

AGRICULTURAL SITUATION IN INDIA

November, 2014



सत्यमेव जयते

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Agricultural Situation in India

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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.

GENERAL SURVEY

(i) Trends in Foodgrain Prices

During the month of September, 2014, the All India Index Number of Wholesale Price (2004-05=100) of Food grains increased by 0.51 percent from 236.1 in August, 2014 to 237.3 in September, 2014.

The Wholesale Price Index (WPI) Number of Cereals increased by 0.47 percent from 235.5 to 236.6 and WPI of Pulses increased by 0.84 percent from 238.9 to 240.9 during the same period.

The Wholesale Price Index Number of Wheat declined by 0.19 percent from 210.1 to 209.7 while that of Rice increased by 1.31 percent from 241.1 to 247.3 during the same period.

(ii) Weather, Rainfall and Reservoir Situation during October, 2014

Cumulative Post Monsoon (October to December) Rainfall for the country as a whole during the period 01 October to 29th October, 2014 is 24% lower than LPA. Rainfall in the four broad geographical divisions of the country during the above period was lower than LPA by (-) 21% in North West India, (-) 24% in Central India, 4% in South Peninsula and (-) 64% in East & North East India.

Out of a total of 36 meteorological subdivisions, 14 subdivisions received excess/normal rainfall and 22 subdivisions received deficient / Scanty rainfall.

Central Water Commission monitors 85 major reservoirs in the country which have a total live capacity of 155.05 BCM at Full Reservoir Level (FRL). Current live storage in these reservoirs as on 30th October, 2014 was 114.35 BCM as against 134.02 BCM on 31.10.2013 (last year) and 114.13 BCM of normal storage (average storage of the last 10 years). Current year's storage is 85% of the last years and 100% of the normal storage.

(iii) Price Movement of Onion, Potato and Tomato during October, 2014

The All India average wholesale price of onion during October 2014 was Rs.2022/qt1 compared to Rs.2119/qt1 in September 2014, showing a decline of 4.6% over the

last month. The average wholesale price was in the range of Rs.1160/qt1 in Jaipur to Rs.3550/qt1 in Eranakulam. The All India average retail price of onion in October 2014 was Rs.26/kg compared to Rs.27/kg in September 2014. The average retail price ranged from Rs.15/kg in Indore to Rs.41/kg in Eranakulam. Total arrivals of onion during October (30/09/2014- 29/10/2014) was 6,09,473 tonnes which was about 18.9% lower than the previous month's arrival and 9.3% lower than the previous year.

In case of potato, the All India average wholesale price during October 2014 was Rs.2389/ctl. compared to Rs.2318/ctl. in September 2014, showing an increase of 3.1% over the last month. The average wholesale price during October 2014 was in the range of Rs.1444/ctl in Nagpur to Rs.3850ctl. in Thiruvananthapuram. At the retail level, All India average retail price of potato in October 2014 was Rs.29/kg as compared to Rs.28/kg in September 2014. The average retail price was in the range of Rs.20/kg in Nagpur and Kolkata to Rs.42/kg in Ernakulam. Total arrivals of potato during October (30/09/2014- 29/10/2014) was 5,09,961 tonnes which was about 29% lower than the previous month's arrival and 41% lower than the previous year.

In respect of tomato, the All India average wholesale price during October 2014 was Rs.2348/ctl. compared to Rs.2980/ctl. in September 2014, registering a decline of 21.2% over the previous month. The average wholesale price during October 2014 was in the range of Rs.640/ctl. in Chennai to Rs. 4000/ctl. in Lucknow and Kanpur. At the retail level, the All India average price of tomato in October 2014 was Rs.30/kg compared to Rs.37/kg in September 2014. The average retail price ranged between Rs.11/kg in Puducherry and Dindigul to Rs.50/kg in Lucknow. Total arrivals of tomato during October (30/09/2014- 29/10/2014) was 2,80,778 tonnes which was about 10.7% lower than the previous month's arrival and 8.2% lower than the previous year.

All India Production of Foodgrains: As per the 1st advance estimates released by Ministry of Agriculture on 19.09.2014, production of total kharif foodgrains during 2014-15 is estimated at 120.27 million tonnes compared to 129.32 million tonnes in 2013-14.

