AGRICULTURAL SITUATION
IN
INDIA

AUGUST, 2013

Agricultural Situation in India

CONTENTS

PART I

NOTE TO CONTRIBUTORS

Articles on the State of Indian Agriculture and allied sectors are accepted for publication in the Directorate of Economics & Statistics, Department of Agriculture & Cooperation's monthly Journal "Agricultural Situation in India". The Journal intends to provide a forum for scholarly work and also to promote technical competence for research in agricultural and allied subjects. The articles in hard copy as well as soft copy in MS word, not exceeding five thousand words, may be sent in duplicate, typed in double space on one side of fullscape paper in Times New Roman font size 12, addressed to the Economic & Statistical Adviser, Room No.145, Krishi Bhawan, New Delhi-11 0001, alongwith a declaration by the author(s) that the article has neither been published nor submitted for publication elsewhere. The author(s) should furnish their e-mail address, Phone No. and their permanent address only on the forwarding letter so as to maintain anonymity of the author while seeking comments of the referees on the suitability of the article for publication.

Although authors are solely responsible for the factual accuracy and the opinion expressed in their articles, the Editorial Board of the Journal, reserves the right to edit, amend and delete any portion of the article with a view to making it more presentable or to reject any article, if not found suitable. Articles which are not found suitable will not be returned unless accompanied by a self-addressed and stamped envelope. No correspondence will be entertained on the articles rejected by the Editorial Board. An honorarium of Rs. 2000/- per article of at least 2000 words for the regular issue and Rs. 2500/- per article of at least 2500 words for the Special/Annual issue is paid by the Directorate of Economics & Statistics to the authors of the articles accepted for the Journal.

Abbreviations used

N.A. —Not Available.

N.Q. —Not Quoted.

N.T. —No Transactions.

N.S. —No Supply/No Stock.

R. —Revised.

M.C. —Market Closed.

N.R. —Not Reported.

Neg. —Negligible.

Kg. —Kilogram.

Q. —Quintal.

(P) —Provisional.

Plus (+) indicates surplus or increase.

Minus (–) indicates deficit or decrease.

A. General Survey

(i) Trends in Foodgrain Prices

During the month of July, 2013, the All India Index Number of Wholesale Price (2004-05=100) of Foodgrains increased by 1.86 per cent from 220.3 in June, 2013 to 224.4 in July, 2013 .

The Wholesale Price Index (WPI) Number of Cereals increased by 2.57 per cent from 218.3 to 223.9 whereas the WPI of Pulses declined by 1.31 per cent from 229.7 to 226.7 during the same period..

The Wholesale Price Index Number of Wheat increased by 0.59 per cent from 205.0 to 206.2 while that of Rice increased by 4.62 per cent from 216.3 to 226.3 during the same period.

(ii) Weather, Rainfall and Reservoir Situation during August, 2013

- Cumulative Monsoon (June to September) Rainfall for the country as a whole during the period 1st June to 02nd September, 2013 is 9% more than LPA. Rainfall in the four broad geographical divisions of the country during the above period was higher than LPA by 19% in North West India, 25% in Central India, 15% in South Peninsula and lower by (-) 28% in East & North East India.

- Out of a total of 36 meteorological subdivisions, 31 subdivisions received excess/normal rainfall and 05 subdivisions received deficient rainfall.

- Central Water Commission monitors 85 major reservoirs in the country which have a total live capacity of 154.88 BCM at Full Reservoir Level (FRL). Current live storage in these reservoirs as on 29th August, 2013 was 125.84 BCM as against 93.51 BCM on 29-08-2012(last year) and 97.27 BCM of normal storage (average storage of the last 10 years). Current year's storage is 135% of the last year's and 129% of the normal storage.

- As per latest information available on sowing of crops, around 95% of the normal area under Kharif crops have been sown upto 30-08-2013. Area sown under all Kharif crops taken together has been reported to be 1003.83 lakh hectares at All India level as compared to 953.63 lakh hectares average area on the corresponding date . Area coverage (as compared to average area) is higher by 21.2 lakh ha. in Rice, 9.2 lakh ha. in Maiza, 2.1 lakh ha. in Coarse Cereals 2.4 lakh ha. in Tur 1.9 lakh ha. in Urad, in Soyabean and 2.2 lakh ha. in Sugarcane. Area coverage is lower (compared to average area) by (-) 6.3 lakh ha. under Jowar (-) 1.9 lakh ha.under Groundnut and (-) 1.0 Iakh ha. under Sunflower.

- A statement indicating comparative position of area coverage under major Kharif crops during 2013-14 (upto 30-08-2013) and the corresponding period of last year is given in the following table :

ALL INDIA CROP SITUATION - KHARIF (2013-14) AS ON 30-08-2013

(In lakh hectares)

Crop Name	Normal Area for whole Kharif Season	Normal Area as on date	Area sown reported % of Normal for			Absolute Change.over (+/–1)	
			This Year 2013	whole season	Last year 2012	Normal as on date	Last Year
Rice	392.18	333.39	354.61	90.4	344.72	21.2	9.9
Jowar	30.65	27.08	20.82	67.9	23.54	-6.3	-2.7
Bajra	89.27	72.90	74.13	83.0	58.84	1.2	15.3
Maize	71.48	71.33	80.54	112.7	71.91	9.2	8.6
Total Coarse Cereals	213.15	188.45	190.55	89.4	168.13	2.1	22.4
Total Cereals	605.33	521.84	545.16	90.1	512.85	23.3	32.3
Tur	37.89	35.86	38.25	101.0	34.78	2.4	3.5

(In lakh hectares)

Crop Name	Normal Area for whole Kharif Season	Normal Area as on date	Area sown reported % of Normal for			Absolute Change.over (+/–1)	
			This Year 2013	whole season	Last year 2012	Normal as on date	Last Year
Urad	22.95	21.22	23.08	100.6	22.30	1.9	0.8
Moong	26.41	22.28	22.59	85.5	17.34	0.3	5.3
Others	23.54	17.90	17.89	76.0	13.88	0.0	4.0
Total Pulses	110.78	97.26	101.81	91.9	88.31	4.6	13.5
Total Foodgrains	716.11	619.10	646.97	90.3	601.15	27.9	45.8
Groundnut	49.02	43.65	41.71	85.1	37.02	-1.9	4.7
Soyabean	95.68	98.47	121.72	127.2	106.83	23.3	14.9
Sunflower	5.13	3.19	2.23	43.5	1.97	-1.0	0.3
Sesamum	19.07	13.72	13.88	72.8	12.89	0.2	1.0
Niger	3.82	1.51	1.23	32.2	1.36	-0.3	-0.1
Castor	9.48	6.78	7.38	77.8	7.06	0.6	0.3
Total Oil seed	182.20	167.31	188.16	103.3	167.13	20.9	21.0
Cotton	104.73	112.45	111.65	106.6	112.83	-0.8	-1.2
Sugarcane	47.14	46.50	48.74	103.4	50.06	2.2	-1.3
Jute	9.09	8.27	8.31	91.4	8.45	0.0	-0.1
All-Crops	1059.26	953.63	1003.83	94.8	939.61	50.2	64.2

Source: Grans & TMOP Divisions. DAC

Procurement :—

Procurement of rice as on 1st August, 2013 was 33.85 million tonnes 'in Kharif Marketing Season as against 34.71 million tonnes in the last year in the corresponding season. This represents a decrease of 2.48 per cent. Wheat procurement during Rabi Marketing Season 2013-14 is 25.09 million tonnes as compared to 38.11 million tonnes during the corresponding period last year.

TABLE 1— PROCUREMENT IN MILLION TONNES

	2010-11	2011-12	2012-13	2013-14
Rice	34.20	35.04	33.96	-
Wheat	22.51	28.34	38.15	25.09*
Total	56.71	63.38	72.11	25.09

* Position as on 1-8-2013

Off-take: Off-take of rice during the month of July, 2013 was 24.23 lakh tonnes. This comprises 21.69 lakh tonnes under TPDS and 2.54 lakh tonnes under other schemes. In respect of wheat, the total off take was 20.97 lakh tonnes comprising 19.03 lakh tonnes under TPDS and 1.94 lakh tonnes under other schemes.

Stocks: Stocks of food-grains (rice and wheat) held by FCI as on September 1, 2013 were 58.93~million tonnes, which is lower by 17.87 per cent compared to the level of 71.75 million tonnes as on September I, 2012.

TABLE 2—OFF-TAKE AND STOCKS OF FOODGRAINS (MILLION TONNES)

	Off-take			Stocks	
	2011-12	2012-13	2013-14 (Up to July 2013	Sep 1, 2012	Sep. 1, 2013
Rice	32.12	32.64	9.47	25.59	20.57
Wheat	24.26	33.21	8.34	46.16	38.36
Total	56.38	65.85	17.81	71.75	58.93

Growth of Economy

As per the Provisional Estimates of the Central Statistics Office (CSO), the growth in real Gross Domestic Product (GDP) at factor cost at contant (2004-05 prices) is estimatesd at 5.0 per cent in 2012-13 with agriculture, industry and services registering growth rates of 1.9 per cent, 2.1 per cent and 7.1 per cent respectively. As per the First Revised Estimates (RE), the, growth in GDP at factor cost at constant (2004-05) prices has been estimated at 6.2 per cent in 2011-12 . At disaggregated level, this (First Revised 2011-12) comprises growth of 3.6 per cent in agriculture and allied activities, 3.5 per cent in industry and 8.2 per cent in services. The growth in GDP is placed at 4.4 per cent in the first quarter of 2013-14.

TABLE 3— GROWTH OF GDP AT FACTOR COST BY ECONOMIC ACTIVITY

(at 2004-05 Prices)

Sector	Growth (in per cent)			Percentage Share in GDP		
	2010-11	2011-12 1R	2012-13 PE	2010-11 (2 R)	2011-12 (1R)	2012-13 13 (PE)
1. Agriculture, forestry & fishing	7.9	3.6	1.9	14.5	14.1	13.7
2. Industry	9.2	3.5	2.1	28.2	27.5	26.7
a. Mining & quarrying	4.9	-0.6	-0.6	2.2	2.1	2.0
b Manufacturing	9.7	2.7	1.0	16.2	15.7	15.1
c Electricity, gas & water supply	5.2	6.5	4.2	1.9	1.9	1.9
d Construction	10.2	5.6	4.3	7.9	7.9	7.8
3 Services	9.8	8.2	7.1	57.3	58.4	59.6
a Trade, hotels, transport & communication	12.3	7.0	6.4	27.3	27.5	27.8
b Financing, insurance, real estate & business services	10.1	11.7	8.6	17.2	18.1	18.7
c Community, social & personal services	4.3	6.0	6.6	12.8	12.8	13.0
4 GDP at factor cost	9.3	6.2	5.0	100.0	100.0	100.0

1R: 1st Revised Estimates; PE: Provisional Estimates. Source: CSO

TABLE 4—Quarterly Growth Rate of GDP (Per cent)

Sector	2011-12				2012-13			2013-14	
	Ql	Q2	Q3	Q4	Ql	Q2	Q3	Q4	Ql
1. Agriculture, forestry & fishing	5.4	3.2	4.1	2.0	2.9	1.7	1.8	1.4	2.7
2. Industry	5.7	3.8	2.6	2.1	1.8	1.3	2.5	2.7	0.2
a Mining & Quarrying	-0.4	-5.3	-2.6	5.2	0.4	1.7	-0.7	-3.1	-2.8
b Manufacturing	7.4	3.1	0.7	0.1	-1.0	0.1	2.5	2.6	-1.2
c Electricity, gas & water supply	6.6	8.4	7.7	3.5	6.2	3.2	4.5	2.8	3.7
d Construction	3.8	6.5	6.9	5.1	7.0	3.1	2.9	4.4	2.8
3 Services	**8.9**	**8.5**	**8.3**	**7.3**	**7.7**	**7.6**	**6.7**	**6.6**	**6.6**
a Trade, hotels, transport & communication	9.5	7.0	6.9	5.1	6.1	6.8	6.4	6.2	3.9
b Financing, insurance, real estate & business services	11.6	12.3	11.4	11.3	9.3	8.3	7.8	9.1	8.9
c Community, social & personal services	3.5	6.5	6.8	6.8	8.9	8.4	5.6	4.0	9.4
4 GDP at factor cost	**7.5**	**6.5**	**6.0**	**5.1**	**5.4**	**5.2**	**4.7**	**4.8**	**4.4**

Source: CSO.

B. Articles

Economic Analysis of Costs and Returns from Silk Cocoon Production

Mote T. S.,[*] Sananse S. L.[**] and Wadnerkar D. W.

Abstract

Sericulture is well known as a high employment and low capital-intensive plantation crop and having orientation towards agro-based industry. In the present study an attempt has been made to enalyse costs and returns from silk cocoon production in Marathwada Region of Maharashtra. The data were collected using multistage simple random sampling. The economic analysis of data revealed that the average cost of silk cocoon production varied as per farm size group. It was high Rs. 97,029 in farm size group 1(< 0.40 ha.) followed by Rs. 86,882 in farm size group II (0.41to 0.80 ha.) and Rs.77,129 in farm size group III (> 0.8Iha.). The cost analysis in cocoon production shows that mulberry leaf production alone shares about 46 per cent of the total cost followed by human labour which shares about 23 per cent in all the land holding groups. The average returns per hectare for different farm size group has been Rs. 1,21,782, Rs. 1,08,937 and Rs. 94,557 for the Group I, II and lIl, respectively. The net returns for the different farm size groups were Rs. 24,753, Rs. 22,055 and Rs. 20,431 for the group I, II and Ill, respectively. This has indicated that although the sericulture activity is quite profitable to the farming community in Marathwada region the same can also be made more attractive and profitable in other parts of state and country as well. Key words: Sericulture, Silk Cocoon, Production Economics, Costs, Returns

1.0 Introduction

Sericulture is a labour- intensive industry in all its phases, namely, cultivation of silkworm food plants, silkworm rearing, silk reeling, and other post-cocoon processes such as twisting, dyeing, weaving, printing and finishing. It provides employment to the persons specially to small and marginal farmers, or tiny and household industry mainly in the hand reeling and hand weaving sections. Practice of sericulture is not very widespread being followed regularly in contiguous districts in the three southern States of Karnataka, Andhra Pradesh and Tamil Nadu; in the North - Eastern Region (NER); In the tribal areas of Jharkhand, Chhattisgarh, Andhra Pradesh, Orissa; and in Jammu and Kashmir and West Bengal. The cocoons production and silk processing industry traditionally existed in clusters In areas not necessarily coinciding with the sericulture areas In Karnataka, Andhra Pradesh, Tamil Nadu, West Bengal and Bihar. Reeling of silk is more widespread, with different clusters/traditionally producing distinctive designs and weavers, mainly in saris. India has the distinction of cultivating all the four commercially known varieties of silk, viz., Mulberry, Tasar, Eri and Muga (Anonymous, 2007a).

The rural society had undergone major transformation with the barter economy yielding place to money economy with the changing time and world trade organization (WTO) era, the uphill task in front of country is not only to provide food to the ever increasing population, but to diversify agriculture and maintain the stability in international trade. In the diversification process of farm enterprises, along with dairy farming. poultry production, horticulture and forestry ventures, sericulture has quickly emerged as the front runner. It is one of the agricultural pursuits, emerging as premier enterprise in many parts of India in general and southern states in particular (Dwarakinath. 2006).

Sericulture suits both marginal and small scale land holders because of its low investment, high assured returns, short gestation period, rich opportunities for enhancement of income and creation of family employment round the year (Raveendran. 1993; Srinivasa et al., 1998, 2004; Hajare et al., 2005). In reality. it is an occupation by women and for women because women form more than 60 per cent of the workforce and 80 per cent of silk is consumed by them. The nature of work involved in the sericulture industry such as harvesting of leaves, rearing of silkworm, spinning or reeling of silk yarn and weaving are carried out by women. It is a high income generating industry which is regarded as an important tool for economic development of a country.

*District Superintending Agril Officer, Latur,
** Professor, Dept. of Statistics, Dr. Babasahab Ambedkar Marathwada University, Aurangabad-431004

2.0 Research Methodology

The critical analysis of Economics Analysis of Silk Cocoon Production is very much essential for knowing the profitability in this farming. The present study was conducted in Marathwada region of Maharashtra. Although the sericulture development programme is now getting momentum in the region, no in depth study was undertaken in this region.

2.1 Sampling Plan.

Multistage simple random sampling method was adopted for selecting the sample members. The list of mulberry growers was obtained from respective Sericulture Development Officer. In the first stage three districts viz: .. Aurangabad. Jalna and Latur of the Marathwada region, representing maximum number of sericulture units were selected purposively. In the second stage three talukas from each districts having maximum area under sericulture were selected purposively. In the final stage, a sample of 180 respondents were selected at random i.e., 60 respondents from each district on area proportion basis .

2.2 Economic Analysis

The cost concepts used in estimating costs and returns are given below.

2.2.1 Cost Concept

Cost are generated following certain cost concepts. These cost concepts and the items of cost are given below.

Cost A1:

  i Value of hired human labour.

  ii Value of hired bullock labour.

  iii Value of owned bullock labour.

  iv Value of owned machinery labour

  v Hired machinery charges.

  vi Value of seed(both farm produced and purchased).

  vii Value of insecticides and pesticides.

  viii Value of manure (owned and purchased).

  ix. Value of fertilizer.

  x Depreciation on implements and farm building.

  xi Irrigation charges.

  xii Land revenue, cesses and other taxes.

  xiii Interest on working capital.

  xiv Miscellaneous expenses (Artisans etc.)

Cost A2: Cost A I + rent paid for leased in land.

Cost Bl: Cost A I +interest on value of owned fixed capital assets (excluding land)

Cost B2: Cost B I +rental value of own land (net of land revenue) and rent paid for leased in land.

Cost Cl: Cost B I +imputed value of family labour.

Cost C2: Cost B2+ imputed value of family labour.

Cost C2*: Cost C2 adjusted to take into account valuation of human labour at market rate or statutory minimum wage rate whichever is higher.

Cost C3: Cost C2* + value of management input at 10 percent of total cost. (C2).

The costs and returns from silk cocoon production were calculated as Cost of Mulberry Leaf Production and costs of Cocoon Production. It is described below.

2.2.2 Cost of Mulberry Leaf Production (Rs./ha/year).

i) Fixed Costs:

In Estimating Costs of mulberry leaf production the i) Apportion cost of establishment of mulberry garden ii)Rental value of land and land tax and iii) interest on fixed capital were considered as fixed costs in estimating Cost of mulberry leaf production (Rs./ha/year).

ii) Variable Costs:

Similarly Human labour including imputed value of family labour, Bullock labour. Farm yard manure, Fertilizer, Irrigation, Incidental charges and Interest on working capital were considered as variable costs in estimating Cost or mulberry leaf production (Rs./ha/year).

2.2.3 Cost of Cocoon Production (Rs./ha/year)

i) Fixed Costs:

In Estimating Costs of cocoon production the costs like i) Depreciation of rearing house and equipments and ii) Interest on fixed capital were considered as **Fixed Costs.**

ii) Variable Costs :

In Estimating Costs of cocoon production the costs of i) Leaf ii) Dfls iii) Material iv) Disinfectants v) Human labour including imputed value of family labour, Transport and marketing, Other costs and iv) Interest on working capital were considered as variable costs.

2.2.4 Gross and Net Income

1. The gross income was valued at total value of cocoons sold in the market plus returns from by-products namely, the stem, cuttings and litter. which is the rearing bed refuse.

2. Net income was arrived at by deducting the total cost of production from gross Income.

3. The cost and returns were worked out for one hectare and for one year.

3.0 Results and Discussion

The data collected as per sampling plan given in methodology were analysed as per the theory of economics and presented below. The costs and returns from silk cocoon production were calculated as Cost of Mulberry Leaf Production and costs of Cocoon Production. The net returns (Rs.lha/year) are also estimated and given in this section.

3.1 Cost of mulberry leaf production

Mulberry cultivation and silkworm rearing are generally under taken as an integrated activity by sericulturists in India. Any economic analysis of the structure or costs and returns of such an integrated activity not only reveals the extent of economic benefits derived by the Sericulturists, but also provides insights into other micro-level problems which are both economic and non-economic in nature (Hanumappa, 1987). Table I presents the cost matrix on production of mulberry leaf per hectare per year across different farm size groups. The total cost consisted of fixed and variable cost. Mulberry being a perennial crop, the costs incurred on establishment of mulberry garden (fixed cost) was apportioned to the economic life span of garden (in years), which was considered as 15 years and accounted as fixed cost in working out the cost of mulberry leaf production. Based on these criteria per annum share of fixed cost towards mulberry garden was worked out. The share of rental value of land and land tax was also considered in fixed cost. The

apportioned cost of establishment was worked out to Rs. 1844.04, Rs. 1828.78 and Rs. 1538.41 for farm size group I, II and III, respectively. Rental value of land and land tax was Rs. 8,193, Rs. 9,042 and Rs.7,668 for farm size group I, 11, and Ill, respectively .

The average fixed cost involved in production of mulberry leaf was estimated to be 24.15 per cent, 28.55 per cent and 27.52 per cent in farm size group I, II, and III respectively. With regard to maintenance cost of mulberry garden per hectare. the total variable cost was obtained by summation of cost of different inputs namely, human labour, bullock power, FYM, chemical fertilizers, irrigation and interest on working capital at the rate of 7 per cent per annum. About 40 per cent of total cost was incurred for human labour (hired + imputed value of family labour) in leaf production activities in all farm size groups. Among different farm size groups, group I has spent higher to the tune of Rs. 44466.03 to produce an average quantity of 27052.22 kg mulberry leaf yield per ha/year, followed by size group 11 (Rs.40742.32 for 25487.27 kg) and farm size group III (Rs.35796.18 for 22535.71 kg).

This study has clearly established an interesting relationship that cost of production and quantity of leaf per hectare decreased as land holding size increased. The reason for decrease in leaf yield was with increase in holding size, intensity of cropping was found to be less. Among the cost components, labour (hired + family labour) was major item amounting to Rs. 18,152, Rs. 15736.74 and Rs. 14, 111 per ha/year in farm size group I, II and III, respectively.

Labour cost is the major cost of leaf production i.e. 40.82 per cent, 38.62 per cent and 39.42 per cent, respectively for farm size group 1,11, and Ill. Farm size I farmers spent Rs. 4,759 towards FYM. But the expenditure of group 11 and III farmer towards FYM was comparatively less with Rs. 3, 463 and Rs. 3,053. respectively. Same is the case about chemical fertilizers. Farm size group I farmers spent Rs. 4646.37 towards chemical fertilizers and farm size group 11 and I11 spent Rs. 3888.12 and Rs. 3209.12 towards chemical fertilizers, respectively. About equal expenditure was incurred in al1 farm size groups for FYM and chemical fertilizers. Almost all Farmers produce their own FYM or else these purchase it from within the village. Bullock power was used for the intercultural operation in the mulberry garden accounted for 3.47 per cent, 4.23 per cent and 4.04 per cent in farm size group I, II and III, respectively.

