartite agreements are signed between Ananya, FPC partner and Safe harvest which allows FPCs to transfer custody of aggregated agri commodities to safe harvest with the promise that safe harvest will pick up the cost of finance. Such agreements based primarily on trust has no precedents. 2016-17 onwards SHPL has built similar partnerships with Nabkisan and Avanti Finance which have helped the company to not only scale up its operations in terms of volumes and its reach, but it also helped in bringing down its cost of finance.

SHPL procures more than 50 pesticide-free commodities from about 25 partner organisations spread across 13 states. Since different commodities are grown in different states and the same commodity is harvested during different times of the year, procuring from different geographies reduces the inventory and assures the quality of the produce.

SHPL sources its products in three different ways:

1. *From founding partners and organisations who have been working on NPM for long. These organizations today are relatively well versed in procurement, storage and transportation of aggregated commodities. Farmers associated with these organizations also only require refresher trainings to continue practicing NPM.*
2. *From organisations located in regions where farmers, by default, practice pesticide free agriculture. In many cases, these partners are not experienced in aggregation and procurement. SHPL therefore builds the capacities of these organizations by providing technical, financial and managerial support before procuring from them.*
3. *From organisations who share the same belief in NPM's potential to positively impact farmers and the environment. SHPL trains the farmers associated with these organizations on NPM practices and accelerates their switch to pesticide-free sustainable agriculture. SHPL procures from these farmers once they have become conversant with practices and protocols of NPM.*

SHPL procures in all 3 cropping seasons with Kharif being the most important. The aggregation season starts in October and peaks during December and January when paddy is procured. In 2018-19, it procured worth Rs. 25,86 crore. And its sales were of the order of Rs. 17.89 crore.

Every batch of products Safe Harvest procures from its partner FPCs is tested in FSSAI (Food Safety and Standards Authority of India) accredited laboratories for the pesticide compounds listed in the Food Safety and Standards (Contaminants, Toxins and Residues) Regulations, 2011.

Safe Harvest is the only organization in the Indian safe food segment today to make the Maximum Residue Limit (MRLs) test reports publicly available for all its products. By testing the end product, Safe Harvest ensures the pesticide-free nature of the agro commodities and effectively addresses the growing trust deficit in the safe food space.

1) *Pricing & Procurement*

   Safe Harvest draws up a Memorandum of Understanding with its partner FPCs in which the detailed terms and conditions regarding quantity, quality, price, timing etc. are specified. After representative samples (drawn randomly) of the commodity have tested negatively for pesticide residues, prices are pegged to the prevailing rates in the nearest APMC (Agricultural Produce Market Committee) market (mandi) in partner locations. Safe Harvest offers these prices to farmers (who, due to the remoteness of their location, are often at a considerable disadvantage) at the farm gate and eliminates the risks/costs associated with transporting the material to the Mandis. The weighing mechanisms followed by Safe Harvest are fool proof, transparent and open to scrutiny. Safe Harvest also provides for the storage bags during procurement. Furthermore, the promise of season on season, year on year procurement gives farmers sufficient time to make suitable sowing and land use plans.

2) *Payment - Enabling partners access timely working capital*

   Many FPCs face the problem of inadequate working capital. A lack of sufficient capital makes procurement during the peak season very difficult. These cash strapped FPCs often have to compete with exploitative traders whose ability to pay the farmer quickly gives them a considerable edge. Since most of Safe Harvest's partner FPCs work with small and marginal farmers, their equity base is small, even with schemes like matching equity from the government being available. Recognizing this critical problem, SHPL often extends the transaction amount as advance to the partners or pays them within a maximum of 2-3 weeks of the delivery of goods.

   It had majority of independently owned stores (230; 60%) and 75% modern trade stores in Bengaluru, 90 independent stores (23%) in Chennai, 63(15%) such stores and 18% modern stores in in Hyderabad and 4 online stores each in Bengaluru, Chennai and Hyderabad each.

Modern Trade 'brick and mortar' retail partners of SHPL include Spencer's, SPAR and Aditya Birla Retail (with whom a recent deal was cemented to place SHPL's products in 56 'More' supermarkets across Bengaluru). Online retail partners of SHPL include Big Basket, Grofers, Flipkart and Amazon. Safe Harvest has also negotiated a co-branding deal with Metro Cash and Carry (an international retail giant) to introduce the pesticide-free range of products under their own brand label 'Fine Life Bio'. This is a significant achievement and an important step towards the creation of a nation-wide 'pesticide-free' food category. A similar agreement with Grofers, a nationally recognised e-commerce market platform is under the works.

The share capital increased from Rs 1 lakh in 2009-10 to about Rs 12.90 crore in Jan 2019, while the long-term debt has increased from Rs 25 lakhs in 2012-13 to more than Rs 2 crore in Jan 2019. Net losses are Rs. 3.18 core in 2018-19.

The various advantages that accrue to the farmer due to their partnership with SHPL are as follows:

1. *A premium for their 'pesticide-free' produce*
2. *Savings on commission (~3%) that would have otherwise been charged by agents in the AMPC market*
3. *Saving in cost of transportation of produce to APMC markets*
4. *Savings in loading and unloading and those arising from following fair weighing practices*
5. *Prompt payment (7-15 days) (adapted from Anil, 2019).*

Illupur PC

This PC registered in 2015 and promoted by KTL had its origins in 50 agricultural producer groups (APGs) involving 750 male and 250 female members. At present, there are 71 groups, including 20 all-women groups, with a membership of 1000 farmers across 7 villages of one block of the Pudukkottai district All the members farmers have land holdings and most of them (95%) are marginal or small farmers. In general, 40% of the income of a farmer in the local area comes from labour and 30% each from paddy and animal husbandry. In this region, farmers earn equally from crop cultivation, allied activities and wage labour.

Of the total members, 650 (65%) actively transact with the PC. PC has authorised as well as paid up capital of Rs. 10 lakh besides reserves of Rs. 1.16 crore (Table 6.4). The PC has seeds selling licences and farm produce handling licences and facilitates credit for agricultural and livestock activity.

Photo 6.4: A drying yard, warehouse and grading and processing machines at Illupur PC

In 2019, the PC had 5 board members. The eligibility conditions for becoming a member of BoD include: represent a group, attend the most of the group meetings, have formal transaction with the PC (minimum Rs. 50000 per year) and no default on loan, besides having various ID proofs. The PC has 9 regular and 19 part time staff. Among the regular, there are 3 enterprise managers and one accountant.

The PC sells seeds only to very few members but on the output side, which is 100% organic it deals with more than 100 members who are given a premium price. It claims that 100% members are aware that they own the company. It had procured pulses for NAFED in 2019 worth Rs. 2.5 lakh. It sells paddy and pulses to wholesale traders. It turnover includes 40% from paddy, 35% from milk, 15% from pulses and 10% from country chicken. 350 farmers supply 1000 litres of milk 80% of which is sold in retail. The chicken supplies come from 50 farmers. The PC has a chicken hatchery and poultry farm on its campus.

Photo 6.5: A poultry farm and free range birds at Illupur PC complex.

The PC is focussed on organic and traditional food products and milk and country chicken as the high value products for its business scale up and viability. The company has not paid any dividend so far as it does not want sleeping members to benefit from it. The major problems faced by the PC include low volume of business and shortage of working capital especially loans for crop production at the farmer level. It is also looking at other product options in livestock and honey.

Table 6.4: Profile and Performance of Illupur PC

Year > Parameters	2015-16	2016-17	2017-18	2018-19
Authorised capital (Rs. lakh)	10	10	10	10
Share capital (Rs. lakh)	10(100%) *	10(100%)	10(100%)	10(100%)
Turnover (Rs. lakh)	48.06	62.33	116.82	136.06
Profit (Rs.)	0.40	0.22	0.059	5.69 lacs
Reserves and Surplus (Rs. lakh)	0.33	0.55	0.72	116.92
Assets (Rs. Lakh)	19.07	40.82	43.55	-

Note: *- share capital mobilised as %age of authorised capital

Surprisingly, the company has made large no. of loans to individual members for animals with CSR grants. It also had large inventories of grains of the order of Rs. 3.07 lakh in 2017. It had also obtained an income of Rs. 1.87 lakh from its model farm and secured Rs. 11.69 lakh subsidy from the TNSFAC for a pulses processing mill. Paddy and pulses turnover mainly came from 800 members each. Most of these farmers are engaged in most of these crops and allied sector enterprises thus being pluri-active households. In this region, farmers earn equally from crop cultivation, allied activities and wage labour. Its major fixed assets include land and building accounting for 90% of the total value of the assets. The PC has 27 staff of whom 18 are casual.

Photo 6.6: A view of the office and storage complex provided by TNSCM project of the GoTN

2/3 of the members of the PC are active 22% scheduled caste 75% of the members are women. It claims that it has introduced a new variety of Paddy and pulses in the area. 100% of the organic farmers buy inputs from PC. 10-20% of the non-members also sell regularly to PC. 100 to 150 farmers sell all their produced only to PC. Organic produce gets premium price and is purchased entirely. It is estimated that 38% of the farmers produce is sold through the PC. It has been registered under E-NAM but it is not aware of the features of the market. 95% of its turnover was from output side where 200 members farmers participated in it. It claimed it had been able to increase farmers income by 25% with 15% from price benefit and 10% from cost saving. It brings buyers to the doorstep of the farmers and makes spot payment besides fair weighment This was important as there was no regulated market in Tamilnadu and no MSP purchases in the area. It had trained the BoD in PC management and business planning at the state agricultural university. The BoD have been trained multiple times by various agencies like DNS, FSAC, TNAU, SLTC, APF and ALC. Besides the CEO has been heading 3 PCs earlier and had received many trainings therein.

Kottampatti PC

This PC started its operations in 2018 an is promoted by Dhan Foundation. It had its origins in the Tank Farmers' Association (TFA) which was a collective of water users' groups. There were 220 associations in the block across 90 villages involving 11500 farmers. TFA has SHGs/AFGs and 86 such groups across 55 villages have membership in this PC at individual level amounting to 1028 farmers, 60% of whom are women. This PC represents 68 FIGs across six clusters with a membership of 1028 and cultivated area of 2652 acres. This PC is promoted with support from NABARD and any farmer can become a member of the TFA and of the PC. In fact, 30% of the PC members are not members of AFGs. The major crops grown by the member farmers include coconut, paddy, groundnut, pulses and vegetables. Of the 1028 members of the PC, 90% are marginal and small operators and 5% even landless. Only 25% of the members are active. PC had authorised capital of Rs. 25 lakh and paid up capital of Rs. 10 lakh in 2017-18 (Table 6.5).. The PC has no licenses to deal with any of the inputs and the output products. The district has 140 PACS which provide crop loans to individual farmers.

Among the 10 Directors of the Board, two are women, and most of the promoters are members of BoD and producer groups nominate them from their area. Besides the CEO position, which is vacant now, there are two supports staff and 70% of their cost is still borne by promoting by POPI that is Dhan Foundation. The PC sells only bio fertilizers and only 100 farmers buy exclusively from it.

In 2017-18, the sales of the PC were of the order of Rs.6.44 lakh which increased to Rs.61.22 lakh in 2018-19. The major inputs being traded by the PC included kitchen garden seed used by 4500 farmers and *panchgavia* used by 630 farmers. On the output side, most of the revenue came from sale of coconut, copra, and coconut shell. The other big business came from purchase and sale of millets involving 110 members and paddy involving 26 members. The PC claims that the farmers received Rs.0.3 higher price per nut than the market price and in paddy and groundnut, it was Rs.100 and Rs.150 higher than the market price per bag.

Majority of inputs sales are to non-members but most of the produce (80%) is bought from members. 50 farmers sell regularly to the PC. 98% of its turnover comes from output handling. On the output side, it has retail outlet in its office where 80% of the revenue comes from members. It also buys copra from farmer members (50) for sale to buyers like Marico besides handling some groundnut and paddy produce. It claims that it has promoted hybrid variety of coconut among its members. The handling of copra has given it large jump in turnover and matching equity from SFAC of the order of Rs. 10 lakhs has been very significant. It has also facilitated loans of Rs. 40 lakhs from Axis Bank to its farmer members through the Federation.

The BoDs and staff of the PC have been trained by the promoter and other local agencies in Madurai. It had provided seven trainings to the CEO and five to the Board of Directors besides running farmer field school for paddy multiple times for 34 farmers and a coconut certificate course from a KVK for 22 farmers.

