

IMPACT OF NATIONAL FOOD SECURITY MISSION ON INPUT USE, YIELD AND INCOME

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Executive Summary

Executive Summary

1. Background of the Study

In order to combat the challenge of food availability deficit in the country, the Government of India launched National Food Security Mission (NFSM) in 2007-08 at the beginning of the 11th Five Year Plan (FYP). The NFSM Programme targeted to enhance production of rice, wheat and pulses by 10, 8, and 2 million tonnes, respectively, by the end of Eleventh Five Year Plan. The NFSM achieved the targeted goal and the food grains production increased by 20 million tonnes by the end of 11th Plan. Encouraged by this success the NFSM programme was extended to 12th Plan. However, new targets have been set to produce additional 25 million tonnes of food grains, 10 million tonnes of rice, 8 million tonnes of wheat, 4 million tonnes of pulses, and 3 million tonnes of coarse cereals by 2016-17. The main focus is on cropping systems and on marginal and small farmers. This is proposed to achieve through development of Farmer Producer Organizations (FPOs), creating value chain and providing market linkages (Gol, 2014).

The NFSM mission adopted a two-fold strategy to bridge the demand-supply gap. The first strategy was to expand area, and the second was to bridge the productivity gap between potential and existing yield of food crops. Expansion of area approach was mainly confined to pulses and wheat only, and rice was mainly targeted for productivity enhancement. The major measures adopted to augment productivity included: (1) acceleration of quality seed production; (2) emphasizing Integrated Nutrient Management (INM) and Integrated Pest Management (IPM); (3) promotion of new production technologies; (4) supply of adequate and timely inputs; (5) popularizing improved farm implements; (6) restoring soil fertility; and (7) introduction of pilot projects like community generator and blue bull.

A total amount of Rs.4500 crores has been spent under NFSM during the 11th FYP (Department of Agriculture and Co-operation, 2014). With this strategy, NFSM was implemented in 561 districts across 27 States in the country (Department of Agriculture and Co-operation, 2013). This includes National Food Security Mission-Rice (NFSM-Rice), National Food Security Mission-Wheat (NFSM-Wheat) and National Food Security Mission-Pulse (NFSM-Pulses), all operationalised during the 11th FYP. In addition, there were several other Central and State sponsored programmes which were running parallel to the NFSM programme. Aided by all the above efforts of the Central and State governments, rice production during the end of 11th Five Year Plan increased by 12.1 million tonnes, wheat by 19.1 million tonnes and pulses by 2.9 million tonnes as compared to the production during the base year of 2006-07 (Directorate of Economics and Statistics, 2012).

It is essential to evaluate and measure the extent to which the NFSM programme and approach has stood up to the expectations. The study would enlighten the policy makers to incorporate necessary corrective measures to make the programme more effective and successful. Given the above broad objectives, the present study intends to achieve the following specific objectives:

- a. To analyse the trends in area, production, productivity of rice, wheat and pulses in the NFSM and Non-NFSM districts of selected States in India.
- b. To assess the impact of NFSM on input use, yield and income.

- c. To identify factors influencing participation of farmers in the NFSM programme.
- d. To identify the constraints hindering the performance of NFSM programme.

Secondary data on area, production and productivity of rice, wheat and pulses for the last year of 10th FYP (2006-07: Base Year), all years of 11th FYP (2007-08 to 2011-12) and two years of 12th Plan (2012-13 & 2013-14) and advance estimates for 2014-15 were used to analyse the trends in production, productivity of rice, wheat and pulses. For this purpose, Percentage change and Average Annual Growth Rates (AAGR) were applied.

For meeting the remaining objectives, primary household data has been considered using multi-stage sampling technique. In each of the nine selected States, two beneficiary districts were selected according to highest and lowest production of rice and wheat among the NFSM districts. From each district, two taluks were selected at the second stage. One taluk was drawn from nearby district headquarters and the second at a distance of 15-20 kilometers from district headquarter. Only those districts that are covered under NFSM programme were selected for collecting beneficiaries and non-beneficiaries. In the third stage, 75 beneficiaries and 25 non-beneficiaries were selected purposefully from each taluk totaling to a sample size of 300 NFSM beneficiary households and 100 non-beneficiary households in every State. By following this sampling technique, the study covered 1500 NFSM beneficiaries and 500 non-beneficiaries in five States which were selected for Paddy. The sample size was 1200 NFSM beneficiaries and 400 non-beneficiaries in four States that were chosen for Wheat. At aggregate level, the total sample size was 2700 NFSM beneficiaries and 900 non-beneficiaries. The results of the Primary data pertaining to Andhra Pradesh were not included in this report as it was received late due to some administrative reasons.

The summary, conclusions and policy suggestions are presented under the following headings:

1.1. Impact of NFSM on area, production and yield of Paddy, Wheat and Pulses - a macro analysis

- The production of Rice in India increased from 933.55 lakh tons in 2006-07 (last year of 10th FYP) to 1047.97 lakh tons by the end of 2014-15 (third year of 12th FYP). This is an increase of 12.26 per cent. This increase in production of Rice has been achieved mainly due to increased productivity. The productivity increased by 12.15 per cent from 21.31 quintals per Ha in 2006-07 to 23.90 quintals per Ha in 2014-15.
- The production of Wheat in India increased from 758.07 lakh tons in 2006-07 (last year of 10th FYP) to 889.39 lakh tons by the end of 2014-15 (third year of 12th FYP). This is an increase of 17.32 per cent. This increase in production of Wheat has been achieved mainly due to increased area of Wheat by 10.62 per cent from 279.95 lakh ha in 2006-07 to 309.68 lakh ha in 2014-15. The productivity increased by 6.06 per cent from 27.08 quintals per Hain 2006-07 to 28.72 quintals per Ha in 2014-15.
- The production of Pulses in India increased from 89.82 lakh tons in 2006-07 (last year of 10th FYP) to 107.74 lakh tons by the end of 2014-15 (third year of 12th FYP). This is an increase of 19.95 per cent. This increase in production of Pulses has been achieved mainly due to increased productivity and not by increased area. The productivity increased by 17.38 per cent from 6.56 quintals per Ha in 2006-07 to 7.70 quintals per Ha. in 2014-15.

1.2. Socio-economic characteristics and cropping pattern of sample farmers

- The survey represented a heterogeneous sample belonging to different age groups, sex, caste, and education level and farm size holdings. However, marginal and small farmers had higher representation among beneficiary and non-beneficiary households. The marginal and small farmers together constituted around 70 per cent and 80 per cent, respectively. The average operational land size ranged from as less as around one acre in West Bengal and Himachal Pradesh to 8.95 acres in Karnataka.
- Agriculture was the main source of income for 85 per cent of beneficiaries and 82 per cent non-beneficiaries. It is to be noted that the income from agricultural allied activities did not exceed 5 to 6 per cent. The income from non-farm source ranged from 10 to 15 per cent of total income.
- Except Assam and Himachal Pradesh, the entire sample States were bestowed with irrigation sources that irrigated around 80 to 95 per cent of the gross cropped area. Some States like Uttar Pradesh, West Bengal and Tamil Nadu had sources to irrigate their entire operated area. Among these three States, Uttar Pradesh was fully dependent on tube well. About 39 per cent of operated area of West Bengal solely depended on canals while 45 per cent of the operated area depended on tube wells. However, there were instances in West Bengal where the operated area irrigated from canal and tube wells (conjunctive use). Conjunctive irrigation was also found in Karnataka.
- Leasing of land prevailed mainly in Assam, Tamil Nadu and West Bengal. In the States of Himachal Pradesh, Madhya Pradesh and Uttar Pradesh leasing was not reported.
- The beneficiary farmers whoever had leased-out under fixed rent in cash were paying more than the value they were charging for leasing in. The leased in value was almost double the leased-out value in West Bengal and Gujrat. The highest leased in rental value was highest in Gujrat at Rs. 9246 per acre as against Rs. 5000 for leasing-out of one acre of land.
- The cropping pattern was mostly confined to paddy and wheat. These two crops together accounted for 72 per cent of gross cropped area of beneficiaries and 60 per cent gross cropped area of non-beneficiaries. Apart from these two major crops, lesser area under Tur, Groundnut and Soyabean were grown, which was observed mainly in Tamil Nadu and Madhya Pradesh. Cultivation of fruits and vegetables was relatively prominent in Himachal Pradesh (around 15 per cent of gross cropped area) followed by Assam and West Bengal.
- Analysis of income derived from crop cultivation indicated that sample farmers of all the States depended on agriculture for their livelihood. The average income in the case of NFSM beneficiaries was Rs.225463 with agriculture being the main source (Rs.189439 /HH) followed by, salary (Rs.12918 /HH), Dairy (Rs.9170/HH) and own business (Rs.6677/HH). However, the average income of non-beneficiaries (Rs.160621/HH) was 40 per cent lower than that of the beneficiaries with the income from agriculture being Rs.129283 followed by salary (Rs.13761), and Dairy (Rs.6493).
- It was noticed that expensive equipments like tractors and mini tractors were owned by marginal and small farmers of West Bengal. In all other States, tractors were owned by medium and large farmers.
- Commercial Banks and Primary Agricultural Credit Societies were two major institutional credit sources for sample farmers in all the States. However, higher number of farmers approaching money lenders for credit was observed in Tamil Nadu, West Bengal and Gujarat. In Gujarat, though the farmers who had taken loan from money lenders were very few in number, the amount of loan taken was very high (Rs.9 Lakh per HH). It was also noticed that the beneficiary farmers had used almost a quarter of the loans for non-productive purposes such as social functions and consumption.

1.3. Impact of NFSM on input use, yield and income of sample farmers

- Highest number of beneficiaries (40 per cent) have availed subsidy for seed mini kits of HYV/Hybrid Rice. This was followed by plant protection chemicals (28 per cent), micro nutrients in deficit soils (13.26 per cent), Production of certified seed (9.26 per cent), Training (9 per cent), lime in acid soils (8.25 per cent). Lowest number of beneficiaries who were benefitted under Machineries/Tools (0.26 per cent). Average cost incurred by farmers was Rs.5156 per Household, of which, subsidy was 55 per cent.
- Majority of farmers have cultivated Kharif paddy. The per acre yield of Kharif paddy in the case of beneficiaries (17.22 qtl) was higher by 7 per cent as compared with non-beneficiaries (16.10 qtl). The net income per acre with respect to beneficiaries (Rs.12,730) was higher by 22 per cent as compared to non-beneficiaries (Rs.10408). The total cost per acre of beneficiaries (Rs.14,350) was lower by 4 per cent as compared to non-beneficiaries (Rs.14,977).
- The per acre of Rabi/Summer paddy of beneficiaries (20.72 qtl) was higher by 15 per cent as compared to non-beneficiaries (18.01 qtl). The per acre net income of beneficiaries (Rs.11,406) was higher by 31 per cent as compared to non-beneficiaries (Rs.8,701). The total cost per acre of beneficiaries (Rs.18,224) was lower by 15 per cent as compared to non-beneficiaries (Rs.18,224).
- The per acre yield of Wheat of beneficiaries (15.52 qtl) was higher by 16 per cent as compared to non-beneficiaries (13.91 qtl). The per acre net income of beneficiaries (Rs.15,994) was higher by 28 per cent as compared to non-beneficiaries (Rs.12,468). The total costs per acre of Wheat of beneficiaries (Rs.14,391) was lower by 3 per cent as compared to non-beneficiaries (Rs.14,893).
- Awareness of NFSM was higher in Gujarat (96 per cent) and lower in Karnataka (37 per cent).

1.4. Participation decision, constraints and suggestions for improvement of NFSM

- About 67 per cent of beneficiary farmers faced difficulties in availing the benefits under the NFSM. Lack of information dissemination about NFSM was a major constraint as mentioned by around 53 per cent of the beneficiaries. This limitation was evident in West Bengal (93 per cent), Bihar (85 per cent) and Madhya Pradesh (88 per cent).
- Increasing the subsidy amount and other subsidy related issues were the most pronounced suggestions received by 86 per cent of the beneficiaries for improvement of NFSM scheme. However, none of the beneficiaries from states of Assam, Bihar and Himachal Pradesh have offered this suggestion. There were instances of biased distribution of subsidy opined by 12 per cent of the beneficiaries. The per cent of beneficiaries who made this suggestion was highest in Gujarat (58 per cent).
- Around 37 per cent of the non-beneficiaries indicated that the biased selection of farmers is a hindering factor. This suggestion for unbiased selection of farmers in the programme was expressed by 79 per cent in Gujarat and Madhya Pradesh, and 100 per cent in Uttar Pradesh.
- Unawareness of NFSM scheme (42 per cent) was the most repeated reason for non-participation of non-beneficiaries in NFSM scheme. Problem with regard to documentation was quoted as another reason by around 30 per cent of non-beneficiaries for their non-participation in the scheme.

2. Policy Suggestions

- The terms of leasing-in and leasing-out not based on fair terms and are charged varying rates. In order to address these concerns, there is ample scope for formalizing land leasing and land sharing institutions for promoting efficiency in farming.
- Except few cases, the sample farmers have not owned paddy harvesters. Because it is not affordable to them in spite of subsidy from government. Currently, farmers were renting from private by paying higher charges. Thus, farmers suggested for implementation of hiring arrangements from Agricultural Department at subsidized rates.
- More efforts should be made by the Agricultural Department/RSKs/KVKs/Gram Panchayats in disseminating the NFSM benefits, so as to cover more number of farmers.
- Most of the beneficiaries have been benefitted for low cost items such as seeds, PPCs, sprayers and micro-nutrients. Beneficiaries suggested for providing access to quality benefits as well as increase access to higher cost items such as tractors and tractor drawn implements. By doing so, productivity and income of households can be further improved.
- Wide variations in yield of paddy were noticed among beneficiary and non-beneficiaries ranging from about 10 quintals per acre to 40 quintals per acre. Such wide gap in yield levels in general and more specifically between beneficiaries and non-beneficiaries can be reduced through proper training and skill development of farmers by Agriculture Department.
- Most of the beneficiaries and non-beneficiaries have sold their paddy to either private companies/ mills and are receiving non-remunerative price. Hence, alternative marketing arrangements for rice are needed to promote competition and efficiency in rice marketing system so that farmers receive competitive price. It also aids in increasing the producers share in the consumer basket.
- The minimum support prices for the paddy and wheat may be increased considering the implicit and explicit costs. This may increase the profit margin of farmers.
- Technology upgradation needed to reduce pre and post-harvest losses with a shift from traditional methods of milling and hulling to modern methods.
- **Suggestions given by the beneficiaries and non-beneficiaries to improve NFSM:**
 - **Beneficiaries:** institutional financing should be provided for high investment benefits at reasonable subsidy rates (eg. machinery and equipments); more capacity building/ technical advice needed for promoting effective use of benefits; MSP for paddy should be increased considering the implicit and explicit costs; and providing access to quality inputs.
 - **Non-Beneficiaries:** The non-beneficiaries had also suggested for increasing the MSP of paddy and subsidy share on farm implements as well as popularizing the programme through various communication modes. Some of them even opined that they have not participated in the NFSM programme as land records are not in their names. Additionally, suggested for inclusion of paddy growers under MGNREGA.

Introduction

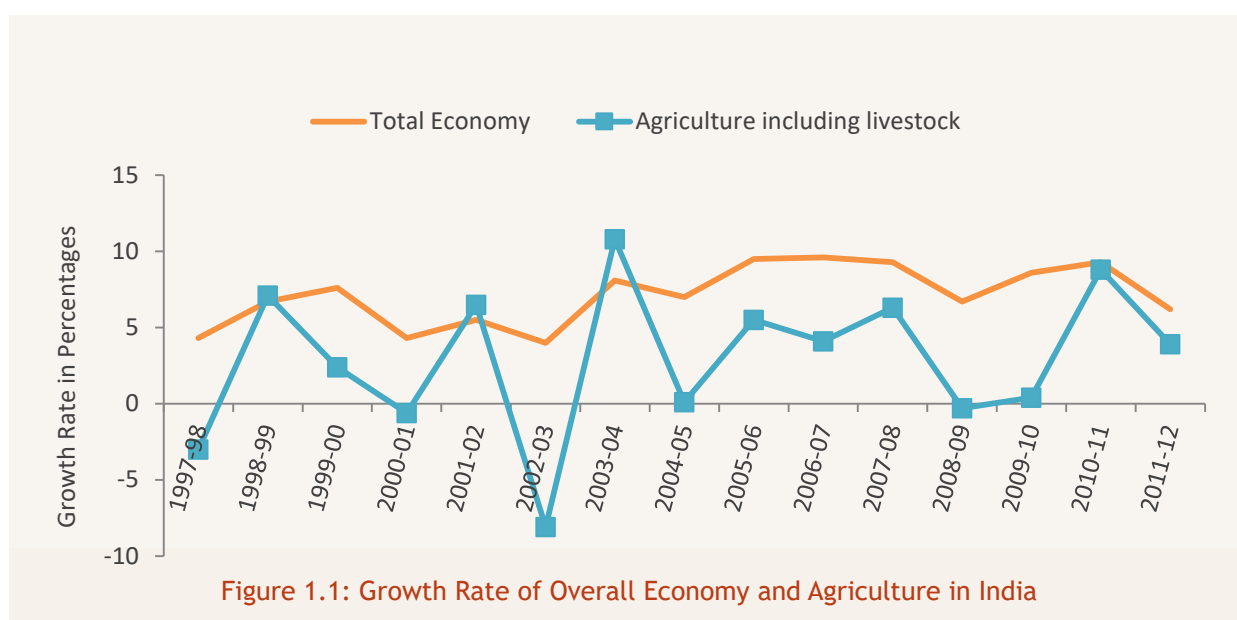
CHAPTER

01

1.1. Background

Agriculture continues to be an inseparable sector of the Indian economy. The sector is imperative not only for food and nutritional security but also for its contribution to nation's GDP and exports. The importance of agriculture further extends: firstly, agriculture is a primary source of income to rural households in general and particularly for those who own less than two hectares of agricultural land; secondly, as per the 2011 census, 54.6 per cent of the labour force of India is engaged in agricultural activities; thirdly, large number of industries are dependent on agriculture sector for their raw materials. In a nutshell, it is evident that India can hardly afford to ignore agriculture and the allied sectors. It is, therefore, imperative to briefly ponder over the past and present scenarios of growth witnessed in Indian agriculture.

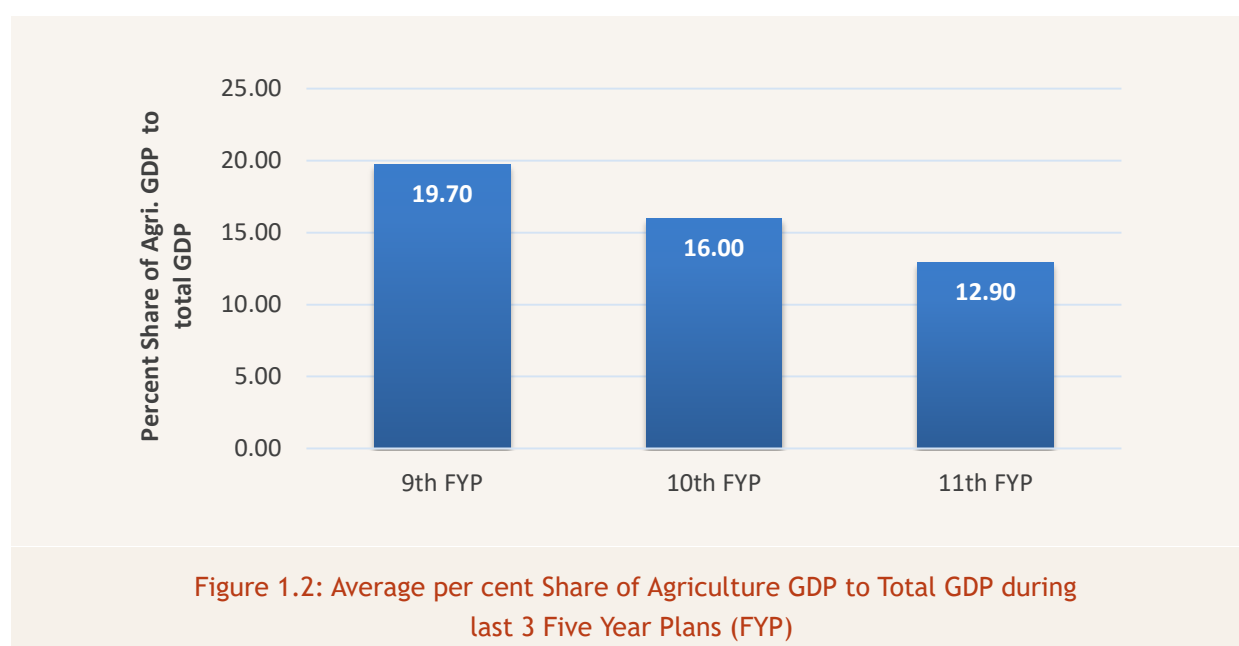
The growth rate of Indian economy which was 9.30 per cent at the beginning of 11th Five Year Plan (FYP) i.e. 2007-08, dropped to 6.20 per cent at the end of the 11th FYP (2011-12). Correspondingly, the growth rate of agriculture economy declined from 6.30 per cent to 3.9 per cent (Figure 1.1). Indian agriculture experienced large fluctuations during the 9th, 10th and 11th five-year plans as compared to the relatively linear pattern of increasing growth rate in the overall economy (Figure 1.1).



The growth rates in 2002-03 and 2003-04 illustrates steep ups and downs in agriculture sector. In the year 2002-03, with a negative agricultural growth of 8.1 per cent, the country suffered huge losses. However, there were significant gains in the subsequent years (10.8%). Although, the Indian economy, witnessed a smoother growth pattern from 4 per cent in 2002-03 to 8.1 per cent in 2003-04, the Average Annual Growth rate of the total economy was 5.70, 7.60 and 8 per cent respectively during 9th, 10th and

11th five-year plan period. The growth rate remained at 2.5 per cent in 9th and 10th plans and then it rose to 3.80 in the 11th plan. Besides, the large volatility in agriculture growth rates during the Plan period, we see a constant decrease in contribution of agriculture sector to the total GDP during the last three Five Year Plans. The GDP share of the sector has declined from 19.7 per cent in 9th Plan to 16.0 per cent in 10th Plan and further to 12.9 per cent in the 11th Plan (Figure 1.2). Even the year-wise contribution to GDP has a relatively linear trend, with the last year of the 11th Plan (2011-12) recording the lowest over the last three plans. It is not surprising to see some of the volatility experienced in the agricultural sector playing out against a background of structural change in the overall economy.

The structural change initiated by the reform process in the early 1990s completely transformed the Indian economy. As per the estimates of Department of Economics and Statistics 2013, service sector's



contribution to the GDP increased from 49.60 per cent in 1990-91 to 67.40 per cent in 2009-10, as against drastic decline from 24.90 per cent to 12.40 per cent of the agriculture sector during the same time period. Even manufacturing sector's share took a downward trend, though marginally, from 20.69 to 18.90 per cent during the same time period. The above statistics clearly indicates the transformation of the Indian economy from traditional agrarian to a service-oriented economy.

1.2. Launching of National Food Security Mission

The experience of last three decades indicate that the growth rate of food grain production decreased from 2.93 per cent during the period 1986-1997 to 0.93 per cent during 1996-2008. The declining growth of food grains production was partly contributed by the decline in area but largely by the decline in yield rate. The yield growth rate of food grains decreased from 3.21 per cent to 1.04 per cent during the same time period. There was also decline in growth in the production of other agricultural commodities. This is clearly reflected in the decelerated agriculture growth from 3.5 per cent during the period 1981-82 to 1996-97 to around 2 per cent during 1997-98 to 2004-05.

In order to combat the challenge of deficit food availability in the country, the Government of India launched National Food Security Mission (NFSM) in 2007-08 at the beginning of the 11th FYP. The NFSM

Programme targeted to raise production of rice, wheat and pulses by 10, 8, and 2 million tonnes, respectively, by the end of 11th Five Year Plan.

The mission adopted a two-fold strategy to bridge the demand-supply gap. The first strategy was to expand area, and the second was to bridge the productivity gap between potential and existing yield of food crops. Expansion of area approach was mainly confined to pulses and wheat only, and rice was mainly targeted for productivity enhancement. The chief measures adopted to augment productivity included: (1) acceleration of quality seed production; (2) emphasizing Integrated Nutrient Management (INM) and Integrated Pest Management (IPM); (3) promotion of new production technologies; (4) supply of adequate and timely inputs; (5) popularizing improved farm implements; (6) restoring soil fertility; and (7) introduction of pilot projects like community generator and blue bull. A total amount of Rs. 4500 crores had been spent under NFSM during the 11th FYP (Department of Agriculture and Co-operation, 2014).

As stated above, NFSM aimed to escalate production of rice, wheat and pulses by 10, 8 and 2 million tonnes, respectively, by the end of Eleventh Five Year Plan. Generating employment opportunities was also a key objective. The NFSM target was to enhance farm profitability so that the farming community retains its confidence in farming activities. With this strategy and goal/s, NFSM was implemented in 561 Districts in 27 States in the country (Department of Agriculture and Co-operation, 2013). This includes National Food Security Mission-Rice (NFSM-Rice), National Food Security Mission-Wheat (NFSM-wheat) and National Food Security Mission-Pulse (NFSM-Pulses), all operationalised during the 11th FYP. Along with the NFSM, RKVY (Rashtriya Krishi Vikas Yojana) programme was also launched during the same time period. In addition, there were several other States and Centrally sponsored Programmes running parallel with the NFSM programme. Aided by all the above efforts of the Central and State governments, rice production during the end of 11th Five Year Plan increased by 12.1 million tonnes, wheat by 19.1 million tonnes and pulses by 2.9 million tonnes as compared to the production during the base year of 2006-07 (Directorate of Economics and Statistics, 2012).

1.3. Review of Literature

Government of India in its Agricultural Annual Report (2010-11) stated that through new farm practices under NFSM, nearly 50 per cent of the Rice Districts (70 out of 143), 33 per cent of the Wheat Districts (41 out of 138) and around 50 per cent of pulses Districts (74 out of 159) have recorded more than 10 to 20 per cent increases in productivity compared to the base year (2006-07).

NABARD Consultancy Services (2011) conducted a Concurrent Evaluation of NFSM by comparing NFSM and non-NFSM Districts in Rajasthan considering current year and base year (2006-07). The study found that there was excellent growth in NFSM pulse Districts with 57 per cent, 134 per cent and 49 per cent growth in total sown area, production and productivity, respectively. In non-NFSM pulse Districts, all three measures viz., area, production and productivity had decreased by 20 per cent, 101 per cent and 68 per cent, respectively. Even though the Non-NFSM Districts have better irrigation sources than the NFSM Districts, the yield levels in NFSM Districts were generally higher.

Agricultural Finance Corporation [AFC] (2012) conducted Mid-Term Evaluation of NFSM by selecting 17 States, 136 Districts and 232 blocks common for all the 3 components i.e., rice, wheat and pulses. The study concluded that NFSM-Rice Districts recorded yield gain of about two times and five times

more than the non-NFSM Districts during 2007-08 and 2008-09, respectively. In the year 2007-08, the productivity of wheat was slightly higher in the non- NFSM districts with the yield gain of 3.91 per cent as compared to a 3 per cent increase in NFSM districts. The productivity of wheat in NFSM Districts improved at 7.91 per cent and 12.87 per cent during 2008-09 and 2009-10, while the corresponding figures were 7.09 per cent and zero per cent in non-NFSM districts, respectively. In 2007-08, the non-NFSM pulse Districts recorded better yields by 1.14 per cent over the base year (2006-07) as compared to an increase of 0.99 per cent in NFSM Districts. In the consecutive year 2008-09, NFSM Districts showed improved performance by registering yields of 8.26 per cent as against the corresponding figure of 6.99 per cent in non-NFSM Districts.

Recently AFC (2014) conducted the Impact Evaluation of NFSM Programme for the 11th plan using primary data of 9600 farmers (7680 beneficiaries and 1920 non-beneficiaries) located in 17 States of India. Sample households consisted of 80 beneficiaries and 20 non-beneficiary farmers each from 30 NFSM Districts of 14 Rice growing States, 28 NFSM Districts from 9 Wheat growing States and 38 NFSM Districts from 14 Pulses growing States. Results of the Impact Evaluation clearly demonstrated significant gains in productivity and employment generation due to NFSM interventions in all the three crops as compared to the non-NFSM beneficiaries.

A scientific impact evaluation was conducted by Sandhu *et al.*, (2014) in 15 States encompassing major interventions using well-structured studies. The authors concluded that timely sowing/transplanting, availability of seed in time, provision of assistance for weed control, adoption of recommended varieties, efficacy of farmers field schools are crucial factors for deciding about the success of the scheme. The major constraints faced by the farmers were non-availability and unawareness about new variety seeds, and inadequacy of financial resources.

1.4. Main Objectives and Scope of the Study

Out of 27 States of the Country where NFSM was operative during the 11th plan, the study selected five States for Paddy crop - Assam, Karnataka, Tamil Nadu, West Bengal, and Bihar and four States for wheat crop - Himachal Pradesh, Madhya Pradesh, Uttar Pradesh and Gujarat. The year-wise, state-wise, crop-wise number of States selected for NFSM study (2007- 08 to 2015-16) is presented in **Table 1.1**.

The NFSM has been extended to the 12th Plan attributable to its success in achieving the targeted goal of food grains production enhancement of 20 million tonnes by the end of the 11th Plan. However, new targets have been set to produce additional 25 million tonnes of food grains by 2016-17: 10 million tonnes of rice, 8 million tonnes of wheat, 4 million tonnes of pulses, and 3 million tonnes of coarse cereals. The main focus is on cropping systems and on small and marginal farmers through development of farmer producer organizations (FPOs) and creation of value chains and provision of market linkages (Gol, 2014).

It is essential to evaluate and measure the extent to which the NFSM programme and approach has stood up to the expectations. The study would enlighten the policy makers to incorporate necessary mid-term corrective measures to make the programme more effective and successful during the 12th FYP. Given the above broad objectives, the present study intends to achieve the following specific objectives listed below:

- a. To analyse the trends in area, production, productivity of rice, wheat and pulses in the NFSM and Non-NFSM Districts of selected States in India.

- b. To assess the impact of NFSM on input use, production and income among the beneficiary farmers
- c. To identify factors influencing the participation of farmers in the NFSM programme
- d. To identify the constraints hindering the performance of NFSM programme

The results will provide useful information on trends in area, production and productivity during recent planned periods, profitability of farmers, factors determining adoption of improved seed varieties, and constraints hindering the performance of the programme as well as insights on the impact of the NFSM on farming communities and can suggest policy recommendations for improving the efficacy of the programme.

Table 1.1: Year-Wise Number of Districts Covered under NFSM in Selected States

Name of the State	Name of the Crop	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
PADDY SAMPLE STATES										
Assam	Paddy	13	13	13	26	13	13	13	13	13
	Wheat	0	0	0	0	0	0	0	0	1
	Pulses	0	0	0	10	10	10	10	26	26
Karnataka	Paddy	7	7	7	7	7	7	7	7	7
	Wheat	0	0	0	0	0	0	0	0	0
	Pulses	13	13	29	30	30	30	30	30	30
TN	Paddy	5	5	5	5	5	5	5	8	8
	Wheat	0	0	0	0	0	0	0	0	0
	Pulses	12	12	26	29	29	30	30	30	30
WB	Paddy	8	8	8	8	8	8	8	7	7
	Wheat	0	4	4	4	4	4	4	1	0
	Pulses	5	5	18	5	18	18	18	18	18
Bihar	Paddy	18	18	18	18	18	18	18	15	15
	Wheat	25	25	25	25	25	25	25	10	10
		13	13	13	38	38	38	38	38	38
WHEAT SAMPLE STATES										
HP	Paddy	0	0	0	0	0	3	2	2	2
	Wheat	0	0	0	0	0	10	10	9	9
	Pulses	0	0	0	0	0	0	0	1	1
MP	Paddy	9	9	9	9	9	9	9	8	8
	Wheat	30	30	30	28	29	30	30	16	16
	Pulses	20	20	50	46	51	50	50	50	50
UP	Paddy	26	26	26	28	28	27	27	24	24
	Wheat	38	38	38	39	39	38	39	31	31
	Pulses	19	19	71	71	71	73	73	75	75
Gujarat	Paddy	2	2	2	2	2	2	2	2	2
	Wheat	4	4	3	4	4	4	4	5	5
	Pulses	11	11	11	26	26	26	26	26	26
Total for Selected states	Paddy	88	88	88	103	90	92	91	86	86
	Wheat	97	101	100	100	101	111	112	72	72
	Pulses	93	93	218	255	273	275	275	294	294

Source: <http://www.nfsm.gov.in/nfmis/stateprofile/District.aspx>

1.5. Data and Methodology

The first objective of the study pertaining to secondary data on area, production and yield of rice, wheat and pulses for last year of 10th FYP (2006-07: Base Year), all years of 11th FYP (2007-08 to 2011-12) and two years of 12th Plan (2012-13 & 2013-14) were used to analyse the trends in production, productivity of rice, wheat and pulses. For this purpose, Percentage change and Average Annual Growth Rates (AAGR) were applied.

The remaining objectives of the study related to of NFSM on input use, production and income among the beneficiary farmers, factors influencing the participation of farming community including constraints and impact of NFSM programme are based on primary data. The survey was conducted in all the nine States selected to collect data directly from beneficiaries on aspects such as: general information, socio-economic profiles; cropping pattern; details on various inputs used for cultivation; irrigation details; yield and returns; reasons for adoption/or non-adoption of NFSM interventions; constraints faced for availing the benefits and suggestions for improvement. The data was collected from NFSM beneficiary and non-beneficiary farmers using a pre-tested questionnaire. The primary household data pertains to the agricultural year 2013-14 which is the latest agricultural year. However, the selection of beneficiaries was not confined to the reference year.

The selection of farmers involved a multi-stage sampling design. In each of the five States that were selected for paddy, two beneficiary Districts were selected according to highest and lowest production of rice. Similarly, two beneficiary Districts were selected in each of the four States selected for wheat based on highest and lowest production of wheat. Only those districts that are covered under NFSM programme were selected for collecting beneficiaries and non-beneficiaries. In the second stage, from each District, two taluks were selected. One taluk was drawn from nearby District headquarters and the second at a distance of 15-20 kilometers from District headquarter. In the third stage, 75 beneficiaries and 25 non-beneficiaries were selected purposefully from each taluk totaling to a sample size of 300 NFSM beneficiary households and 100 non-beneficiary households in every State. The total sample size is 2700 NFSM beneficiaries and 900 non-beneficiaries. Results of the Primary data pertaining to AP was not included in this report as it was received late due to some administrative reasons. The names of the Districts selected for conducting survey have been specified in **Table 1.2**.

For the selection of beneficiary households in each taluk, the beneficiary list was obtained from the Department of Agriculture/State Officials at the taluk level. The list contained the benefits obtained by the households for the whole of 11th Plan (2007-08 to 2011-12) and two years of 12th Plan (2012-13 and 2013-14). Based on this list, the households were selected in such a way that all the major components covered under NFSM shall receive due representation. All the sample NFSM beneficiaries have availed the benefit in the recent year. However, machinery and equipment (that have long-term use) may represent the previous year's including the period of 11th Plan. The selection of non-beneficiary households was done in the peripheral areas in such a way that similar cropping pattern and baseline characteristics are represented by the non-beneficiary households as well. Representation of different size classes and various socio-economic characteristics were tried while selecting beneficiary and non-beneficiary sample farmers. The data collected from sample farmers was subjected to descriptive analysis, gross margin analysis and logistic regression.

While computing the cost of production for major crops, only the variable costs were considered including the cost of irrigation. The items included in expenses were hired labour, family labour, bullocks power, tractor/tiller/machine power, seed/seedlings, FYM/organic/bio-fertilizers, fertilizers, plant protection

Table 1.2: Names of Districts Selected in each of Selected States

Sl. No.	Names of the selected State	Names of selected Districts	Total No. of NFSM Beneficiaries	Total No. of NFSM Non-beneficiaries	Total sample size
PADDY SAMPLE STATES					
1	Assam	Nagaon and Tinsukia	300	100	400
2	Karnataka	Raichur and Dakshina Kannada	300	100	400
3	Tamil Nadu	Thiruvarur and Sivagangai	300	100	400
4	West Bengal	West Medinipur and Howrah	300	100	400
5	Bihar	Champan and Madhepura	300	100	400
WHEAT SAMPLE STATES					
6	Himachal Pradesh	Kangra and Shimla	300	100	400
7	Madhya Pradesh	Harda and Balghat	300	100	400
8	Uttar Pradesh	Hardoi and sonbhadra	300	100	400
9	Gujarat	Ahmadabad and Banaskantha	300	100	400
	No. of States = 9	No. of Districts = 18	2700	900	3600

chemicals, irrigation charges, harvesting and threshing, bagging, transportation and marketing cost. The tables present total cost, yield of main and by-product, selling price of the main and by-product and gross income. Annual irrigation charges paid by the canal farmers and estimated electricity charges for borewell by the farmers were considered as irrigation charges. Overheads like depreciation on equipments, rental value of land are not included in the study. Descriptive statistics was used to assess the impact of NFSM on input use, production and income among the beneficiary farmers.

A binary logit model was used to find out factors that influence participation in the NFSM programme. The dependent variable was considered as “one” for NFSM beneficiaries and “Zero” for Non-NFSM beneficiaries. The explanatory variables were Age (Years), Education (Illiterate=1, Primary=2, Middle=3, Matriculation/Secondary=4, Higher Secondary=5, Degree/Diploma=6, Above Degree=7), Number of family members dependent on farming, Total Owned land (acres) and Method of Irrigation (1=DSR/SRI; Otherwise=0) were considered.

1.6. Structure of the Report

This study is organized into six chapters. The first chapter focuses on the background encapsulating all India and selected States information including launching of the NFSM programme followed by objectives and methodology. Discussion on the impact of NFSM programme using the spacio-temporal trends of Paddy, Wheat and Pulses production in the 10th FYP (2006-07: Base Year), all years of 11th FYP (2007-08 to 2011-12) and two years of 12th Plan (2012-13 & 2013-14) for India and selected States is covered in the second chapter. Additionally, release and expenditure details are provided. The socio-economic profile of farmers, cropping pattern, cost of cultivation, assets holdings and particulars of credit are presented in Chapter three. Chapter four presents the impact of NFSM interventions on input use, productivity and income of farmers. The fifth chapter determines the factors influencing farmer’s participation in NFSM programme. This chapter also includes constraints faced in availing the NFSM benefits and reasons for non-participation in the NFSM as well as suggestions for the inclusion of non-beneficiary for availing benefits from the programme. The last chapter presents the major findings and policy suggestions for improving the efficacy of the NFSM programme.

**Impact of NFSM on Area,
Production and Yield of Paddy,
Wheat and Pulses
- Macro Analysis**

CHAPTER

02

Impact of NFSM on Area, Production and Yield of Paddy, Wheat and Pulses - Macro Analysis

2.1. Introduction

Agriculture is still one of the priority sectors in the Indian economy, particularly the rural economy, notwithstanding its diminishing share in the Gross Domestic Product. Several policies and programmes are being planned and implemented by the government from time to time to improve productivity. Besides improved techniques for the development of agriculture, timely and sufficient rainfall and weather conditions are also crucial factors. The overall GDP growth of India decreased from -7.02 per cent in the 10th Plan to -7.43 per cent in the 11th Plan while the average growth in agricultural GDP witnessed a decline from -8.04 per cent in the 10th plan to -8.57 per cent in the 11th plan. The possible reasons for lower growth in agriculture GDP could be attributed to decrease in the net sown area, net irrigated area, cropping and irrigation intensity and land productivity. However, India's Gross Domestic Product (GDP) at constant (2004-05) prices is expected to grow at the rate of 4.5 per cent and reach Rs.5,741,791 crores in 2013-14 from Rs.5,482,111 crores in 2012-13 (CSO). Services sector, which is growing at a rate of 9.1 per cent (CSO), is the major contributor to the rapid growth in India.

As per the land utilization statistics (2012-13), out of the total geographical area of the country (3287.26 lakh ha), the net cropped area is 42.56 per cent (1399.30 lakh hectares) and gross cropped area is 1943.99 lakh hectares. Thereby, the cropping intensity is around 1.39 for the country as a whole. The main crop grown includes rice, wheat, jowar, maize and pulses as well as oilseeds and a number of cash crops are also produced in the country.

As indicated in chapter one, in order to combat the challenge of deficit food availability in the country, the Government of India launched National Food Security Mission (NFSM) in 2007-08 at the beginning of 11th Five Year Plan (FYP). The NFSM Programme targeted to escalate production of rice, wheat and pulses by 10, 8, and 2 million tonnes, respectively, by the end of Eleventh Five Year Plan. This chapter mainly focuses on the impact of NFSM food grains production in India during the 11th Five Year by way of comparing with 9th and 10th plans. The chapter also discusses financial outlay and expenditure incurred during 11th FYP for promoting food grains production in India. The change in cropping pattern from 9th plan to 11th plan is discussed in this chapter. There is also a discussion on trend in area and fertilizer use in selected States of India. This chapter examines the correlation between year-wise percentage changes in NFSM expenditure, irrigation, fertilizer use, area and production of paddy, wheat and pulses in India and selected States.

2.2. Area, production and yield of Rice, Wheat and Pulses

As already mentioned in section 1.2 of Chapter one, the NFSM programme aimed to increase the production of Rice by 10 million tonnes, wheat by 8 million tonnes and pulses by 2 million tonnes. This section analyses the growth pattern of area production and productivity of Rice, Wheat and Pulses in India as well as the selected States.

2.2.1. Rice

Till recently, Thailand was considered as the highest exporter of rice in the world. As per DES data, in 2014-15, India exported 11.16 million tonnes of rice, as against 10.97 million tonnes exported by Thailand, and thus India has overtaken Thailand and India is the highest exporter of rice in the world. India also has the distinction of being the 9th highest rice producer in the world. The data pertaining to area, production and yield of Rice in India and the sample States is presented in **Table 2.1**.

Table 2.1: Area, Production and Yield of Rice in India

States	Area in Lakh Ha			Production in Lakh tons			Yield in Qtl per Ha		
	2006-07	2011-12	2014-15	2006-07	2011-12	2014-15	2006-07	2011-12	2014-15
Andhra Pradesh	39.78	40.96	38.09	118.72	128.95	115.65	29.84	31.48	30.36
Assam	21.89	25.37	22.78	29.16	45.16	48.63	13.32	17.80	21.35
Karnataka	13.95	14.16	12.96	34.46	39.55	36.64	24.70	27.93	28.27
Tamil Nadu	19.31	19.04	18.30	66.11	74.59	58.39	34.23	39.18	31.91
West Bengal	56.87	54.34	53.86	147.46	146.06	147.11	25.93	26.88	27.31
Bihar	33.57	33.24	32.68	49.89	71.63	63.77	14.86	21.55	19.51
Himachal Pradesh	0.79	0.77	0.68	1.24	1.32	1.19	15.59	17.05	17.50
Madhya Pradesh	16.61	16.62	21.53	13.68	22.27	36.25	8.24	13.40	16.84
Uttar Pradesh	59.21	59.47	58.69	111.24	140.22	122.21	18.79	23.58	20.82
Gujarat	7.34	8.36	7.85	13.90	17.90	16.37	18.94	21.41	20.85
TOTAL	269.33	272.33	267.42	585.86	687.64	646.21	21.75	25.25	24.16
Rest of India	168.81	167.74	171.13	347.70	365.47	401.76	20.60	21.79	23.48
All India	438.14	440.06	438.55	933.55	1053.11	1047.97	21.31	23.93	23.90

Source: Directorate of Economics and Statistics, Gol; Note: Figures for 2014-15 are advance estimates

The production of Rice in India increased from 933.55 lakh tons in 2006-07 (last year of 10th FYP) to 1053.11 lakh tons in 2011-12 (last year of 11th FYP) and reduced marginally to 1047.97 lakh tons in 2014-15. (Third year of 12th FYP). However, there was an increase of 12.26 per cent in rice production from last year of 10th FYP to third year of 12th FYP. During the same period, among the States selected for study, the production of rice increased by around 165 per cent in Madhya Pradesh and Assam indicated an increase of 66.77 per cent. The production of rice decreased by 11.67 per cent in Tamil Nadu when compared between 2006-07 and 2014-15. The production was observed to be negative at 3.64 and 0.24 per cent in Himachal Pradesh and West Bengal States, respectively. In the case of Madhya Pradesh, the increased production was attained through increase in cultivated area of rice (29.60 per cent) as well as increased productivity from 8.24 Qtl per Ha in 2006-07 to 16.84 Qtl per Ha. in 2014-15. The cultivated area of rice decreased in all the sample States except Madhya Pradesh and Tamil Nadu States. Thus, the increase in production of Rice has been achieved mainly due to increased productivity. Andhra Pradesh and Tamil Nadu are exception where the productivity declined. This can be seen in **Table 2.2**.

Table 2.2: Percentage change in area, production & yield of Rice

States	Percentage change in Area		Percentage change in Production		Percentage change in Yield	
	2006-07 & 2011-12	2011-12 & 2014-15	2006-07 & 2011-12	2011-12 & 2014-15	2006-07 & 2011-12	2011-12 & 2014-15
Andhra Pradesh	2.97	-7.01	8.62	-10.31	5.50	-3.56
Assam	15.90	-10.21	54.87	7.68	33.63	19.94
Karnataka	1.51	-8.47	14.77	-7.36	13.08	1.22
Tamil Nadu	-1.40	-3.89	12.83	-21.72	14.46	-18.56
West Bengal	-4.45	-0.88	-0.95	0.72	3.66	1.60
Bihar	-0.98	-1.68	43.58	-10.97	45.02	-9.47
Himachal Pradesh	-2.53	-11.69	6.45	-9.85	9.36	2.64
Madhya Pradesh	0.06	29.54	62.79	62.78	62.62	25.67
Uttar Pradesh	0.44	-1.31	26.05	-12.84	25.49	-11.70
Gujarat	13.90	-6.10	28.78	-8.55	13.04	-2.62
TOTAL	1.11	-1.80	17.37	-6.02	16.09	-4.32
Rest of India	-0.63	2.02	5.11	9.93	5.78	7.76
All India	0.44	-0.34	12.81	-0.49	12.29	-0.13

2.2.2. Wheat

Globally, wheat is the leading source of vegetable protein in human food, having higher protein content than other major cereals like maize and rice. Wheat is a Rabi crop, mostly grown on irrigated land, prominently in Uttar Pradesh, Punjab and Haryana. As at the end of 2011-12, wheat occupied around 15 per cent of gross cropped area of the country. The data pertaining to area, production and yield of Wheat in India and the sample States is presented in **Table 2.3**.