TABLE 1—Cost of mulberry leaf production (Rs./ha/year) in Marathwada region under different land holding size groups.

Sr. No. Particulars	Group		
Land holding size (ha)	I	II	III
	(>0.01-0.40 ha)	(>0.41-0.80 ha)	(>0.81 ha)
I. Fixed Costs			
1 Apportion cost of establishment of mulberry garden	1844.04 (4.15)	1828.78 (4.49)	1538.41 (4.30)
2 Rental value of land and land tax	8193 (18.42)	9042 (22.19)	7668 (21.42)
3 Interest on fixed capital	702.59 (1.58)	760.35 (1.87)	644.81 (1.80)
Total fixed costs	**10739.63 (24.15)**	**11631.13 (28.55)**	**9851.22 (27.52)**
II. Variable Cost			
1 Human labour including imputed value of family labour	18152.00 (40.82)	15736.74 (38.62)	14111 (39.42)
2 Bullock labour	1545 (3.47)	1725 (4.23)	1446 (4.04)
3 Farm yard manure	4759 (10.70)	3463 (8.50)	3053 (8.53)
4 Fertilizer	4646.37 (10.45)	3888.12 (9.54)	3209.12 (8.96)
5 Irrigation	2266 (5.10)	2248 (5.52)	2133 (5.96)
6 Incidental charges	1110 (2.50)	839 (2.07)	852 (2.38)
7 Interest on working capital	1248.03 (2.81)	1211.33 (2.97)	1140.84 (3.19)
Total variable costs	**33726.40 (75.85)**	**29111.19 (71.45)**	**25944.96 (72.48)**
Total leaf production cost (Fixed Costs+ Variable Costs)	**44466.03**	**40742.32**	**35796.18**

(Figures In the parentheses indicate per cent of total costs)

The other variable cost components in group I, ll, and III were irrigation (5.10%, 5.52%, 5.96%), interest on working capital (2.81 %, 2.97%, 3.19 %), respectively. It was witnessed from Table I that, the smaller holdings had spent higher amount and it decreased as holding size increased. More particularly, the higher cost incurred by farm size group I was due to the fact that comparatively more use of FYM. chemical fertilizers and own family labour than other land holding size groups. The reason for wide variation in cost of human labour was attributed to varied demand for labour and non-availability of labours in time for sericulture works and differences in wages from place to place.

3.2 Cost of silkworm cocoon production

The production of cocoon is an off farm activity. It requires rearing shed and rearing appliances. To produce more quantity and good quality cocoon, the recommended rearing technologies are to be adopted. The average cost of cocoon production from one hectare/year is depicted in Table 2.

The total cost involves fixed and recurring costs. The fixed cost was derived from the depreciation value of rearing house as well as rearing appliances. The variable cost involves the cost of mulberry leaf, silkworm seed, human labour, disinfection materials, bleaching powder, lime powder, vijetha, and marketing charges including transportation and interest at the rate of 7 per cent on working capital. The share of fixed cost to total cost was 13.03 per cent, 10.96 per cent and 9.09 per cent and share of variable cost to total cost was 86.97 per cent, 89.05 per cent and 90.91 per cent for farm size group I, II , and III, respectively. The cost incurred on different inputs during rearing of silkworm by sample farmers averaged to Rs. 97028.74 was incurred in producing 820.15 kg/ha/year of silk cocoon in group I. In case of farm size group II, it was Rs. 86882.39 for producing 744.22 kg/ha/year of cocoon. Farm size group III incurred Rs. 77125.81 for producing 674.53 kg/ha/year of cocoon. In terms of gross return. the highest amount of Rs. 121781.95 was earned by farm size group I followed by farm size group II (Rs. 108937.08) and farm size group III (Rs. 97556.97). The net revenue was higher in group I. with Rs. 24753·22 /ha/year, when compared to farm size group I I (Rs. 22054.69) and farm size group III (Rs. 12043 I. 16).

TABLE 2—Cost and Return From Cocoon Production (Rs./ha/year) in Marathwada Region under Different Land Holding Groups.

Sr. No. Land holding size (ha) Particulars	Group		
	I (0.01-0.40 ha)	II (0.41-0.80 ha)	III (0. 81 ha)
I. Fixed Costs			
1 Depreciation of rearing house and equipments	11813.06 (12.17)	8899.65 (10.24)	6551.78 (8.49)
2 Interest on fixed capital	826.92 (0.85)	622.98 (0.72)	458.62 (0.60)
Total Fixed Cost	**12639.98 (13.03)**	**9522.63 (10.96)**	**7010.40 (9.09)**
II Variable Cost			
1 Leaf	44466.03 (45.82)	40742.32 (46.89)	35796.18 (46.41)
2 Dfls	5597 (5.77)	5117 (5.89)	4796 (6.22)
3 Material	2236 (2.30)	2069 (2.38)	1874 (2.43)
4 Disinfectants	5882 (6.06)	5573 (6.41)	5327 (6.91)
5 Human labour including imputed value of family labour	21494 (22.15)	19701 (22.67)	18259 (23.67)
6 Transport and marketing	1346 (1.39)	1137 (1.32)	1111 (1.44)

Sr. No. Land holding size (ha)	Group		
Particulars	I (0.01-0.40 ha)	II (0.41-0.80 ha)	III (>0. 81 ha)
7 Other costs	756 (0.78)	625 (0.73)	707 (0.92)
8 Interest on working capital	2611.73 (2.69)	2395.44 (2.76)	2245.23 (2.91)
Total variable cost	**84388.76 (86.97)**	**77359.76 (89.04)**	**70115.41 (90.91)**
Total Cocoon Production Cost (Fixed Costs+ Variable Costs)	**97028.74**	**86882.39**	**77125.81**
III Returns **Gross returns**			
Value of cocoon	116453.10	104548.02	94096.93
Value of by-products	5328.85	4389.06	3460.04
Gross Returns	**121781.95**	**108937.08**	**97556.97**
Total Cost	**97028.74**	**86882.39**	**77125.81**
Net returns (Gross Returns - Total Cost)	**24753.21**	**22054.69**	**20431.16**

Note : Figures in the parentheses indicate per cent of total cost.

Depreciation of rearing and rearing equipments in I farm size group is highest (Rs. 11813.06) than 11 (Rs. 8899.65) and III (Rs. 6551.78) farm size groups. This was because of temporary rearing houses were built and their life span was less than the farm size group 11 and 11 I farmers .The share of depreciation on rearing house and equipment to the average cost incurred in cocoon production was 12.17 per cent. 10.24 per cent and 8.49 per cent. respectively in farm size group I, 11 and III farmers.

The average cost of silk cocoon production was high in farm size group I (Rs. 97028.74) followed by farm size group II (Rs. 86882.39) and farm size group III (Rs. 77125.81). The reason for high cost of silk cocoon production of farm size group I was. the resources used for silk cocoon production are under - utilized. The cost analysis in cocoon production shows that mulberry leaf production alone shares about 46 per cent of the total cost, followed by human labour which shares about 23 per cent in all the land holding groups. The cost incurred towards purchase of disinfectants. paraffin paper. polythene paper, lime powder, bed disinfectant was Rs. 8,118, Rs. 7,642 and Rs. 7,20 I in farm size group I, II and III, respectively. Farm size group I incurred comparatively higher expenditure towards these inputs than farm size group II and III. Farm size group I also incurred comparatively higher expenditure (Rs. 1346) towards transport and marketing than farm size group II and III.

From Table I and Table 2 it is revealed that, in mulberry leaf production. labour was found to be the major input while in silkworm rearing, mulberry leaf was the major input. In silkworm rearing human labour was the major cost component next to mulberry leaf production. Such type of research findings were supported by Nimje, 2007, Lakshmanan et al., (1996a, 1996b, I 997a, 2000), Lakshmanan and Geeta Devi (2000. 2005), Venkteshwara et al.. (2001), Hiriyanna et al., (2002) and Balasaraswathi et al .. (2006). The investment over per rupee cost indicates that farmers with large holding size (group III) had the highest returns. This finding is similar to that of Lakshmanan et al., (1997a, 1997b), Bisen et al., (2005), Deshpande (1988) and Parate (1991).

3.3 Costs and returns of silkworm cocoon production

The unit cost of cocoon production (per kg) for different farm size groups was worked out. Table 3 presents the details of revenue earned by the sample farmers from cocoon production. It is observed from the Table 3 that. the reasons for higher cost incurred in farm size group I

was due to higher cost involved in mulberry leaf production as well as silkworm rearing. The average yield obtained by farm size group I farmers was higher (47.85 kg/l00 dfls) followed farm size group I1 (46.34 kg/l00 dfls) and farm size group III (45.18 kg/l00 dfls). Farm size group I farmers realized high average price for cocoon (Rs. 141.99/kg) as compared to farm size group II (Rs. 140.48/kg) and farm size group III farmers (Rs. 139.50/kg). The income obtained from selling of cuttings and by- products such as silkworm litter and leaf waste, used as organic manures after decomposing was worked out to Rs. 5329 in case of farm size group I followed by farm size group 11 (Rs. 4389) and farm size group I11 (Rs.3460). The cost benefit ratio was same i.e. 1: 1.25 in both farm sizes group I and II.

The cost benefit ratio in farm size group I11 was 1:1.27. The leaf yield obtained from one hectare of mulberry garden for farm size group I, II and III was worked out to 27052.22 kg/ha, 25487.27 kg/ha and 22535.71 kg/ha, respectively. The cost of per kg leaf was estimated to be Rs. 1.64 for farm size group I and Rs. 1.60 and Rs. 1.59 for farm size group II and III, respectively. The average number of dfls brushed /ha/year for silkworm cocoon production was 1714, 1606 and 1493 for farm size group I, II and III. The cost of cocoon production (per kg) for different farm size groups were worked out. It indicates that the cost of cocoon production was higher in farm size group I (Rs. 118.31) as compared to farm size group II (Rs. 116.74) and III (Rs. 114.34).

TABLE 3—SUMMARY OF ECONOMIC PARAMETERS (HA/YEAR).

Sr. No.	Land holding size (ha)	Group		
	Particulars	I (0.01-0.40 ha)	II (0.41-0.80 ha)	III (>0. 81)
1	Average holding size (ha)	2.20	3.21	3.40
2	Average area under Mulberry (ha)	0.40	0.71	1.03
3	Average leaf production (kg)	27052.22	25487.27	22535.71
4	Cost of leaf production(Rs./ha/year)	44466.03	40742.32	35796.18
5	Average leaf cost (Rs./kg)	1.64	1.60	1.59
6	Average dfls brushed (nos.)	1714	1606	1493
7	Cocoon production cost(Rs./ha/year)	97028.74	86882.39	77125.81
8	Average cocoon yield (kg / year)	820.15	744.22	674.53
9	Average cocoon production cost (Rs./kg)	118.31	116.74	114.34
10	Average Cocoon yield/ 100 dfls (kg)	47.85	46.34	45.18
11	Average cocoon price (Rs./kg)	141.99	140.48	139.50
12	Cost benefit ratio	1: 1.25	1: 1.25	1: 1.27

There was a remarkable difference noticed between smaller (Group I) and higher land holding (size group III) groups with respect to cost incurred towards one kg of. cocoon. It indicates that farmers with the larger holdings (above 0.80 ha) has incurred less production cost than other farm size group.

Therefore these findings are in line with the findings of Lakshmanan et al.. 1997a. Net revenues earned by the farmers remain more in traditional area than non-traditional area. Cost profit ratio in the present study is less than the traditional area. Such research findings were supported by the findings of Venkateswara et al .. 2001. Findings of Hanumappa (1987) indicate that the extent of economic

gains or sericulturist depends not only on the size of his mulberry holding but also the region to which he belongs. The results revealed that the small scale farmers were good source of income generation, as they tended to practice intensive type or cultivation. Therefore the average yield of mulberry leaf and cocoon obtained by group I farmer was at higher side than other two farmers group. Thus higher rate of labour productivity has been assigned to large scale farmers in sericulture, whereas the small scale farmers practiced intensive type of cultivation. These findings are in line with the findings of Ganapathi Rao et al .. (1995). Jayaram et al., (1998), Lakshmanan et al., (1996a, 1999)

The economic analysis on cost and returns of silk cocoons production revealed that it is quite profitable in all the farm size groups of the farmers.

4.0 References

Anonymous (2007a):

Sericulture Industry. www.texmin.nic.in

Balasaraswathi, S., Lakshmanan, S., Mani, A. and Qadri, S.M.H. (2006):

Comparative economics of mulberry and cocoon production In Erode and Dharmapuri district of Tamilnadu, Indian Journal of Sericulture. 45(1): 58-61.

Bisen, D.K., Bisen, P.K. and Sarawgi, A.K. (2005):

Economics of cocoon production on mulberry in Balaghat district of Madhya Pradesh. JNKVV Research Journal, 38(2): 41-44.

Deshpande, P.M. (1988):

Economics of sericulture: A study in selected area of Akola . District. MSc. (Agri.) Thesis (Unpub.). Dr. PDKV, Akola, M.S.

Dwarakinath, R. (2006):

Extension approach for sericulture modernisation. Indian silk, April, 2006, pp.18-21.

Devi, R.G. (1998):

Labour employment under different mulberry farm holdings - A comparative study, Indian Journal ofSericulture, 37 (1): 52-56.

Ganapathi Rao, R., Mallikarjuna, B and Datta, R.K. (1995):

Human labour employment in sericulture- An empirical study in Andhra Pradesh. Indian Journal of sericulture, 34(2): 90-92.

Hanumappa, H.G. (1987) :

Economics of tropical sericulture: Micro-perspectives. Sericologia, 27(2) : 219-228, (French).

Hajare, T.N., Jadhav, A.D., Challa, O. and Gajbhiye, K.S. (2005) :

Sericulture Empowers Women Farmer. Indian Silk, 25 (4): 19-20.

Hiriyanna, Swamy T.P., Kumaresan, P. and Vijaya Prakash, N.B .. (2002)

Comparative economics of bivoltine hybrids with multi x bi hybrid cocoon production, Indian Journal of Sericulture . 41/ (1): 38--41.

Lakshmanan, S. (2007) :

Yield gaps in mulberry sericulture in Karnataka: An economic analysis, Indian Journal of Agricultural Economics, 62(4) : 623-635.

Lakshmanan, S., Jayaram, H. Ganapathi Rao, R., Mallikarjuna Band Geetha Devi, R.G. (l997b) :

Economics of sericulture: An update. Indian Silk, 36 (1): 2/-23.

Lakshmanan, S and Geetha Devi, RG. (2002) :

An economic analysis of factors influencing mulberry leaf production in Tamil Nadu, Indian Journal of Sericulture, 41 (2): 120-123.

Lakshmanan, S., Geetha Devi, RG. and Suma, N. (2000) :

Studies on economics of bivoltine versus cross-breed cocoon production in K.R. Nagar Taluk of Mysore-district,

Indian Journal of Sericulture, 39(2): 149-151.

Lakshmanan, S. and Geetha Devi, R.G. (2005) :

A comparative analysis of economics of bivoltine and cross-breed cocoon production in Mandya district of Karnataka- A micro level evidence. Indian Journal of Sericulture, 44(2): 179-/82.

Lakshmanan, S., Mallikarjuna B., Jayaram, H., Ganapathi Rao, R., Subramaniam, M.R, Geetha Devi, R. G. and Datta, RK. (1996a)

Economic issues of production mulberry cocoon in Tamil Nadu- A micro economic study, Indian Journal of Sericulture, 32 (2): 128-131.

Lakshmanan, S., Mallikarjuna B., Subramaniam M.R and Geetha Devi, R. G. (l996b) :

Economics of sericulture in Tamil Nadu, Indian Textile Journal. April. pp. 58-60.

Lakshmanan, S., Mallikarjuna, B. and Geetha Devi, R.G. (1997a) :

Economics on scale in mulberry sericulture in Tamil Nadu - An analysis, Indian Journal of Sericulture. 36 (2): 133-137.

Nimje, A.D. (2007) :

Economics of sericulture: A study in selected area of Nagpur District. MSc. (Agri.) Thesis (Unpub.). Dr. PDKV. Akola. M.S.

Parate, P. S. (1991) :

Economics of sericulture: A study in selected area of Wardha District. M.Sc. (Agri.) Thesis (Unpub.). Dr. PDKV, Akola, M.S.

Raveendran, N., Anita. S., Parthipan, B. and Elangovan, S. (1993) :

Sericulture: A profitable farm venture. Agricultural Situation in India, XLVIII (1): 23-26.

Srinivasa, G., Doddagadad, C.B., Jayaram, H. and Geetha Devi, R.G. (1998)

Technological practices of Sericulturists in non-traditional region of Karnataka. Indian Journal of Sericulture, 37(1) pp. 57-60.

Venkateswara Rao, M., Kumaresan, P. and Vijaya Prakash, N.B. (2001) :

Comparative economics of cocoon production in coastal area and traditional area of Andhra Pradesh, Indian Journal of Sericulture, 40(2): 147-150.

Agricultural/Non-Agricultural Income Disparity in India Trend Over 1951-52 / 2001-02 and Pattern Across the States

H.S. Shergill*

The objective of this paper is to analyse the trend in income differential between agricultural population and non-agricultural population in India over the 1951-52/2001-02 period. An attempt is also made to picture the extend and pattern of inter-state variation in income differntial between these two groups of population. The disparity between income of agricultural population and of non-agricultural population has serious implications both for political stability as well as for welfare of the rural masses. That is why parity between agricultural and non-agricultural income is an accepted goal of agricultural policy in the developed countries since the second world war (Gardner, 2002). And parity they have been ensuring by paying huge subsidies to the agricultural population; because market mechanism fails to ensure it. In section one nature of data and concepts used are briefly described. The trend in income disparity between agricultural population and non-agricultural population is analysed in section two, and the extend and pattern of inter-state variation in this income disparity in section three.

I. Concepts and Data

The disparity between the per capita income of these two groups of population is measured by the ratio: **per capita income of agricultural population as percent of per capita income of the non-agricultural population.** The per capita income of each group of population is approximated by the per capita net domestic product originating in the agricultural sector and non-agricultural sector. Since time series data on income received by agricultural population from non-agricultural sources are not available, so the estimates of per capita income originating in agricultural sector and non-agricultural sector are used.

The net domestic product originating in agricultural sector and in non-agricultural sector data are from C.S.O.

publications. The time series data on net domestic product are at 1993-94 constant prices, and the cross-section data for the 20 major states are at 1999-2000 constant prices. The data on agricultural and non-agricultural population are not directly available from census publications, except for the 1951 census. The figures on agricultural population for 1961 to 2001 are estamated by using the following formulation:

$$\text{Agricultural population} = \left[\frac{\text{Rural population}}{\text{Rural male workers}} \right] \text{Male workers in Agriculture}$$

This formulation gives a fairly estimate of agricultural population in each of the census years (1961 to 2001) as the male worker to population ratio may be almost same in the rural population as a whole and its largest segment, the agricultural population. The non-agricultural population was calculated by subtracting the agricultural population from the total population in each year.

II. Agricultural/Non-Agricultural Income Disparity: Trend over 1951-52/2001-02 Period

To begin with per capita income of agricultural population and non-agricultural population was compared in the initial years of each decade from 1951 to 2001 on the basis of triennium averages. These estimates are presented in table 1 and suggest that the differential between agricultural and non-agricultural income widened over the 1951-52/2001-02 period. During the 1950's the per capita income of the agricultural population was about one-half of that of non-agricultural population; during the 1970's and 1980's the ratio of per capita income of the agricultural population to that of non-agricultural population fell to about 36 percent; and during 1990's it went down further to about 30 percent.

TABLE 1— Agricultural/Non-Agricultural Income Gap in India: 1951-52 to 2001-02

Time period (Average for Triennium Ending)	Per Capita Net Domestic Product at 1993-94 Prices (Rupees)		Agricultural Per Capita Income as Percent of Non-Agricultural per Capita Income
	Agricultural Population	Non-Agricultural Population	
1953-54	2932	5777	50.75
1961-62	3332	6495	51.30
1971-72	3148	8695	36.21
1981-82	3205	8854	36.20
1991-92	3826	12642	30.26
2001-02	4871	16555	29.42

Note: Net Domestic Product are from C.S.O. National income publications (Govt. of India).

* Director (Research), Emeritus Professor of Ecoomics, Punjab University, Chandigarh

The trend in income differential between Agricultulural and non-Agricultural population was further analysed with the help of standard trend model. The results of the estimated trend model are presented in table 2 and clearly reveal that there was a significant increase in the gap between agricultural income and non-agricultural income; the trend coefficients in the two equations presented in this table are significant at 1 percent level and have the expected negative sign. The ratio of agricultural per capita income to non-agricultural per capita income declined at rate of 1.2 percent per year over this period. On the basis of regression results given in table 2, one can safely conclude that the differential between agricultural income and non-agricultural income increased significantly over the 1951-52 to 2001-02 period. The political and welfare implications of such a huge and increasing gap between income of agricultural population and non-agricultural population can be very serious and policy intervention is a must to arrest this widening disparity between agricultural and non-agricultural income.

TABLE 2—Agricultural/Non-Agricultural Income Gap:Trend over 1951-52 to 2001-02 Period N=51

Dependent variable	Dependent variable form	Trend Rate (Percent per year)	Estimated Trend Model			Equation No.
			Coefficient of Time	Intercept	R-Sqr	
Agriculatural per capita income as percent of Non-agriculatural per capital income	Natural	-	-0.469[a] (13.61)	50.63	0.787	1
	Log	-1.21	-0.012[a] (15.80)	3.94	0.800	2

Notes: (1) Figures in brackets are t-values.
  (2) a indicates significant at 1 percent level for a two tailed test.

The differential between agricultural and non-agricultural income is the end result of a complex process of distribution of national product between agricultural sector and the non-agricultural sector. Owing to the interaction of various factors such as nature and speed of technological change in the two sectors, behaviour of terms of trade between the two sectors and the barriers to mobility of agricultural population to non-agricultural sector, the per capita income of the agricultural population grows at a much slower rate compared to that of non-agricultural population (Heady, 1958). The growth rates of per capita income of the two sectors over 1951-52/2001-02 are presented in table 3 and show the wide disparity in the growth rates of per capita income of the two sectors. The slower growth of per capita income of the agricultural population compared to that of non-agricultural population is the result of slower growth of net domestic product originating in agriculture compared to that originating in the non-agricultural sector, and the slower movement of population out of agriculture into the non-agricultural activities. The time series information on share of agricultural sector in net domestic product and in population is presented in table 4.In the early 1950's, the share of agricultural sector in net domestic product was 52.57 percent, compared to 68.58 percent share of the sector in total population. By the closing years of 20th century the share of agricultural sector in net domestic product has fallen to just 18.09 percent; but its share in total population has declined to only 51.56 percent. So the proximate cause of the widening differential between agricultural per capita and non-agricultural per capita imcome is that share of agricultural sector in net domestic product falls much faster than its share in total population. Why these two shares of agriculatural sector fall at disproportionate rates is a complex question that has no single aneswer; though various explanations have been offered by economists from time to time. One explanation is that in the early phase of development farm output grows at a much slower rate, due to agriculture being traditional, compared to the production of modern large scale industry. Another explanation runs in terms of secular deline in terms of trade of agriculture due to slow growth of demand for farm products because of their low and falling income elasticity of demand. The third explanation is that modern industry is not able to absord the growing surplus populations of agricultural sector due to capital intensive nature of modern technology. The fast growth of services sector in developing countries at a premature stage (compared to developed countries) also contributes to the deline in the relative income of the agriculture population (Bellery, 1964; Ojala, 1962;Tweeten, 1967).