TABLE 1 B: PRODUCTION OF MAJOR AGRICULTURAL CROPS

S. No. Kharif Crops	Production (in Million Tonnes)			
	2014-15 First Adv. Est.	2013-14 First Adv. Est.	2012-13	2011-12
1. Rice	88.02	92.32	92.37	92.78
2. Total Pulses	5.2	6.01	5.91	6.06
a. Pigeon Pea (Tur/Arhar)	2.74	3.04	3.02	2.65
b. Urdbean	1.15	1.33	1.43	1.23
c. Moongbean	0.71	0.9	0.79	1.24
3. Total Coarse Cereals	27.05	30.99	29.79	32.44
a. jowar	1.64	2.57	2.84	3.29
b. Bajra	7.54	8.66	8.74	10.28
c. Maize	16.03	17.78	16.19	16.49
4. Total Oilseeds	19.66	23.96	20.79	20.69
a. Groundnut	5.02	5.57	3.18	5.13
b. Soyabean	11.82	15.68	14.66	12.21
5. Sugarcane	342.78	341.77	341.2	361.04
6. Cotton	34.62	35.3	34.22	35.2
7. Total Kharif Foodgrains	120.27	129.32	128.07	131.27
Total Rabi Foodgrains	-	-	129.06	128.01
Total Foodgrains	-	-	257.13	259.29

Procurement: During the Kharif Marketing Season 2013-14, (which spans from October, 2013 to September, 2014), the procurement of rice was 31.86 million tonnes as on 07.11.2014. During Rabi Marketing Season 2014-15 (which spans from April 2014 to March 2015), the procurement of wheat was 28.02 million tonnes as on 11.07.2014.

TABLE 2: PROCUREMENT IN MILLION TONNES

Crop	2010-11	2011-12	2012-13	2013-14	2014-15
Rice	34.2	35.04	34.04	31.86*	
Wheat	22.51	28.34	38.15	25.09	28.02**
Total	56.71	63.38	72.19	56.95	

* Position as on 07.11.2014 **Position as on 11.07.2014

TABLE 3: OFF-TAKE AND STOCKS OF FOODGRAINS (MILLION TONNES)

Crops	Off-take				Stocks	
	2011-12	2012-13	2013-14	2014-15 (Till Aug.)	Oct 1, 2013	Oct 1, 2014
Rice	32.12	32.64	29.20	12.56	19.03	15.08
Unmilled Paddy#					6.13	4.87
Converted Unmilled					4.11	3.26
Paddy in terms of Rice		33.21				
Wheat	24.26		30.62	9.67	36.1	32.85
Total (Rice & Wheat)	56.38	65.85	59.82	22.23	59.24	51.19

Note: Buffer Norms for Rice & Wheat are 7.20 Million Tonnes & 14.00 Million Tonnes as on 1.10.2014 respectively. # Since September, 2013, FCI gives separate figures for rice and unmilled paddy lying with FCI & state agencies in terms of rice.

Economic Growth

As per the estimates of the Central Statistics Office (CSO), the growth in Gross Domestic Product (GDP) at factor cost at constant (2004-05) prices is placed at

5.7 per cent in the first quarter of 2014-15, which is the highest recorded in nine quarters, with agriculture, industry and services registering growth rates of 3.8 per cent, 4.2 per cent and 6.8 per cent respectively. GDP growth was estimated at 4.7 per cent for the full year, 2013-14.

TABLE 4: GROWTH OF GDP AT FACTOR COST BY ECONOMIC ACTIVITY (AT 2004-05 PRICES)

Sector	Growth			Percentage Share in GDP		
	2011-12	2012-13 (1R)	2013-14 (PE)	2011-12	2012-13 (1R)	2013-14 (PE)
1. Agriculture, forestry & fishing	5.0	1.4	4.7	14.4	13.9	13.9
2. Industry	7.8	1.0	0.4	28.2	27.3	26.1
a. Mining & quarrying	0.1	-2.2	-1.4	2.1	2.0	1.9
b. Manufacturing	7.4	1.1	-0.7	16.3	15.8	14.9
c. Electricity, gas & water supply	8.4	2.3	5.9	1.9	1.9	1.9
d. Construction	10.8	1.1	1.6	7.9	7.7	7.4
3. Services	6.6	7.0	6.8	57.4	58.8	59.9
a. Trade, hotels, transport & communication	4.3	5.1	3.0	26.7	26.9	26.4
b. Financing, insurance, real estate & business services Community, social & personal	11.3	10.9	12.9	18.0	19.1	20.6
c. Services	4.9	5.3	5.6	12.7	12.8	12.9
4. GDP at factor cost	6.7	4.5	4.7	100	100	100