Table 2.3: Area Production and Yield of Wheat in India

States	Area in Lakh Ha			Production in Lakh tons			Yield in Qtl per Ha		
	2006-07	2011-12	2014-15	2006-07	2011-12	2014-15	2006-07	2011-12	2014-15
Andhra Pradesh	0.10	0.08	0.06	0.09	0.11	0.06	9.00	13.75	10.00
Assam	0.60	0.53	0.35	0.67	0.60	0.44	11.17	11.47	12.57
Karnataka	2.69	2.25	1.97	2.05	1.93	2.15	7.62	8.58	10.91
Tamil Nadu	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
West Bengal	3.51	3.16	3.35	8.00	8.73	9.50	22.82	27.65	28.36
Bihar	20.50	21.42	21.88	39.11	47.25	40.49	19.08	22.06	18.51
Himachal Pradesh	3.62	3.57	4.00	5.02	5.96	7.21	13.85	16.71	18.03
Madhya Pradesh	39.93	48.89	55.60	73.26	115.39	141.82	18.35	23.60	25.51
Uttar Pradesh	91.98	97.31	98.46	250.31	302.93	252.20	27.21	31.13	25.61
Gujarat	12.01	13.51	11.46	30.00	40.72	32.20	24.98	30.14	28.10
TOTAL	174.93	190.71	197.13	408.51	523.61	486.07	23.35	27.46	24.66
Rest of India	105.02	107.94	112.55	349.56	425.21	403.32	33.29	39.39	35.83
All India	279.95	298.65	309.68	758.07	948.82	889.39	27.08	31.77	28.72

Source: Directorate of Economics and Statistics, Gol; Note: Figures for 2014-15 are advance estimates

The production of Wheat in India increased from 758.07 lakh tons in 2006-07 (last year of 10th FYP) to 948.82 lakh tons in 2011-12 (last year of 11th FYP). The production reduced to 889.39 lakh tons in 2014-15. (Third year of 12th FYP). However, there was an increase of 17.32 per cent in Wheat production from last year of 10th FYP to third year of 12th FYP. During the same period, among the sample States, the production of Wheat increased by around 93.60 per cent in Madhya Pradesh and Himachal Pradesh indicated an increase of 43.74 per cent. The production of Wheat decreased by 34.33 per cent in Assam and 33.33 per cent in Andhra Pradesh when compared between 2006-07 and 2014-15. In the case of Madhya Pradesh, the increased production was attained through increase in cultivated area of Wheat (39.25 per cent) as well as increased productivity from 18.35 quintals per Ha in 2006-07 to 25.51 quintals per Ha in 2014-15). Among the sample States, the cultivated area of Wheat decreased in Andhra Pradesh, Assam, Karnataka, West Bengal and Gujarat. However, the increase in production of Wheat has been achieved mainly due to increased productivity. Bihar and Uttar Pradesh are exception where the productivity declined. This can be seen in **Table 2.4**.

Table 2.4: Percentage change in area, production & yield of Wheat

States	Percentage change in Area		Percentage change in Production		Percentage change in Yield	
	2006-07 & 2011-12	2011-12 & 2014-15	2006-07 & 2011-12	2011-12 & 2014-15	2006-07 & 2011-12	2011-12 & 2014-15
Andhra Pradesh	-20.00	-25.00	22.22	-45.45	52.78	-27.27
Assam	-11.67	-33.96	-10.45	-26.67	2.69	9.59
Karnataka	-16.36	-12.44	-5.85	11.40	12.60	27.16
Tamil Nadu	-	-	-	-	-	-
West Bengal	-9.97	6.01	9.13	8.82	21.17	2.57
Bihar	4.49	2.15	20.81	-14.31	15.62	-16.09
Himachal Pradesh	-1.38	12.04	18.73	20.97	20.65	7.90
Madhya Pradesh	22.44	13.72	57.51	22.90	28.61	8.09
Uttar Pradesh	5.79	1.18	21.02	-16.75	14.41	-17.73
Gujarat	12.49	-15.17	35.73	-20.92	20.66	-6.77
TOTAL	9.02	3.37	28.18	-7.17	17.60	-10.20
Rest of India	2.78	4.27	21.64	-5.15	18.32	-9.04
All India	6.68	3.69	25.16	-6.26	17.32	-9.60

2.2.3. Pulses

Pulses are the main source of protein for the predominantly vegetarian population of India. Pulses mainly include pigeon pea (Tur), Black Gram, Green gram and Bengal gram. The data pertaining to area, production and yield of Pulses in India and sample States are presented in **Table 2.5**.

The production of Pulses in India increased from 141.98 lakh tons in 2006-07 (last year of 10th FYP) to 170.89 lakh tons in 2011-12 (last year of 11th FYP). The production marginally increased further to 171.92 lakh tons in 2014-15 (third year of 12th FYP). At aggregate level, there was an increase of 21.09 per cent in Pulses production from last year of 10th FYP to third year of 12th FYP. During the same period, among the States selected for study, the production of Pulses increased by 122.72 per cent in Tamil Nadu and Assam indicated an increase of 89.83 per cent. The production of Pulses decreased by 26.74 per cent in Uttar Pradesh State and 14.18 per cent in Andhra Pradesh when compared between 2006-07 and 2014-15. In case of Tamil Nadu the increased production was attained through increase in cultivated area of

Pulses (75.21 per cent) as well as increased productivity from 5.41 quintals per Ha in 2006-07 to 6.88 quintals per Ha. in 2014-15. Among the sample States, the cultivated area of Pulses decreased in Andhra Pradesh, Karnataka, Bihar, Uttar Pradesh and Gujarat States. The increase in production of Pulses has been achieved mainly due to increased productivity. Uttar Pradesh and Bihar are an exception where the productivity declined. This can be seen in **Table 2.6**.

Table 2.5: Area Production and Yield of Pulses in India

States	Area in Lakh Ha			Production in Lakh tons			Yield in Qtl per Ha.		
	2006-07	2011-12	2014-15	2006-07	2011-12	2014-15	2006-07	2011-12	2014-15
Andhra Pradesh	19.84	19.31	14.50	13.47	12.30	11.56	6.79	6.37	7.97
Assam	1.06	1.20	1.74	0.59	0.69	1.12	5.57	5.73	6.44
Karnataka	23.69	23.03	23.09	8.93	11.34	14.88	3.77	4.92	6.44
Tamil Nadu	5.37	6.69	9.40	2.91	3.69	6.47	5.41	5.52	6.88
West Bengal	2.19	1.85	2.46	1.54	1.31	1.76	7.03	7.06	7.15
Bihar	6.07	5.24	5.06	4.38	5.11	4.20	7.22	9.75	8.30
Himachal Pradesh	0.31	0.32	0.34	0.29	0.31	0.42	9.32	9.54	12.35
Madhya Pradesh	41.08	51.86	53.64	32.03	41.62	47.05	7.80	8.03	8.77
Uttar Pradesh	27.24	24.21	23.41	19.75	24.03	14.47	7.25	9.93	6.18
Gujarat	10.00	9.57	6.37	5.93	7.80	5.81	5.93	8.15	9.12
TOTAL	136.85	143.28	140.01	89.82	108.20	107.74	6.56	7.55	7.70
Rest of India	95.07	101.34	90.97	52.16	62.69	64.18	5.49	6.19	7.06
All India	231.92	244.62	230.98	141.98	170.89	171.92	6.12	6.99	7.44

Source: Directorate of Economics and Statistics, Gol; Note: Figures for 2014-15 are advance estimates

Table 2.6: Percentage change in area, production & yield of Pulses

States	Percentage change in Area		Percentage change in Production		Percentage change in Yield	
	2006-07 & 2011-12	2011-12 & 2014-15	2006-07 & 2011-12	2011-12 & 2014-15	2006-07 & 2011-12	2011-12 & 2014-15
Andhra Pradesh	-2.67	-24.91	-8.69	-6.02	-6.19	25.12
Assam	13.21	45.00	16.95	62.32	2.87	12.39
Karnataka	-2.79	0.26	26.99	31.22	30.50	30.89
Tamil Nadu	24.58	40.51	26.80	75.34	2.03	24.64
West Bengal	-15.53	32.97	-14.94	34.35	0.43	1.27
Bihar	-13.67	-3.44	16.67	-17.81	35.04	-14.87
Himachal Pradesh	3.23	6.25	6.90	35.48	2.36	29.45
Madhya Pradesh	26.24	3.43	29.94	13.05	2.95	9.22
Uttar Pradesh	-11.12	-3.30	21.67	-39.78	36.97	-37.76
Gujarat	-4.30	-33.44	31.53	-25.51	37.44	11.90
TOTAL	4.70	-2.28	20.46	-0.43	15.09	1.99
Rest of India	6.60	-10.23	20.19	2.38	12.75	14.05
All India	5.48	-5.58	20.36	0.60	14.22	6.44

2.3. Financial Progress under NFSM in selected States

Table 2.7 and Table 2.8 provides the details of financial progress in sample States and at all India level. An amount of Rs.2214.72 crores was released during eleventh five-year plan under NFSM scheme to nine States that were selected for the Study. These States managed to spend Rs.1880.36 crores which worked out to 85 per cent of the released amount. While the expenditure during first three years of the programme went up drastically, in the last two years the expenditure started declining. The downward trend was more conspicuous in the Rice growing States than in Wheat growing States.

With respect to Paddy sample States, 983.76 crores was spent out of 1132.1 crores with an expenditure-release ratio of 87 per cent. AAGR in expenditure between 2007 - 2011-12 was highest in TN (726 per cent) followed by Karnataka (243.72 per cent), West Bengal (86.31 per cent), Bihar (75.24 per cent) and Assam (52.57 per cent). In the Wheat sample States, 1880.35 crores has been spent out of 2214.72 crores with an expenditure-release ratio of 85 per cent. AAGR in expenditure between 2007-2011-12 was highest in Gujarat (227 per cent), MP (162 per cent) and UP (70.6 per cent).

State-wise, year-wise and crop-wise names of Districts covered during 12th Five Year Plan in the States selected for the study was presented in the Annexures.

Table 2.7: Financial Progress under NFSM in Paddy sample States

State	Year	Release (Rs. Crores)	Expenditure (Rs. Crores)	Per cent Expenditure to release	State	Year	Release (Rs. Crores)	Expenditure (Rs. Crores)	Per cent Expenditure to release
Assam	2007-08	11.39	11.39	100.00	West Bengal	2007-08	16.00	9.23	57.69
	2008-09	27.06	27.06	100.00		2008-09	70.39	38.53	54.74
	2009-10	36.16	36.16	100.00		2009-10	100.53	76.89	76.48
	2010-11	66.59	66.59	100.00		2010-11	65.42	52.60	80.40
	2011-12	36.57	36.57	100.00		2011-12	56.93	31.48	55.30
	11th Plan AAGR	52.57	52.57	0.00		11th Plan AAGR	83.71	86.31	2.13
	2012-13	30.87	30.87	100.00		2012-13	148.40	112.16	75.58
	2013-14	95.11	92.57	97.33		2013-14	184.77	0.60	0.32
Karnataka	2007-08	7.87	2.21	28.08	Bihar	2007-08	36.31	13.31	36.66
	2008-09	30.15	18.70	62.02		2008-09	81.05	42.82	52.83
	2009-10	47.65	56.67	118.93		2009-10	44.14	89.98	203.85
	2010-11	72.52	76.31	105.23		2010-11	51.56	65.70	127.42
	2011-12	73.51	69.46	94.49		2011-12	74.87	63.14	84.33
	11th Plan AAGR	98.68	243.72	47.73		11th Plan AAGR	34.92	75.24	64.66
	2012-13	110.20	109.10	99.00		2012-13	53.03	51.83	97.74
	2013-14	127.74	78.58	61.52		2013-14	15.22	43.28	284.36
Tamil Nadu	2007-08	7.10	0.90	12.68	Total for Paddy Sample States	2007-08	78.67	37.05	47.10
	2008-09	41.18	27.25	66.17		2008-09	249.83	154.37	61.79
	2009-10	29.70	27.13	91.35		2009-10	258.18	286.83	111.10
	2010-11	26.00	22.52	86.62		2010-11	282.09	283.72	100.58
	2011-12	21.44	21.13	98.55		2011-12	263.33	221.79	84.23
	11th Plan AAGR	105.53	726.04	117.12		11th Plan AAGR	55.88	94.89	21.32
	2012-13	22.63	22.86	101.02		2012-13	365.12	326.83	89.51
	2013-14	22.54	22.37	99.25		2013-14	445.38	237.40	53.30

Table 2.8: Financial Progress under NFSM in Wheat sample States

State	Year	Release (Rs. Crores)	Expenditure (Rs. Crores)	Per cent Expenditure to release	State	Year	Release (Rs. Crores)	Expenditure (Rs. Crores)	Per cent Expenditure to release
Himachal Pradesh	2007-08	0.00	0.00	0.00	Gujarat	2007-08	7.06	0.79	11.19
	2008-09	0.00	0.00	0.00		2008-09	21.14	6.69	31.65
	2009-10	0.00	0.00	0.00		2009-10	22.70	14.38	63.35
	2010-11	0.00	0.00	0.00		2010-11	25.98	20.72	79.75
	2011-12	0.00	0.00	0.00		2011-12	21.56	21.15	98.10
	11th Plan AAGR	0.00	0.00	0.00		11th Plan AAGR	51.06	226.99	82.97
	2012-13	0.00	0.00	0.00		2012-13	66.35	59.61	89.84
	2013-14	0.00	0.00	0.00		2013-14	86.00	64.75	75.29
Madhya Pradesh	2007-08	4.67	0.90	19.27	Uttar Pradesh	2007-08	60.17	40.35	67.06
	2008-09	9.85	5.51	55.94		2008-09	146.99	122.73	83.50
	2009-10	10.28	8.38	81.52		2009-10	263.74	228.36	86.59
	2010-11	39.25	15.13	38.55		2010-11	198.47	189.10	95.28
	2011-12	20.15	15.62	77.52		2011-12	230.64	206.80	89.66
	11th Plan AAGR	87.11	162.02	71.10		11th Plan AAGR	53.79	70.60	8.09
	2012-13	44.76	43.12	96.34		2012-13	0.00	0.00	0.00
	2013-14	47.51	34.25	72.09		2013-14	0.00	0.00	0.00
Total for Wheat sample States	2007-08	71.90	42.04	58.47	Total of all selected States	2007-08	150.56	79.09	52.53
	2008-09	177.98	134.94	75.82		2008-09	427.81	289.30	67.62
	2009-10	296.71	251.12	84.63		2009-10	554.90	537.95	96.95
	2010-11	263.69	224.95	85.31		2010-11	545.78	508.66	93.20
	2011-12	272.34	243.57	89.44		2011-12	535.67	465.35	86.87
	11th Plan AAGR	51.60	76.23	11.73		11th Plan AAGR	52.59	84.44	15.36
	2012-13	111.11	102.73	92.46		2012-13	476.24	429.55	90.20
	2013-14	133.50	99.00	74.16		2013-14	578.88	336.39	58.11



Socio-Economic Characteristics and Cropping Pattern of Sample Farmers

CHAPTER

03

CHAPTER 3

Socio-Economic Characteristics and Cropping Pattern of Sample Farmers

This chapter analyses the primary data collected from NFSM beneficiaries and non-beneficiaries. The sample had 2700 NFSM beneficiaries and 900 non-beneficiaries spread over nine States.

3.1. Socio-Economic Profile of Sample Households

The socio-economic characteristics of sample households comprising details of gender, different age group and education status, varied family sizes, as well as caste of all surveyed farmers have been discussed in the following sections of this chapter.

3.1.1. General Characteristics

The general characteristics of the households are given in **Table 3.1** and **Table 3.2**. The flow of labour can be gauged from the family size and hence it is one of the indicators of the socio-economic status apart from other indicators like operational holdings and income. There is not much difference in the household size of beneficiaries (5.29) and non-beneficiaries (4.88). More or less, in all the States the number of members in a family were 5 to 6 except in Gujarat and Bihar where it was 7 per household. Around 89 per cent of the NFSM farmers and 93 per cent of the Non-NFSM farmers were male. The distribution of Adult male, adult female and children out of total NFSM farmers was around 40 per cent, 36 per cent and 24 per cent respectively. By and large, it was same for non-NFSM farmers also. The State of Assam had covered hardly around 2 per cent of the Scheduled castes and Scheduled tribes out of their total sample size. On the other hand, the sample of West Bengal and Madhya Pradesh States had around 40 per cent of Scheduled Tribes and Scheduled castes. In the remaining States, the per cent of SC/STs ranged from 6 to 15 per cent of the sample size. On an average, the sample covered 11.55 per cent Scheduled castes and 5 per cent Scheduled Tribes. Around 60 per cent of beneficiaries and 62 per cent of the non-beneficiaries were educated up to or less than middle school. Only in Tamil Nadu and Madhya Pradesh, around 60 per cent of the farmers had completed their matriculation and above.

Around 65.93 per cent of members of the family of beneficiaries and 63.32 per cent of non-beneficiaries were engaged in farming. The per cent of family members engaged in agriculture across selected states is illustrated in **Figure 3.1**.

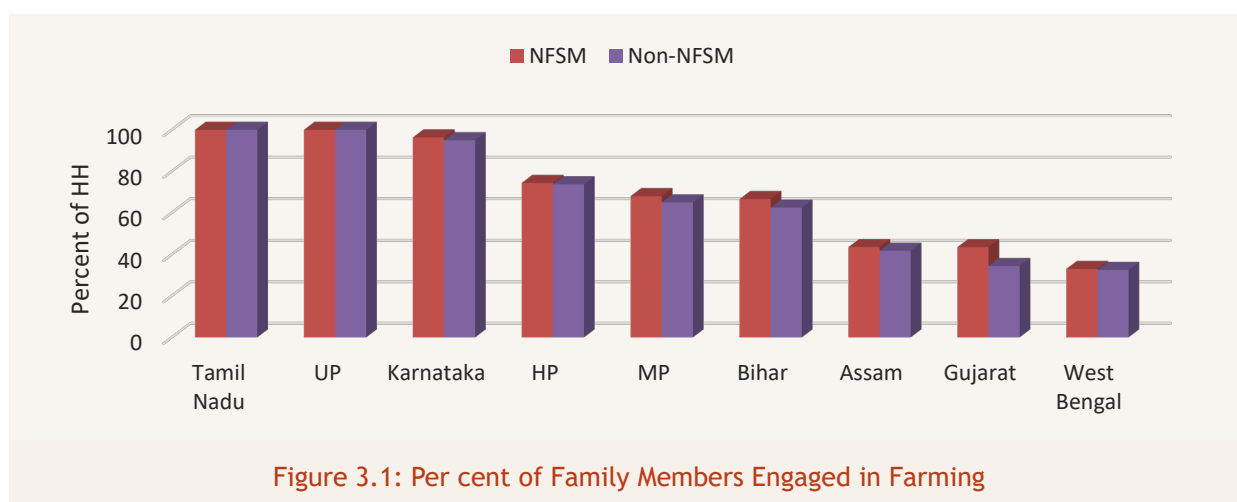


Figure 3.1: Per cent of Family Members Engaged in Farming

Table 3.1: Socio-Economic Profile of Sample HH (per cent of HH) of NFSM beneficiaries

Characteristics	Assam	Karnataka	Tamil Nadu	West Bengal	Bihar	Himachal Pradesh	Madhya Pradesh	Uttar Pradesh	Gujarat	Total
Total households surveyed (Nos.)	300	300	300	300	300	300	300	300	300	2700
Household size (Nos.)	6.31	6.49	5.65	5.00	7.38	4.96	6.31	6.48	7.25	5.29
per cent of households engaged in agriculture	43.58	96.33	100	32.98	66.58	74.38	68.00	100	43.51	65.93
Gender of the head (per cent)										
Male	99.67	94.67	91.00	92.00	74.55	67.00	92.70	91.33	97.33	89.07
Female	0.33	5.33	9.00	8.00	25.45	33.00	7.30	8.67	2.67	10.93
Age group of the members (per cent)										
Adult Males (>15 yrs)	38.14	38.42	45.80	41.26	37.71	41.16	41.00	34.48	37.76	40.25
Adult Females (>15 yrs)	32.33	39.14	41.40	38.52	28.20	37.19	35.00	29.76	35.60	35.82
Children (<15 yrs)	29.53	22.39	13.20	20.23	34.09	21.65	24.00	35.76	26.63	23.97
Illiterate	11.33	16.00	4.70	22.33	24.30	11.00	4.70	22.00	21.33	15.30
Primary	23.00	15.00	6.70	27.67	36.25	18.67	8.30	18.33	27.90	20.20
Middle	38.00	16.33	27.00	35.33	14.15	25.00	23.70	32.67	13.90	25.12
Matriculation/secondary	19.00	18.67	24.70	8.00	16.48	33.00	20.70	10.67	18.32	18.84
Higher secondary	7.00	19.67	18.30	4.00	6.15	6.67	24.30	12.00	9.87	12.00
Degree/Diploma	1.67	12.33	9.30	2.00	1.44	4.66	16.30	2.33	5.58	6.18
Above Degree	0.00	1.67	9.30	0.67	1.23	1.00	2.00	2.00	3.43	2.37
SC	0.67	5.67	8.00	40.67	12.30	12.67	6.00	8.67	9.33	11.55
ST	1.33	9.00	0.30	0.67	0.00	0.67	33.00	0.00	0.00	5.00
OBC	47.67	59.33	90.00	5.33	54.68	31.66	44.70	59.00	49.00	49.04
General	50.33	26.00	1.70	53.33	33.02	55.00	16.30	32.33	41.67	34.41

Table 3.2: Socio-Economic Profile of Sample HH (per cent of HH) of non-beneficiaries

Characteristics	Assam	Karnataka	Tamil Nadu	West Bengal	Bihar	Himachal Pradesh	Madhya Pradesh	Uttar Pradesh	Gujarat	Total
Total households surveyed (Numbers)	100	100	100	100	100	100	100	100	100	900
Household size (Numbers)	5.72	6.04	4.98	5.40	6.25	5.10	5.72	5.48	6.57	4.88
per cent of households engaged in agriculture	41.78	95.00	100.00	32.53	62.45	73.72	65.00	100.00	34.40	63.32
Gender of the head (per cent)										
Male	100.00	94.00	88.00	99.00	78.68	84.00	95.00	100.00	99.00	92.52
Female	0.00	6.00	12.00	1.00	21.32	16.00	5.00	0.00	1.00	7.48
Age group of the members (per cent)										
Adult Males (>15 yrs)	38.11	41.39	45.94	41.22	35.06	40.39	42.00	29.20	38.05	40.46
Adult Females (>15 yrs)	30.07	39.40	38.21	37.52	33.35	33.73	36.00	27.37	36.68	35.66
Children (<15 yrs)	31.82	19.21	15.70	21.26	31.59	25.88	22.00	43.43	25.27	23.86
Illiterate	14.00	23.00	8.00	22.00	35.43	15.00	8.00	0.00	19.00	16.05
Primary	34.00	25.00	13.00	30.00	32.10	14.00	18.00	15.00	30.86	23.55
Middle	32.00	14.00	34.00	31.00	10.35	27.00	28.00	18.00	12.69	23.00
Matriculation /Secondary	15.00	16.00	21.00	9.00	15.15	35.00	20.00	38.00	15.22	20.49
Higher Secondary	5.00	15.00	11.00	5.00	4.58	7.00	16.00	21.00	7.41	10.22
Degree/Diploma	0.00	7.00	6.00	3.00	1.28	2.00	9.00	7.00	8.64	4.88
Above Degree	0.00	0.00	7.00	0.00	1.11	0.00	1.00	1.00	6.17	1.81
SC	0.00	6.00	6.00	34.00	16.67	20.00	3.00	13.00	6.00	11.63
ST	2.00	6.00	0.00	0.00	0.00	3.00	16.00	1.00	0.00	3.11
OBC	50.00	51.00	94.00	6.00	58.33	17.00	53.00	62.00	56.00	49.70
General	48.00	37.00	0.00	60.00	25.00	60.00	28.00	24.00	38.00	35.56

The entire sample of beneficiaries and non-beneficiaries of Tamil Nadu and Uttar Pradesh States were dependent on farming. In the remaining 7 States, the dependence of sample farmers on farming ranged between 33 per cent in the case of West Bengal and 96 per cent in the case of Karnataka State.

3.1.2. Annual income

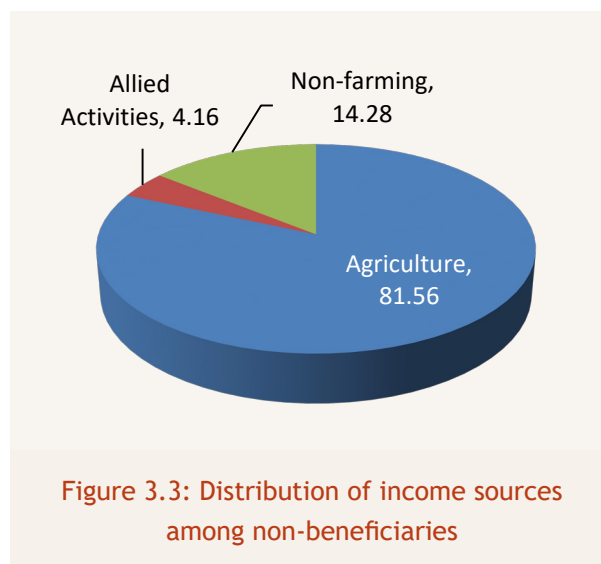
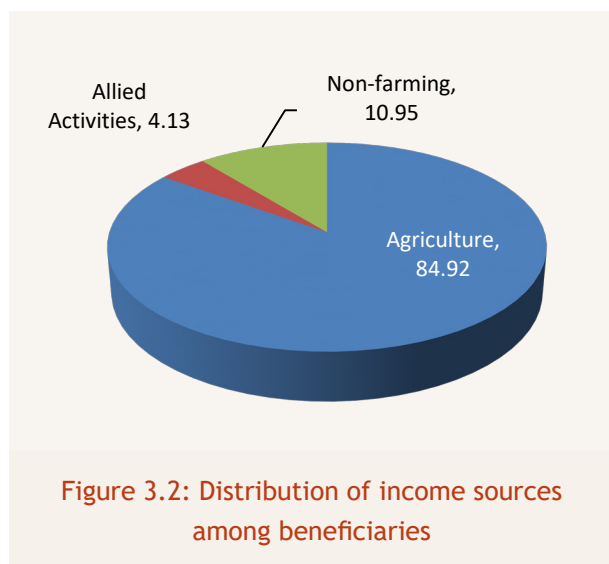
The data on sources of income of households was collected under three broad groups: Agriculture or crop production, activities allied to agriculture and non-farm activities. The income earned by sample beneficiaries from crop cultivation was considered as income through agriculture or crop production. This group included: agriculture, horticulture, plantation, forestry and other crops. The wages earned by agricultural labours is also considered as agriculture income. The income activities such as dairy, fishery, poultry were grouped as activities allied to agriculture. On-farm income included earnings from service, business, pension and other non-farm activities. The tabulated result of the same is given in **Table 3.3**.

Table 3.3: Source-Wise Income of Sample Households

(Rs. in lakhs)

Characteristics		Assam	Karnataka	Tamil Nadu	West Bengal	Bihar	Himachal Pradesh	Madhya Pradesh	Uttar Pradesh	Gujarat	Average income
NFSM											
Agriculture	Agriculture	84986	207971	123637	22166	98673	197572	194675	506744	268526	189439
	Wages	2717	0	0	1798	9281	0	0	750	100	1627
Allied activities	Dairy	0	10483	0	708	0	0	16319	0	55020	9170
	Poultry	0	837	0	187	0	0	0	0	0	114
	Fisheries	0	170	0	90	0	0	0	0	0	29
	Floriculture	0	0	0	3528	0	0	0	0	0	392
Non-agriculture	Service	0	5469	0	0	0	0	0	0	0	608
	Own business	4959	3830	18350	2452	8741	6599	0	12487	2673	6677
	Salary / Pension	12444	0	20143	802	0	47893	7425	12980	14573	12918
	Others	8177	1700	3631	0	6528	1289	7759	11330	0	4490
Total from all sources		113283	230460	165761	31731	123222	253353	226178	544291	340892	225463
Non-NFSM											
Agriculture	Agriculture	51701	108214	68130	24178	105210	187224	166871	267314	184707	129283
	Wage Earners	3315	0	0	1150	6218	0	0	1000	2380	1563
Allied activities	Dairy	0	8650	0	559	0	0	0	0	49225	6493
	Poultry	0	0	0	1170	0	0	0	0	0	130
	Fisheries	0	400	0	170	0	0	0	0	0	63
	Floriculture	0	0	0	1443	0	0	0	0	0	160
Non-agriculture	Service	0	2100	0	0	0	0	0	0	0	233
	Own business	2591	1230	11092	2955	9850	1800	0	4040	4510	4230
	Salary / Pension	9198	0	20320	915	2911	55860	12004	3360	19280	13761
	Others	4796	795	5203	0	6854	1644	18796	4260	0	4705
Total from all sources		71601	121389	104745	32539	131044	246528	197670	279974	260102	160621

The annual income shown in **Table 3.3** indicates that the farmers were dependent more on agriculture or crop production for their income. The dependence on allied activities such as dairy, poultry, fishery etc. was meager, clearly visible in **Figure 3.2** and **Figure 3.3** which shows that 85 per cent of the total income of beneficiaries and 82 per cent of non-beneficiaries were from agriculture. Per household income of a beneficiary from agriculture and wages from agriculture was Rs.1.91 Lakh and that of non-beneficiary was Rs.1.30 Lakh per annum.

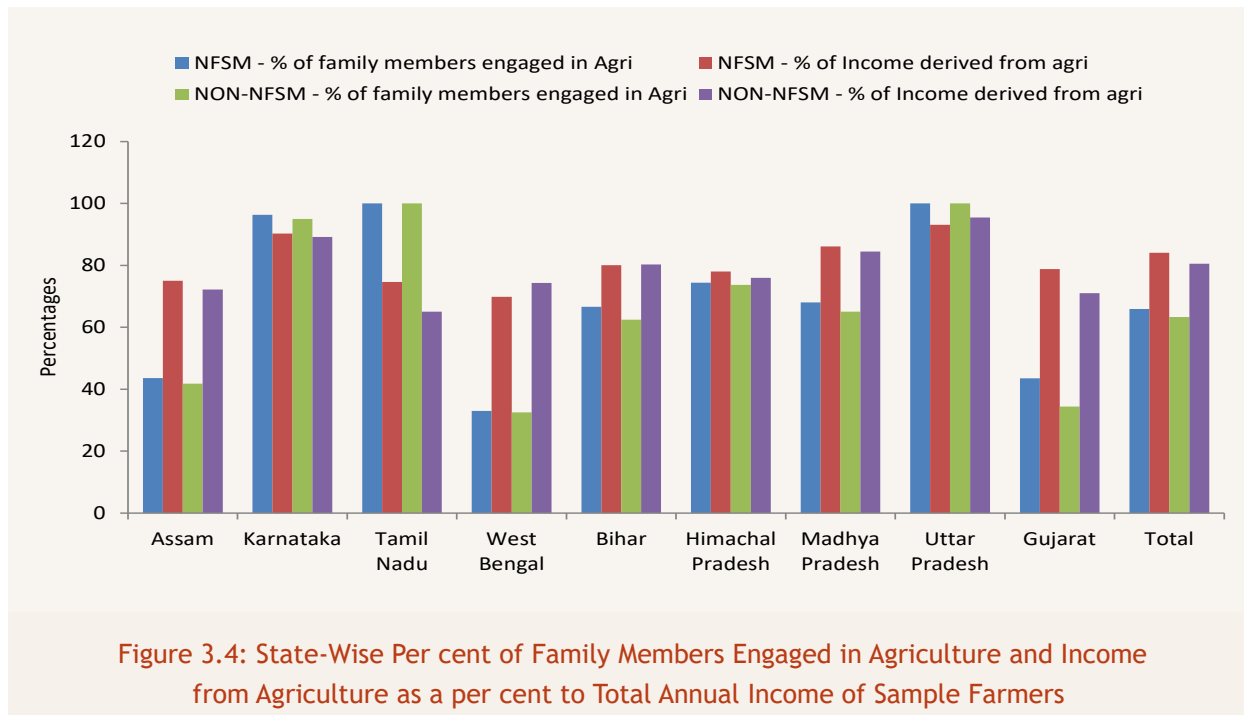


The contribution of income by crop production, as a per cent to total annual income, varied widely among the States. It was around 70 per cent in West Bengal and 93 per cent in Uttar Pradesh. The NFSM and non-NFSM sample farmers of Assam, Tamil Nadu, Bihar, Himachal Pradesh and Uttar Pradesh States did not have any income from allied activities except NFSM farmers of Madhya Pradesh, who earned Rs.16319 per HH per annum from dairy. Though the sample farmers of Karnataka had indicated income from allied activities, the Per HH amount from fishery and poultry is negligible. In all, the sample farmers did not have noticeable income from allied activities. As a result, the overall income from allied activities was only around 4 per cent of the total income in case of NFSM and non-NFSM farmers. The beneficiary farmers of Assam and Tamil Nadu earned incomes from salary / pension, business and others constitute around a quarter of their total annual income. The non-beneficiaries of these two States also had income from non-agricultural sources.

In absolute terms, the average income of NFSM farmers was Rs.2.25 Lakh per HH per annum and of non-NFSM farmers was Rs.1.60 Lakh. Among individual States, the NFSM sample farmers of Uttar Pradesh earned the highest income of Rs.5.44 Lakh per HH per annum. The highest income with respect to non-NFSM sample farmers was also from Uttar Pradesh (Rs.2.80 Lakh per HH per annum). The least per HH income was of West Bengal sample farmers (Rs.32000) among NFSM farmers and Rs.33,000 among non-NFSM farmers. In the remaining States the income of NFSM sample farmers ranged from around Rs.1.13 Lakh to Rs.3.41 Lakh per HH per annum and that of non-NFSM farmers the per annum income of every household varied between Rs.72,000 to Rs.2.60 Lakh.

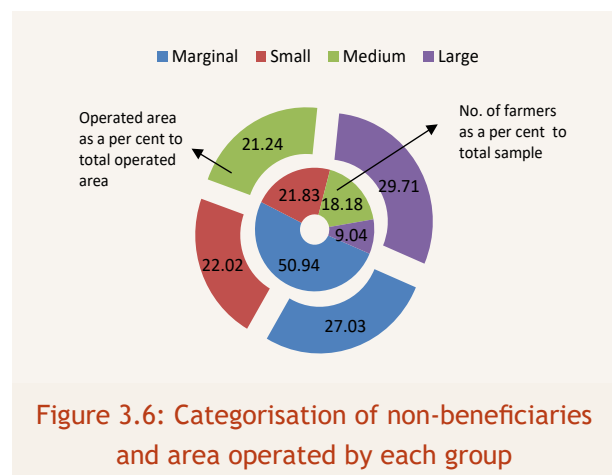
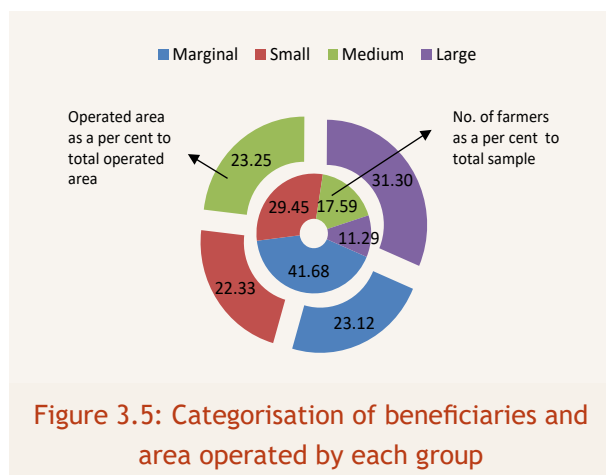
It is worth noting that the per cent of family members engaged in agriculture was more than the per cent of annual income derived from agriculture sources. Around 96 per cent of family members of NFSM beneficiaries in Karnataka are engaged in agriculture yet derive only 90 per cent of their total income

from agriculture. Similarly, 95 per cent of the family members of Non-NFSM beneficiaries in Karnataka work for agriculture to earn an income from agriculture that constitutes only 89 per cent of their total annual income. On the contrary, West Bengal engages only 32 per cent of their family members in agriculture and yet agricultural income accounts for around 70 per cent of the total annual income of NFSM beneficiaries. More or less, the non-NFSM sample farmers also exhibit an identical trend in the State. The details with respect to the per cent of family members engaged in agriculture and the income from agriculture as a per cent to total annual income is graphically presented in **Figure 3.4**.



3.1.3. Farm size

The sample farmers were classified into marginal, small, medium and large farmers based on their operated holdings. The marginal and small farmers together constituted around 71 per cent of the total NFSM sample size and 73 per cent of the non-NFSM sample size. These two groups of farmers were operating around 45 per cent and 49 per cent of the total operated land of the sample size respectively. The **Figure 3.5**, **Figure 3.6** and **Table 3.4** provide the details on categorisation of sample farmers.



The sample farmers of West Bengal and Himachal Pradesh States did not have large farmers either in NFSM group or in Non-NFSM group. Around 95 per cent of NFSM sample farmers and 91 per cent of non-NFSM sample farmers of West Bengal were marginal farmers. In Himachal Pradesh, the marginal farmers were 82 per cent of the total NFSM sample and 89 per cent of non-NFSM farmers were marginal farmers. While the number of NFSM large farmers of Assam were very few, there were no large non-NFSM farmers. Except these three States, by and large, all categories of sample farmers were represented in the sample size.

Table 3.4: Classification of Sample Farmers according to Operational Holdings (in Per cent)

Characteristics		Assam	Karnataka	Tamil Nadu	West Bengal	Bihar	Himachal Pradesh	Madhya Pradesh	Uttar Pradesh	Gujarat	Average
NFSM											
Per cent operated area to total operated area	Marginal (Up to 2.5 Acres)	17.46	4.52	8.10	77.60	16.58	65.63	7.20	18.52	3.77	23.12
	Small (Above 2.5 to 5.0 Acres)	40.55	11.09	22.40	8.00	34.32	23.11	23.10	27.28	15.29	22.33
	Medium (Above 5 to 10 Acres)	30.81	20.03	26.70	14.40	26.49	11.26	25.90	28.42	27.77	23.25
	Large (Above 10 Acres)	11.18	64.36	42.80	0.00	22.61	0.00	43.80	25.78	53.16	31.30
Per cent to total sample	Marginal (Up to 2.5 Acres)	34.00	23.00	30.70	95.30	43.50	82.00	25.00	47.00	17.00	41.72
	Small (Above 2.5 to 5.0 Acres)	44.00	26.33	36.00	2.70	34.25	14.33	37.70	29.67	32.00	29.45
	Medium (Above 5 to 10 Acres)	18.67	23.00	21.70	2.00	14.05	3.67	22.60	16.00	30.00	17.59
	Large (Above 10 Acres)	3.33	27.67	12.00	0.00	8.20	0.00	14.70	7.33	21.00	11.29
Non-NFSM											
Per cent operated area to total operated area	Marginal (Up to 2.5 Acres)	28.44	7.82	12.10	72.50	24.35	81.19	4.60	35.91	7.67	27.03
	Small (Above 2.5 to 5.0 Acres)	39.19	19.37	24.30	22.50	18.08	18.81	17.90	33.01	20.17	22.02
	Medium (Above 5 to 10 Acres)	32.37	25.09	28.50	5.00	32.92	0.00	17.50	16.88	32.25	21.24
	Large (Above 10 Acres)	0.00	47.71	35.10	0.00	24.65	0.00	60.00	14.20	39.92	29.71
Per cent to total sample	Marginal (Up to 2.5 Acres)	50.00	32.00	43.00	91.00	68.50	89.00	29.00	65.00	27.00	50.94
	Small (Above 2.5 to 5.0 Acres)	34.00	31.00	29.00	8.00	14.50	11.00	18.00	25.00	33.00	21.83
	Medium (Above 5 to 10 Acres)	16.00	20.00	18.00	1.00	11.60	0.00	36.00	7.00	25.00	18.18
	Large (Above 10 Acres)	0.00	17.00	10.00	0.00	5.40	0.00	17.00	3.00	15.00	9.04

3.1.4. Characteristics of Operational Holdings

The characteristics of operational holdings of selected households are presented in **Table 3.5**. It can be seen from the table that beneficiary households owned larger land (4.43 ac per HH) than the non-beneficiaries (3.60 ac. Per HH). After removing uncultivated land and the difference of leased-in and leased-out land the operated land worked out to 5 acres per HH in case of beneficiaries and 3.97 acres per HH in case of non-beneficiaries. Thereby, the average operated land falls into category of small farmers. The beneficiaries of Karnataka had the highest net operated land of 8.95 acres per HH and among non-beneficiaries the highest net operated land of 7.70 acres was in Madhya Pradesh. It may be noted that per HH leased-in land of Karnataka beneficiaries was highest (3.36 acres) and therefore, they had the highest net operated area. However, in case of Madhya Pradesh they actually own the land. The least net operated land was in West Bengal in case of beneficiaries (1.01 acres per HH) as well as in case of non-beneficiaries (1.19 acres per HH).

Table 3.5: Characteristics of Operational Holdings of Sample HH

Characteristics	Assam	Karnataka	Tamil Nadu	West Bengal	Bihar	Himachal Pradesh	Madhya Pradesh	Uttar Pradesh	Gujarat	Average
NFSM										
Total owned land	3.45	6.02	5.97	0.86	4.05	1.72	6.20	4.45	7.15	4.43
Un-cultivated land/ Fallow land	0.16	0.25	0.00	0.02	0.07	0.44	0.00	0.04	0.03	0.11
Cultivated land (Own)	3.28	5.77	5.97	0.83	3.98	1.28	6.20	4.41	7.12	4.32
Leased-in land	0.67	3.36	0.40	0.19	0.36	0.00	0.40	0.07	0.96	0.71
Leased-out land	0.05	0.19	-	0.01	-	0.00	0.00	0.00	0.03	0.03
Net Operated Area (3+4-5)	3.90	8.95	6.37	1.02	4.34	1.28	6.60	4.48	8.05	5.00
Gross Cropped Area	5.42	14.50	10.39	1.97	6.32	2.58	13.73	8.34	12.66	8.65
Cropping Intensity (%)	1.39	1.62	1.63	1.94	1.46	2.02	2.08	1.86	1.57	1.73
Irrigation Intensity (%)	1.77	1.66	1.02	1.96	1.43	1.99	2.09	1.61	1.60	1.68
Non-NFSM										
Total owned land	2.89	4.24	4.12	1.15	2.62	1.39	7.60	2.98	5.40	3.60
Un-cultivated land/ Fallow land	0.13	0.21	0.00	0.07	0.04	0.38	0.00	0.00	0.02	0.09
Cultivated land (Own)	2.71	4.04	4.12	1.09	2.58	1.01	7.60	2.98	5.38	3.50
Leased-in land	0.42	2.64	0.79	0.12	-	0.00	0.10	0.00	0.48	0.51
Leased-out land	0.02	0.26	-	0.02	0.26	0.00	0.00	0.00	0.00	0.06
Net Operated Area (3+4-5)	3.11	6.42	4.91	1.19	2.58	1.01	7.70	2.98	5.86	3.97
Gross Cropped Area	4.11	10.14	9.45	2.30	3.23	2.02	15.40	5.56	9.46	6.84
Cropping Intensity (%)	1.32	1.58	1.92	1.93	1.25	2.00	2.00	1.87	1.62	1.72
Irrigation Intensity (%)	1.94	1.56	1.01	1.99	1.42	2.00	2.00	1.66	1.66	1.69

Excluding Karnataka where the leased-in land was 3.36 acres per HH, in all other States the leased-in land was less than one acre. The per HH leased-in land was higher than the leased-out land in all the States by beneficiaries as well as non-beneficiaries. The net leased-in land (leased-in minus leased-out) of beneficiaries was 0.68 acre per HH and it was 0.44 acres with respect to non-beneficiaries. The non-beneficiaries of Bihar had only leased out land and there was no leased-in land. As such, the difference between leased-in and leased-out land was negative for non-beneficiaries in Bihar State. An attribute observed only in Bihar and not in the other States studied.

The cropping intensity of beneficiary households (1.73 per cent) and non-beneficiaries (1.72 per cent) indicated that the farmers cultivate crops in more than one season in all the States. The irrigation intensity was 1.68 per cent and 1.69 per cent for beneficiaries and non-beneficiaries respectively. This again indicated that the farmers of all the States had irrigation sources to cultivate the land in more than one season. Madhya Pradesh and Himachal Pradesh had irrigation for more than two seasons and hence some farmers were cultivating their land through the entire year.

3.2. Sources of Irrigation

Around 84 per cent of operated area of beneficiaries and 87 per cent of operated area of non-beneficiaries was under irrigation. In the States of Uttar Pradesh and Tamil Nadu entire operated area of the beneficiary and non-beneficiary farmers was irrigated. In the remaining seven States, the per cent of irrigated area out of total operated area ranged from around 31.50 per cent to 97.31 per cent in case of beneficiaries. In case of non-beneficiaries, the range was between 28.20 per cent and 98.50 per cent. The sources of irrigation water varied from State to State. The **Table 3.6** shows the details of sources of irrigation.

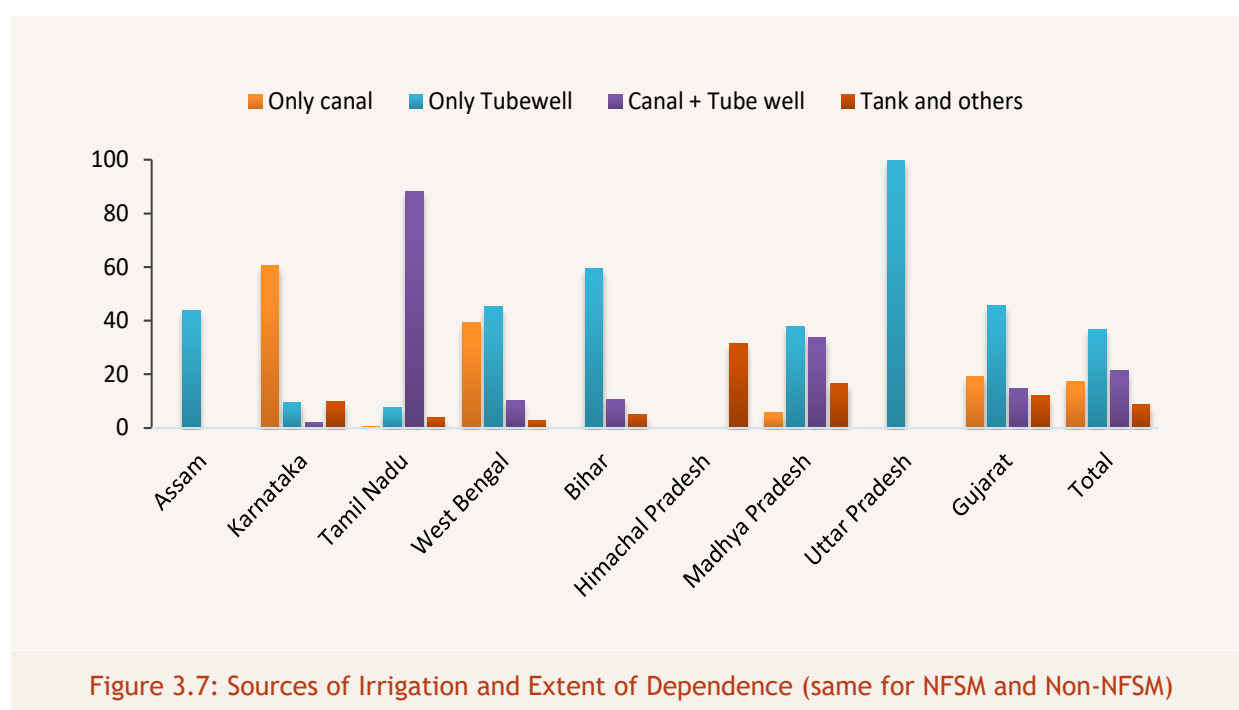
Table 3.6: Details on Sources of Irrigation

(As a per cent to total operated area)

State	Sources of irrigation and irrigated area						Area irrigated per HH (Acre)	Rain fed area per HH (Acre)
	Only Canal	Only Tube well	Canal + Tube well	Tank and others	Irrigated area	Rainfed area		
NFSM								
Assam	0.08	43.85	0.00	0.00	43.94	56.06	1.71	2.18
Karnataka	60.63	9.51	2.24	9.62	81.99	18.01	7.33	1.61
Tamil Nadu	0.37	7.58	88.08	3.80	99.84	0.16	6.27	0.10
West Bengal	39.22	45.31	10.11	2.67	97.31	2.69	0.98	0.03
Bihar	0.00	59.62	10.70	5.11	75.43	24.57	3.27	1.06
Himachal Pradesh	0.00	0.00	0.00	31.47	31.47	68.53	0.54	1.18
Madhya Pradesh	5.70	37.70	33.60	16.70	93.70	6.30	6.20	0.40
Uttar Pradesh	0.15	99.85	0.00	0.00	100.00	0.00	4.48	0.00
Gujarat	19.23	45.71	14.80	12.14	91.88	8.12	7.39	0.65
Total	17.16	36.91	21.40	8.76	84.23	15.77	4.24	0.79
Non-NFSM								
Assam	0.00	29.52	0.00	0.00	29.52	70.48	0.92	2.19
Karnataka	65.89	7.01	0.93	12.93	86.76	13.24	6.42	0.85
Tamil Nadu	0.00	2.46	88.00	9.53	100.00	0.00	4.88	0.03
West Bengal	47.27	42.80	3.64	0.04	93.76	6.24	1.12	0.07
Bihar	0.00	46.00	11.13	10.49	67.62	32.38	1.92	0.92
Himachal Pradesh	0.00	0.00	0.00	28.17	28.17	71.83	0.39	0.99
Madhya Pradesh	0.90	54.85	0.50	42.26	98.50	1.50	7.60	0.10
Uttar Pradesh	0.00	100.00	0.00	0.00	100.00	0.00	2.98	0.00
Gujarat	20.74	70.90	1.64	1.43	94.71	5.29	5.55	0.31
Total	14.36	48.72	11.45	12.58	87.10	12.90	4.10	0.04

It can be seen from **Table 3.6** that sample farmers of Assam and Uttar Pradesh are dependent exclusively on tube well. Even though few farmers of Bihar has canal source, the dependence is mainly on tube well. While the farmers of Karnataka indicated canal as the major source of irrigation. A majority of Tamil Nadu farmers had conjunctive sources of irrigation (canal plus tube well) followed by farmers of Madhya Pradesh. The **Figure 3.7** shows the sources of irrigation facilities available to beneficiaries and non-beneficiaries and the extent of dependence, as a per cent to total operated area, on each source.