TABLE 3—GROWTH OF AGRICULTURAL PER CAPITA INCOME AND NON-AGRICULTURAL PER CAPITA INCOME
(1951-52/2001-02 AND SUB-PERIODS)

| Period | Growth Rate | (Percent per year) |
	Agricultural per capita income	Non-Agricultural per capita income
1951-52 to 2001-02	0.91	2.12
Pre-Green Revolution period (1951-52 to 1965-66)	0.56	2.02
Green Revolution period (1966-67 to 2001-02)	1.54	2.28
Pre-Economic Reform period (1951-52 to 1990-91	0.46	1.83
Economic Reform period (1991-92 to 2001-02)	2.26	3.23

Notes: (1) Net Domestic Product data are from C.S.O. National income publications (Govt. of India).

TABLE 4—SHARE OF AGRICULTURAL SECTOR IN NET DOMESTIC PRODUCT AND POPULATION

| Period (Average for Triennium Ending) | Share of Agricultural Sector in (Percent) | | Difference in Net Domestic Product share and population share (Percent points) |
	Net Domestic Product at 1993-94 prices	Population	
1953-54	52.57	68.58	-16.01
1961-62	48.52	64.19	-15.67
1971-72	42.09	66.75	-24.66
1981-82	36.77	61.63	-24.86
1991-92	31.05	59.80	-28.75
2001-02	18.09	51.56	-33.47

Notes: (1) Net Domestic Product data are from C.S.O. National income publications (Govt. of India).

III. Agricultural/non-Agricultural Income Disparity: Pattern Across States

India is a country of continental dimensions with a large number of states that differ from one another in agro-climatic, cultural, and political conditions, and also in the level of development and rate of economic growth. Consequently, an attempt is made to picture the extend and pattern of agricultural/non-agricultural income disparity across the major states of India. The state wise estimates of per capita income of agricultural and non-agricultural sectors are presented in table 5.

Sr No.	State	Per Capita Net State Domestic Product at 1999-00 prices (Rupees) (Average for Triennium Ending 2001-02)		Agricultural per Capita income as percent of Non-Agricultural per capita income (Percent)
		Agricultural Population	Non-Agricultural Population	
1.	Chhattisgarh	3754	25787	14.56
2.	Bihar	2723	14959	18.20
3.	Jharkhand	3665	18753	19.54
4.	Madhya Pradesh	4944	22677	21.80
5.	Maharastra	8223	33361	24.65
6.	Gujarat	6867	26521	25.89
7.	Orissa	4978	18046	27.59
8.	Tamil Nadu	7928	27388	28.95
9.	Uttar Pradesh	5418	16445	32.95
10.	Himachal Pradesh	10651	31584	33.72
11.	Andhra Pradesh	8757	24458	35.79
12.	Rajasthan	7621	19973	38.16
13.	Karnataka	9391	24105	38.96
14.	Uttarakhand	8656	18963	45.66
15.	West Bengal	10407	20634	50.44
16.	Assam	8288	16211	51.13
17.	Jammu & Kashmir	9539	16804	56.77
18.	Haryana	16961	29659	57.19
19.	Kerala	16700	20500	81.46
20.	Punjab	24070	26961	89.28

Note: Net State Domestic Product originating in Agricultural and Non-Agricultural Sectors is used to estimate the per capita figures given in columns 2 and 3.

One finds a very variegated pattern of agricultural/ non-agricultural income disparity across the states of India; from near parity in Punjab and Kerala, to agricultural per capita income being less than 20 percent of non-agricultural per capita income in Chharttisgarh, Bihar and Jharkhand. It may be observed that the states with the worst scenario of agricultural/non-agricultural income disparity are located in the central and eastern regions of India. The other notable features of these worst scenario states are that in their rural sectors tribal and semi-tribal population makes a substantial proportion and the adoption of modern agriculture technology has been slow. It is also note worthy that the two states, (Punjab and Kerala) where an almost parity between agricultural and non-agricultural per capita income prevails are very dissimilar from each other in terms of geographic location, agro-climatic conditions and economic structure. Consequently, the near parity between agricultural and non-agricultural per capita income may have emerged in these two states through different routes.

Since the disparity between per capita income of agricultural and non-agricultural population is the result of discrepancy

in the share of these two sectors in net domestic product and population, so information on these two shares in various states is presented in table 6. It may be seen that in Chhattisgarh the share of agricultural sector in population is more than three times its share in net domestic product. Almost similar discrepancy in population and dosmestic product shares of agricultural sector prevails in Bihar, Jharkhand and Madhya Pradesh. On the other hand, in Punjab and Kerala, the discrepancy between population and domestic product shares of agricultural sector is minimal and marginal. The slower movement of population out of agricultural sector is at the root of the wide disparity in the agricultural/non-agricultural per capita income in states like Chhattisgarh, Bihar and Jharkhand etc.

TABLE 6—SHARE OF AGRICULTURAL SECTOR IN NET STATE DOMESTIC PRODUCT AND POPULATION

Sr No.	State	Share of Agricultural Sector in (Percent)		Difference in Net State Domestic Product Share and Population Share (Percent points)
		Net State Domestic Product at 1999-00 Prices (Average for Triennium Ending 2001-02	Population (2001)	
1.	Chhattisgarh	21.30	65.02	-43.72
2.	Bihar	32.87	72.90	-40.03
3.	Jharkhand	18.57	54.46	-35.93
4.	Madhya Pradesh	26.39	62.18	-35.79
5.	Orissa	27.77	58.25	-30.98
6.	Maharastra	15.72	43.08	27.36
7.	Uttar Pradesh	35.05	62.09	-27.04
8.	Gujarat	16.77	43.76	-26.99
9.	Andhra Pradesh	27.27	51.16	23.89
10.	Himachal Pradesh	22.99	46.96	-23.97
11.	Tamil Nadu	15.90	39.50	-23.60
12.	Rajasthan	30.79	53.83	-23.04
13.	Karnataka	26.13	47.60	-21.47
14.	Uttarakhand	25.80	43.23	-17.43
15.	Assam	33.06	49.14	-16.08
16.	West Bengal	26.86	42.14	-15.28
17.	Haryana	30.80	43.77	-12.97
18.	Jammu & Kashmir	29.76	42.69	-12.93
19.	Punjab	38.07	41.38	-3.31
20.	Kerala	16.46	19.47	-3.01

IV. Relationship between Agricultural/Non-agricultural Income Disparity and Level of Agricultural Development

A preliminary exercise reported in table 7 indicates that in the cross-section of Indian States the level of econimic development (proxied by per capita income) and agricultural/non-agricultural income disparity are not related; but level of agricultural development significantly reduced the gap between agricultural per capita income and non-agricultural per capita income. The coefficient of agricultural output per Hectare variable was significantly related (with a positive sign) with ratio of agricultural income to non-agricultural income.

TABLE 7—IMPACT OF LEVEL OF DEVELOPMENT AND AGRICULTURAL DEVELOPMENT ON AGRICULTURAL/NON-AGRICULTURAL INCOME DISPARITY

Dependent variable: Ratio of Agricultural Income to Non-Agricultural Income N=20

Dependent Variable Form	Coefficients of Explanatory Variable			
	Per Capita Income	Agricultural Output per Hectare	Intercept	R-sqr
Natural	0.002	0.001[a]	-3.722	0.551
	(1.55)	(3.59)		
Log	0.004	0.0003[a]	2.525	0.543
	(1.52)	(3.54)		

Notes: (1) Figures in brackets are t_{values}

(2) a indicates significant at 1% level for a two-tailed test.

V. Conclusions and Policy Implications

The analysis presented in this paper reveals the following time trend and inter-state pattern of agricultural/non-agricultural income disparity.

(1) The disparity between agricultural per capita income and non-agricultural per capita income has increased substantially over 1951-52/2001-02 period. In the early 1950's per capita income of agricultural population was about one-half of that of non-agricultural population; but by the closing years of 20th century agricultural per capita income has fallen to less than 30 percent of non/agricultural per capita income.

(2) The proximate cause of this negative trend in agricultural/non-agricultural income ratio is the growth of discrepancy in the product and population shares of agricultural sector.

(3) Over 1951-52/2001-02 period per capita income of agricultural population grew at the rate of 0.91 percent per year; compared to 2.12 percent per year rate of growth of non-agricultural per capita income. The per capita income of agricultural population grew at a slow rate partly because of slow growth of agricultural production, and partly because of the very outmigraton of agricultural population to non-agricultural occupations.

(4) Across the major states of India a great variation in agricultural/non-agricultural income disparity is observed. In Chhattisgarh, Bihar and Jharkhand agricultural per capita income is less than one-fifth of non-agricultural per capita income; in Madhya Pradesh and Maharastra agricultural/non-agricultural per capita ratio was less than one-fourth. In contrast to this almost parity in agricultural/non-agricultural per capita income prevailed in Punjab and Kerala.

(5) In the cross-section of 20 major states of India, no significant relationship was found between level of development and agricultural/non-agricultural income disparity; but level of agricultural development was found to reduce this disparity.

The experience of developed countries has clearly shown that free play of market mechanism alwasy results in widening gap between agricultural and non-agricultural income. The only effective method to check the widening gap between agricultural and non-agricultural income is price support and direct/indirect subsidies to the agricultural sector. All the developed countries are paying huge subsidies to their farm sectors to ensure a parity between agricultural and non-agricultural income. The policy implication for countries like India is to make price support and subsidies to the agricultural sector a regular and paramanent feature of agricultural policy, if agricultural/non-agricultural income disparity is to be reduced.

REFERENCES

1. Bellerby, J.R., Agriculture And Industry: Relative Income, John Willey and Sons, New York, 1964.

2. C.S.O. National Accounts Statistics (Various Issues), GOI, New Delhi.

3. Gardner, B.L., American Agriculture in the Twentieth Century, Harvard University Press, 2002.

4. Heady, E.O. et. al. Agricultural Adjustment Problems in a Growing Economy, Iowa University Press, 1958.

5. Ojala, E.M., Agricultural And Ecoomic Progress, Oxford University, Press, 1952.

6. L.G. Tweeten, ''Theories Explaining the persistence of Low Resource Returns to Agriculature in a Growing Economy'', Journal of Agricultural Economics, May, 1967.

Attention Subscribers

**All correspondence regarding
subscription of monthly journal
"Agricultural Situation in India"
should be made on the following
address :**

The Controller of Publications,
Ministry of Urban Affairs
Department of Publications,
Publication Complex (Behind Old Secretariat)
Civil Lines, Delhi-110054
Phone : 23817640, 23819689

Regional Specialization in the Production of Vegetables on Commercial Scale : A Case of Himachal Pradesh

DHARAM PAUL * AND D.V. SINGH**

In Himachal Pradesh there seems to be good scope for commercialization of agriculture sector for enhancing Income and generating additional gainful employment opportunities. Himachal Pradesh has emerged as a leader in planning and implementation of strategies for optimum utilization of the so termed marginality of the hill. It is now well accepted that the State has made significant development in the field of agriculture, including that of horticulture and livestock rearing, and has emerged as a model State for the hilly regions of the country. Now, the farming system of the State are showing a prominent change, where diversification, with incorporation of commercialization of vegetables have become the focus of agricultural development planning process. Himachal Pradesh offers most suitable climate for the production of commercial vegetables like cabbage, cauliflower, capsicum, peas, tomato, beans, etc. Most of the commercially grown vegetable in the State are termed off- season because these are culivated and reached in market at a time when similar produce from the plains is not available. So, these off-season vegetables fetch premium prices in the neighboring markets of the plains. Thus the cultivation of these commercial vegetables have proved to be a boon to the farmers of the State.

As many as about 87 per cent of the Himachal farmers are small or marginal land holder's cultivating up to 2 hectares each. In the context of such a highly skewed land distribution, the cultivation and production of labour intensive crops like vegetables assume still greater importance.Vegetables are not only labour intensive but are also high pay-off crops cultivated with limited land base and, therefore, provide opportunities for raising the levels of employment and income of mariginal and small farmers.

The hill farmers have an absolute advantage in producing vegetables over other crops while there is comparative advantage in their production in Himachal Pradesh as compared to other parts of the country. Vegetables acreage in the State has increased from 15.6 thousand hectares in 1984-85 to about 67.9 thousand hectares in 2011-12. Production of Vegetables have increased from 258 thousand metric tones to 1356.6 thousand metric tones (excluding potato) during the same period. The potato is excluded because of the fact that a large bulk of it is used as seed.

Keeping in view the importance of commercial crops, the present study was under taken with the following objectives:

i.   Returns from selected commercial crops on various sizes of farm, and

ii. Income and employment potential of selected commercial crops.

Methodology

Five important vegetables namely cabbage, capsicum, cauliflower, peas and tomato grown in the State were selected for inclusion in the present study. The criteria used for selecting a particular vegetable for detailed study is the relatively higher proportion of its area in the total area under vegetables in the State. While doing so, potato was excluded because (i) most of the tubers producted here are used as seed in plains rather than as vegetable and (ii) the problems of its production and markeing are entirely different. It was observed that the areas of concentration of these vegetables lie mostly in the district of Mandi, Shimla, and Solan. Therefore, these districts were taken as the main base for selection of a sample. During 2009-2010, Shimla district has the high percentage share in the total vegetables area (17.15 per cent) followed by Mandi and Solan districts i.e. 13.62 per cent and 12 .86 per cent respectively. These three districts combinedly accounted for more than 40 per cent share of the State area under all the vegetables. Therefore on the basis of higher proportionate share under the selected commercial crops (vegetables) Shimla, Mandi, and Solan districts were purposively selected for the present study. Multi—stage purposive—cum-random sampling technique has been employed for the selection of tehsils (Stage-I), villages (Stage-II) and the farmers (Stage-III) from the selected districts of Shimla, Mandi, and Solan. To fulfill the statistical requirement of the study in all 300 farmers (respondents), one hundred farm each selected districts were selected for the present study. These farmers were classified in three size groups i.e. marginal up to 1 ha., small 1-2 ha., and other more than 2 ha. of operational holding. The other farm category includes semi-medium, mediums and large because only 13 percent of the total farmers in the State fall in this

* Research Scholar, Department of Economics, H.P.U. Shimal-5
** Ex-Senior Field Officer,Agro Economic Research Centre, H.P.U. Shimla-5

category. Out of 300 hundred sample farms, 162 farms are marginal farms, 80 are small farms and 58 are other farms. In the proportion of marginal, small and other farms of the total sample farms cover 54.00, 26.67 and 19.33 per cent farm respectively. In all three selected districts, the data from these farmers is collected through pre-tested well designed questionnaires/schedules by adopting personal interview method during the agricultural year 2010-11.

To estimate the economics of crops, a number of cost concepts such as cost A1, A2, B and C as are used in the cost of culivation studies G.O. I. were followed Cost D calculated in the present study includes Cost C+ managerial cost (10% of cost A_1) + risk margins (10% of cost A_1 for tomato and 5% of cost A_1 for other selected vegetables). Marketing cost includes assembling, packing, grading, transportation, commission and market fee etc.

RESULTS AND DISCUSSION

Cost and Net Returns on Cabbage

On the sampled farms as a whole the proportion of paid out cost (i.e. cost A_1) to total cost comes to 22.06 per cent (Table 1). The marketing cost forms about 23 per cent of the total cost of production. In hills for the determination of profitability of any agricultural commodity, it is the paid out cost which has the real relevance rather than the total cost because of the farmer's own assets e.g. bullocks, implements, machinery and family labour for which the opportunity cost is minimum. Therefore, the net returns include a significant proportion on account of economic rewards for these items. The total cost of cultivation per hectare of cabbage is estimated to be Rs. 2,34,108 on marginal farms, Rs. 2,86,992 on small farms, Rs. 2,38,503 on other farms and the average being Rs. 2,51,220/-. The average gross return from cabbage crop is 3,83,761/- per hectare for all sample farmers. The net return over paid out cost is Rs. 3,28,343 excluding the marketing expenses. Among the three categories of farmers, small farmers realized Rs. 49,850 per hectare more net returns over cost A1 than the marginal farmers. On the whole, average net returns of all farmers from One hectare of cabbage is Rs. 1,32,541/-. Thus it can be concluded that production of cabbage on commercial scale on all sizes of farms in Himachal Pradesh is a profitable enterprise.

Costs and Net Returns on Capsicum

The total cost of producing and marketing of capsicum from one hectare land is observed different for three categories of selected farms (Table 2). On average farm it is Rs. 2,79,841 per hectare which is highest on small farms (Rs. 3,01,834) and lowest on other farms (Rs. 2,69,915). It is an interesting fact that small farmers are getting highest gross return as well as net return. It may be seen that producers of capsicum earned a profit or net income of Rs. 3,87,722 per hectare. Marginal farmers are getting Rs. 70,327 more net return than other farmers.

However the difference between small and marginal farms is Rs. 22,664 in the case of net return per hectare. On the whole, profitability of capsicum cultivation in Himachal Pradesh is more on small farms followed by marginal and other farms. Thus it can be concluded that capsicum cultivation in the State is a profitable enterprise for all categories of farmers.

Costs and Net Returns on Cauliflower

Average cost of cultivation on all size of farms worked out to Rs. 2,09,922 per hectare (Table 3). In total cost of cultivation marginal, small and other farms categories incurred Rs. 2,13,586, Rs. 2,09,747 and Rs. 2,07,174 cost per hectare respoectively. Net returns over paid out cost are highest for small farms Rs. 2,92,625 followed by marginal and other categories of farms Rs. 2,80,224 and Rs. 2,63,659 per hectare respectively. Same trend with different figures may be observed in the case of gross returns as well. The marketing cost forms about 15.32 per cent of total cost of production. Thus it can also be concluded that cauliflower being a purely off-season crop, it gives maximum returns in the hilly State like Himachal Pradesh.

Cost and Net Returns on Peas

In peas cultivation, paid out cost forms 29.76 per cent of total cost, on all the farms (Table 4). However the proportion differs significantly on categories of farm i.e. on marginal 30.85 per cent, small 27.83 percent and other 32.37 per cent. The total cost of cultivation varies on different category of farms. It is highest for marginal farms Rs. 1,71,609 per hectare followed by other farms and marginal farms. Net returns over paid out cost is highest for small farms Rs. 1,94,819 per hectare followed by other and marginal categories of farms with Rs. 1,63,041 and Rs. 1,54,813 per hectare respectively. The average gross returns is Rs. 2,18,254 per hectare. It reflect the fact that cultivation of peas is also profitable in Himachal Pradesh.

Cost and Net Returns on Tomato

Tomato is one of the most adoptable commercial vegetable crops in Himachal Pradesh. In tomato cultivation, paid out cost forms 20.11 per cent of total cost (Table 5), on all farms and it is almost similar on marginal farms, small farms and on other farms. The marketing cost accounts for Rs. 69,766 per hectare on all farms and share of maketing cost in total cost is 19.49 per cent per hectare. The tendency of gross and net returns on cost A1 A2,B,C, D and marketing cost, the profitability of other farms and small farms is higher as compared to marginal farms. Net returns over paid out cost is highest for tomato among all five selected commercial crops. No unit of land was reported leasedin in the study area thus cost A_2 is same Cost A_1 all crops.

Impact on Income and Employment

Commercial vegetable crops being highly labour intensive can help to a great extent in solving the problem of unemployment and their inclusion in the crop rotation can help the growers to increase their farm income also. The figures in Table 6 depicts that the gross annual income

per hectare of selected commercial crops is highest in the case of small farms (Rs. 4,46,586). Such farmers are also getting better returns per unit of land devoted to commercial crops as compared to other crops. This is followed by other farms, who too are getting higher income from commercial vegetable crops as compared to marginal farms. All this suggest that small farmers are producing vegetable crops efficientlty and enhancing their farm income. The composition of farm income from various sources shows that commercial vegetable crops account 56.58 per cent of the total farm income on all farms and this proportion decreases as the farm size increases. However, the gross income from other crops increases as the farm size increases. On the whole, it may be concluded that vegetable cultivation in the State is a profitable enterprise because of regional suitability in the production of these crops.

The above views suggests that the cropping system which involves more labour are to be preferred to less labour intensive ones. With the introduction of roads, communications and other infrastructural facilities in the agricultural sector of the State, farming is becoming commercialized day by day. Now the traditional crops are substituted by commercial crops. The cultivation of off-season vegetable during recent decade is a good example in the commercialization of agriculture in the State. Production of commercial vegetable crops enhances the income of farmers through high pay-off crops as well as by providing more employment opportunities to the members of the farming families. The employment potential presented in the Table 7 shows that higher employment generating crop is tomato and lowest one is wheat. The rate of employment per hectare ranges from 67.38 man-days in wheat to 338.36 man-days in tomato. As regards the selected commercial crops, peas account the lowest i.e. 169.44 man-days per hectare which is still higher than that of the crops other than vegetables. On the whole, number of man-days, per hectare employed in different crops suggest that cultivation of commercial vegetable crops generates better employment opportunities to the farmers of Himachal Pradesh.

Conclusion

On the basis of foregoing analysis one can suggest that cultivation of commercial vegetable crops in the State is very succesful enterprise. It is particularly more beneficial to marginal and small farms having land holding up to2 hectares. This is because of about 87 per cent of farmers in the State fall in these categories. By growing off season vegetables, farmers in the State are fully utilizing agro-climatic advantages. By cultivating of commercial vegetable crops the growers in the State are getting various economic benefits over non-growers. Briefly these are (i) more employment (ii) higher returns per units of land, (iii) best use of their resources (iv) higher income, etc. Therefore, it is concluded that Himchal Pradesh has the regional advantages in the cultivation of commercial vegetable crops during off-season.

TABLE 1—Cost and Return from Cultivation of Cabbage on Sample Farms

(Rs./ha.)

Item		Marginal Farm	Small Farms	Other Farms	All Farms
1. Cost of Cultivation					
Cost	A^1	49169	58782	58804	55418
	A^2	49169	58782	58804	55418
	B	160356	194305	166815	172662
	C	176257	206098	175871	185108
	D	183643	214915	184691	193421
	MC	50465	72077	53812	57799
Total Cost		**234108**	**286992**	**283503**	**251220**
2. Gross Returns		384643	444106	352742	383761
3. Net Returns					
Over Cost-	A^1	335474	385324	293938	328343
	A^2	335474	385324	293938	328343
	B	224287	249801	185927	211099
	C	208386	238008	176871	192653
	D	201000	229191	168051	190343
	MC	334178	372029	298930	325962
Total Cost		**150535**	**157114**	**114239**	**132541**

Note: MC=Marketing Cost

TABLE 2—Cost and Return from Cultivation of Capsicum on Sample Farms

(Rs./ha.)