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

TABLE 5: QUARTERLY ESTIMATES OF GDP GROWTH AT CONSTANT (2004-05) PRICES

Sectors	2012-13				2013-14				2014-15
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
1. Agriculture, forestry & fishing	1.8	1.8	0.8	1.6	4.0	5.0	3.7	6.3	3.8
2. Industry	0.3	-0.4	1.7	2.1	-0.4	2.6	-0.4	-0.2	4.2
a. Mining & quarrying	-1.1	-0.1	-2.0	-4.8	-3.9	0.0	-1.2	-0.4	2.1
b. Manufacturing	-1.1	0.0	2.5	3.0	-1.2	1.3	-1.5	-1.4	3.5
c. Electricity, gas & water supply	4.2	1.3	2.6	0.9	3.8	7.8	5.0	7.2	10.2
d. Construction	2.8	-1.9	1.0	2.4	1.1	4.4	0.6	0.7	4.8
3. Services	7.2	7.6	6.9	6.3	7.2	6.3	7.2	6.4	6.8
a. Trade, hotels, transport & communication	4.0	5.6	5.9	4.8	1.6	3.6	2.9	3.9	2.8
b. Financing, insurance, real estate and business services	11.7	10.6	10.2	11.2	12.9	12.1	14.1	12.4	10.4
c. Community, social & personal services	7.6	7.4	4.0	2.8	10.6	3.6	5.7	3.3	9.1
4. GDP at factor cost	4.5	4.6	4.4	4.4	4.7	5.2	4.6	4.6	5.7

Source: CSO.

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ARTICLES

Efficient Indian Commodity Markets — Need for Comprehensive Warehousing System

PANKAJ SINHA AND KRITIKA MATHUR*

Abstract

Warehouses are closely linked to commodity futures exchanges and form an important component in the process of price formation of commodities. Warehouses issue warehouse receipts to farmers, the warehouse guarantees the farmer the delivery of the goods stored in the premises of the warehouse while the warehouse receipts can be pledged in transactions which are financial in nature in order to generate loans for the financing of cost of storage. The current study tries to assess the nature of storage facilities of commodities in a few major countries as well as prominent global commodity exchanges to explore the status of warehousing and the future requirement of storage facilities in India with special reference to grain warehousing, since warehousing is necessary for agricultural commodities which are perishable in nature. As futures markets for commodities grow in their importance, there is a need for augmenting and strengthening the warehousing and delivery system in order to make the Indian commodity market more efficient. The paper also reviews the experience of warehouse receipt financing in developed and developing countries.

1. Introduction

Warehouses are closely linked to commodity futures exchanges and form an important component of the process of price formation of commodities. A well functioning warehousing and delivery system adds efficiency to the commodity exchange. The commitment to delivery of the commodities in a futures contract more often than not ensures that the commodity futures price converge with the commodity spot price at the time of maturity of the contract. The physical delivery of the contract could be taken care of by the commodity exchange or may be outsourced to external agencies accredited by authorities. The warehouses are expected to maintain certain standards of the storage of commodities. Warehouses issue warehouse receipts to the user (say farmer), which guarantees the user the delivery of the goods stored in the premises of the warehouse. Warehouse receipts can be pledged in transactions which are financial in nature in order to generate loans for the financing of cost of storage.

The current study tries to assess the nature of storage facilities of commodities in a few major countries as well as prominent global commodity exchanges. The current study also discusses the status of warehousing and the future of storage facilities in India with special reference to grain warehousing since warehousing is necessary for agricultural commodities which are perishable in nature. As futures markets for commodities grow in their importance, there is a need for adaptation of warehousing and delivery system within the market. The paper also reviews the experience of warehouse receipt financing in developed and developing countries.

2. Status of Storage Facilities — International Experience

Warehousing is able to provide critical logical support to the commodity exchanges as well as to the agricultural marketing departments. Warehousing facilities are provided in some countries by the government through public sector units like in India, whereas in some countries it is a private sector initiative, for instance 'on farm grain facilities' provided in the United States of America. The storage facilities could be borrowed or owned by a commodity exchange or in the form of a public private partnership initiative.

In the United States of America, the storage of grains takes place both at 'on farm grain storage facilities' as well as 'off farm grain storage facilities'. As per the definition of National Agricultural Statistics Service (NASS) of United States Department of Agriculture (USDA), 'on farm grain storage' capacity includes cribs, sheds, bins, as well as structures which are located in the premises of the farm which are used to store whole grains, pulses and oilseeds. Similarly, in the 'off farm grain storage' capacity facilities include elevators, warehouses, terminals, merchant mills, oil seed crushers and other facilities that store commodities including whole grains, soybeans, canola, mustard seed, flax seed, safflower, Austrian winter peas, dry edible peas, chickpeas/garbanzo beans, sun flower, rapeseed, and lentils. The off grain storage facilities exclude facilities that can store only rice or peanuts, oil seed crushers which process cottonseed or peanuts, tobacco warehouses, seed warehouses, dry edible beans (other than chickpeas/

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garbanzo). Table 1 depicts the capacity of storage facilities at 'on farm grain storage' facilities and number and capacity of 'off farm grain storage' facilities for the last four years (2010-2013). Over the span of time from 2010 to 2013, the on farm storage capacity has increased by 4% whereas the off farm storage capacity rose by 7.07%. In 2013, the largest rise in off farm storage capacity took place in North Dakota followed by Nebraska and Kansas. Even though, the capacity of off farm storage facilities (in million bushels) increased from 2012 to 2013, it is observed that there was a minor fall in the number of storage facilities from 2012 to 2013, with largest number of facilities in Iowa. The grain storage facility in United States of America has been estimated to be about 20% greater than the total annual production of the country.