It believes that eliminating intermediaries on the output side is one of its major best practices leading to better price realization for farmers. It has never bought for the government at MSP as there is a director purchase centre for paddy and also market prices are generally higher than MSP. It is focused on black gram and paddy processing for scale up of its business.

The PC had availed warehouse loans and was able to sell paddy at fair price. It also looks at coconut processing into copra and groundnut shelling as additional activities for scale up and viability.

However, it faces problems of lack of storage space and lack of working capital for payment of advance to farmers as done by private market players. On the external side, it faces the challenges in locating relevant market for farmers produce. It claims 70% of the members and more of male members appreciate that PC is owned by them.

Table 6.5: Profile and Performance of Kottampatti PC

Year> Parameters	2016-17	2017-18	2018-19
Authorised capital (Rs. lakh)	10	25	25
Share capital (Rs. lakh)	1 (10%) *	10 (40%)	10(40%)
Turnover (Rs. lakh)	0.011	2.99(1.88 from coconut)	56.45 (51.72 only from coconut)
Profit (Rs. lakh)	0.38	(-)0.39	0.30
Reserves and Surplus (Rs. lakh)	0.00038	-0.29	-0.08
Assets (Rs. Lakh)	0	0	10.56

Note: *- share capital mobilised as %age of authorised capital

Uslimapatti PC

This PC originated from 25 FIGs and 5 JLGs under 7 panchayat level federations promoted by ESAF and covers 25 villages under 5 Panchayats in one block of the district. It has 507 farmer members most of whom are small and marginal landowners and 10 are even landless. 60% of the members are women and 50% of total members are still active. The PC has authorised capital Rs. 10 lakh and paid up capital of only one lakh rupees in 2018-19.

It has five members of the board of Directors including one woman. Beside the CEO, it has a purchase manager and one field staff.

80% of the members have livestock and therefore, its major business on the input side is sale of cattle feed, 98% of which is sold to members and these sales accounts for 75% of total input sales. The other significant product sold by the PC is bio fertilizers most of which is again sold to members. About 200 farmers purchase cattle feed and about 60% bio fertilizers. It had received a NABARD grant of the order of Rs. 4.25 lakh for capacity building and similar amount is still pending. The CEO and the board of Directors have been exposed to business planning by the promoter twice.

The PC did no business for the first two years. Around 300 of its members also are also members of the state's (Aavin's) dairy cooperative society (DCS) which makes them default on milk deliveries. It was reported by the promoting agency staff that two of its own board members were milk vendors and they didn't want PC to succeed. In fact, the milk collection centre of the PC was found to be closed on the day of the visit of the study team and it seemed it had not been functioning for a long time. The PC plans to buy maize and vegetables from its members to sell to bigger buyers.

Table 6.6: Profile and performance of Uslimpatti PC

Year > Parameters	2015-16	2016-17	2017-18	2018-19
Authorised capital (Rs. lakh)	10	10	10	10
Share capital (Rs. lakh)	1(10%) *	1 (10%)	1(10%)	1(10%)
Turnover (Rs. lakh)	0	0	0	0.11
Profit (Rs lakh.)	-0.03	-0.05	-0.05	-1.51
Reserves and Surplus (Rs. lakh)	-0.03	-0.08	-0.13	-1.64
Assets (Rs. Lakh)	0	0	0	0.072

Note: *- share capital mobilised as %age of authorised capital

Perriyakulam mango and veg PC

This PC registered in 2016 by 10 member promoters now has 1028 farmers who are members of 72 FIGs which were earlier farmer clubs (31) promoted under NABARD scheme. These members are spread across 23 villages of two blocks of Theni District. PC was supported by ESAF (the POPI) for three years (2016-19).

A farmer to become member should be practicing cultivator. 50% of the farmers are marginal, small or semi medium. 55% of the members are men and 90% of all members are active. The PC had authorised as well as paid capital of Rs. 10 lakh in 2017-18 (Table 6.7). It had not

undertaken any transactions in input or output markets so far. It had tried mango sales for one year, but it did not make money and now looks at Moringa (drumstick seeds) for value addition into drumstick power for supplying to various food and pharma companies.

Photo 6.7: A locked milk collection centre of the PMV PC in a village

One out of its five board members is woman and the only condition to become of member of the BoD is that the member should be active in PC. The PC has 9 staff including the CEO besides the CEO which include two marketing managers, one purchase manager, four dairy centre staff and one accountant and administrative staff each. It has been given a 20 ton warehousing facility and a primary processing centre by TNSCM. The PC has also facilitated contact farming of gherkins with 42 members which has been fairly successful for two years. Th PC gets 10% commission for this facilitation. It has directly sold in wholesale, drumstick seeds, its leaves, garlic, tomato, mango, onion, and milk. Very large part of its turnover came from milk and high value produce like garlic and drumstick. Its sells milk procured from 200 farmers to Godrej. The PC had not paid dividends to its members and has capitalized them as share capital. It has availed loans from Nabkisan and Ananya finance at 14% interest for funding milch cattle at farmer level. The BoD and staff have been mostly exposed to business planning and day to day management of the PC by the promoter and at BIRD Bengaluru. The major problems faced by the PC include: Directors losing interest in the PC, and lack of awareness among the CAs about the PC Act and rules. The PC plans to engage into direct exports with its own brand and setting up a resource centre for PC training with the help of state govt.

Table 6.7: Profile and performance of Periyakulum PC

Year> Parameters	2016-17	2017-18	2018-19
Authorised capital (Rs. lakh)	10	10	10
Share capital (Rs. lakh)	1(10%) *	10(100%)	10(100%)
Turnover (Rs. lakh)	29.61	67.17	125.07
Profit (Rs.)	0.07	0.25	0.13
Reserves and Surplus (Rs. lakh)	0.07	0.20	0.34
Assets (Rs. Lakh)	0.83	1.24	

Note: *- share capital mobilised as %age of authorised capital.

Kodai Hills Crops PC

This PC originating from 26 FIGs across 75 villages in three blocks of Dindigul district has 501 shareholders. 30% of the members of this PC promoted by ESAF and supported by NABARD are in active. The PC has authorised capital of Rs. 10 lakh and paid up capital Rs. 6.11 lakh (Table 6.8).. The PC has only one staff at the level of CEO. 90% of the PC members are also members of the local PACS. Two of its FIGs runs custom hiring Centres (CHCs) of farm machinery. It has been sanctioned a 500 metric ton warehouse. 70% of its input sales are to the members and it has one retail shop. It has mostly bought coffee and pepper from the farmers and sold that to exporters receiving 2% commission. It has been into profit from the beginning and has applied for matching equity grant from SFAC. It has received Rs. 4.5 lakh grant from NABARD for capacity building and obtained loans of Rs. 43.5 lakh for working capital from Nabkisan. It has exposed its BoDs to the mechanisms for increasing farmer incomes at various places facilitated by the POPI.

Table 6.8: Profile and performance of Kodai Hills PCs

Year > Parameters	2016-17	2017-18	2018-19
Authorised capital (Rs. lakh)	10	10	10
Share capital (Rs. lakh)	1(10%) *	3(30%)	6.11(61%)
Turnover (Rs. lakh)	3.13	3.64	17.4
Profit (Rs.)	0.09	0.18	0.28
% of Shares held by promoters	100	33	20

Note: *- share capital mobilised as %age of authorised capital

In 2017-18, the list of shareholders showed that at the end of the year thee shareholders had more than ten shares each going upto 30, another six had ten shares each and 15 members had shares ranging between two and four. These 24 people held 150 shares out of the 612 shares of the company.

Photo 6.8: Coffee plantation, and wet and dry coffee beans in the PC area (near its office)

At the beginning of this year, it had 501 members and Rs. 5.74 lakh share capital collected. It had fixed assets of Rs.6.27 lakhs. It had also obtained two loans of Rs.15 lakhs and Rs.28.7 lakhs from NAB Kissan in 2018 and 2019 respectively. It had also received a grant from NABARD for capacity building which was Rs.4 lakhs. It had most of its stocks which amounted to Rs.38.46 lakh was composed of mainly coffee (Rs.33.87 lakh) and pepper

(Rs.4.29 lakh). It finds its location as disadvantage and does not have qualified staff to manage the PC.

Theni Goat PC

Theni district has 69% of its land holders who are marginal. The district produces paddy, vegetables and fruits and also known as the cardamom city due to high quantity of cardamom production besides grape production throughout the year. It is also an agri export zone (AEZ) for mangoes. The major crops grown are paddy, millets, pulses, sugarcane, oilseeds, coconut, cotton, fruits, vegetables, silk, spices and tea and coffee. 47% of the workers are farm labourers and 10 percent cultivators. 24% of the district's rural population is BPL which higher than the state average (Kumar and Kulkarni, 2013).

Vidiyal (meaning 'dawn') -an NGO which was set up in 1986 and has by now promoted 35 PCs in 11 district, has been promoting SHGs of women since 1996 and they were aggregated into village level federations from 1997 and then into Panchayat level federations since 1998.The federations are the apex bodies of the Taluka level, village level and self-help group (SHG) structures and engage in on lending of loans to the members of the SHGs through the block level and the village level federations.

The NGOs had organized 4250 women in 250 self-help groups across 25 village under a federation called Vidivelli in 2000. This federation has further panchayat level and village level groupings going down to the SHGs with 12 to 20 members each. The federation provides credit to the groups who in turn give it to the members. The groups retain 6% interest. The federation shares 3% interest with the VLF and PLF each.

The other federation (Vanavil) which represents 70 JLGs with 1000 members has panchayat level sub federations and then 5 to 10 members with each JLG at the primary level. The PC has membership from both these federation members. Each member of the JLG contributes Rs.100 as entry fee and deposits Rs.2000 as contribution leading to Rs.2.1 lakh one-time contribution and annual member subscription of Rs.10, group maintenance of Rs.100 per month and Rs.100 per month for each PLF leading to 1.32 lakhs contribution.

The loans obtained by the federation at 12% rate of interest are lent out to the SHG members at 24% interest which includes 3% each as a service charge for two federations at taluka and village level and 6% for the SHG for purchase of 10 goats and one mobile or purchase of two cows and one mobile phone. IFFCO Kisan Sanchar Limited provided free mobile phone services. These loans were repaid within three years and each member made an earning of Rs. 1.5 lakh. Most of the members are marginal or small land and livestock owners and 25% are landless. 80% of the members of the SHGs avail of loans.

This PC, with support from CCD (technical) and NABARD (capacity building finance) besides Commonwealth of Learning (CoL) was set up in 2015 has 1050 mostly women shareholders (only 33 men) from 77 FIGs with 50,000 goats ranging from 20-200 goats per member and most of the members are small and marginal landholders and 1/3 completely landless. There are more than 5000 farmers in goat rearing in the district. For becoming a member of the PC, goat raring is a must. All the of goat rearers are non-migrant. 85% all members are active. The PC has authorised capital of Rs. 20.5 lakh and paid up capital Rs. 10.5 lakh. It has reserves of Rs. 4 lakh. It buys cattle feed to supply its members and has 10 franchisees in rural areas to sell goat meat.

Photo 6.9: Theni goat and goat pens in a village in PC area

It had 10 board members including two men and the PC has a part time CEO and other marketing and accounts staff. It sells various farming inputs mostly to its members and 50% of them buy exclusively from the PC which has a retail shop on its promises. It also sells goats to its members and buys back goats mostly from the members and also the non-members and sells them further for profit as animals (300-400 per month) in six districts including Theni and other markets like Pudukottai or Raisingpuram as well as retails meat through the franchised shop.

It has one franchised meat shop which sells Kooru (mixed) goat meat and skin is sold separately. 3-4 goats meat is sold daily which has come down to two goats per day and mostly sold to members during covid-19 period. The differentiating factors for PC shop are: hygiene and young goat health check up before slaughter on the day of butchering besides freshness of meat. The meat shop opens only for a few hours in the morning and workers work part time in it. It has introduced weight based purchase of animals unlike the observation based purchase by the private traders, and makes instant payments. It also participates in community goat market which is held weekly. The weekly goat markets are leased out to private players by the government on the basis of tenders. The Franchises pay 10% royalty to the PC on sale of meat. 90% of its turnover is made up of goat and its meat sales.