Item		Marginal Farm	Small Farms	Other Farms	All Farms
1. Cost of Cultivation					
Cost	A^1	60283	69527	73870	68198
	A^2	60283	69527	73870	68198
	B	207206	226224	204169	207736
	C	219051	234314	210387	215888
	D	228093	244744	221468	221468
	MC	58113	57090	48447	53723
Total Cost		286206	301834	269915	279841
2. Gross Returns		481200	513108	424460	455920
3. Net Returns		420917	443581	350590	387722
Over Cost	A^1				
	A^2	420917	443581	350590	387722
	B	273994	286884	220291	248184
	C	262149	278794	214073	240032
	D	253107	268364	202992	234452
	MC	423087	456018	376013	402197
Total Cost		**194994**	**211274**	**154545**	**176079**

Note: MC= Marketing Cost

TABLE 3—Cost and Return from Cultivation of Cauliflower on Sample Farms

(Rs./ha.)

Item		Marginal Farm	Small Farms	Other Farms	All Farms
1. Cost of Cultivation Cost :	A^1	53644	58904	62510	58558
	A^2	53644	58904	62510	58558
	B	160365	158459	164474	161253
	C	171233	165849	169782	168972
	D	179279	174684	179159	177756
	MC	34307	35063	28015	32166
Total Cost		213586	209747	207174	209922
2. Gross Returns		333868	351529	326169	337010
3. Net Returns		280224	292625	263559	278452
Over Cost	A^1				
	A^2	280224	292625	263659	278452
	B	173503	193070	161695	175757
	C	162633	185680	156387	168038
	D	154589	176845	147010	159254
	MC	299561	316466	298154	304844
Total Cost		**120282**	**141782**	**119025**	**127088**

Note: MC=Marketing Cost

TABLE 4—Cost and Return from Cultivation of Cauliflower Peas on Sample Farms

(Rs./ha.)

Item		Marginal Farm	Small Farms	Other Farms	All Farms
1. Cost of Cultivation Cost :	A^1	43549	47757	50978	47183
	A^2	43549	47757	50978	47183
	B	104445	122589	117198	114524
	C	113404	129382	121788	121274
	D	119937	136546	129435	128351
	MC	21187	35063	28015	30166
Total Cost		**141124**	**171609**	**157450**	**158517**
2. Gross Returns		198362	242576	214019	218254
3. Net Returns		154813	194819	163041	171071
Over Cost	A^1				
	A^2	154813	194819	163041	171071
	B	93917	119987	96821	103730
	C	84958	113194	92231	96980
	D	78425	106030	84584	89903
	MC	177175	207513	186004	188088
Total Cost		**57238**	**70967**	**56569**	**59737**

Note: MC=Marketing Cost

TABLE 5—Cost and Return from Cultivation of Tomato on Sample Farms

(Rs./ha.)

Item		Marginal Farm	Small Farms	Other Farms	All Farms
1. Cost of Cultivation					
Cost :	A^1	68414	73503	73682	71989
	A^2	68414	73503	73682	71989
	B	245034	280375	265557	260541
	C	263634	293128	274588	273780
	D	277316	307828	289324	288178
	MC	68859	72746	67980	69766
Total Cost		**346175**	**380574**	**357304**	**357944**
2. Gross Returns		544323	681615	682215	620071
3. Net Returns					
Over Cost	A^1	475909	608112	608533	548082
	A^2	475909	608112	608533	548082
	B	299289	401240	416658	359530
	C	280689	388487	407627	346291
	D	267007	373787	392891	331893
	MC	475464	608869	614235	550305
Total Cost		**198148**	**301041**	**324911**	**262127**

Note: MC=Marketing Cost

TABLE 6—Composition of Agriculture Income on Sample Farms

(Rs./ha.)

Sr. No	Particulars	Marginal farm	Small farms	Other farms	All farms
1.	From selected commercial crops	388479 (57.42)	446586 (57.30)	399921 (55.29)	411593 (56.68)
2.	From horticultural crops	255398 (37.75)	297566 (38.18)	283967 (39.26)	278824 (38.39)
3.	From other crops	32694 (4.83)	35238 (4.52)	39414 (5.54)	35816 (4.93)
4.	Total agricultural income	676571 (100.00)	779390 (100.00)	723302 (100.00)	726233 (100.00)

Notes: (i) Other crops includes cereal crops etc.

(ii) Figures in parentheses denote percentage of respective totals.

TABLE 7—Employment Potential of Different Crops Grown by Sample Farmers in Study Area

(Man-days./ha.)

Sr. No	Crops	Marginal farm	Small farms	Other farms	All farms
A.	**Selected commercial crops**				
1.	Cabbage	203.90	225.62	218.54	215.96
2.	Capsicums	249.95	275.14	238.85	254.62
3.	Cauliflower	199.16	206.15	195.88	200.76
4.	Peas	175.62	169.83	163.96	169.44
5.	Tomato	346.25	338.83	331.63	338.36
B.	**Traditional crops**				
1.	Maize	69.27	74.68	79.94	74.96
2.	Paddy	88.62	93.71	99.43	93.33
3.	Wheat	61.56	67.72	73.28	67.68

District-wise Analysis of Poverty among Farmers in Rural Haryana

*Veerpal Kaur and **Gian Singh

Abstract

In the present study, an attempt has been made to analysis the incidence of income and consumption-based poverty prevailing among the different farm-size categories across the districts in the rural areas of Haryana. The present study relates to the year 2007-08. The study is based on a sample of 535 farm households. Out of 535 farming households, 90 farming households were taken from Yamunanagar district (High Productivity Region), 137 households from Sirsa district (Medium Productivity Region) and 308 households from Bhiwani district (Low Productivity Region). The study brings out that the incidence of poverty among the different farm-size categories decreases as the level of productivity of the districts increases. The study also revealed that the incidence of consumption-based poverty among the marginal and small farm-size categories across the three districts is slightly less than the incidence of income-based poverty among these categories across the three districts. This is so because these farmers try to maintain a minimum level of living by taking loans from institutional as well as non-institutional sources.

Introduction

The new agricultural technology relates to the package of high-yielding varieties of seeds, assured irrigation, use of chemical fertilizers, insecticides, pesticides, herbicides, machinery and modern agricultural practices. It has helped in increasing the income levels as well as total foodgrain production in India. All the categories of cultivators have been able to record substantial increase in their output and income through the adoption of new technology. The bigger farmers gained more than the small farmers, an upward shift in their incomes (Johl, 1975). The new agricultural technology would not make all the small farms viable. The small farms still- remain non-viable. The non -viable farms are those who are not in a position to earn enough farm business income to meet the household consumption requirements of the farmers and consequently they are compelled to deplete their resources, or sell out assets or incur fresh debts (Vyas, et. al., 1969). The new agricultural technology widens the income disparity among the different sections of farming population and provides proportionately large benefits to the large farmers as compared to the small farmers because the small farmers were unable to accept the new technology (Chowdhury, 1970). The new HYV technology seems to have shifted the advantage of productivity per acre in favour of the big farmers. They have not only a relatively easy access to new technology, but can also make rational use of it because of the favourable farm-size. The gap between the big and small farmers has widened (Saini, 1976). The average propensity to consume for the two categories (agricultural labourers and marginal farmers) was uniformly reported to be more than unity. This indicates that they try to maintain a minimum level of consumption whether they can afford it or not (Singh, 1986). Although there is evidence of some positive change as a result of economic development, and some of the anti-poverty strategies implemented in India, the overall effect is fairly limited, especially among the poor (Shah and Sah, 2004). The income from crops and dairying has been observed highly unequally distributed, perhaps due to their strong association with the size of landholding. On the other hand, rural non-farm income distribution seems to be least skewed (Vatta et al., 2008).

Study Area

The present study relates to the state of Haryana. The state of Haryana occupies an important place in India. Agriculture has remained the main stay and leading occupation for the people of the State since its inception. The Agriculture Sector has always been an important contributor to the State Gross Domestic Product (GDP). As a consequence of rapid structural transition of the State economy over the years, the contribution of the Agriculture & Allied Sector at constant (2004-05) prices went down to only 16.7 percent.in the State GDP during 2011-12 (GoH, 2012-13).

Research Methodology

The present study relates to the year 2007-08. For the analysis the whole state on the basis of levels of agricultural productivity has been divided into three regions, viz. low, medium and high productivity regions. On the basis of this criterion, it is deemed fit to select, Yamunanagar district from the high productivity region, Sirsa district from the medium productivity region and Bhiwani district from the low productivity region. On the

---
*Assistant Professor in Economics, S. Balraj Singh Bhunder Memorial University College, Sardulgarh (Mansa)

**Professor, Department of Economics, Punjabi University, Patiala

basis of random sampling method one village was selected from each development block of the selected districts. Thus, in all 23 villages were selected for survey. Out of 23 villages 535 farming households were selected for the study. Out of 535 farming households 90 farming households were taken from Yamunanagar district (High Productivity Region), 137 households from Sirsa district (Medium Productivity Region) and 308 households from Bhiwani district (Low Productivity Region).

Poverty

The concept 'poverty' is defined as inability of an individual to meet certain basic needs for a sustained, healthy and reasonable level of living. All those persons who live below this minimum desirable level of living are said to be living below the poverty line. The economists and policy-makers have different views on this definition of poverty.

Measures of Poverty

The poverty prevailing among the different farm-size categories in rural Haryana has been analysed on the basis of following criteria :

I. The 50 Per Cent of the State Per Capita Income (PCI) Criterion:

This method is to define or draw poverty line by taking 50 per cent or half the average income level of the state. Haryana's per capita income at current prices for the year 2007-08 is Rs.59008 (GoH, 2009-10). The formula for finding the average income of persons who will constitute the below poverty line can be worked out as follows:

Cut off income = PCI of State/2

= Rs. 59008/2

= Rs. 29504 (per capita, per annum)

II. The 40 Per Cent of the State PCI Criterion: .

In the second method, we take the 40 per cent of per capita income of the state instead of 50 per cent then we draw poverty line as follows: "

Cut off income = PCI of State/100x40

= Rs. 59008/100x40

= Rs. 23603.20 (per capita, per annum)

III. World Bank's Extreme Poverty Line Criterion:

In most recent years, the World Bank's methods to measure poverty are being used to estimate the poverty among the people of the developing countries. The World Bank's first concept of poverty measure is:

US $ 1.25 per day, per capita

Exchange rate of Indian Rupee with US dollar in 2007-08 was 1$

=40.26 (GoI, 2008-09).

Cut off income = 1.25 x 40.26 x 366 =Rs.18418.95 (per capita, per annum)

IV. World Bank's Median Poverty Line Criterion:

The World Bank's second concept of poverty measure is:

US $ 2 per day, per capita

Cut off income = 2 x 40.26 x 366 = Rs. 29470.32 (per capita, per annum)

Determinants of Poverty

Multiple regression analysis has been carried out to identify the factors which determine and influence poverty. The multiple regression model used is:

$$Y = ax_1 b^1. x_2 b^2 ....x_n b^n$$

Where, Y is the dependent variable, x_1 through x_n, are explanatory variables, 'a' is constant term and b^1 through b^n are the regression coefficients for X_1 through x_n respectively.

Results and Discussion:

Incidence of Income-based Poverty: District-wise

Table I presents the data regarding poverty among the different farm- size categories across the districts. In this table, poverty is measured by 50 per cent of PCI of the state. The table depicts that the percentage of poor farming population is the highest in Bhiwani district, i.e., 91.82 per cent, followed by Sirsa district, i.e., 67.11 per cent and Yamunanagar district, i.e., 65.59 per cent. There is an inverse relationship between the .. level of agricultural productivity of the districts and farming population living below the poverty line. This result is also applicable for the four farm-size categories across the districts. The table reveals that 100 per cent of the marginal farmers of Sirsa district, 98.98 per cent of the marginal farmers of Bhiwani district and 95.59 per cent of the marginal farmers of Yamunanagar district are living below the poverty line. The highest percentage of small farmers living in poverty in Bhiwani district, i.e., 97.78 per cent, followed by 92.17 per cent and 86.75 per cent for the small farmers of Sirsa and Yamunanagar districts respectively. The highest percentage of the medium farmers is living in poverty, i.e., 90.68 per cent in Bhiwani district followed by Sirsa (79.81 per cent) and Yamunanagar (34.90 per cent) districts. None of the large farmers of Yamunanagar district, whereas 62.20 per cent and 21.29 per cent of the large farmers of Bhiwani and Sirsa districts respectively are living in poverty.

TABLE 1—Measuring Poverty by 50 Per Cent of State Per Capita Income

(Cut-off Income Level of BPL Persons, Rs.29504 Per Capita, Per Annum)

Description		No. of Persons Below Poverty Line	Proportion of Persons Below Poverty Line
Districts	Farm-size Catezories		
Yamunanagar	Marginal Farmers	130	95.59
	Small Farmers	144	86.75
	Medium Farmers	52	34.90
	Large Farmers	-	-
	All Sampled Farmers	326	65.59
Sirsa	Marginal Farmers	98	100.00
	Small Farmers	153	92.17
	Medium Farmers	253	79.81
	Large Farmers	53	21.29
	All Sampled Farmers	557	67.11
Bhiwani	Marginal Farmers	387	98.98
	Small Farmers	441	97.78
	Medium Farmers	506	90.68
	Large Farmers	102	62.20
	All Sampled Farmers	1436	9l.82

Source : Field Survey, 2007-08.

The proportion of persons living below the poverty line (poverty line of 40 per cent of PCI of the state) among the different farm-size categories across the districts is highlighted in Table 2. The table shows that as many as 84.53 per cent of the farming population of Bhiwani district live below the poverty line, while the corresponding figures for the Yamunanagar and Sirsa districts are 55.13 per cent and 53.13 per cent respectively. As many as 97.70 per cent, 95.92 per cent and 87.50 per cent of the marginal farmers of Bhiwani, Sirsa and Yamunanagar districts respectively live below the poverty line, while the corresponding figures for the small farmers in three respective districts are 91.13 per cent, 80.72 per cent and 70.48 per cent. In the case of medium farmers, this percentage is again the highest in Bhiwani district (79.57 per cent) and the lowest in Yamunanagar district (25.50 per cent). However, none of the large farmers is found to be living under the poverty line in Yamunanagar district, whereas 51.83 per cent and 12.05 per cent of the large farmers of Bhiwani and Sirsa districts respectively live below the poverty line. Thus, highest incidence of poverty among the different farm-size categories is noticed in Bhiwani district.

TABLE 2—MEASURING POVERTY BY 40 PER CENT OF STATE PER CAPITA INCOME

(Cut-off Income Level of BPL Persons, Rs.23603.20 Per Capita, Per Annum)

Description		No. of Persons Below Poverty Line	Proportion of Persons Below Poverty Line
Districts	Farm-size Catezories		
Yamunanagar	Marginal Farmers	119	87.50
	Small Farmers	117	70.48
	Medium Farmers	38	25.50
	Large Farmers	-	-
	All Sampled Farmers	274	55.13
Sirsa	Marginal Farmers	94	95.92
	Small Farmers	134	80.72
	Medium Farmers	183	57.73
	Large Farmers	30	12.05
	All Sampled Farmers	441	53.13
Bhiwani	Marginal Farmers	382	97.70
	Small Farmers	411	91.13
	Medium Farmers	444	79.57
	Large Farmers	85	51.83
	All Sampled Farmers	1322	84.53

Source : Field Survey, 2007-08.

The district-wise percentages for the persons living below the poverty line according to the World Bank's extreme poverty measures of $ 1.25 per day, per capita, are presented in Table 3. Table depicts that 72.25 per cent of the total farming population of Bhiwani district lives below the poverty line, while the corresponding figures for Sirsa and Yamunanagar districts are 42.29 per cent and 41.25 per cent respectively. In the case of Bhiwani district, 93.61 per cent of the marginal farmers, 84.48 per cent of the small, 63.98 per cent of the medium and 15.85 per cent of the large farmers live below the poverty line. As many as 86.73 per cent of the marginal farmers, 72.89 per cent of the small, 42.90 per cent of the medium and 3.61 per cent of the large farmers live below the poverty line in Sirsa district. In the case of Yamunanagar district, 80.15 per cent of the marginal farmers, 39.76 per cent of the small and 20.13 per cent of the medium farmers live below the poverty line. These results show that incidence of poverty among all categories of Bhiwani district is the highest followed by all categories of Sirsa and Yamunanagar districts. The analysis brings out that the incidence of poverty is inversely related with the level of agricultural productivity.

TABLE- 3 - MEASURING POVERTY BY U.S. $1.25

(Cut-off Income Level of BPL Persons, Rs.18418.95 Per Capita, Per Annum)

Description		No. of Persons Below Poverty Line	Proportion of Persons Below Poverty Line
Districts	Farm-size Categories		
Yamunanagar	Marginal Farmers	109	80.15
	Small Farmers	66	39.76
	Medium Farmers	30	20.13
	Large Farmers	-	-
	All Sampled Farmers	205	41.25

TABLE 3—Measuring Poverty by U.S. $1.25

(Cut-off Income Level of BPL Persons, Rs.18418.95 Per Capita, Per Annum)—*Contd.*

Description		No. of Persons Below Poverty Line	Proportion of Persons Below Poverty Line
Districts	Farm-size Categories		
	Marginal Farmers	85	86.73
	Small Farmers	121	72.89
Sirsa	Medium Farmers	136	42.90
	Large Farmers	09	03.61
	All Sampled Farmers	351	42.29
	Marginal Farmers	366	93.61
	Small Farmers	381	84.48
Bhiwani	Medium Farmers	357	63.98
	Large Farmers	26	15.85
	All Sampled Farmers	1130	72.25

Source: Field Survey, 2007-08.

The proportion of farming population among the different farm-size categories across the districts living below the World Bank's median poverty line of $2 per day, per capita, is presented in Table 4. Table shows that as many as 91.05 per cent of the farming population in Bhiwani district is living in median poverty, while the corresponding figures for Sirsa and Yamunanagar districts are 67.11 per cent and 65.59 per cent respectively. All the sampled marginal farmers in Sirsa district are found to be living under the poverty line and the percentages for such farmers from Bhiwani and Yamunanagar districts are 98.98 per cent and 95.59 per cent respectively, while the corresponding figures for the small farmers in these districts are 92.17 per cent, 97.78 per cent and 86.75 per cent respectively. In the case of medium farmers, this percentage is the highest in Bhiwani district (88.53 per cent) and the lowest in Yamunanagar district (34.90 per cent). If we analyse the data pertaining to the large farmers, we observe that none of the farmers in Yamunanagar district is found to be living below the poverty line, whereas the percentages for such farmers in the districts of Bhiwani and Sirsa are 62.20 and 21.29 respectively. The whole analysis establishes an inverse relationship between level of agricultural productivity of the districts and farming population living below the poverty line.

The analysis brings out that the level of agricultural productivity affects the living conditions of the farmers. As a result of low agricultural productivity, the incidence of poverty is the highest in all the farm-size categories of Bhiwani district as compared to other districts under study.

Incidence of Consumption-based Poverty: District-wise

The per capita consumption expenditure level is higher than the level of income. So, it is also important to measure the incidence of poverty among the different farming households based on their per capita consumption expenditure level.

TABLE 4—MEASURING POVERTY BY U.S. $2

(Cut-off Income Level of BPL Persons, Rs.29470.32 Per Capita, Per Annum)

Description		No. of Persons Below Poverty Line	Proportion of Persons Below Poverty Line
Districts	Farm-size Categories		
	Marginal Farmers	130	95.59
	Small Farmers	144	86.75
Yamunanagar	Medium Farmers	52	34.90
	Large Farmers	-	-
	All Sampled Farmers	326	65.59
	Marginal Farmers	98	100.00
	Small Farmers	153	92.17
	Medium Farmers	253	79.81
Sirsa	Large Farmers	53	21.29
	All Sampled Farmers	557	67.11
	Marginal Farmers	387	98.98
	Small Farmers	441	97.78
	Medium Farmers	494	88.53
Bhiwani	Large Farmers	102	62.20
	All Sampled Farmers	1424	91.05

Source : Field Survey, 2007-08.

Table 5 presents the total number and proportion of farming population across the districts living below the 50 per cent of state per capita consumption expenditure poverty line. Table reveals that the highest proportion of farming population, i.e., 89.96 per cent is living below the poverty line in Bhiwani district followed by Sirsa district with 68.80 per cent, and Yamunanagar district with 67.61 per cent. As many as 96.42, 95.92 and 93.38 per cent of the marginal farmers of Bhiwani, Sirsa and Yamunanagar districts respectively are living below the poverty line. The highest proportion of the small farmers, i.e., 95.34 per cent is living below the poverty line in Bhiwani district followed by 82.53 per cent and 78.31 per cent in Sirsa and Yamunanagar districts respectively. The highest proportion of the medium farmers, i.e., 89.78 per cent is living below the poverty line in Bhiwani district, while the corresponding figures for Sirsa and Yamunanagar districts are 77.29 per cent and 53.02 per cent respectively. If we have a look at the category of large farmers, we observe that none of the farmers in Yamunanagar district is found to be living below the poverty line, while the percentages for such farmers in the districts of Bhiwani and Sirsa are 60.37 and 38.15 respectively.

TABLE 5—MEASURING POVERTY BY 50 PER CENT OF STATE PER CAPITA CONSUMPTION EXPENDITURE

(Cut-off Consumption Expenditure Level of BPL Persons, Rs.29504 Per Capita, Per Annum)

Description		No. of Persons Below Poverty Line	Proportion of Persons Below Poverty Line
Districts	Farm-size Categories		
	Marginal Farmers	127	93.38
	Small Farmers	130	78.31
Yamunanagar	Medium Farmers	79	53.02
	Large Farmers	-	-
	All Sampled Farmers	336	67.61
	Marginal Farmers	94	95.92
	Small Farmers	137	82.53
Sirsa	Medium Farmers	245	77.29
	Large Farmers	95	38.15
	All Sampled Farmers	571	68.80
	Marginal Farmers	377	96.42
	Small Farmers	430	95.34
Bhiwani	Medium Farmers	501	89.78
	Large Farmers	99	60.37
	All Sampled Farmers	1407	89.96

Source: Field Survey, 2007-08.

The total number and proportion of farming population living below 40 per cent of state per capita consumption expenditure poverty line among the different farm-size categories across the districts is given in Table 6. The table depicts that as many as 56.14 per cent of the sampled farmers of Yamunanagar district are living below the poverty line. However, this proportion varies from one farm-size category to another. As many as 81.62 per cent of the marginal 70.48 per cent of the small and 34.23 per cent of the medium farmers of this district are living below the poverty line.