The per household irrigated area at all India level remains more or less same at 4.24 and 4.10 acres for beneficiaries and non-beneficiaries respectively. The States of Karnataka, Tamil Nadu, Gujarat and Madhya Pradesh beneficiaries and non-beneficiaries exceed this average per household irrigated area.



3.3. Structure of Tenancy

The practice of leasing-in or leasing-out of land, was found to be completely absent under both the sample categories of farmers in Himachal Pradesh and Madhya Pradesh. The per HH leased-in or leased-out land, in Uttar Pradesh, it was not significant. In fact, excluding Karnataka State, the leasing was less than one acre per household in other States. The tenancy practice was mainly on share cropping terms. However, 'fixed rent in cash' and 'fixed rent in kind' was also seen in few States. The **Table 3.7** provides the details about structure of tenancy across selected States.

It can be seen from **Table 3.7** that the beneficiary farmers whoever had leased-out under 'fixed rent in cash' terms were paying more than the value they were charging for leasing-in. The leased-in value was almost double the leased-out value in some States. The leased-in rental value was highest in Gujarat at Rs. 9246 per acre as against Rs.5000 for leasing-out one acre of land. By and large, the situation was homogeneous with respect to non-beneficiaries in all the States where the rental value for leasing-in and leasing-out is indicated. Only in West Bengal and Assam across both beneficiaries and non-beneficiaries, the leasing-in and leasing-out activity is prevalent. In Karnataka and Bihar, only leasing-in by beneficiaries was evident (**Figure 3.8**).

Table 3.7: Details of Tenancy Structure

(As a per cent to leased area)

State	Share cropping		Fixed rent in cash				Fixed rent in Kind			
	per cent Area to leased-in area	per cent Area to leased-out area	per cent Area to leased-in area	Rental value per acre in Rs.	per cent Area to leased-out area	Rental value per acre in Rs.	per cent Area to leased-in area	Rental value per acre in Rs.	per cent Area to leased-out area	Rental value per acre in Rs.
NFSM										
Assam	13.25	14.87	83.77	4741	85.13	4312	0.00	0	0.00	0
Karnataka	6.56	0.00	37.33	0	42.86	0	54.03	0	57.14	0
Tamil Nadu	35.77	50.64	41.06	3966	46.84	3877	23.17	2640*	2.52	2376*
West Bengal	40.21	28.00	55.80	8612	72.00	3825	4.00	8	7.00	0
Bihar	36.21	0.00	42.65	6578	0.00	0	21.14	5295*	0.00	0
Himachal Pradesh	0.00	0.00	0.00	0	0.00	0	0.00	0	0.00	0
Madhya Pradesh	0.00	0.00	0.00	0	0.00	0	0.00	0	0.00	0
Uttar Pradesh	0.00	0.00	0.07	1960	0.00	0	0.00	0	0.00	0
Gujarat	27.47	0.00	53.71	9246	100.00	5000	18.82	8706*	0.00	0
Non-NFSM										
Assam	14.06	80.00	85.94	5593	20.00	6061	0.00	0	0.00	0
Karnataka	0.23	0.00	25.18	0	26.92	0	71.94	0	73.08	0
Tamil Nadu	0.00	0.00	0.00	0	0.00	0	0.00	0	0.00	0
West Bengal	29.53	19.32	63.48	8835	80.68	3500	0.00	0	0.00	0
Bihar	0.00	34.62	0.00	0	44.15	5865	0.00	0	21.23	4818*
Himachal Pradesh	0.00	0.00	0.00	0	0.00	0	0.00	0	0.00	0
Madhya Pradesh	0.00	0.00	0.00	0	0.00	0	0.00	0	0.00	0
Uttar Pradesh	0.00	0.00	0.00	0	0.00	0	0.00	0	0.00	0
Gujarat	33.68	0.00	24.34	9914	0.00	0	41.97	12384*	0.00	0

* Valuation of kind

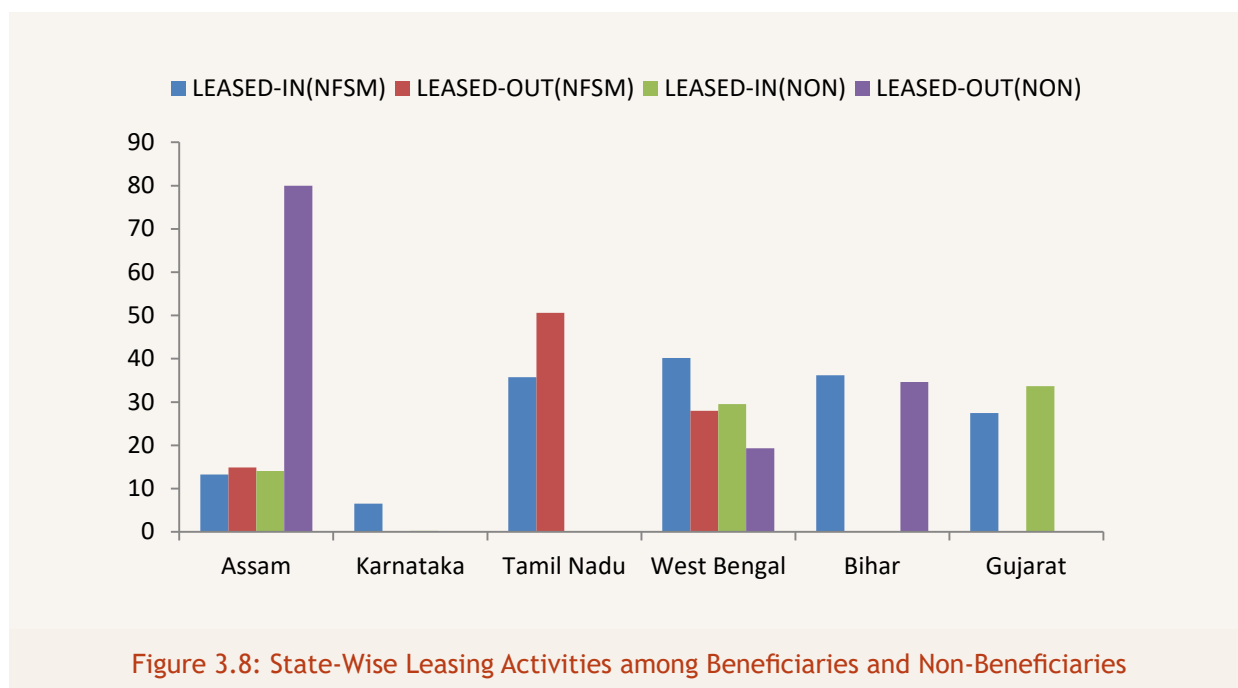


Figure 3.8: State-Wise Leasing Activities among Beneficiaries and Non-Beneficiaries

3.4. Cropping Pattern

The cropping pattern is largely a function of irrigation availability during different seasons of the year. The cropping pattern presented in **Table 3.8** and **Table 3.9** indicate that, at the all India level, cereal crops accounted for a major share of 73 per cent in the gross cropped area of beneficiary HHs, whereas it was 65 per cent in non-beneficiary HHs. It is important to note that within cereal crops, paddy and wheat together constituted for about 60 per cent and 61 per cent of the gross cropped area with respect to beneficiaries and non-beneficiaries, respectively. This was expected as the targeted sample was drawn from paddy and wheat dominant areas.

Table 3.8: Cropping Pattern of NFSM Sample HHs

(As a per cent to gross cropped area)

Crop Group	Name of the crop	Assam	Karnataka	Tamil Nadu	West Bengal	Bihar	Himachal Pradesh	Madhya Pradesh	Uttar Pradesh	Gujarat	Total
Cereals	Paddy	66.75	80.02	80.22	83.04	48.25	18.85	25.80	29.50	22.96	49.51
	Wheat	0.00	0.00	0.00	0.00	32.05	38.03	36.30	29.21	34.86	19.60
	Other cereals	0.00	2.11	0.00	0.00	8.10	23.41	0.00	3.01	7.82	3.52
	Total Cereals	66.75	82.13	80.22	83.04	88.40	80.29	62.10	61.72	65.64	72.63
Pulses	Tur and gram	4.25	3.73	8.55	0.00	0.00	0.12	10.10	0.00	0.51	4.09
	Other pulses	0.00	0.00	1.99	0.17	4.83	4.83	6.80	17.85	0.26	4.07
	Total Pulses	4.25	3.73	10.54	0.17	4.83	4.95	16.90	17.85	0.77	8.16
Oil seeds	Groundnut	0.00	0.16	4.30	0.74	0.00	0.00	0.00	0.00	0.61	0.74
	Soyabean	0.00	0.00	0.00	0.00	0.00	0.00	21.00	0.00	0.00	3.79
	Other oil seeds	5.16	0.90	0.00	4.44	4.62	0.09	0.00	4.52	18.49	4.65
	Total Oil seeds	5.16	1.06	4.30	5.18	4.62	0.09	21.00	4.52	19.10	9.18
Other crops	Cotton, Jute & Mesta and other fibre crops	3.74	11.64	0.95	2.24	0.00	0.00	0.00	0.00	5.11	3.53
	Vegetables and Fruits	11.73	0.74	0.00	9.37	0.00	13.61	0.00	4.02	3.52	2.71
	Miscellaneous	8.37	0.70	4.00	0.00	2.15	1.06	0.00	11.89	5.86	3.78
	Total other crops	23.84	13.08	4.95	11.61	2.15	14.67	0.00	15.91	14.49	10.02
Gross cropped area (%)		100	100	100	100	100	100	100	100	100	99.99
Gross cropped area (Acre)		1622	4339	3116	590	1914	772	4118	2501	3842	22814

Table 3.9: Cropping Pattern of Non-NFSM Sample HHs*(As a per cent to gross cropped area)*

Crop Group	Name of the crop	Assam	Karnataka	Tamil Nadu	West Bengal	Bihar	Himachal Pradesh	Madhya Pradesh	Uttar Pradesh	Gujarat	Total
Cereals	Paddy	77.90	50.73	83.70	90.77	43.82	21.23	14.70	34.93	14.77	42.76
	Wheat	0.00	0.00	0.00	0.00	28.54	38.39	42.80	34.57	24.84	18.24
	Other cereals	0.00	5.21	0.00	0.00	10.08	18.96	0.00	1.28	10.95	3.98
	Total Cereals	77.90	55.94	83.70	90.77	82.44	78.58	57.50	70.78	50.56	64.98
Pulses	Tur and gram	3.56	9.19	10.73	0.09	0.00	0.00	7.10	0.00	0.00	5.57
	Other pulses	0.00	0.00	1.27	0.00	5.69	6.96	0.40	16.08	0.13	2.07
	Total Pulses	3.56	9.19	12.00	0.09	5.69	6.96	7.50	16.08	0.13	7.64
Oil seeds	Groundnut	0.00	0.40	3.18	0.09	0.00	0.00	0.00	0.00	0.08	0.55
	Soyabean	0.00	0.00	0.00	0.00	0.00	0.00	35.00	0.00	0.00	7.75
	Other oil seeds	3.70	2.22	0.00	1.81	4.16	0.00	0.00	2.88	30.83	5.49
	Total Oil seeds	3.70	2.62	3.18	1.90	4.16	0.00	35.00	2.88	30.91	13.79
Other crops	Cotton, Jute & Mesta and other fibre crops	2.05	28.67	1.11	0.29	0.00	0.00	0.00	0.00	9.59	8.85
	Vegetables and Fruits	7.24	1.83	0.00	6.95	3.06	14.41	0.00	0.75	4.00	2.30
	Miscellaneous	5.55	1.75	0.00	0.00	4.65	0.06	0.00	9.50	4.80	2.43
	Total other crops	14.84	32.25	1.11	7.24	7.71	14.47	0.00	10.25	18.39	13.58
Gross cropped area (%)		100.00	100.00	99.99	100.00	100.00	100.01	100.00	99.99	99.99	99.99
Gross cropped area (Acre)		412	1761	944	230	355	202	1540	563	948	6955

One striking observation about cropping pattern is that the non-beneficiaries of Assam, Tamil Nadu and West Bengal had apportioned higher per cent of gross cropped area for paddy than the farmers who had received benefits under NFSM scheme. Similar situation was observed in Himachal Pradesh and Uttar Pradesh States that were selected for wheat. **Figure 3.9** and **Figure 3.10** highlights this observation.

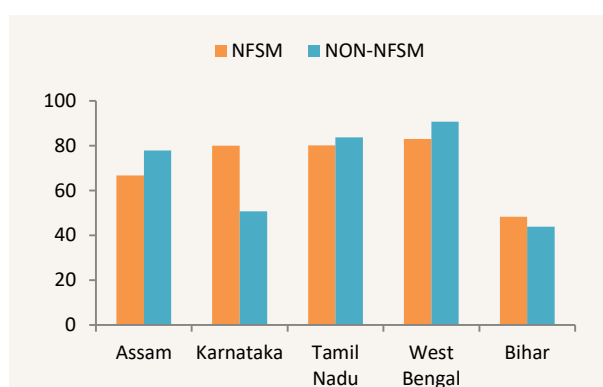


Figure 3.9: Per cent Area of Paddy out of gross cropped area in paddy selected states

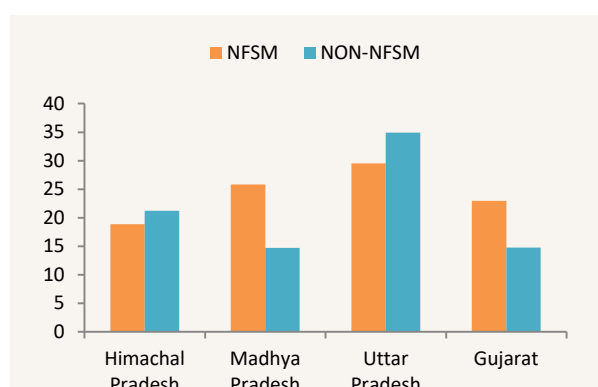


Figure 3.10: Per cent Area of wheat out of gross cropped area in wheat selected states

It may be noticed from cropping pattern that, barring Bihar, none of the States selected for paddy were cultivating wheat. On the other hand, all the States selected for wheat were growing paddy also. The crops like Maize and Jowar were the other cereal crops that were grown apart from paddy and wheat and found in Karnataka and Bihar paddy States. Gujarat and Himachal Pradesh were the other States that were growing maize among wheat selected States. The percentage of area under other crops was negligible. In the case of beneficiaries more than 80 per cent of the gross cropped area in all states except Assam, MP and UP was under cereals. UP and MP had around 17 per cent of area under pulses. Oil seeds in the case of beneficiaries was highest in MP (21%) and Gujrat (19%). Whereas in the case of non-beneficiaries, about 32 per cent of the GCA in Karnataka was under other crops, fairly higher proportion in MP was under oil seeds (35%). However, the overall analysis of cropping pattern of beneficiaries and non-beneficiaries of all the States revealed that the farmers were more inclined to cereal crops than pulses, oil seeds and other crops. The income from agriculture (per acre of gross cropped area), allied activities and non-farm sources are given **Table 3.10**.

Table 3.10: Details of Household Income*(Amount in Rs.)*

State	Agriculture						Per HH income from allied activities	Per HH income from non-farming activities	Total income per HH
	Per household			Per acre					
	Value of production	Cost of production	Net returns	Value of production	Cost of production	Net returns			
NFSM									
Assam	139047	54061	84986	25718	9999	15719	0	28298	113284
Karnataka	524920	316949	207971	36293	21914	14379	11490	6063	225524
Tamil Nadu	229532	105895	123637	22099	10195	11903	0	42124	165761
West Bengal	624801	602634	22167	317695	306424	11271	4513	9565	36244
Bihar	200111	101438	98673	31365	15899	15466	0	12820	111493
Himachal Pradesh	242955	45383	197572	94413	17636	76777	0	55781	253353
Madhya Pradesh	451323	256648	194675	32879	18697	14182	16319	31503	242497
Uttar Pradesh	904450	397705	506744	108491	47706	60785	0	33230	539974
Gujarat	434668	166142	268526	33941	12973	20968	55020	17347	340893
Total	416867	227428	189439	78099	51271	26828	9705	26303	225447
Non-NFSM									
Assam	91903	40202	51701	66920	29273	12549	0	19901	71602
Karnataka	302092	193878	108214	51464	33029	6145	9050	2510	119774
Tamil Nadu	151400	83270	68130	48114	26463	7217	0	36615	104745
West Bengal	65754	41576	24178	85766	54230	10512	3341	8361	35880
Bihar	163030	57820	105210	137772	48862	29637	0	19648	124858
Himachal Pradesh	227686	40462	187224	338148	60092	92685	0	59304	246528
Madhya Pradesh	465770	298899	166871	90734	58227	10836	0	30801	197672
Uttar Pradesh	587766	320452	267314	313197	170756	47480	0	3320	270634
Gujarat	311515	126808	184707	98581	40129	19484	49225	26170	260102
Total	262991	133707	129283	136744	57896	26283	6846	22959	159088

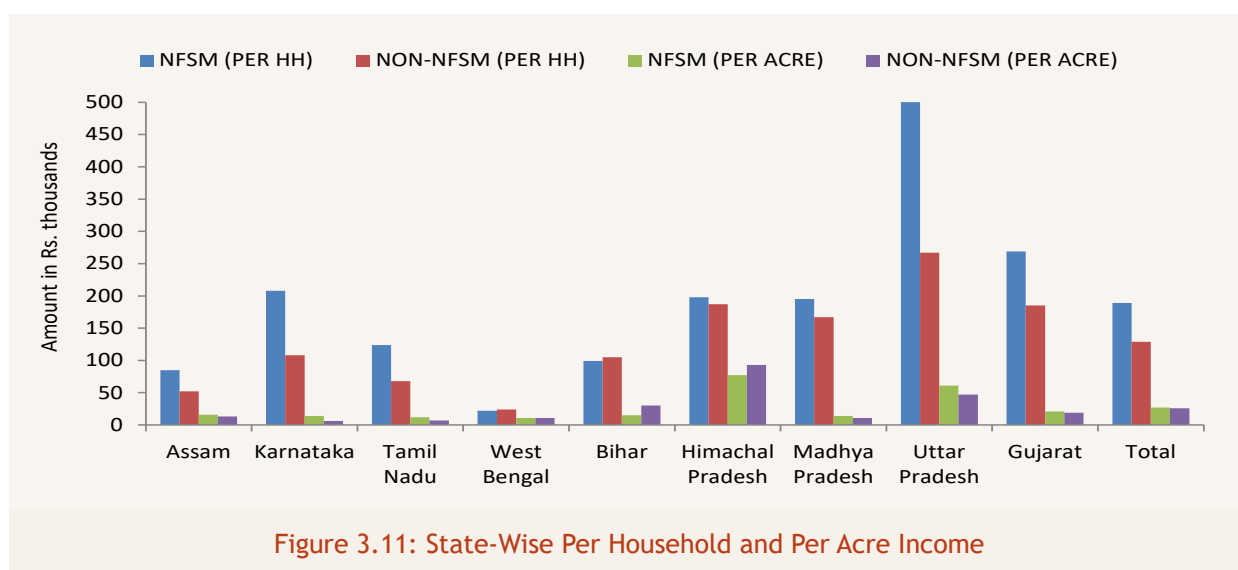
Note: Income from agriculture is based on gross cropped area

With respect to **Table 3.10** as an average of all States, net return per HH from agriculture was higher for beneficiary households by about 47 per cent. However, the per household income derived by non-beneficiaries from agriculture sector was higher than beneficiaries in West Bengal and Bihar by about

9 per cent and 7 per cent respectively. The per HH income of beneficiaries as well as non-beneficiaries from agriculture was lowest in West Bengal among all other States. The highest income of around Rs.5.40 Lakh per beneficiary household and Rs.2.71 Lakh per non-beneficiary household was noticed in Uttar Pradesh.

The per acre net income, averaged for all States, showed that the beneficiaries had only two per cent higher net income from agriculture as compared to non-beneficiaries. But the difference between beneficiary and non-beneficiary households with respect to per acre net return was much higher by around 134 per cent in Karnataka and 65 per cent in Tamil Nadu. It was reverse in Bihar and Himachal Pradesh wherein the per acre net income of non-beneficiary farmers exceeded beneficiary households. The difference was around 21 per cent in Himachal Pradesh and even higher at 92 per cent in Bihar.

The State-wise net income from agriculture of beneficiaries and non-beneficiaries is shown in **Figure 3.11**.



Income from allied activities (dairy/poultry/fisheries) was indicated only by farmers of Karnataka, West Bengal and Gujarat. The Gujarat farmers had substantial per HH income from allied activities as compared to Karnataka and West Bengal. In Madhya Pradesh, only the beneficiary households had income from allied activities. Dairy was the main activity in all the States that were drawing income from allied activities. However, few farmers had shown some income from activities such as poultry and fishery activities in Karnataka and West Bengal.

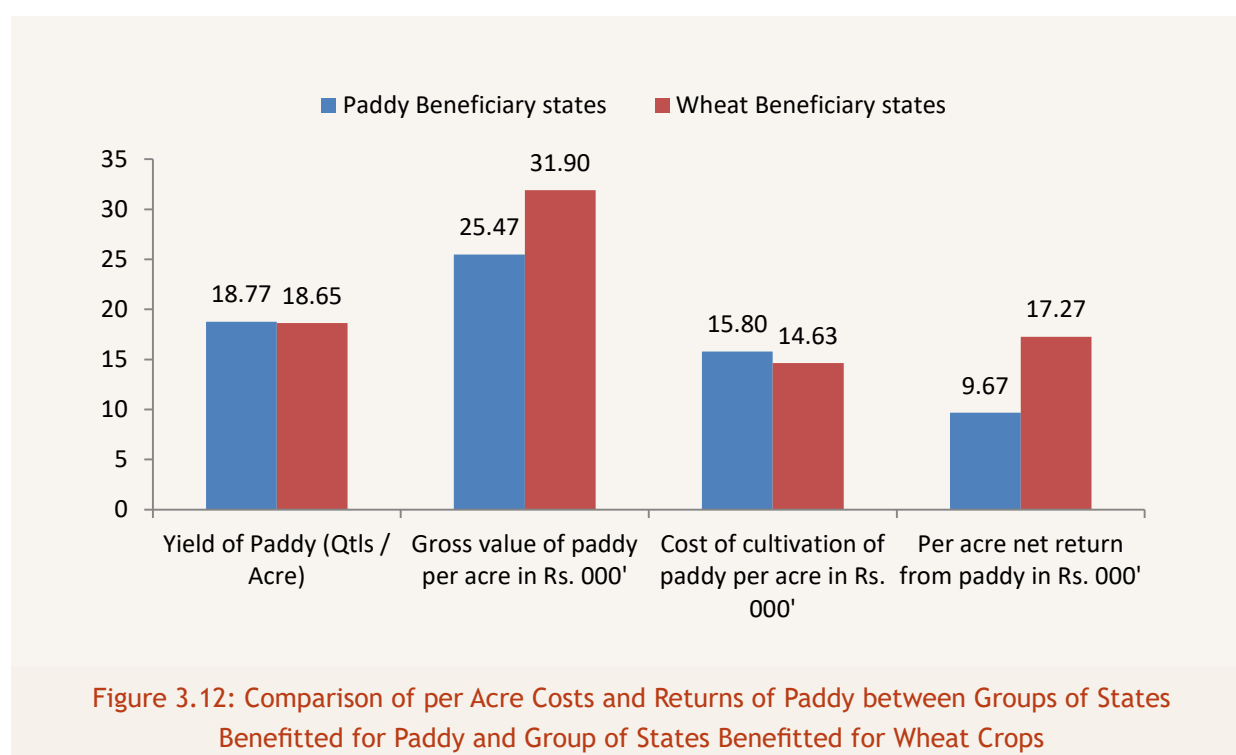
The income from non-farm sources such as salary and own business among both beneficiaries and non-beneficiary household was prevalent in all the States. Around 12 per cent of the average income of beneficiary households was from non-farm activities. In case of non-beneficiaries, the non-farm income constituted 14 per cent of total average income. The non-farming income was around quarter of total income for beneficiary and non-beneficiary households of Assam, Tamil Nadu and West Bengal States. In Karnataka and Uttar Pradesh, the non-farm income of NFSM and non-NFSM farmers was less than 10 per cent of total income.

The tabulation on income pattern of farmers indicated that they are more dependent on agriculture for their livelihood than allied activities. However, non-farming activities were also a good source of income to farmers.

3.5. Per Acre Costs and Returns

The approximate costs and returns (per acre of GCA) among sample households have been presented in **Table 3.11 to Table 3.14** for NFSM farmers and **Table 3.15 to Table 3.18** for non-NFSM farmers. It can be seen from these tables that productivity level of paddy (18.72 qtl) and wheat (16.08 qtl) of beneficiary household, worked out as an average of all the States, was slightly higher than the non-beneficiary farmers where the yield of paddy and wheat was 17.24 qtl and 14.48 qtl respectively. Per acre paddy yield of beneficiaries was only 1.48 quintals more than non-beneficiaries. The quantum of per acre wheat yield obtained by beneficiaries was in excess by 1.60 quintals as compared with non-beneficiaries. Thus, the yield difference in paddy and wheat between two categories of sample farmers was not very significant. On the contrary, the non-beneficiary households of Himachal Pradesh had harvested 2.25 quintals more paddy than beneficiary households. This has been nullified by beneficiaries of Uttar Pradesh who had achieved a productivity level of 5 quintals higher than non-beneficiaries. With regard to cost of cultivation, cost incurred by the beneficiaries in cultivation of paddy (Rs. 15279/acre) was slightly higher than the cost incurred by the non-beneficiaries (Rs.14767/acre). However, in the case of wheat, the non-beneficiaries had incurred lesser cost on cultivation (Rs. 13202/ acre) as against beneficiaries (Rs.12703/acre). In value terms a, beneficiaries cultivating paddy had realized net returns of around Rs.1421 more than the non-beneficiaries and among the wheat farmers, beneficiaries had realized net income of Rs.14287 per acre as against Rs. 10990 per acre in the case of non-beneficiaries. The comparison between beneficiaries and non-beneficiaries with respect to wheat productivity did not show any high variation among four States which had cultivated wheat. Only the beneficiaries of Madhya Pradesh had 4 quintals more yield than non- NFSM farmers.

Despite insignificant yield difference in Paddy and Wheat between NFSM and non-NFSM farmers, it is worthwhile to mention here that the average productivity level of paddy and the net returns from paddy crops of the States that were benefitted for wheat crop was more than the group of States that were benefitted for paddy crop (**Figure 3.12**).



Among pulses, tur was the major crop in Assam, Karnataka and West Bengal. The average yield of Tur among beneficiary farmers of these States (10.58 qtl/acre) was higher by 2.77 quintals than the non-beneficiaries (7.81 qtl/acre). The beneficiaries of Assam and Karnataka were leading in terms of productivity with per acre yield of 17 and 15 quintals, respectively. The net returns in tur in case of beneficiaries

(Rs.19171 per acre) was 9 per cent higher than that of non-beneficiaries (Rs.17542 per acre). The overall yield (9.51qtl/acre), cost (Rs.14303/acre) and net returns (Rs.19752/acre) of all pulses in the case of beneficiaries was 2.4 per cent, 18 per cent and 17 per cent higher than the non-beneficiaries. In conclusion, the per acre yield, gross returns and net returns did not show significant variation between NFSM and non-NFSM farmers in any crop that were studied. With regard to oilseeds, groundnut was mainly cultivated by the beneficiaries and non-beneficiaries. It is to be noted that the average yield of groundnut among beneficiaries (9.18 qtl/acre) was lower than that of non-beneficiaries (10.20 qtl/acre). The returns were higher among the non-beneficiaries.

Table 3.11: Per acre Costs and Returns of NFSM Farmers (Cereals)

State	Yield (Qtl)	Gross Value of Produce (Rs.)	Cost of cultivation (Rs.)	Net returns (Rs.)	Yield (Qtl)	Gross Value of Produce (Rs.)	Cost of cultivation (Rs.)	Net returns (Rs.)
	PADDY				WHEAT			
Assam	12.26	15437	9485	5952	0.00	0	0	0
Karnataka	21.66	30603	18488	12115	0.00	0	0	0
Tamil Nadu	21.32	28326	18529	9797	0.00	0	0	0
West Bengal	18.45	26131	18243	7887	0.00	0	0	0
Bihar	20.18	26850	14250	12600	18.35	22310	12815	9495
Himachal Pradesh	16.76	47751	23093	24658	11.92	34209	14869	19340
Madhya Pradesh	13.70	19823	8362	11461	19.20	29676	11880	17796
Uttar Pradesh	20.98	25696	11285	14412	15.99	21064	10028	11036
Gujarat	23.15	34342	15779	18563	14.94	27694	13924	13770
Total	18.72	28329	15279	13049	16.08	26991	12703	14287
	OTHER CEREALS (Maize and Jowar)				TOTAL CEREALS			
Assam	0.00	0	0	0	12.26	15437	9485	5952
Karnataka	38.02	50403	30243	20160	29.84	40503	24366	16138
Tamil Nadu	0.00	0	0	0	21.32	28326	18529	9797
West Bengal	0.00	0	0	0	18.45	26131	18243	7887
Bihar	15.60	18230	8690	9540	18.04	22463	11918	10545
Himachal Pradesh	21.60	60662	55742	4920	16.76	47541	31235	16306
Madhya Pradesh	0.00	0	0	0	16.45	24750	10121	14629
Uttar Pradesh	7.67	11154	5348	5807	14.88	19305	8887	10418
Gujarat	51.02	115567	35042	80525	29.70	59201	21582	37619
Total	26.78	51203	27013	24190	20.53	35508	18332	17175

Table 3.12: Per acre Costs and Returns of NFSM Farmers (Pulses)

State	Yield (Qtl)	Gross Value of Produce (Rs.)	Cost of cultivation (Rs.)	Net returns (Rs.)	Yield (Qtl)	Gross Value of Produce (Rs.)	Cost of cultivation (Rs.)	Net returns (Rs.)
	TUR				OTHER PULSES (Urd, Moong , Arhar, Black gram)			
Assam	12.26	15437	9485	5952	0.00	0	0	0
Karnataka	21.66	30603	18488	12115	0.00	0	0	0
Tamil Nadu	21.32	28326	18529	9797	0.00	0	0	0
West Bengal	18.45	26131	18243	7887	0.00	0	0	0
Bihar	20.18	26850	14250	12600	18.35	22310	12815	9495
Himachal Pradesh	16.76	47751	23093	24658	11.92	34209	14869	19340
Madhya Pradesh	13.70	19823	8362	11461	19.20	29676	11880	17796
Uttar Pradesh	20.98	25696	11285	14412	15.99	21064	10028	11036
Gujarat	23.15	34342	15779	18563	14.94	27694	13924	13770
Total	18.72	28329	15279	13049	16.08	26991	12703	14287
TOTAL PULSES								
Assam	16.96	66123	14896	51228				
Karnataka	15.10	51219	30903	20316				
Tamil Nadu	2.70	9451	4754	4698				
West Bengal	12.37	67290	29146	38144				
Bihar	16.70	53200	17500	35700				
Himachal Pradesh	3.10	24468	23030	1438				
Madhya Pradesh	8.45	20327	6116	14211				
Uttar Pradesh	7.98	28922	14213	14709				
Gujarat	5.82	17995	6397	11598				
Total	9.51	34054	14303	19752				

Table 3.13: Per acre Costs and Returns of NFSM Farmers (Oil seeds)

State	Yield (Qtl)	Gross Value of Produce (Rs.)	Cost of cultivation (Rs.)	Net returns (Rs.)	Yield (Qtl)	Gross Value of Produce (Rs.)	Cost of cultivation (Rs.)	Net returns (Rs.)
	GROUNDNUT				SOYABEAN			
Assam	0.00	0	0	0	0.00	0	0	0
Karnataka	5.00	13500	8100	5400	5.00	0	0	0
Tamil Nadu	16.60	65632	39468	26164	16.60	0	0	0
West Bengal	4.93	15815	8767	7048	4.93	0	0	0
Bihar	0.00	0	0	0	0.00	0	0	0
Himachal Pradesh	0.00	0	0	0	0.00	0	0	0
Madhya Pradesh	0.00	0	0	0	0.00	11221	6412	4809
Uttar Pradesh	0.00	0	0	0	0.00	0	0	0
Gujarat	10.17	35647	12619	23028	10.17	0	0	0
Total	9.18	32649	17239	15410	9.18	11221	6412	4809
	OTHER OIL SEEDS (Sunflower, Rape seeds, Mustard, castor and Linseed)				TOTAL OIL SEEDS			
Assam	4.90	12738	5169	7569	4.90	12738	5169	7569
Karnataka	7.08	27939	16764	11175	5.69	20720	12432	8288
Tamil Nadu	0.00	0	0	0	16.60	65632	39468	26164
West Bengal	5.44	17770	7243	10527	5.10	16793	8005	8788
Bihar	12.90	24940	10950	13990	12.90	24940	10950	13990
Himachal Pradesh	5.00	19500	15667	3833	5.00	19500	15667	3833
Madhya Pradesh	0.00	0	0	0	0.00	11221	6412	4809
Uttar Pradesh	3.87	13312	6115	7197	3.87	13312	6115	7197
Gujarat	34.99	162229	45379	116850	18.44	98938	28999	69939
Total	10.60	39775	15327	24449	9.65	27882	12993	14889

Table 3.14: Per acre Costs and Returns of NFSM Farmers (Other crops)

State	Yield (Qtl)	Gross Value of Produce (Rs.)	Cost of cultivation (Rs.)	Net returns (Rs.)	Yield (Qtl)	Gross Value of Produce (Rs.)	Cost of cultivation (Rs.)	Net returns (Rs.)
	COTTON AND OTHER FIBRE CROPS				HORTICULTURAL CROPS (Fruits and Vegetables)			
Assam	15.94	30554	7318	23236	72.04	58944	13243	45701
Karnataka	18.35	85996	51582	34414	24.98	140133	98361	41772
Tamil Nadu	16.80	66723	40827	25896	0.00	0	0	0
West Bengal	8.54	18724	15950	2774	168.15	325568	172518	153051
Bihar	0.00	0	0	0	0.00	0	0	0
Himachal Pradesh	0.00	0	0	0	161.73	669324	83146	586178
Madhya Pradesh	0.00	0	0	0	0.00	0	0	0
Uttar Pradesh	0.00	0	0	0	58.10	47732	22475	25257
Gujarat	13.38	162859	52797	110062	425.65	565982	241775	324207
Total	14.60	72971	33695	39276	151.78	301280	105253	196028
	OTHER MISCELLANEOUS CROPS HAVING AN AREA OF 1 TO 5 per cent OF GCA				TOTAL OTHER CROPS			
Assam	74.94	217188	35051	182137	54.31	102229	18537	83691
Karnataka	30.00	2250	1350	900	24.44	76126	50431	25695
Tamil Nadu	3.00	7500	5000	2500	9.90	37112	22914	14198
West Bengal	0.00	0	0	0	88.35	172146	94234	77913
Bihar	450.00	14650	6575	8075	450.00	14650	6575	8075
Himachal Pradesh	0.00	0	0	0	161.73	669324	83146	586178
Madhya Pradesh	0.00	0	0	0	0.00	0	0	0
Uttar Pradesh	189.24	53787	19214	34573	123.67	50760	20845	29915
Gujarat	77.96	198784	61160	137624	172.33	309208	118577	190631
Total	137.52	82360	21392	60968	101.30	152204	53447	98757

Table 3.15: Per acre Costs and Returns of NON- NFSM Farmers (Cereal crops)

State	Yield (Qtl)	Gross Value of Produce (Rs.)	Cost of cultivation (Rs.)	Net returns (Rs.)	Yield (Qtl)	Gross Value of Produce (Rs.)	Cost of cultivation (Rs.)	Net returns (Rs.)
	PADDY				WHEAT			
Assam	12.64	15889	9509	6380	0.00	0	0	0
Karnataka	18.11	25804	16196	9608	0.00	0	0	0
Tamil Nadu	19.77	26466	18409	8058	0.00	0	0	0
West Bengal	18.34	26180	18224	7956	0.00	0	0	0
Bihar	18.50	21650	12750	8900	16.75	19450	10610	8840
Himachal Pradesh	19.02	54197	22721	31476	11.49	33009	15617	17392
Madhya Pradesh	13.10	18928	8290	10638	14.90	23053	11722	11331
Uttar Pradesh	15.54	18841	11498	7343	14.39	18717	11569	7148
Gujarat	20.14	29604	15307	14297	14.86	26727	16490	10237
Total	17.24	26395	14767	11628	14.48	24191	13202	10990
	OTHER CEREALS (Maize and Jowar)				TOTAL CEREALS			
Assam	0.00	0	0	0	12.64	15889	9509	6380
Karnataka	13.00	14000	9667	4333	15.56	19902	12932	6971
Tamil Nadu	0.00	0	0	0	19.77	26466	18409	8058
West Bengal	0.00	0	0	0	18.34	26180	18224	7956
Bihar	14.65	16410	7315	9095	16.63	19170	10225	8945
Himachal Pradesh	12.62	35621	36500	-879	14.38	40942	24946	23995
Madhya Pradesh	0.00	0	0	0	14.00	20991	10006	10985
Uttar Pradesh	5.93	9639	5438	4201	11.95	15732	9502	6231
Gujarat	41.34	87841	32437	55404	25.45	48057	21411	26646
Total	17.51	32702	18271	14431	16.41	27763	15413	12350

Table 3.16: Per acre Costs and Returns of Non-NFSM Farmers (Pulses)

State	Yield (Qtl)	Gross Value of Produce (Rs.)	Cost of cultivation (Rs.)	Net returns (Rs.)	Yield (Qtl)	Gross Value of Produce (Rs.)	Cost of cultivation (Rs.)	Net returns (Rs.)
	TUR				OTHER PULSES (Urd, Moong, Arha, Black gram)			
Assam	16.56	65041	15002	50038	0.00	0	0	0
Karnataka	8.09	21845	13185	8660	0.00	0	0	0
Tamil Nadu	2.90	11566	7050	4516	0.00	0	0	0
West Bengal	0.00	0	0	0	0.00	0	0	0
Bihar	0.00	0	0	0	14.75	48145	16355	31790
Himachal Pradesh	0.00	0	0	0	3.32	26109	22883	3226
Madhya Pradesh	3.70	11134	4180	6954	7.30	25550	8500	17050
Uttar Pradesh	0.00	0	0	0	7.98	28120	14220	13900
Gujarat	0.00	0	0	0	4.17	25000	10000	15000
Total	7.81	27396	9854	17542	7.50	30585	14392	16193
	TOTAL PULSES							
Assam	16.56	65041	15002	50038				
Karnataka	8.09	21845	13185	8660				
Tamil Nadu	2.90	11566	7050	4516				
West Bengal	0.00	0	0	0				
Bihar	14.75	48145	16355	31790				
Himachal Pradesh	3.32	26109	22883	3226				
Madhya Pradesh	5.50	18342	6340	12002				
Uttar Pradesh	7.98	28120	14220	13900				
Gujarat	4.17	25000	10000	15000				
Total	7.66	28991	12123	16868				

Table 3.17: Per acre Costs and Returns of Non-NFSM Farmers (Oil Seeds)

State	Yield (Qtl)	Gross Value of Produce (Rs.)	Cost of cultivation (Rs.)	Net returns (Rs.)	Yield (Qtl)	Gross Value of Produce (Rs.)	Cost of cultivation (Rs.)	Net returns (Rs.)
	GROUNDNUT				SOYABEAN			
Assam	0.00	0	0	0	0.00	0	0	0
Karnataka	0.00	0	0	0	0.00	0	0	0
Tamil Nadu	17.60	68639	38744	29894	0.00	0	0	0
West Bengal	4.29	12000	6571	5429	0.00	0	0	0
Bihar	0.00	0	0	0	0.00	0	0	0
Himachal Pradesh	0.00	0	0	0	0.00	0	0	0
Madhya Pradesh	0.00	0	0	0	3.10	8371	6126	2245
Uttar Pradesh	0.00	0	0	0	0.00	0	0	0
Gujarat	10.75	40500	12500	28000	0.00	0	0	0
Total	10.88	40380	19272	21108	3.10	8371	6126	2245
	OTHER OIL SEEDS (Sunflower, Rape seeds, Mustard, castor and Linseed)				TOTAL OIL SEEDS			
Assam	3.21	8389	5238	3151	3.21	8389	5238	3151
Karnataka	4.00	12533	9867	2666	4.00	12533	9867	2666
Tamil Nadu	0.00	0	0	0	17.60	68639	38744	29894
West Bengal	5.45	17935	8002	9933	4.87	14968	7287	7681
Bihar	11.50	21665	10470	11195	11.50	21665	10470	11195
Himachal Pradesh	0.00	0	0	0	0.00	0	0	0
Madhya Pradesh	0.00	0	0	0	3.10	8371	6126	2245
Uttar Pradesh	3.78	12798	5703	7096	3.78	12798	5703	7096
Gujarat	33.26	149300	47222	102078	22.01	94900	29861	65039
Total	10.20	37103	14417	22686	8.06	28618	13272	15346

Table 3.18: Per acre costs and returns of Non-NFSM farmers (Other crops)

State	Yield (Qtl)	Gross Value of Produce (Rs.)	Cost of cultivation (Rs.)	Net returns (Rs.)	Yield (Qtl)	Gross Value of Produce (Rs.)	Cost of cultivation (Rs.)	Net returns (Rs.)
	COTTON AND OTHER FIBRE CROPS				HORTICULTURAL CROPS (Fruits and Vegetables)			
Assam	13.71	27422	7972	19451	71.36	56969	14062	42907
Karnataka	22.53	97711	70677	27034	12.81	81329	49664	31665
Tamil Nadu	8.90	35409	21473	13936	0.00	0	0	0
West Bengal	9.70	21333	17879	3455	107.63	270724	93124	177600
Bihar	0.00	0	0	0	0.00	0	0	0
Himachal Pradesh	0.00	0	0	0	176.23	754832	78088	676744
Madhya Pradesh	0.00	0	0	0	0.00	0	0	0
Uttar Pradesh	0.00	0	0	0	78.67	62933	42889	20044
Gujarat	11.96	56425	22346	34079	141.76	132784	69059	63725
Total	13.36	47660	28069	19591	98.08	226595	57814	168781
	OTHER MISCELLANEOUS CROPS HAVING AN AREA OF 1 TO 5 per cent OF GCA				TOTAL OTHER CROPS			
Assam	77.44	222598	37665	184933	54.17	102330	19900	82430
Karnataka	0.00	0	0	0	17.67	89520	60171	29350
Tamil Nadu	0.00	0	0	0	8.90	35409	21473	13936
West Bengal	0.00	0	0	0	58.67	146029	55502	90528
Bihar	0.00	0	0	0	0.00	0	0	0
Himachal Pradesh	0.00	0	0	0	176.23	754832	78088	676744
Madhya Pradesh	0.00	0	0	0	0.00	0	0	0
Uttar Pradesh	164.11	46413	16340	30073	121.39	54673	29615	25059
Gujarat	63.20	58740	15181	43559	72.31	82650	35529	47121
Total	101.58	109250	23062	86188	71.01	127835	36315	91520

3.6. Value of Farm Assets Holding

The farm assets indicate the economic condition of farmers. It also indicates the extent to which they are equipped to carry on farming activities such as land preparation, sowing, plant protection and harvesting, etc. In view of this, the value of data on the farm equipment owned by beneficiaries and non-beneficiaries was collected. The assets were classified into: land development, tillage, seed bed preparation and sowing equipments; plant protection equipments; harvesting and threshing equipments, water lifting implements and others. The **Table 3.19** presents the value of these assets owned by beneficiary and non-beneficiaries households. The average value of farm assets owned by beneficiary households (Rs.9.22 Lakh) was 2.37 times more than the non-beneficiary households (Rs.3.88 Lakh). The value of farm assets of beneficiary farmers of West Bengal was higher by 4.4 times in comparison to non-beneficiary farmers. However, in Himachal Pradesh and Madhya Pradesh, the value of farm assets owned by non-beneficiary households was 1.1 times higher as compared to beneficiaries. Normally, small and marginal farmers can neither afford nor need costly equipments like tractors, mini tractors and power tillers. Contrary to this, in West Bengal there were cases of small and marginal farmers who owned expensive equipments. These expensive equipments were valued at Rs.17.80 Lakh per household. In addition to that, they also owned water lifting equipments worth Rs.17.75 Lakh per beneficiary household. Consequently, the average value of assets owned by the value of farm assets held by beneficiary households of West Bengal was not only much higher than any other States but also around 5.7 times more than the average value of farm assets owned by all the selected States.

By and large, around 40 per cent of the total value of farm assets owned by beneficiary households and 44 per cent owned by non-beneficiaries were related to land development, tillage and sowing operation equipments. Water lifting equipments like electric /diesel pump sets and sprinklers constituted around 32 per cent of beneficiaries and 29 per cent of the non-beneficiaries households. Thereby, the average of nine States for these two categories of equipments accounted for around 76 per cent and 69 per cent of the total value of the farm assets of beneficiary and non-beneficiaries farmers respectively. The remaining 24 per cent and 31 per cent was plant protection equipments (mainly sprayer), harvesting and post harvesting equipments (Threshers, cutters and leveler blades) and miscellaneous equipments (flour mill, bullock cart and farm sheds). This proportion varied from State to State that can be observed in **Figure 3.13** for beneficiaries and **Figure 3.14** for non-beneficiary households.

These figures show that the per cent value of each group of equipments out of the total value of the assets did not vary much between beneficiaries and non-beneficiaries. But it varied widely among different States.