TABLE 1. FARM STORAGE CAPACITY OF USA
(AS ON DECEMBER 31 OF EACH YEAR)

On Farm Storage	Capacity in million bushels			
	2010	2011	2012	2013
Capacity of US (Excludes Alaska and Hawaii)	12,535	12,775	12,940	13,010

Off Farm Storage	Capacity in million bushels			
	2010	2011	2012	2013
Capacity of US (Excludes Alaska and Hawaii)	9741	10,113	10,289	10,430
	Number of Facilities			
	8991	8899	8801	8783

Source: Grain Stocks, National Agricultural Statistics Service, USDA (various issues)

The combined total on farm storage and bulk handling storage capacity (623 sites) of Australia in 2013 has been estimated to be 70 million metric tonnes, which is equal to twice the average grain production of the country. Whereas, China possesses grain storage capacity to be approximately 150 million tonnes. Brazil also has a storage capacity of 145 million tonnes, but it falls short by 80 million tonnes of grain storage. (FAO, 2012) in their report on The Grain Chain — Food Security and Managing Wheat Imports in Arab countries give a detailed account of the existing as well as planned storage facilities of wheat in the Arab countries.

Figure 1. Wheat Storage Capacity in the Arab Countries

Space for diagram

Source: FAO Report (2012)

Figure 1 gives the wheat storage capacity in the Arab countries (existing and planned) in terms of months of consumption. Oman planned a storage capacity of 11 months of consumption whereas it already possesses storage capacity that can store wheat worth 6 months of consumption. On the contrary, countries including Yemen, Lebanon, and Egypt lag behind with low level of existing and planned storage capacity to store wheat.

In the United States of America, the storage facilities of Natural Gas are approximately 400 in number and form an integral role in both supply and demand in the natural

gas market. Statistics revealed by The China Chamber of Commerce Oil Distribution Committee suggest that 247 private companies are involved in the Petroleum storage business and have a petroleum storage capacity of 230 million tonnes.

The London Metal Exchange (LME) which is a successful global commodity exchange has a widespread network of warehouses across various countries. In all, LME has 4337 sponsored warehouses. At the end of 2011, LME had catered to storage of more than 11% of the global annual production of Aluminum. Table 2 shows the

network of LME's warehouses across the globe. It can be seen from the Table that Netherlands possesses the maximum number of warehouses (1016 warehouses) with

193 warehouses that have a capacity to store all metals. Netherlands, is followed by USA which has 834 warehouses.

TABLE 2: LME'S NETWORK OF WAREHOUSES

	Aluminum	Copper	Zinc	Lead	Tin	Nickel	Cobalt1	Cobalt2	Steel	All metals
Belgium	32	32	32	32	27	27	3	-	12	44
Germany	18	15	18	18	14	14	-	-	-	18
Italy	38	28	38	38	26	34	-	-	2	40
Japan	6		-	-	-	-	-	-	-	6
Korea (South)	58	58	-	-	42	58		-	5	63
Malaysia	52	52	52	52	24	49	-	-	11	63
Netherlands	177	177	177	174	142	145	6	2	16	193
Singapore	54	54	54	54	50	50	3	3	-	54
Spain	20	20	20	20	20	20	-	-	2	22
Sweden	8	7	7	7	-	2	-	-	-	8
Turkey	-		-	-	-	-	-	-	9	9
UAE	-	8	8	8	-	8	-	-	4	11
UK	37	31	37	37	33	33	-	-	-	37
USA	160	116	159	160	84	141	2	1	11	174
Total	660	598	602	600	462	581	14	6	72	742

Source. Valiante (2013)

The Chinese commodity futures exchange, Shanghai Futures Exchange has warehouses for a number of commodities with warehouses for aluminum located in Shanghai, Guangdong, Jiangsu and Zhejiang. As of March 2014, SHFE had warehouses with a combined capacity to store as much as 1.13 million MT of copper cathode (Platts, 2014).

3. Status and Future Requirement of Warehousing in India

Warehousing in India has evolved gradually from traditional "godowns" to evolved solutions of warehouse management systems into modern warehouses with latest storage and handling facilities. The Indian warehousing industry is in a deplorable condition and suffers severely from deficiency of physical infrastructure. In many of the existing warehouses, there is a lack of standards of maintenance by the authorities. Warehouses in India can be categorized into four types which include — Industrial/Retail warehouses, Agricultural warehouses, Container Freight Stations/Inland Container Depots and Cold storage warehouses.