Further, none of the large farmers is found to be living below the poverty line in this district. In the case of Sirsa district, 53.25 per cent of the farming population lives below the poverty line, whereas the corresponding figures for the marginal, small, medium and large farmers are 90.82 per cent, 79.52 per cent, 61.83 per cent and 10.04 per cent respectively. In the case of Bhiwani district, the proportion of farming population living below the poverty line is 82.86 per cent, whereas the corresponding figures for the marginal, small, medium and large farmers are 92.58 per cent, 87.58 per cent, 81.18 per cent and 52.44 per cent respectively.

TABLE 6—MEASURING POVERTY BY 40 PER CENT OF STATE PER CAPITA CONSUMPTION EXPENDITURE

(Cut-off Consumption Expenditure Level of BPL Persons, Rs.23603.20 Per Capita, Per Annum)

Description		No. of Persons Below Poverty Line	Proportion of Persons Below Poverty Line
Districts	Farm-size Categories		
	Marginal Farmers	111	81.62
	Small Farmers	117	70.48
Yamunanagar	Medium Farmers	51	34.23
	Large Farmers	-	-

TABLE 6—Measuring Poverty by 40 Per Cent of State Per capita consumption Expenditure
(Cut-off Consumption Expenditure Level of BPL Persons, Rs.23603.20 Per Capita, Per Annum)—*Contd.*

Description		No. of Persons Below Poverty Line	Proportion of Persons Below Poverty Line
Districts	Farm-size Categories		
	All Sampled Farmers	279	56.14
	Marginal Farmers	89	90.82
	Small Farmers	132	79.52
Sirsa	Medium Farmers	196	61.83
	Large Farmers	25	10.04
	All Sampled Farmers	442	53.25
	Marginal Farmers	362	92.58
	Small Farmers	395	87.58
	Medium Farmers	453	8l.l8
Bhiwani	Large Farmers	86	52.44
	All Sampled Farmers	1296	82.86

Source : Field Survey, 2007-08.

Table 7 demonstrates the incidence of poverty among the different farm- size categories across the districts, on the basis of the World Bank's extreme poverty measure of $1.25 per day, per capita. The table reveals that as high as 74.68 per cent farming population of Bhiwani district lives below the poverty line. The corresponding figures for Sirsa and Yamunanagar districts are 34.70 per cent and 34.00 per cent respectively. As high as 91.56 per cent of the marginal farmers of Bhiwani district live below the poverty line and the corresponding figures for Sirsa and Yamunanagar districts are 77.55 per cent and 66.91 per cent respectively. Further, the percentages for the small farmers living below the poverty line in different districts under study are 84.04 per cent in Bhiwani district, 62.05 per cent in Sirsa district and 37.3 5 per cent in Yamunanagar district. As many as 69.3 5 per cent of the medium farmers live below the poverty line in Bhiwani district, whereas the corresponding figures for the medium farmers of Sirsa and Yamunanagar districts are 34.38 per cent and 10.74 per cent respectively. None of the large farmer in Yamunanagar and Sirsa districts is found to be living below the poverty line, whereas the percentage of such farmers in Bhiwani district is 26.83. There is an inverse relationship between farm-size and population living below the poverty line. The negative relationship is also found between the level of agricultural productivity and population living below the poverty line.

TABLE 7- Measuring Poverty by U.S. $1.25

(Cut-off Consumption Expenditure Level of BPL Persons, Rs.18418.95 Per Capita, Per Annum)

Description		No. of Persons Below Poverty Line	Proportion of Persons Below Poverty Line
Districts	Farm-size Categories		
	Marginal Farmers	91	66.91
	Small Farmers	62	37.35
Yamunanagar	Medium Farmers	16	10.74
	Large Farmers	-	-
	All Sampled Farmers	169	34.00
	Marginal Farmers	76	77.55
	Small Farmers	103	62.05

TABLE 7—Measuring Poverty by U.S. $1.25
(Cut-off Consumption Expenditure Level of BPL Persons, Rs.18418.95 Per Capita, Per Annum)—*Contd.*

Description		No. of Persons Below Poverty Line	Proportion of Persons Below Poverty Line
Districts	Farm-size Categories		
Sirsa	Medium Farmers	109	34.38
	Large Farmers	-	-
	All Sampled Farmers	288	34.70
	Marginal Farmers	358	91.56
	Small Farmers	379	84.04
Bhiwani	Medium Farmers	387	69.35
	Large Farmers	44	26.83
	All Sampled Farmers	1168	74.68

Source: Field Survey, 2007-08.

Table 8 presents the proportion of farming population of the different farm-size categories across the districts living below the World Bank's median poverty line $ 2 per day, per capita. The table shows that the proportion of population living below poverty line in Yamunanagar district is 67.61 per cent, while the corresponding figures for the marginal, small and medium farmers are 93.38 per cent, 78.31 per cent and 53.02 per cent respectively. In the case of Sirsa district, 68.80 per cent of the farming population lives below the poverty population living below the poverty line. However, the corresponding figures for the sampled marginal, small, medium and large farmers in the district are 95.92 per cent, 82.53 Percent, 77.29 per cent and 38.15 per cent respectively. The farming population living below poverty line is 89.96 per cent in Bhiwani district. The percentages for the marginal, small, medium and large farmers living below the poverty line in the district are 96.42, 95.34, 89.78 and 60.37 respectively. There is an inverse relationship between the level of agricultural productivity of the districts and population living below the poverty line.

TABLE 8—Measuring Poverty by U. S. $2
(Cut-off Consumption Expenditure Level of BPL Persons, Rs.29470.32 Per Capita, Per Annum)

Description		No. of Persons Below Poverty Line	Proportion of Persons Below Poverty Line
Districts	Farm-size Categories		
	Marginal Farmers	127	93.38
	Small Farmers	130	78.31
Yamunanagar	Medium Farmers	79	53.02
	Large Farmers	-	-
	All Sampled Farmers	336	67.61
	Marginal Farmers	94	95.92
	Small Farmers	137	82.53
Sirsa	Medium Farmers	245	77.29
	Large Farmers	95	38.15
	All Sampled Farmers	571	68.80
	Marginal Farmers	377	96.42
	Small Farmers	430	95.34
Bhiwani	Medium Farmers	501	89.78
	Large Farmers	99	60.37
	All Sampled Farmers	1407	89.96

Source: Field Survey, 2007-08.

If we compare the income and consumption-based poverty among the different farm-size categories across the districts, then two things emerge clearly. Firstly, the incidence of consumption-based poverty among the marginal and small farm-size categories across the three districts is slightly less than the incidence of income-based poverty among these categories across the three districts. Secondly, the level of agricultural productivity of the districts affects the living conditions of the farmers. As a result, the incidence of poverty among the different farm-size categories decreases as the level of productivity increases.

Determinants of Income-based Poverty: District-wise

The economic and social conditions prevailing in the three districts under study vary from one district to another. Therefore, in order to get an exact idea about the factors influencing the income-based poverty, district-wise regression analysis has been done. It is presented in Table 9.

Marginal Farmers

The family-size appears to have a significant contribution in explaining the per capita income differentials of the marginal farmers in all the three districts. The estimates of this explanatory variable are negative and statistically significant in all the districts under study. The regression coefficients for farm-size are positive in all the three selected districts and statistically significant in Yamunanagar and Bhiwani districts and non-significant in Sirsa district. The regression coefficients for the factor, viz. income from subsidiary occupations are positive in all the three selected districts, but statistically significant in Sirsa and Bhiwani districts. Similarly, the regression coefficients for expenditure on education are positive in all the districts, but statistically significant in Bhiwani district only.

The coefficients of multiple determination range from 0.55 to 0.79 which reveal that 55 to 79 per cent variations in per capita income are explained by the explanatory variables.

Small Farmers

The contribution of family-size is negative and statistically significant at one per cent level in all the three districts. The regression coefficient for farm-size is positive in all the selected districts and statistically significant in Yamunanagar and Bhiwani districts. The contribution of income from subsidiary occupation as is positive in all the three districts and statistically significant in Sirsa and Bhiwani districts only. The regression coefficients for the factors, viz. the number of earners and expenditure on education are positive and statistically non-significant in all the three districts. The values of R^2 are 0.51, 0.52 and 0.65 for the small farmers in Yamunanagar, Sirsa and Bhiwani districts respectively.

Medium Farmers

Family-size appears to have a significant contribution in explaining the per capita income differentials of the medium farmers in all the three selected districts. The estimates of this explanatory variable are negative and statistically significant at one per cent level in all the three districts under study. The regression coefficient for farm-size is positive in all the districts and statistically significant in Sirsa and Bhiwani districts. The regression coefficient for the number of earners is positive in all the three districts and statistically significant in Sirsa district only. The regression coefficient for income from subsidiary occupations is positive in all the three selected districts, but statistically significant in Yamunanagar and Bhiwani districts. Similarly, the regression coefficients for expenditure on education are positive in all the three districts, but statistically significant in Sirsa and Bhiwani districts.

The values of R^2 are 0.65, 0.65 and 0.69 for the medium farmers in Yamunanagar, Sirsa and Bhiwani districts respectively.

Large Farmers

The contribution of family-size is negative in all the three districts and statistically significant in Sirsa and Bhiwani districts. The regression coefficient for farm-size is positive in all the three districts and statistically significant in Sirsa district only. The regression coefficient for number of earners is positive in all the three districts and statistically significant in Yamunanagar district only. 'The contribution of the income from subsidiary occupations is positive in all the three districts and statistically significant at one per cent level in Sirsa and Bhiwani districts and non-significant in Yamunanagar district. The regression coefficient for expenditure on education is positive in all the districts and statistically significant in Yamunanagar and Bhiwani districts.

The coefficients of multiple determination range from 0.68 to 0.99 which reveal that 68 to 99 per cent variations in per capita income are explained by the explanatory variables.

All Sampled Farmers

The estimates of regression coefficient suggest that the variations in per capita income are explained by family-size, farm-size and income from subsidiary occupations in the case of sampled farmers in all the three selected districts. The (regression coefficient for family-size is negative and significant at one per cent level in all the districts under study. The regression coefficients for farm-size and income from subsidiary occupations are positive and significant at one per cent level in all the districts under study. The regression coefficient for the number of earners is positive and statistically non-significant in all the three districts under study. The contribution of expenditure on education is positive in all the three districts and statistically

TABLE 9—FACTORS AFFECTING INCOME-BASED POVERTY AMONG FARMERS: DISTRICT-WISE

(Results of Multiple Regression Analysis)

S. No.	Factors	Yamunanagar District					Sirsa District					Bhiwani District				
		Marginal Farmers	Small Farmers	Medium Farmers	Large Farmers	All Sampled Farmers	Marginal Farmers	Small Farmers	Medium Farmers	Large Farmers	All Sampled Farmers	Marginal Farmers	Small Farmers	Medium Farmers	Large Farmers	All Sampled Farmers
1.	Family-size	-3244.95* (3.48)	-4731.6* (3.85)	-10296* (2.74)	-170522	-7182.6* (5.35)	-1421.9** (2.16)	-2875.3* (2.98)	-3716.0* (6.19)	-5279.7* (3.58)	-3864.9* (6.49)	-1962.5* (8.36)	-3164.5* (6.48)	-2854.2* (8.19)	-3219*** (1.52)	-2735.3* (12.14)
2.	Farm-size	4979.51*** (1.32)	3591.34** (1.70)	2114.89	5660.17	4536.61* (11.25)	2909.48	1304.5	1348.40* (3.58)	462.84* (2.54)	921.14* (11.15)	1434.67*** (2.52)	1329.71*** (1.49)	1485.33* (5.36)	553.30	901.31* (12.81)
3.	No. of earners	2194.74	4741.42	7273.31	314790.4* (6.23)	1387.21	436.51	2315.96	4519.85* (2.91)	465.96	1817.08	90.81	636.03	791.31	1314.26	221.84
4.	Income from subsidiary occupations	0.19	0.29	0.82** (2.46)	0.44	0.49* (3.78)	0.32*** (1.37)	0.32*** (1.37)	0.0047	0.21* (2.37)	0.243* (4.73)	0.45* (12.84)	0.43* (5.82)	0.47* (9.96)	0.45* (4.75)	0.45* (17.45)
5.	Expenditure on education	0.10	0.04	0.05	15.95* (4.99)	0.09	0.034	0.12	0.16* (2.76)	0.29	0.24* (3.20)	0.49* (2.74)	0.09	0.13* (2.51)	0.34* ** (1.28)	0.18* (4.18)
	R²	0.63	0.51	0.65	0.99	0.65	0.55	0.52	0.65	0.68	0.75	0.79	0.65	0.69	0.71	0.83

Source : Field Survey, 2007-08.

Note : Figures in parentheses indicate t-values,

* Significant at one per cent

** Significant at five per cent

*** Significant at ten per cent

TABLE 10—FACTORS AFFECTING CONSUMPTION-BASED POVERTY AMONG FARMERS: DISTRICT-WISE

(Results of Multiple Regression Analysis)

Sl. No.	Factors	Yamunanagar District					Sirsa District					Bhiwani District				
		Marginal Farmers	Small Farmers	Medium Farmers	Large Farmers	All Sampled Farmers	Marginal Farmers	Small Farmers	Medium Farmers	Large Farmers	All Sampled Farmers	Marginal Farmers	Small Farmers	Medium Farmers	Large Farmers	All Sampled Farmers
1.	No. of dependents	-3755** (1.72)	-5370.8*** (1.32)	-5499** (1.796)	-122524.9	-3111.6* (2.33)	-702.75	-4859*** (1.28)	-881.90* (3.72)	-665.77	-812.13** (1.72)	-627.19* (4.96)	-184.24* (3.40)	-9.97* (2.72)	-709.3** (1.90)	-901.14* (4.61)
2.	Income	0.06	0.12	0.25	0.08* (4.009)	0.75	0.40*** (1.35)	0.36	0.38** (1.93)	0.37	0.59** (2.49)	0.84* (2.83)	0.48	0.61*** (1.48)	1.38	0.99** (1.78)
3.	Repayment of loans	-0.28* (4.82)	-0.24* (4.33)	-0.08* (7.23)	-29.49* (4.30)	-0.13* (12.42)	-0.21* (5.46)	-0.10* (4.77)	-0.12* (6.95)	-0.29* (5.44)	-0.16* (15.74)	-0.03* (9.17)	-0.15-* (6.54)	-0.52* (7.15)	-0.59* (5.18)	-0.43* (15.74)
4.	Education level	861.14** (2.06)	1723.79*** (1.38)	8715.94	59212.80* (2.99)	924.45	300.89	1055.94** (1.91)	401.68	588.56	1923.68	943.06	509.88	602.89	780.35	165.34** (1.38)
	R2	0.47	0.42	0.39	0.73	0.44	0.52	0.50	0.39	0.47	0.53	0.53	0.51	0.48	0.79	0.67

Source: Field Survey, 2007-08.

Note: Figures in parentheses indicate t-va\ues.

* Significant at one per cent

** Significant at five per cent

*** Significant at ten per cent

significant at one per cent level in Sirsa and Bhiwani districts and non-significant in Yamunanagar district.

The values of R^2 are 0.65, 0.75 and 0.83 for the sampled farmers in Yamunanagar, Sirsa and Bhiwani districts respectively.

Determinants of Consumption-based Poverty: District-wise

In order to check the significance of factors influencing the consumption level, district-wise regression analysis has also been done. The results so obtained have been presented in Table 10.

Marginal Farmers

The coefficient of number of dependents is negative in all the selected districts under study and statistically significant in Yamunanagar and Bhiwani districts only. The regression coefficient of income level is positive in all the three districts and statistically significant in Bhiwani and Sirsa districts, only. The regression coefficient of repayment of loans is negative and statistically significant at one per cent level in all the selected districts under study. Educational level of family has significant impact on consumption level in Yamunanagar district only. The regression coefficients of multiple determinations are 0.47, 0.52 and 0.53 for the marginal farmers in Yamunanagar, Sirsa and Bhiwani districts respectively.

Small Farmers

The regression coefficient for number of dependents is statistically significant at ten per cent level in Yamunanagar and Sirsa districts and at one per cent level in Bhiwani district. The variable of number of dependents affects the consumption level of the small farmers in an adverse manner in all the districts under study. However, the regression coefficient of income level is positive and statistically non-significant in all the districts under study. The regression coefficient for repayment of loans is negative and statistically significant at one per cent levels of probability in all the districts. Income and education level of family appears to have a positive contribution in explaining the consumption differentials of the small farmers in all the three districts. The values of R^2 are 0.42, 0.50 and 0.51 for the small farmers in Yamunanagar, Sirsa.and Bhiwani districts respectively.

Medium Farmers

The regression coefficient for number of dependents is negative and statistically significant in all the three districts under study. The regression coefficient for repayment of loans is negative and statistically significant at one per cent level in all the three districts. The contribution of the factors called income and education level of family is positive in all the selected districts. The regression coefficient for educational level of family is non-significant in the districts under study. The regression coefficient for income level is significant in Sirsa and Bhiwani districts only. The values of R^2 are 0.39, 0.39 and 0.48 for the medium farmers in Yamunanagar, Sirsa and Bhiwani districts respectively.

Large Farmers

The regression coefficient for number of dependents is statistically significant in Bhiwani district only. The variable of number of dependents affects the consumption level of the large farmers in an adverse manner in all the districts under study. The regression coefficient for repayment of loans is negative and statistically significant at one per cent level in all the districts under study. The regression coefficients for income and education level of family are statistically significant in Yamunanagar district only. The values of R^2 are 0.73, 0.47 and 0.79 for the large farmers in Yamunanagar, Sirsa and Bhiwani districts respectively.

All Sampled Farmers

Variations in per capita consumption expenditure of all the sampled farmers taken together in all the three districts under study are accounted by the number of dependents, repayment of loans, income level and education level of family. The number of dependents bears a negative and significant contribution in consumption differentials in all the three districts, whereas variable of income level appears to have a positive contribution in all the three districts and significant in Sirsa and Bhiwani districts only. The regression coefficient for repayment of loans is negative and statistically significant at one per cent level in all the three districts. The regression coefficient for educational level of family is positive in all the districts and statistically significant in Bhiwani districts only. Together, all the explanatory variables explain 44, 53 and 67 per cent variations in the consumption level of all the sampled farmers in Yamunanagar, Sirsa and Bhiwani districts respectively.

Conclusions and Policy Implications

According to the 50 per cent of the state per capita income (PCI) criterion the poverty line works out to Rs.29504.00 per capita, per annum. There are considerable variations in the levels of poverty among the different farm-size categories across the districts. The percentage of poor farming population is the highest in Bhiwani district, i.e., 91.82 per cent, followed by Sirsa district, i.e., 67.11 per cent and Yamunanagar district, i.e., 65.59 per cent. There is an inverse relationship between the level of agricultural productivity of the districts and farming population living below the poverty line.

By using the second method, i.e., 40 per cent per capita income of the state, the poverty line works out to

Rs.23603.20 per capita, per annum. In district-wise analysis, as many as 84.53 per cent of the farming population of Bhiwani district live below this poverty line, while the corresponding figures for the Yamunanagar and Sirsa districts are 55.13 per cent and 53.13 per cent respectively.

On the basis of the World Bank's extreme poverty measure of $1.25 per day, per capita income, the poverty line works out to Rs.18418.95 per capita, per annum. The analysis depicts that 72.25 per cent of the total farming population of Bhiwani district lives below the poverty line, while the corresponding figures for Sirsa and Yamunanagar districts are 42.29 per cent and 41.25 per cent respectively.

About 91 per cent farming population in Bhiwani district is living below the World Bank's median poverty line $ 2 per day, per capita income, while the corresponding figures for Sirsa and Yamunanagar districts are 67.11 per cent and 65.59 per cent respectively.

By taking the poverty line of 50 per cent of per capita consumption expenditure of the state the analysis depicts that the highest proportion of farming population, i.e., 89.96 per cent is living below the poverty line in Bhiwani district followed by Sirsa district with 68.80 per cent, and Yamunanagar district with 67.61 per cent.

By taking the poverty line of 40 per cent of per capita consumption expenditure of the state, the analysis reveals that 82.86 per cent of the sampled farmers of Bhiwani district are living below the poverty line. The corresponding figures for Yamunanagar and Sirsa districts are 56.14 per cent and 53.25 per cent respectively.

On the basis of the World Bank's extreme poverty measure of $1.25 per day, per capita consumption expenditure, 74.68 per cent farming population of Bhiwani district lives below the poverty line. The corresponding figures for Sirsa and Yamunanagar districts are 34.70 per cent and 34.00 per cent respectively.

About 90 per cent of total farming population of Bhiwani district lives below the World Bank's median poverty line $ 2 per day, per capita consumption expenditure. The proportion of population is living below poverty line is 68.80 per cent and 67.61 per cent for Sirsa and Yamunanagar districts respectively.

If we compare the income and consumption-based poverty among the different farm-size categories across the districts, then two things emerge clearly, firstly, the incidence of consumption-based poverty among the marginal and small farm-size categories across the three districts is slightly less than the incidence of income-based poverty among these categories across the three districts and secondly, the level of agricultural productivity of the districts affect the living conditions of the farmers. This analysis highlights the fact that the incidence of poverty among the different farm-size categories decreases as the level of productivity increases.

The variations in per capita income for all the farm-size categories across the districts under study are accounted by the family-size, farm-size, number of earners, income from subsidiary occupations and expenditure on education. The regression coefficient pertaining to family-size is negative for all the farm-size categories across the districts. The factors like income from subsidiary occupations, farm-size, number of earners and expenditure on education appear to have a positive contribution in explaining the per capita income differentials. The analysis leads us to conclude that better employment opportunities extended to the farmers can help to improve their level of income.

The variations in per capita consumption expenditure for all the farm-size categories across the districts under study are accounted by the number of dependents, income level, repayment of loans and educational level. The number of dependents and repayment of loans bear a negative contribution in consumption differentials for all the farm-size categories across the districts, whereas income level and educational level have a positive contribution in consumption differentials for all the farm-size categories across the districts.

The establishment of agro-based industries in the rural areas can help to generate employment opportunities for the farmers in their lean season. Adequate and timely supply of modern inputs like HYVs of seeds, fertilizers, insecticides, pesticides, herbicides, assured irrigation water and credit facilities at a concessional rate of interest to the farmers can help to increase the productivity of their lands and the income as well. The minimum support prices of all agricultural commodities fixed on the basis of cost of production and consumer price indices can help to raise the income level of the farmers. They should also be encouraged to start subsidiary occupations. Necessary land reforms, such as lowering the ceiling level of landholdings, acquiring the surplus land and distributing it among the marginal and small farmers need to be introduced by the government. The welfare schemes initiated by the government for the farmers need to be implemented in their true spirit with enthusiasm. Increase in the plan allocation and enlarging the scope of rural specific schemes to cover larger proportion of population can go a long way in improving the economic condition of the farmers in the state.