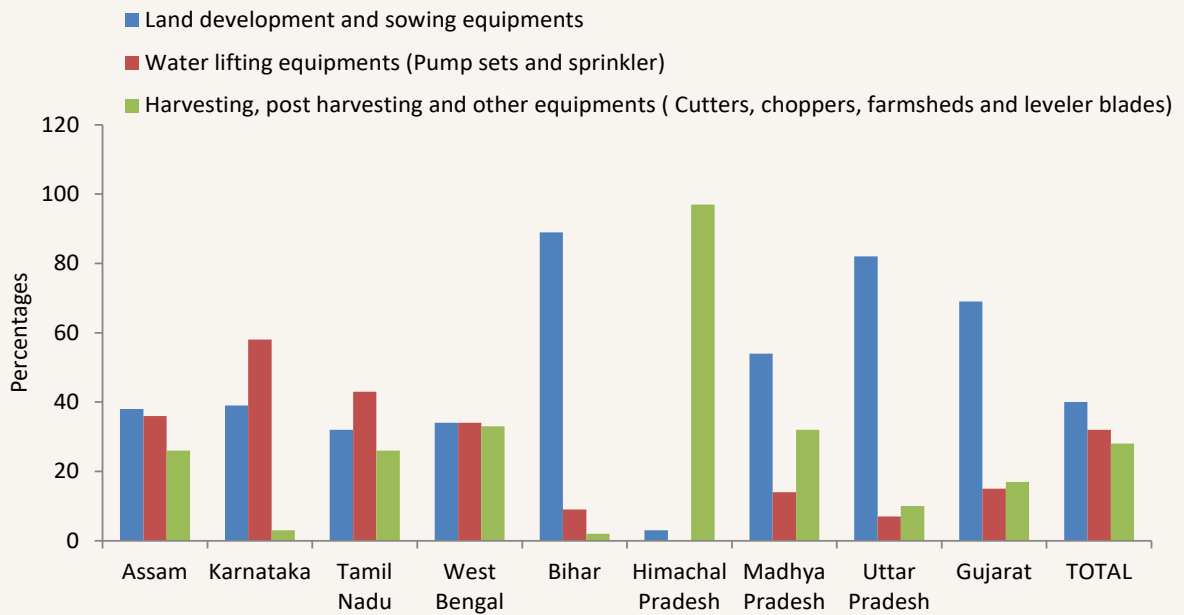


Figure 3.13: State-Wise Value of Equipments owned by beneficiary farmers (as a Percentage to Total Value of All Equipments)

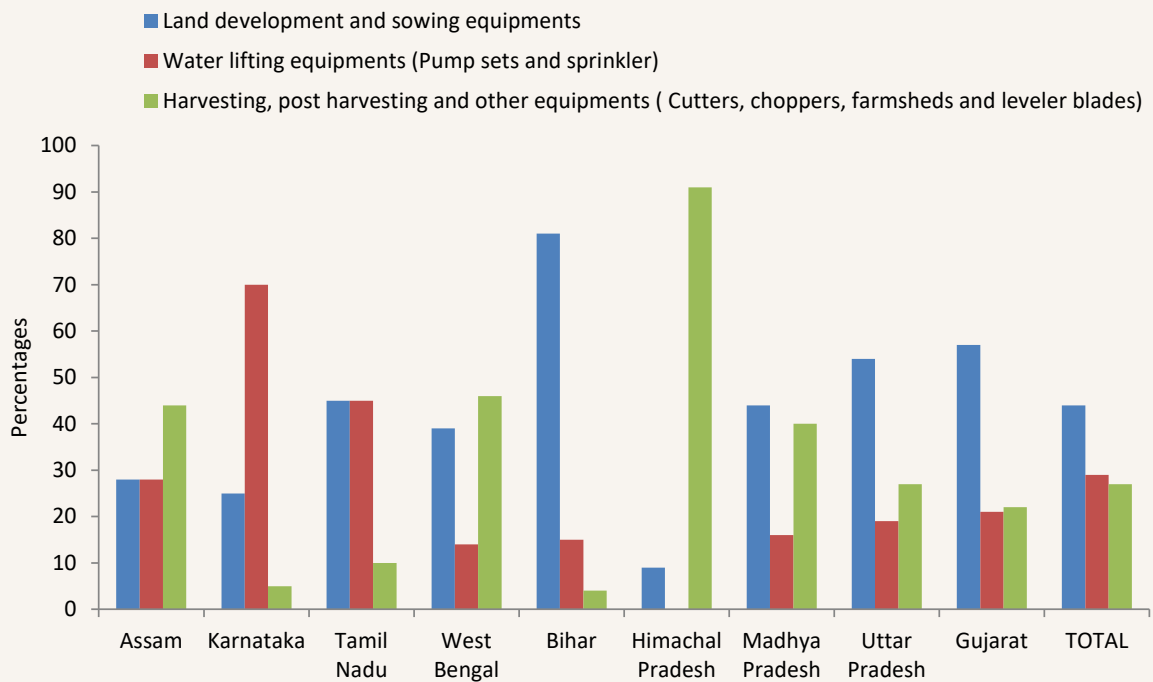


Figure 3.14: State-Wise Value of Equipments owned by non-beneficiary farmers (as a Percentage to Total Value of All Equipments)

Table 3.19: Value of Farm Assets Owned by Households

State	Land development equipments				Sprayer and other plant protection equipments	Harvesting equipments (Cutters, Threshers, Leveller blade)	Water lifting equipments		Other equipments (Rice / flour mill, farm shed, Bullock carts)	Total
	Tractor, mini tractor	Rotavator	Power tiller	Others (Ploughs, harrows and seed drills)			Diesel / Electric Pump sets	Sprinkler and other water lifting equipments		
NFSM										
Assam	1233	0	8937	505	632	0	10096	0	6479	27881
Karnataka	52800	36117	0	3666	3815	3345	5059	130195	0	234997
Tamil Nadu	342116	87242	0	0	35750	175000	305725	275000	138086	1358919
West Bengal	1169500	0	610000	0	183190	733100	1775683	0	799358	5270831
Bihar	324210	0	0	2740	2568	0	32810	0	3850	366178
Himachal Pradesh	1933	0	0	0	2331	2340	0	0	58146	64750
Madhya Pradesh	62583	2603	25966	8493	820	7233	15947	10507	50913	185065
Uttar Pradesh	288036	50425	0	0	1443	39878	30751	0	250	410783
Gujarat	191410	8427	0	60413	4469	13400	35696	19585	44812	378212
Total	270425	20535	71656	8424	26113	108255	245752	48365	122433	921957
N-NFSM										
Assam	0	0	2630	821	445	0	3430	0	4934	12259
Karnataka	28250	9922	0	3879	5290	2356	3879	112966	0	166542
Tamil Nadu	380000	220333	0	0	28607	0	191260	400000	101201	1321401
West Bengal	470000	0	0	0	58145	258250	172674	0	231790	1190859
Bihar	155020	0	0	2340	4230	0	28950	0	2872	193412
Himachal Pradesh	6400	0	0	0	3410	1350	0	0	63245	74405
Madhya Pradesh	56500	2250	22750	9170	1422	9730	18270	15530	71290	206912
Uttar Pradesh	24000	57500	0	0	0	40000	28897	0	231	150628
Gujarat	82300	0	0	20750	1476	6100	27000	10420	32010	180056
Total	133608	32223	2820	4107	11447	35310	52707	59880	56397	388497

3.7. Sources and Purpose of Credit

Agriculture credit plays a significant role in mitigating the distress of farmers especially small and marginal. Availability and access to adequate, timely and low-cost credit would go a long way to develop agriculture in the country. Experience has shown that easy access to financial services at affordable cost positively affects the productivity leading to increased income of farmers that, in turn, would help asset formation. Based on the data collected from sample farmers the credit availed by the farmers from different sources is presented in **Table 3.20**.

The farmers had availed loans mainly from Commercial Banks, Private Banks and Primary Agricultural Cooperative Credit Societies (PACCS) among the institutional sources. The commercial banks had extended loans in all the States to around 29 per cent of the beneficiaries and 23 per cent non-beneficiaries. The per household outstanding loan of non-beneficiaries (Rs.84.40 thousand) was more than the beneficiaries (Rs.58.08 thousand). Except approximately 3.33 per cent of beneficiaries of Karnataka who had taken loans from private banks, there were no private bank loans. Excluding Assam and Himachal Pradesh, all farmers had availed loan from PACCS. The per household outstanding loan of beneficiaries in PACCS was Rs.60724 and that of the non-beneficiaries was Rs. 29814. The farmers approaching private money lenders were recorded in Tamil Nadu, West Bengal and Gujarat States, while financial help from friends and relatives was seen mainly in Karnataka. The all India per cent share of loan from different sources has been illustrated in **Figure 3.15** and **Figure 3.16**.

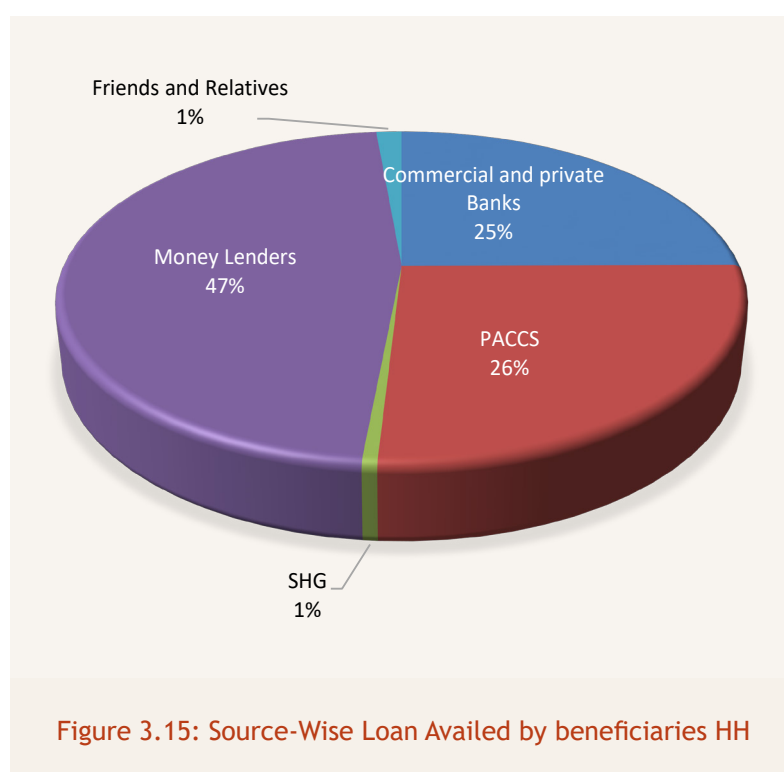


Figure 3.15: Source-Wise Loan Availed by beneficiaries HH

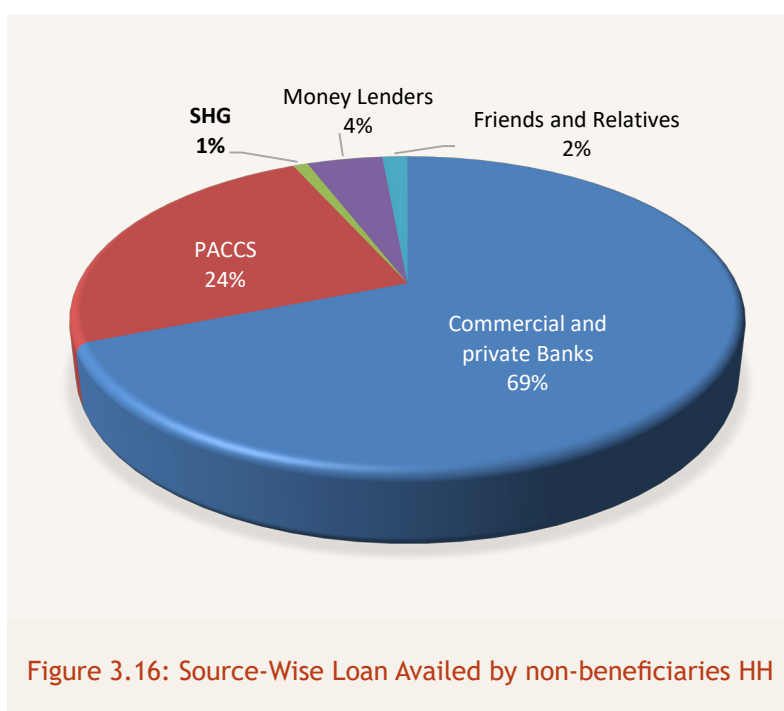


Figure 3.16: Source-Wise Loan Availed by non-beneficiaries HH

Table 3.20: Source-Wise Details of Credit Availed by Sample HHs

State	INSTITUTIONAL SOURCES				NON-INSTITUTIONAL SOURCES						TOTAL	
	Commercial and private banks		PACS and other Govt. Agencies		Money Lenders		Friends and relatives		SHGS		per cent of HH availing credit to sample	Outstanding amount per HH in Rs.
	per cent of HH availing credit to sample	Outstanding amount per HH in Rs.	per cent of HH availing credit to sample	Outstanding amount per HH in Rs.	per cent of HH availing credit to sample	Outstanding amount per HH in Rs.	per cent of HH availing credit to sample	Outstanding amount per HH in Rs.	per cent of HH availing credit to sample	Outstanding amount per HH in Rs.		
	NFSM											
Assam	16.33	36208	0.00	0	0.00	0	0.33	5000	0.00	0	0.00	41208
Karnataka	47.66	54223	60.67	52817	0.00	0	17.66	25023	1.67	1033	127.66	133096
Tamil Nadu	20.00	150080	78.79	109544	1.21	62385	0.00	0	0.00	0	100.00	322008
West Bengal	24.70	28865	14.70	28911	0.70	25000	0.00	0	1.00	11767	41.10	94543
Bihar	55.07	105620	42.03	76850	4.00	3	0.00	0	0.00	0	101.10	182473
HP	5.67	10917	0.00	0	0.00	0	0.00	0	0.00	0	5.67	10917
MP	58.00	40753	22.00	2843	0.00	0	0.00	0	0.00	0	80.00	43596
Uttar Pradesh	9.67	36000	10.67	144313	0.00	0	0.00	0	0.00	0	20.34	180313
Gujarat	26.47	60074	15.67	131238	100.00	900000	0.00	0	0.00	0	142.14	1091312
Total	29.29	58082	27.17	60724	11.77	109710	2.00	3336	0.30	1422	70.52	233274
	N-NFSM											
Assam	9.00	13889	0.00	0	0.00	0	0.00	0	0.00	0	9.00	13889
Karnataka	35.00	29250	37.00	29830	0.00	0	14.00	16100	4.00	1500	90.00	76680
Tamil Nadu	17.14	142500	82.86	67083	0.00	0	0.00	0	0.00	0	100.00	209583
West Bengal	19.00	39565	6.00	5300	1.00	0	0.00	0	1.00	8000	27.00	52865
Bihar	41.67	98625	53.33	65750	3.00	48345	0.00	0	0.00	0	98.00	212720
HP	5.00	6500	0.00	0	0.00	0	0.00	0	0.00	0	5.00	6500
MP	42.00	53710	20.00	5360	0.00	0	0.00	0	0.00	0	62.00	59070
Uttar Pradesh	11.00	30000	0.00	0	0.00	0	0.00	0	0.00	0	11.00	30000
Gujarat	28.13	345556	17.65	95000	0.00	0	0.00	0	0.00	0	45.78	440556
Total	23.10	84399	24.09	29814	0.44	5372	1.56	1789	0.56	1056	49.75	122429

The basis for obtaining loans by the sample farmers were mainly on agriculture, animal husbandry and tractors. The farmers had also taken loans for non-farming purposes like housing, social functions and for consumption. While agriculture loans were reported in all the States, the loan for animal husbandry was reported only in Karnataka and Tamil Nadu States. There are cases of both beneficiary and non-beneficiary farmers who had used credit facility for purchase of tractor in Bihar and Gujarat States. The purpose-wise details of loan taken by the farmers are presented in **Table 3.21**.

Table 3.21: Purpose-Wise Details of Loans

(Rs. Per HH)

States	Agriculture	Animal husbandry	Tractor	Others (Housing, social function, consumption etc.)	Total
NFSM					
Assam	31129	0	0	142500	173629
Karnataka	101773	133	0	31190	133096
Tamil Nadu	122392	24400	0	137678	284471
West Bengal	20704	0	0	159000	179704
Bihar	120350	0	321540	0	441890
Himachal Pradesh	11333	0	0	0	11333
Madhya Pradesh	43596	0	0	0	43596
Uttar Pradesh	134178	0	0	0	134178
Gujarat	171805	0	449111	0	620916
Total	84140	2726	85628	52263	224757
N-NFSM					
Assam	13889	0	0	0	13889
Karnataka	62190	850	0	13640	76680
Tamil Nadu	133263	21231	0	78333	232827
West Bengal	30593	0	0	0	30593
Bihar	105650	0	355210	0	460860
Himachal Pradesh	7000	0	0	0	7000
Madhya Pradesh	59070	0	0	0	59070
Uttar Pradesh	82727	0	0	0	82727
Gujarat	142188	0	450000	0	592188
Total	70730	2453	89468	10219	172870

If **Table 3.20** and **Table 3.21** are compared, it may be noticed that in Assam, West Bengal, Gujrat, TN, and Bihar the purpose-wise sum of credit exceeds the total amount of credit. This is attributable to the fact that while the credit amount indicated by the farmers of these States is outstanding amount at the time of survey, the amount mentioned under purpose is the actual loan taken. It can be worked out from

Table 3.21 that the beneficiaries had used around 38 per cent of the credit for agriculture, 38 per cent for Tractor, 23 per cent for other purposes and only 1 per cent for animal husbandry. Considering that Tractor is also a part of agricultural purpose, around 76 per cent was used by beneficiaries for agriculture. In case of non-beneficiaries, the utilization of credit for agriculture worked out to 93 per cent (41 per cent agriculture + 51 per cent for tractor). Thus, the non-beneficiaries used only 6 per cent of the total credit for non-farming purpose as against 24 per cent by the beneficiary households. The use of loan for non-farming purposes was up to 88 per cent by beneficiary farmers of West Bengal. The **Figure 3.17** and **Figure 3.18** illustrate the extent of credit for productive and non-productive purposes in different States. Productive purposes indicate the use of credit for farming and other income generating activities whereas non-productive is where the loan is utilized for meeting the consumption needs.

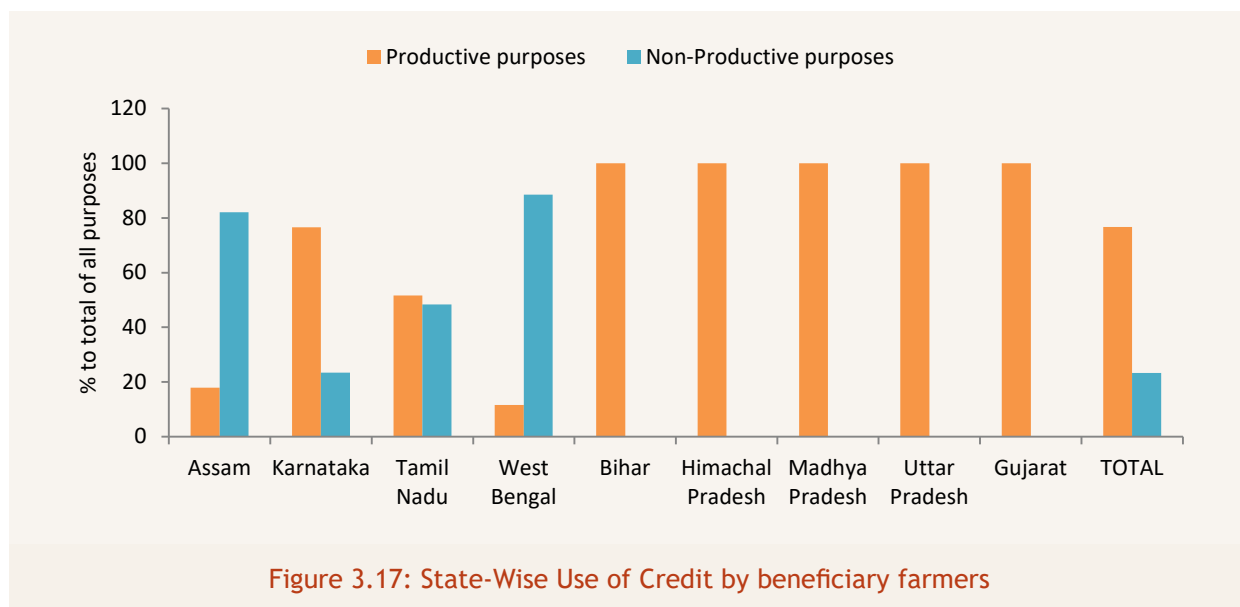


Figure 3.17: State-Wise Use of Credit by beneficiary farmers

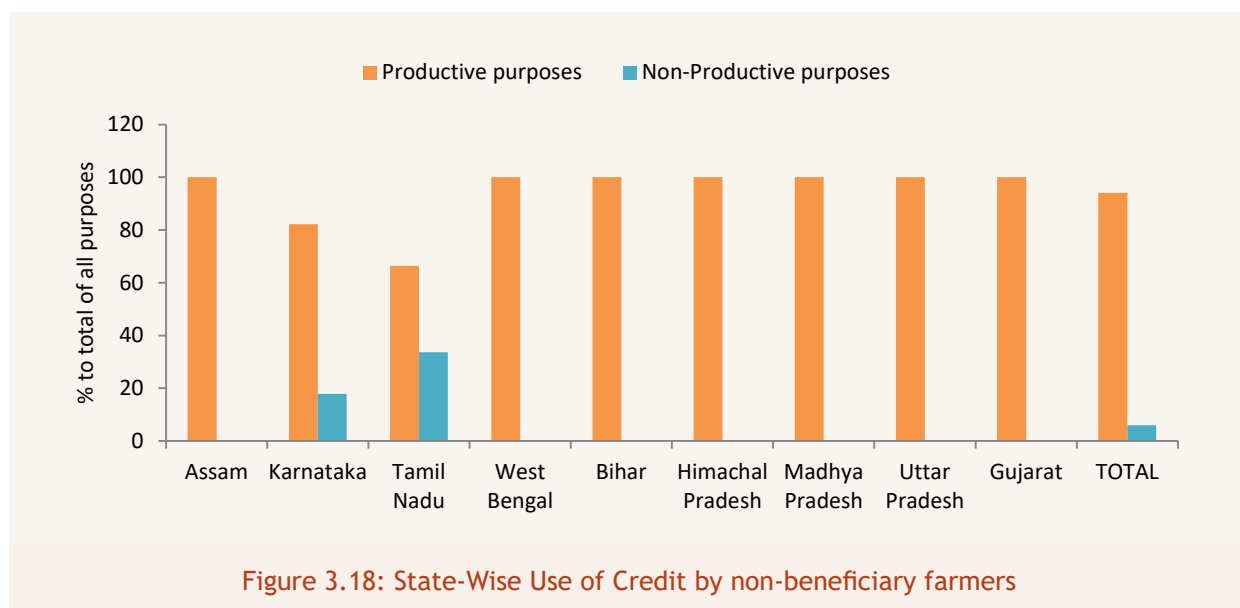


Figure 3.18: State-Wise Use of Credit by non-beneficiary farmers

It may be seen from **Figure 3.17** and **Figure 3.18** that it is only a few beneficiaries and non-beneficiaries had used credit for non-productive purposes. It may be further observed that the use of credit for non-productive purposes is higher among NFSM beneficiaries than non-beneficiary farmers.



Impact of NFSM on Input Use, Yield and Income of Sample Farmers

CHAPTER

04

CHAPTER 4

Impact of NFSM on Input Use, Yield and Income of Sample Farmers

This chapter analyses the impact of NFSM-Paddy and Wheat interventions on input use, productivity, income and welfare of farmers.

4.1. Awareness of NFSM

In addition to NFSM programme, there were other Central and state sponsored schemes like NHM, ISOPOM, MMA etc. that were being implemented during 11th FYP in the country. Most of these schemes also had an in-built element of subsidy. Many farmers who were availing subsidy from the government were unaware of the schemes under which these benefits were provided. Therefore, it is indeed important to know about farmers' awareness of the NFSM programme and its benefits (**Table 4.1**).

Table 4.1: Awareness of NFSM among the Sample Beneficiaries

(Per cent to total sample)

States	Beneficiaries aware about the NFSM who did not reply	Beneficiaries not aware about the NFSM	Beneficiaries	Total
Assam	100	0	0	100
Karnataka	37	63	0	100
Tamil Nadu	71.3	27.7	1	100
West Bengal	100	0	0	100
Bihar	58.33	25.67	16	100
Himachal Pradesh	100	0	0	100
Madhya Pradesh	100	0	0	100
Uttar Pradesh	100	0	0	100
Gujarat	95.67	4.33	0	100
All India	84.70	13.41	1.89	100

It can be seen from the **Table 4.1** that 84.70 per cent of the beneficiary households selected from nine States were aware of NFSM programme. In Assam, West Bengal, Himachal Pradesh, Madhya Pradesh and Uttar Pradesh all the beneficiaries were aware of NFSM programme and the awareness was 100 per cent. In the remaining four States, the percentage of farmers who were unaware of the programme was very high. The reasons that could be attributed are: (i) farmers were mostly aware about the benefits given by the Agricultural Department and were not concerned to know about the programme under which they received these benefits; (ii) officials of Agricultural Department and also the farmers opined that State agricultural developmental programmes were given relatively more publicity than the national programmes; (iii) low level of literacy of the sample beneficiary households; and (iv) lack of effective communication between the Agricultural Department/ Raitha Samparka Kendra (RSKs)/Krishi Vignana Kendra (KVKs).

In all nine States, the main sources of awareness of NFSM among the beneficiary households were the Agriculture Department as seen in **Table 4.2**. The table explicitly shows that the Agricultural Department

(84 per cent) played a crucial role in dissemination of information on the NFSM programme, followed by Farmers/Friends (32 per cent), TV/ Radio (20 per cent) and News Paper (19 per cent) at the all India level.

Table 4.2: Sources of Awareness of NFSM Beneficiaries

(per cent to the Total Aware Beneficiaries)

Particulars	Assam	Karnataka	TN	WB	Bihar	HP	MP	UP	Gujarat	All India
Newspaper	0.0	23.1	61.3	0.0	5.5	0.0	82.0	0.0	3.0	19.4
Agriculture Dept.	100	53.0	99.7	44.3	68.5	100	99.7	100	89.	83.8
S A U*	0.0	1.7	59.3	0.7	0.0	0.0	6.7	-	0.3	7.6
K V K**	0.0	1.7	38.7	0.0	1.8	0.0	10.7	-	-	5.9
R S K	0.0	28.2	4.7	0.0	0.0	0.0	0.0	-	-	3.7
Farmers/ Friends	23.3	0.9	28.3	37.3	4.4	0.0	93.3	99.7	1.0	32.0
Input Suppliers	0.0	0.0	16.3	0.0	0.0	0.0	11.3	0.3	-	3.1
TV/Radio	0.0	26.5	61.3	0.3	0.0	0.0	94.0	-	-	20.2
Agri. Exhibitions	0.0	0.9	1.7	0.0	5.1	0.0	3.7	-	-	1.3
ZP/TP/GP	0.0	0.0	32.0	32.4	3.7	0.0	0.0	-	7.3	8.4
Others	0.0	0.0	0.0	15.3	2.9	0.0	0.0	-	7.7	2.9
Total	123.3	135.9	403.3	130.3	91.8	100	401.4	200	108.3	188.3

Note: * State Agricultural Universities; **Krishi Vignana Kendra; *** Raitha Samparka Kendra

4.2. Costs and Subsidy Particulars of Availed NFSM Benefits

It was noticed from the survey of nine States that households of almost all the States had availed benefits for more than one component of NFSM programme. As a result, there was 4994 number of interventions /activities that were taken-up in the nine Districts although the sample beneficiaries were only 2700 for nine States. Keeping this in mind, the analysis was done as a per cent to total number of beneficiaries. The NFSM extended subsidy facility for 19 components to farmers in all the States where NFSM was implemented in the country. **Table 4.3** reports the Costs and subsidy particulars of benefits availed by sample farmers under these 19 components of NFSM programme.

It may be seen from **Table 4.3** that seed /mini kits of high yielding varieties and hybrid rice component was availed by the most number of beneficiaries (40 per cent) at all India level. This component was availed by beneficiaries of all the study States except Uttar Pradesh and Gujarat. In West Bengal and Himachal Pradesh, this component was availed by all the sample households without exception. The subsidy for plant protection chemicals was another important component which was availed by around 28 per cent of the sample spread over 6 States.

While the average total cost of the benefit was Rs.5156 per HH, it ranged from few hundred Rupees as in the case of integrated pest management, integrated nutrient management, seeds, plant protection chemicals, etc. to a few thousands in case of many farm mechanisation equipments like power weeder, Rotavators, seed drills and pump sets. The **Figure 4.1** clearly shows that the average per HH cost of each benefit offered to sample households.

Table 4.3: Costs and Subsidy Particulars of Benefits Availed by Sample Households

Type of benefit	ASSAM			KARNATAKA			TAMIL NADU			WEST BENGAL		
	per cent HH availing benefit	Total cost of intervention (Rs./HH)	per cent of subsidy to total cost	per cent HH availing benefit	Total cost of intervention (Rs./HH)	per cent of subsidy to total cost	per cent HH availing benefit	Total cost of intervention (Rs./HH)	per cent of subsidy to total cost	per cent HH availing benefit	Total cost of intervention (Rs./HH)	per cent of subsidy to total cost
Production of seeds-Certified seed	50.00	401	18.87	31.34	3898	32.96	0.00	0	0.00	0.00	0	0.00
Seed / mini kits of	50.00	900	50.00	0.58	5075	50.00	33.33	3983	100.00	100.00	453	92.12
Incentive for micro nutrients	100.00	382	50.00	17.78	4400	49.33	11.00	719	96.00	0.00	0	0.00
Incentive for lime in acid soils	100.00	545	50.00	13.99	747	51.67	0.00	0	0.00	0.00	0	0.00
Machineries/Tools	0.00	0	0.00	1.6	63338	43.60	0.00	0	0.00	0.00	0	0.00
Cono weeder	5.33	700	50.00	1.46	4500	41.56	7.00	3000	100.00	0.00	0	0.00
Zero till seed drills	0.00	0	0.00	0.15	52500	47.62	0.00	0	0.00	0.00	0	0.00
Multi-crop planters	0.00	0	0.00	0	0	0.00	0.00	0	0.00	0.00	0	0.00
Seed drills	0.00	0	0.00	0.87	62917	29.87	0.00	0	0.00	0.00	0	0.00
Rotavators	0.00	0	0.00	0	0	0.00	1.43	97680	31.00	0.00	0	0.00
Pump sets	34.33	19541	51.73	0.44	23167	51.80	2.67	22920	44.00	0.00	0	0.00
Power weeder	0.00	0	0.00	1.9	27500	49.44	1.67	27321	51.00	0.00	0	0.00
Knap Sack Sprayers	29.00	1180	50.00	14.72	7669	53.40	16.00	2211	51.00	0.00	0	0.00
Sprinkler	0.00	23649	0.00	0.29	10000	55.00	0.00	0	0.00	0.00	0	0.00
Plant protection chemicals	0.00	0	0.00	12.68	4056	42.21	15.33	485	100.00	80.67	625	86.10
Integrated Nutrient Management	0.00	0	0.00	0.73	1560	58.97	10.00	475	100.00	63.33	773	60.81
Integrated Pest Management	0.00	0	0.00	0.15	150	100.00	9.67	500	100.00	13.00	1001	24.67
Training	100.00	0	100.00	0.15	1200	100.00	9.00	390	100.00	0.00	0	0.00
Others	0.00	0	0.00	1.17	15119	59.12	0.00	0	0.00	37.33	1873	18.26
Total	468.66	2351	50.62	100.00	6331	44.03	351.30	3236	39.81	883.00	2276	57.50

Note: Per cent of beneficiaries may exceed 100 as some beneficiaries had availed benefit from more than one component

Contd...

Table 4.3 contd....: Costs and Subsidy Particulars of Benefits Availed by Sample Households

Type of benefit	BIHAR			HIMACHAL PRADESH			MADHYA PRADESH			UTTAR PRADESH		
	per cent HH availing benefit	Total cost of intervention (Rs./HH)	per cent of subsidy to total cost	per cent HH availing benefit	Total cost of intervention (Rs./HH)	per cent of subsidy to total cost	per cent HH availing benefit	Total cost of intervention (Rs./HH)	per cent of subsidy to total cost	per cent HH availing benefit	Total cost of intervention (Rs./HH)	per cent of subsidy to total cost
Production of seeds-Certified seed	0.00	0	0.00	0.00	0	0.00	2.00	3219	100.00	0.00	0	0.00
Seed / mini kits	52.67	3000	0.00	100.00	1194	64.68	24.33	3084	100.00	0.00	0	0.00
Incentive formicro-nutrients	4.33	500	50.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00
Incentive for lime in acid soils	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00
Machineries/Tools	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00
Cono weeder	34.67	3000	50.00	0.00	0	0.00	0.33	1500	40.00	0.00	0	0.00
Zero till seed drills	0.00	15000	50.00	0.00	0	0.00	0.00	0	0.00	0.33	68000	50.00
Multi-crop planters	0.00	15000	50.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00
Seed drills	0.00	15000	50.00	0.00	0	0.00	11.00	45530	32.70	0.00	0	0.00
Rotavators	0.00	30000	50.00	0.00	0	0.00	4.00	84500	39.00	0.33	27000	33.33
Pump sets	1.67	10000	50.00	0.00	0	0.00	18.00	21599	47.50	2.00	14383	31.14
Power weeder	0.00	15000	50.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00
Knap Sack Sprayers	24.33	3000	50.00	0.00	0	0.00	31.00	762	87.50	0.00	0	0.00
Sprinkler	0.00	0	50.00	0.00	0	0.00	24.67	21809	55.10	0.00	0	0.00
Plant protection chemicals	17.33	500	50.00	0.00	0	0.00	26.33	465	100.00	100.00	683	100.00
Integrated Nutrient Management	18.33	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00
Integrated Pest Management	16.00	0	0.00	0.00	0	0.00	26.33	387	100.00	0.00	0	0.00
Training	0.00	0	0.00	0.00	0	0.00	0.00	0	0.00	40.67	0	100.00
Others	0.00	0	0.00	0.00	0	0.00	13.33	20648	69.90	0.00	0	0.00
Total	169.33	2141	50.00	300.00	1194	64.68	544.00	11961	70.15	300.0	1288	71.41

Note: Per cent of beneficiaries may exceed 100 as some beneficiaries had availed benefit from more than one component

Contd...

Table 4.3 contd...: Costs and Subsidy Particulars of Benefits Availed by Sample Households

Type of benefit	GUJARAT			TOTAL		
	per cent HH availing benefit	Total cost of intervention (Rs./HH)	per cent of subsidy to total cost	per cent HH availing benefit	Total cost of intervention (Rs./HH)	per cent of subsidy to total cost
Production of seeds-Certified seed	0.00	0	0.00	9.26	835	16.87
Seed / mini kits of	0.00	0	0.00	40.10	1965	52.98
Incentive for micro nutrients	33.67	1210	50.01	18.53	801	32.82
Incentive for lime in acid soils	5.33	3370	57.59	13.26	518	17.70
Machineries/Tools	0.67	53750	37.21	0.25	13010	8.98
Cono weeder	0.00	0	0.00	5.42	1411	31.28
Zero till seed drills	0.00	0	0.00	0.05	15056	16.40
Multi-crop planters	0.00	0	0.00	0.00	1667	5.56
Seed drills	2.00	36333	41.28	1.54	17753	17.09
Rotavators	10.67	78875	38.03	1.83	35339	21.26
Pump sets	5.00	26513	37.72	7.12	15347	34.88
Power weeder	0.67	350000	42.86	0.47	46647	21.48
Knap Sack Sprayers	4.33	4085	46.23	13.26	2101	37.57
Sprinkler	0.00	0	0.00	2.77	6162	17.79
Plant protection chemicals	0.00	0	0.00	28.04	757	53.15
Integrated Nutrient Management	0.00	0	0.00	10.27	312	24.42
Integrated Pest Management	0.00	0	0.00	7.24	226	36.07
Training	0.00	0	0.00	16.65	177	44.44
Others	43.00	5913	71.67	10.54	4839	24.33
Total	316.00	15630	46.96	381.37	5156	55.02

Note: Per cent of beneficiaries may exceed 100 as some beneficiaries had availed benefit from more than one component

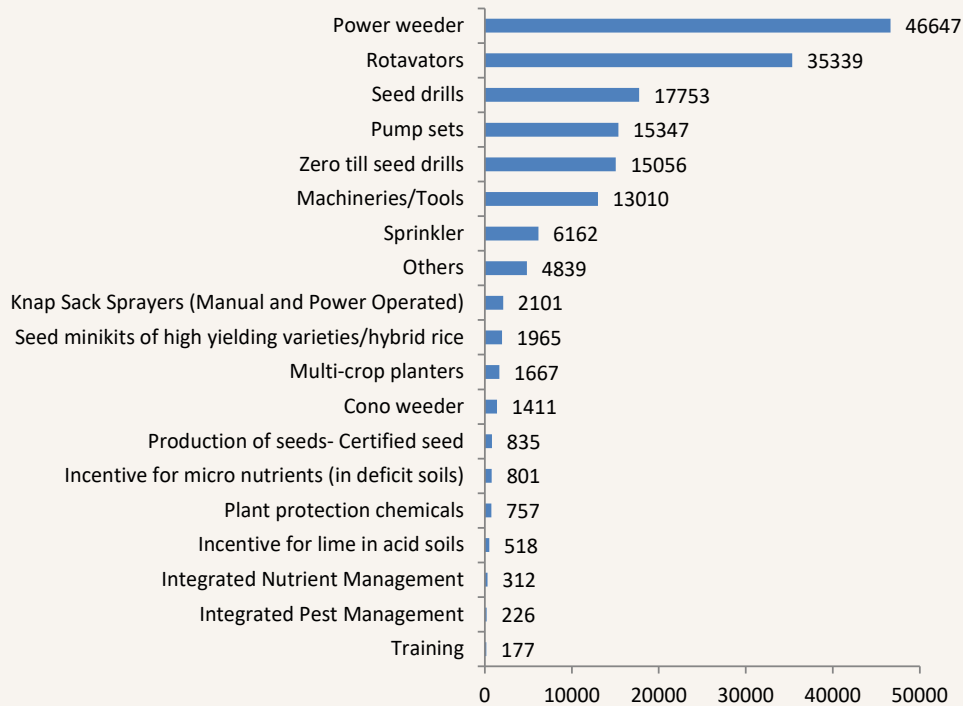


Figure 4.1: Per Household Total Cost of Benefits (Consolidation of Nine States)

The seeds and plant protection chemicals were offered at a subsidy of around 53 per cent of the total cost. The subsidy for farm machinery equipments like power weeder, Rotavators and seed drill was subsidized to the extent of around 20 to 30 per cent. The **Figure 4.2** shows the per cent of subsidy for all the components.

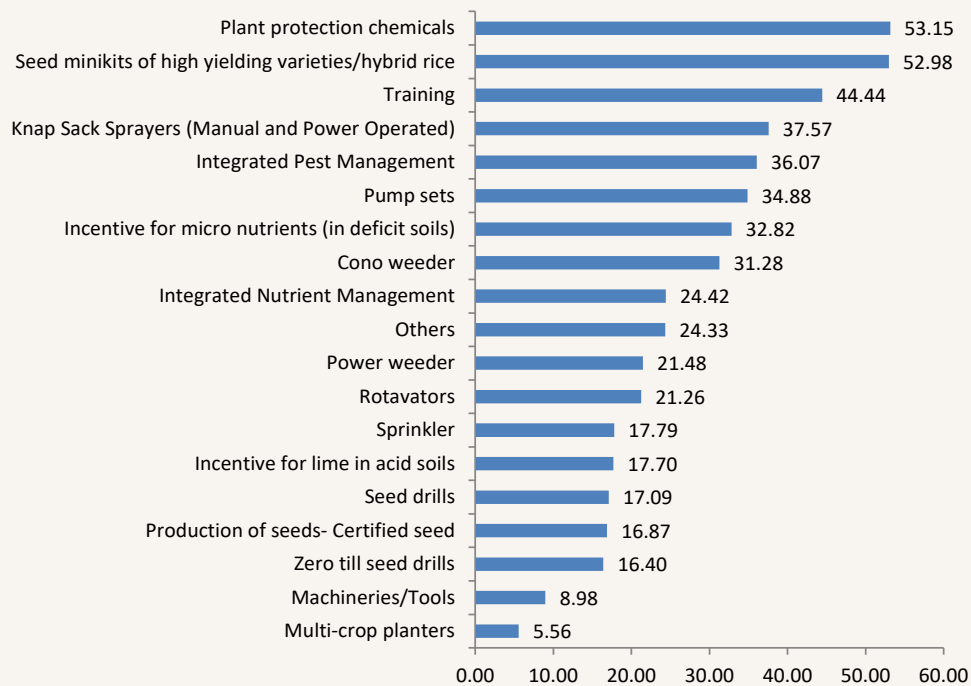


Figure 4.2: Component-wise subsidy provided

4.3. Annual Usage of Farm Equipments and their Benefits

Among farm equipments, pump set was the most supplied equipment as it was supplied in 7 States out of the total nine States under study. Rotavator and seed drill were the other two important farm equipments supplied in 5 sample States. The other farm equipments like multi crop thresher, sprayer, cultivators, bush cutter etc. were provided very sparsely to the sample farmers belonging to one or two States. The beneficiaries of West Bengal and Himachal Pradesh had not received any farm equipments. However, **Table 4.4** presents annual usage, area covered and imputed value of own uses as well as the rental income derived from farm equipments.

Table 4.4: Annual usage and benefits of farm equipments availed under NFSM

States	Average no. of days used per annum	Area cultivate per HH in acres	Imputed value of own use (Rs.)	Rent earned (Rs.)	Average no. of days used per annum	Area cultivate per HH in acres	Imputed value of own use (Rs.)	Rent earned (Rs.)
	PUMP SETS / SPRINKLER				SPRAYERS / KNAP SACK SPRAYERS			
Assam	17.24	5.02	8002	631	3.94	2.48	1891.72	556.55
Karnataka	27.50	15.00	8250	0	15.12	14.09	3117.00	646.00
Tamil Nadu	17.46	6.84	4902	1364	14.00	6.68	6772.99	0.00
West Bengal					0.00	0.00	0.00	0.00
Bihar	46.50	11.08	6410	7570	18.55	23.75	250.00	0.00
Himachal Pradesh					0.00	0.00	0.00	0.00
Madhya Pradesh	44.00	12.00	6304	0	12.00	6.40	616.00	0.00
Uttar Pradesh	84.17	14.00	89300		0.00	0.00	0.00	0.00
Gujarat	56.25	4.98	7664	0	29.36	62.64	320.00	0.00
All India	41.87	9.85	18690	1594	10.33	12.89	1441	134
	CONO-WEEDER				ROTAVATOR			
Assam	4.45	0.91	569	0	0.00	0.00	0	0
Karnataka	7.66	4.56	3712	353				
Tamil Nadu					15.00	6.50	9300	
West Bengal								
Bihar					8.25	9.30	16355	28540
Himachal Pradesh								
Madhya Pradesh	8.00	3.50	500	0	14.00	23.10	6792	19750
Uttar Pradesh					30.00	29.87	12000	15000
Gujarat					25.15	44.98	20863	25170
All India	6.70	2.99	1594	118	15.40	18.96	10885	17692
	POWER WEEDER				SEED DRILL / ZERO TILLER			
Assam								
Karnataka	8.83	2.60	1000	2000	7.01	25.33	7014	24750
Tamil Nadu	14.22	11.57	12779					
West Bengal								
Bihar					16.15	12.50	4320	11350
Himachal Pradesh								
Madhya Pradesh					9.00	13.20	6955	10037
Uttar Pradesh					45.00	40.00	8000	60000
Gujarat					19.50	8.59	5125	9063
All India	11.53	7.09	6889	2000	19.33	19.92	6283	23040

Note: Usage is taken at the rate of 8 hours per day

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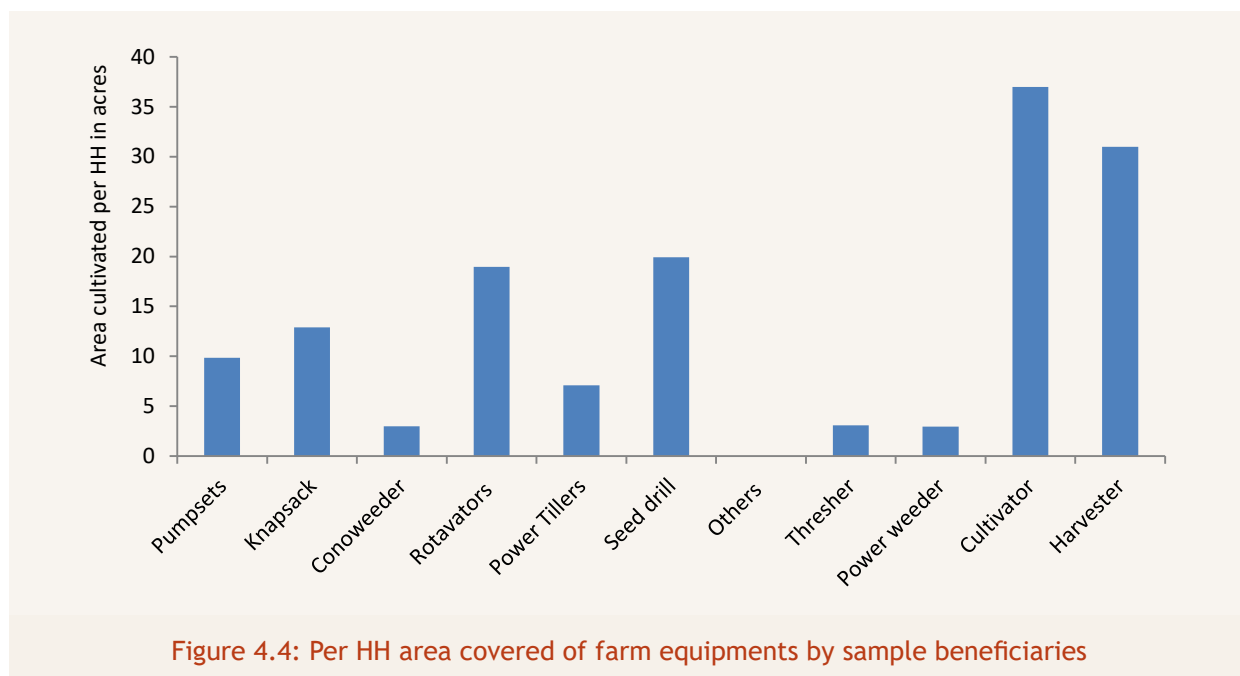
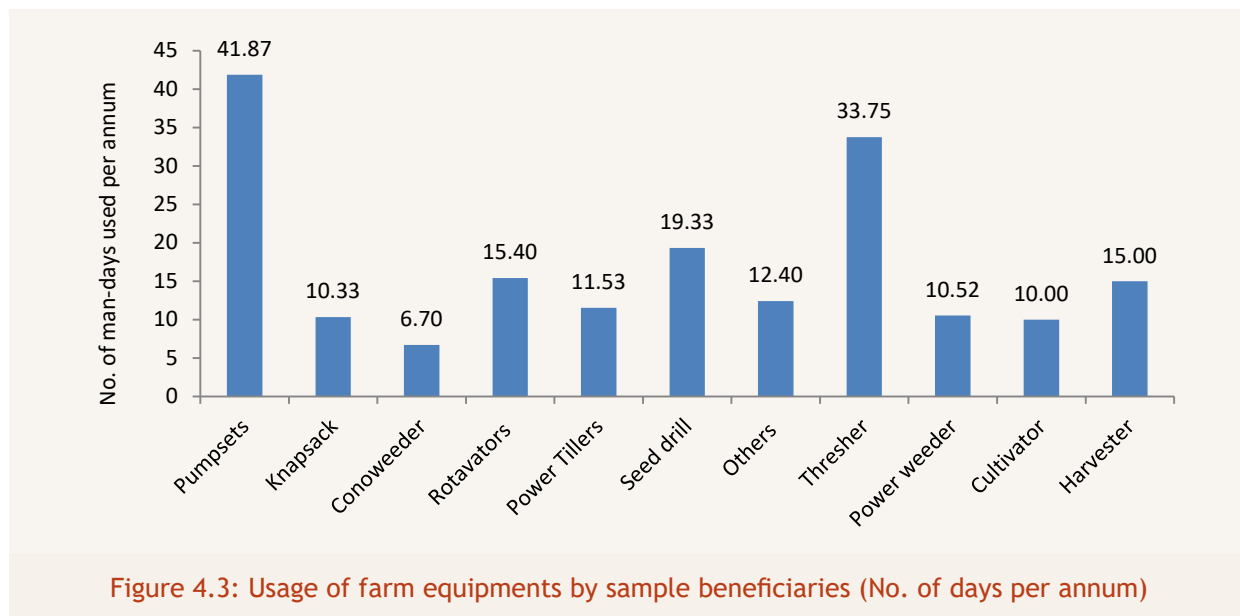
Table 4.4 contd...: Annual usage and benefits of farm equipments availed under NFSM

States	Average no. of days used per annum	Area cultivate per HH in acres	Imputed value of own use (Rs.)	Rent earned (Rs.)	Average no. of days used per annum	Area cultivate per HH in acres	Imputed value of own use (Rs.)	Rent earned (Rs.)
	MULTI CROP THRESHER				POWER WEEDER			
Assam								
Karnataka					10.52	2.95	2930	7259
Tamil Nadu								
West Bengal								
Bihar							11350	
Himachal Pradesh								
Madhya Pradesh								
Uttar Pradesh								
Gujarat	33.75	3.08	9000	11625				
All India	33.75	3.08	9000.00	11625	10.52	2.95	7140	7259
	CULTIVATORS				HARVESTER			
Assam								
Karnataka	10.00	37.00	10000	12500	15.00	31.00	15000	0
Tamil Nadu								
West Bengal								
Bihar								
Himachal Pradesh								
Madhya Pradesh								
Uttar Pradesh								
Gujarat								
All India	10.00	37.00	10000	12500	15.00	31.00	15000	0
	OTHERS							
Assam								
Karnataka	8.63	3.00	1575	0				
Tamil Nadu								
West Bengal								
Bihar	12.35	13.75	2540	4360				
Himachal Pradesh								
Madhya Pradesh	23.00	5.60	2734	0				
Uttar Pradesh								
Gujarat	5.63	13.85	4688	42500				
All India	12.40	9.05	2884	11715				

Note: Usage is taken at the rate of 8 hours per day

Table 4.4 indicates that most of the farm equipments provided under NFSM scheme were acquired for own use as well as rented out to neighboring farmers after meeting their requirement thus showing effective utilization of equipments provided under the NFSM scheme. By renting out, beneficiary households

earned additional income, while farmers renting equipment also indirectly benefitted from the NFSM scheme and thus improved their farm income. Water lifting devices like pump sets and sprinkler was utilized relatively more than other farm equipments. In Uttar Pradesh, it was used for around 84 man-days per annum as against the average of 44 man-days for all sample States put together. The area cultivated per acre was highest at 37 acres with the use of cultivator availed by beneficiaries only in Karnataka State. The **Figure 4.3** and **Figure 4.4** compares the man-days used and the area cultivated per HH of all the farm equipments that were provided under NFSM sample farmers.