Most of the commodity futures exchanges in India take physical delivery through a network of accredited warehouses. In the month of July 2013, NCDEX had 594 accredited warehouses through eight warehouse service providers with a total storage capacity of 1.5 million tonnes. As of December 2010, MCX had 57 exchange designated warehouses in 22 locations in order to support the physical delivery of commodities traded on the exchange. The National Bulk Handling Corporation Limited (a company that provides commodity and collateral management services) is involved in the provision of warehousing services and the delivery of futures contracts traded on MCX.

3.1 Status of Warehousing in India

The organisations involved in the warehousing sector in India are largely government run including Central Warehousing Corporation (CWC), State Warehousing Corporation (SWC) and Food Corporation of India (FCI) among others. The Warehouse Development Regulatory Authority (WDRA), an organisation under the Department of Food and Public Distribution, is looks after the

regulation of warehouses and promotes the Indian warehousing industry.

As of March 2013, the Central Warehousing Corporation had 469 warehouses across the country with a capacity of 10.8 Million Metric Tonnes and provides storage facilities to agricultural as well non agricultural products. Some of the warehouses provided by CWC are custom bonded warehouses (61 such warehouses with 0.342 Million MT as of March 31, 2013), Container

Freight Station (CFSs), Inland Container Depot (ICD) (36 CFCs and ICDs with 1.532 Million Metric Tonnes as of March 31, 2013), Air Cargo Complexes (3 complexes with 5961MT as of March 31, 2013). Table 3 presents the storage capacity of CWC warehouses from the year 2007-08 to 2012-13. It is evident from Table 3 that over the span of five years, the performance has improved by approximately 9.35% in terms of both operating capacity and owned capacity.

TABLE 3: PERFORMANCE OF CWC DURING THE PERIOD FROM 2007-08 TO 2012-13

	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
Operating capacity (Million MT)	9.878	10.525	10.598	10.247	10.085	10.802
Owned capacity (Million MT)	6.763	6.760	6.846	6.985	7.181	7.395

Source: CWC Annual Reports

Table 4 gives the break up of the utilization of commodities in the CWC warehouses. Out of the warehouses ran by CWC, 5.675 Million Metric Tonnes (41%) was utilised for storage of food grains, 0.312

Million Metric Tonnes (4%) utilised for fertilizers, while other commodities utilised 3.504 Million Metric Tonnes as of March 31, 2013.

TABLE 4. COMMODITY-WISE UTILISATION OF CWC WAREHOUSES FROM 2007-08 TO 2012-13

(in percentage terms)	As on March 31st, 2008	As on March 31st, 2009	As on March 31st, 2010	As on March 31st, 2011	As on March 31st, 2012	As on March 31st, 2013
Foodgrains	38%	45%	49%	54%	57%	41%
Fertilisers	5%	3%	2%	2%	3%	4%
Others	57%	52%	49%	44%	40%	55%

Source: CWC Annual Reports

The Central Warehousing Corporation owns 50 per cent of equity in seventeen State Warehousing Corporations (SWCs); the remaining equity is contributed by the respective state governments of the state. Seventeen of these SWCs were able to operate a network of 1659 warehouses with a capacity of 25.093 Million Metric Tonnes as on March 31, 2013. Table 5 describes the

performance of State Warehousing Corporations for the year 2007-08 to 2012-13. A rising trend can be observed from the Table below as the performance of State Warehousing Corporation has shown a remarkable improvement of 34% over the period from 2007-08 to 2012-13.

TABLE 5: PERFORMANCE OF SWC DURING THE PERIOD FROM 2007-08 TO 2012-13

	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
Storage capacity (Million Metric Tonnes)	18.732	19.682	20.926	21.127	23.461	25.093

Source: CAG (2013) and CWC Annual Reports

Table 6 illustrates the capacity of the seventeen warehouses as on March 31, 2013. From Table 6, it can be noted that Madhya Pradesh, Punjab and Uttar Pradesh are leading in terms of total capacity whereas the states unable to perform in terms of storage capacities include Meghalaya, Kerala and Gujarat.