REFERENCES

Chowdhury, B.K. (1970), ''Disparity in Income in context of HYV'', Economic and Political Weekly, Vol.V, No.39, pp. A90-A96.

Government of Haryana (2012-13), Economic Survey of Haryana.

Government of Haryana (2009-10), Economic Survey of Haryana, pp. 110

Government of India (2008-09), Economic Survey of India, pp. 78A

Johl, S.S. (1975) ''Gains of the Green Revolution: How They Have Been Shared in Punjab''. Journal of Development Studies, Vol. 11 (3).

Saini, G.R. (1976), ''Green Revolution and the Distribution of Farm Incomes'',

Economic and Political Weekly, Vol. XI, No.27, pp.A17-A22.

Shah, A.; and Sah, D.C. (2004), ''Poverty among Tribals in South West Madhya Pradesh: Has Anything Changed Over Time?'', Journal of Human Development, Vol. V,No. 2, pp. 249-263.

Singh, G. (1986), Economic Conditions of Agricultural Labourers and Marginal Farmers, B.R. Publishing Corporation, Delhi-110052.

Vatta, K.; Garg, B.R.; and Sidhu, M.S. (2008), ''Rural Employment and Income:

The Inter-household Variations in Punjab'', Agricultural Economics Research Review, Vol. XXI, No.2, pp. 201-210.

Vyas, V.S.; Tyagi, D.S.; and Misra, V.N. (1969), ''New Agricultural Strategy and Small Farmers: A Case Study in Gujarat'', Economic and Political Weekly, Vol.IV, No.l3, pp.A49-A53

LET

AGRICULTURAL SITUATION
IN INDIA
BE
YOUR MEDIUM
OF
PUBLICITY

The pre-payable rates are :

Period	Full page 26 cm.×18 cm.	Half page 13 cm.×18 cm. or 26 cm.× 9 cm.	Quarter page 6.5 cm.×18 cm. or 13 cm.× 9 cm.
12 Monthly Issues	Rs. 2,450	Rs. 1,350	Rs. 700
6 Monthly Issues	Rs. 1,350	Rs. 700	Rs. 400
3 Monthly Issues	Rs. 700	Rs. 380	Rs. 200
Single Issue	Rs. 250	Rs. 140	Rs. 80

N.B.—Rates are increased by 20 per cent, 15 per cent and 25 per cent for the 2nd, 3rd and 4th cover pages, respectively for which only full page advertisements are accepted.

Apply for further particulars to :

The Controller of Publications,
Ministry of Urban Affairs and Employment,
Deptt. of Publications,
Publications Complex (Behind Old Secretariat),
Civil Lines, DELHI-110 054

Phone No. : 23817640

Problems and Prospects of Oil Seeds Production in Uttar Pradesh*

Summary, Concluding Observations and Policy Implications

1. Introduction

Since, independence, the Government of India had paid maximum attention on agriculture sector by making huge investment through Five Year Plan. The result of investment in agriculture sector was found very tangible, positive and significant. The role of green revolution was very significant in boosting the production of wheat and rice. The production of wheat and rice has increased manifold due to introduction of green revolution. Now the country is not only sufficient in the production of wheat and rice rather these are being exported to foreign countries. The impact of green revolution was mostly confined to only wheat and rice. On account of this, the farmers have changed their cropping pattern in favour of rice and wheat crops. The expansion of irrigation network is also responsible to increase the area under rice and wheat on the cost of coarse cereals, oilseed and pulse crops.

Prior to commencement of green revolution India was self sufficient in edible oilseeds and oils. India Was also exporter of edible oilseeds. On account of sharp decrease in production of oil seeds, the country has become importer of edible oils in the eighties. It was major items in the list of import commodities. This was major challenge before the Government of India to get self sufficiency in the production of oil seeds by use of better package of practices in the cultivation of oilseed crops to overcome the stagnation in oilseeds production in the country. India had launched ''Technology Mission on Oilseeds (TMO)'' in May 1986 to increase the production of oilseeds, reduce its import and achieve self-sufficiency in edible oil. This programme had produced a good result because the production of oilseeds had increased significantly by 86% from 10.83 million tones in 1985-86 to 20.11 million tones in 1991-92. As a result of this, the import of oilseeds had come down by 95% during corresponding period. India is one of the most oilseeds producing countries of the world. About 10% of the total production of oil seeds of world is produced by India. The oilseeds crops occupy 14.9% of GCA of the country. The contribution of oilseeds in total value of output was estimated at 9.7% in TE 2009- 10. Nine oilseed crops are important which are grown across the country in different seasons. Among these oilseeds, soyabean, groundnut, sesame, linseed rapeseed/mustard, sunflower are most important oilseed crops in north India. The most

of oilseeds are mostly grown in rainfed areas and neglected fields. On account of this, productivity of oilseeds is still far below from targeted yield in most parts of the country. It has been Estimated that more than 50% of total requirement of edible oils is being imported to Fulfill present requirement.

As per estimation of NCAER, the demand for edible oil was 10 million tones against domestic production of 7 million tones. NCAER had also forecasted that demand of edible oils would be about 20 million tones per annum by the year 2015 against the projection of production of edible oils of about 7 million tones during the same period. To fulfill the gap of 13 million tones per annum, the efforts will have to be required to accelerate growth rate of production oilseeds by 15% per annum against existing growth rate of 4% per annum. For accelerating the production of oilseeds, Uttar Pradesh can play a prime role in years ahead. Uttar Pradesh has rich soil and better agro climatic conditions which are suitable for oilseed crops. However, the productivity of oilseeds in the state is low in comparison to neighbouring states. Most of oilseeds namely rapeseed/mustard, linseed, groundnut, sunflower and sesame are grown in the state. Among these oil seeds crops, mustard accounted for lion's share being 84.28% of total area under oilseeds. Even then the contribution of oilseeds in total value of output is very meager as compared to other crops. The oilseeds are not getting due weightage as compared to sugarcane, potato, rice, wheat etc. in U.P. of total production of food grains of 446.64 lakh M.T. in the state in 2009-10, cereal crops accounted for 95.75% followed by 4.27% pulses while the coritribution of oilseeds was only 1.81 % during 2009-10.

India is second largest country of the world as far as area under oil seeds is concerned. Even then, the country is not self sufficient in edible oilseeds. This is a matter of serious concern for Government of India. To overcome the stagnation in oilseed production, a number of centrally sponsored schemes had been initiated across the country to increase production of oilseeds, reduce imports and achieve self sufficiency in edible oil. As a result of these sponsored schemes, there was a significant progress in the production of oilseeds from mid 1980s to mid 1990s. The production of oilseed was stagnant about 20 million

---

tones during 1990s in the country. However, it has increased upto 27.9 million tones in TE 2010-11. The average productivity was only 872Kg/ha/ in TE 2000-01 which has increased to 1042 Kg/ha in TE 2010-11. The average productivity of oilseeds is still very low as compared to world average and other countries. The reason of low productivity of oilseeds in the country is due to mainly its dry land farming. Most of oilseeds are still grown in rainfed areas. About 28% of total area under oilseeds is under irrigation in the country at present. In spite of this, a numbers of constraints namely biotic, a biotic, stress, technological, institutional and socio-economic constraints are also hurdle in the pave of growth of productivity and production of oilseeds. The change in weather atmosphere in recent past is also serious concern for oilseed growers. They do not want to take risk to devote more area under oil seeds to fear against adverse weather condition. Taking into account the changing environment, increasing demand, slow growth in domestic production, rising imports, the Ministry of Agriculture, Government of India had asked to AER Centres, to under take the study on ''Productions and Prospects of Oilseeds and Oil Palm Production in India", to analyse performance and potential of India oilseeds and oil palm sector and identify major problems- constraints facing the sectors:

2. Objectives of the Study

Following objectives of the study have been framed to get fruitful results.

1. To examine trends and pattern of growth of different edible oilseeds over time and across states/districts and identity the sources of growth in edible oilseeds in India/State.

2. To identity major constraints in edible oilseeds cultivation and suggest policy options to increase oilseeds production and productivity in the state.

3. Coverage, Sampling, Design and Methodology

The mustard, linseed, groundnut and sesame are the major oilseed crops in Uttar Pradesh which occupied 66.05%, 3.75%, 9.30% and 19.01% of total area of oilseeds' of Uttar Pradesh during 2008-09 respectively. Thus, rapeseed/mustard crop had been allotted by IIM Ahemdabad to this centre to study its, ''Problems and Prospects in context of Uttar Pradesh". Out of 72 districts of U.P., Jhansi, Jalaun, Lalitpur, Hamirpur, Shahjahanpur, Unnao, Hardoi, Kheri, Sitapur, Barabanki, Kanpur Dehat, Budaun, Etah, Agra and Mathura districts had occupied more than 10 thousand hectares land under mustard in

2010-11. The sampling design and methodology of the study have been fully adopted as per guideline given by coordinator centre, IIM Ahmdabad. Three districts have been selected on basis of average and production share. The district wise latest (2010-11) data of area, production and productivity have been collected from Directorate of Statistics of U.P., Lucknow, The selection of districts was based on area and yield of mustard in 2010-11 as per following classification:

Area	Yield	
	High	Low
High	High area-High yield (HH)	High area-Low yield (HL)
Low	Low area-High yield (LH)	Low area -Low yield (LL)

The 72 districts of the state have been classified according to area and yield. Among the 72 districts, Agra district had high area and high yield (HH) of mustard in 2010-11. The area under mustard was 51,457 hectares while the. production and productivity were 90358 qtls and 17.50 qtls respectively in 2010-11. Therefore, Agra district has been selected for Ist category (HH). The selection for 2nd category i.e. low area-high yield (LH), Etah district has been found appropriate among all the districts of the state. Hence, this district has been selected for low area and high yield (LH). The area under mustard in the district was 9,959 hectares and productivity was only 15.24 qtls in 2010-11. In the case of selection of district for High area low yield (HL) Lakhimpur Kheri district was found appropriate because the area under mustard was only 30,775 hectares but yield was 9.20 qtls per hectare. On account of this, Lakhimpur Kheri has been selected for third category from 72 districts of Uttar Pradesh. The details of category-wise selected districts are shown in Table-I.

Table-l

Classification of Categories		Name of the Selected districts
I	High Area- High Yield (HH)	Agra
II	Low Area- High Yield (LH)	Etah
III	High Area-Low Yield (HL)	Lakhirnpur Kheri

Agricultural Situation in India

These three districts have been elected among 72 districts of U.P. for the study. These selected districts also belong to different agro-climatic zones of U.P.

At the second stage, one mustard producing block from each selected district has been selected. Two villages from the each selected block have been selected for the selection of respondents. Thus, 6 villages from 3 blocks of 3 selected districts were the second unit of sampling of the study.

At the third stage, a list of famers of 6 villages have been prepared and arranged in ascending order to their size of owned land. The number of farmers have been categorized into four groups namely marginal (<1.00 ha.) Small (1-2 ha.), Medium (2-10 ha.) and Large (>10 ha.)The sample households were selected on probability proportion to their numbers in different categories of farms with a condition that at least 20 households to be represented for each category of farm, A total 200 households have been selected from 6 villages of 3 blocks of 3 selected districts of Uttar Pradesh for the study. The details selected units are illustrated in Table -2.

TABLE 2— Details of Selected Units

Name of the selected districts	No. of selected Blocks	No. of selected Village	Marginal	Small	Medium	Large	All
Agra (HH)	1	2	24	19	28	8	79
Etah (LH)	1	2	14	20	12	4	50
Lukhimpur Kheri (HL)	1	2	17	29	17	8	71
Total	3	6	55	68	57	20	200

4. Main Findings based on Secondary data

The findings are based on the analysis of secondary data published from different statistical bulletins, magazines research paper etc.

- The state per cent share of area under total oilseeds in all India was 3.82% in TE 2009-10 against 4.42% in TE 1993-94, showing 15.71% decrease over the period. The area in mustard accounted for 12.32%

of all India area in TE 1993-94 which has come down to 10.04% in TE 2009-10. The per cent share of area under soyabean and sunflower has also decreased in TE 2009-10 as compared with its share in TE 1993-94. There was marginal increase in case of groundnut during corresponding period. Area under oilseeds is not increasing at par with area under wheat and commercial crops across the state.

- The share of total production of oilseeds in U.P. in all India production was 4.48% in TE 1993-94 which has decreased to 2.92% in TE 2009-10, registering a decrease of 53.42% over the period. This was due to fall in production of groundnut, soyabean and sesame in TE 2009-10 in Uttar Pradesh.

- Net area sown in U.P, has been decreasing year by year due to expansion of urbanization, industrialization, infrastructural, facilities etc, while the GCA was more or less stagnant during study period from TE J 993-94 to TE 2009-10.

- The average area under oilseeds was 436 thousand hectares during 1951-52 to 1960- 61 in U.P. which has increased to 919 thousand hectares during 2001-02 to 2009-10, thereby showing 110.79% increase over the period.

- The total production of oilseeds was 241 thousand MT during 1951-52 to 1960-61 which has increased to 752 thousand MT during 2001-02 to 2009-10, showing 212% increase over the period. The growth rate in production in total oilseed was maintaining upward trend throughout study period.

- The productivity of total oilseeds was 5.53 qtls per hectare during 1951-52 to 1960-61 which has increased to 8.19 qtls per hectare during 2001-02 to 2009-10, registering 48% increase over the period.

- The six oilseeds namely, groundnut, soyabean, sesame, mustard, linseed and sunflower are sown in U.P. in different seasons. Among these six oil seed crops, the area under mustard accounted for 58.04% followed by 28.08%, 8.96%, 3.16%, 0.94% and 0.82% of sesame, groundnut, linseed, soyabean and sunflowers respectively of total area under oilseeds during TE 2009-10. Thus, rabi season oilseed crops accounted for 61.20% followed by 37.98 and 0.82% of Kharif and summer seasons oilseed crops respectively. The mustard and sesame are major oilseed crops in U.P. which accounted jointly for

86.12% of total area under oilseeds in TE 2009-10 in U.P. The area of soyabean and sunflower was very negligible among oilseed crops in Uttar Pradesh.

- As far as production of oilseeds is concerned, the analysis reveals that out of total production of total oilseed being 802 thousand MT in TE 2009-10, mustard accounted for 83.56% followed by 7.47% and 4.49% of groundnut and sesame respectively. It reflects that mustard, sesame and groundnut were major oilseeds in U.P. Among these, mustard is still very dominant oilseed in U.P, The groundnut and sesame are not so much assured oilseed crops as compared with mustard. The area and production of soyabean is very limited in U.P. due to lack of its proper marketing facilities in the State.

- The area of mustard was 270 thousand hectares in UP. during 1951-52 to 1960-67 which has increased to 585 thousand hectares during 2001-02 to 2009-10, showing 116.67% increase over the period. However, there was much fluctuation in area of mustard during the different decades in UP. The area under mustard in UP. has not maintained positive trends during the study periods.

- The production of mustard was 108 thousand MT during 1951-52 to 1960-61 in UP. which has gone upto 616 thousand MT during 2001-02 to 2009-10, thereby showing 470% increase over the period. The analysis also reveals that the average yield of mustard per hectare has been continuously increasing from year to year in Uttar Pradesh.

TABLE 3—Average Area, Production, and Yield of Mustard in the State: 1951-52 to 2009-10

	1951-52 to 1960-61	1961-62 to 1970-71	1971-72 to 1980-81	1981-82 to 1990-91	1991-92 to 2000-01	2001-02 to 2009-10
Area (000 hectares)	270	307	294	501	806	585
Production ('000 tonnes)	108	140	147	358	740	616
Yield (kg/ha)	4.00	4.56	5.00	7.15	9.18	10.52

Source : State Planning Institute, Lucknow.

- The CAGR in area of mustard was positive being 2.59% in U.P. as a whole during 4 decade i.e. from 1970-71 to 2009-10.

- The CAGR in production of mustard in U.P. as a whole was highest being 8.44% in decade of eighties followed by 2.92% and 1.92% in 2000s and 1970s respectively while it was negative being -1.50% in decade of nineties. The CAGR in production of mustard was more pronounced in eighties (from 1980 to 1989-90) as compared to subsequent years.

- In over all U.P. level, there was positive CAGR in production of mustard in U.P. during 1970s, 1980s and 2000s, but quantum of increase was more from 1980-81 to 1989-90.

- The CAGR in productivity of mustard in U.P. was negative i.e.-2.09% in the decade of seventies followed by -0.65% in nineties. Against this, CAGR in productivity of mustard was positive being 4.14% in 1980s followed by 2.04% in 2000s.

- The variability in area of mustard was comparative lower than the variability in production and productivity of mustard in U.P. The production of mustard increased in U.P. due to higher productivity rather than expansion in area of mustard during the 4 decades.

- Among the four decades, decade of nineties (from 1990-91 to 1999-2000) was found worst because the rate of growth in area and production of mustard had gone negative in Uttar Pradesh.

- The variability in area of mustard was lowest in 1990s and 2000s than that of 1970s and 1980s in the state. It was found more in the selected districts of Bundelkhand region than the selected districts of western and central regions of U.P.

- The variability in production of mustard in the state was lowest in period 2000-01 to 2009-10 as compared to the variability of other periods. The variability in production of mustard was maximum in decade of eighties followed by seventies and nineties decades in U.P. It reflects that variation in area and production of mustard was much consistent in period 2000-01 to 2009-10 as compared to other study periods.

PERIOD	CV%		
	Area	Production	Productivity
1970-71 to 1979-80	19.38	29.30	20.84
1980-81 to 1999-90	16.71	30.63	14.78
1990-91 to 1999-2000	8.99	17.73	16.90
2000-01 to 2009-10	6.18	11.95	8.62

- The variability in productivity of mustard was also much consistent in period 2000- 01 to 2009-10 in UP. as compared to other decades in U.P.

- The CV in annual whole sale price of linseed was more being 34.8% followed 33.00% and 31.90% in mustard and groundnut respectively during period from 1989-90 to 2010-11. The annual whole sale prices of mustard, linseed and groundnut had received big push from 2007-08 onwards.

- Among the 72 districts of UP. Mathura, Agra and Budaun are most potential district in the production of mustard out of total production of mustard of U.P., the contribution of Mathura, Agra and Budaun districts were 10.89%, 13.01% and 5.41%, respectively during TE 2009-10. The productivity of mustard has been increasing across the districts of the state since the introduction of TMO in the State.

- The oilseed crops are still important crops in rainfed belts of U.P. The area under oilseeds is not increasing at par with area under wheat, rice and other commercial crops across the state. It is still very risky across the state and also very susceptible to pests and disease. The weather risk is very much involved in the cultivation of mustard crop.

5. Findings based on sample farms data

Two hundred farmers were selected from 6 villages of three districts belonging to different agro-climatic zones of Uttar Pradesh.

- Of the total 200 sample households, OBC accounted for 56.50% followed by 30.00% and 13.50% for general and SC respectively.

- The agriculture was main occupation of the sample farmers. More than 89% of total sample households were engaged in crop farming.

- The per farm owned area was 0.83 hectare, 1.59 hectares, 8.54 hectares and 11.30 hectares of marginal, small, medium and large farms respectively. At the aggregate level, it was 2.91 hectares.

- The leased -in and leased-out land were not witnessed across the sample size of farms.

- Canal and pump sets (diesel and electric) were main sources of irrigation on the sample farms. However, the pump-sets were main source of irrigation devices on the sample farms than the canal. The ground water was much utilized than the surface water by the sample farmers.

- Of the total cropped area, cereal crops accounted for 49.05% followed by 22.86%, 6.54%, 6.23% and 15.32% of oilseeds, cash crops, pulses and other crops respectively.

- Among the cereal crops, wheat, bajra and maize were major crops accounted for 17.71 %, 18.35%,6.68% and 6.71 % of GC A respectively.

- Sugarcane and potato were main cash crops accounted for 9.86% and 5.61 % of GCA respectively on the sample farms.

- Among the oilseeds, mustard and sesame were main oilseed crops which accounted for 19.37% and 3.49% of GCA respectively on the sample farms. The mustard was second most important crop on the sample farms, It was also treated as cash crop by the sample farms.

- The maximum share of GCA being 24.91 % was under mustard on marginal farms followed by 22.72%, 20.32% and 15.86% on small, medium and large farms respectively.

- The sample farmers had attached more significance to mustard crop in cropping pattern. Generally mustard is grown in the fields which are kept fallow in kharif season in Agra district. Mustard is also grown as a single crop by the sample farmers of selected districts.

- The main competitive crops for mustard were wheat and potato in the study areas.

- The cropping pattern followed by the sample farms under different size group of holdings was more or less same. There were minute deviations among the different size groups.

- The average yield of wheat was 31.36 qtls per hectare at the aggregate level which was highest being 32.74 qtls on marginal farms followed by 32.66 qtls on small farms. The average yield of wheat per hectare decreases with increase in size of farms. The average yield per hectare of mustard at the aggregate level was 22.70 qtls which ranged between 22.23 qtls and 24.40 qtls on large and marginal farms respectively, the average yield of mustard also decreases with increase in size of farms. The average yield per hectare of wheat was higher by 38.15% over the average yield of 22.70 qtls per hectare of mustard.

- The average yield of mustard per hectare was higher by 105.24% on the sample farms over the average yield of 11.06 qtls per hectare of U.P. in 2009-10.

- Potato was also competing crop on the sample farms of Agra district. The average yield of potato was 284.70 qtls per hectare which ranged between 192.79 qtls and 298.83 qtls across the size of farms.

- The average yield of almost all crops grown on sample farms was much higher than the state average yield in reference year.

- At the aggregate level, the production of mustard was 4356.70 qtls of which 93.79% was sold and rest 6.21 % was retained for consumption and other purposes. The large sample farms had sold maximum quantity of mustard production being 96.51 % followed by 94.16% and 88.94% by medium, small and marginal farmers respectively. It shows that mustard was cash crop across the sample farms.

- The price of mustard per qtl was Rs. 3136 at the aggregate level which varied between Rs. 3212 and Rs. 2993 on small and large farms respectively. It shows that per qtl price of mustard on the sample farms was much higher than its MSP during the reference year.

- The per hectare gross income of mustard was Rs. 72,414 against Rs. 39,627 of wheat on the sample farms, showing 82.74% higher over the per hectare gross income of wheat. The per hectare net income of mustard was worked out to Rs. 44,999 against Rs. 16,132 per hectare net income of wheat on the sample farms. Thus, the mustard was more profitable than wheat on the sample farms in reference year.

TABLE 5—COMPARATIVE PROFITABILITY OF MUSTARD, WHEAT AND POTATO

(Rs./HA.)

Name of the Crops	Operational Cost	Gross Income	Net Income	Cost of Production (per Qtl)
Mustard	27413.90	72413.64	44999.74	1207.66
Wheat	23494.54	39626.63	16132.09	749.19
Potato	99410.17	187636.64	88226.47	343.31

- The mustard was more profitable than the wheat across the size of farms of the selected districts. This was due to higher productivity and hike in price of mustard during the reference year. On account of this, the area of mustard has not been replaced by wheat and other cereal crops from few years back in the selected districts of U.P.