The seed drill generated an annual income of Rs.23,000 from renting-out. The beneficiaries of Uttar Pradesh earned up to Rs.60,000 per annum by letting out seed drills. The results indicated that the beneficiaries were letting-out seed drills more than use in their own farm as revealed in **Figure 4.5** and **Figure 4.6** where the imputed value of use in their own field and earnings from renting out has been compared.

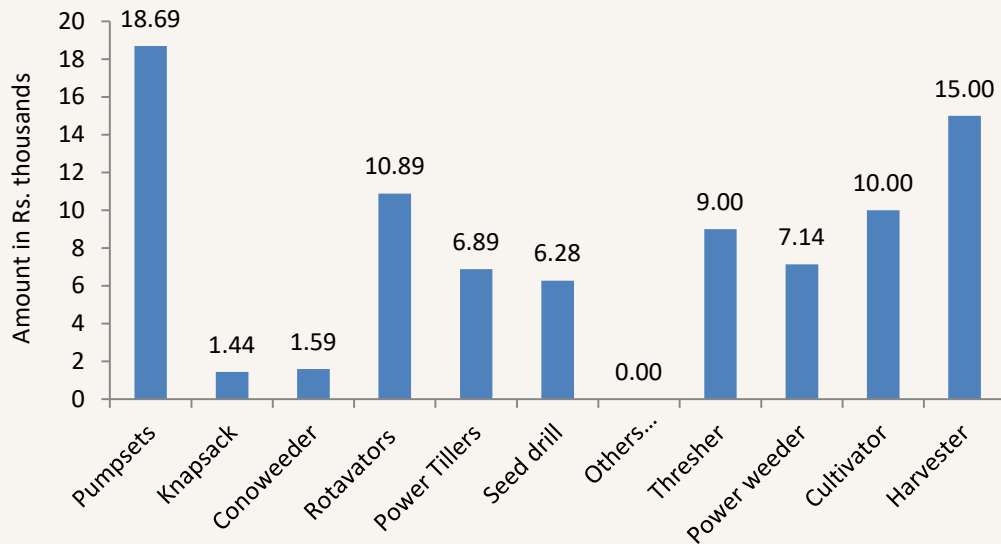


Figure 4.5: Imputed value of farm equipments used in their own field

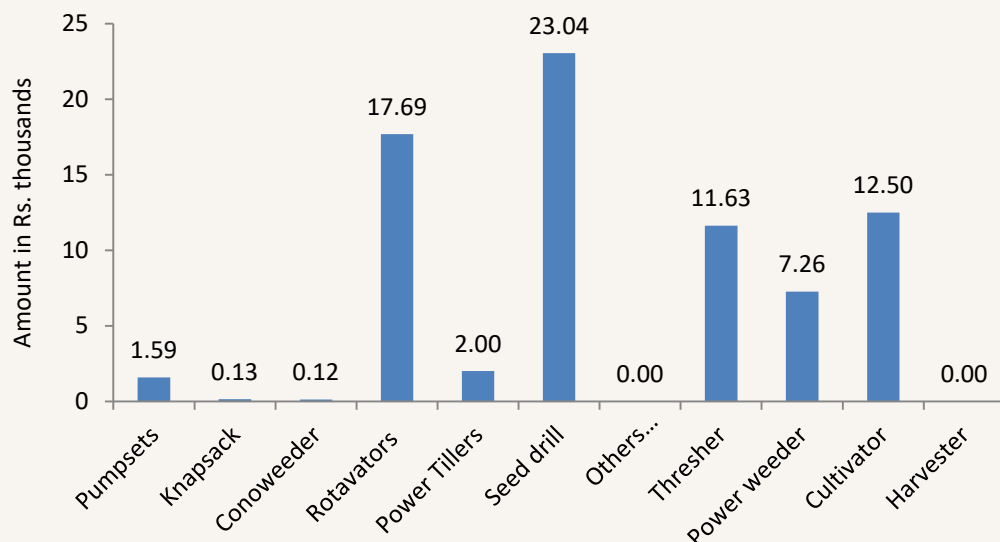


Figure 4.6: Imputed value of farm equipments rented out

4.4. Per acre Cost and Returns

The analysis of cost of cultivation is very important to understand the economic feasibility of crop cultivation. With this in view, Chapter 3 is an attempt made to work out cost and returns of all the crops that were cultivated by sample farmers. However, the cost of production analysed in that chapter was consolidated and was as pronounced by sample farmers. Some costs like electricity and transportation, irrigation was inclusive of other crops and farmers could not isolate those expenses for Paddy and Wheat crops. Thus, the table on cost and return presented in Chapter 3 was an approximation and devoid of a break-up of cost and return items. Therefore, in this section, it is endeavoured to meticulously measure the impact of NFSM on net earnings separately for Kharif Paddy, Rabi/ Summer Paddy and Wheat cultivating beneficiaries by comparing with non-beneficiaries.

In order to have more realistic and precise cost and returns of paddy and wheat crops, data was collected on almost every item of cost involved in production of these two crops. The following assumptions or adjustments were affected to fill the data gaps: (i) the farmers themselves had furnished the per man day wages paid for male and female hired labours. This wage rate was used to impute the cost of family labour; (ii) the revenue was a product of yield and sale price per unit quantity. The average price obtained from those who sold was imputed for those who had not sold; (iii) most of the sample farmers could not provide precise quantity of by-product as many farmers had not sold the by-product and some of them even burnt the straw to save labour costs. Therefore, value of by-product was imputed; (iv) the charges on hired machineries indicated by farmers, were used to impute charges on owned machineries; (v) Annual irrigation charges paid by the canal farmers, estimated annual electricity charges and actual annual repair/maintenance charges for bore well farmers was considered as irrigation charges while accounting for input costs. The data provided by farmers on irrigation charges was inclusive for other crops. Hence, irrigation charge was extracted for paddy and wheat from total charges. Number of hours needed to run a motor for pumping-out water to sufficiently irrigate the paddy, power / electricity consumed by motor, for that many hours and charge per unit of power was used to compute electricity charges.

4.4.1. Per Acre Cost and Returns of Kharif Paddy

The months of sowing and harvesting the Kharif paddy varies from State to State depending on several factors. The total cost of cultivation for Kharif Paddy worked out to Rs.14350 for beneficiaries and Rs.14977 for non-beneficiaries. After incurring this expenditure, from sowing to harvest, the beneficiaries had a gross income of Rs.27080 by producing 18.00 quintals of Kharif paddy. The gross income drawn by non-beneficiaries was Rs.25385 for a yield of 16.32 quintals thereby; per acre net income generated by beneficiaries and non-beneficiaries was Rs.12730 and Rs.10408 respectively. **Table 4.5** and **Table 4.6** provide further details pertaining to per acre cost of cultivation of Kharif Paddy of beneficiaries and non-beneficiaries.

The net income of non-beneficiaries of West Bengal was more than the beneficiaries of that State. In the remaining 4 States the beneficiaries had higher net income than the non-beneficiaries. The yield level and the net income derived by beneficiaries and non-beneficiaries of all the 5 States can be seen in **Figure 4.7**.

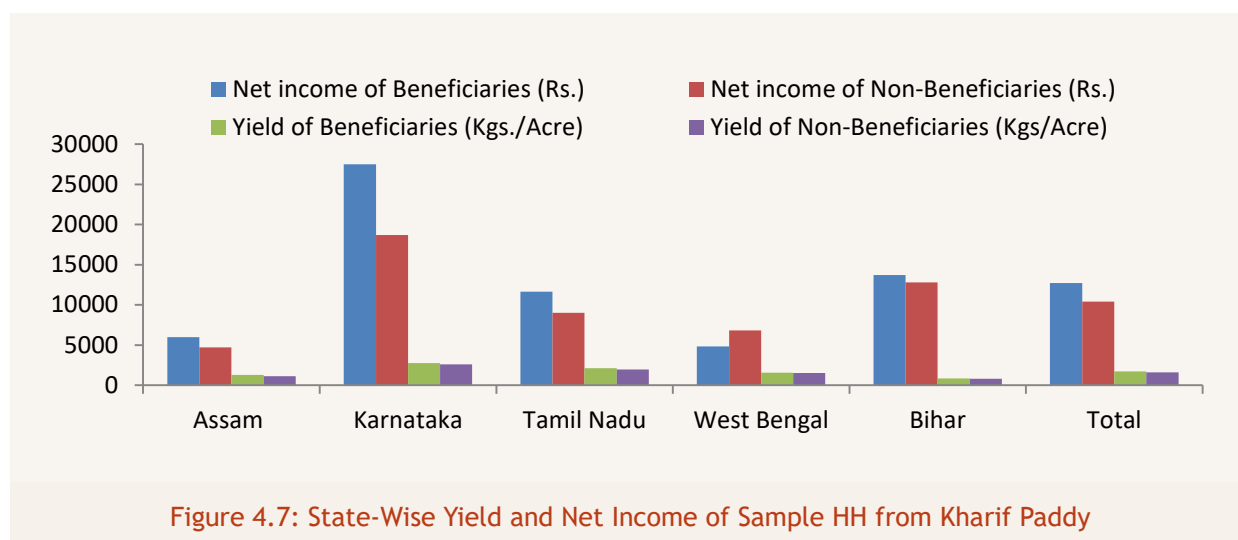


Figure 4.7: State-Wise Yield and Net Income of Sample HH from Kharif Paddy

Out of the total cost of production, around 41 per cent was towards labour, 20 per cent was for bullock and machineries, 27 per cent was cost of inputs like seeds, fertilizers, and farm yard manure. The remaining 12 per cent was post-harvest expenses. The trend remained more or less same for non-beneficiaries. Among different States the percentage of expenditure on labour, bullock & machineries, input and post-harvest cost out of total cost remained same for beneficiaries and non-beneficiaries. However, the per cent of expenditure on different items varied widely among the States which can be observed in **Figure 4.8**.

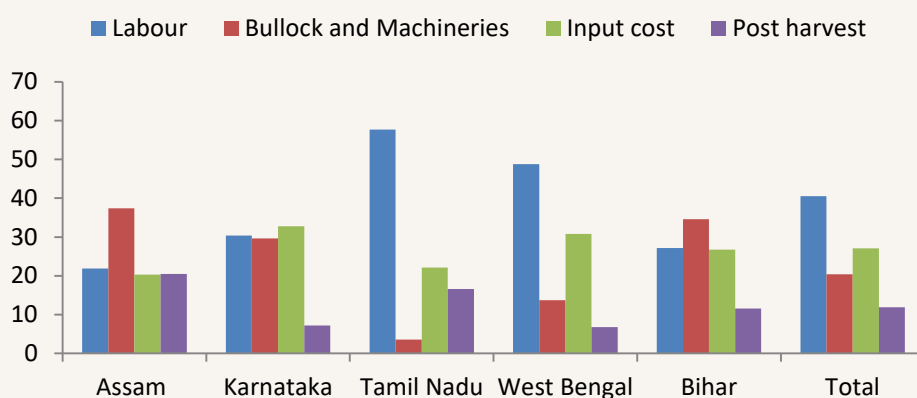
Table 4.5: Per acre cost of Cultivation incurred by beneficiaries for Kharif Paddy (2012-13)

(Value in Rupees)

Particulars	ASSAM		KARNATAKA		TAMIL NADU		WEST BENGAL		BIHAR		TOTAL	
	Qty	Value	Qty	Value	Qty	Value	Qty	Value	Qty	Value	Qty	Value
Hired labour (Man days)	10.00	917	20.12	4075	34.15	6902	50.88	7099	15.00	1650	26.03	4129
Family Labour (Man days)	15.00	1424	5.56	1508	25.88	4017	9.97	1506	12.00	0	13.68	1691
Bullocks (Pair / day)	7.00	1805	0.00	22	0.00	0	0.00	557	0.00	0	1.40	477
Tractor/Power Tiller (Hours)	26.00	2199	0.00	5437	2.78	672	0.00	1855	6.00	2100	6.96	2453
Seed (Kgs.)	15.13	401	21.29	465	29.74	1076	29.18	901	20.00	1210	23.07	811
FYM/Organic/ Bio-fertilizers(Tons)	0.46	1054	1.28	766	0.00	0	1.88	1322	0.00	0	0.72	628
Fertilizers (Kgs)	43.04	370	265.99	2850	154.88	1926	92.42	1818	55.00	412	122.27	1475
Zinc(Kgs.)	3.00	110	0.00	0	0.00	0	0.00	0	0.00	0	0.60	22
Lime(Kgs.)	42.64	134	0.00	0	0.00	0	0.00	0	0.00	0	8.53	27
Plant protection chemicals (Kg/lit)	0.03	46	4.57	1599	1.24	643	1.42	1333	0.00	0	1.45	724
Irrigation charges	0.00	57	0.00	358	0.00	552	0.00	52	0.00	0	0.00	204
Harvesting & Threshing	0.00	1676	0.00	996	0.00	2518	0.00	1190	0.00	700	0.00	1416
Bagging	0.00	515	0.00	325	0.00	631	0.00	0	0.00	0	0.00	294
Total cost		10708		18401		18937		17633		6072		14350
Main product (Quintal)	12.74	16073	27.76	40847	21.38	27953	15.78	18741	8.46	12266	17.22	16554
By-product (Quintal)	1.27	637	0.00	5032	0.00	2629	0.00	3721	2.50	7501	0.75	3904
Gross Income	14.01	16710	27.76	45879	21.38	30582	15.78	22462	10.96	19767	17.98	27080
Net Income (Gross income-total cost)	14.01	6002	27.76	27478	21.38	11645	15.78	4829	10.96	13695	17.98	12730
Cost per quintal (Total cost/Main product)	0.00	840	-	663	-	886	-	1117	-	718	0.00	845
Gross Return per quintal of main product	0	1312	-	1653	-	1430	-	1423	-	2337	0.00	1631
Profit per quintal	0	472	-	990	-	544	-	306	-	1619	0.00	786

Table 4.6: Per acre cost of Cultivation incurred by non-beneficiaries for Kharif Paddy (2012-13)*(Value in Rupees and Qty in quintals)*

Particulars	ASSAM		KARNATAKA		TAMIL NADU		WEST BENGAL		BIHAR		TOTAL	
	Qty	Value	Qty	Value	Qty	Value	Qty	Value	Qty	Value	Qty	Value
Hired labour (Man days)	10.00	846	18.83	5589	33.95	6920	55.26	7712	17.00	1870	27.01	4587
Family Labour (Man days)	13.00	1223	5.57	1463	27.18	4027	4.02	596	10.00	0	11.95	1462
Bullocks (Pair / day)	12.00	2967	0.00	77	0.00	0	0.00	672	0.00	0	2.40	743
Tractor/Power Tiller (Hours)	14.00	1196	0.00	7981	2.96	684	0.00	1568	6.00	2120	4.59	2710
Seed (Kgs.)	15.15	404	24.29	539	31.13	1237	31.65	871	22.00	1320	24.84	874
FYM/Organic/ Bio-fertilizers(Tons)	0.33	767	0.78	427	0.00	0	2.14	1539	0.00	0	0.65	546
Fertilizers (Kgs)	21.09	200	278.8	3472	155.72	2015	115.89	1260	60.00	447	126.30	1479
Zinc(Kgs.)	2.84	104	0.00	0	0.00	0	0.00	0	0.00	0	0.57	21
Lime(Kgs.)	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Plant protection chemicals (Kg/lit)	0.03	41	1.27	1778	1.23	887	0.78	790	0.00	0	0.66	699
Irrigation charges	0.00	47	0.00	389	0.00	603	0.00	13	0.00	0	0.00	210
Harvesting & Threshing	0.00	1568	0.00	803	0.00	2603	0.00	1192	0.00	688	0.00	1371
Bagging	0.00	474	0.00	259	0.00	642	0.00	0	0.00	0	0.00	275
Total cost		9836		22777		19618		16211		6445		14977
Main product (Quintal)	11.21	13982	25.92	37439	19.56	25942	15.52	18800	8.29	11764	16.10	21585
By-product (Quintal)	1.12	561	0.00	4040	0.00	2685	0.00	4218	0.00	7496	0.22	3800
Gross Income	12.33	14542	25.92	41479	19.56	28627	15.52	23019	8.29	19260	16.32	25385
Net Income (Gross income-total cost)	12.33	4707	25.92	18702	19.56	9009	15.52	6808	8.29	12815	16.32	10408
Cost per quintal (Total cost/Main product)	-	877	-	879	-	1003	-	1045	-	778	0.00	916
Gross Return per quintal of main product	-	1297	-	1600	-	1464	-	1483	-	2325	0.00	1634
Profit per quintal	-	420	-	721	-	461	-	438	-	1547	0.00	717

**Figure 4.8: Expenditure on Different Items as a per cent to Total Expenditure for cultivating one acre of Kharif Paddy (beneficiaries)**

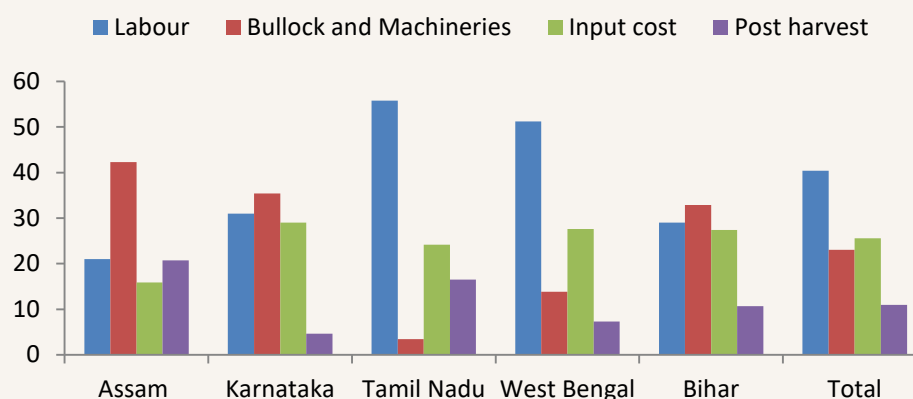


Figure 4.9: Expenditure on Different Items as a per cent to Total Expenditure for cultivating one acre of Kharif Paddy (non-beneficiaries)

It may be observed that labour cost for farmers of Tamil Nadu was highest at around 55 per cent of the total cost. On the other hand, the cost of machineries was highest in Assam.

4.4.2. Per acre Cost and Returns of Rabi / Summer Paddy

The months of sowing of and harvesting Rabi /summer paddy varies from State to State depending on several factors. The beneficiaries and non-beneficiaries of Bihar State had not cultivated Rabi /summer in the reference period. Hence, the cost of cultivation for Rabi /summer has been worked out excluding Bihar. The cost of cultivation for Rabi /summer for the remaining four States are presented in Tables 4.7 and Table 4.8. It may be observed from these tables that the total cost of cultivation for Rabi /summer paddy worked out to Rs. 20920 for beneficiaries and Rs.18224 for non-beneficiaries. After incurring this expenditure, from sowing to harvest, the beneficiaries had a gross income of Rs.32327 by producing 20.72 quintals of Rabi / summer paddy per acre. The gross income drawn by non-beneficiaries was Rs.26925 for a yield of 18.01 quintals per acre. Thereby, per acre net income generated by beneficiaries and non-beneficiaries was Rs.11406 and Rs.8701 respectively.

In all four States which had cultivated rabi /summer paddy the beneficiaries had higher net income than the non-beneficiaries. The yield and net income derived by beneficiaries and non-beneficiaries of all the 4 States can be seen in Figure 4.10.

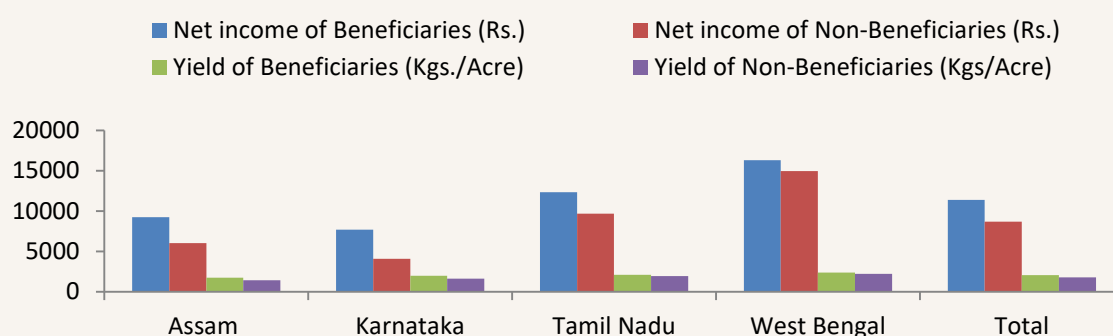


Figure 4.10: State-Wise Yield and Net Income of Sample HH from Rabi / Summer Paddy

Table 4.7: Per acre cost of Cultivation incurred by beneficiaries for Rabi / summer Paddy (2012-13)*(Value in Rupees)*

Particulars	ASSAM		KARNATAKA		TAMIL NADU		WEST BENGAL		TOTAL	
	Qty	Value	Qty	Value	Qty	Value	Qty	Value	Qty	Value
Hired labour (Man days)	11.00	1612	0.00	6000	32.64	6385	29.37	4678	18.25	4669
Family Labour (Man days)	29.00	4159	26.00	10400	26.69	3971	31.81	5220	28.38	5938
Bullocks (Pair / day)	5.00	719	0.00	0	0.00	0	0.00	212	1.25	233
Tractor/Power Tiller (Hours)	8.00	1716	0.00	5794	2.68	842	0.00	1995	2.67	2587
Seed (Kgs.)	15.00	900	30.00	720	31.60	1096	17.55	838	23.54	888
FYM/Organic/ Bio-fertilizers(Tons)	31.00	663	2.00	1100	0.00	0	165.67	123	49.67	472
Fertilizers (Kgs)	63.00	544	40.00	320	146.11	1984	191.73	3735	110.21	1646
Zinc(Kgs.)	3.00	110	0.00	0	0.00	0	0.00	0	0.75	28
Lime(Kgs.)	140.00	770	0.00	0	0.00	0	0.00	0	35.00	193
Plant protection chemicals (Kg/lit)	0.00	148	0.00	0	1.20	560	1.22	1115	0.61	456
Irrigation charges	0.00	759	0.00	3394	0.00	726	0.00	4409	0.00	2322
Harvesting & Threshing	0.00	574	0.00	800	0.00	2329	0.00	1198	0.00	1225
Bagging	0.00	257	0.00	256	0.00	549	0.00	0	0.00	266
Total cost		12931		28784		18442		23524		20920
Main product (Quintal)	17.63	21360	20.00	32000	21.24	28389	23.99	36136	20.72	29471
By-product (Quintal)	1.67	837	0.00	4500	0.00	2390	0.00	3694	0.42	2855
Gross Income	19.30	22197	20.00	36500	21.24	30779	23.99	39830	21.13	32327
Net Income (Gross income-total cost)	19.30	9266	20.00	7716	21.24	12338	23.99	16306	21.13	11406
Cost per quintal (Total cost/Main product)	0.00	733	-	1439	-	868	-	981	0.00	1005
Gross Return per quintal of main product	0	1259	-	1825	-	1449	-	1660	0.00	1548
Profit per quintal	0	526	-	386	-	581	-	679	0.00	543

Table 4.8: Per acre cost of Cultivation incurred by non-beneficiaries for Rabi / summer paddy (2012-13)*(Value in Rupees)*

Particulars	ASSAM		KARNATAKA		TAMIL NADU		WEST BENGAL		TOTAL	
	Qty	Value	Qty	Value	Qty	Value	Qty	Value	Qty	Value
Hired labour (Man days)	11.00	1566	24.94	8171	31.55	6139	43.18	6844	27.67	5680
Family Labour (Man days)	28.00	4069	5.41	1876	26.73	3942	17.39	2825	19.38	3178
Bullocks (Pair / day)	5.00	905	0.00	0	0.00	0	0.00	195	1.25	275
Tractor/Power Tiller (Hours)	7.00	1551	0.00	6882	2.83	850	0.00	1466	2.46	2687
Seed (Kgs.)	16.00	559	8.24	73	31.07	1258	30.47	1008	21.45	725
FYM/Organic/ Bio-fertilizers(Tons)	39.00	912	0.59	324	0.00	0	1218.28	736	314.47	493
Fertilizers (Kgs)	79.00	680	76.47	751	142.36	1994	165.58	2972	115.85	1599
Zinc(Kgs.)	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Lime(Kgs.)	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Plant protection chemicals (Kg/lit)	0.00	171	0.47	165	1.24	708	1.31	1215	0.76	565
Irrigation charges	0.00	640	0.00	1265	0.00	743	0.00	3808	0.00	1614
Harvesting & Threshing	0.00	637	0.00	513	0.00	2334	0.00	1192	0.00	1169
Bagging	0.00	268	0.00	141	0.00	545	0.00	0	0.00	239
Total cost		11959		20161		18513		22262		18224
Main product (Quintal)	14.15	17322	16.12	20659	19.46	25574	22.29	34112	18.01	24417
By-product (Quintal)	1.34	669	0.00	3595	0.00	2628	0.00	3142	0.34	2508
Gross Income	15.49	17991	16.12	24254	19.46	28202	22.29	37254	18.34	26925
Net Income (Gross income-total cost)	15.49	6032	16.12	4093	19.46	9689	22.29	14992	18.34	8701
Cost per quintal (Total cost/Main product)		845		1251		951		999	0.00	1012
Gross Return per quintal of main product		1271		1505		1449		1671	0.00	1474
Profit per quintal		426		254		498		672	0.00	463

Out of the total cost of production, around 51 per cent was towards labour, 14 per cent was for bullock and machineries, 29 per cent was cost of inputs like seeds, fertilizers and farm yard manure. The remaining 6 per cent was post-harvest expenses. The trend remained more or less same for non-beneficiaries. Among different States also the percentage of expenditure on labour, bullock & machineries, input and post-harvest cost, out of total cost remained same for beneficiaries and non-beneficiaries. However, the per cent of expenditure on different items varied widely among the States which can be observed in **Figure 4.11** and **Figure 4.12**. It may be observed that labour cost was high in all the States. However, input cost was comparatively low in Karnataka and Tamil Nadu.

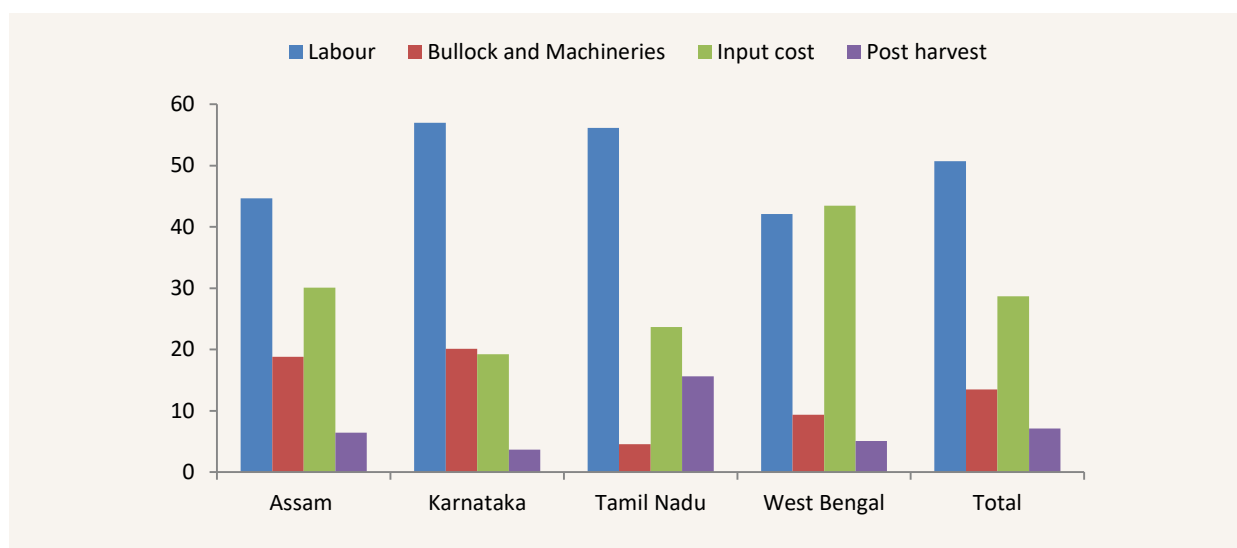


Figure 4.11: Expenditure on Different Items as a per cent to Total Expenditure for cultivating one acre of Rabi / summer Paddy (beneficiaries)

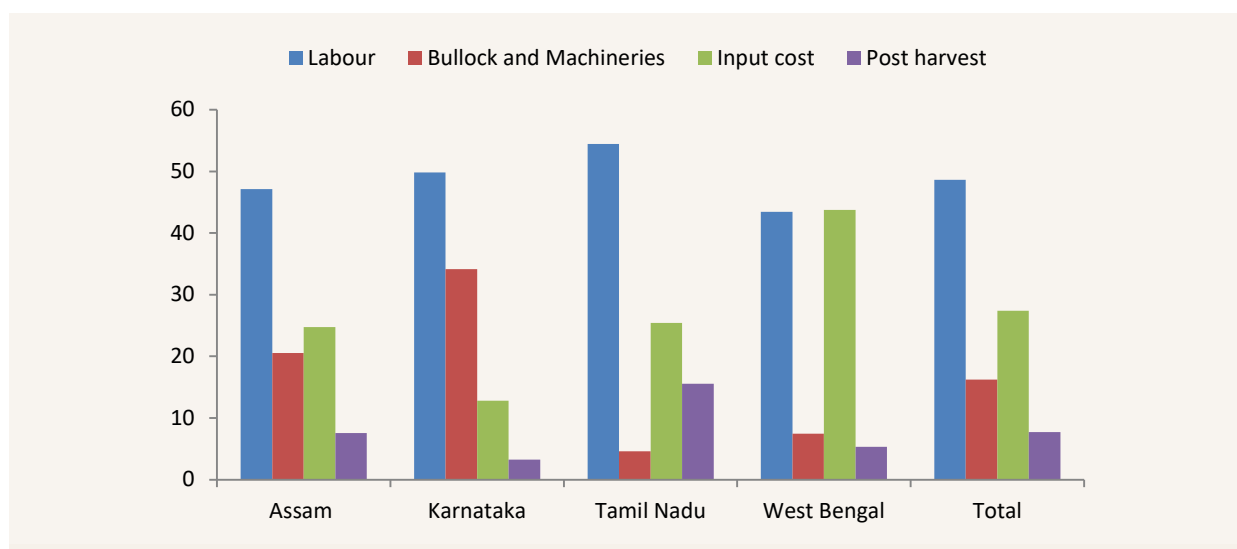


Figure 4.12: Expenditure on Different Items as a per cent to Total Expenditure for cultivating one acre of Rabi / summer Paddy (non-beneficiaries)

4.4.3. Per acre Cost and Return of Wheat 2012-13

The month of sowing and harvesting wheat varies from State to State depending on several factors. The total cost of cultivation for wheat worked out to Rs.14391 for beneficiaries and Rs.14893 for non-beneficiaries. After incurring this expenditure, from sowing to harvest, the beneficiaries had a gross income of Rs.30385 by producing 15.52 quintals of wheat. The gross income drawn by non-beneficiaries was Rs.27361 for a yield of 13.91 quintals, thereby, per acre net income generated by beneficiaries and non-beneficiaries was Rs.15994 and Rs.12468 respectively. [Table 4.9](#) and [Table 4.10](#) provide further details on per acre cost of cultivation of wheat.

In all, 4 States which had cultivated wheat, the beneficiaries had higher net income than the non-beneficiaries. The yield level and the net income derived by beneficiaries and non-beneficiaries of all the 4 States can be seen in [Figure 4.13](#).

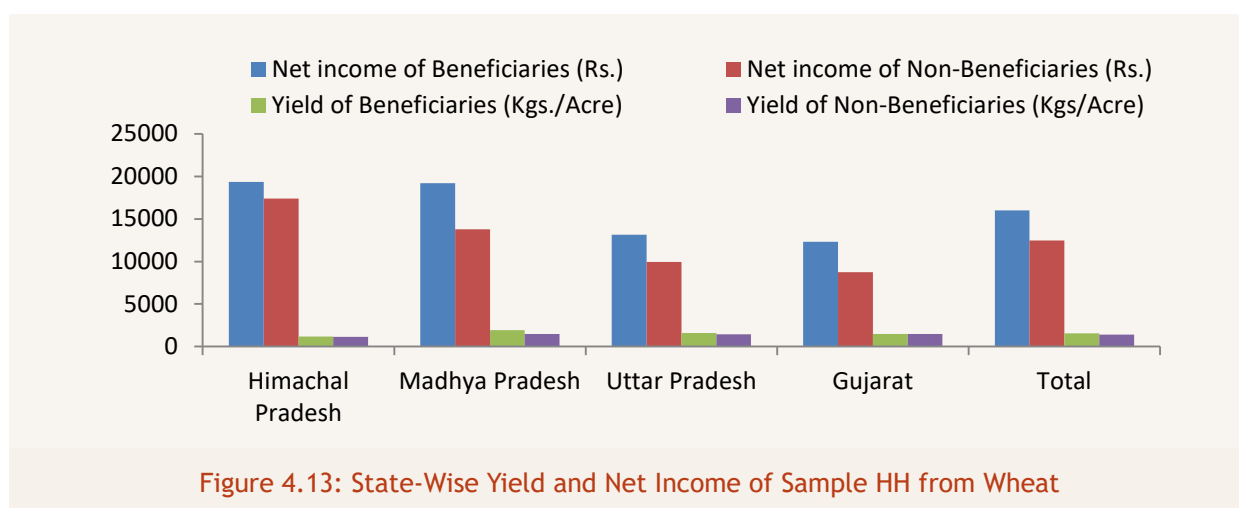


Figure 4.13: State-Wise Yield and Net Income of Sample HH from Wheat

Table 4.9: Per acre cost of Cultivation incurred by beneficiaries for wheat (2012-13)

(Value in Rupees)

Particulars	HIMACHAL PRADESH		MADHYA PRADESH		UTTAR PRADESH		GUJARAT		TOTAL	
	Qty	Value	Qty	Value	Qty	Value	Qty	Value	Qty	Value
Hired labour (Man days)	0.00	0	37.00	2594	8.67	1389	6.56	1230	13.06	1303
Family Labour (Man days)	10.46	2615	19.00	2356	8.61	1470	2.64	504	10.18	1736
Bullocks (Pair / day)	5.00	3079	0.90	273	0.00	0	0.00	6	1.48	840
Tractor/Power Tiller (Hours)	0.00	150	3.70	2584	0.00	1416	7.74	4647	2.86	2199
Seed (Kgs.)	41.80	396	58.00	1583	42.34	213	88.16	1975	57.58	1042
FYM/Organic/ Bio-fertilizers(Tons)	6.04	6042	4.90	1038	0.47	20	1.21	1362	3.15	2116
Fertilizers (Kgs)	37.37	785	112.00	1451	151.91	2037	160.01	1955	115.32	1557
Zinc(Kgs.)	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Lime(Kgs.)	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Plant protection chemicals (Kg/lit)	0.00	0	1.40	835	1.06	0	0.58	271	0.76	277
Irrigation charges	0.00	0	3.00	1741	0.00	1178	1.13	1636	1.03	1139
Harvesting & Threshing	0.00	1802	0.00	3171	0.00	855	0.00	1466	0.00	1824
Bagging	0.00	0	0.00	639	0.00	462	0.00	337	0.00	360
Total cost	0.00	14869	0.00	18265	0.00	9041	0.00	15389	0.00	14391
Main product (Quintal)	11.92	18089	19.20	29676	16.01	20844	14.94	24189	15.52	23199
By-product (Quintal)	17.91	16120	11.00	7783	0.00	1333	0.00	3506	7.23	7185
Gross Income	0.00	34209	0.00	37459	0.00	22177	0.00	27694	0.00	30385
Net Income (Gross income-total cost)	-	19340	-	19194	-	13136	-	12305	0.00	15994
Cost per quintal (Total cost/Main product)	-	1248	-	951	-	565	-	1030	0.00	948
Gross Return per quintal of main product	-	2871	-	1951	-	1385	-	1854	0.00	2015
Profit per quintal	-	1623	-	1000	-	821	-	824	0.00	1067

Table 4.10: Per acre cost of Cultivation incurred by non-beneficiaries for wheat (2012-13)*(Value in Rupees)*

Particulars	HIMACHAL PRADESH		MADHYA PRADESH		UTTAR PRADESH		GUJARAT		TOTAL	
	Qty	Value	Qty	Value	Qty	Value	Qty	Value	Qty	Value
Hired labour (Man days)	0.00	0	9.00	1381	7.11	1133	10.85	2172	6.74	1171
Family Labour (Man days)	10.02	2505	23.00	3700	11.13	1774	3.38	645	11.88	2156
Bullocks (Pair / day)	5.00	3091	0.40	129	0.00	0	0.00	2	1.35	806
Tractor/Power Tiller (Hours)	0.00	0	2.00	1466	0.00	2311	8.00	4801	2.50	2145
Seed (Kgs.)	42.78	1169	55.00	1517	45.04	1325	92.48	2169	58.83	1545
FYM/Organic/ Bio-fertilizers(Tons)	6.31	6313	8.72	1351	4.45	178	1.70	1906	5.30	2437
Fertilizers (Kgs)	45.94	970	117.00	1353	85.77	560	162.51	2200	102.81	1271
Zinc(Kgs.)	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Lime(Kgs.)	0.06	24	0.00	0	0.00	0	0.00	0	0.02	6
Plant protection chemicals (Kg/lit)	0.00	0	0.00	0	0.77	157	0.65	361	0.36	129
Irrigation charges	0.00	0	3.00	1495	0.00	1325	1.86	1841	1.22	1165
Harvesting & Threshing	0.00	1545	0.00	3007	0.00	871	0.00	1490	0.00	1728
Bagging	0.00	0	0.00	549	0.00	393	0.00	391	0.00	333
Total cost	0.00	15617	0.00	15948	0.00	10028	0.00	17978	0.00	14893
Main product (Quintal)	11.49	17375	14.90	23053	14.39	18703	14.86	23171	13.91	20575
By-product (Quintal)	17.37	15634	9.54	6678	0.00	1274	0.00	3556	6.73	6786
Gross Income	0.00	33009	0.00	29731	0.00	19978	0.00	26727	0.00	27361
Net Income (Gross income-total cost)		17392		13783		9949		8749	0.00	12468
Cost per quintal (Total cost/Main product)		1359		1070		697		1210	0.00	1084
Gross Return per quintal of main product		2873		1995		1388		1799	0.00	2014
Profit per quintal		1514		925		691		589	0.00	930

Out of the total cost of production, around 20 per cent was towards labour, 20 per cent was for bullock and machineries, 43 per cent was cost of inputs like seeds, fertilizers, and farm yard manure. The remaining 17 per cent was post-harvest expenses. The trend remained more or less same for non-beneficiaries. However, the per cent of expenditure on different items varied among the States which can be observed in [Figure 4.14](#) and [Figure 4.15](#). It may be observed that input cost remained the highest cost of production in all the States for beneficiaries as well as for non-beneficiaries.

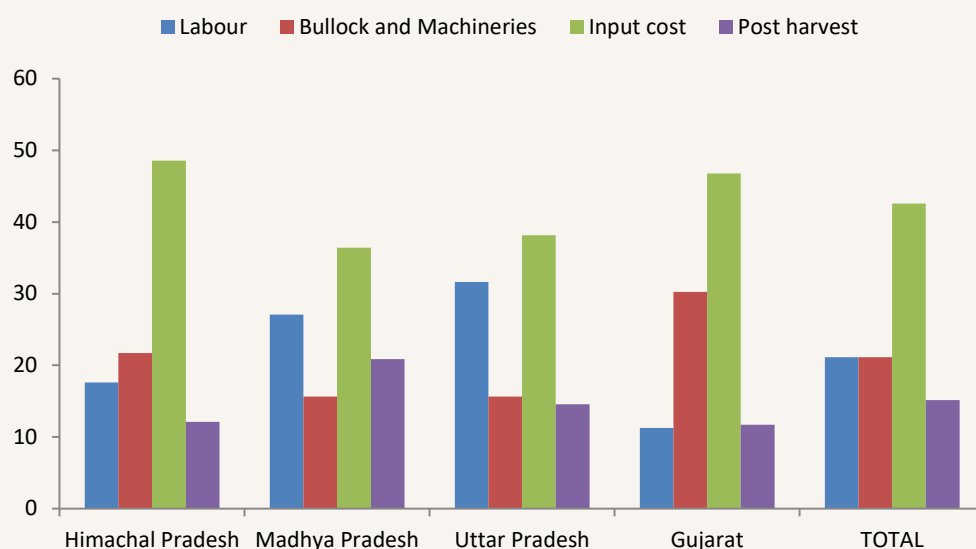


Figure 4.14: Expenditure on Different Items as a per cent to Total Expenditure for cultivating one acre of wheat (beneficiaries)

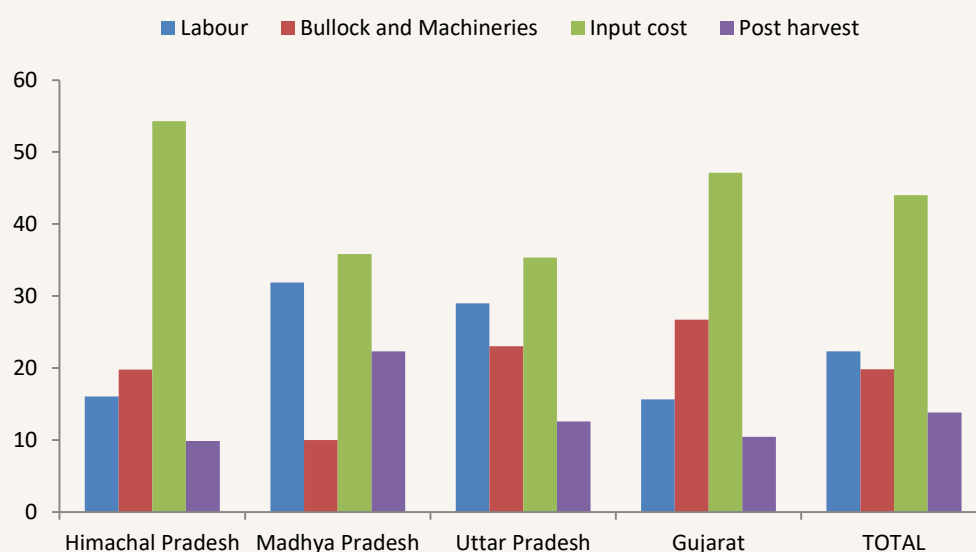


Figure 4.15: Expenditure on Different Items as a per cent to Total Expenditure for cultivating one acre of wheat (non-beneficiaries)

4.5. Marketed Surplus and Marketing Channels of Paddy States

Around 95 per cent of the beneficiary households' and 92 per cent of the non-beneficiaries households of paddy selected States were marketing their paddy produce through various channels. The channels chosen for marketing their surplus paddy by beneficiaries and non-beneficiaries of each paddy selected States is shown in [Table 4.11](#).

Table 4.11: Marketing Channels and Marketed Surplus of Paddy in Paddy Selected States

Channels	ASSAM		KARNATAKA		TAMIL NADU		WEST BENGAL		BIHAR		TOTAL	
	per cent of HH to the total	per cent of the value marketed	per cent of HH to the total	per cent of the value marketed	per cent of HH to the total	per cent of the value marketed	per cent of HH to the total	per cent of the value marketed	per cent of HH to the total	per cent of the value marketed	per cent of HH to the total	per cent of the value marketed
BENEFICIARIES												
Wholesale market	0.00	0.00	0.00	0.00	7.30	93.20	0.00	0.00	34.58	33.45	8.38	25.33
Local market	71.33	75.49	0.33	0.01	13.00	93.10	32.00	13.20	48.25	47.30	32.98	45.82
Merchant	26.67	24.51	0.33	0.04	9.33	93.60	68.00	86.80	17.17	19.25	24.30	44.84
Co-operatives	0.00	0.00	0.00	0.00	16.00	94.90	0.00	0.00	0.00	0.00	3.20	18.98
Government	0.00	0.00	8.33	9.67	48.00	94.30	0.00	0.00	0.00	0.00	11.27	20.79
Intermediaries	0.00	0.00	0.00	0.00	4.00	93.30	0.00	0.00	0.00	0.00	0.80	18.66
Private company	0.00	0.00	11.00	29.03	0.00	0.00	0.00	0.00	0.00	0.00	2.20	5.81
Mills	0.00	0.00	29.67	21.08	2.30	94.80	0.00	0.00	0.00	0.00	6.39	23.18
Others	0.00	0.00	29.33	40.17	0.00	0.00	0.00	0.00	0.00	0.00	5.87	8.03
NON-BENEFICIARIES												
Wholesale market	0.00	0.00	0.00	0.00	12.00	94.00	0.00	0.00	32.64	28.96	8.93	24.59
Local market	66.00	72.64	0.00	0.00	6.00	89.30	36.00	34.50	46.78	48.58	30.96	49.00
Merchant	23.00	27.36	0.00	0.00	17.00	89.70	64.00	65.50	20.58	22.46	24.92	41.00
Co-operatives	0.00	0.00	1.00	1.44	21.00	91.80	0.00	0.00	0.00	0.00	4.40	18.65
Government	0.00	0.00	1.00	4.55	42.00	92.40	0.00	0.00	0.00	0.00	8.60	19.39
Intermediaries	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Private company	0.00	0.00	10.00	30.17	0.00	0.00	0.00	0.00	0.00	0.00	2.00	6.03
Mills	0.00	0.00	25.00	28.25	2.00	88.90	0.00	0.00	0.00	0.00	5.40	23.43
Others	0.00	0.00	34.00	35.59	0.00	0.00	0.00	0.00	0.00	0.00	6.80	7.12

As could be seen from **Table 4.11**, the local markets and merchants were the most sought-after channels used by beneficiaries and non-beneficiaries for marketing their surplus paddy production. While in Assam around 98 per cent were channelizing their paddy sale through local markets and merchants, in West Bengal all the farmers were dependent on these two channels of marketing. However, it was only the beneficiaries and non-beneficiaries of Bihar State who were opting for wholesale market than any other States. On an average, local market and merchants were the channels for around 56 to 57 per cent of the total sample farmers. Other prominent channels of marketing were government in case of beneficiaries and wholesale market in case of non-beneficiaries. The State-wise comparisons of channels preferred for marketing is shown in **Figure 4.16** and **Figure 4.17**.