TABLE 6: POSITION OF SWCs AS ON MARCH 31, 2013

Sl. No.	Name of SWC	No of Centers	Total capacity (in Million MTs)
1	2	3	4
1.	Andhra Pradesh	159	2.615
2.	Assam	44	0.248
3.	Bihar	38	0.284
4.	Chhatisgarh	123	1.175
5.	Gujarat	45	0.148
6.	Haryana	109	1.874
7.	Karnataka	125	1.068
8.	Kerala	57	0.204
9.	Madhya Pradesh WLC	275	4.403

1	2	3	4
10.	Maharashtra	176	1.358
11.	Meghalaya	6	0.0014
12.	Odisha	61	0.476
13.	Punjab	115	6.246
14.	Rajasthan	90	0.852
15.	Tamil Nadu	57	0.645
16.	Uttar Pradesh	149	3.267
17.	West Bengal	30	0.216

Source: Ministry of Agriculture. Government of India

The Food Corporation of India, a public sector enterprise under the Department of Food & Public Distribution, Ministry of Consumer Affairs, Food & Public Distribution, is responsible for the provisioning of storage services of the food grains procured by them. It has a network of storage depots (depots consist of silos, godowns, covered and plinth storage facilities) located across India. The storage capacity with FCI is described in Table 7 for the period from 2008 to 2013. Over time, there has been a rise in total operating capacity of FCI from 23.89 Million MT to as much as 37.73 Million MT indicating a growth of 57.93%.

TABLE 7: PERFORMANCE OF FCI DURING THE PERIOD FROM 2007-08 TO 2012-13

	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
Total Operating capacity (Million MT)	23.89	25.28	28.84	31.61	33.60	37.73

Source: FCI Annual Report

3.2 Requirement of Storage Capacity in the Future

Studies have revealed that there exists a gap between the procurement by the Central Pool and the storage capacity with FCI. Apart from lack of storage capacity, the existing facilities lack scientific facilities, optimal size, optimal design and inventory management leading to loss of food

grains. Table 8 explains the worsening situation of storage capacity with FCI from 2008 onwards. The gap has been seen to reduce from 33.19 MMT to 20.65 MMT from 2012 to 2013, which could be attributed to not just a rise in total storage capacity with FCI but a decline in food grain stock in the central pool.

TABLE 8: GAP IN STORAGE CAPACITY WITH FCI (AS ON 1ST JUNE OF THE YEAR)

Year	Food grain Stock in the Central Pool (MMT)	Food grains procured by decentralised procurement states (MMT)	Food grains procured in central pool minus food grains procured by decentralised procurement states (MMT)	Total storage capacity available with FCI (MMT)	Gap in storage capacity with FCI (MMT)
1	2	3	4	5	6
2008	36.37	6.48	29.89	23.89	5.95

TABLE 8: GAP IN STORAGE CAPACITY WITH FCI (AS ON 1ST JUNE OF THE YEAR)—COND.T.

1	2	3	4	5	6
2009	54.83	12.83	41.99	25.28	16.72
2010	60.88	14.01	46.87	28.84	18.04
2011	65.60	11.46	54.14	31.61	22.53
2012	82.41	15.62	66.79	33.60	33.19
2013	77.74	19.15	58.58	37.73	20.65

Source: CAG (2013) and FCI Annual Report.

It has been observed that the gap in storage capacity with FCI has been widening rapidly with time and thus the capacity is largely found to be inadequate. Even if the total storage capacities with FCI, SWC and CWC had been used for storage of procured food grains, the storage capacity would fall short of the requirement. The lack of storage leads to the wastage of food grains indicating that it is necessary to expand warehousing facilities and delivery system in the country. It has also been felt that there are insufficient warehouses for commodities other than rice and wheat in India. The Working Group on Warehousing Development and Regulation of Planning Commission had recommended that the country requires an additional warehousing capacity of 35 MMT during the twelfth plan period (2012-17) for the storage of major food crops. With the recently announced National Food Security Bill as well shortage in warehouses, it is imperative to invest in grain storage facilities in India.

3.3 Government Run Programmes in India to Increase Storage Capacity

In June, 2000 the government approved the **National Policy on Bulk Handling, Storage & Transportation of foodgrains** in order to create integrated bulk handling and transportation facilities at identified locations in procuring and consuming areas in partnership with private parties through Build Own Operate (BOO) system. A storage capacity of 5.5 lakh MT was created *Via* BOO with location of warehouses in Moga, Chennai, Coimbatore, Bangalore, Kaithal, Navi Mumbai and Hooghly.

Another scheme that was launched in 2001 is **Gramin Bhandaran Vojana** for construction or renovation of rural godowns. As part of the scheme, a certain percentage of project cost is provided for the construction or renovation of rural godowns. A scheme introduced in 2008, **Private Entrepreneurs Godown (PEG)** 2008 scheme has been launched to meet the increasing requirement of storage facilities for food grains through the participation from private players. By February, 2014 it was reported that, a total capacity of 203.76 lakh MT had been approved for construction across 19 states through private participation as well as CWC and SWCs. Under the same scheme, a storage capacity of 20 lakh MT is being created in the

form of modern silos under the Public Private Partnership mode.