Photo 6.10: A retail outlet of the PC at its office complex

It has already received matching equity grant of Rs. 10 lakhs from SFAC. It has received financial support from NABARD of the order of Rs. 5 lakh for three years in 2015. The members are trained by in crop seed production by 70 ToTs with 50% of them being women and have trained more than 2100 farmers including 1287 women. The PC is the only goat PC

in the district and the district is known for special breed of goat (Theni). The PC intents to study the meat market for its potential and focus on hygienic supply of meat. The BOD members and the staff were taken on exposure visits to various PCs before the registration of this PC. The PC claims that all the members know that they own the PC.

Table 6.9: Profile and performance of Theni Goat PC

Year> Parameters	2015-16	2016-17	2017-18	2018-19
Authorised capital (Rs. lakh)	12	20.5	20.5	20.5
Share capital (Rs. lakh)	10.5(88%)*	20.47(100%)	20.47(100%)	20.47(100%)
Turnover (Rs. lakh)	3.19	14.47	26.94	54.65
Profit (Rs.)	0.01	0.18	0.43	0.84
Reserves and Surplus (Rs. lakh)	0.01	0.19	0.62	1.47

Note: *- share capital mobilised as %age of authorised capital

In 2018-19 more than 50% of the revenue came from sale of goat meat and 20% from sale of groceries and 10% from sale of pulses. In the previous year, more than 50% of the turnover came from the sale of groceries. Even during 2016-17 and 17-18, groceries sales accounted for more than 50% of the total sale of the PC.

The members of the PC obtained bank loan of Rs. 40,000/- with own contribution of Rs. 3,500 for a period of five years at the rate of 13% interest. However, they repaid the loan in three years and made a profit of Rs.1.5 lakh each because 60% of the goats had doubled kidding and 10% even triple. The expenditure for raising these goats for three years included medical expenses besides insurance leading to a total of Rs.94400 per batch of 9 female goat and one male buck. On the other hand, these goats with less than 2% mortality and sale price of Rs.3000 for 80 goats led to revenue of Rs.2.4 lakh besides earning Rs.7200 from the sale of manure and milk. This led to a net earning of Rs.1.528 lakh.

A study of the effectiveness of its operations by an external agency which covered 69 borrowers for goat rearing across six villages in two blocks which had 245 borrowers revealed that the survival rate of the kids had significantly improved as reported by 24% and 48% of the respondents which ranges from more than 50% (substantial) and between 26 to 50% (significant) improvement, respectively. Similar responses were received on the number of goats born with 30% reporting more than 50% and 47% reporting 26 to 50% increase. Even the weight of goat was reported to have improved substantially and significantly by one-third of the respondents each. More importantly, 38% and 35% respondents reported substantial and significant improvements in the market value of goat. Forty percent also reported significant income increase from droppings. It has also found that the net returns from goat activity improved with increase in the level of education of the borrower. The birth of kids which was eleven in 2009 increased to 20 in 2011 and a borrower sold on an average 21 goats in 2013 compared with 15 in 2011. Overall the net returns increased from Rs.9684 in 2009-10 to Rs.32353 in 2012-13. Majority of the women, after the loans, owned minimum of 30 to 50 goats worth Rs.1-1.2 lakh besides what they had sold by then. From the second year of the loan, each rearer had sold 12 to 15 goats for Rs.30000 and those with herd size of 40 also earned Rs.1000 per month from selling dung/goat droppings (Kumar and Kulkarni, 2013).

Chapter 7

Overview, Conclusions and Recommendations

This chapter brings together the findings across all states, promoters, and PCs together in section 7.1, highlights the major problems of PC in section 7.2, examines best practices in section 7.3 and makes a few relevant recommendations in section 7.4.

7.1: Overview

As seen in previous chapters (2-6), the PC performance and impact varies widely depending on the PC, the promoter, and the location. Therefore, it is important to get an overall assessment of how PCs are doing at the aggregate level as revealed by this set of case studies. As table 7. 1 shows the PC members were generally larger land holders unlike their non-member counterparts both in owned and operated land. In fact, the gap widened in operated land compared with owned land. These means were also statistically different from each other at both 1% and 5% level of significance for paired t-test (Table Appendix 7.1).

However, this is not to say that PCs exclude small farmers as still most of the members were owners and operators of around five acres of land. However, non-members were more close to marginal ownership and operation.

The average land ownership was low in WB and UP as expected both among members and non-members and very high in Rajasthan and very different from those of non-members (1.5 times larger for members). The members everywhere had higher average land holding both owned and operated across all states with large difference only in Rajasthan and Tamilandu both of which also had the highest average size of holding across all states (Table 7.1). It was goat owning households which were landless or marginal landowners or operators which moderated the average size in Tamilnadu and MP to some extent.

Table 7.1: State-wise Average owned and operated land of PC members and non-members

State> Category > Average Land Holding (Acres)	MP		Rajasthan		TN		UP		West Bengal		All	
	Member	Non-Member	Member	Non-Member	Member	Non-Member	Member	Non-Member	Member	Non-Member	Member	Non-Member
Owned	5.38* 4.9**	4.84* 4.54**	8.22	5.99	5.59* 5.12**	3.69* 3.49**	2.28	1.53	1.99	1.29	4.5	3.42
Operated	6.09* 5.53 **	5.43* 5.08**	10.3	5.96	6.58* 6.04**	4.12* 3.8**	2.91	2.55	2.32	1.61	5.34	3.86

Notes: * excluding goat PC members/non-members; ** including goat PC members/non-members

It was important to know whether members in any way differed from non-members in their awareness of the PC. This has been an issue in the past in that very small percentage of members were aware of the PC details and its ownership. Therefore, this aspect was explored proactively as it has implications for promotion of the concept and the mobilisation efforts for organising a PC which determines its success or failure. As table 7.3 reveals though more of members knew the name of the PC (62%) compared with non-members (44%), it is till not very high and 27% did not know it at all and another 11% reported it wrong. At the state level, overall awareness of PC name among members hovered around 60% with the exception of U.P. where it was high at 85%. This was much higher than the knowledge of non-members where only 24% in Tamilnadu to as high as 71% of non-members in U.P knew it but it was between 40-60% across the three states of Rajasthan, M P and West Bengal and only 24% in Tamilnadu (Table 7.2). Further, whereas 27% farmers knew PC was owned by farmers compared with only 6% of non-members thinking so, the more worrying part was the large proportion of members saying it was owned by PC employees (18%) and BoD (8%) besides the fact that 31% did not have any awareness of this aspect. 80% of non-members were in this category which is not very surprising.

Table 7.2: State wise distribution of PC member and non-members by knowledge of PC name

State> Category> PC Name Known	MP				Rajasthan				TN				UP				West Bengal				All			
	Member (No & %)		Non-Member (No & %)		Member (No & %)		Non-Member (No & %)		Member (No & %)		Non-Member (No & %)		Member (No & %)		Non-Member (No & %)		Member (No & %)		Non-Member (No & %)		Member (No & %)		Non-Member (No & %)	
Don't Know	21	25.93	49	56.98	10	24.39	21	50.00	37	35.24	77	76.24	3	7.32	12	28.57	19	29.69	26	41.94	90	27.11	185	55.56
No	13	16.05	0	0	5	12.20	0	0	8	7.62	0	0	3	7.32	0	0	10	15.63			38	11.45	0	0
Yes	47	58.02	37	43.02	26	63.41	21	50.00	60	57.14	24	23.76	35	85.37	30	71.43	35	54.69	36	58.06	204	61.45	148	44.44
Total	81	100	86	100	41	100	42	100	105	100	101	100	41	100	42	100	64	100	62	100	332	100	333	100

At the state level, with the exception of UP, about 30% members in all states except WB did not know who owned the PC whereas in WB, 45% did not know it. The farmer members in UP, MP and Rajasthan knew that farmers owned it with %age going from 36% in Rajasthan to

as high as 43% in MP and 56% in U.P. In WB, 38% thought it was owned by PC employees and that was stated by 24% farmers in Tamilnadu as well. Promoting agency came next in Tamilnadu (22%) and Rajasthan (15%) and MP (11%). A few famers in all states except Tamilnadu also thought it was owned by government (Table 7.3). on the other hand, 70-80% non-members had no knowledge of PC ownership. In general, mostly farmer members joined PC due to encouragement and persuasion by PC promoters and PC employees (78%) with some others due to their friends advice (Table 7.4).

Even though the performance on awareness of the PC and its ownership is mixed, it is important to know the extent and nature of interface of PCs with their members on the input and output side of their business. On the input side, 33% members were buying seeds from the PC compared with only 8% non-members doing so. Also, a few other members (20%) combined buying from PC with other sources like dealers, PACS and other farmers or government outlets. Only 6% non-members reported such a purchase behaviour (Table 7.5). The reliance on PCs for chemical inputs like fertilisers and pesticides was very high with 31% and 27% buying exclusively from PCs and another 4% and 3% respectively combining it with other sources like dealers and PACS and government outlet (Table 7.6). But, this was much higher compared with non-member purchase from PCs which was only 11% and 8% respectively for fertilisers and pesticides. But, bio-input purchases were very low from PC with only 7% and 5% non-members buying from PC and 3% and 7% non-member farmers buying bio fertiliser and biopesticides from PCs (Table 7.7).

Across states, the seed purchase from PCs varied from a low of 18% in Tamilnadu and WB to a high of 40-56% across MP, Rajasthan and U.P. or a combination of dealers and PCs in about 11-26% cases. Non-members mostly relied on dealers in all states especially MP, WB, and Rajasthan (57-59%) with some non-members buying from PCs as well (6-17% across states). Only about 5-15% members reported buying biofertilisers from PCs mostly in MP, U.P, and Rajasthan whereas non-members mostly bought them from dealers though only very small %age of all used them (3-16%). Biopesticides were also bought by only 2-12% of members across states (except WB where members bought it from dealers) as most of them did not use the product at all. Reliance of members for chemical fertilisers on PCs was high in MP and U.P. (38% and 71% respectively) and very low in Rajasthan, Tamilandu and WB (10, 20 and 28% respectively). PACS wee important source in MP and Rajasthan for about 23% farmers. On the other hand, majority of non-members bought chemical fertilisers from dealers in WB (73%), U.P. (55%) and Tamilandu (50%) and 33% in Rajasthan and 42% in MP, with only 20-28% each in U.P, Rajasthan and Tamilnadu buying from PCs. Chemical pesticides were bought by 37-64% members in MP, U.P. and Rajasthan from PCs while non-members mostly bought them in all states (32-55%) from dealers.

Table 7.3: State-wise distribution of PC members and non-members by knowledge of ownership of PC ownership

State > Category> PC Owner	MP				Rajasthan				TN				UP				West Bengal				ALL			
	No. of Members	%age of total	No. of Non-Members)	%age of total	No. of Members	%age of total	No. of Non-Members	%age of total	No. of Members	%age of total	No. of Non-Members)	%age of total	No. of Members	%age of total	No. of Non-Members	%age of total	No. of Members	%age of total	No. of Non-Members	%age of total	No. of members	%age of total	No. of Non-members	%age of non-members
BOD	6	7.41			1	2.44	2	4.76	7	6.67			7	17.07	5	11.90	5	7.81	5	8.06	26	7.8	13	3.9
Farmers	35	43.21	3	3.49	15	36.59	2	4.76	16	15.24	4	3.96	23	56.10	5	11.90			3	4.84	89	26.8	19	5.7
Government	2	2.47	1	1.16	3	7.32	1	2.38					2	4.88			4	6.25			11	3.3	2	0.6
PC employee	5	6.17	3	3.49	4	9.76	2	4.76	25	23.81	3	2.97	3	7.32	1	2.38	24	37.50	5	8.06	61	18.4	12	3.6
Promoting Agency	9	11.11	8	9.30	6	14.63			23	21.90	5	4.95	1	2.44	2	4.76	2	3.13	4	6.45	41	12.4	19	5.7
Private Company							2	4.76	1	0.95											1	0.3	0	0
IFFCO	1	1.23	1	1.16																	1	0.3	1	0.3
Don't know	23	28.40	70	81.40	12	29.27	33	78.57	33	31.43	89	88.12	5	12.20	29	69.05	29	45.31	45	72.58	102	30.7	267	80.2
Total	81	100	86	100	41	100	42	100	105	100	101	100	41	100	42	100	64	100	62	100	332	100	333	100