It may be seen from Figures except for Tamil Nadu; the farmers were using the local market and merchants for marketing their paddy produce. It was also noticed that farmers only in Karnataka State sell their produce to other sources such as mills, private companies and others.

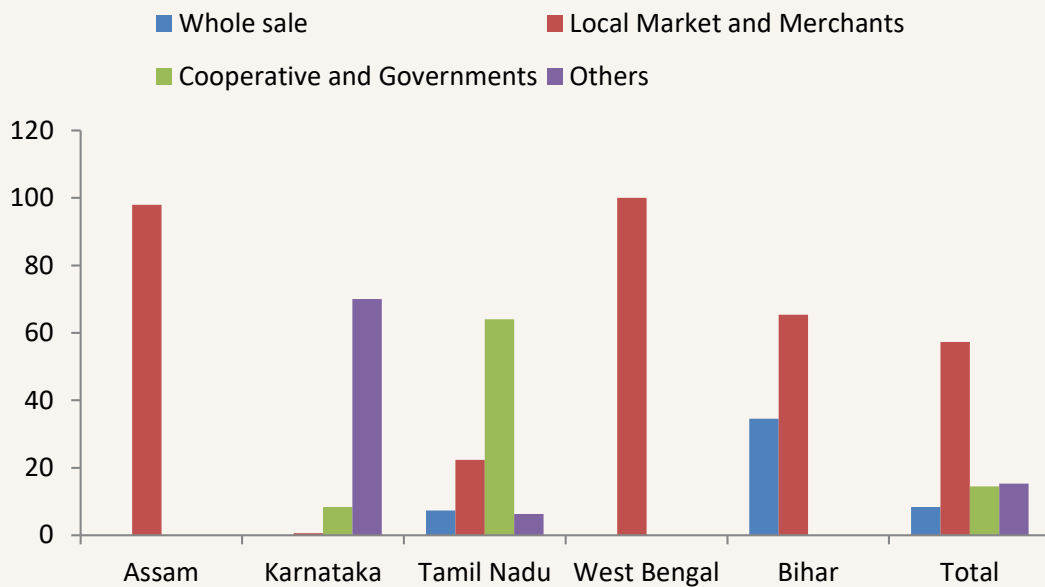


Figure 4.16: Channels used by beneficiary farmers to Market Paddy (per cent Farmers to Total Sample)

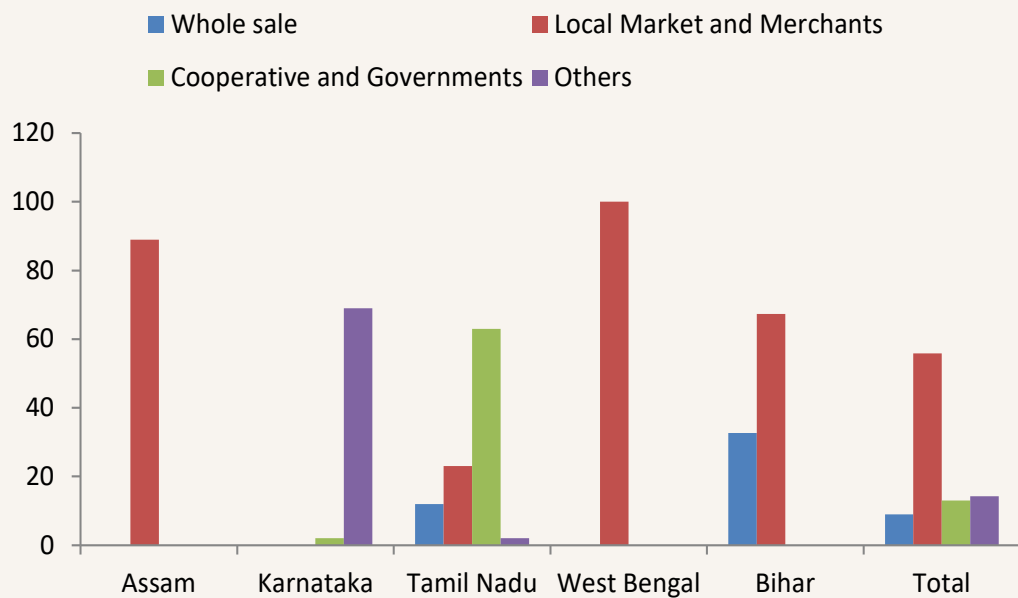


Figure 4.17: Channels used by non-beneficiary farmers to Market Paddy (per cent Farmers to Total Sample)

4.6. Marketed Surplus and Marketing Channels for Wheat States

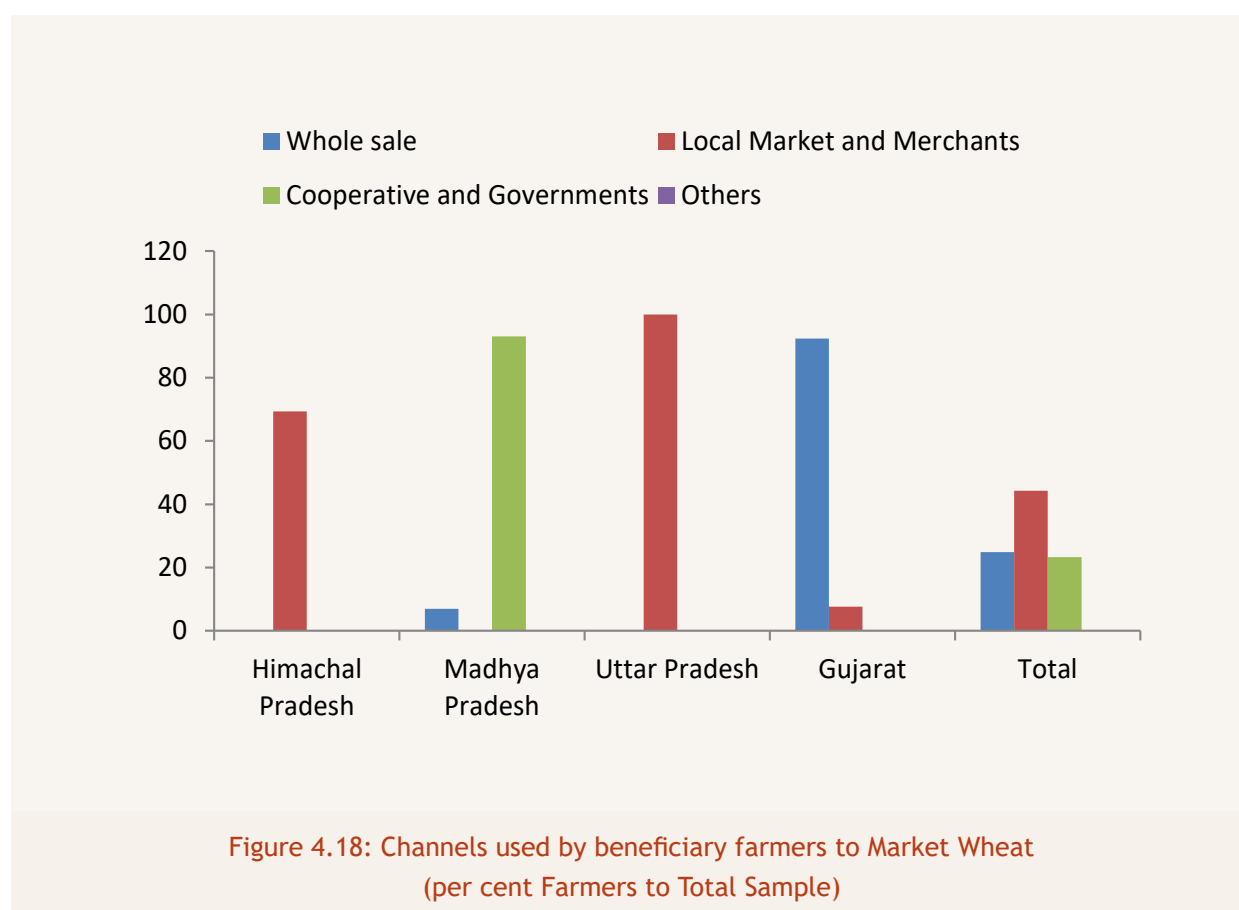
Around 95 per cent of the beneficiary households and 87.5 per cent of the non-beneficiaries households of wheat selected States were marketing their wheat produce through various channels. The channels chosen for marketing their surplus wheat by beneficiaries and non-beneficiaries of each wheat selected States is shown in **Table 4.12**.

Table 4.12: Marketing Channels and Marketed Surplus of Wheat

Channels	HIMACHAL PRADESH		MADHYA PRADESH		UTTAR PRADESH		GUJARAT		TOTAL	
	per cent of HH to the total	per cent of the value marketed	per cent of HH to the total	per cent of the value marketed	per cent of HH to the total	per cent of the value marketed	per cent of HH to the total	per cent of the value marketed	per cent of HH to the total	per cent of the value marketed
BENEFICIARIES										
Wholesale market	0.00	0.00	7.00	4.00	0.00	0.00	92.37	94.90	24.84	24.73
Local market	69.33	47.08	0.00	0.00	100.00	100.00	5.08	3.44	43.60	37.63
Merchant	0.00	0.00	0.00	0.00	0.00	0.00	2.54	1.67	0.64	0.42
Co-operative	0.00	0.00	93.00	96.00	0.00	0.00	0.00	0.00	23.25	24.00
Government	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Intermediaries	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Private company	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mills	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Others	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NON-BENEFICIARIES										
Wholesale market	0.00	0.00	9.00	2.00	0.00	0.00	97.73	98.93	26.68	25.23
Local market	50.00	39.92	0.00	0.00	100.00	100.00	0.00	0.00	37.50	34.98
Merchant	0.00	0.00	0.00	0.00	0.00	0.00	2.27	1.07	0.57	0.27
Co-operative	0.00	0.00	91.00	98.00	0.00	0.00	0.00	0.00	22.75	24.50
Government	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Intermediaries	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Private company	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mills	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Others	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

As could be seen from **Table 4.12**, the local markets and wholesale markets were the most used channels of beneficiaries and non-beneficiaries for marketing their surplus wheat production. While in Himachal Pradesh around 70 per cent were channelizing their wheat sale through local markets and merchants, in Uttar Pradesh all the farmers were dependent on local markets. However, it was only the beneficiaries and non-beneficiaries of Gujarat State who were opting wholesale market among the States studied. On an average, local and wholesale markets were the channels for around 68 per cent of beneficiaries and 64 per cent for non- beneficiaries of the total sample farmers. Other prominent channels of marketing were cooperatives. The State-wise comparisons of channels preferred for marketing is shown in **Figure 4.18** and **Figure 4.19**.

It may be seen from **Figure 4.18** and **Figure 4.19** that except for Gujarat, the whole sale market was rarely used for marketing paddy. The per cent of produce sold by these farmers for different channels followed the same pattern.



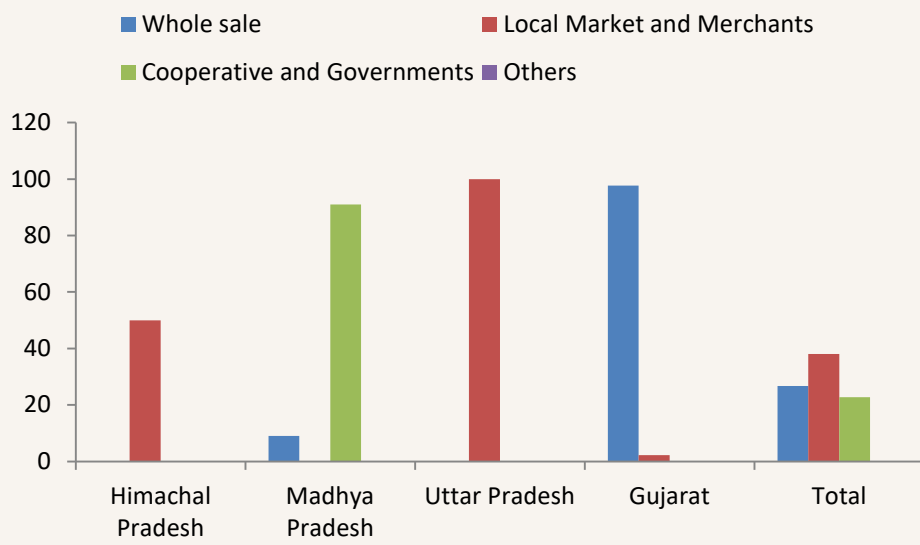


Figure 4.19: Channels used by non-beneficiary farmers to Market Wheat (per cent Farmers to Total Sample)



Participation Decision, Constraints and Suggestions for Improvement of NFSM

CHAPTER
05

CHAPTER 5

Participation Decision, Constraints and Suggestions for Improvement of NFSM

This chapter determines the factors influencing the farmers' participation in the NFSM programme. It also includes, constraints faced in availing the NFSM benefits and reasons for non-participation in the NFSM. The chapter also covers suggestions for the inclusion of non-beneficiary households to avail the benefits from the NFSM scheme.

5.1. Factors Influencing Participation of Farmers in NFSM

The results of binary logistic regression identifying the determinants of participation in the NFSM scheme are presented for all the selected States. Those who participated in the NFSM are assigned a value of 'one' (beneficiaries), otherwise the value is given as 'zero' (non-beneficiaries). The logistic model was a perfect fit as indicated by the goodness of fit results. The likelihood ratio test statistic (212.12) is large, positive and highly significant indicating that the independent variables used in the estimated model explains fully the participation decision of farmers. Count R2 indicates that the predictive power of the model is accurately 75.2 per cent of the farmers' participation decision in the NFSM programme.

5.1.1. Assam

The logistic regression model used for Assam State by taking independent relevant variables is shown in **Table 5.1**. From this table it is seen that the independent variables viz. age (years), operational holdings, family size, income from farming and constant had a significant effect on the farmers' participation in the NFSM programme. The other independent variables viz. education, caste, ratio of irrigated to the total operational area, credit availed (per acre) and farm asset value did not show any significant impact may be because of some exogenous factors which were not considered in the present analysis. Likelihood ratio test statistic stood at 57.062, which indicates the efficiency of the data set on the final outcome.

Table 5.1: Factors Influencing Participation in NFSM (Assam)

(Dependent variable: 1 for NFSM beneficiaries; otherwise: 0)

Independent variables	Coefficient (S.E)	P-Value
Age (Years)	-0.088 (0.044)	0.046*
Education		
Till secondary		
Higher secondary	1.531 (1.071)	0.153
Degree/Diploma		
Operational holdings (acres)	-0.682 (0.256)	0.008*
Family size	3.554 (0.587)	0.000*
Caste		
SC/ST		
OBC	-0.757 (0.856)	0.377
Others		
Income from farming	0.000(0.0000)	0.000*
Ratio of irrigated to the total operational area	-2.558 (1.903)	0.179
Credit availed (per acre)	0	0.325
Farm asset value (Rs.)	0.000(0.000)	0.322
Constant	-8.153 (3.947)	0.039*
Likelihood ratio test statistic	57.062	

Note: * indicates significant at 5 per cent probability level

5.1.2. Karnataka

The results of binary logistic regression identifying the determinants of participation in the NFSM scheme for Karnataka are presented in **Table 5.2**.

Econometric results show that number of family members dependent on farming, education level of farmers and total owned land have positive coefficients and are significantly associated with their decision to participation. Farmers were more likely to participate in the NFSM programme for every unit increase in number of family members dependent on farming, education level of farmers and total owned land. The remaining variables, age and dummy of method of irrigation has an insignificant positive and negative coefficient, respectively.

Table 5.2: Factors Influencing Participation in NFSM (Karnataka)

Independent variables	Coefficient (S.E)	P-Value
Age (Years)	0.002004(0.010038)	0.842
Education*	0.193217**(0.076055)	0.011
No. of family members dependent on farming	0.157884*(0.086274)	0.067
Total Owned land (acres)	0.103363***(0.03329)	0.002
Method of Irrigation (1=DSR/SRI; Otherwise =0)	-0.11324(0.290745)	0.697
Constant	-0.47668(0.646121)	0.461
Likelihood ratio test statistic	-212.12	
Count R2	0.752	

Note: Illiterate =1, Primary =2, Middle =3, Matriculation/Secondary =4, Higher Secondary =5, Degree/Diploma =6, Above Degree =7; *, **, and *** indicate significance levels at 10 per cent, 5 per cent, and 1 per cent, respectively; the likelihood ratio test is significant at the 1 per cent level.

5.1.3. Tamil Nadu

In the case of NFSM scheme in Tamil Nadu, nearly 25 per cent of the Districts (8 Districts) have implemented the scheme and it is successfully under way. To analyze and understand the role of NFSM scheme in determining factors which influence participation, the study has used logistic regression model. The logistic regression model pertains to examining the impact of farmer's participation in NFSM schemes in Tamil Nadu. The results from the regression equation pertaining to 400 sample respondents are given in **Table 5.3**.

Table 5.3 presents the factors influencing participation in NFSM scheme in Tamil Nadu on farmer's livelihood. As expected B3, B4 and B6 have a negative sign, and B1, B2, B5, B7, B8 and B9 have a positive sign. Therefore, the above set regression results clearly show that when ratio of irrigated to the total operational area increases, it results in an increase in credit availed (per acres) and farm asset value (in rupees). Other factors such as age, education, caste also positively influence their participation in NFSM. Except education (illiterate), caste and farm asset value (in rupees) and all other factors are not statistically significant. This implies that education, caste and farm assets are major factors that determine participation in the NFSM scheme. Income from farming, family size or number of family members dependent on farming, operational holding and education (higher secondary) negatively

influence the participation in NFSM scheme. Among them, except family size, all other factors are not statistically significant.

Table 5.3: Factors Influencing Participation in NFSM Scheme in Tamil Nadu

(Dependent variable: 1 for NFSM beneficiaries; otherwise: 0)

Independent variables	Coefficient (S.E)	P-Value
Age (Years)	0.043 (0.418)	0.473
Education		
Illiterate	1.768 (0.849)	0.037**
Till Secondary	0.349 (0.428)	6.415
Higher Secondary	-0.018 (0.542)	0.974
Degree/Diploma	-	-
Operational holdings (acres)	-0.014 (0.095)	0.571
Family size	-0.037 (0.092)	0.025**
Caste		
SC/ST	14.470 (0.623)	0.000
OBC	15.692 (0.000)	-
Others	-	-
Income from Farming	-0.028 (0.241)	0.490
Ratio of Irrigated to the Total Operational Area	0.010 (0.086)	0.454
Credit Availed (per acre)	0.043 (0.533)	0.628
Farm Asset value (Rs.)	0.127 (0.170)	0.000*
Constant	0.651 (1.317)	0.005**
Likelihood Ratio Test Statistic	251.53	0.000

Source: Field Survey Data, Note: * refer less than 0.01 per cent and ** refer less than 0.5 per cent

So, the above result clearly explains that except education (illiterate), family size, caste (SC/ST) and credit availed (per acre) all other factors are not statistically significant and also education (higher secondary), operational holdings (acres), family size or number of family members dependent on farming, and income from farming are negatively influencing the beneficiaries in NFSM scheme in Tamil Nadu on farmer's livelihood.

5.1.4. West Bengal

Experience from the past tells us that the farmers are often hesitant or reluctant in adopting something new or participating in a new government programme. It thus remains important to identify the factors responsible for determining participation of the farmers in schemes like NFSM.

Here, to find out the factors influencing the decision of farmers regarding whether or not to be a beneficiary of the NFSM scheme, we have to take resort to qualitative response regression models as the regress and itself is qualitative in nature.

It may also be noted here that in our model, the independent variables include certain dummy variables as well. In particular, Education Dummy 1 assumes the value of 1, if the level of education of the farmer

is up to primary, else 0. Similarly, Education dummy 2 assumes the value of 1, if level of education of the farmer is higher than primary up to secondary, else 0. In case of castes, similar dummy variables have been introduced. In particular, the Caste Dummy 1 assumes the value 1, if the respondent farmer belongs to the SC category, else 0. Similarly, the Caste Dummy 2 assumes the value 1, if the respondent farmer falls in the ST category, else 0. The results of the logit model are presented in **Table 5.4**.

Incidentally, the result of our logit regression model fails to fit to our data as revealed by LR Chi2 and Pseudo R2. In fact, none of the coefficients of the independent variables (including constant) appears statistically significant, as revealed by the values of Z statistic and the values of $P > |Z|$.

Table 5.4: Factors Influencing Participation in NFSM

(Dependent variable: 1 for NFSM beneficiaries; otherwise: 0)

Logit estimates Dependent Variable: Benefit Dummy	Number of obs		400	
	LR chi2(11)		9.1	
	Prob > chi2		0.6129	
	Pseudo R2		0.0202	
	Log likelihood		-220.3851	
Independent Variables	Coef.	Std. Err.	z	P > z
Age	-0.003	0.010	-0.240	0.806
Education Dummy 1	-0.127	0.563	-0.230	0.821
Education Dummy 2	-0.039	0.714	-0.050	0.957
Family Size	-0.038	0.047	-0.810	0.418
Caste Dummy 1	-0.363	0.531	-0.680	0.494
Caste Dummy 2	-0.291	0.270	-1.080	0.280
Family Size	-0.047	0.136	-0.340	0.731
Farm Income	0.000	0.000	-0.250	0.802
Farm Asset Value	0.000	0.000	-0.780	0.436
Credit Availed per Acre	0.000	0.000	1.470	0.143
Ratio of NIA to NSA	1.681	1.189	1.410	0.157
Constant	0.026	1.333	0.020	0.984

As such, poor model fits can be obtained under the presence of strong multicollinearity as well, we have constructed a partial correlation coefficient matrix for the variables in the model (including the dependent variable) to rule out the presence of multicollinearity, which is presented in **Table 5.5**.

However, the partial correlation coefficient matrix does not reveal any indication of multicollinearity problem in our model. Only a correlation coefficient measure of 0.576 between farm size and farm income can be observed in the matrix, which is quite obvious in farm economics. Apart from this, none of the variables included in our model exhibit strong correlation between each other. As such, the presence of multicollinearity may safely be ruled out from the logit model.

The findings strongly indicate that there might be other variables not included in the logit model which influences one's decision regarding participation in NFSM scheme. As learnt from the discussions and interviews with the farmers, we propose that further research into the subject might consider involving

factors like political identity of farmers, i.e. whether or not the farmer belongs to the ruling party in the region, as an important explanatory factor in participation decisions in public sector schemes like NFSM. For the present moment, it can only be said that our logit model does not fit to data, and no confirmed relationship among the dependent and independent variables can be established.

Table 5.5: Partial Correlation Co-efficient Matrix of Variables Included in the Logit Regression Model

	Benefit Dummy	Age	Education Dummy 1	Education Dummy 2	Family Size	Caste Dummy 1	Caste Dummy 2	Farm Size	Farm Income	Farm Asset Value	Credit Aailed per Acre	Ratio of NIA to NSA
Benefit Dummy	1											
Age	-0.045	1										
Education Dummy 1	-0.022	-0.008	1									
Education Dummy 2	-0.009	0.029	-0.035	1								
Family Size	-0.071	0.254	0.031	0.059	1							
Caste Dummy 1	-0.013	0.067	0.004	-0.041	-0.001	1						
Caste Dummy 2	-0.058	0.215	0.041	0.060	-0.050	-0.267	1					
Farm Size	-0.074	0.081	0.056	0.161	0.190	-0.062	0.219	1				
Farm Income	-0.041	-0.022	0.167	0.086	0.050	0.040	0.114	0.576	1			
Farm Asset Value	-0.039	0.098	-0.046	-0.060	0.093	0.086	-0.102	0.099	0.022	1		
Credit Aailed per Acre	0.056	0.122	-0.023	0.013	0.031	0.055	0.127	-0.033	0.023	0.065	1	
Ratio of NIA to NSA	0.092	-0.105	-0.035	0.007	-0.198	0.062	-0.160	-0.139	0.005	0.009	-0.096	1

5.1.5. Bihar

The logistic regression equation/formula was applied to analyze the factors influencing participation in NFSM by the beneficiaries in Bihar. The independent variable - age in years (x_1), education in number of years in school (x_2), operational holding acres (x_3), family size or no. of family members dependents on farming (x_4), OBC (x_5), General (x_6), income from farming (x_7), credit aailed acre (x_8) and farm asset value Rs. (x_9), have been considered to analyze the participation in NFSM (Y).

Table 5.6: Factors Influencing Participation in NFSM (Bihar)

(Dependent variable (Y): 1 for NFSM beneficiaries; otherwise: 0)

Independent variables	Coefficient (S.E)	P-Value
Age (Years) (x_1)	-0.028 (0.010)	0.006
Education in No. of years in school (x_2)	0.148 (0.038)	0.000
Operational holdings (acres) (x_3)	-0.054 (0.033)	0.007
Family size or No. of family members dependent on farming (x_4)	0.163 (0.058)	0.001
Caste		
OBC	1.238 (0.389)	1.238 (0.389)
General	0.432 (0.316)	0.432 (0.316)
Income from farming (x_7)	0.000 (0.000)	0.054
Credit aailed (per acre) (x_8)	0.000 (0.000)	0.049
Farm asset value (Rs.) (x_9)	0.000 (0.000)	0.702
Constant (a)	-0.438 (0.86)	0.548
Likelihood ratio test statistic	369.389	

Note: Figure in parentheses shows standard error

The likelihood ratio test statistics was estimated to be 369 in the fitted logistic regression equation, which reveals that 369 out of 400 respondents were likely to participate in NFSM in the study area with independent variables taken into consideration (Table 5.6).

Age (-0.028) was found to be negative and highly significant, while caste i.e., OBC (1.238), number of family members dependent on farming (0.163), income from farming (0.000), credit availed (0.000) were found to be positive and significant as far as participation in NFSM is concerned. Whereas, caste general (0.432), farm asset value (0.000) were positive but non-significant. Operational land holding (-0.054) was found to be negative and non-significant. It reveals that young educated OBC respondents with a large family dependent on farming, having a higher income from farming and ability to secure credit from different institutions and small holding are likely to participate more in the NFSM.

5.1.6. Himachal Pradesh

The analysis of factors determining the participation of households in NFSM activities has been carried out in this section and is based on regression. Among various forms of regression analysis, Logit regression is considered one of the best for such type of analysis. Logit regression is used when the dependent variable assumes only two values, either '0' or '1' representing the absence or presence of response. In the present case, the dependent variable is in the form of 'participation or non-participation' in NFSM activities and hence the Logit regression analysis has been carried out for the purpose. It was anticipated that the participation is determined by the factors like family and holding size, educational background, social categorization, level of irrigation, etc. The complete list of independent variables can be seen from the Table 5.7 which also presents the results.

Table 5.7: Factors Influencing Participation in NFSM (Himachal Pradesh)

(Dependent variable (Y): 1 for NFSM beneficiaries; otherwise: 0)

Independent variables	Coefficient (S.E)	P-Value
Age (Years)	-0.0103	-1.1845
Education Higher secondary	-0.1758*	-2.9801
Operational holdings (acres)	1.5622	0.2015
Family size or No. of family members dependent on farming	-0.0757	-1.0964
Caste		
SC/ST	-0.3004*	-2.4734
OBC	1.5188	0.4955
Others	0.2724*	2.5731
Income from farming (x_7)	-5.1E-06	-0.3812
Credit availed (per acre) (x_8)	0.0015	0.6667
Farm asset value (Rs.) (x_9)	-6.2E-06	-0.3587
Constant (a)	0.5691**	1.7048
Likelihood ratio test statistic	387.782	
Goodness of fit	415.292	
Cox and Snell R ²	0.132	
Nagelkerke R ²	0.196	

Note: * - Significant at 1 per cent level of probability; ** - Significant at 5 per cent level of probability

It may be seen from the table that R², coefficient of multiple determination which explains the percentage of variation in dependent variable due to the independent variables included in the model is quite low and is also insignificant. It may also be mentioned here that these are the best possible results obtained after different combinations of independent variables. The only independent variables significantly affecting the participation in NFSM were the level of education of higher secondary level, caste status of being SC/ST and/or belonging to other categories. The coefficient of operational holding was positive and significant at one per cent level of probability. The constant determined by the model was also significant at five per cent level of probability. All other independent variables turned out to be insignificant.

5.1.7. Madhya Pradesh

The logistic regression equation has been used to analyse the factors influencing participation in NFSM by the beneficiaries. Age (x_1), education till secondary (x_2), higher secondary (x_3), up to degree/diploma (x_4), operational holdings (acres) (x_5), family size or no. of family members dependent on farming (x_6), SC/ST (x_7), OBC (x_8), Other caste (x_9), income from farming (x_{10}), credit availed (per acre) (x_{11}) and farm asset value (Rs.) (x_{12}), have been considered as independent variables of the participation in NFSM (Y).

The fitted logistic regression equation is a good fit as it reveals the participation of more than 395 out of 400 respondents (likelihood ratio, 394.53) (Table 5.8). Among the different independent variables, age (-0.031) and operational land holdings (-0.056) were found to be negative and highly significant, while caste i.e. SC/ST (-0.343), OBC (-0.484) and others (-0.478) were found to be negative but non-significant. Education till secondary (0.354), higher secondary (0.362), up to degree/diploma (0.347) were found to be positive and highly significant in influencing participation in NFSM whereas family size (0.166), income from farming (0.000), credit availed (0.000) and farm asset value (0.000) were positive but non-significant. It shows that young educated respondents with small holdings are likely to participate more in the NFSM.

Table 5.8: Factors Influencing Participation in NFSM (Madhya Pradesh)

(Dependent variable: 1 for NFSM beneficiaries; otherwise: 0)

Independent variables	Coefficient (S.E)	P-Value
Age (Years) (x_1)	-0.031 (0.012)	0.011
Education		
Till secondary (x_2)	0.354 (0.165)	0.032
Higher secondary (x_3)	0.362 (0.118)	0.002
Degree/Diploma (x_4)	0.347 (0.105)	0.001
Operational holdings (acres) (x_5)	-0.056 (0.035)	0.111
Family size or No. of family members dependent on farming (x_6)	.166 (0.062)	0.007
Caste		
SC/ST (x_7)	-0.343 (0.718)	0.633
OBC (x_8)	-0.484 (0.454)	0.286
Others (x_9)	-0.478 (0.346)	0.167
Income from farming (x_{10})	0.000 (0.000)	0.053
Credit availed (per acre) (x_{11})	0.000 (0.000)	0.050
Farm asset value (Rs.) (x_{12})	0.000 (0.000)	0.743
Constant (a)	1.568	.334
Likelihood ratio test statistic	394.530	

Note: Use logistic regression by taking relevant independent variables and try to get a better fit model.

5.1.8. Uttar Pradesh

The factor influencing participation of farmers in NFSM analyzed in Table 5.9 indicates that while the dependent variable for NFSM beneficiaries was one, the coefficients of independent variable, such as, age (in years) was estimated at 0.003 (0.13) and its P-value was 0.788. In case of education the coefficient till secondary was -18.556 (15286.857) and P-value was 0.999, the coefficient for higher secondary was -19.533 (15286.857) and P-value was 0.999 and for degree/diploma it was -18.142 (15286.857) and P-value was 0.999. Coefficient for this clearly indicates non-significant to participation in NFSM programme. The coefficient for operational holding was estimated to 0.120 (0.70) and P-value was 0.087 which reveals that increase in operational holdings increases likelihood of participation in NFSM. The family size was larger than average size of the State of Uttar Pradesh and hence the coefficient of number of family members dependent on farming was 0.120 (0.70) and P-value was 0.54 which obviously shows that the number of farmers dependent on farming was quite large in the area under study.

Regarding caste of sample farmers, the coefficient for SC & ST was estimated to be -0.657 (0.45) and P-value was 0.546, for OBC it was -22.430 (40192.96) and P-value was 1.00 and in case of others the coefficient was -0.248 (0.305) and P-value was 0.416. Thus, it is evident that the number of SC & ST farmers was smaller, OBC was considerably larger and that of other farmers were highest in the area under the study. The constant coefficient was estimated to -2.914 (10282.816) and P-value was 0.054. Thus, it is clear that credit availed was nominal and the value of farm assets indicated that majority of farmers had poor assets on their farms in the area under the study. The related data are given in

Table 5.9.

Table 5.9: Factors Influencing Participation in NFSM (Uttar Pradesh)

(Dependent variable: 1 for NFSM beneficiaries; otherwise: 0)

Independent variables	Coefficient (S.E)	P-Value
Age (Years)	0.003 (0.13)	0.788
Education		
Till secondary	-18.556 (15286.857)	0.999
Higher secondary	-19.533 (15286.857)	0.999
Degree/Diploma	-18.1421 (15286.857)	0.999
Operational holdings (acres)	0.120 (0.70)	0.087
Family size or No. of family members dependent on farming	0.120 (0.070)	0.54
Caste		
SC/ST	-0.657 (0.451)	0.546
OBC	-22.430 (40192.96)	1.00
Others	-0.248 (0.305)	0.416
Income from farming	-	-
Ratio of irrigated to the total operational area	-	-
Credit availed (per acre)	-	-
Farm asset value (Rs.)	-	-
Constant	-2.914 (10282.816)	0.054
Likelihood ratio test statistic	1	

Note: Use logistic regression by taking relevant independent variables and try to get a better fit model.

5.1.9. Gujarat

In order to know the factors that determine the participation of farmers in NFSM, logit regression using generalized liner model was used. The binary dependent variable was: '1' for NFSM beneficiaries and '0' for Non-beneficiary. The determinants/independent variables¹ considered/used for analysis were - age in years, education (classified into groups with codes), total farming income (Rs/annum), caste (classified into groups with codes), number of people engaged in farming/agriculture, net irrigated area (acre), asset value (Rs), and amount borrowed (Rs./acre). The results of logit model to determine the factor affecting the participation of farmers in NFSM is presented in **Table 5.10**.

It can be seen from the table that out of the eight predictor variables as factors affecting participation of farmers in NFSM, only two predictor variables (i.e. number of people engaged in farming/agriculture and assets value) were found to be significantly influencing the decision on participation of farmers in NFSM. However, though net irrigated area (acres) seems to be important variable but was statistically insignificant. Increase in number of family members by a person increases the log odds of farmer participation in NFSM by 0.24. Whereas in case of assets which was also found to influence the decision of participation of farmer in NFSM, the log odds of farmer participation in NFSM was very weak. Thus, it indicates that larger the number of family members as well as number of assets, the log odds of farmer participation in NFSM is better. The factors like age, caste code and education code were negative and statistically insignificant. As we had observed in Chapter II, more than 43 per cent of beneficiary households family members were engaged in agriculture as compared to around 34 per cent in case of non-beneficiary households. Also seen earlier was that farm asset availability was found better in beneficiary households as compared to its counterpart? Thus, both the variables have played a role in deciding whether to participation in this programme.

Table 5.10: Factors Influencing Participation in NFSM (Gujarat)

(Dependent variable: 1 for NFSM beneficiaries; otherwise: 0)

Source	Value	Standard error	Wald Chi-Square	Pr > Chi ²	
Intercept	0.6986678	0.782	0.798	0.372	
Age	-0.0041253	0.010	0.165	0.685	
Education code	-0.0544587	0.083	0.430	0.512	
Total Income /annum farming	0.0000000	0.000	0.000	0.988	
Caste code	-0.1251299	0.149	0.709	0.400	
No. of people engaged in Farming/ Agriculture	0.2429085	0.086	7.942	0.005	***
Net Irrigated Area (Acre)	0.0000697	0.026	0.000	0.998	
Asset Value (Rs.)	0.0000019	0.000	14.230	0.000	***
Credit/Amount Borrowed (Rs.)/Acre	0.0000019	0.000	0.165	0.685	

Note: Results generated using logistic regression; ***, ** and * are significance level at 1 per cent, 5 per cent and 10 per cent respectively.

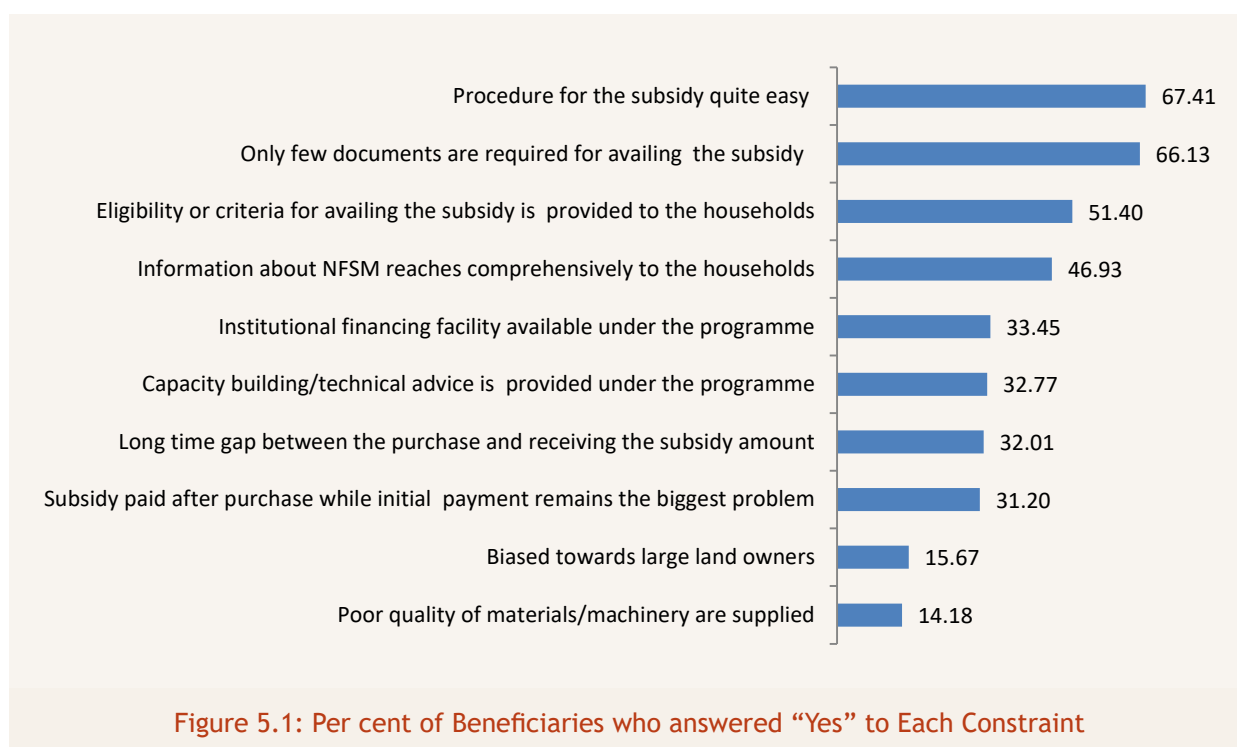
¹ In order to avoid multicollinearity and get better coefficient values, only one variable out of the three variables: ratio or irrigated to operation area, net operated area & net irrigated area was used. Similarly one variable out of two variables: total family members or number of people engaged in farming was used in analysis.

5.2. Constraints Faced in Availing the NFSM Benefits

The beneficiaries were questioned on the constraints that they might have faced while availing NFSM benefits. Their responses (Yes or No) were recorded for each of the 10 listed constraints. The **Figure 5.1** shows the per cent of beneficiary farmers out of total sample beneficiaries, consolidated for all the nine selected States, who answered “Yes” for constraints.

The **Figure 5.1** indicates that documentation and procedure for subsidy were easy for around two-third of the beneficiaries. However, 67 per cent of the beneficiaries of Tamil Nadu did not find the documentation and procedure easy. The per cent of beneficiaries who considered the task easy in Bihar and Madhya Pradesh were below 20 per cent. The **Table 5.11** clearly depicts this.

Figure 5.1 shows Per cent of beneficiary farmers out of total sample beneficiaries, consolidated for all the nine selected States, who answered “Yes” for constraints.



As could be seen from **Table 5.11**, almost half of the Tamil Nadu beneficiaries reported the existence of bias towards large farmers and 57 per cent complained that the quality of materials /machineries supplied was of poor quality. The long gap between purchase of material and disbursal of subsidy is another major concern as expressed by around 80 per cent of Tamil Nadu beneficiaries. Excepting Assam, this problem prevailed in all the States though the per cent of farmers dissatisfied was not as high as Tamil Nadu. High per cent of Karnataka beneficiaries also reported existence of bias to large farmers and poor quality of materials and machineries. None of the beneficiaries of Assam and Himachal Pradesh have any constraint with respect to bias towards large farmers and poor quality of materials and machineries.

Table 5.11: State-Wise per cent of Beneficiaries Who Answered “Yes” for the Constraints

Constraints	Assam	Karnataka	TN	WB	Bihar	HP	MP	UP	Gujarat	Total
Information about NFSM reaches comprehensively to the households	50.00	64.44	64.00	7.00	14.98	50.91	11.70	100.00	59.38	46.93
Eligibility or criteria for availing the subsidy is provided to the households	100.00	70.56	77.00	32.00	10.59	3.64	11.30	95.00	62.50	51.40
Procedure for the subsidy quite easy (if not provide details in remarks)	100.00	88.89	32.00	92.70	12.45	98.18	16.70	97.00	68.75	67.41
Only few documents are required for availing the subsidy (if no provide details in remarks)	100.00	87.22	33.00	91.00	20.14	100.00	19.00	91.67	53.13	66.13
Subsidy paid after purchase while initial payment remains the biggest problem	50.00	27.22	63.30	15.00	78.20	5.45	18.70	7.33	15.63	31.20
Institutional financing facility available under the programme	0.00	17.22	17.00	99.33	25.78	47.27	16.00	75.33	3.13	33.45
Capacity building/ technical advice is provided under the programme	100.00	18.33	24.30	36.00	8.16	3.64	13.00	88.33	3.13	32.77
Long-time gap between the purchase and receiving the subsidy amount	0.00	26.11	80.70	22.00	48.03	49.09	20.30	20.00	21.88	32.01
Biased towards large land owners	0.00	32.78	49.70	11.68	18.16	0.00	11.00	8.33	9.38	15.67
Poor quality of materials/ machinery are supplied	0.00	22.22	57.30	0.00	26.48	0.00	9.00	6.33	6.25	14.18

5.3. Suggestions by Beneficiaries for Improvement of the NFSM Scheme

Table 5.12 indicates the suggestions for improvements of the NFSM scheme given by the beneficiaries. The suggestions were given by almost all the beneficiaries of all the selected States. It can be seen from the table that awareness was an issue in only Karnataka and Gujarat States. Timely supply of inputs was a major issue in all the States followed by subsidy related issues. The subsidy related issues were mainly to provide subsidy for other crops, transferring subsidy to the beneficiary bank account instead of handing cheques, early release of subsidy to farmers, etc.

Table 5.12 Suggestions for improvement of NFSM scheme (By beneficiaries only)

States	Awareness about NFSM programme	Provision of Marketing facilities	Provision of credit facilities	Training	Timely supply of input	Subsidy related	Unbiased subsidy distribution	Others
Assam	0.00	0.00	0.00	28.67	15.33	0.00	17.00	38.67
Karnataka	26.50	42.67	5.00	7.67	66.33	29.67	11.00	12.00
Tamil Nadu	0.00	0.00	0.00	14.33	15.67	34.00	11.00	25.00
West Bengal	0.00	26.33	14.67	23.00	56.00	14.00	0.00	58.67
Bihar	0.00	26.67	0.00	0.00	20.67	0.00	0.00	88.33
Himachal Pradesh	5.00	0.00	0.00	35.00	20.00	0.00	10.00	18.00
Madhya Pradesh	0.00	0.00	86.00	72.00	15.00	23.00	0.00	0.00
Uttar Pradesh	0.00	0.00	0.00	0.00	100.00	27.33	0.00	0.00
Gujarat	26.67	0.00	0.00	146.33	20.67	40.67	58.33	22.67
Total	6.48	10.63	11.74	36.33	72.19	86.63	11.93	70.26

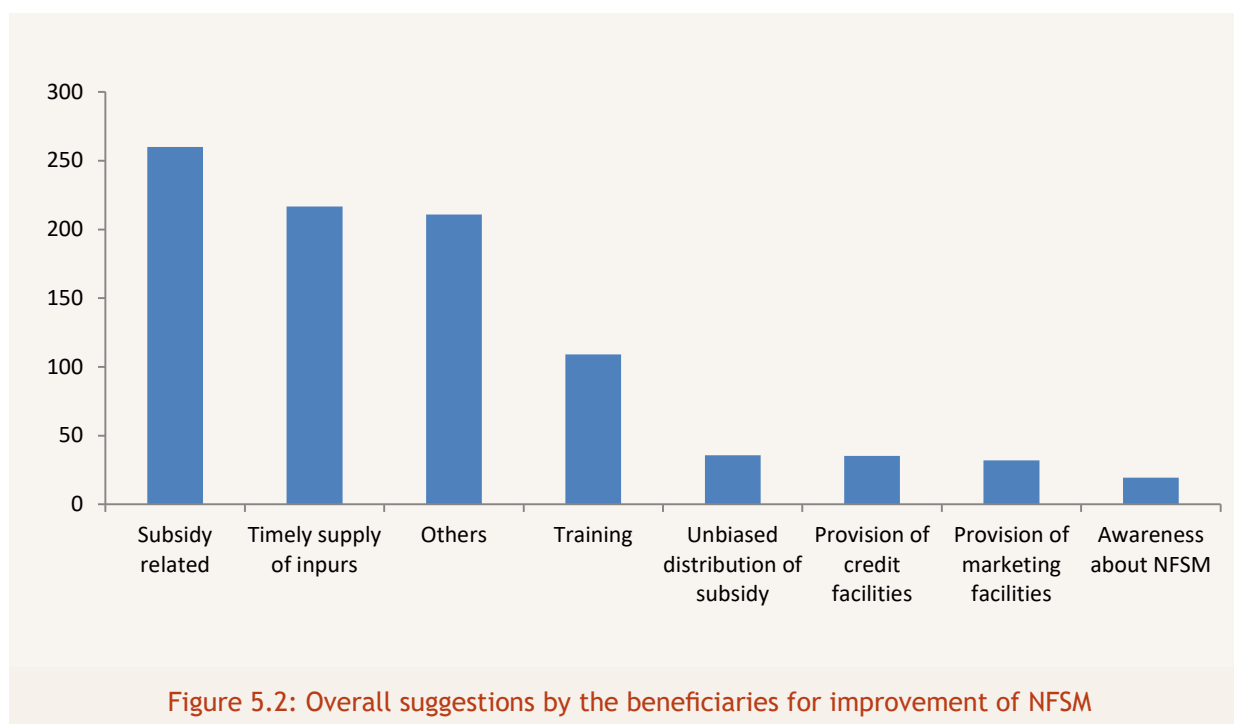


Figure 5.2: Overall suggestions by the beneficiaries for improvement of NFSM

5.4. Suggestion from the Non-Beneficiaries Households

The non-beneficiary households were also asked to contribute suggestions for their possible inclusion in the NFSM scheme and these results are presented in **Table 5.13**. Out of 900 selected non-beneficiaries, 98 per cent of them gave suggestions.