A fiscal incentive allowed by the **government- under Section 35-AD of the Income Tax Act 1961**, the government allows a deduction for expenditure incurred on setting up a warehouse facility for storing agricultural production or setting up a cold chain facility to the extent of 150% on the condition that the taxpayer had started the business on or after April 1, 2012.

Another initiative taken up by the government is through the Scheme for financing warehouse infrastructure under **Rural Infrastructure Development Fund**. In spite of the existing government policies in place it has been felt that there is an urgent need for upgradation of manuals which include details about arrangement of goods in the warehouse, laboratory facilities etc. The country requires the setting up of warehouse zones in the country.

4. Role of Warehousing Receipt Financing in Commodity Exchanges

The Government of India established the Warehousing Development and Regulatory Authority (WDRA) in October, 2010 and made WDRA responsible for the development and regulation of warehouses.

As discussed by Pancholi (2013), the recent National Spot Exchange Limited (NSEL) Crisis which came to light in July, 2013 wherein the National Spot Exchange Limited had allowed trading of long forward contracts (with expiry ranging from 30 to 40 days instead of permitted one day spot contracts to spot exchanges) on the basis of Warehouse Receipts, without actually checking whether the commodities were stored in their physical form in the seventeen warehouses across India. The commodities on which contracts were available included steel, paddy, sugar etc. This scam led to a loss amounting to ₹ 5,574.13 crores as NSEL was not in a position to honour the contracts, thus leading to the NSEL debacle. Keeping this crisis in mind, the Forward Market Commission (FMC) has made it imperative for commodity exchanges to ensure that all warehouses accredited by commodity exchanges are registered with the Warehousing Development and Regulatory Authority (WDRA).

A 2005 report by RBI (2005) entitled Report of the Working Group on Warehouse Receipts and Commodity Futures suggested that warehouse receipts be made freely transferrable in order to reduce transaction charges as well as lead to an increased usage of the receipts. The warehouses registered under the Warehousing Development and Regulation Act (2007) are allowed to issue Negotiable Warehouse Receipts (NWRs) which help farmers to apply for loans through banks against the NWRs. This process of using warehouse receipts for financing is called Warehouse Receipt Financing. Warehouse receipts can be transferred between members of the trade through endorsement. Some of the advantages of NWRs include — higher liquidity in the hands of the farmers in rural areas, encouragement of employing scientific techniques in a warehouse, and lower cost of financing loans for banks. Mor and Fernandes (2009) discuss the merits and demerits of warehouse receipt financing for small farmers in India.

In India, the loans given to farmers against NWRs which are issued by the warehouses registered under WDRA are considered to be a part of priority sector lending by the banks. Targets for such loans backed by NWRs may be prescribed by the Boards of Public Sector banks and the Reserve Bank of India has laid out guidelines for financing against these NWRs. These guidelines can be seen in Table 9.

TABLE 9: WAREHOUSE RECEIPT FINANCING AND RBI GUIDELINES

Priority Sector Lending	Loans of upto ₹ 50 Lakhs against warehouse receipts for a period of less than 12 months, whether or not the farmer was given crop loans for the agricultural produce
	Loans for construction and running of storage facilities including warehouses, godowns, silos and cold storage units

Source: RBI.

Even though warehouse financing has been in existence for a number of years in India, it has been found that it is the large and medium farmers have benefited more from this source of finance in comparison to the number of small and marginal farmers.

Warehousing system and commodity exchanges have been active in a number of countries of the world. But it is only recently that warehouse receipt financing has been introduced by warehouses, commodity exchanges and financial institutions as a source of finance. International experience in warehouse receipt financing indicates that

it is beneficial to both the parties — the farmer as well as the financing agency.

The United States of America has a warehouse receipt financing system governed by the US Warehousing Act of 1916 with amendments. The system in the US has been enhanced by the inclusion of Performance Guarantees which are usually posted as insurance bonds and sometimes the insurance bonds are supplemented with an indemnity fund.

Bolsa Mercantil De Colom (BMC) which operates as the national commodity exchange of Colombia, introduced the repo trading to provide a source of funding. The commodities include coffee, rice, wood, potassium, coal, palm oil etc., these are stored in warehouses (private or public warehouses) where a collateral manager takes charge over the warehouse. The warehouse operator issues warehouse receipts to the depositor who transfers the receipts to an exchange broker. While the exchange broker sells the warrant and simultaneously enters into a repo contract committing to buy the warrant back at a point in time in future at a pre decided price. The sum paid by the bidder of the contract is channeled to the depositor of goods to the warehouse, thereby reducing risk involved in the transaction.

The Bratislava Commodity Exchange in Slovakia also permits the trading of warehouse warrants for agricultural products. In Turkey, a number of banks own warehousing subsidiaries, with many of the warehouses concentrated near ports. The banks provide warehouse receipt financing on the basis of receipts stored in their warehouses.