Table: 7.4: State-wise distribution of PC members by influencer for joining PC

State>	MP		Rajasthan		Tamilnadu		U.P.		W.B.		All	
Parameter> Influencer	No. of members	%age of total	No. of members	%age of total	No. of members	%age of total	No. of members	%age of total	No. of members	%age of total	No. of members	%age of total
BOD	0		0		0		9	21.95	0		10	3.0
Friends	12	14.81	4	9.76	18	17.14	7	17.07	17	26.56	57	17.2
PC Promoters	62	76.54	17	41.46	38	36.19	14	34.15	13	20.31	144	43.4
PC Employees	7	8.64	17	41.46	49	46.67	11	26.83	33	51.56	117	35.2
PC employees and others	0		1	2.44	0		0		01	1.56	3	0.9
PC Promoters & PC Employees	0		1	2.44	0		0		0		1	0.3
Others			1	2.44							0	0
Total	81	100	41	100	105	100	41	100	64	100	332	100

Table 7.5: Distribution of PC members and non-members by source of Seeds

Category> Parameter> Source	Members		Non-Members	
	No. of farmers	%age of total	No. of farmers	%ag of total
ADO	7	2.11	11	3.30
ADO, Dealers	6	1.81	2	0.60
ADO, Local Farmers	1	0.30		
ADO, PACS			1	0.30
ADO, PC	**4**	**1.20**		
Dealers	81	24.40	167	50.15
Dealers, Local Farmer	8	2.41	12	3.60
Dealers, Local Farmer, ADO	1	0.30	1	0.30
Dealers, PACS	9	2.71	6	1.80
Dealers, PACS, PC	**1**	**0.30**		
Dealers, PC	**55**	**16.57**	**21**	**6.31**
Local Farmer,PACS	2	0.60	1	0.30
Local Farmers	12	3.61	30	9.01
Local Farmers, PC	**5**	**1.51**	**2**	**0.60**
Nursery			1	0.30
Other FPO	1	0.30	2	0.60
PACS	6	1.81	3	0.90
PACS, PC	**1**	**0.30**		
PC	**108**	**32.53**	**26**	**7.81**
Doesn't buy	24	7.23	47	14.11
Total	332	100	333	100

Table 7.6: Distribution of PC members and non-members by source of chemical inputs

Chemical input> Category> Parameter> Source	Fertilizers				Pesticides			
	Members		Non-Members		Members		Non-Members	
	No. of farmers	%age in total	No. of farmers	%age in total	No. of farmers	%age in total	No. of farmers	%age in total
ADO	2	0.60	7	2.10	3	0.90		
Dealer	92	27.71	163	48.95	98	29.52	145	43.54
Dealer, PACS	3	0.90	1	0.30			1	0.30
Dealers, Local farmers, PACS			1	0.30				
Dealers, PACS, PC	**1**	**0.30**			**1**	**0.30**		
Dealers, PC	**11**	**3.31**	**5**	**1.50**	**8**	**2.41**	**1**	**0.30**
Local Farmers	2	0.60	6	1.80	1	0.30	7	2.10
PACS	36	10.84	24	7.21	3	0.90	2	0.60
PC	**103**	**31.02**	**36**	**10.81**	**90**	**27.11**	**28**	**8.41**
PC, ADO	**1**	**0.30**			**1**	**0.30**		
PC, Other farmer groups			**1**	**0.30**				
PC, PACS	**1**	**0.30**						
Doesn't Buy	80	24.10	89	26.73	127	38.25	149	44.74
Total	332	100	333	100	332	100	333	100

Table 7.7: Distribution of PC members and non-members by source of bio-inputs

Type of Input> Category> Parameter> Source	biofertilizers				biopesticides			
	Members		Non-Members		Members		Non-Members	
	No. of farmers	% in total	No. of farmers	%age in total	No. of farmers	%age in total	No. of farmers	%age in total
ADO	1	0.30	1	0.30	1	0.30		
Agri Dept								
Dealers	14	4.22	20	6.01	14	4.22	26	7.81
Dealers, PACS, PC	**1**	**0.30**						
Dealers, PC			**1**	**0.30**				
Local Farmers	10	3.01	10	3.00	2	0.60	1	0.30
PACS	2	0.60	2	0.60	3	0.90		
PC	**24**	**7.23**	**10**	**3.00**	**24**	**7.23**	**15**	**4.50**
Doesn't Buy	280	84.34	289	86.79	288	86.75	291	87.39
Total	332	100	333	1oo	332	100	333	100

In case of black gram and green gram there was increase in the number of farmers selling to the PC after three years. However, in the case of maize, the number of farmers and output remained the same as was the case with paddy or potato. In soyabean, wheat and yellow gram, there was no change in the number of farmers which were a few even after three years among the non-members.

On the other hand, the number of farmers selling through the PCs increased from 3 to 15 in black gram and from 5 to 13 in cotton and even in black gram come to 2 to 5 besides red gram from 1 to 4. There was also substantial increase in numbers in green gram and ground nut from 2 to 8 and 3 to 7 respectively. In fact, the biggest increase in numbers was in maize which increase from 6 to 19 farmers and in millets from 1 to 4 farmers over 3 years. Paddy also had a big jump in farmers selling through the PC from 1 to 9 as was the case in soyabean where it increased from 6 to 11 and in wheat from 7 to 18. Among the members, there were also cases of contract farming in avocado, coconut, drumstick, and in the case of non-members, there was contract farming in chilli, and vegetables besides potato contract farming through the PC by two farmers (Table 7.8).

Across states, majority of the farmers (60-83%) and average of 72% did not receive any scheme or subsidy information from PC of which they were members (Table 7.9) and only some in Tamilnadu and WB reported getting subsidised inputs, (19%), equipment (6%), and loans (5%) respectively. In U.P, just 6% farmers reported getting subsidised inputs and in Rajasthan though 25% reported it but no details could be obtained (Table 7.10). In Tamilnadu, 52% reported special loans for members and in Rajasthan 12% reported receiving input subsidies. In other states, thee was no such special subsidies for any significant number of members where 94-96% reported receiving no special subsidy with overall response being negative for 80% members across states.

On the value placed by members on various services offered by PCs, about 22% members disliked them ranging from poor access to some services, lack of timely and adequate availability and no or poor procurement of farm produce. The problem of poor procurement was particularly reported in U.P. (10%) (Table 7.11).

Box

Non-PC FPOs: Satpuda and Saptarishi

Member profiles and interface

Whereas Satpuda mushroom co-operative (promoted by PRADAN in M.P.) had all women members and Saptarishi Trust (by Chaltaberia MGO) all male members as respondents, Satpuda members were also younger in age on an average (35 years versus 50 years). Further majority of Satpuda members were illiterate (60%) while majority of Satpuda were high school or middle pass (54%).

All of them in Saptarishi had farming as primary occupation but 70% in Satpuda mentioned mushroom cultivation as their primary occupation. For 70% of them farming was secondary occupation. As against this, 73% of Saptarishi members had no secondary occupation. Both FPO members were generally marginal holders of land both owned and operated with average being 1.85 and 1.6 acres for Satpuda and 1.05 and 1.28 acres in Saptarishi as owned and operated land respectively. Some of the Satpuda member did not even cultivate their owned land. Thus, 80% of Satpuda member were marginal and 10% each small land semi-medium while 100% of Saptarishi were marginal owners and operators. But, Satpuda members had

more livestock on an average of all kinds with average of 2-3 buffaloes or cows or oxen and even 8 goats per hh. But Satpuda farmers were in majority rainfed unlike none in case of Saptarishi.

Saptarishi member had higher cropping intensity (2.89 versus 1.56 of Satpuda) and a cropping pattern dominated by paddy, potato and groundnut compared with that of Satpuda which was dominated by maize, wheat, paddy, and gram. Whereas all Satpuda members bought mushroom seedlings from FPO (Co-op), the Saptarishi members mostly bought seeds from dealers and other sources including PACS and FPO. But, farm inputs like chemical fertlisers and were bought from dealers in both cases but 50% in both cases relied on FPO for agri information.

Both the FPO members were aware of the FPO name with 64% in case of Saptarishi and 40% in case of Satpuda. But a higher proportion in Saptarishi (64%) did not know who owned the FPO unlike the Satpuda members where only 30% did not know while 40% knew that farmer members owned it which was only 9% in case of Saptarish. Only 30% in case of Satpuda thought it was owned by promoting agency (NGO) while in Saptarishi members thought it was owned by govt, FPO employees or BoD other than 10% who said it was farmer member owned.

Governance and participation

Another major inclusion issue is the participation of women in PCs. As the data in table 7.9A reveals other than in TN (39%), MP and Rajasthan (25% each), there was hardly any women members among the respondents though there were separate all-women member PCs in states like Rajasthan, M.P. and Tamilnadu. Rajasthan %age is reasonable because one of the PCs was a milk PC which had substantial proportion of women members. This is largely due to the fact that most of the time membership for a farmer PC is based on land ownership which is generally in the name of the male member/s and also socio-cultural restrictions on women in these states especially among upper and middle castes. However, even the BoD of most PCs in Rajasthan and U.P. with the exception of the milk PC in Rajasthan had only one woman member each if they were not all -women PCs. Even NDDB promoted milk PC in U.P. did not have any woman BoD member.

Generally, members reported meetings being held monthly in majority cases across states (56%) followed by quarterly meetings (16%) with only 50% members attending them regularly and others only sometimes (25%) or occasionally (10%) with 15% never attending any of the meetings. This varied from only 35% attending regularly in UP to 65% doing so in Rajasthan (tables 7.12 and 7.13). This is also corroborated by an exploratory study of 13 FPCs in Maharashtra which stated that in 84% PCs, meetings of the BoD were monthly but only 25-70% shareholders across PCs attended AGMs held annually (Badayta et al, 2018). However, most of the members across states (87% ranging from 70-100%) wanted to continue as members. The lowest was in MP (70%) and the highest in Rajasthan (100%). Further, 80% also were willing to encourage others to become member of the PC ranging from 71% in WB and UP to as high as 98% in Rajasthan (table 7.14 and 7.15).

A majority of members (53%) across states (47-66%) suggested interventions in procurement, (11%), better, timely, and lower cost input supply and procurement (9%) and rentals of farm machinery and equipment (3%). Tamilnadu members were keen to get loans and input subsidies (11%) and see procurement happening (11%) while those in WB, wanted more of better input supply (6%) and their timely availability(8%) and farm improvements support (6%) besides procurement (8%). The UP PC members were particularly keen on better procurement (14%) and farm machinery rentals (14%) and storage and warehousing facility (6%) besides lower cost and timely input supply and procurement at the same time (18%). The MP PC members also emphasised better inputs and extension advice, (14%), procurement (9%) and lower cost and timely input supply along with better procurement (7%). Similarly, Rajasthan farmers were keen on procurement (16%) better price realisation (6%), value addition (6%), new crops (4%), crop insurance (4%) and lower cost inputs and procurement (4%) (table 7.16). This clearly shows output interventions were lacking in most cases and that is what matters the most for farmers as even if they produce at lower cost or higher output from same piece of land, if they are not able to sell it well, the farmer benefit goes missing.

The members suggested various ways to improve governance of the PCs which included more members, more professional resources, better governance at the BoD level and better trust among members about PC and more funding especially in the case of Rajasthan. On the management of the PC, in general, farmer members suggested expansion of membership, better communication among members and PC, and trained and professional staff for business management. The accountability to members came up as a big suggestion in TN along with membership expansion while in WB, it was more about better communication and in UP more employee support for PC and more frequent meetings. In MP too, membership expansion was the main suggestion while some members also mentioned better business plans for making the PCs viable, while in Rajasthan, it was all about better professional management of the PCs (tables 7.17 and 7.18). Infact, out of nine PCs in MP, 5 had some business plan, only one out of 4 had one in Rajasthan (excluding milk PC),and two out of 4 in U.P (excluding milk PC). In WB, it was just one PC out of five which had a business plan and in Tamilnadu, out of 9, no one had a business plan. Thus, only 1/3rd all PCs had a business plan each.

It is also important to understand what makes some farmers join the PC while others don't. An examination of the factors which can be associated with farmers becoming members of PCs as against non-members, the logit regression results suggested that literacy ($p < 0.01$), ownership of livestock ($p < 0.01$), and being a member of any other farmer collectives like PACS, SHG, or another PC ($p < 0.01$) had a significant association with the membership of a PC/FPO. However, other factors included in the regression model like operated land and gender were not associated with the membership of a PC.