- The potato was found much profitable than mustard across the sample farms. In spite being a very profitable potato crop, it does not generally substitute mustard at large scale for a long time. Potato is perishable crop and more risky than mustard. The price risk, income risk, yield risks are found more in case of potato than mustard. It is also localized crop than mustard.

Constraints

There are a number of constraints in handling production of oilseed crops which are basically categorized into 5 major heads namely technological, agro-economic factors, economic variability, institutional, marketing and value addition.

I. Technological Factors

Non-availability of suitable varieties, weed infection, incidence of diseases and pests etc. are major technological constrainst in the cultivation of oilseed crops on the sample farms.

II. Agro-Climatic Factors

The excess rain, deficient rainfall, high variation in temperature etc are major adverse factors to reduce the over all production of oilseeds in the state.

III. Economic Factors

The economic constraints relate to input costs of human labour, price risk and profitability etc. are also key factors to reduce the expansion of area under oilseed crops.

IV. Institutional Factors

The poor quality of input, lack of expansion services, inadequate knowledge about disease and pest management, non availability of credit etc are also severe constrains in the cultivation of oilseed crops in the state.

V. Marketing and value addition

Due to lack of processing units in the villages, the oilseed growers do not get appropriate price of oilseeds. There is vast gap between the price of oilseeds and edible oil, hence, the processors get more profit than oilseeds growers.

TABLE 6—Composite Indices for Constraints in Cultivation of Oilseed Crops on Sample Farms

Constraint	Marginal Farmers		Small Farmers		Medium Farmers		Large Farmers	
	Relative Index	Ideal Index	Relative Index	Ideal Index	Relative Index	Ideal Index	Relative Index	Ideal Index
Technological	100.6694	69.9221	102.7173	71.3445	98.1475	68.1704	94.0236	69.4571
Agro-climatic	93.2977	48.2909	88.1898	45.6470	119.8514	62.0351	102.0093	52.8
Economic	96.6922	87.2727	93.8159	84.6766	108.8146	98.2143	104.1455	94.0
Institutional	99.9281	110.9610	95.6571	106.2185	104.3006	125.7143	102.9222	114.2857
Post-harvest marketing and value addition	88.7940	69.2727	86.23899	67.2794	118.9102	92.7678	124.6554	97.25
All Constraints	94.6633	78.8235	91.8375	76.4706	117.2695	97.6470	70.6443	58.8235

Considering the entire sample of 200 farmers, medium farmers score high on the problems while large farmers score the least on the constraints as per their severity. Both the relative indices and the ideal indices reveal similar patterns. The indices can be compared across the groups where marginal and samll farmers seem to have higher problems for technological and institutional constraints. Medium and large farmers have higher problems with institutional and post harvest facilities.

Conclusion

On an average the farmer received Rs. 44,999.00 per hectare non income from the cultivation of mustard than Rs. 16,132 f rom wheat. On an average a cultivator received Rs. 1.64 on the investment of Rs. 1.00 on mustard crop while the sample farmer received Rs. 0.69 on investment Rs. 1.00 on wheat. The hundred per cent sample farmers reported that the major problems in the cultivation of mustard in the study area was adverse weather conditions at time of flowering of mustard.

There is also high risk involved at time of harvesting mustard. Most of sample farmers had not faced any problems during the marketing of mustard. Since, it has good demand and has also very remunerative price, hence the farms are taking much interest in the cultivation of mustard instead of wheat. The prospect of mustard is very high in U.P. because it's price continues remain upward trends.

Policy Implications

- For increasing the area under mustard, the crop should be properly and adequately covered under crop insurance scheme. This would motivate the farmers to devote more area under mustard without any hesitation.

- The sincere efforts should be made for strengthening the local based scientific research on soil and climate

conditions of the various agro-climatic regions of the state.

- The efforts should be made for proper transfer of new scientific techniques in the cultivation of mustard at gross-root level. This could be possible by the strengthening extension services.

- The inputs supply should be prompt. The seed, fertilizers, pesticides etc should be available timely, adequately and at reasonable prices.

- Since, the mustard is highly susceptible to pests and diseases, hence, the tolerance varieties of mustard should be available to farmers to reduce the attack of pests and diseases.

- The State Government should made comprehension efforts to propagate the TMO and developmental schemes and programs in the neglected districts/ regions other of U.P. to motivate farmers to use the better inputs and latest techniques in the cultivation of mustard. This would definitely accelerate the yield growth rate in mustard.

- The demonstration of mustard should be performed in each village by the state government to educate the farmers to use the balanced inputs in the mustard crop. This would be useful in boosting the production of mustard on the sample farms.

- To avoid weather risk, such and seed should be evolved which is suitable between kharif and rabi periods. This may provide farmers an opportunity to take double crop in single cropped area.

- Plant protection measures and maketing structure should be strengthened to get better yield and price of mustard. The marginal and small farmers should be linked effectively under a system of integrated credit cum marketing system. There is also a need to provide adequate incentive to the farmers for increasing local production and marketable surplus.

- In order to further enhance production of mustard, the appropriate remunerative prices should be available to the farmers. The incentive price than support price should be considered in agricultural price policy to boost the farmers for better investment in the production of mustard. This would minimize the price risk.

- The Bundelkhand region of Uttar Pradesh in mostly rainfed. The sesame, linseed and soyabean are mostly sown in this region. Therefore, expansion in irrigation facilities are much needed in this region. This could be reduced the dependence of farmers on nature. On account of these, yield risk could be minimized to some extent.

- There is a need to redesign the price policy taking all the aspects into consideration such as cultivating oilseeds in lean and cheap years, checking the price going down in case of bumper production and prices going up in case of crop failure.

- The scientists should produce short duration HYV of oilseeds. These varieties have the capacity to protect from heat stress and drought.

- Since the traditional and local varieties of mustard produce theow yield, therefore specific varieties of mustard should be developed to produce higher production. In order to provide the better varieties of mustard to farmers, a sound policy is needed in this regard. The Seed Replacement Ratio (SRR) of mustard is low in comparison to wheat,due to non availability, adequate certified seeds at the time sowing of mustard crop. The research institute, SAUs, ICAR etc. should given first priority to develop the genetic production petential varieties of mustard.

- For boasting the area, production and yield of oilseeds, some crop specific and area specific approach should be considered by changing the existing agricultural policies in the state.

- Irregularities in provision of government measures, recurrent failure of rain, lack of marketing facilities, high cost of cultivation are the main reasons for the persistence of high degree of variability in growth of oilseeds in the state of Uttar Pradesh. Hence, the state governement should take adequate step to overcome the existing obstacle in the way of better production of oilseeds in the state.

- There is a need for strengthening the extension services so that the existing farm technology can be improved by replacing it with new ones.

- Since, the oilseeds are mostly localized, therefore, the efforts should be made to local need based scientific research for these oil seed crops suited to the soil and climatic conditions of various agro-climatic zones of the state.

- There is a need to set up processing units in potential areas of the districts. This would be helpful in increasing the bargaining power of the farmers. This can also promote general development of regions.

- Since, the technical and institutional constraints were found more severe on the marginal and small

sample farms in the cultivation of oilseed crops in Uttar Pradesh, hence, Governments of Centre and state, research scientists, etc. should pay more attention to provide them essential inputs at subsidized rate.

- The medium and large farmers were facing severe problems of institutional and marking in the cultivation of oilseeds in Uttar Pradesh. Therefore, there is a need to provide the better facilities of institutional and marketing to medium and large oilseed growers through development of integrated approach.

D. Commodity Reviews

(i) Foodgrains

During the month of July, 2013 the Wholesale Price Index (Base 2004-05=100) of pulses declined by 1.31% and of foodgrains and cereals increased by 1.86% and 2.57% respectively over the previous month.

ALL INDIA INDEX NUMBER OF WHOLESALE PRICES

(Base: 2004-2005=100)

Commodity	Weight %	WPI for the month of July 2013	WPI for the Month of June 2013	WPI A year ago	Percentage change during	
					A month	A year
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Rice	1.793	226.3	216.3	186.8	4.62	21.15
Wheat	1.116	206.2	205.0	181.8	0.59	13.42
Jower	0.096	245.7	246.3	230.8	-0.24	6.46
Bajra	0.115	261.9	265.3	223.7	-1.28	17.08
Maize	0.217	255.4	255.5	221.6	-0.04	15.25
Barley	0.017	210.1	208.2	203.0	0.91	3.50
Ragi	0.019	348.0	346.3	235.6	0.49	47.71
Cereals	3.373	223.9	218.3	190.3	2.57	17.66
Pulses	0.717	226.7	229.7	244.8	-1.31	-7.39
Foodgrains	4.09	224.4	220.3	199.8	1.86	12.31

Source: Office of the Economic Adviser, M/O Commerce and Industry.

Behaviour of Wholesale Prices

The following Table indicates the State wise trend of Wholesale Prices of Cereals during the month of July, 2013.

Commodity	Main Trend	Rising	Falling	Mixed	Steady
Rice	Rising	Assam Jharkhand U.P.	Jharkhand		Haryana
Wheat	Falling	Jharkhand M.P.	Gujarat Maharashtra Rajasthan	U.P.	Karnatak
Jowar	Steady		Gujarat	Maharastra	Karnataka Rajasthan A.P.
Bajra	Mixed & Steady	Tamilnadu		Gujarat Rajasthan	Karnataka Tamilnadu
Maize	Rising	Jharkhand Karnataka Rajasthan U.P.	Haryana		

Procurement of Rice

0.38 million tones of Rice (including paddy converted into rice) was procured during July, 2013, as against 1.125 million tones of rice (including paddy converted into rice) procured during July, 2013. The total procurement of Rice in the current marketing season i.c. 2012-2013, upto 31-07-2013 stood at 33.85 million tonnes, as against 33.47 million tonnes of rice procured, during the corresponding period of last year. The details are given in the following table

PROCUREMENT OF RICE

(In Thousand Tonnes)

State	Marketing Season 2012-13 (upto 31-07-2013)		Corresponding Period of last year 2011-12		Marketing Year (October-September) 2011-12		2010-12	
	Procurement	%age to Total	Procurement	%age to total	Procurement	% age to total	Procurement	%age to total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Andhra Pradesh	6399	18.90	7446	21.46	7548	21.53	9609	28.10
Chhatisgarh	4804	14.19	4115	11.86	4115	11.74	3746	10.95
Haryana	2606	7.71	2007	5.79	2007	5.72	1687	4.93
Maharashtra	190	0.56	190	0.55	190	0.54	308	0.93
Punjab	8558	25.28	7731	22.28	7731	22.05	86.35	25.25
TamilNadu	479	1.41	1596	4.60	1596	4.55	15.43	4.51
Uttar Pradesh	2286	6.75	3345	9.64	3357	9.58	2554	7.47
Uttarakhand	497	1.47	368	1.06	378	1.08	422	1.23
Others	8011	23.72	7894	22.75	8138	23.21	5694	16.65
Total	**33853**	100.00	**34692**	100.00	**35060**	100.00	**34198**	100.00

Source: Department of Food & Public Distribution.

Procurement of Wheat

The total procurement of wheat in the current marketing season i.e. 2013-2014 upto July, 2013 is 29.32 million tonnes against a total of 38.11 million tonnes of wheat procured during last year. The details are given in the following table :

PROCUREMENT OF WHEAT

(In Thousand Tonnes)

State	Marketing Season 2013-14 (upto 01-08-2013)		Corresponding Period of last year 2012-13		Marketing Year (April-March) 2012-13		2011-12	
	Procurement	% age to total	Procurement	% age to total	Procurement	% age to total	Procurement	% age to total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Haryana	5882	20.06	8666	22.74	8665	22.71	6928	24.45
Madhya Pradesh	8439	28.79	8507	22.32	8493	22.26	4965	17.52
Punjab	11142	38.00	12836	33.68	12834	33.64	10958	38.67
Rajasthan	1656	5.65	1964	5.15	1964	5.15	1303	4.60
Uttar Pradesh	2113	7.21	5063	13.29	5063	13.27	3461	12.21
Others	85	0.29	1071	2.81	1129	2.96	720	2.54
Total	**29317**	100.00	**38107**	100.00	**38148**	100.00	**28335**	100.00

Source : Department of Food & Public Distribution.

(ii) Commercial Crops

OILSEEDS & EDIBLE OILS : The Wholesale Price Index (WPI) of nine major oilseeds as a group stood at 200.2 in July, 2013 showing a fall of 1.1 percent over the previous month. However, it increased by 2.1 percent over the previous year.

The Wholesale Price Index (WPI) of all individual oilseeds showed a mixed trend. The WPI of Gingelly seed (4.0 percent), Copra (2.5 percent), and Sunflower (0.8 percent) increased over the previous month. However, the WPI of Groundnut seed (5.7 percent), Cotton Seed (1.4 percent), Niger seed (-0.5 percent), Safflower (0.1 percent) and Rape & Mustard (0.1 percent) decreased over the previous month. However, the WPI of Soyabean remained unchanged over the previous month. The Wholesale Price Index (WPI) of Edible Oils as a group stood 144.9 in July, 2013 showing a fall of 0.9 percent and 2.2 percent over the previous month. The WPI of Cottonseed Oil (4.0 percent), Sunflower Oil (1.1 percent), and Mustard Oil (0.3 percent) increased over the previous month. However, the WPI of Groundnut Oil (-7.6 percent), Copra Oil (-7.4 percent), Gingelly Oil (-5.3 percent) and Soyabean Oil (-0.4 percent) decreased over the previous month.

FRUITS & VEGETABLE : The Wholesale Price Index (WPI) of Fruits & Vegetable as a group stood at 254.6 in July, 2013 showing an increase of 9.4 percent and 20.5 percent over the previous month and over the previous year.

POTATO : The Wholesale Price Index (WPI) of Potato stood at 231.9 in July, 2013 showing an increase of 8.7 percent over the previous month. However, it decreased by 6.5 percent over the previous year.

ONION: The Wholesale Price Index (WPI) of Onion stood 442.6 in July, 2013 showing an increase of 30.5 percent and 144.9 percent over the previous month and over the previous year.

CONDIMENTS & SPICES : The Wholesale Price Index (WPI) of Condiments & Spices (Group) stood at 231.5 in July, 2013 showing an increase of 0.8 percent and 13.5 percent over the previous month and year, respectively.

The WPI of Black Pepper and Chillies (Dry) increased by 4.8 percent and 1.1 percent over the previous month and year, respectively, However, the WPI of Turmeric decreased by 0.6 percent over the previous month.

RAW COTTON: The Wholesale Price Index (WPI) of Raw Cotton stood at 239.9 in July, 2013 an increase of 6.5 percent over the previous month and over the previous year.

RAW JUTE : The Wholesale Price Index (WPI) of Raw Jute stood at 254.3 in July, 2013 showing a fall of 1.5 percent over the previous month. However, it increased by 3.2 percent over the previous year.

WHOLESALE PRICE INDEX OF COMMERCIAL CROPS FOR THE MONTH OF JULY, 2013

(Base Year : 2004-05=100)

Commodity	Latest July, 13	Month June, 13	Year July, 12	% Vaiation over	
				Month	Year
Oil Seeds	200.2	202.4	196.0	-1.1	2.1
Groundnut Seed	229.2	243.1	229.9	-5.7	-0.3
Rape & Mustard Seed	187.8	188.0	187.0	-0.1	0.4
Cotton Seed	170.6	173.0	157.5	-1.4	8.3
Copra (Coconut)	97.3	94.9	91.9	2.5	5.9
Gingelly Seed (Sesamum)	380.9	366.1	276.6	4.0	37.7
Niger Seed	169.7	170.6	201.4	-0.5	-15.7

(Base Year : 2004-05=100)

Commodity	Latest July, 13	Month June, 13	Year July, 12	% Vaiation over	
				Month	Year
Safflower (Kardi Seed)	163.5	163.6	150.4	-0.1	8.7
Sunflower	193.3	191.7	175.8	0.8	10.0
Soyabean	231.2	231.1	244.8	0.0	-5.6
Edible Oils	144.9	146.2	148.2	-0.9	-2.2
Groundnut Oil	178.6	193.3	192.1	-7.6	-7.0
Cotton Seed Oil	172.5	165.9	173.0	4.0	-0.3
Mustard & Rapeseed Oil	152.6	152.2	154.6	0.3	-1.3
Soyabean Oil	158.7	159.4	163.7	-0.4	-3.1
Copra Oil	108.4	117.0	114.2	-7.4	-5.1
Sunflower Oil	133.8	132.4	138.3	1.1	-3.3
Gingelly Oil	169.3	178.7	159.7	-5.3	6.0
Fruits & Vegetables	254.6	232.8	211.3	9.4	20.5
Potato	231.9	213.3	247.9	8.7	-6.5
Onion	442.6	339.1	180.7	30.5	144.9
Condiments & Spices	231.5	229.7	204.0	0.8	13.5
Black Pepper	521.1	497.2	530.0	4.8	-1.7
Chillies (Dry)	247.5	244.9	224.7	1.1	10.1
Turmeric	218.8	220.1	156.9	-0.6	39.5
Raw Cotton	239.9	225.3	216.8	6.5	10.7
Raw Jute	254.3	258.3	246.3	-1.5	3.2

PART II—Statistical Tables

A. Wages

1. Daily Agricultural Wages in Some States (Category-wise)

(in Rupees)

State/Distt.	Village	Month and Year	Normal Daily Working Hours	Field Labour			Other Agri. Labour			Herdsman			Skilled Labour		
				Man	Woman	Non Adult	Man	Woman	Non Adult	Man	Woman	Non Adult	Carpenter	Blacksmith	Cobbler
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Andhra Pradesh															
Krishna	Ghantasala	Feb.., 2013	8	250.00	150.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Guntur	Tadikonda	Feb., 2013	8	250.00	NA	NA	NA	NA	NA	200.00	NA	NA	NA	NA	NA
Rangareddy	Arutla	Feb., 2013	8	225.00	175.00	NA	NA	NA	NA	NA	NA	NA	250.00	250.00	NA
Karnataka															
Bangalore	Harisandra	May to June, 2012	8	200.00	150.00	NA	200.00	150.00	NA	250.00	180.00	NA	300.00	300.00	NA
Tumkur	Gedlahali	May to June, 2012	8	160.00	160.00	NA	180.00	160.00	NA	180.00	160.00	NA	180.00	180.00	NA
Maharashtra															
Nagpur	Mauda	Feb., 2012	8	100.00	100.00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ahmednagar	Akole	Feb, 2012	8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Jharkhand															
Ranchi	Gaintalsood	April, 2012	8	100.00	100.00	NA	90.00	90.00	NA	58.00	58.00	NA	170.00	150.00	NA

1.1 Daily Agricultural Wages in Some States (Operation-wise)

(in Rupees)

State/Distt.	Centre	Month and Year	Type of Labour	Normal Daily Working Hours	Ploughing	Sowing	Weeding	Harvesting	Other Agri. Labour	Herdsman	Skilled Labour		
											Carpenter	Blacksmith	Cobbler
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Assam													
Barpeta	Loharapara	March, 12	M	8	180.00	180.00	180.00	180.00	180.00	180.00	180.00	180.00	180.00
			W	8	NA	160.00	160.00	160.00	160.00	NA	NA	NA	NA
Bihar													
Muzaffarpur	Bhalui Rasul	April to, June, 2012	M	8	130.00	120.00	80.00	130.00	150.00	120.00	200.00	180.00	250.00
			W	8	NA	NA	NA	NA	NA	NA	NA	NA	NA
Shekhpura	Kutaut	May and June, 2012	M	8	NA	NA	185.00	NA	185.00	NA	245.00	NA	NA
			W	8	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chhattisgarh													
Dhamtari	Sihaba	April, 2013	M	8	NA	NA	NA	100.00	80.00	100.00	250.00	100.00	100.00
			W	8	NA	NA	NA	80.00	80.00	80.00	150.00	100.00	80.00
Gujarat													
Rajkot	Rajkot	Jan., 2013	M	8	209.00	225.00	150.00	170.00	147.00	150.00	360.00	360.00	240.00
			W	8	NA	169.00	150.00	179.00	145.00	142.00	NA	NA	NA
Dahod	Dahod	Jan., 2013	M	8	100.00	100.00	100.00	100.00	100.00	NA	200.00	144.00	150.00
			W	8	NA	100.00	100.00	100.00	100.00	NA	NA	NA	NA
Haryana													
Panipat	Ugarakheri	March, 2013	M	8	180.00	180.00	180.00	200.00	180.00	NA	400.00	400.00	NA
			W	8	NA	150.00	150.00	180.00	150.00	NA	NA	NA	NA

1.1 DAILY AGRICULTURAL WAGES IN SOME STATES (OPERATION-WISE)—*Contd.*

(in Rupees)

State/Distt.	Centre	Month and Year	Type of Labour	Normal Daily Working Hours	Plough-ing	Sow-ing	Weed-ing	Harvest-ing	Other Agri. Labour	Herds-man	Skilled Labour Car-penter	Black-smith	Cob-bler
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Himachal Pradesh													
Mandi	Mandi	Nov., to Dec. 2010	M		300.00	110.00	110.00	110.00	110.00	110.00	200.00	200.00	NA
			W		NA	110.00	110.00	110.00	110.00	110.00	NA	NA	NA
Kerala													
Kozhikode	Koduvally	March, 2013	M	4 to 8	820.00	500.00	NA	500.00	660.00	NA	650.00	NA	NA
			W	4 to 8	NA	NA	400.00	400.00	50.00	NA	NA	NA	NA
Palakkad	Elappally	March, 2013	M	4 to 8	NA	NA	NA	400.00	400.00	NA	500.00	NA	NA
			W	4 to 8	NA	NA	NA	300.00	200.00	NA	NA	NA	NA
Madhya Pradesh													
Hoshangabad	Sangarkhera	March, 2013	M	8	150.00	100.00	100.00	160.00	100.00	100.00	350.00	350.00	150.00
			W	8	NA	100.00	100.00	160.00	100.00	100.00	NA	NA	NA
Satna	Kotar	March, 2013	M	8					—NA—				
			W	8					—NA—				
Shyopur Kala	Vijaypur	March, 2013	M	8	150.00	150.00	NA	NA	NA	50.00	200.00	200.00	NA
			W	8	NA	NA	NA	NA	NA	NA	NA	NA	NA
Odisha													
Bhadrak	Chandbali	April, 2013	M	8	150.00	NA	NA	160.00	216.66	150.00	250.00	180.00	150.00
			W	8	NA	NA	NA	120.00	175.00	140.00	NA	NA	NA
Ganjam	Aska	April, 2013	M	8	200.00	200.00	200.00	200.00	203.33	200.00	350.00	250.00	300.00
			W	8	NA	100.00	150.00	150.00	120.00	100.00	NA	NA	NA
Punjab													
Ludhiana	Pakhowal	June, 2008	M	8	NA	NA	90.00	95.00	NA	99.44	NA	NA	NA
					NA	NA	NA	NA	NA	NA	NA	NA	NA
Rajasthan													
Barmer	Vishala	March, 2013	M	8					—NA—				
			W	8									
Jalore	Panwa	March, 2013	M	8	NA	NA	200.00	NA	NA	200.00	350.00	300.00	NA
			W	8	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tamil Nadu													
Thanjavur	Pulvarnatham	Feb., 2013	M	6	NA	NA	NA	NA	NA	NA	NA	NA	NA
			W	5	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tirunelveli	Malayakulam	Feb., 2013	M	8	NA	NA	NA	NA	NA	NA	NA	NA	NA
			W	8	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tripura													
State average		Apr. 11 to March, 12	M	8	238.00	201.00	203.00	209.00	207.00	199.00	253.00	235.00	240.00
			W	8	NA	154.00	152.00	154.00	154.00	149.00	NA	NA	NA
Uttar Pradesh*													
Meerut	Ganeshpur	Jan., 2013	M	8	205.00	207.00	206.00	204.00	206.00	NA	320.00	NA	NA
			W	8	NA	180.00	180.00	180.00	180.00	NA	NA	NA	NA
Aurraiya	Aurraiya	Jan., 2013	M	8	150.00	193.00	192.00	150.00	193.00	NA	300.00	NA	NA
			W	8	NA	160.00	167.00	120.00	167.00	NA	NA	NA	NA
Chandauli	Chandauli	Jan., 2013	M	8	150.00	150.00	125.00	125.00	125.00	NA	271.00	NA	NA
			W	8	NA	150.00	125.00	125.00	125.00	NA	NA	NA	NA

M-Man   W-Woman

N. A. —Not Available   N. R. —Not Reported

*- Uttar Pradesh reports its district-wise average rural wage data rather than from selected centre/village.