Table 5.13. Suggestions for improvement of NFSM (By Non-beneficiaries)

States	Awareness about NFSM programme	Provision of Marketing facilities	Provision of credit facilities	Training	Timely supply of input	Subsidy related	Unbiased subsidy distribution	Others
Assam	0.00	16.00	0.00	12.00	21.00	0.00	0.00	52.00
Karnataka	51.00	33.00	2.00	1.00	36.00	28.00	1.00	13.00
Tamil Nadu	46.00	0.00	0.00	15.00	0.00	0.00	26.00	12.00
West Bengal	0.00	41.00	0.00	8.00	29.00	0.00	0.00	22.00
Bihar	0.00	0.00	0.00	0.00	17.00	0.00	55.00	38.00
Himachal Pradesh	75.00	0.00	0.00	0.00	0.00	0.00	0.00	18.00
Madhya Pradesh	0.00	0.00	0.00	0.00	0.00	67.00	79.00	74.00
Uttar Pradesh	0.00	0.00	0.00	0.00	100.00	92.00	100.00	90.00
Gujarat	26.00	0.00	0.00	0.00	0.00	21.00	79.00	35.00
Total	22.00	10.00	0.22	4.00	22.56	23.11	37.78	57.89

It can be seen from **Table 5.13** that awareness was an issue in Karnataka, Tamil Nadu, Himachal Pradesh and Gujarat States. Suggestions like access to quality and reliable power, simplification of the scheme, help for getting irrigation facilities which are grouped as others was a major issue in all the States for non-beneficiaries. The subsidy related issues were mainly to provide subsidy for other crops, transferring subsidy to the beneficiary bank account instead of issuing cheques, early release of subsidy, as farmers cannot wait for long period, etc. The **Figure 5.3** arranges the suggestions of non-beneficiary farmers in descending order taking total for all the States together.

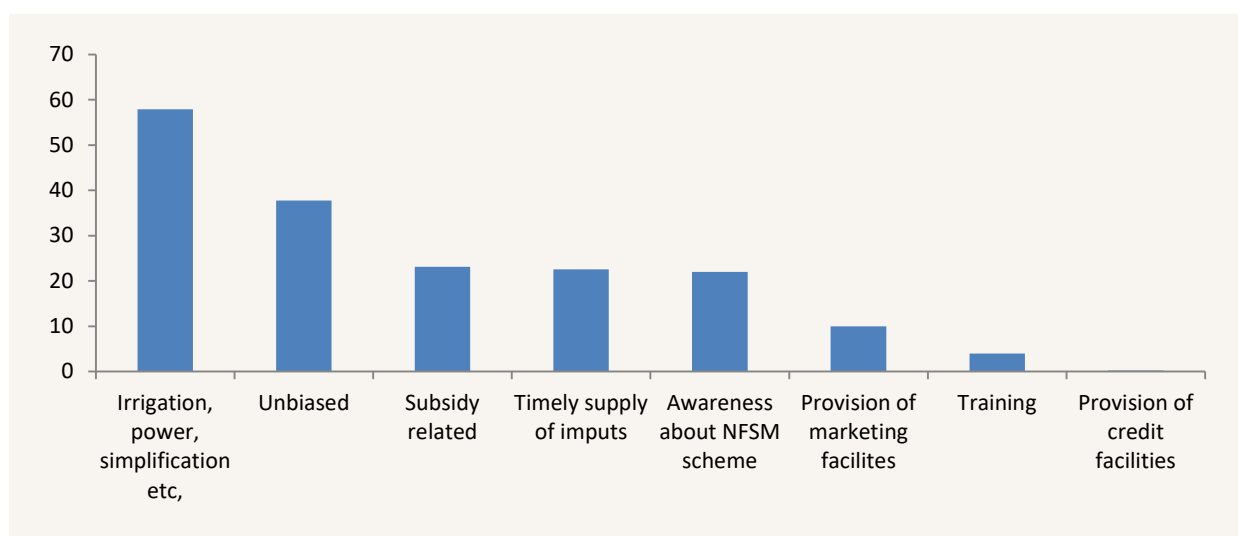


Figure 5.3: Overall suggestions by the Non-beneficiaries for improvement of NFSM

5.5. Reasons for Non-participation of Non-Beneficiaries in the NFSM Scheme

Table 5.14 shows the reasons for non-participation of non-beneficiaries in the NFSM scheme. It can be seen from the table that the non-beneficiaries offered mainly four reasons for not participating in the NFSM programme. Unawareness about the programme was the main reason quoted by around 42.47 per cent of the total non-beneficiaries. Biased selectivity due to political pressure was the second highest which was prominently visible in Gujarat. Lack of proper land records, inability to arrange margin money were also major reasons for non-participating in the NFSM programme as indicated by around 29.54 per cent of the sample farmers.

Table 5.14: Reasons for Non-Participation in NFSM

States	Unawareness about the NFSM scheme	Not interested in any government scheme	Bias selectivity during identification of beneficiaries	Other reasons like land records are not proper, untimely supply of inputs, no margin money etc.	Total
Assam	33.33	28.33	14.67	23.67	100.00
Karnataka	62.79	18.60	4.66	13.95	100.00
Tamil Nadu	34.70	0.00	31.50	33.80	100.00
West Bengal	28.00	7.00	25.00	40.00	100.00
Bihar	38.42	0.00	28.15	33.43	100.00
Himachal Pradesh*	0.00	0.00	0.00	0.00	100.00
Madhya Pradesh	85.00	0.00	0.00	15.00	100.00
Uttar Pradesh	100.00	0.00	0.00	0.00	100.00
Gujarat	0.00	0.00	94.00	6.00	100.00
Total	42.47	5.99	22.00	29.54	100.00

* There was no answer from non-beneficiaries of Himachal Pradesh

5.6. Suggestions by Non-Beneficiaries to include them under NFSM

The suggestions given by a few non-beneficiaries for their inclusion under NFSM are presented in **Table 5.15**. The table shows that around 31 per cent of the total sample non-beneficiaries had suggested that more publicity efforts are required to popularize the NFSM scheme. Around 21 per cent of the sample non-beneficiaries opined that the share of subsidy be increased. About 17 per cent of the sample non-beneficiaries suggested that all categories of farmers should be allowed to avail benefits irrespective of their lands and caste. Less than 1 per cent of the non-beneficiaries suggested the need for timely supply of quality inputs (specifically seeds) through RSKs.

Non-beneficiaries of almost all the States, except Bihar and Uttar Pradesh, have suggested more publicity on the NFSM programme to increase awareness. Increasing subsidy was another important suggestion, particularly suggested by non-beneficiaries from Bihar (68 per cent). Non-beneficiaries also recommended training of farmers as one of the possibilities that would induce them to participate in the NFSM programme.

**Table 5.15: Suggestions for Inclusion of Non- Beneficiary for Availing Benefits under NFSM
(only Non-Beneficiary)**

States	More publicity is needed	All categories of farmers should be allowed to avail the benefit	Subsidy should be increased	Strengthen extension services	Other suggestions like training, avoiding political interference etc	Total
Assam	0.00	31.50	18.50	50.00	0.00	100.00
Karnataka	76.47	5.88	2.94	14.71	0.00	100.00
Tamil Nadu	36.00	30.00	0.00	0.00	34.00	100.00
West Bengal	26.00	34.00	0.00	0.00	40.00	100.00
Bihar	0.00	0.00	68.34	18.25	13.41	100.00
Himachal Pradesh	100.00	0.00	0.00	0.00	0.00	100.00
Madhya Pradesh	87.00	0.00	0.00	0.00	13.00	100.00
Uttar Pradesh	0.00	10.00	10.00	24.00	56.00	100.00
Gujarat	53.00	0.00	40.00	3.00	4.00	100.00
Total	42.05	12.38	15.53	12.22	17.82	100.00



Findings and Policy Suggestions

CHAPTER
06

Findings and Policy Suggestions

This chapter summarizes the important findings and policy suggestions of the study which are as under:

6.1. Impact of NFSM on area, production and yield - a macro analysis

1. The production of Rice in India increased from 933.55 lakh tons in 2006-07 (last year of 10th FYP) to 1047.97 lakh tons by the end of 2014-15 (third year of 12th FYP). This is an increase of 12.26 per cent. This increase in production of Rice has been achieved mainly due to increased productivity and not by increased area. The productivity increased by 12.15 per cent from 21.31 qtl per Ha in 2006-07 to 23.90 quintals per Ha in 2014-15.
2. The production of Wheat in India increased from 758.07 lakh tons in 2006-07 (last year of 10th FYP) to 889.39 lakh tons by the end of 2014-15 (third year of 12th FYP). This is an increase of 17.32 per cent. This increase in production of Wheat has been achieved mainly due to increased area of Wheat by 10.62 per cent from 279.95 lakh ha. in 2006-07 to 309.68 lakh ha in 2014-15. The productivity increased by 6.06 per cent from 27.08 qtl per Ha in 2006-07 to 28.72 qtl per Ha in 2014-15.
3. The production of Pulses in India increased from 89.82 lakh tons in 2006-07 (last year of 10th FYP) to 107.74 lakh tons by the end of 2014-15 (third year of 12th FYP). This is an increase of 19.95 per cent. This increase in production of Pulses has been achieved mainly due to increased productivity and not by increased area. The productivity increased by 17.38 per cent from 6.56 qtl per Ha in 2006-07 to 7.70 qtl per Ha in 2014-15.

Financial progress in selected States

- An amount of Rs.2214.72 crores were released during 11th Five Year Plan under NFSM scheme to nine States that were selected for study. These States managed to spend Rs.1880.36 crores which works out to 85 per cent of the released amount. While the expenditure during first three years of the programme went up drastically, in the last two years the expenditure started declining. The downward trend was more conspicuous in the paddy States than in wheat States.
- Assam had spent the entire amount released to the State in all the years of NFSM implementation. The maximum release to expenditure ratio was observed in Bihar during the year 2009-10 which is highest not only among the paddy selected States, but also among all the States that were selected for the study. However, in the remaining years the ratio had declined. By and large, the release to expenditure ratio of all the wheat States put together showed increasing trend from first to last year of NFSM States whereas the paddy States fluctuated widely.
- The paddy selected States showed more than 100 per cent release to expenditure ratio in 2009-10. But it could not be sustained in the subsequent years. On the other hand, the wheat States retained the ratio all along the 11th plan period.

6.2. Socio-economic characteristics and cropping pattern of sample farmers

- Among beneficiaries, about 15 per cent belonged to either SC or ST category and 50 per cent and 35 per cent belonged to OBC and General Groups, respectively. Thus, showing a good representation of distribution of benefits across social groups.
- The average operational size holding of beneficiaries ranged from around 1 acre in West Bengal and Himachal Pradesh to 8.95 acres in Karnataka State. Even among non-beneficiaries, the operational was highest in Karnataka with 6.42 acres per HH and the least was 1 acre in case of Himachal Pradesh. The average operational holding size of the sample beneficiaries was 5 acres and that of non-beneficiaries was around 4 acres. Thus, the beneficiaries had higher operational land holding than the non-beneficiaries.
- The practice of leasing-in or leasing-out of land was found to be completely absent in Himachal Pradesh and Madhya Pradesh. The per HH leased-in or leased-out land, in Uttar Pradesh, was not significant. In fact, excluding Karnataka State, the leasing was less than one acre per household in other States. The tenancy practice was mainly on share cropping terms. However, fixed rent in cash and fixed rent in kind were also seen in a few States.
- Paddy and wheat together constituted 60 per cent and 61 per cent of the gross cropped area with respect to beneficiaries and non-beneficiaries, respectively. The farmers of West Bengal were more inclined to cultivate paddy as the area under paddy, as a per cent to gross cropped area, was highest as compared to remaining 8 States. It was the least in Himachal Pradesh.
- One striking observation about cropping pattern is that the non-beneficiaries of Assam, Tamil Nadu and West Bengal which were selected as paddy States had apportioned higher per cent of gross cropped area for paddy than the farmers who had received benefits under NFSM scheme. Similar situation was observed in Madhya Pradesh and Uttar Pradesh States which were selected for wheat.
- Net return, as an average of all States, per HH from agriculture was higher for beneficiary households by about 47 per cent than non-beneficiary households. However, the per household income derived by non-beneficiaries from agriculture sector was higher than beneficiaries in West Bengal and Bihar States by about 9 per cent and 7 per cent respectively. The per HH income of beneficiaries as well as non-beneficiaries from agriculture was lowest in West Bengal among all other States. The highest income of around Rs.5.40 lakh per beneficiary household and Rs.2.71 lakhs per non-beneficiary household was noticed in Uttar Pradesh.
- The per acre net income, averaged for all States, showed that the beneficiaries earned only a 2 per cent higher net income from agriculture as compared to non-beneficiaries. But the difference between beneficiary and non-beneficiary households with respect to per acre net return was much higher by around 134 per cent in Karnataka and 65 per cent in Tamil Nadu State. It was reverse in Bihar and Himachal Pradesh wherein the per acre net income of non-beneficiary farmers exceeded beneficiary households. The difference was around 21 per cent in Himachal Pradesh and even higher in Bihar (92 per cent). In all the States the farmers were more dependent on agricultural income than non-farming income.
- The productivity level of paddy and wheat of beneficiary household, worked out as an average of all the States, was higher than the non-beneficiary farmers. However, per acre paddy yield of

beneficiaries was only 1.48 quintals more than non-beneficiaries. The quantum of per acre wheat yield obtained by beneficiaries was in excess by 1.60 quintals than non-beneficiaries. Thus, the yield difference in paddy and wheat between beneficiary and non-beneficiary sample farmers was not significant. On the contrary, the non-beneficiary households of Himachal Pradesh had harvested paddy 2.25 quintals more than beneficiary households.

- The farmers had availed loan mainly from Commercial Banks and Primary Agricultural Credit Societies (PACS) among the institutional sources. Except Karnataka State, the farmers had not secured credit from private banks. Excluding Assam and Himachal Pradesh, the farmers had availed loan from PACS. Activities related to agriculture, animal husbandry and purchase of tractor were the reasons for availing farm loans by the sample farmers. The farmers had also taken loans for non-farming purposes like housing, social functions and for consumption. While agriculture loans were reported in all the States, the loan for animal husbandry was reported only in Karnataka and Tamil Nadu States. Thus, the non-beneficiaries used only 6 per cent of the total credit for non-farming purpose as against 24 per cent by the beneficiary households. The use of loan for non-farming purposes was up to 88 per cent by beneficiary farmers of West Bengal.

6.3. Impact of NFSM on input use, yield and income of sample farmers

- The component of seed /mini kits of high yielding varieties and hybrid rice were availed by beneficiaries of all the study States except Uttar Pradesh and Gujarat. In West Bengal and Himachal Pradesh this component was availed by all the sample households without exception. The subsidy for plant protection chemicals was another important component which was availed by around 28 per cent of sample beneficiaries spread over 6 States.
- The average subsidy ranged from around 6 per cent for multi-crop planters to 53 per cent in case of plant protection chemicals. The seed /mini kits of high yielding varieties and hybrid rice was subsidised to the extent of 100 per cent in Tamil Nadu whereas it was only 62 per cent in case of Himachal Pradesh.
- The seed drill availed under NFSM generated an annual income of Rs.23,000 by way of renting-out. The beneficiaries of Uttar Pradesh had earned up to Rs.60,000 per annum by letting-out seed drill. The result indicated that the beneficiaries were letting-out the seed drills more than using it on their farms.
- Except for the beneficiaries of machines / tools almost all the beneficiaries of mechanisation had expressed the view that they could reduce labour cost by 5 to 10 per cent.
- Excluding a couple of sample farmers, almost all the sample households were growing only Kharif paddy. The Kharif paddy grain yield and net returns per acre reaped by sample beneficiary farmers was higher by 7 per cent and 22 per cent as compared with non-beneficiary farmers. On the contrary, the costs per acre for beneficiaries were lower by 4 per cent as compared with non-beneficiaries. There were huge variations in yield of paddy among beneficiaries and non-beneficiaries. Many farmers had also realized paddy output ranging from 30-40 quintals per acre depending on the cropped area and methods of cultivation. Such wide gap in productivity levels between beneficiaries and non-beneficiaries could be bridged through proper training and skill development of farmers mainly by the Agriculture Department.

- The summer paddy grain yield and net returns per acre reaped by sample beneficiary farmers was higher by 15 per cent and 31 per cent as compared with non-beneficiary farmers.
- Around 95 per cent of the beneficiaries had sold their paddy output. In case of non-beneficiaries, the per cent of those who sold was 92 per cent.
- Excluding a couple of sample farmers, almost all the 1600 Wheat sample households were growing only Rabi wheat. The Rabi grain yield and net returns per acre reaped by sample beneficiary farmers was higher by 12 per cent and 27 per cent as compared with non-beneficiary farmers. On the contrary, the costs per acre for beneficiaries were lower by 4 per cent as compared with non-beneficiaries. There were huge variations in yield of wheat among beneficiaries and non-beneficiaries. Many farmers had also realized wheat output ranging from 15-30 quintals per acre depending on the cropped area and methods of cultivation. Such wide gap in productivity levels between beneficiaries and non-beneficiaries could be bridged through proper training and skill development of farmers mainly by the Agriculture Department.

6.4. Participation decision, constraints and suggestions for improvement of NFSM

- The Econometric results shows that number of family members dependent on farming, education level of farmers and total owned land have positive coefficients in Assam, Karnataka, Bihar and Himachal Pradesh. But in Tamil Nadu it was negative. In the remaining States they were not significant.
- Lack of comprehensive information dissemination was a major constraint in West Bengal, Bihar and Madhya Pradesh States. It is only in Uttar Pradesh where information on NFSM programme is comprehensive. Constraint with regard to documentation was highly pronounced in Madhya Pradesh and Bihar States. Biased selectivity for extending subsidy was quoted as another important constraint for availing benefits under NFSM.
- Creating awareness about NFSM programme, provision of credit were major suggestions received from beneficiaries and non-beneficiaries for improving NFSM programme.

6.5. Policy Suggestions

- The terms of leasing-in and leasing-out not based on fair terms and are charged varying rates. In order to address these concerns, there is ample scope for formalizing land leasing and land sharing institutions for promoting efficiency in farming.
- Except few cases, the sample farmers have not owned paddy harvesters. Because it is not affordable to them in spite of subsidy from government. Currently, farmers were renting from private by paying higher charges. Thus, farmers suggested for implementation of hiring arrangements from Agricultural Department at subsidized rates.
- More efforts should be made by the Agricultural Department/RSKs/KVKs/Gram Panchayats in disseminating the NFSM benefits, so as to cover more number of farmers.
- Most of the beneficiaries have been benefitted for low cost items such as seeds, PPCs, sprayers and micro-nutrients. Beneficiaries suggested for providing access to quality benefits as well as increase

access to higher cost items such as tractors and tractor drawn implements. By doing so, productivity and income of households can be further improved.

- Wide variations in yield of paddy were noticed among beneficiary and non-beneficiaries ranging from about 10 quintals per acre to 40 quintals per acre. Such wide gap in yield levels in general and more specifically between beneficiaries and non-beneficiaries can be reduced through proper training and skill development of farmers by Agriculture Department.
- Most of the beneficiaries and non-beneficiaries have sold their paddy to either private companies/ mills and are receiving non-remunerative price. Hence, alternative marketing arrangements for rice are needed to promote competition and efficiency in rice marketing system so that farmers receive competitive price. It also aids in increasing the producers share in the consumer basket.
- The minimum support prices for the paddy and wheat may be increased considering the implicit and explicit costs with reasonable profit margin.
- Scientific technology to be imparted among the farmers to avoid pre and post-harvest losses which can enhance the quality of the produce.
- Suggestions given by the beneficiaries and non-beneficiaries to improve NFSM:
 - **Beneficiaries:** institutional financing should be provided for high investment benefits at reasonable subsidy rates (eg. machinery and equipments); more capacity building/ technical advice needed for promoting effective use of benefits; MSP for paddy should be increased considering the implicit and explicit costs; and providing access to quality inputs.
 - **Non-Beneficiaries:** The non-beneficiaries had also suggested for increasing the MSP of paddy and subsidy share on farm implements as well as popularizing the programme through various communication modes. Some of them even opined that they have not participated in the NFSM programme as land records are not in their names. Additionally, suggested for inclusion of paddy growers under MGNREGA

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CHAPTER

07

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The background of the page is a close-up photograph of several green wheat stalks. The stalks are in sharp focus, showing the individual grains and the long, thin awns. The color is a vibrant green. A horizontal white band is superimposed over the middle of the image, containing the text.

Annexures

ANNEXURE I

ANNEXURE 1.1A

State-wise, year-wise and crop-wise names of districts covered during 11th Five Year Plan in the States selected for the study

1.ASSAM

Name of the Crop	2007-08	2008-09	2009-10	2010-11	2011-12
Rice	Barpeta	Barpeta	Barpeta	Barpeta	Barpeta
	Bongaigaon	Bongaigaon	Bongaigaon	Bongaigaon	Bongaigaon
	Darrang	Darrang	Darrang	Cachar	Darrang
	Dhemaji	Dhemaji	Dhemaji	Darrang	Dhemaji
	Goalpara	Goalpara	Goalpara	Dhemaji	Goalpara
	Karbianglong	Karbianglong	Karbianglong	Dhubri	Karbianglong
	Kokrajhar	Kokrajhar	Kokrajhar	Dibrugarh	Kokrajhar
	Lakshimpur	Lakshimpur	Lakshimpur	Goalpara	Lakshimpur
	Marigaon	Marigaon	Marigaon	Golaghat	Marigaon
	Nagaon	Nagaon	Nagaon	Hailakandi	Nagaon
	Nalbari	Nalbari	Nalbari	Jorhat	Nalbari
	Sonitpur	Sonitpur	Sonitpur	Kamrup	Sonitpur
	Tinsukia (13)	Tinsukia (13)	Tinsukia (13)	Karbianglong	Tinsukia (13)
				Karimganj	
				Kokrajhar	
				Lakhimpur	
				Marigaon	
				Nagaon	
				Nalbari	
				North cachar hills	
			Sivasagar		
			Sonitpur		
			Tinsukia		
			Chirang		
			Baska		
			Udalguri (26)		
Wheat	Not covered (0)	Not covered(0)	Not covered (0)	Not covered (0)	Not covered (0)
Pulses	Not covered (0)	Not covered(0)	Not covered(0)	Barpeta	Barpeta
				Bongaigaon	Bongaigaon
				Dhubri	Dhubri
				Jorhat	zorhat
				Kamrup	Kamrup
				Kokrajhar	Kokrajhar
				Nagaon	Nagaon
				Sonitpur	Sonitpur
				Baska	Baska
			Udalguri (10)	Udalguri (10)	

ANNEXURE 1.1A

State-wise, year-wise and crop-wise names of Districts covered during 11th Five Year Plan in the States selected for the study

2. KARNATAKA

Name of the Crop	2007-08	2008-09	2009-10	2010-11	2011-12
Rice	Belgaum	Belgaum	Belgaum	Belgaum	Belgaum
	Dakshina Kannada	Dakshina Kannada	Dakshina Kannada	Dakshina Kannada	Dakshina Kannada
	Hassan	Hassan	Hassan	Hassan	Hassan
	Raichur	Raichur	Raichur	Raichur	Raichur
	Shimoga	Shimoga	Shimoga	Shimoga	Shimoga
	Udupi	Udupi	Udupi	Udupi	Udupi
	Uttar Kannada (7)	Uttar Kannada (7)	Uttar Kannada (7)	Uttar Kannada (7)	Uttar Kannada (7)
Wheat	Not covered (0)	Not covered (0)	Not covered (0)	Not covered (0)	Not covered (0)
Pulses	Bagalkot	Bagalkot	Bagalkot	Bagalkot	Bagalkot
	Belgaum	Belgaum	Bangalore	Bangalore	Bangalore
	Bellary	Bellary	Bangalore rural	Bangalore rural	Bangalore rural
	Bidar	Bidar	Belgaum	Belgaum	Belgaum
	Bijapur	Bijapur	Bellary	Bellary	Bellary
	Chitradurga	Chitradurga	Bidar	Bidar	Bidar
	Dharwad	Dharwad	Bijapur	Bijapur	Bijapur
	Gadag	Gadag	Chamarajanagar	Chamarajanagar	Chamarajanagar
	Gulbarga	Gulbarga	Chikkamagalur	Chikkamagalur	Chikkamagalur
	Koppal	Koppal	Chitradurga	Chitradurga	Chitradurga
	Mysore	Mysore	Dakshina Kannada	Dakshina Kannada	Dakshina Kannada
	Raichur	Raichur	Davanagere	Davanagere	Davanagere
	Tumkur (13)	Tumkur (13)	Dharwad	Dharwad	Dharwad
			Gadag	Gadag	Gadag
			Gulbarga	Gulbarga	Gulbarga
			Hassan	Hassan	Hassan
			Haveri	Haveri	Haveri
			Kodagu	Kodagu	Kodagu
			Kolar	Kolar	Kolar
			Koppal	Koppal	Koppal
			Mandya	Mandya	Mandya
			Mysore	Mysore	Mysore
			Raichur	Raichur	Raichur
			Shimoga	Shimoga	Shimoga
			Tumkur	Tumkur	Tumkur
			Udupi	Udupi	Udupi
			Uttar Kannada	Uttar Kannada	Uttar Kannada
			Chikkaballapur	Chikkaballapur	Chikkaballapur
			Ramanagar(29)	Ramanagar	Ramanagar
			Yadgir (30)	Yadgir (30)	

ANNEXURE 1.1A

State-wise, year-wise and crop-wise names of districts covered during 11th Five Year Plan in the States selected for the study

3. TAMIL NADU

Name of the Crop	2007-08	2008-09	2009-10	2010-11	2011-12
Rice	Nagapattinam	Nagapattinam	Nagapattinam	Nagapattinam	Nagapattinam
	Pudukkottai	Pudukkottai	Pudukkottai	Pudukkottai	Pudukkottai
	Ramanathapuram	Ramanathapuram	Ramanathapuram	Ramanathapuram	Ramanathapuram
	Sivaganga	Sivaganga	Sivaganga	Sivaganga	Sivaganga
	Thiruvarur (5)	Thiruvarur (5)	Thiruvarur (5)	Thiruvarur (5)	Thiruvarur (5)
Wheat	Not covered (0)	Not covered (0)	Not covered (0)	Not covered (0)	Not covered (0)
Pulses	Coimbatore	Coimbatore	Coimbatore	Coimbatore	Coimbatore
	Cuddalore	Cuddalore	Cuddalore	Cuddalore	Cuddalore
	Erode	Erode	Dharmapuri	Dharmapuri	Dharmapuri
	Nagapattinam	Nagapattinam	Dindigul	Dindigul	Dindigul
	Namakkal	Namakkal	Erode	Erode	Erode
	Thiruvallur	Thiruvallur	Kanchipuram	Kanchipuram	Kanchipuram
	Thiruvarur	Thiruvarur	Kanniyakumari	Kanniyakumari	Kanniyakumari
	Tiruvannamalai	Tiruvannamalai	Karur	Karur	Karur
	Tuticorin	Tuticorin	Krishnagiri	Krishnagiri	Krishnagiri
	Vellore	Vellore	Madurai	Madurai	Madurai
	Villupuram	Villupuram	Namakkal	Nagapattinam	Nagapattinam
	Virudhunagar (12)	Virudhunagar (12)	Perambalur	Namakkal	Namakkal
			Pudukkottai	Perambalur	Perambalur
			Salem	Pudukkottai	Pudukkottai
			Sivaganga	Ramanathapuram	Ramanathapuram
			Thanjavur	Salem	Salem
			Theni	Sivaganga	Sivaganga
			Thiruvallur	Thanjavur	Thanjavur
			Thiruvarur	The Nilgiris	The Nilgiris
			Tiruchirappalli	Theni	Theni
			Tirunelveli	Thiruvallur	Thiruvallur
			Tiruvannamalai	Tiruchirappalli	Tiruchirappalli
			Tuticorin	Tirunelveli	Tirunelveli
			Vellore	Tiruvannamalai	Tiruvannamalai
			Villupuram	Tuticorin	Tuticorin
			Virudhunagar (26)	Vellore	Vellore
			Villupuram	Villupuram	
			Virudhunagar	Virudhunagar	
			Ariyalur (29)	Ariyalur (29)	

ANNEXURE 1.1A

State-wise, year-wise and crop-wise names of districts covered during 11th Five Year Plan in the States selected for the study

4. WEST BENGAL

Name of the Crop	2007-08	2008-09	2009-10	2010-11	2011-12
Rice	24 Paraganas south	24 Paraganas south	24 Paraganas south	24 Paraganas south	24 Paraganas south
	Coochbehar	Coochbehar	Coochbehar	Coochbehar	Coochbehar
	Dinajpur uttar	Dinajpur uttar	Dinajpur uttar	Dinajpur uttar	Dinajpur uttar
	Howrah	Howrah	Howrah	Howrah	Howrah
	Jalpaiguri	Jalpaiguri	Jalpaiguri	Jalpaiguri	Jalpaiguri
	Medinipur east	Medinipur east	Medinipur east	Medinipur east	Medinipur east
	Medinipur west	Medinipur west	Medinipur west	Medinipur west	Medinipur west
Purulia (8)	Purulia (8)	Purulia (8)	Purulia (8)	Purulia (8)	
Wheat	Not covered (0)	Coochbehar	Coochbehar	Coochbehar	Coochbehar
		Dinajpur dakshin	Dinajpur dakshin	Dinajpur dakshin	Dinajpur dakshin
		Dinajpur uttar	Dinajpur uttar	Dinajpur uttar	Dinajpur uttar
		Jalpaiguri (4)	Jalpaiguri (4)	Jalpaiguri (4)	Jalpaiguri (4)
Pulses	Birbhum	Birbhum	24 Paraganas North	Birbhum	24 Paraganas North
	maldah	maldah	24 Paraganas South	maldah	24 Paraganas South
	Murshidabad	Murshidabad	Bankura	Murshidabad	Bankura
	Nadia	Nadia	Bardhaman	Nadia	Bardhaman
	Purulia (5)	Purulia (5)	Birbhum	Purulia (5)	Birbhum
			Coochbehar		Coochbehar
			Darjeeling		Darjeeling
			Dinajpur Dakshin		Dinajpur Dakshin
			Dinajpur Uttar		Dinajpur Uttar
			Hooghly		Hooghly
			Howrah		Howrah
			Jalpaiguri		Jalpaiguri
			Maldah		Maldah
			Medinipur East		Medinipur East
			Medinipur West		Medinipur West
		Murshidabad		Murshidabad	
		Nadia		Nadia	
		Purulia (18)		Purulia (18)	

ANNEXURE 1.1A

State-wise, year-wise and crop-wise names of districts covered during 11th Five Year Plan in the States selected for the study

5. BIHAR

Name of the Crop	2007-08	2008-09	2009-10	2010-11	2011-12
Rice	Araria	Araria	Araria	Araria	Araria
	Banka	Banka	Banka	Banka	Banka
	Darbhanga	Darbhanga	Darbhanga	Darbhanga	Darbhanga
	gaya	gaya	gaya	gaya	gaya
	Jamui	Jamui	Jamui	Jamui	Jamui
	Katihar	Katihar	Katihar	Katihar	Katihar
	Kishanganj	Kishanganj	Kishanganj	Kishanganj	Kishanganj
	Madhepura	Madhepura	Madhepura	Madhepura	Madhepura
	Madhubani	Madhubani	Madhubani	Madhubani	Madhubani
	Muzaffarpur	Muzaffarpur	Muzaffarpur	Muzaffarpur	Muzaffarpur
	Nalanda	Nalanda	Nalanda	Nalanda	Nalanda
	Pashchim champaran	Pashchim champaran	Pashchim champaran	Pashchim champaran	Pashchim champaran
	Purbi champaran	Purbi champaran	Purbi champaran	Purbi champaran	Purbi champaran
	Saharsa	Saharsa	Saharsa	Saharsa	Saharsa
	Samastipur	Samastipur	Samastipur	Samastipur	Samastipur
	Sitamarhi	Sitamarhi	Sitamarhi	Sitamarhi	Sitamarhi
	Siwan	Siwan	Siwan	Siwan	Siwan
	Supaul (18)	Supaul (18)	Supaul (18)	Supaul (18)	Supaul (18)
Wheat	Araria	Araria	Araria	Araria	Araria
	Banka	Banka	Banka	Banka	Banka
	Bhagalpur	Bhagalpur	Bhagalpur	Bhagalpur	Bhagalpur
	Darbhanga	Darbhanga	Darbhanga	Darbhanga	Darbhanga
	Jamui	Jamui	Jamui	Jamui	Jamui
	Kaimur (Bhabhua)	Kaimur (Bhabhua)	Kaimur (Bhabhua)	Kaimur (Bhabhua)	Kaimur (Bhabhua)
	Katihar	Katihar	Katihar	Katihar	Katihar
	Khagaria	Khagaria	Khagaria	Khagaria	Khagaria
	Kishanganj	Kishanganj	Kishanganj	Kishanganj	Kishanganj
	Madhepura	Madhepura	Madhepura	Madhepura	Madhepura
	Madhubani	Madhubani	Madhubani	Madhubani	Madhubani
	Munger	Munger	Munger	Munger	Munger
	Muzaffarpur	Muzaffarpur	Muzaffarpur	Muzaffarpur	Muzaffarpur
	Nalanda	Nalanda	Nalanda	Nalanda	Nalanda
	Nawada	Nawada	Nawada	Nawada	Nawada
	Pashchim champaran	Pashchim champaran	Pashchim champaran	Pashchim champaran	Pashchim champaran
	Purbi champaran	Purbi champaran	Purbi champaran	Purbi champaran	Purbi champaran
	Purnia	Purnia	Purnia	Purnia	Purnia
	Rohtas	Rohtas	Rohtas	Rohtas	Rohtas
	Samastipur	Samastipur	Samastipur	Samastipur	Samastipur
	Saran	Saran	Saran	Saran	Saran
Sheikhpura	Sheikhpura	Sheikhpura	Sheikhpura	Sheikhpura	
Sitamarhi	Sitamarhi	Sitamarhi	Sitamarhi	Sitamarhi	
Supaul	Supaul	Supaul	Supaul	Supaul	
Vaishali (25)	Vaishali (25)	Vaishali (25)	Vaishali (25)	Vaishali (25)	

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Table contd...

Pulses	Araria	Araria	Araria	Araria	Araria
	Aurangabad	Aurangabad	Aurangabad	Aurangabad	Aurangabad
	Bhojpur	Bhojpur	Bhojpur	Banka	Banka
	Kaimur(Bhabhua)	Kaimur(Bhabhua)	Kaimur(Bhabhua)	Begusarai	Begusarai
	Madhepura	Madhepura	Madhepura	Bhagalpur	Bhagalpur
	Madhubani	Madhubani	Madhubani	Bhojpur	Bhojpur
	Muzaffarpur	Muzaffarpur	Muzaffarpur	Buxar	Buxar
	Nalanda	Nalanda	Nalanda	Darbhanga	Darbhanga
	Patna	Patna	Patna	Gaya	Gaya
	Purnia	Purnia	Purnia	Gopalganj	Gopalganj
	Saharsa	Saharsa	Saharsa	Jamui	Jamui
	Samastipur	Samastipur	Samastipur	Jehanabad	Jehanabad
	Supaul (13)	Supaul (13)	Supaul (13)	Kaimur (Bhabhua)	Kaimur (Bhabhua)
				Katihar	Katihar
				Khagaria	Khagaria
				Kishanganj	Kishanganj
				Lakhisarai	Lakhisarai
				Madhepura	Madhepura
				Madhubani	Madhubani
				Munger	Munger
				Muzaffarpur	Muzaffarpur
				Nalanda	Nalanda
				Nawada	Nawada
				Pashchim Champaran	Pashchim Champaran
				Patna	Patna
				Purbi Champaran	Purbi Champaran
				Purnia	Purnia
				Rohtas	Rohtas
				Saharsa	Saharsa
				Samastipur	Samastipur
				Saran	Saran
				Sheikhpura	Sheikhpura
				Sheohar	Sheohar
			Sitamarhi	Sitamarhi	
			Siwan	Siwan	
			Supaul	Supaul	
			Vaishali	Vaishali	
			Arwal (38)	Arwal (38)	

ANNEXURE 1.1A

State-wise, year-wise and crop-wise names of districts covered during 11th Five Year Plan in the States selected for the study

6. HIMACHAL PRADESH

Name of the Crop	2007-08	2008-09	2009-10	2010-11	2011-12
Rice	Not covered (0)	Not covered (0)	Not covered (0)	Not covered (0)	Not covered (0)
Wheat	Not covered (0)	Not covered (0)	Not covered (0)	Not covered (0)	Not covered (0)
Pulses	Not covered (0)	Not covered (0)	Not covered (0)	Not covered (0)	Not covered (0)

ANNEXURE 1.1A

State-wise, year-wise and crop-wise names of districts covered during 11th Five Year Plan in the States selected for the study

7.MADHYA PRADESH

Name of the Crop	2007-08	2008-09	2009-10	2010-11	2011-12
Rice	Anuppur	Anuppur	Anuppur	Anuppur	Anuppur
	Damoh	Damoh	Damoh	Damoh	Damoh
	Dindori	Dindori	Dindori	Dindori	Dindori
	Katni	Katni	Katni	Mandla	Katni
	Mandla	Mandla	Mandla	Panna	Mandla
	Panna	Panna	Panna	Rewa	Panna
	Rewa	Rewa	Rewa	Satna	Rewa
	Satna	Satna	Satna	Shahdol	Satna
	Shahdol (9)	Shahdol (9)	Shahdol (9)	Balaghat (9)	Shahdol (9)
Wheat	Balaghat	Balaghat	Balaghat	Betul	Balaghat
	Betul	Betul	Betul	Bhind	Betul
	Bhind	Bhind	Bhind	Chhatarpur	Bhind
	Chhatarpur	Chhatarpur	Chhatarpur	Damoh	Chhatarpur
	Damoh	Damoh	Damoh	Dewas	Damoh
	Dewas	Dewas	Dewas	Dhar	Dewas
	Dhar	Dhar	Dhar	Dindori	Dhar
	Dindori	Dindori	Dindori	Guna	Dindori
	East Nimar	East Nimar	East Nimar	Harda	East Nimar
	Guna	Guna	Guna	Indore	Guna
	Harda	Harda	Harda	Jabalpur	Harda
	Indore	Indore	Indore	Jhabua	Indore
	Jabalpur	Jabalpur	Jabalpur	Katni	Jabalpur
	Jhabua	Jhabua	Jhabua	Mandla	Jhabua
	Katni	Katni	Katni	Panna	Katni
	Mandla	Mandla	Mandla	Raisen	Mandla
	Panna	Panna	Panna	Rajgarh	Panna
	Raisen	Raisen	Raisen	Rewa	Raisen
	Rajgarh	Rajgarh	Rajgarh	Sagar	Rajgarh
	Rewa	Rewa	Rewa	Satna	Rewa
	Sagar	Sagar	Sagar	Sehore	Sagar
	Satna	Satna	Satna	Seoni	Satna
	Sehore	Sehore	Sehore	Shahdol	Sehore
	Seoni	Seoni	Seoni	Shivpuri	Seoni
	Shahdol	Shahdol	Shahdol	Sidhi	Shahdol
	Shivpuri	Shivpuri	Shivpuri	Tikamgarh	Shivpuri
	Sidhi	Sidhi	Sidhi	Ujjain	Sidhi
	Tikamgarh	Tikamgarh	Tikamgarh	Vidisha(28)	Tikamgarh
	Ujjain	Ujjain	Ujjain		Ujjain (29)
	Vidisha (30)	Vidisha (30)	Vidisha (30)		

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Table contd...

Pulses	Chhatarpur	Chhatarpur	Anuppur	Anuppur	Anuppur
	Chhindwara	Chhindwara	Ashoknagar	Ashoknagar	Ashoknagar
	Damoh	Damoh	Balaghat	Balaghat	Balaghat
	Dewas	Dewas	Barwani	Barwani	Barwani
	Guna	Guna	Betul	Betul	Betul
	Jabalpur	Jabalpur	Bhind	Bhind	Bhind
	Jhabua	Jhabua	Bhopal	Bhopal	Bhopal
	Narsinghpur	Narsinghpur	Burhanpur	Burhanpur	Burhanpur
	Panna	Panna	Chhatarpur	Chhatarpur	Chhatarpur
	Raisen	Raisen	Chhindwara	Chhindwara	Chhindwara
	Rajgarh	Rajgarh	Damoh	Damoh	Damoh
	Rewa	Rewa	Datia	Datia	Datia
	Sagar	Sagar	Dewas	Dewas	Dewas
	Satna	Satna	Dhar	Dhar	Dhar
	Seoni	Seoni	Dindori	Dindori	Dindori
	Shajapur	Shajapur	East Nimar	Guna	East Nimar
	Shivpuri	Shivpuri	Guna	Gwalior	Guna
	Tikamgarh	Tikamgarh	Gwalior	Harda	Gwalior
	Ujjain	Ujjain	Harda	Hoshangabad	Harda
	Vidisha (20)	Vidisha (20)	Hoshangabad	Indore	Hoshangabad
			Indore	Jabalpur	Indore
			Jabalpur	Jhabua	Jabalpur
			Jhabua	Katni	Jhabua
			Katni	Mandla	Katni
			Mandla	Mandsaur	West Nimar (Khargon)
			Mandsaur	Morena	Mandla
			Morena	Narsinghpur	Mandsaur
			Narsinghpur	Neemuch	Morena
			Neemuch	Panna	Narsinghpur
			Panna	Raisen	Neemuch
			Raisen	Rajgarh	Panna
			Rajgarh	Ratlam	Raisen
			Ratlam	Rewa	Rajgarh
			Rewa	Sagar	Ratlam
			Sagar	Satna	Rewa
			Satna	Sehore	Sagar
			Sehore	Seoni	Satna
			Seoni	Shahdol	Sehore
			Shahdol	Shajapur	Seoni
			Shajapur	Shivpuri	Shahdol
		Sheopur	Sidhi	Shajapur	
		Shivpuri	Tikamgarh	Sheopur	
		Sidhi	Ujjain	Shivpuri	
		Tikamgarh	Vidisha	Sidhi	
		Ujjain	Alirajpur	Tikamgarh	
		Umaria	Singrauli (46)	Ujjain	
		Vidisha		Umaria	
		Alirajpur		Vidisha	
		Singrauli		Alirajpur	
		Agar Malwa(50)		Singrauli	
				Agar Malwa(51)	

ANNEXURE 1.1A

State-wise, year-wise and crop-wise names of districts covered during 11th Five Year Plan in the States selected for the study

8. UTTAR PRADESH

Name of the Crop	2007-08	2008-09	2009-10	2010-11	2011-12
Rice	Azamgarh	Azamgarh	Azamgarh	Azamgarh	Azamgarh
	Beharaich	Beharaich	Beharaich	Beharaich	Beharaich
	Ballia	Ballia	Ballia	Ballia	Ballia
	Balrampur	Balrampur	Balrampur	Balrampur	Balrampur
	Banda	Banda	Banda	Banda	Banda
	Bareilly	Bareilly	Bareilly	Bareilly	Bareilly
	Basti	Basti	Basti	Basti	Basti
	Badaun	Badaun	Badaun	Badaun	Badaun
	Deoria	Deoria	Deoria	Deoria	Deoria
	Fatehpur	Fatehpur	Fatehpur	Fatehpur	Fatehpur
	Ghazipur	Ghazipur	Ghazipur	Ghazipur	Ghazipur
	Gonda	Gonda	Gonda	Gonda	Gonda
	Gorakhpur	Gorakhpur	Gorakhpur	Gorakhpur	Gorakhpur
	Hardoi	Hardoi	Hardoi	Hardoi	Hardoi
	Mainpuri	Mainpuri	Mainpuri	Mainpuri	Mainpuri
	Mau	Mau	Mau	Mau	Mau
	Mirzapur	Mirzapur	Mirzapur	Mirzapur	Mirzapur
	Rae Bareli	Rae Bareli	Rae Bareli	Rae Bareli	Rae Bareli
	Rampur	Rampur	Rampur	Rampur	Rampur
	Saharanpur	Saharanpur	Saharanpur	Saharanpur	Saharanpur
	Shravasti	Shravasti	Shravasti	Shravasti	Shravasti
	Siddharth Nagar	Siddharth Nagar	Siddharth Nagar	Siddharth Nagar	Siddharth Nagar
	Sitapur	Sitapur	Sitapur	Sitapur	Sitapur
	Sonbhadra	Sonbhadra	Sonbhadra	Sonbhadra	Sonbhadra
	Sultanpur	Sultanpur	Sultanpur	Sultanpur	Sultanpur
	Unnao (26)	Unnao (26)	Unnao (26)	Unnao	Unnao
			Chatrapati Shahu	Chatrapati Shahu	
			Ji Maharaj (28)	Ji Maharaj(28)	
Wheat	llahabad	llahabad	llahabad	llahabad	llahabad
	Ambedkar Nagar	Ambedkar Nagar	Ambedkar Nagar	Ambedkar Nagar	Ambedkar Nagar
	Azamgarh	Azamgarh	Azamgarh	Azamgarh	Azamgarh
	Beharaich	Beharaich	Beharaich	Beharaich	Beharaich
	Ballia	Ballia	Ballia	Ballia	Ballia
	Balrampur	Balrampur	Balrampur	Balrampur	Balrampur
	Barabanki	Barabanki	Barabanki	Barabanki	Barabanki
	Bareilly	Bareilly	Bareilly	Bareilly	Bareilly
	Basti	Basti	Basti	Basti	Basti
	Chandauli	Chandauli	Chandauli	Chandauli	Chandauli
	Deoria	Deoria	Deoria	Deoria	Deoria
	Faizabad	Faizabad	Faizabad	Faizabad	Faizabad
	Fatehpur	Fatehpur	Fatehpur	Fatehpur	Fatehpur
	Ghazipur	Ghazipur	Ghazipur	Ghazipur	Ghazipur
	Gonda	Gonda	Gonda	Gonda	Gonda
	Gorakhpur	Gorakhpur	Gorakhpur	Gorakhpur	Gorakhpur
	Hamirpur	Hamirpur	Hamirpur	Hamirpur	Hamirpur
	Hardoi	Hardoi	Hardoi	Hardoi	Hardoi
	Jaunpur	Jaunpur	Jaunpur	Jaunpur	Jaunpur
	Jhansi	Jhansi	Jhansi	Jhansi	Jhansi

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Table contd...