7.2 Organising models and Best practices in management and governance of PCs

Interestingly, there was not much variation across promoters and PCs so far as their organising levels and forms were concerned. In U.P. and WB, it was FIGs, WUGs and in one case farmer clubs which were the smallest levels of a PC membership. Since both IGS and BKSL in WB and BCTS and BKSL in U.P. as promoters were a part of the same family of BASIX, they both

followed the same approach. In M.P. too, it was all about SHGs, and FIGs, across PCs organised by different promoters which led to evolution of the PC structures. In Tamilnadu too, it was JLGs, FIGs, APGs across various promoters and nine PCs. This happened as government agencies like SFAC and NABARD also recommended and supported such evolution and local NGOS anyway followed such local level mobilisation strategies for their work besides the fact that PCs based on such structures seemed more stable and sustainable (Singh and Singh, 2014).

An assessment of the best practices of PCs across states revealed a varied picture and not so many PCs being confident about calling their practices best practices.

In WB, major best practices across PCs were contract farming, value addition, bidding for sufal Bangla, crop insurance new crops, and market linkages. In Rajasthan and U.P. a few innovative best practice were: no credit sales, new crops, and contract farming.

In Tamilnadu, in case of PCs promoted by SEEDS NGO, some of the best practices followed by its PCs included: direct procurement from farmers and payment at farm gate, no involvement of intermediaries in the transactions, and supply of quality inputs. In the case of Thoothukudi PC, the PC considered contract seed production by 20 farmers for NSC and bio-input business as the best practices. It believed that the best way to help farmers is to intervene in the open market for better realization of price. Kottampatti PC also believed in eliminating intermediate on the output side ass one of its major best practices leading to better price realization for farmers. It also brought new hybrid variety of coconut to the member farmers and had corporate linkage for sale of nuts. Seeds PCs also provided crop and livestock insurance which was innovative as it reduced risk. They also sold to institutions and even arranged loans for members. Theni goat PC trading in goat markets and also franchising meat shop were important innovative best practices.

In M.P., ASA promoted Ranapur Mahila PC stated that its seed production intervention was very successful. Its other innovations included: scaling up and branding of produce. The AKRSPI promoted Nevali PC saw its own brand in bio-inputs and focus on output marketing as best practices. The other innovations included: decentralized procurement and quality seed production. On the process innovations, organic farming practices in cotton and other crops in the same farms including facilitation of market with private market linkages for 7000 of its 12000 farmers in M.P. out of whom 3000 were fully organic across PCs was important innovation.

The Pandhana goat PC treated own production and marketing of some of the inputs as best practice. Besides that, it also considered weight based purchase of goats and other animals as process innovation. Similarly, Theni goat PC using franchisees for meat selling was also an innovation. On the other hand, Chirayu Women Crop PC had best practice innovations which included: seed contract farming, distant market trading, and introduction of mechanical grading. The ram Rahim PPC making use of warehouse receipt based loans for storing its produce in its own warehouses and participation in futures markets were its innovations and best practices.

NDDB's model of promoting milk PCs is based on certain rules of governance to enhance patronise cohesiveness and governance and operating effectiveness which are: one, they will do business with only members, new members can join only during specific windows in each year and only those with minimum supplies of milk can vote. They have to maintain a ratio of 3:1 flush to lean milk supply and they have to increase their shareholding after one year; two, there are classes of membership and face value of the share is revalued periodically and old members can leave the company and retire their equity capital at present valuation besides 20% of the directors being co-opted experts. This is reflected also in the scale of the milk PCs which are state level with membership ranging from 23000 to 87000, women being 12 to 100% of the membership and smallholder 43 to 75% of the membership. The paid up share capital ranged from 13.8 million to 262 million, milk procurement from 1.7 lac litres to 5.36 lac litres and business turnover from Rs.868 million to Rs.5968 million in 2014-15. The elected board members were forbidden from holding any political office and have staggered terms where one third retire every year/two year.

However, it is also important to discuss other possible best practices for mother contexts which are relevant within India. First of all, equity mobilisation should be higher in such entities to create member stakes and interest other business entities in undertaking business with these companies. It is possible to mobilise more equity from within the membership. For example, some PCs have attempted variation in shareholding related patronage to mobilise capital. One had voting rights linked to the patronage and another linked patronage to shareholding. Others had minimum patronage in terms of sale or purchase transactions annually with the PC to remain members (NABCONS, 2011). Further, dividends can be used to build equity. Since PCs are income tax exempt now for five years they should create reserves instead of passing on all the profits as price benefit. The PCs also lead to define their boundaries in terms of member treatment versus non-member treatment and membership should be rewarded more than non-members. Further, PCs can make voting rights proportionate to member business in order to encourage more involvement of members of the PC (Mahajan, 2015).

The PCs also need to choose their activity portfolio carefully keeping in mind the member centrality. For this, they should do adequate value chain mapping of the relevant commodity sector before undertaking any intervention for farmer benefit. It is possible to identify new activities in local areas which are valuable for small farmers e.g. custom hiring of farm machinery and equipment which they can't afford to buy but can rent in. This is being done in some parts of India viably by private entities and PACS.

Large member base and involvement is crucial as also suggested by NDDB experience across states to achieve economies of scale and scope and obtain member centrality and patronage. PCs can also be made more gender inclusive by making both spouses (or one male and another female member) from the same household. Further, like the NGCs, they can also restrict membership by byelaws to remain viable and not become unwieldy in terms of membership size.

Further, though PCs are generally focused on small producers to achieve inclusiveness, there is some merit in mixed member PCs in terms of farmer base as that helps achieve scale and

mobilise more equity. It is also argued that if they are composed of only small and marginal producers, they find it difficult to break even sooner, and later, due to small scale of their operations, bringing in larger farmers at a later stage creates problems of governance as it was originally designed with patronage cohesiveness.

Initial spadework in member mobilisation is a must with wide stakeholder consultations, and some pre-existing structures of collectivisation like WUAs, FIGs are helpful as it takes time to make farmers appreciate that they are building their own enterprise.

PCs can be supported by various types of stakeholders like government, development NGOs, alternative trading agencies, donors, or private agribusinesses, but, the promoter should have a definite time bound withdrawal strategy for PCs to become self-sustaining. It's also important to have the basic units of producer company organization at a local level legally structured which can also undertake some business activities. Therefore, only informal collectives building up to the producer company may not be desirable.

In order for PCs to achieve producer risk reduction (production and market), they should involve in contract farming, and crop insurance facilitation and even base their member economic relations on contract farming type of structure as in a competitive market it is important to have assured and reliable supplies from members.

For milk PCs, value addition was the *mantra* for their success. Further, they made payments directly into the bank accounts of the members. The milk procurement is managed by a single person called *sahayak*, and the companies have an asset light business model of owning low fixed assets and maintaining high asset turnover. Most importantly, member equity dominates capital structure and healthy retention of earning is practiced to build reserves and raise credit worthiness (Shah, 2016).

So far as professionalization of PCs is concerned, despite limitations of ability to hire competitive staff, the provision of expert Directors in BoD should be used to bring in skills and market knowledge for both cost and quality competitiveness.

On the financing front, the FWWB role in their financing of PCs needs to be appreciated as they have designed innovative products for PCs since 2011 and today they have financed 80 such FPOs, mostly PCs in terms of working capital to PCs, Co-ops and societies for procurement of output, credit services to members, input supply, and infrastructure with first two dominating the loans . The loans were of the order of Rs. 24 crores in 2017-18 and total financing since 2011-12 has been of the order of Rs. 61 crore. Every year, 20-30 POs are supported with Rs. 5-10 crore loans at the interest rate of 12-14% and for a maximum of 18 months (FWWB, 2018). The banks and NBFCs need to learn from this and design more innovative FPO relevant loan products.

Another best practice includes the entry into fair trade channel by some PCs in groundnut in Gujarat and coffee in Karnataka wherein their produce is going into processing by well

recognised companies in India. More of such markets should be explored as a part of global and national value chains and networks to capture value for member producers.

Good business plans and strategy is a must to compete in a globalised market and to attract funding. Therefore, adequate attention need to be paid to this aspect where special support can be provided to help PCs come up with robust business plans which need not be based only on existing crops and local enterprises of members.

There are cases of some PCs in Maharashtra creating JVs/subsidiaries for scale and external capital which is quite innovative and gives leads to others to follow suit to overcome capital and other constraints. Some well established PCs can take that route. Also, franchising is a mechanism to cut costs and reach larger markets for famr inputs and services and even output handing. Many PCs and agri startups are using this for some time now and this needs to be adopted by more PCs.

Table 7.8: Crop and channel wise sale of output by all PC members across five states (2019 v/s 3 years before)

Channel	Total						Wholesale						APMC						Retail						PC						CF					
Farmers and Produce	Farmers			Produce			Farmers			Produce			Farmers			Produce			Farmers			Produce			Farmers			Produce			Farmers			Produce		
Parameter	Before	After	% diff	Before	After	% diff	Before	After	% diff	Before	After	% diff	Before	After	% diff	Before	After	% diff	Before	After	% diff	Before	After	% diff	Before	After	% diff	Before	After	% diff	Before	After	% diff	Before	After	% diff	Before	After	% diff
Avocado	4	4		325.5	315.5	-3.07	4	3	-25.00	325.5	15.5	-95.24																			1			300		
Banana	5	6	20.00	765	820	7.19	2	3	50.00	100	130	30.00	2	2		590	590								1	1		75	100	33.33						
Barley	4	4		152	152		3	3		102	102								1	1		50	50													
Black Gram	25	25		100.8	133.55	32.49	21	9	-57.14	90.25	30	-66.76							1	1		0.75	0.75		3	15	400.00	9.8	102.8	948.98						
Brinjal	2	2		15.6	15.6		2	2		15.6	15.6																									
Chilli	21	22	4.76	256.3	270.5	5.54	20	19	-5.00	244.3	241.5	-1.15							1	1		12	12			2			17							
Coconut	4	4		9600	9600		3	2	-33.33	7100	6700	-5.63														1			400		1	1		2500	2500	
Coffee	14	14		97.5	97.75	0.26	13	13		92.5	94.75	2.43													1	1		5	3	-40.00						
Coriander	6	6		77	81.5	5.84	6	6		77	81.5	5.84																								
Cotton	38	42	10.53	336.75	403	19.67	31	27	-12.90	255.75	244	-4.59	2	2		32	32								5	13	160.00	49	127	159.18						
Drumstick	3	3		65	85	30.77	1	1		25	25																				2	2		40	60	50.00
Flat Gram	7	7		35.08	38	8.32	5	2	-60.00	33.08	30	-9.31													2	5	150	2	8	300						
Fruits	8	8		498.5	569.5	14.24	7	5	-28.57	428.5	369.5	-13.77							1	1		70	70			2			130							
Garlic	12	12		1145	890.5	-22.23	4	4		33	33.5	1.52	8	8		1112	857	-22.93																		
Gram	32	33	3.13	485.7	503.2	3.60	28	26	-7.14	467.2	466.7	-0.11	3	3		17	17								1	4	300	1.5	19.5	120						
Green Gram	25	25		226.3	229.05	1.22	20	14	-30.00	124	110.5	-10.89	2	2		94	94		1	1		1.5	0.75	-50.00	2	8	300	6.8	23.8	250						
Groundnut	17	17		115.5	148.9	28.92	13	9	-30.77	102.5	87	-15.12	1	1		10	10								3	7	133.3	3	51.9	163						
Jasmine	2	2		0.4	1.3	225	1	1		0.1	0.1								1	1		0.3	1.2	300												
Jute	6	6		99	99		6	6		99	99																									
Maize	72	78	8.33	1973.7	2123.1	7.57	56	46	-17.86	1630	1361	-16.50	9	11	22.22	185	275	48.65	1	1		0.75	0.75		6	19	216.67	158	486.4	207.85						