B. Prices

2. Wholesale Prices of Certain Important Agricultural Commodities and Animal Husbandry Products at Selected Centres in India

(Month end Prices in Rupees)

Commodity	Variety	Unit	State	Centre	Jul-13	Jun-13	Jul-12
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Wheat	PBW 343	Quintal	Punjab	Amritsar	1450	1450	1250
Wheat	Dara	Quintal	Uttar Pradesh	Chandausi	1500	1475	1210
Wheat	Lokvan	Quintal	Madhya Pradesh	Bhopal	1511	1570	1300
Jower	-	Quintal	Maharashtra	Mumbai	2650	2600	2100
Gram	No III	Quintal	Madhya Pradesh	Sehore	3665	-	3000
Maize	Yellow	Quintal	Uttar Pradesh	Kanpur	1410	1380	1125
Gram Split	-	Quintal	Bihar	Patna	4825	5220	5000
Gram Split	-	Quintal	Maharashtra	Mumbai	5700	6000	5000
Arhar Split	-	Quintal	Bihar	Patna	6220	6150	5700
Arhar Split	-	Quintal	Maharashtra	Mumbai	6550	6500	5200
Arhar Split	-	Quintal	NCT of Delhi	Delhi	6200	6350	7000
Arhar Split	Sort II	Quintal	Tamil Nadu	Chennai	6345	6300	6700
Gur	-	Quintal	Maharashtra	Mumbai	3400	3450	3240
Gur	Sort II	Quintal	Tamil Nadu	Coimbatore	3400	3400	3050
Gur	Balti	Quintal	Uttar Pradesh	Hapur	3150	2970	3070
Mustard Seed	Black (S)	Quintal	Uttar Pradesh	Kanpur	3315	3250	3725
Mustard Seed	Black	Quintal	West Bengal	Raniganj	3500	3550	4100
Mustard Seed	-	Quintal	West Bengal	Kolkata	3700	3750	4250
Linseed	Bada Dana	Quintal	Uttar Pradesh	Kanpur	4325	4175	3525
Linseed	Small	Quintal	Uttar Pradesh	Varanasi	3550	3480	3260
Cotton Seed	Mixed	Quintal	Tamil Nadu	Virudhunagar	1750	1600	1450
Cotton Seed	MCU 5	Quintal	Tamil Nadu	Coimbatore	1550	1550	1550
Caster Seed	-	Quintal	Andhra Pradesh	Hyderabad	3250	3100	3900
Sesamum	White	Quintal	Uttar Pradesh	Varanasi	6470	6380	6600
Copra	FAQ	Quintal	Kerala	Alleppey	4875	4800	4125
Groundnut	Pods	Quintal	Tamil Nadu	Coimbatore	4000	4000	3850
Groundnut	-	Quintal	Maharashtra	Mumbai	7400	7400	6450
Mustard Oil	-	15 Kg.	Uttar Pradesh	Kanpur	1200	1170	1313
Mustard Oil	Ordinary	15 Kg.	West Bengal	Kolkata	1200	1155	1440
Groundnut Oil	-	15 Kg.	Maharashtra	Mumbai	1470	1575	1785
Groundnut Oil	Ordinary	15 Kg.	Tamil Nadu	Chennai	1365	1485	1800
Linseed Oil	-	15 Kg.	Uttar Pradesh	Kanpur	1290	1335	1440
Castor Oil	-	15 Kg.	Andhra Pradesh	Hyderabad	1088	1073	1305
Sesamum Oil	-	15 Kg.	NCT of Delhi	Delhi	1400	1650	1500
Sesamum Oil	Ordinary	15 Kg.	Tamil Nadu	Chennai	2400	2400	1913
Cocount Oil	-	15 Kg.	Kerals	Cochin	1050	1043	930
Mustard Cake	Ordinary	Quintal	Uttar Pradesh	Kanpur	1725	1625	1765
Groundnut Cake	-	Quintal	Andhra Pradesh	Hyderabad	3214	3357	3929
Cotton/Kapas	NH 44	Quintal	Andhra Pradesh	Nandyal	4500	4350	4400
Cotton/Kapas	LRA	Quintal	Tamil Nadu	Virudhunagar	NT	3800	3500
Jute Raw	TD 5	Quintal	West Bengal	Kolkata	2675	2630	2685
Jute Raw	W 5	Quintal	West Bengal	Kolkata	2605	2630	2660

2. Wholesale Prices of Certain Agricultural Commodities and Animal Husbandry Products at Selected Centres in India—*Contd.*

(Month end Prices in Rupees)

Commodity	Variety	Unit	State	Centre	Jul-13	Jun-13	Jul-12
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Oranges	-	100 No	NCT of Delhi	Delhi	NA	NA	-
Oranges	Big	100 No	Tamil Nadu	Chennai	640	630	550
Oranges	Nagpuri	100 No	West Bengal	Kolkata	-	-	NA
Banana	-	100 No	NCT of Delhi	Delhi	167	183	233
Banana	Medium	100 No	Tamil Nadu	Kodaikkanal	398	396	319
Cashewnuts	Raw	Quintal	Maharashtra	Mumbai	50000	49000	50000
Almonds	-	Quintal	Maharashtra	Mumbai	45000	46000	45000
Walnuts	-	Quintal	Maharashtra	Mumbai	54500	57000	53000
Kishmish	-	Quintal	Maharashtra	Mumbai	13000	13000	12800
Peas Green	-	Quintal	Maharashtra	Mumbai	4500	4000	3100
Tomatoes	Ripe	Quintal	Uttar Pradesh	Kanpur	2715	1590	2350
Ladyfinger	-	Quintal	Tamil Nadu	Chennai	2635	1700	2700
Cauliflower	-	100 No.	Tamil Nadu	Chennai	1800	1920	1100
Potatoes	Red	Quintal	Bihar	Patna	990	900	1180
Potatoes	Desi	Quintal	West Bengal	Kolkata	820	800	1140
Potatoes	Sort I	Quintal	Tamil Nadu	Mettuppalayai	2726	2993	2535
Onions	Pole	Quintal	Maharashtra	Nashik	2000	1450	550
Turmeric	Nadan	Quintal	Kerala	Cohin	10000	10500	7800
Turmeric	Salam	Quintal	Tamil Nadu	Chennai	9770	9850	6000
Chillies	-	Quintal	Bihar	Patna	8100	7970	7400
Black Pepper	Nadan	Quintal	Kerala	Kozhikode	37000	36500	39500
Ginger	Dry	Quintal	Kerala	Cochin	15500	17000	10800
Cardamom	Major	Quintal	NCT of Delhi	Delhi	122500	115000	82500
Cardamom	Small	Quintal	West Bengal	Kolkata	85000	90000	110000
Milk	Cow	100 Liters	NCT of Delhi	Delhi	NA	3800	3600
Milk	Buffalo	100 Liters	West Bengal	Kolkata	3400	3200	3400
Ghee Deshi	Deshi No. 1	Quintal	NCT of Delhi	Delhi	29015	29015	28181
Ghee Deshi	-	Quintal	Maharashtra	Mumbai	26000	25708	25500
Ghee Deshi	Deshi	Quintal	Uttar Pradesh	Kanpur	29500	29350	28500
Fish	Rohu	Quintal	NCT of Delhi	Delhi	9500	9000	6500
Fish	Pomphrets	Quintal	Tamil Nadu	Chennai	32500	31500	26000
Eggs	Madras	1000 No.	West Bengal	Kolkata	3700	4000	3400
Tea	-	Quintal	Bihar	Patna	20000	19900	19675
Tea	Atti Kunna	Quintal	Tamil Nadu	Coimbatore	9000	9000	-
Coffee	Plant-A	Quintal	Tamil Nadu	Coimbatore	26000	26000	26000
Coffee	Rubusta	Quintal	Tamil Nadu	Coimbatore	14000	14000	14000
Tobacco	Kampila	Quintal	Uttar Pradesh	Farukhabad	2750	2650	2230
Tobacco	Raisa	Quintal	Uttar Pradesh	Farukhabad	2700	2550	2125
Tobacco	Bidi Tobacco	Quintal	West Bengal	Kolkata	3600	3600	4000
Rubber	-	Quintal	Kerala	Kottayam	18000	16300	17000
Arecanut	Pheton	Quintal	Tamil Nadu	Chennai	28600	28500	28000

Commodity	Variety	Country	Centre	Unit	Jan	Feb	Mar	Apr	May	Jun	Jul
Cardamom	Guatama Bold	U.K.	-	Dollar/M.T.	16500.00	16500.00	16500.00	17000.00	14250.00	14250.00	14250.00
				Rs./Qtl	88572.00	89875.50	89743.50	92174.00	80341.50	85770.75	84018.00
Cashew Kernels	Spot U.K. 320s	U.K.	-	Dollar/Ibs	3.60	3.60	3.66	3.64	3.55	3.56	3.55
				Rs./Qtl	42591.86	43218.68	43874.45	43498.32	44112.84	47226.52	46131.48
	Spot U.K. 320s	U.K.	-	Dollar/M.T.	7915.09	7898.35	8056.22	8024.08	7861.23	7844.30	7869.32
			-	Rs./Qtl	42488.20	43022.31	43817.78	43506.56	44321.61	47214.84	46.397.51
Caster Oil	Any Origin ex tank	Nether	-	Dollar/M.T.	1690.00	1650.00	1650.00	1600.00	1500.00	1510.00	1480.00
	Rotterdam	lands	-	Rs/Qtl	9071.92	8987.55	8974.35	8675.20	8457.00	9088.69	8726.08
Celery Seed	Asta cif	India	-	Dollsr/M.T.	1500.00	1500.00	1500.00	1500.00	1500.00	1500.00	1500.00
			-	Rs./Qt;	8052.00	8170.50	8158.50	8133.00	8457.00	9028.50	8844.00
Chillies	Birds eye 2005	Africa	-	Dollar/M.T.	5000.00	4250.00	4250.00	4100,00	4100.00	4100.00	4100.00
	crop			Rs./Qtl	26840.00	23149.75	23115.75	22230.20	23115.80	24677.90	24173.60
Cinnamon Bark		Mada-gascar	-	Dollar/M.T.	1100.00	1100.00	1100.00	1100.00	1100.00	1100.00	1100.00
			-	Rs./Qtl	5904.80	5991.70	5982.90	5964.20	6201.80	6620.90	6485.60
Cloves	Singapote	Mada-gascar	-	Dollar/M.T.	9500.00	9500.00	9500.00	12000.00	12000.00	11850.00	13500.00
			-	Rs./Qtl	50996.00	51746.50	51670.50	65064.00	67656.00	71325.15	79596.00
Coconut Oil Crude	Phillipine/Indonesia	Netherland	-	Dollar/M.T.	815.00	850.00	805.00	800.00	850.00	890.00	850.00
			-	Rs./Qtl	4374.92	4629.95	4378.40	4337.60	4792.30	5356.91	5011.60
Copra	Phillipines cif Rotterdam	Phillipine	-	Dollar/M.T.	538.00	530.00	505.00	476.00	527.00	559.00	546.00
				Rs.Qtl	2887.98	2886.91	2746.70	2580.87	2971.23	3364..64	3219.22
Corriander		India	-	Dollar/M.T.	1150.00	1150.00	1150.00	1150.00	1150.00	1150.00	1150.00
				Rs./Qtl	6173.20	6264.05	6254.85	6235.30	6483.70	6921.85	6780.40
Cummin Seed		India	-	Dollar/M.T.	2889.00	2889.00	2889.00	2889.00	2889.00	2889.00	2889.00
				Rs./Qtl	15508.15	15737.38	15716.27	15664.16	16288.18	17388.89	17033.54
Fennel seed		India	-	Dollar/M.T.	2600.00	2600.00	2600.00	2600.00	2600.00	2600.00	6000.00
				Rs.Qtl	13956.80	14141.20	14141.40	14097.20	14658.80	15649.40	35376.00
Ginger	Split	Nigeria	-	Doller/M.T.	2400.00	2400.00	2400.00	2400.00	1810.00	2005.00	2300.00
				Rs.Qtl	12883.20	13072.80	13053.60	13012.80	10204.78	12068.10	13560.80
Groundnut Kernels	US 2005, 40/50	European Ports	-	Dollar/M.T.	1275.00	1350.00	-	-	1350.00	1380.00	1400.00
				Rs.Qtl	6844.20	7353.45	-	-	7611.30	8306.22	8254.40
Groundnut Oil	Crude Any Origin cif Rotterdam	U.K.	-	Dollar/M.T.	2200.00	-	-	-	-	-	1700.00
				Rs.Qtl	11809.00	-	-	-	-	-	10023.20
Lentils	Turkish Red Split Crop 1+1 water	U.K.	-	Pound/M.T.	522.72	655.20	660.98	647.80	656.64	655.38	650.12
				Rs./Qtl	4428.48	5446.68S	5438.54	5422.09	5637.91	6019.01	5895.94
Maize		U.S.A.	Chicago	C/56 Ibs	720.75	700.50	735.25	639.50	665.00	664.50	508.25
				Rs.Qtl	1520.51	1499.54	1571.62	1362.68	1473.46	1571.85	1177.68
Oats		Canada	Winnipeg	Dollar/M.T.	359.83	384.62	406.44	401.94	366.25	405.76	362.84
				Rs./Qtl	1931.57	2095.03	2210.63	2179.32	2064.92	2442.27	2139.30
Palm kernal Oil	Crude Malaysia/Indonesia	Netherlands	-	Dollar/M.T.	795.00	855.00	815.00	840.00	840.00	840.00	830.00
				Rs./Qtl	4267.56	4657.19	4432.79	4554.48	4735.92	5055.96	4893.68
Palm Oil	Crude Malaysian/Sumatra	Netherlands	-	Doller/M.T.	855.00	860.00	850.00	830.00	860.00	855.00	825.00
				Rs./Qtl	4589.64	4684.42	4623.15	4500.26	4848.68	5146.25	4864.20

Commodity	Variety	Country	Centre	Unit	Jan	Feb	Mar	Apr	May	Jun	Jul
Pepper (Black)	Sarawak Black lable	Malaysia	-	Dollar/Qtl	-	7300.00	-	-	-	-	-
				Rs./M.T.	-	39763.10	-	-	-	-	-
Rapeseed	Canola	Canada	Winnipeg	Can	605.80	644.20	638.00	637.60	640.50	613.10	505.20
				Dollar/M.T.	3244.06	3448.40	3415.21	3388.84	3505.46	3521.65	2895.81
	UK delivered rapeseed delivered	U.K.	-	Pound/M.T.	379.00	389.00	393.00	394.00	375.00	330.00	318.00
				Rs/Qtl	3210.89	3233.76	3233.60	3297.78	3219.75	3030.72	2883.94
Rapeseed Oil	Refined bleached and deodorised	U.K.	-	Pound/M.T.	871.00	908.00	867.00	819.00	855.00	826.00	731.00
				Rs./Qtl	7379.11	7548.20	7133.68	6855.03	7341.03	7585.98	6629.44
Soybean Meal	UK produced 49% Oil and Protein	U.K.	-	Pound/M.T.	351.00	379.00	376.00	-	409.00	395.00	422.00
				Rs.Qtl	2973.67	3150.63	3093.73	-	3511.67	3627.68	3827.12
Soyabean Oil		U.S.A.	-	C/Ibs Rs.Qtl	52.03	52.07	52.82	49.18	48.63	46.63	44.26
					6155.71	6251.10	6092.08	5877.05	6042.84	6185.88	5751.49
	Refined bleached and deodorised	U.K.	-	Pound/M.T.	826.00	849.00	839.00	768.00	774.00	716.00	720.00
				Rs./Qtl	6997.87	7057.74	6903.29	6428.16	6645.56	6575.74	6529.68
Soyabeans	USNo 2 yellow	Nertherlands	Chicago	Dollar/M.T.	596.70	594.10	580.10	569.20	510.10	513.00	511.50
				Rs./Qtl	3203-09	3236.06	3155.16	3086.20	2875.94	3087.75	3015.80
		U.S.A.	-	C/60Ibs	1437.00	1482.75	1453.75	1345.75	1501.75	1534.25	1392.50
				Rs.Qtl	2830.97	2964.09	2901.85	2676.88	3107.34	3389.12	3013.14
Sunflower Seed Oil	Refined bleached and deodorised	U.K.	-	Pound/M.T.	983.00	1018.00	963.00	934.00	845.00	787.00	843.00
				Rs./Qtl	8327.98	8462.63	7923.56	7817.58	7255.17	7227.81	7645.17
Tallow	High grade delivered	U.K.	London	Pound/M.T.	550.00	460.00	440.00	440.00	440.00	440.00	445.00
				Rs./Qtl	4659.60	3823.98	3620.32	3682.80	3777.84	4040.96	4035,71
Turmeric	Madras finger spot/cif	India	-	Doller/M.T.	850.00	850.00	850.00	850.00	850.00	850.00	850.00
				Rs./Qtl	4562.80	4629.95	4623.15	4608.70	4792.30	5116.15	5011.60
Walnuts	Indian light halves	U.K.	-	Pound/M.T.	7500.00	7500.00	7950.00	7759.00	7980.00	7980.00	7800.00
				Rs./Qtl	6340.00	62347.50	65412.60	64867.50	68516.28	73288.32	70738.20
Wheat		U.S.A.	Chicago	C/60Ibs	774.75	738.50	736.75	691.75	702.75	667.00	653.25
				Rs./Qtl	1526.30	1476.30	1470.64	1376.50	1454.09	1473.38	1413.52

Source : Public Ledger

Exchange Rate

	Jan	Feb	Mar	Apr	May	Jun	Jul
US Doller	53.68	54.47	54.39	54.22	56.38	60.19	58.96
Can Dollar	53.55	53.53.	53.53.	53.15	54.73	57.44	57.32
UK Pound	84.72	83.13	82.28	83.70	85.86	91.84	90.69

C. CROP PRODUCTION

4. Sowing and harvesting Operations Normally in Progress during the month of September, 2013

State	Sowing	Harvesting
(1)	(2)	(3)
Andhra Pradesh	Paddy, Jower, Maize, Tobacco, Groundnut, Mesta and Linseed.	Paddy, Bajra, Ragi, Groundnut, Seasamum and Ginger
Assam	Paddy, Gram, Pulses, Potato and Linseed	Paddy and Mesta.
Bihar	Wheat, Barley, Gram, Rapessed & Mustard, Linseed and Potato.	Paddy, Jower, Bajra, Maize, Ragi, and Sesamum
Gujarat	Paddy, Gram, Pulses and Potato	Paddy, Jowar, Groundnut, Bajra and Cotton.
Hinachal Pradesh	Wheat, Barley, Gram, Rapeassd & Mustard and	Paddy, Bajra, Maize, Pulses, Potato and Goundnut
Jammu & Kashmir	Wheat, Barley, Rapeseed & Mustard and Onion.	Paddy, Bajra, Maize, Small Milets, Pulses, Potato and Chillies
Karnataka	Jowar, Potato, Tobacco, Linseed, Sweet Potato and Onion.	Kharif Jowar, Ragi, Small Millets, Chillies and Groundnut.
Kerala	Paddy, Pulses and Sesamum.	Paddy, Sweet Potato and lemongrass.
Madhya Pradesh	Wheat, Barley, Gram, Jowar, Rabi Pulses, Potato, Chillies, Rapeseed & Mustard and Onion.	Paddy, Ragi, Kharif Pulses, Potato, Ginger, Chillies and Groundnut.
Maharashtra	Wheat, Gram, Jowar, Barley and Pulses.	Kharif Paddy, Jowar, Bajra, Maize, Groundnut and Sesamum.
Manipur	Wheat Potato and Rapeseed & Mustard.	Sugarcane and late Paddy.
Orissa	Wheat, Jowar, Gram, Rapeseed & Mustard and Linseed.	Paddy, Kharif, Jowar and Sesamum.
Punjab	Wheat and Gram.	Paddy, Cotton, Pulses and Early Sugarcane.
Rajasthan	Wheat, Barley, Rapeseed & Mustard and Linseed.	Jowar, Bajra, Maize, Cotton and Sannhemp.
Tamil Nadu	Paddy, Jowar, Groundnut, Small Millets, Tobacco and Cotton.	Kharif Paddy, Jowar, Maize, Cotton, Tapioca, Mesta and Ginger.
Tripura	Pulses and Potato.	Til.
Uttar Pradesh	Wheat, Barley, Gram, Linseed and Rapeseed & Mustard.	Paddy, Jowar, Bajra, Sesamum and Groundnut.
West Bengal	Wheat, Barley, Rapeseed & Mustard, Tobacco, Chillies, Til, Potato and Pulses.	Paddy, Jute and Red Chillies.
Delhi	Wheat, Barley and Pulses.	Paddy Jowar, Bajra, Maize and Sugarcane.

(K)—Kharif   (R)—Rabi

LIST OF PUBLICATIONS

Journal

Agricultural Situation in India (Monthly)

Periodicals

Agricultural Prices in India

Agricultural Wages in India

Cost of Cultivation of Principal Crops

Land Use Statistics at a Glance

District-wise Area and Production of Principal Crops in India

Year Book of Agro-Economic Research Studies

Farm Harvest Prices of Principal Crops in India

Agricultural Statistics at a Glance

Copies are available from : The Controller of Publications, Civil Lines, Delhi-110054. (Phone 23817640)