	Kaushambi	Kaushambi	Kaushambi	Kaushambi	Kaushambi
	Kushi Nagar	Kushi Nagar	Kushi Nagar	Kushi Nagar	Kushi Nagar
	Lucknow	Lucknow	Lucknow	Lucknow	Lucknow
	Maharajganj	Maharajganj	Maharajganj	Maharajganj	Maharajganj
	Mainpuri	Mainpuri	Mainpuri	Mainpuri	Mainpuri
	Mathura	Mathura	Mathura	Mathura	Mathura
	Mau	Mau	Mau	Mau	Mau
	Pratapgarh	Pratapgarh	Pratapgarh	Pratapgarh	Pratapgarh
	Rae Bareli	Rae Bareli	Rae Bareli	Rae Bareli	Rae Bareli
	Sant Kabeer Nagar	Sant Kabeer Nagar	Sant Kabeer Nagar	Sant Kabeer Nagar	Sant Kabeer Nagar
	Sant Ravidas Nagar	Sant Ravidas Nagar	Sant Ravidas Nagar	Sant Ravidas Nagar	Sant Ravidas Nagar
	Shravasti	Shravasti	Shravasti	Shravasti	Shravasti
	Siddharth Nagar	Siddharth Nagar	Siddharth Nagar	Siddharth Nagar	SiddharthNagar
	Sitapur	Sitapur	Sitapur	Sitapur	Sitapur
	Sonbhadra	Sonbhadra	Sonbhadra	Sonbhadra	Sonbhadra
	Sultanpur	Sultanpur	Sultanpur	Sultanpur	Sultanpur
	Unnao	Unnao	Unnao	Unnao	Unnao
	Varanasi (38)	Varanasi (38)	Varanasi (38)	Varanasi	Varanasi
				Chatrapati Shahu Ji Maharaj (39)	Chatrapati Shahu Ji Maharaj (39)
Pulses	Beharaich	Beharaich	Agra	Agra	Agra
	Ballia	Ballia	Aligarh	Aligarh	Aligarh
	Balrampur	Balrampur	Allahabad	Allahabad	Allahabad
	Banda	Banda	Ambedkar Nagar	Ambedkar Nagar	Ambedkar Nagar
	Barabanki	Barabanki	Auraiya	Auraiya	Auraiya
	Badaun	Badaun	Azamgarh	Azamgarh	Azamgarh
	Chandauli	Chandauli	Baghpat	Baghpat	Baghpat
	Chitrakoot	Chitrakoot	Beharaich	Beharaich	Beharaich
	Fatehpur	Fatehpur	Ballia	Ballia	Ballia
	Hamirpur	Hamirpur	Balrampur	Balrampur	Balrampur
	Jalaun	Jalaun	Banda	Banda	Banda
	Jhansi	Jhansi	Barabanki	Barabanki	Barabanki
	Kanpur Dehat	Kanpur Dehat	Bareilly	Bareilly	Bareilly
	Kaushambi	Kaushambi	Basti	Basti	Basti
	Kheri	Kheri	Bijnor	Bijnor	Bijnor
	Lalitpur	Lalitpur	Badaun	Badaun	Badaun
	Mahoba	Mahoba	Bulandshahr	Bulandshahr	Bulandshahr
	Mirzapur	Mirzapur	Chandauli	Chandauli	Chandauli
	Sitapur (19)	Sitapur (19)	Chitrakoot	Chitrakoot	Chitrakoot
			Deoria	Deoria	Deoria
			Etah	Etah	Etah
			Etawah	Etawah	Etawah
			Faizabad	Faizabad	Faizabad
			Farrukhabad	Farrukhabad	Farrukhabad
			Fatehpur	Fatehpur	Fatehpur
			Firozabad	Firozabad	Firozabad
			Gautam Buddha Nagar	Gautam Buddha Nagar	Gautam Buddha Nagar
		Ghaziabad	Ghaziabad	Ghaziabad	
		Ghazipur	Ghazipur	Ghazipur	
		Gonda	Gonda	Gonda	

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Table contd...

			Gorakhpur	Gorakhpur	Gorakhpur
			Hamirpur	Hamirpur	Hamirpur
			Hardoi	Hardoi	Hardoi
			Jalaun	Jalaun	Jalaun
			Jaunpur	Jaunpur	Jaunpur
			Jhansi	Jhansi	Jhansi
			Jyotiba Phule Nagar	Jyotiba Phule Nagar	Jyotiba Phule Nagar
			Kannauj	Kannauj	Kannauj
			Kanpur Dehat	Kanpur Dehat	Kanpur Dehat
			Kanpur Nagar	Kanpur Nagar	Kanpur Nagar
			Kaushambi	Kaushambi	Kaushambi
			Kheri	Kheri	Kheri
			Kushi Nagar	Kushi Nagar	Kushi Nagar
			Lalitpur	Lalitpur	Lalitpur
			Lucknow	Lucknow	Lucknow
			Maharajganj	Maharajganj	Maharajganj
			Mahoba	Mahoba	Mahoba
			Mainpuri	Mainpuri	Mainpuri
			Mathura	Mathura	Mathura
			Mau	Mau	Mau
			Meerut	Meerut	Meerut
			Mirzapur	Mirzapur	Mirzapur
			Moradabad	Moradabad	Moradabad
			Muzaffarnagar	Muzaffarnagar	Muzaffarnagar
			Pilibhit	Pilibhit	Pilibhit
			Pratapgarh	Pratapgarh	Pratapgarh
			Rae Bareli	Rae Bareli	Rae Bareli
			Rampur	Rampur	Rampur
			Saharanpur	Saharanpur	Saharanpur
			Sant Kabeer Nagar	Sant Kabeer Nagar	Sant Kabeer Nagar
			Sant Ravidas Nagar	Sant Ravidas Nagar	Sant Ravidas Nagar
			Shahjahanpur	Shahjahanpur	Shahjahanpur
			Shravasti	Shravasti	Shravasti
			Siddharth Nagar	Siddharth Nagar	Siddharth Nagar
			Sitapur	Sitapur	Sitapur
			Sonbhadra	Sonbhadra	Sonbhadra
			Sultanpur	Sultanpur	Sultanpur
			Unnao	Unnao	Unnao
			Varanasi	Varanasi	Varanasi
			Chatrapati Shahu Ji Maharaj	Chatrapati Shahu Ji Maharaj	Chatrapati Shahu Ji Maharaj
			Kasganj (Kashiram Nagar) (71)	Kasganj (Kashiram Nagar) (71)	Kasganj (Kashiram Nagar) (71)

Pulses

ANNEXURE 1.1A

State-wise, year-wise and crop-wise names of districts covered during 11th Five Year Plan in the States selected for the study

9. GUJARAT

Name of the Crop	2007-08	2008-09	2009-10	2010-11	2011-12
Rice	Dohad	Dohad	Dohad	Dohad	Dohad
	Panch Mahals (2)	Panch Mahals (2)	Panch Mahals (2)	Panch Mahals (2)	Panch Mahals (2)
Wheat	Ahmadabad	Ahmadabad	Ahmadabad	Ahmadabad	Ahmadabad
	Banas Kantha	Banas Kantha	Banas Kantha	Banas Kantha	Banas Kantha
	Mahesana	Mahesana	Mahesana	Mahesana	Mahesana
	Sabar Kantha (4)	Sabar Kantha (4)	Sabar Kantha (4)	Sabar Kantha (4)	Sabar Kantha (4)
Pulses	Banas Kantha	Banas Kantha	Banas Kantha	Ahmadabad	Ahmadabad
	Bharuch	Bharuch	Bharuch	Amreli	Amreli
	Dohad	Dohad	Dohad	Anand	Anand
	Jamnagar	Jamnagar	Jamnagar	Banas Kantha	Banas Kantha
	Kutch	Kutch	Kutch	Bharuch	Bharuch
	Narmada	Narmada	Narmada	Bhavnagar	Bhavnagar
	Panch Mahals	Panch Mahals	Panch Mahals	Dang	Dang
	Patan	Patan	Patan	Dohad	Dohad
	Sabar Kantha	Sabar Kantha	Sabar Kantha	Gandhinagar	Gandhinagar
	Surat	Surat	Surat	Jamnagar	Jamnagar
	Vadodara (11)	Vadodara (11)	Vadodara (11)	Junagadh	Junagadh
				Kutch	Kutch
				Kheda	Kheda
				Mahesana	Mahesana
				Narmada	Narmada
				Navsari	Navsari
				Panch Mahals	Panch Mahals
				Patan	Patan
				Porbandar	Porbandar
				Rajkot	Rajkot
			Sabar Kantha	Sabar Kantha	
			Surat	Surat	
			Surendranagar	Surendranagar	
			Vadodara	Vadodara	
			Valsad	Valsad	
			Tapi (26)	Tapi (26)	

ANNEXURE 1.1B

State-wise, year-wise and crop-wise names of districts covered during 12th Five Year Plan in the States selected for the study

1.ASSAM

Name of the Crop	2012-13	2013-14	2014-15	2015-16
Rice	Barpeta	Barpeta	Barpeta	Barpeta
	Bongaigaon	Bongaigaon	Bongaigaon	Bongaigaon
	Darrang	Darrang	Darrang	Darrang
	Dhemaji	Dhemaji	Dhemaji	Dhemaji
	Goalpara	Goalpara	Karbi Anglong	Karbi Anglong
	Karbi Anglong	Karbi Anglong	Kokrajhar	Kokrajhar
	Kokrajhar	Kokrajhar	Lakhimpur	Lakhimpur
	Lakhimpur	Lakhimpur	Marigaon	Marigaon
	Marigaon	Marigaon	Sonitpur	Sonitpur
	Nagaon	Nagaon	Tinsukia	Tinsukia
	Nalbari	Nalbari	Chirang	Chirang
	Sonitpur	Sonitpur	Baska	Baska
	Tinsukia(13)	Tinsukia(13)	Udalguri (13)	Udalguri(13)
Wheat	Not Covered (0)	Not Covered (0)	Not Covered (0)	Barpeta (1)
Pulses	Barpeta	Barpeta	Barpeta	Barpeta
	Bongaigaon	Bongaigaon	Bongaigaon	Bongaigaon
	Dhubri	Dhubri	Cachar	Cachar
	Jorhat	Jorhat	Darrang	Darrang
	Kamrup	Kamrup	Dhemaji	Dhemaji
	Kokrajhar	Kokrajhar	Dhubri	Dhubri
	Nagaon	Nagaon	Dibrugarh	Dibrugarh
	Sonitpur	Sonitpur	Goalpara	Goalpara
	Baska	Baska	Golaghat	Golaghat
	Udalguri (10)	Udalguri(10)	Hailakandi	Hailakandi
			Jorhat	Jorhat
			Kamrup	Kamrup
			Karbi Anglong	Karbi Anglong
			Karimganj	Karimganj
			Kokrajhar	Kokrajhar
			Lakhimpur	Lakhimpur
			Marigaon	Marigaon
			Nagaon	Nagaon
			North Cachar Hills	North Cachar Hills
			Sivasagar	Sivasagar
			Sonitpur	Sonitpur
			Tinsukia	Tinsukia
			Chirang	Chirang
			Baska	Baska
			Udalguri	Udalguri
			Kamrup-Metro(26)	Kamrup-Metro(26)

ANNEXURE 1.1B

State-wise, year-wise and crop-wise names of districts covered during 12th Five Year Plan in the States selected for the study

2. KARNATAKA

Name of the Crop	2012-13	2013-14	2014-15	2015-16
Rice	Belgaum	Belgaum	Belgaum	Belgaum
	Dakshina Kannada	Dakshina Kannada	Dakshina Kannada	Dakshina Kannada
	Hassan	Hassan	Haveri	Haveri
	Raichur	Raichur	Shimoga	Shimoga
	Shimoga	Shimoga	Udupi	Udupi
	Udupi	Udupi	Uttar Kannada	Uttar Kannada
	Uttar Kannada (7)	Uttar Kannada (7)	Yadgir (7)	Yadgir (7)
Wheat	Not Covered (0)	Not Covered (0)	Not Covered (0)	Not Covered (0)
Pulses	Bagalkot	Bagalkot	Bagalkot	Bagalkot
	Bangalore	Bangalore	Bangalore	Bangalore
	Bangalore rural	Bangalore rural	Bangalore rural	Bangalore rural
	Belgaum	Belgaum	Belgaum	Belgaum
	Bellary	Bellary	Bellary	Bellary
	Bidar	Bidar	Bidar	Bidar
	Bijapur	Bijapur	Bijapur	Bijapur
	Chamarajanagar	Chamarajanagar	Chamarajanagar	Chamarajanagar
	Chikkmagalur	Chikkmagalur	Chikkmagalur	Chikkmagalur
	Chitradurga	Chitradurga	Chitradurga	Chitradurga
	Dakshina Kannada	Dakshina Kannada	Dakshina Kannada	Dakshina Kannada
	Davangere	Davangere	Davangere	Davangere
	Dharwad	Dharwad	Dharwad	Dharwad
	Gadag	Gadag	Gadag	Gadag
	Gulbarga	Gulbarga	Gulbarga	Gulbarga
	Hassan	Hassan	Hassan	Hassan
	Haveri	Haveri	Haveri	Haveri
	Kodagu	Kodagu	Kodagu	Kodagu
	Kolar	Kolar	Kolar	Kolar
	Koppal	Koppal	Koppal	Koppal
	Mandya	Mandya	Mandya	Mandya
	Mysore	Mysore	Mysore	Mysore
	Raichur	Raichur	Raichur	Raichur
	Shimoga	Shimoga	Shimoga	Shimoga
	Tumkur	Tumkur	Tumkur	Tumkur
	Udupi	Udupi	Udupi	Udupi
	Uttar Kannada	Uttar Kannada	Uttar Kannada	Uttar Kannada
	Chikballapur	Chikballapur	Chikballapur	Chikballapur
	Ramanagara	Ramanagara	Ramanagara	Ramanagara
	Yadgir (30)	Yadgir (30)	Yadgir (30)	Yadgir (30)

ANNEXURE 1.1B

State-wise, year-wise and crop-wise names of districts covered during 12th Five Year Plan in the States selected for the study

3. TAMIL NADU

Name of the Crop	2012-13	2013-14	2014-15	2015-16
Rice	Nagapattinam	Nagapattinam	Cuddalore	Cuddalore
	Pudukkottai	Pudukkottai	Nagapattinam	Nagapattinam
	Ramanathapuram	Ramanathapuram	Pudukkottai	Pudukkottai
	Sivaganga	Sivaganga	Ramanathapuram	Ramanathapuram
	Thiruvavur (5)	Thiruvavur (5)	Sivaganga	Sivaganga
			Thanjavur	Thanjavur
			Thiruvavur	Thiruvavur
		Tiruvannamalai(8)	Tiruvannamalai (8)	
Wheat	Not Covered (0)	Not Covered(0)	Not Covered(0)	Not Covered(0)
Pulses	Coimbatore	Coimbatore	Coimbatore	Coimbatore
	Cuddalore	Cuddalore	Cuddalore	Cuddalore
	Dharmapuri	Dharmapuri	Dharmapuri	Dharmapuri
	Dindigul	Dindigul	Dindigul	Dindigul
	Erode	Erode	Erode	Erode
	Kanchipuram	Kanchipuram	Kanchipuram	Kanchipuram
	Kanniyakumari	Kanniyakumari	Kanniyakumari	Kanniyakumari
	Karur	Karur	Karur	Karur
	Krishnagiri	Krishnagiri	Krishnagiri	Krishnagiri
	Madurai	Madurai	Madurai	Madurai
	Nagapattinam	Nagapattinam	Nagapattinam	Nagapattinam
	Namakkal	Namakkal	Namakkal	Namakkal
	Perambalur	Perambalur	Perambalur	Perambalur
	Pudukkottai	Pudukkottai	Pudukkottai	Pudukkottai
	Ramanathapuram	Ramanathapuram	Ramanathapuram	Ramanathapuram
	Salem	Salem	Salem	Salem
	Sivaganga	Sivaganga	Sivaganga	Sivaganga
	Thanjavur	Thanjavur	Thanjavur	Thanjavur
	The Nilgiris	The Nilgiris	Theni	Theni
	Theni	Theni	Thiruvallur	Thiruvallur
	Thiruvallur	Thiruvallur	Thiruvavur	Thiruvavur
	Thiruvavur	Thiruvavur	Tiruchirappalli	Tiruchirappalli
	Tiruchirappalli	Tiruchirappalli	Tirunelveli	Tirunelveli
	Tirunelveli	Tirunelveli	Tiruvannamalai	Tiruvannamalai
	Tiruvannamalai	Tiruvannamalai	Tuticorin	Tuticorin
	Tuticorin	Tuticorin	Vellore	Vellore
	Vellore	Vellore	Villupuram	Villupuram
	Villupuram	Villupuram	Virudhunagar	Virudhunagar
	Virudhunagar	Virudhunagar	Ariyalur	Ariyalur
	Ariyalur (30)	Ariyalur (30)	Thiruppur (30)	Thiruppur (30)

ANNEXURE 1.1B**State-wise, year-wise and crop-wise names of districts covered during 12th Five Year Plan in the States selected for the study****4. WEST BENGAL**

Name of the Crop	2012-13	2013-14	2014-15	2015-16
Rice	24 Paraganas South	24 Paraganas South	24 Paraganas South	24 Paraganas South
	Coochbehar	Coochbehar	Coochbehar	Coochbehar
	Dinajpur Uttar	Dinajpur Uttar	Dinajpur Uttar	Dinajpur Uttar
	Howrah	Howrah	Howrah	Howrah
	Jalpaiguri	Jalpaiguri	Jalpaiguri	Jalpaiguri
	Medinipur East	Medinipur East	Medinipur East	Medinipur East
	Medinipur West	Medinipur West	Purulia (7)	Purulia (7)
	Purulia (8)	Purulia (8)		
Wheat	Coochbehar	Coochbehar	24 Paraganas North(1)	Not Covered (0)
	Dinajpur Dakshin	Dinajpur Dakshin		
	Dinajpur Uttar	Dinajpur Uttar		
	Jalpaiguri (4)	Jalpaiguri (4)		
Pulses	24 Paraganas North	24 Paraganas North	24 Paraganas North	24 Paraganas North
	24 Paraganas South	24 Paraganas South	24 Paraganas South	24 Paraganas South
	Bankura	Bankura	Bankura	Bankura
	Bardhaman	Bardhaman	Bardhaman	Bardhaman
	Birbhum	Birbhum	Birbhum	Birbhum
	Coochbehar	Coochbehar	Coochbehar	Coochbehar
	Darjeeling	Darjeeling	Darjeeling	Darjeeling
	Dinajpur Dakshin	Dinajpur Dakshin	Dinajpur Dakshin	Dinajpur Dakshin
	Dinajpur Uttar	Dinajpur Uttar	Dinajpur Uttar	Dinajpur Uttar
	Hooghly	Hooghly	Hooghly	Hooghly
	Howrah	Howrah	Howrah	Howrah
	Jalpaiguri	Jalpaiguri	Jalpaiguri	Jalpaiguri
	Maldah	Maldah	Maldah	Maldah
	Medinipur East	Medinipur East	Medinipur East	Medinipur East
	Medinipur West	Medinipur West	Medinipur West	Medinipur West
	Murshidabad	Murshidabad	Murshidabad	Murshidabad
	Nadia	Nadia	Nadia	Nadia
Purulia(18)	Purulia(18)	Purulia (18)	Purulia(18)	

ANNEXURE 1.1B

State-wise, year-wise and crop-wise names of districts covered during 12th Five Year Plan in the States selected for the study

5. BIHAR

Name of the Crop	2012-13	2013-14	2014-15	2015-16
Rice	Araria	Araria	Araria	Araria
	Banka	Banka	Darbhanga	Darbhanga
	Darbhanga	Darbhanga	Gopalganj	Gopalganj
	Gaya	Gaya	Katihar	Katihar
	Jamui	Jamui	Kishanganj	Kishanganj
	Katihar	Katihar	Madhepura	Madhepura
	Kishanganj	Kishanganj	Madhubani	Madhubani
	Madhepura	Madhepura	Muzaffarpur	Muzaffarpur
	Madhubani	Madhubani	Purbi Champaran	Purbi Champaran
	Muzaffarpur	Muzaffarpur	Purnia	Purnia
	Nalanda	Nalanda	Saharsa	Saharsa
	Pashchim Champaran	Pashchim Champaran	Samastipur	Samastipur
	Purbi Champaran	Purbi Champaran	Sitamarhi	Sitamarhi
	Saharsa	Saharsa	Siwan	Siwan
	Samastipur	Samastipur	Supaul (15)	Supaul (15)
	Sitamarhi	Sitamarhi		
	Siwan	Siwan		
	Supaul (18)	Supaul (18)		
Wheat	Araria	Araria	Araria	Araria
	Banka	Banka	Aurangabad	Aurangabad
	Bhagalpur	Bhagalpur	Bhojpur	Bhojpur
	Darbhanga	Darbhanga	Gaya	Gaya
	Jamui	Jamui	Gopalganj	Gopalganj
	Kaimur (Bhabhua)	Kaimur (Bhabhua)	Nalanda	Nalanda
	Katihar	Katihar	Patna	Patna
	Khagaria	Khagaria	Sitamarhi	Sitamarhi
	Kishanganj	Kishanganj	Siwan	Siwan
	Madhepura	Madhepura	Supaul (10)	Supaul (10)
	Madhubani	Madhubani		
	Munger	Munger		
	Muzaffarpur	Muzaffarpur		
	Nalanda	Nalanda		
	Nawada	Nawada		
	Pashchim Champaran	Pashchim Champaran		
	Purbi Champaran	Purbi Champaran		
	Purnia	Purnia		
	Rohtas	Rohtas		
	Samastipur	Samastipur		
	Saran	Saran		
	Sheikhpura	Sheikhpura		
	Sitamarhi	Sitamarhi		
	Supaul	Supaul		
	Vaishali (25)	Vaishali (25)		

contd...

Table contd...

Pulses	Araria	Araria	Araria	Araria
	Aurangabad	Aurangabad	Aurangabad	Aurangabad
	Banka	Banka	Banka	Banka
	Begusarai	Begusarai	Begusarai	Begusarai
	Bhagalpur	Bhagalpur	Bhagalpur	Bhagalpur
	Bhojpur	Bhojpur	Bhojpur	Bhojpur
	Buxar	Buxar	Buxar	Buxar
	Darbhanga	Darbhanga	Darbhanga	Darbhanga
	Gaya	Gaya	Gaya	Gaya
	Gopalganj	Gopalganj	Gopalganj	Gopalganj
	Jamui	Jamui	Jamui	Jamui
	Jehanabad	Jehanabad	Jehanabad	Jehanabad
	Kaimur (Bhabhua)	Kaimur (Bhabhua)	Kaimur (Bhabhua)	Kaimur (Bhabhua)
	Katihar	Katihar	Katihar	Katihar
	Khagaria	Khagaria	Khagaria	Khagaria
	Kishanganj	Kishanganj	Kishanganj	Kishanganj
	Lakhisarai	Lakhisarai	Lakhisarai	Lakhisarai
	Madhepura	Madhepura	Madhepura	Madhepura
	Madhubani	Madhubani	Madhubani	Madhubani
	Munger	Munger	Munger	Munger
	Muzaffarpur	Muzaffarpur	Muzaffarpur	Muzaffarpur
	Nalanda	Nalanda	Nalanda	Nalanda
	Nawada	Nawada	Nawada	Nawada
	Pashchim Champaran	Pashchim Champaran	Pashchim Champaran	Pashchim Champaran
	Patna	Patna	Patna	Patna
	Purbi Champaran	Purbi Champaran	Purbi Champaran	Purbi Champaran
	Purnia	Purnia	Purnia	Purnia
	Rohtas	Rohtas	Rohtas	Rohtas ,
	Saharsa	Saharsa	Saharsa	Saharsa
	Samastipur	Samastipur	Samastipur	Samastipur
	Saran	Saran	Saran	Saran
	Sheikhpura	Sheikhpura	Sheikhpura	Sheikhpura
	Sheohar	Sheohar	Sheohar	Sheohar
	Sitamarhi	Sitamarhi	Sitamarhi	Sitamarhi
	Siwan	Siwan	Siwan	Siwan
	Supaul	Supaul	Supaul	Supaul
	Vaishali	Vaishali	Vaishali	Vaishali
	Arwal (38)	Arwal (38)	Arwal(38)	Arwal (38)

ANNEXURE 1.1B

6. HIMACHAL PRADESH

Name of the Crop	2012-13	2013-14	2014-15	2015-16
Rice	Kangra	Kangra	Kangra	Kangra
	Mandi	Mandi (2)	Mandi (2)	Mandi (2)
	Sirmaur(3)			
Wheat	Bilaspur	Bilaspur	Bilaspur	Bilaspur
	Chamba	Chamba	Chamba	Chamba
	Hamirpur	Hamirpur	Hamirpur	Hamirpur
	Kangra	Kangra	Kangra	Kangra
	Kullu	Kullu	Kullu	Kullu
	Mandi	Mandi	Mandi	Mandi
	Shimla	Shimla	Sirmaur	Sirmaur
	Sirmaur	Sirmaur	Solan	Solan
	Solan	Solan	Una (9)	Una (9)
Una (10)	Una (10)			
Pulses	Not Covered (0)	Not Covered (0)	Bilaspur (0)	Bilaspur (0)

ANNEXURE 1.1B

State-wise, year-wise and crop-wise names of districts covered during 12th Five Year Plan in the States selected for the study

7. MADHYA PRADESH

Name of the Crop	2012-13	2013-14	2014-15	2015-16
Rice	Anuppur	Anuppur	Anuppur	Anuppur
	Damoh	Damoh	Damoh	Damoh
	Dindori	Dindori	Dindori	Dindori
	Katni	Katni	Katni	Katni
	Mandla	Mandla	Mandla	Mandla
	Panna	Panna	Panna	Panna
	Rewa	Rewa	Rewa	Rewa
	Satna	Satna	Sidhi (8)	Sidhi (8)
	Shahdol (9)	Shahdol (9)		
Wheat	Balaghat	Balaghat	Ashoknagar	Ashoknagar
	Betul	Betul	Chhatarpur	Chhatarpur
	Bhind	Bhind	East Nimar	East Nimar
	Chhatarpur	Chhatarpur	Guna	Guna
	Damoh	Damoh	Katni	Katni
	Dewas	Dewas	Panna	Panna
	Dhar	Dhar	Raisen	Raisen
	Dindori	Dindori	Rajgarh	Rajgarh
	East Nimar	East Nimar	Rewa	Rewa
	Guna	Guna	Sagar	Sagar
	Harda	Harda	Satna	Satna
	Indore	Indore	Seoni	Seoni
	Jabalpur	Jabalpur	Shivpuri	Shivpuri
	Jhabua	Jhabua	Sidhi	Sidhi
	Katni	Katni	Tikamgarh	Tikamgarh
	Mandla	Mandla	Vidisha(16)	Vidisha (16)
	Panna	Panna		
	Raisen	Raisen		
	Rajgarh	Rajgarh		
	Rewa	Rewa		
	Sagar	Sagar		
	Satna	Satna		
	Sehore	Sehore		
	Seoni	Seoni		
	Shahdol	Shahdol		
	Shivpuri	Shivpuri		
	Sidhi	Sidhi		
	Tikamgarh	Tikamgarh		
	Ujjain	Ujjain		
	Vidisha (30)	Vidisha (30)		

contd...

Table contd...

Pulses	Ashoknagar	Ashoknagar	Ashoknagar	Ashoknagar
	Balaghat	Balaghat	Balaghat	Balaghat
	Barwani	Barwani	Barwani	Barwani
	Betul	Betul	Betul	Betul
	Bhind	Bhind	Bhind	Bhind
	Bhopal	Bhopal	Bhopal	Bhopal
	Burhanpur	Burhanpur	Burhanpur	Burhanpur
	Chhatarpur	Chhatarpur	Chhatarpur	Chhatarpur
	Chhindwara	Chhindwara	Chhindwara	Chhindwara
	Damoh	Damoh	Damoh	Damoh
	Datia	Datia	Datia	Datia
	Dewas	Dewas	Dewas	Dewas
	Dhar	Dhar	Dhar,	Dhar,
	Dindori	Dindori	Dindori	Dindori
	East Nimar	East Nimar	East Nimar	East Nimar
	Guna	Guna	Guna	Guna
	Gwalior	Gwalior	Gwalior	Gwalior
	Harda	Harda	Harda	Harda
	Hoshangabad	Hoshangabad	Hoshangabad	Hoshangabad
	Indore	Indore	Indore	Indore
	Jabalpur	Jabalpur	Jabalpur	Jabalpur
	Jhabua	Jhabua	Jhabua	Jhabua
	Katni	Katni	Katni	Katni
	West Nimar(Khargon)	West Nimar (Khargon)	West Nimar (Khargon)	West Nimar(Khargon)
	Mandla	Mandla	Mandla	Mandla
	Mandsaur	Mandsaur	Mandsaur	Mandsaur
	Morena	Morena	Morena	Morena
	Narsinghpur	Narsinghpur	Narsinghpur	Narsinghpur
	Neemuch	Neemuch	Neemuch	Neemuch
	Panna	Panna	Panna	Panna
	Raisen	Raisen	Raisen	Raisen
	Rajgarh	Rajgarh	Rajgarh	Rajgarh
	Ratlam	Ratlam	Ratlam	Ratlam
	Rewa	Rewa	Rewa	Rewa
	Sagar	Sagar	Sagar	Sagar
	Satna	Satna	Satna	Satna
	Sehore	Sehore	Sehore	Sehore
	Seoni	Seoni	Seoni	Seoni
	Shahdol	Shahdol	Shahdol	Shahdol
	Shajapur	Shajapur	Shajapur	Shajapur
	Sheopur	Sheopur	Sheopur	Sheopur
	Shivpuri	Shivpuri	Shivpuri	Shivpuri
	Sidhi	Sidhi	Sidhi	Sidhi
	Tikamgarh	Tikamgarh	Tikamgarh	Tikamgarh
Ujjain	Ujjain	Ujjain	Ujjain	
Umaria	Umaria	Umaria	Umaria	
Vidisha	Vidisha	Vidisha	Vidisha	
Alirajpur	Alirajpur	Alirajpur	Alirajpur	
Singrauli	Singrauli	Singrauli	Singrauli	
Agar Malwa (50)	Agar Malwa(50)	Agar Malwa(50)	Agar Malwa(50)	

ANNEXURE 1.1B

State-wise, year-wise and crop-wise names of districts covered during 12th Five Year Plan in the States selected for the study

8. UTTAR PRADESH

Name of the Crop	2012-13	2013-14	2014-15	2015-16
Rice	Azamgarh	Azamgarh	Aligarh	Aligarh
	Beharaich	Beharaich	Azamgarh	Azamgarh
	Ballia	Ballia	Beharaich	Beharaich
	Balrampur	Balrampur	Ballia	Ballia
	Banda	Banda	Balrampur	Balrampur
	Bareilly	Bareilly	Bareilly	Bareilly
	Basti	Basti	Badaun	Badaun
	Badaun	Badaun	Deoria	Deoria
	Deoria	Deoria	Ghazipur	Ghazipur
	Fatehpur	Fatehpur	Gorakhpur	Gorakhpur
	Ghazipur	Ghazipur	Hardoi	Hardoi
	Gonda	Gonda	Jaunpur	Jaunpur
	Gorakhpur	Gorakhpur	Mau	Mau
	Hardoi	Hardoi	Mirzapur	Mirzapur ,
	Mainpuri	Mainpuri	Moradabad	Moradabad
	Mau	Mau	Pratapgarh	Pratapgarh
	Mirzapur	Mirzapur	Rae Bareli	Rae Bareli
	Rae Bareli	Rae Bareli	Rampur	Rampur
	Rampur	Rampur	Sant Kabeer Nagar	Sant Kabeer Nagar
	Saharanpur	Saharanpur	Shravasti	Shravasti
	Shravasti	Shravasti	Sitapur	Sitapur
	Siddharth Nagar	Siddharth Nagar	Unnao	Unnao
	Sitapur	Sitapur	Chatrapati Shahu	Chatrapati Shahu
	Sonbhadra	Sonbhadra	Ji Maharaj (24)	Ji Maharaj (24)
	Sultanpur	Sultanpur		
	Unnao	Unnao		
	Chatrapati Shahu Ji Maharaj (27)	Chatrapati Shahu Ji Maharaj (27)		

Wheat	Allahabad	Allahabad	Allahabad	Allahabad
	Ambedkar Nagar	Ambedkar Nagar	Azamgarh	Azamgarh
	Azamgarh	Azamgarh	Beharaich	Beharaich
	Beharaich	Beharaich	Ballia	Ballia
	Ballia	Ballia	Balrampur	Balrampur
	Balrampur	Balrampur	Banda	Banda
	Barabanki	Barabanki	Basti	Basti
	Bareilly	Bareilly	Chandauli	Chandauli
	Basti	Basti	Chitrakoot	Chitrakoot
	Chandauli	Chandauli	Deoria	Deoria
	Deoria	Deoria	Faizabad	Faizabad
	Faizabad	Faizabad	Ghazipur	Ghazipur
	Fatehpur	Fatehpur	Gonda	Gonda
	Ghazipur	Ghazipur	Gorakhpur	Gorakhpur
	Gonda	Gonda	Hamirpur	Hamirpur
	Gorakhpur	Gorakhpur	Jaunpur	Jaunpur
	Hamirpur	Hamirpur	Jhansi	Jhansi
	Hardoi	Hardoi	Kaushambi	Kaushambi
	Jaunpur	Jaunpur	Kushi Nagar	Kushi Nagar
	Jhansi	Jhansi	Lalitpur	Lalitpur
	Kaushambi	Kaushambi	Lucknow	Lucknow
	Kushi Nagar	Kushi Nagar	Mahamaya Nagar (Hathras)	Mahamaya Nagar (Hathras)
	Lucknow	Lucknow	Mahoba	Mahoba
	Maharajganj	Maharajganj	Mau	Mau
	Mainpuri	Mainpuri	Mirzapur	Mirzapur
	Mathura	Mathura	Pratapgarh	Pratapgarh
	Mau	Mau	Sant Kabeer Nagar	Sant Kabeer Nagar
	Pratapgarh	Pratapgarh	Shravasti	Shravasti
	Rae Bareli	Rae Bareli	Sonbhadra	Sonbhadra
	Sant Kabeer Nagar	Sant Kabeer Nagar	Varanasi	Varanasi
	Sant Ravidas Nagar	Sant Ravidas Nagar	Chatrapati Shahu Ji Maharaj (31)	Chatrapati Shahu Ji Maharaj (31)
	Siddharth Nagar	Shravasti		
	Sitapur	Siddharth Nagar		
Sonbhadra	Sitapur			
Sultanpur	Sonbhadra			
Unnao	Sultanpur			
Varanasi	Unnao			
Chatrapati Shahu Ji Mahara(38)	Varanasi			
	Chatrapati Shahu Ji Maharaj(39)			
Pulses	Agra	Agra	Agra	Agra
	Aligarh	Aligarh	Aligarh	Aligarh
	Allahabad	Allahabad	Allahabad	Allahabad
	Ambedkar Nagar	Ambedkar Nagar	Ambedkar Nagar	Ambedkar Nagar
	Auraiya	Auraiya	Auraiya	Auraiya

Pulses	Azamgarh	Azamgarh	Azamgarh	Azamgarh
	Baghpat	Baghpat	Baghpat	Baghpat
	Beharaich	Beharaich	Beharaich	Beharaich
	Ballia	Ballia	Ballia	Ballia
	Balrampur	Balrampur	Balrampur	Balrampur
	Banda	Banda	Banda	Banda
	Barabanki	Barabanki	Barabanki	Barabanki
	Bareilly	Bareilly	Bareilly	Bareilly
	Basti	Basti	Basti	Basti
	Bijnor	Bijnor	Bijnor	Bijnor
	Badaun	Badaun	Badaun	Badaun ,
	Bulandshahr	Bulandshahr	Bulandshahr	Bulandshahr
	Chandauli	Chandauli	Chandauli	Chandauli
	Chitrakoot	Chitrakoot	Chitrakoot	Chitrakoot
	Deoria	Deoria	Deoria	Deoria
	Etah	Etah	Etah	Etah
	Etawah	Etawah	Etawah	Etawah
	Faizabad	Faizabad	Faizabad	Faizabad
	Farrukhabad	Farrukhabad	Farrukhabad	Farrukhabad
	Fatehpur	Fatehpur	Fatehpur	Fatehpur
	Firozabad	Firozabad	Firozabad	Firozabad
	Gautam Buddha Nagar	Gautam Buddha Nagar	Gautam Buddha Nagar	Gautam Buddha Nagar
	Ghaziabad	Ghaziabad	Ghaziabad	Ghaziabad
	Ghazipur	Ghazipur	Ghazipur	Ghazipur
	Gonda	Gonda	Gonda	Gonda
	Gorakhpur	Gorakhpur	Gorakhpur	Gorakhpur
	Hamirpur	Hamirpur	Hamirpur	Hamirpur
	Hardoi	Hardoi	Hardoi	Hardoi
	Jalaun	Jalaun	Jalaun	Jalaun
	Jaunpur	Jaunpur	Jaunpur	Jaunpur
	Jhansi	Jhansi	Jhansi	Jhansi
	Jyotiba Phule Nagar	Jyotiba Phule Nagar	Jyotiba Phule Nagar	Jyotiba Phule Nagar
	Kannauj	Kannauj	Kannauj	Kannauj
	Kanpur Dehat	Kanpur Dehat	Kanpur Dehat	Kanpur Dehat
	Kanpur Nagar	Kanpur Nagar	Kanpur Nagar	Kanpur Nagar
	Kaushambi	Kaushambi	Kaushambi	Kaushambi
	Kheri	Kheri	Kheri	Kheri
	Kushi Nagar	Kushi Nagar	Kushi Nagar	Kushi Nagar
	Lalitpur	Lalitpur	Lalitpur	Lalitpur
	Lucknow	Lucknow	Lucknow	Lucknow
	Mahamaya Nagar (Hathras)	Mahamaya Nagar (Hathras)	Mahamaya Nagar (Hathras)	Mahamaya Nagar (Hathras)
Maharajganj	Maharajganj	Maharajganj	Maharajganj	
Mahoba	Mahoba	Mahoba	Mahoba	
Mainpuri	Mainpuri	Mainpuri	Mainpuri	
Mathura	Mathura	Mathura	Mathura	

Pulses	Mau	Mau	Mau	Mau
	Meerut	Meerut	Meerut	Meerut
	Mirzapur	Mirzapur	Mirzapur	Mirzapur
	Moradabad	Moradabad	Moradabad	Moradabad
	Muzaffarnagar	Muzaffarnagar	Muzaffarnagar	Muzaffarnagar
	Pilibhit	Pilibhit	Pilibhit	Pilibhit
	Pratapgarh	Pratapgarh	Pratapgarh	Pratapgarh
	Rae Bareli	Rae Bareli	Rae Bareli	Rae Bareli
	Rampur	Rampur	Rampur	Rampur
	Saharanpur	Saharanpur	Saharanpur	Saharanpur
	Sant Kabeer Nagar	Sant Kabeer Nagar	Sant Kabeer Nagar	Sant Kabeer Nagar
	Sant Ravidas Nagar	Sant Ravidas Nagar	Sant Ravidas Nagar	Sant Ravidas Nagar
	Shahjahanpur	Shahjahanpur	Shahjahanpur	Shahjahanpur
	Shravasti	Shravasti	Shravasti	Shravasti
	Siddharth Nagar	Siddharth Nagar	Siddharth Nagar	Siddharth Nagar
	Sitapur	Sitapur	Sitapur	Sitapur
	Sonbhadra	Sonbhadra	Sonbhadra	Sonbhadra
	Sultanpur	Sultanpur	Sultanpur	Sultanpur
	Unnao	Unnao	Unnao	Unnao
	Varanasi	Varanasi	Varanasi	Varanasi
	Chatrapati Shahu Ji Maharaj	Chatrapati Shahu Ji Maharaj	Chatrapati Shahu Ji Maharaj	Chatrapati Shahu Ji Maharaj
	Kasganj (Kashiram Nagar)	Kasganj (Kashiram Nagar)	Kasganj (Kashiram Nagar)	Kasganj (Kashiram Nagar)
	Sambhal (73)	Sambhal (73)	Sambhal	Sambhal
			Hapur	Hapur
			Shamli (75)	Shamli (75)

ANNEXURE 1.1B

State-wise, year-wise and crop-wise names of districts covered during 12th Five Year Plan in the States selected for the study

9. GUJARAT

Name of the Crop	2012-13	2013-14	2014-15	2015-16
Rice	Dohad	Dohad	Dohad	Dohad
	Panch Mahals (2)	Panch Mahals (2)	Panch Mahals (2)	Panch Mahals (2)
Wheat	Ahmadabad	Ahmadabad	Ahmadabad	Ahmadabad
	Banas Kantha	Banas Kantha	Anand	Anand
	Mahesana	Mahesana	Banas Kantha	Banas Kantha
	Panch Mahals (4)	Panch Mahals (4)	Kheda	Kheda
			Sabar Kantha (5)	Sabar Kantha (5)
Pulses	Ahmedabad	Ahmedabad	Ahmedabad	Ahmedabad
	Amreli	Amreli	Amreli	Amreli
	Anand	Anand	Anand	Anand
	Banas Kantha	Banas Kantha	Banas Kantha	Banas Kantha
	Bharuch	Bharuch	Bharuch	Bharuch
	Bhavnagar	Bhavnagar	Bhavnagar	Bhavnagar
	Dang	Dang	Dang	Dang
	Dohad	Dohad	Dohad	Dohad
	Gandhinagar	Gandhinagar	Gandhinagar	Gandhinagar
	Jamnagar	Jamnagar	Jamnagar	Jamnagar
	Junagadh	Junagadh	Junagadh	Junagadh
	Kutch	Kutch	Kutch	Kutch
	Kheda	Kheda	Kheda	Kheda
	Mahesana	Mahesana	Mahesana	Mahesana
	Narmada	Narmada	Narmada	Narmada
	Navsari	Navsari	Navsari	Navsari
	Panch Mahals	Panch Mahals	Panch Mahals	Panch Mahals
	Patan	Patan	Patan	Patan
	Porbandar	Porbandar	Porbandar	Porbandar
	Rajkot	Rajkot	Rajkot	Rajkot
	Sabar Kantha	Sabar Kantha	Sabar Kantha	Sabar Kantha
	Surat	Surat	Surat	Surat
	Surendranagar	Surendranagar	Surendranagar	Surendranagar
	Vadodara	Vadodara	Vadodara	Vadodara
	Valsad	Valsad	Valsad	Valsad
	Tapi (26)	Tapi (26)	Tapi (26)	Tapi (26)

ANNEXURE II

Comments on Draft Report

by

Centre for Management of Agriculture, IIM, Ahmedabad

The comments received on draft report from the Centre for Management of Agriculture, Indian Institute of Management, Ahmedabad.

(i) Title of the Draft Study Report Examined

Impact of National Food Security Mission on Input Use, Yield and Income in India

(ii) Date of Receipt of the Draft Report

May 25, 2018

(iii) Date of Dispatch of Comments

June 22, 2018

(iv) Comments on the Objectives of the Study

- The impact of NFSM on yield can also be mentioned as a major objective.

Reply: It has been mentioned as the second objective of the study indicated under executive summary and Section 1.4 of chapter 1.

- The second objective (to analyse the socio-economic profile) can be removed as it cannot be a major objective of the study.

Reply: The objective has been removed and accordingly changes have been made in the entire report.

(v) Comments on the Methodology

- Out of the two districts selected from each state, one is covered under NFSM rice (wheat) and the other is not. How did authors select the NFSM beneficiaries and non-beneficiaries for the analysis of factors influencing the participation? Was it only from the district that is covered under NFSM. This is not written clearly.

Reply: It has been made clear in the methodology section of the executive summary and methodology section of Chapter 1.

- It is not mentioned how the objective of the impact of NFSM on input use, production and income will be analysed (third objective).

Reply: It has been addressed in the methodology section of chapter 1.

- In the second stage selection of the Taluks, what was the basis of the selection of two taluks from one district and what was its significance? How did it help in the analysis or what difference did it make?

Reply: It was hypothesised that the distance from the district headquarters influences the access to NFSM benefits. Hence to draw a true representative sample, one of the taluks were selected near to the taluk headquarters and the other was selected away from the taluk headquarters.

(vi) Comments on the Presentation of the Report

- The report could be reviewed once again and spelling mistakes could be addressed along with the basic grammatical mistakes.
- For eg. on page number (ii) Acknowledgement, 1st paragraph, it should be at the behest of the Agro-Economic Research Division.
- On page number (x) Executive Summary, 1st paragraph, it should be food availability deficit.

- On page number (x) in the 2nd paragraph seventh point kindly check if it is introduction of pilot projects like community generator and blue bull.
- On page number (x) in the 3rd paragraph last line, it must be running parallel to and not with.
- It should be mentioned that the secondary data that has been taken also includes advance estimates of the year 2014-15. It is just mentioned that the first two years of the 12th five year plan have been taken while the data from 2014-15 have also been included. Kindly check.
- Even in the executive summary, it should be mentioned what the dominant agricultural allied activities and the non-farm sources of the income of beneficiary as well as non-beneficiary farmers were.
- In the socio-economic impact in the executive summary, third point, percentage of irrigation sources must be mentioned instead of 'some'.
- In the executive summary, impact of NFSM on input use, the full form of PPC must be given.
- In the executive summary, impact of NFSM on input use, last point, it must be higher and not very.
- In the executive summary, before we talk about leasing in and out of land under policy suggestions, it would be better if we talk about it in the impact too.
- Percentage of farmers hiring farming equipments for farming must also be given.
- On page number (xv), under Policy Suggestions last line, additionally, non-beneficiaries suggested.
- On page 1, 1st paragraph, the sector is imperative, very should be removed.
- On page 1 last paragraph, it must be - In the year 2002-03, with a negative agricultural growth of 8.1 percent, the country suffered huge losses. However, there were large gains in the subsequent year (10.8%).
- On page 3 last paragraph, full form of RKVY must be given.
- On page 4 third paragraph, it should be written as - In the year 2007-08, the productivity of wheat

was better in the non-NFSM districts with the yield gain of 3.91 percent as compared to a 3 percent increase in NFSM districts.

- Kindly check in table 2.6, the productivity in Bihar has also declined and not just in Uttar Pradesh.
- The first sentence in page 21 must be kept in page 18 itself.
- In table 3.3, could some more of the 'zero' values be explained? Like there is zero income in Assam from allied activities which means people there are more involved in businesses than in agricultural allied activities. Similarly, for other states.
- On page 28, it would be better if the explanation of the table and the table itself are adjacent to each other. Similarly, wherever possible for other tables and figures too.
- On page 33, Table 3.8 could be explained a little more. For eg. about other crops being grown in these areas, other than the dominant ones.
- Could figure 3.8 be explained a bit more?
- Per acre cost of cultivation of NFSM and Non-NFSM must be explained a bit more. Some more figures must be included to explain the tables.
- On page 56, could it be more specific as to what the productive and non-productive purposes stand for?

Reply: The above comments have been addressed.

- An analysis on awareness among Non-NFSM beneficiaries should also be done.

Reply: The data on awareness was only collected from the NFSM beneficiaries.

- A state-wise analysis for pulses on per acre cost and returns must be done and figures should be included.

Reply: Studying the detailed impact of NFSM on pulses is not under the purview of the study. However, this has been addressed with respect to secondary data in chapter 2. An analysis of primary data on pulses was done considering the cropping pattern which have been briefly included in chapter 3.

- A comparative analysis on per acre cost of cultivation by NFSM and Non-NFSM beneficiaries must be done.

Reply: It has been attended in section 3.5 of chapter 3.

- A comparative analysis of marketing channels should also be done between NFSM and Non-NFSM beneficiaries.

Reply: This has been included in the report and the marketing channel for NFSM and Non NFSM beneficiaries mostly remains the same.

- Labeling of figure 5.1 must be on page 99.

Reply: This has been addressed.

- In fact, a list of abbreviations must be attached either before acknowledgement or in the annexure.

Reply: The acronyms have been expanded at the appropriate places.

- In the sixth paragraph of page 106, is Uttar Pradesh included in many other states?

Reply: Uttar Pradesh was not included in the other states and is indicated in page 112.

- Some more policy suggestions must be included, these being the most important part of the report.

Reply: Relevant policy suggestion on price and technology has been included.

(vii) Overall View on the Acceptability of the Report

- The overall report is good and includes many parts which are highly appreciable.
- The budget or financial progress shown was good. And the per acre cost of cultivation of NFSM and Non-NFSM beneficiaries was appreciable.
- The depiction of annual usage of farm equipments and their benefits and the state-wise analysis of factors influencing participation in NFSM were also commentable.

The report has important and useful content and is acceptable.



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