Mango	2	2		17	17		1	1		2	2								1	1		15	15													
Millet	39	39		1078	1132.5	5.06	33	30	-9.09	821	737.5	-10.17	4	4		254	266	4.72	1	1		2	2		1	4	300	1	127	12600							
Mustard	43	44	2.33	642.7	688.8	7.17	34	35	2.94	265.7	291.8	9.82	8	7	-12.50	367	362	-1.36	1	1		10	10			1			25							
Okra	9	9		421.5	462.5	9.73	6	6		270	311	15.19	2	2		150	150		1	1		1.5	1.5													
Onion	32	32		7529.36	7587.36	0.77	26	26		4279.36	4337.36	1.36	6	6		3250	3250																			
Orange	7	7		224	218	-2.68	6	6	0	209	208	-0.48							1	1	0	15	10	-33.33													
Others	8	10	25.00	90	223.1	2381.22	6	6	0	29	31.5	8.62	1	3	200.00	60	2200.6	3567.67	1	1	0	1	1	0													
Paddy	136	136		6987	7715.75	10.43	107	97	-9.35	5539	5448.75	-1.63	21	23	9.52	1205	1547	28.38	7	7	0	242	264	9.09	1	9	800	1	456	45500							
Pearl Gram	2	2		68	70	2.94	2	2	0	68	70	2.94																									
Pepper	10	10		90	98.5	9.44	10	10	0	90	98.5	9.44																									
Peppermint	11	11		7.27	9.9	36.18	11	11	0	7.27	9.9	36.18																									
Potato	60	62	3.33	7601.6	8702.95	14.49	40	40		2585.1	2698.45	4.38	17	18	5.88	4884.5	5752.5	17.77	2	2		42	42		1	1		90	90								
Pulses	4	4		19.8	21.8	10	4	3	-25	19.8	13.8	-30.3														1			8							
Pumpkin	6	6		540	572	5.93	6	4	-33.33	540	487	-9.81														2			85							
Red Gram	10	10		30.2	34.5	14.24	6	4	-33.33	17.2	13	-24.42													4	6	50.00	13	21.5	65.38							
Sesame	9	9		39	36.5	-6.41	5	5		27	25	-7.41	1	1	0	1	1	0	2	2		5	4.5	-10	1	1		6	6							
Soyabean	46	47	2.17	1199.5	1221.5	1.83	24	20	-16.67	607.5	559.5	-7.90	15	15	0	482	494	2.49	1	1	0	20	20		6	11	83.33	90	148	64.44							
Sunflower	6	6		117.5	123	4.68	6	5	-16.67	117.5	115.5	-1.70														1		0	7.5							
Tomato	7	7		2033.2	2033.2		6	6		2003.2	2003.2								1	1	0	30	30	0													
Urad	16	16		324.4	329	1.42	7	7		32.4	31	-4.32	8	8	0	192	198	3.13							1	1	0	100	100								
Vegetables	79	80	1.27	5454.27	5842.28	7.11	67	53	-20.90	3020.77	2882.58	-4.57	5	5	0	2165	2165	0	4	7	75.00	148.5	158.7	6.87	3	15	400	120	636	430							
Wheat	85	87	2.35	3772	3951	4.75	51	44	-13.73	1477.5	1398.5	-5.35	25	23		1415	1068	-24.52	2	2		178	154	-13.48	7	18	157.14	701.5	1330.5	89.67							

Table 7.9: State wise distribution of PC members by schemes and subsidies information provided by PCs

State >	All		TN		WB		UP		MP		Rajasthan	
Parameters > **Scheme and subsidy info**	No of members	% of total	No of members	% of total	No of members	% of total	No of members	% of total	No of members	% of total	No of members	% of total
Agri Machinery	4	1.14	3	2.86	1	1.56						
Animals and Poultry	2	0.57	2	1.9								
Drip & Sprinkler irrigation	3	0.85	3	2.86								
Drumstick farming	2	0.57	2	1.9								
horticulture and floriculture	1	0.28	1	0.95								
Loan and other details	5	1.42	2	1.9	3	4.68						
Subsidized inputs	22	6.25	17	16.19	2	3.12	3	5.88				
Via Voice mail/ SMS	4	1.14	4	3.81								
Loss Management during Bulbul storm	1	0.28			1	1.56						
Yes	54	15.34	8	7.62	12	18.75	7	13.72	14	17.28	13	25.49
No	254	72.16	63	60	45	70.31	41	80.39	67	82.72	38	74.51
Total	352	100	105	100	64	100	51	100	81	100	51	100

Table 7.9A: State-wise composition of membership of PCs (excluding all women PCs) by gender

State	UP		MP		Rajasthan		WB		TN		Total	
Parameter> Gender	No. of Members	%age in total	No .of Members	%age in total	No. of Members	%age of total	No. of Members	%age of total	No. .of Members	%age of total	No. of Members	%age of total
Female	1	2.0	10	25.0	10	24.4	1	1.8	36	38.7	48	17.8
Male	50	98.0	30	75.0	31	75.6	53	98.2	57	61.3	221	82.2
Total	51	100	40	100	41	100	54	100	93	100	269	100

Table 7.10: State-wise Distribution of PC members by subsidy availed

State >	All		TN		WB		UP		MP		Rajasthan	
Parameters > **Special Subsidy for PC member**	No of members	% of total	No of members	% of total	No of members	% of total	No of members	% of total	No of members	% of total	No of members	% of total
Input Subsidy	14	3.98			2	3.12	1	1.96	5	6.17	6	11.76
Loan	55	15.6	55	42.38								
Machine and Loan Subsidies	3	0.85			2	3.12	1	1.96				
No	280	79.55	50	47.62	60	93.75	49	96.08	76	93.83	45	88.24
Total	352	100	105	100	64	100	51	100	81	100	51	100

Table 7.12: State –wise Distribution of PC members by their perception of frequency of meetings of the PC

State >	All		TN		WB		UP		MP		Rajasthan	
Parameters > **Meeting frequency**	No of member	% of total	No of members	% of total	No of members	% of total	No of members	% of total	No of members	% of total	No of members	% of total
Annually	36	10.23	8	7.62	3	4.69	5	9.80	16	19.75	4	7.84
Biannually	21	5.97	8	7.62	3	4.69	5	9.80	1	1.23	4	7.84
Quarterly	56	15.91	18	17.14	7	10.94	12	23.53	11	13.58	8	15.69
Monthly	199	56.53	48	45.71	41	64.06	27	52.94	51	62.96	32	62.75
Weekly	13	3.69	4	3.81	6	9.38	1	1.96	1	1.23	1	1.96
Don’t Know	27	7.67	19	18.1	4	6.25	1	1.96	1	1.23	2	3.92
Total	352	100	105	100	64	100	51	100	81	100	51	100

Table 7.11: State-wise Distribution of members of PCs for dislike of services offered by the PC

State >	All		TN		WB		UP		MP		Rajasthan	
Parameters > / Disliked Services	No of member	% of total	No of members	% of total	No of members	% of total	No of members	% of total	No of members	% of total	No of members	% of total
High Costs	4	1.14	1	0.95	1	1.56			2	2.47		
High Costs, Not available on time	2	0.57	1	0.95							1	1.96
Inadequate quantity	7	1.99			4	6.25	3	5.88				
Inadequate quantity, not available on time	4	1.14			1	1.56			3	3.70		
Lack of choice	4	1.14			1	1.56	1	1.96	1	1.23	1	1.96
Lower Price realization	7	1.99	1	0.95			5	9.8		0.00	1	1.96
No Accessibility	8	2.27	2	1.9	2	3.13			4	4.94		
No Accessibility, High Costs	3	0.85	1	0.95					2	2.47		
No Accessibility, High Costs, Not available on time	2	0.57	1	0.95	1	1.56						
No meetings	2	0.57			1	1.56			1	1.23		
Non-members given equal importance	1	0.28					1	1.96				
Not available on time	11	3.13	1	0.95	2	3.13	8	15.69				
Not available on time, Not Active	2	0.57			1	1.56			1	1.23		
Not in Procurement	7	1.99					5	9.8	1	1.23	1	1.96
Nothing	276	78.41	96	91.43	49	76.56	25	49.02	60	74.07	46	90.20
Poor quality	4	1.14			1	1.56			3	3.70		
Too many meetings	1	0.28	1	0.95								
Unavailability	3	0.85					3	5.88				
No Animal Insurance	1	0.28									1	1.96
Lack of training	3	0.85							3	3.70		
Total	352	100	105	100	64	100	51	100	81	100	51	100

Table 7.13: State –wise Distribution of PC members by their frequency of attendance in meetings of the PC

State >	All		TN		WB		UP		MP		Rajasthan	
Parameters > **Frequency**	No of member	% of total	No of members	% of total	No of members	% of total	No of members	% of total	No of members	% of total	No of members	% of total
Every time	175	49.72	51	48.57	31	48.44	18	35.29	42	51.85	33	64.71
Sometimes	89	25.28	17	16.19	20	31.25	28	54.90	20	24.69	4	7.84
Occasionally	36	10.23	11	10.48	8	12.50	2	3.92	7	8.64	8	15.69
Never	52	14.77	26	24.76	5	7.81	3	5.88	12	14.81	6	11.76
Total	352	100	105	100	64	100	51	100	81	100	51	100

Table 7.14: State wise Distribution of PC members by intention to continue as members

State >	All		TN		WB		UP		MP		Rajasthan	
Parameters > **Continue as member**	No of member	% of total	No of members	% of total	No of members	% of total	No of members	% of total	No of members	% of total	No of members	% of total
No	46	13.07	18	17.14	3	4.69	1	1.96	24	29.63	0	0
Yes	306	86.93	87	82.86	61	95.31	50	98.03	57	70.37	51	100.00
Total	352	100	105	100	64	100	51	100	81	100	51	100

Table 7.15: State-wise distribution of members by intention to encourage others to become members of the PC

State >	All		TN		WB		UP		MP		Rajasthan	
Parameters > **Encourage others**	No of member	% of total	No of members	% of total	No of members	% of total	No of members	% of total	No of members	% of total	No of members	% of total
Yes	281	79.83	81	77.14	45	71.31	36	70.57	69	85.19	50	98.04
No	71	20.17	24	22.86	19	29.69	15	29.43	12	14.81	1	1.96
Total	352	100	105	100	64	100	51	100	81	100	51	100

Table 7.16: State-wise Distribution of PC members by suggestions for new products/services

State >	All		TN		WB		UP		MP		Rajasthan	
Parameters >	No of members	% of total	No of members	% of total	No of members	% of total	No of members	% of total	No of members	% of total	No of members	% of total
Product/ Service suggestion												
Add members and villages	2	0.57	2	1.9								
Home based livelihood	1	0.28							1	1.10		
Banking system	1	0.28			1	1.56						
Field visits	1	0.28					1	1.96				
Hybrid Seeds, Proper Training	1	0.28			1	1.56						
Inputs and information	21	5.97			2	3.13			13	14.29	6	11.76
Inputs at lower cost and timely, Procurement	21	5.97			4	6.25	9	17.64	6	6.59	2	3.92
Insurance	3	0.85	1	0.95							2	3.92
Irrigation, transport, wild animals, rainwater harvesting/watershed	4	1.14	1	0.95	3	6.26						
Labelling Machine	1	0.28			1	1.56						
Loan	2	0.57			1	1.56	1	1.96				
Loan & Input subsidies	15	4.26	12	11.43	1	1.56	1	1.96	1	1.10		
Market opportunity	2	0.57			1	1.56					1	1.96
Milk/ Poultry Society	1	0.28	1	0.95								
More Schemes and subsidies	2	0.57							2	2.20		
More varieties of inputs, bigger tractors, computers	2	0.57					2	3.92				
Need loan, more land, solar power, better seeds, subsidy, wild animal control	1	0.28	1	0.95								
No proper guideline, better fertilizers, schemes, funds, income, cows and oxen	1	0.28	1	0.95								
Organic Products	3	0.85	1	0.95	1	1.56			1	1.10		
Procurement	39	11.08	11	10.48	5	7.81	7	13.72	8	8.79	8	15.69
Procurement and Warehouse	2	0.57							2	2.20		
Rented Agri Machineries	10	2.84	1	0.95	2	3.12	7	13.72				
Storage, Weighing scale	3	0.85					3	5.88				
Timely Availability	7	1.99	1	0.95	5	7.81	1	1.96				
Timely availability and accessibility	1	0.28			1	1.56						
Timely availability, experts	1	0.28			1	1.56						
Timely Availability, no corruption	2	0.57			2	3.13						
Timely Input services	9	2.56	6	5.71					3	3.30		
Trainings	5	1.42	3	2.86							2	3.92
Value Addition	8	2.27	4	3.81					1	1.10	3	5.88
Wall around farm land	1	0.28	1	0.95								
Warehouse	3	0.85			1	1.56	2	3.92				
Irrigation facilities	3	0.85	2	1.9							1	1.96
More Price realization	3	0.85									3	5.88
Services, get new crops	2	0.57									2	3.92
Encourage to have more animals	1	0.28									1	1.96
Inputs, Market Linkage, Funding	1	0.28									1	1.96
Inputs, Trainings, MSP Sales	1	0.28									1	1.96
Introduce new crops	1	0.28									1	1.96
None	164	46.59	56	53.33	31	46.88	17	33.33	43	47.25	17	33.33
Total	352	100	105	100	64	100	51	100	81	100	51	100

Table 7.17: State-wise Distribution of PC members by their suggestions for improvement of governance of PC

State >	All		TN		WB		UP		MP		Rajasthan	
Parameters > **Governance suggestion**	No of members	% of total	No of members	% of total	No of members	% of total	No of members	% of total	No of members	% of total	No of members	% of total
Develop trust in the PC	1	0.28							1	1.10		
More involvement	2	0.57					1	1.96			1	1.96
More men need to be involved in PC	4	1.14							1	1.10	3	5.88
Old members should be removed	1	0.28							1	1.10		
Change Chairperson and Secretary every term	1	0.28	1	0.95								
Professionalism, More Corporate Structure	1	0.28	1	0.95								
Should inform aboout meetings	4	1.14	1	0.95	1	1.56	1	1.96			1	1.96
Should work honestly	1	0.28							1	1.10		
They don't talk to us, so no point	1	0.28					1	1.96				
More funding	2	0.57									2	3.92
More funding, Remove inactive members	1	0.28									1	1.96
None	333	94.60	102	97.14	63	98.44	48	94.12	77	96.62	43	84.31
Total	352	100	105	100	64	100	51	100	81	100	51	100

Table 7.18: State-wise Distribution of PC members by suggestions for better management of PC

State >	All		TN		WB		UP		MP		Rajasthan	
Parameters > **Management suggestion**	No of members	% of total	No of members	% of total	No of members	% of total	No of members	% of total	No of members	% of total	No of members	% of total
Accountability	3	0.85	3	2.86								
Business Plans	3	0.85	1	0.95					2	2.20		
Buy more quantity of inputs	1	0.28			1	1.56						
Communication regarding meeting	4	1.14	1	0.95	3	4.69						
Don't do business on credit	1	0.28							1	1.10		
Fund management, add new villages	1	0.28	1	0.95								
Include more members	7	1.99	3	2.86					4	4.40		
More Employees needed	3	0.85	1	0.95			2	3.92				
Needs improvement	1	0.28							1	1.10		
None	317	90.06	92	87.62	57	89.06	49	96.08	73	80.22	46	90.20
Regulated Meetings	1	0.28	1	0.95								
Better farmer representation geographically	1	0.28	1	0.95								
Subsidised farmer centre, farmer office, dividend	1	0.28	1	0.95								
Trained Staff/ Professionals	5	1.42									5	9.80
Weekly Meetings	3	0.85			3	4.69						
Total	352	100	105	100	64	100	51	100	81	100	51	100

7.3 State specific problems of PCs and recommendations

The PCs in U.P. other than the milk PC were modest in their profile and performance with one still making small losses. Though most of them had moved out of loss making but that happened after 5-6 years of existence. Still thy were small in membership numbers hovering around 1000 each. In case of at least one of the four, revenue was also very small even after 5 years. But, they had good portfolio of contract farming and banana as new crop in at least two cases and other one had tried contract farming unsuccessfully.

Most of the PCs in U.P suffered shortage of working and some of them even shortage of qualified human resources to manage the PCs besides issues of internal governance which included poor member awareness and poor BoD capability to oversee and guide the affairs of the PC. The poor working and fixed capital led to poor coverage of members for farm services and problems in engaging with produce markets.

In Rajasthan, besides the typical problem of shortage of working capital and professional human across PCs, the governance of the PCs was a major concern in terms of inactive BoD or some members dominating the PC. For example, in one PC, multiple members from same hhs (250) has membership in PC (500 members). This was further accentuated due to the fact that most promoters were not locally based and had promoted the PCs as projects for SFAC for limited period. Therefore, constant oversight and hand holding from local promoter was missing.

There were also other reported problems in Rajasthan for PCs like high interest loans (13-15%) and lack of storage space as there are only 540 godowns in the state and cold storage exists only in 9% markets, many of which are not covered under warehouse receipts system (GoR, 2017).

MP PCs also reported working capital shortage and high interest rate for loans in most cases besides the poor member awareness of their stakes and role in making the PC work. This was reflected in poor awareness of the farmer ownership of PC and poor market orientation of members which are more about internal governance. The poor handling of PC busines like unsold stocks, competition from private sector and PACS, lack of availability of organic seeds were other reported challenges. In one case, large farmers and their lack of involvement in PC affairs and political affiliation and interference by large farmers also led to decline of the PC.

The PCs in WB faced lack of staff, and working capital, besides poor governance especially at BoD level and lack of awareness among members emerged as major issues. Most of these were internal challenges, though there were also external challenges like spurious seed potato supply in one case, local competition, and lack of government support for engaging in procurement at MSP in some cases.

Tamilnadu was no different on many of these aspects of PC governance and management and problems included: Shortage of working capital and lack of professional staff, poor BoD governance (manipulation and lack of engagement), poor member awareness, poor govt.

support for bio inputs, lack of infrastructure like storage space, local competition and even locational disadvantage in one case.

Lack of staff was reported as a major problem in the exploratory study of FPCs in Maharashtra where out of 13, 61% did not have any staff other than the CEO and 69% had not appointed any one as CEO where Chairpersons performed this role (Badayta et al, 2018). It also corroborates the working capital problem faced by PCs when it states that 40% of the study FPCs which had applied for cash credit limit (CCL) had been denied it by Public Sector Banks due to lack of solid track record for three years and lack of collateral besides defaulting by some of the BoDs.

One of the concerns which still remains is low equity mobilisation across most of the PCs across states which puts limits on the volume of loans and business they can undertake. This was true of various PCs (13) promoted by three different promoters like NABARD, SFAC and MACP in Maharashtra where the authorised equity was mostly Rs. 10 lakh and mobilised capital remained within 10-61% and more commonly within 50% of authorised capital even after 4-5 years of PC being set up. This was so as share value was only Rs. 1000 (Badayta et al, 2018). Though the case study PCs had somewhat better performance on this aspect than those in Maharashtra, it was still small by any measure.

7.4 Policy Recommendations

Given the relatively large size of land holdings of the PC members compared with those of non-members, there is need to seek membership of marginal and landless categories proactively to make the FPC journey more inclusive and impactful. This does not deny the fact that mixed membership still retains its rationale to gain scale and scope. This is only to highlight that those already excluded from other networks like institutional credit and produce market or traditional co-operatives need to be roped in as they need the FPCs much more than any other category of land owner or rural producer.

One of the most important findings of the study is that the output linkages still remain poor across most PCs and therefore, the impact on farmers is limited. This was also one of the important suggestions by the farmers when asked about how PC performance could be improved and PCs made more useful for them. There were many cases of PCs procuring for the government in pulses and oilseeds and in cereals in some cases but that was more to avail of the MSP and to earn some revenue for the PC and was limited in coverage and volumes. On the other hand, some PCs engaged in contract farming with private agencies like in potato or drumsticks or even seeds and that benefited farmers in terms of growing a new high value crop as well as realising assured and better prices especially because these crops did not have MSP protection. This becomes important in the recent context of the new contract farming Act 2020 implemented by the Union Government which provides a freer environment for contracting agencies to work with farmers and it is here that PCs can play an important role as intermediaries or facilitators between the farmer members and contracting agencies to make smallholders attractive to such agencies because PC intervention can lower the transaction cost for the PC and bring large number of producers into the contract farming net which is much

needed. Even in Maharashtra out of the 13 PCs studied, five were mainly dependent on SFAC linkage for public procurement of pulses at MSP and only two had developed corporate linkages with agencies like Pepsi for potato and Amul for milk and fresh procure supermarkets for vegetables (Badayta et al, 2018). In fact, PCs should pro-actively engage in contract farming with their members for their own procurement as well as for supplying to processors and exporters until they have those capacities. This can help build more robust supply chains to earn buyer confidence and also earn farmer goodwill by bringing stable and assured prices to farmer members.

It was also observed that some promoters are too small to make any difference in terms of scale of farmer organization under the PC structure. For example in Uttar Pradesh there were dozens of promoting agencies which had organized only one or two PCs each. Further, many of the promotors not belonging to the local areas, unlike the traditional NGOs, did create large number of PCs but since they were not organically linked with local communities and organized these PCs more as projects, the viability and sustainability of such PCs was in question as seen in many cases in Rajasthan, Uttar Pradesh and Madhya Pradesh. The recent guidelines on promotion of FPOs with the help of cluster based business organization (CBDOS) can lead to multiplication of such PCs which may not have any one to look after them after the project duration and funding ends though the provision of longer term for support provided in the guidelines can help prevent such a phenomenon.

Though most of the PCs were composed of very small and marginal landholders and even landless in some cases, there were a few e.g. the one in Madhya Pradesh and another in Rajasthan which had medium and large farmers as members and that was one of the reasons that one of them was a non-starter from the beginning and the other one also could not undertaken any major business activity as there was no felt need for such collectivisation.

The experience of West Bengal and Tamil Nadu also shows that public support in the form of infrastructure and marketing opportunity can also help PCs scale up and turn profitable sooner or later. This was the case with PCs in West Bengal which had franchise rights of Sufal Bangla supermarkets as operational entities which led to many farmers selling vegetables and fruits to these outlets which had very high number of footfalls and turnover. Similarly, in Tamil Nadu, the handing over of Tamil Nadu supply chain management (TNSCM) owned processing and warehouse infrastructure facilities gave a jump start to the PCs. In both cases, this was given on competitive bidding bases.

The new market Acts of the Union Government provide many new opportunities like stocking exemption for food products from the ECA which they can use if they have warehousing facilities. Innovations in warehousing close to growing areas like by starts ups like Ergos and Arya Collateral warehousing and even NCML can help PCs help farmers realise better prices and get out of the compulsion of selling immediately after harvest due to the interlocked transactions with local traders and moneylenders. The warehouse receipts Act provides for this facility of loans against produce but physical infrastructure was missing earlier though it is still inadequate. The PCs should proactively hire or lease in such warehouses or make locals invest in them as managed by Ergos and PC then can manage them for their members and non-

members benefit. Also, the new Trade and Commerce Act, 2020 also frees FPOs/PCs from any permission and payment of market fee to the local APMCs and they can buy directly from farmers and even undertake contract farming activity to compete with private entities.

To deal with working capital and investment capital problems of the PCs, working capital provision under priority sector needs to be activated to give loans w/o collateral for a limited period. The banks should be asked to give collateral free loans to FPCs as they do to the SMEs. The interest charged to FPOs should be priority sector interest rate as applicable to farmer and it should be collateral free upto Rs. 25 lakh. The RBI mandate of extending upto Rs. two crore loans to PCs under priority sector lending as direct agricultural credit and upto Rs. five crore under indirect agricultural finance needs to be enforced. Infact, there could be even sub-targets for FPOs under the PSL norms for indirect finance.

Since FPOs are like MSMEs, it is possible to mandate a pat of all government purchases of food and fibre thru FPOs and even food supermarkets required to buy atleast 25% from FPOs like there is a provision in FDI in retail policy for MSMEs.

The NABARD proposal to set up infra fund guarantee subsidiary for FPOs is welcome and it should also cover crop FPOs not just animal husbandry and fisheries.

More training and capacity building for members and BoD required to create awareness and engagement and more equity. Professional raining for staff also required. Infact, there could be tie ups with rural management and agribusiness management colleges to train professionals for such roles which is more than simple agribusiness management. The co-operative training colleges at the state level should move to include FPCs under their mandate and train their BoD and executives as now NCDC is also involved in promoting FPOs.

The FPOs can benefit from ECA, 2020 if they have warehouses and are into processing, storage, packing, transport and distribution- any activity which adds value. The FPOs also should proactively make us of ECA, 2020 now to store produce in warehouses and avail loans against it from banks. Further, the Farmer Produce Trade and Commerce Act, 2020 provides for e-markets by FPOs. This was earlier allowed in the APMC Acts where private wholesale markets could be set up by such collectives and there a few dozen such markets set up by FPC in Maharashtra already operating under the APMC Act. But, the Trade and Commerce Act, 2020 and the contract farming Act, 2020 both include the FPO under the definition of a farmer. But, no FPO is involved in production as most of them are into pre- and post-production aggregation, trading and value addition. This needs to be changed to make FPOs buyers of farm produce in their own right and even contracting agencies which many of them are as they undertake seed contact farming with their members.

The state government need to step in as they are located close to these entities and should frame definite policies and programs for organising and supporting FPCs no just implement central schemes about it. Some states like Punjab, Kerala and Odisha have moved in this direction with policy and this needs to be encouraged and supported.

The Government of Kerala's 2015 Agricultural Development Policy has a separate chapter on FPO policy and provides for promotion of FIGs and FPOs by handholding them with the provision of an expert for each FPO for professional management and extending all policy benefits at par with co-operatives and also engaging them as agents in public procurement at MSP for various crops and implementing agencies for various government programs. It even provides for restricting the 'rice and coconut bioparks only to FPOs. Interestingly, it even gives the credit provision role to FPOs for their farmer members for various farm activities and investment like purchase of farm machinery or construction of wells or laying of pipelines, and role of bringing crop insurance and other risk protection for its members. For promotion of FPOs, the state SFAC is proposed as the RI in the state to train both BoD and professional staff for smooth functioning of FPOs and recommends an incubation period of 18-24 months before a PC is registered (GoK, 2015).

Punjab's FPOs policy of 2020 though does not commit any resources for promotion of FPOs from the state government but it has also included private limited and public limited companies under the Companies Act, 2013 also as FPOs which is likely to be misused if not monitored and checked carefully as any family and its members can also float a private limited company and all public limited companies need not adhere to norms of an FPO. Further, it stipulates that no political or electoral interferences would be made in the working of FPO in any way. Again this is easier said that done. The Policy treats FPOs at par with co-operatives and corporations which is again surprising as no other state policy treats FPOs at par with corporations. Additionally, it also provides for facilitating contract farming between FPOs and bulk buyers. Like other states, it also provides for FPOs acting as procurement agents for MSP based procurement of various crops for PDS. Infact, it says that it would treat them as 'arthiyas' in the mandis and would be given preferences over individuals and other organisations. Further, like other states, FPOS would be allowed as implementing agencies for various agricultural development programs of the central and state government and other organisations. Unfortunately, it makes Punjab Agro Export Corporation (PAGREXCO) as the nodal agency despite the fact that is is an export corporation. This nodal agency would appoint FPO *Mittar* for helping FPOs on day to day basis for their operations and for preparing business plans. The state level committee would have two nominated FPO representatives while other members include: various departmental officials and agricultural and veterinary university vice-chancellors and there is a provision for co-opting other officials. The only definite incentive specified is that all incentives under the state industrial business development policy 2017 would be available to all registered FPOs (GoP, 2020).

Odisha's FPO policy (2018) is very comprehensive and provides for treating PCs at par with co-operatives and provides for single window clearance system for all approvals at the department of agriculture and farmer empowerment. It even aims to provide land for FPOs at concessional rate for setting up exclusive storage, sorting, grading yards and processing plants. It also advises the state agricultural universities to introduce courses on FPOs in their rural management or agribusiness management programs with a provision for one time capital grant of upto Rs. 50 lakh for such course and provision for reimbursement of student fees for such courses upto Rs. 10,000.Besides, there is a provision of 50% course fee reimbursement for FPO

course fee for training run by BIRD as back ended subsidy. It has also allocated a corpus fund of Rs. 100 crore per year for promotion of FPOs with maximum seven year time frame.

Directorate of Horticulture is the nodal agency for FPO promotion in the state with each department having its own RI and project management unit (PMU) at directorate level. Each FPO would be eligible for investment promotion subsidy @ 50% of the value of fixed assets for purposes not specified but relevant. They are also exempted from stamp duty on loan agreements, credit deeds, mortgage and hypothecation for availing loans or lease deeds , lease-cum sale and absolute sale deeds for purchase of sheds, plots and godowns at the rate of 100% if used for office or retail or wholesale outlet or godown or processing or grading and sorting yard or similar purpose. The registration charges for loan documents, lease deeds and sales deeds entered into by FPOs are reduced to Re. 0.50 per Rs. 1000 irrespective of size of FPO. These two exemptions are also applicable to lands purchased and converted landed used by FPOs for various purposes specified and similar activities. Further, interest subsidy of 6% per annum on term loans would be provided to FPOs for period of seven years which would be paid to various financial institutions on behalf of the FPOs, if the FPO does not default on loan repayment or interest on it. The state government would also establish an information and support centre for FPOs at the Directorate of Horticulture (GoO, 2018).

Some states have started supporting FPOs in a big way even without a policy. For example, Tamilandu has provided Rs. 266.7 crore for financing FPOs thru TN SFAC which would have three components- mezzanine capital assistance (Rs. 50 crore), credit guarantee (Rs. 50 crore) and revolving fund (Rs. 166.7 crore). This is to support more than 500 PCs in the state of which 130 are promoted by the state department of agricultural marketing and agribusiness itself. The credit guarantee fund would provide easy access to bank credit for FPCs with 50% guarantee against default by the PCs which would be written off eventually by the lending agency. This would be available for first 3-5 years of a PC. The mezzanine capital would be a margin fund corpus with a lending agency which would invest in the FPCs in the form of cumulative redeemable long term preferential capital or debentures at nominal rates, redeemable after five years (ENS, November 19,2019).

Similarly, Karnataka allocated Rs. 630 lakh in 2017-18 for FPO promotion thru the state SFAC which was Rs. 936.89 crore in 2016-17(GoK, 2018) but there is no separate policy on FPOs in the state which has directly promoted 73 PCs across the state.

Bihar government has provided for 25% of the project cost as capital subsidy for FPOs as against 15% for individuals, partnerships firms and LLPs provided the project cost is at least Rs. 25 lakh, and it is credit linked. Further, under the PMFMFPES, there is grant of 35% of the project cost linked with credit as long as it is ODOP produce and has been into it for at least three years and has turnover of Rs. one crore but they need to put in margin money (10% of the project cost) for working capital and the scheme is also available for common infrastructure creation. Upto Rs. five lakh can be availed for preparing a branding and marketing DPR with a ceiling of 50% of the total cost. Under the AIF, there is interest subvention of 3% up to loans of Rs. two crore and a credit guarantee upto this amount under CGTMSE scheme (GoB,2020).

The state governments need to proactively offer APMC licenses to FPOs for commission agency or trading of agricultural produce as well as engage them in setting up farmer consumer market yards (FCMY) as provided in the model APLM Act, 2017.

The state governments can also provide initial seed capital in the form of grants to FPOs for undertaking initial business activities and allocate funds for CHCs under ATMA and other schemes based on need and merit.

Further, the government can incentivise private sector to work with PCs when it undertakes procurement through contract farming or direct purchase which are now legal. Rather, state governments can incentivise it by not insisting on bank guarantees or the like or not linking contract price in any way to the MSP.

Appendix 7.1

Table 7.1: Paired t-test for means of owned and operated land holdings of members and non-members

Owned			**Owned**		
t-Test: Paired Two Sample for Means (95%)			t-Test: Paired Two Sample for Means (99%)		
	M_Owned _Land	*NM_Owned_Land*		*M_Owned _Land*	*NM_Owned_Land*
Mean	4.50160327	3.421837349	Mean	4.50160327	3.421837349
Variance	41.49777445	19.34216953	Variance	41.49777445	19.34216953
Observations	332	332	Observations	332	332
Pearson Correlation	0.183101348		Pearson Correlation	0.183101348	
Hypothesized Mean Difference	0		Hypothesized Mean Difference	0	
Df	331		Df	331	
t Stat	2.769514217		t Stat	2.769514217	
P(T<=t) one-tail	0.002965308		P(T<=t) one-tail	0.002965308	
t Critical one-tail	1.649470149		t Critical one-tail	2.337666351	
P(T<=t) two-tail	0.005930616		P(T<=t) two-tail	0.005930616	
t Critical two-tail	1.9671568		t Critical two-tail	2.590763895	
Operated			**Operated**		
t-Test: Paired Two Sample for Means (95%)			t-Test: Paired Two Sample for Means (99%)		
	M_Operated_Land	*NM_Operated_Land*		*M_Operated_Land*	*NM_Operated_Land*
Mean	5.342104131	3.8658821	Mean	5.342104131	3.8658821
Variance	74.78922388	24.61253989	Variance	74.78922388	24.61253989
Observations	332	332	Observations	332	332
Pearson Correlation	0.129234285		Pearson Correlation	0.129234285	
Hypothesized Mean Difference	0		Hypothesized Mean Difference	0	
df	331		Df	331	
t Stat	2.862264787		t Stat	2.862264787	
P(T<=t) one-tail	0.002237051		P(T<=t) one-tail	0.002237051	
t Critical one-tail	1.649470149		t Critical one-tail	2.337666351	
P(T<=t) two-tail	0.004474102		P(T<=t) two-tail	0.004474102	
t Critical two-tail	1.9671568		t Critical two-tail	2.590763895	

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Appendix 1
Review comments and Author response

Comment No.	***Reviewer Comment***	***Author response to the comment***
1.	The impact on crop structural components such as improvements in yield, reduction in costs, realization of better output price etc appears limited. Providing more information on these aspects will add value to the study.	Added new tables on the reasons for purchase of inputs by PC members in each chapter and also the information on %age increase in prices realised wherever possible compared with pre-PC situation.
2.	The functioning and impact of a PC can be assessed better when analysed in relation to its core objectives. For example, if a PC's main objective is to smoothen input supply, then the impact should be assessed in terms of the reduced cost of inputs (if any) to its members. Similarly, if a PC is mainly aimed at improving the market access to the members, then the impact should be visible in terms of increase in number of farmers or quantum of output marketed through or with the assistance of the PC. Even if a PC has multiple objectives, improvements in yield and output price; reduction in production and transaction costs can go a long way in improving farmers' position. Thus, these can be considered legitimate objectives. The study may therefore (list out the main objectives of each PC and) assess the impact in relation to the objectives of the PC.	This is not possible to do as most PCs have no specified or limited objectives. Their objectives are very broad ranging and they do all kinds of things to improve farmer incomes. That is why an overall assessment has been attempted with mixed methods research involving case study of the PC functioning and the sample survey of its members in each case and gains from input supply by the PC, output purchase by PC and the like.
3.	Impact of an intervention needs to be based on the appropriate counter-factual. For example, most of the member farmers of the PCs in the study are reported to have owned and operated larger area. Hence, the member farmers and non-member farmers are not exactly comparable. Hence, the correct way to assess the impact of the PC is to analyze the outcome before and after the intervention (here becoming a member of the PC) for the same set of farmers. Thus, whether it is increase in yield or income; decrease in cost of cultivation or marketing costs, after the intervention should be assessed relative to the same set of farmers. The data on various parameters like yield, cost, price realized, income etc need to be clearly reported in tables for before and after the intervention to make the impact of PC clear.	Yes, this was exactly the design of the study and both before and after and with and without analysis have been attempted subject to the limitations of data availability. Some more analysis on before and after has been added for output side of the impact. Also, one of the objectives of the study was whether PCs were small holder inclusive and the differences in the member and non-member profile is post-facto and a finding of the study. However, the before and after intervention

		analysis has been done besides with and without the intervention.
4.	Since the study has collected data systematically on several PCs across states by different RIs both before and after the intervention, a systematic quantitative analysis of the impact of the PCs can be carried out. The state, time and individual fixed effects can be used to control for unobserved heterogeneity across beneficiaries after controlling for observables like land size, caste, irrigation and other variables. This will yield a plausible estimate of the impact of PC on the outcome variable (which can be crop yield, price, input cost or any other). Such a quantitative analysis can add a lot of value to this work and can also help the author publish the findings in a scholarly journal. All in all, the study is a good contribution to the literature on this important subject.	This aspect would be attended to while publishing the results of the study formally in peer reviewed journals to the extent possible.
5.	Summary of the study is very long and needs a lot of pruning. The ES should at most be of 3-4 pages and bring out the salient features of the study such as the objectives of the study, methodology, main findings and important policy implications	The executive summary has been pruned by a few pages but since it involves state specific and promoter specific findings, it can't be made into just a few pages.
6.	The Report is replete with spelling errors and grammatical mistakes. The Report needs be copy editing by a competent copy editor to improve readability.	Proof reading and editing done
7.	There are a few places in the Report where the references in the text are not matching with the Tables.	This has been rectified