A study on the status of warehouse receipt financing in Eastern Europe and Central Asia region carried out by Hollinger et al (2009) found that an advanced warehouse receipt financing system with proper legal framework was in place in Bulgaria, Kazakhstan, Hungary, Moldova and Lithuania. Whereas a few countries had a partially developed warehouse receipt system which included Poland. The Russian Federation, Ukraine, Romania, Serbia and Croatia. These countries did not possess a proper institutional framework for the licensing as well as framework of inspection of public warehouses.

5. Concluding Remarks

Warehousing is able to provide critical support to the commodity exchanges as well as to the agricultural marketing departments. The commitment to delivery of the commodities in a futures contract more often than not ensures that the commodity futures price converge with the commodity spot price at the time of maturity of the contract. Thus, a well-functioning warehousing and delivery system adds efficiency to the commodity exchange. The physical delivery of the contract could be taken care of by the commodity exchange or may be outsourced to external agencies accredited by authorities.

The warehouses are expected to maintain certain standards of the storage of commodities.

Warehousing facilities are provided in some countries by the government through public sector units whereas in some countries it is a private sector initiative. The storage facilities could be borrowed or owned by a commodity exchange or in the form of a public private partnership initiative.

It is observed that the storage facilities in developed countries is much more than the production whereas within a year India is currently able to cater storage facility to only 37.73 MMT of food grains, while it produces 77.74 MMT, leaving a gap of 20.65 MMT in the year 2012-13. The Working Group on Warehousing Development and Regulation (2010) of Planning Commission had recommended that the country requires an additional warehousing capacity of 35 MMT during the twelfth plan period (2012-17) for the storage of major food grains. The country requires the setting up of warehouse zones in the country in order to expand the storage facilities. With the loss of about ₹ 5600 crore due to NSEL crisis (July 2013), the Forward Market Commission has made it mandatory for commodity exchanges to ensure that all warehouses accredited by commodity exchanges are registered by the Warehousing Development and Regulatory Authority. This initiative is likely to save market participants from facing another crisis of this nature.

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Rythu Bazars (Farmers' Markets) — an Innovative Direct Marketing Model to Benefit Small and Marginal Farmers

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Abstract

Since 1987, there had been a spurt in the number of farmers markets (Rythu Bazars) in the country, exclusively for the benefit of the small and marginal farmers (SMF) growing fruits and vegetables. These markets have several advantages both to the farmer-sellers and consumers. These markets by generating daily incomes are significantly aiding to strengthen the farm economy of SMF, promote national food security, inclusive growth, crop diversification, development of farm infrastructure, rural employment and investment in education. The present study quantifies the socio-economic gains of the farmer-sellers participating in the farmers' markets in Hyderabad city. The paper concludes that the expansion of the network of farmers' markets, by effectively linking them with the supply and demand pockets benefit the SMF growing fruit and vegetables in the vicinity of urban and semi-urban areas and have a long and sustained impact on the overall agriculture and rural development in the country.

Introduction

Farmers market known as Rythu Bazar (RB) in Telangana and Andhra Pradesh (AP) is a novel and direct marketing model, designed to sell on a daily basis, fresh fruits and vegetables to the urban consumers, exclusively by the small and marginal farmers (SMF) coming from the hinterland villages. The model was initiated by the Punjab State Marketing Board (PSMB), in 1987 where SMF were growing vegetables close to Chandigarh city and sell their produce directly to the consumers in different residential locations (sectors) of the city. This model was adopted by the Haryana state in 1999, by opening a farmers' market in Panchkula. As is well known, these markets are devoid of middlemen and other marketing costs where the sellers do the loading and unloading of vegetables themselves and directly sell the vegetables to the consumers. Basic amenities like water, selling platforms, sanitation, security etc. are provided free of cost by the State Marketing Authorities (SMA) in these markets. Unit price of different

vegetables sold in the Rythu Bazars (RBs), are fixed by the SMA on daily basis with reference to the local wholesale market (regulated market) price. Thus, the consumers get fresh vegetables on par with the price prevailing in the local wholesale market. The model has been successful as the farmer-sellers get remunerative price for their produce and the buyers pay the wholesale price at retail point for farm fresh vegetables. With the result, both farmers and consumers are equally interested in participating in these markets. With the assured and remunerative returns, farmers over the years have remarkably improved their life style. Network of farmers markets' under different names are now spread not only in Punjab, but also in Haryana, Rajasthan, Madhya Pradesh, Tamil Nadu, Karnataka and Odisha, besides Telangana and AP.

Relevance to Food Security

The basic concept of National Food Security Scheme (NFS) is to make available adequate quantity of quality food to the people. In this context, RBs have a significant role to play. In the context of implementing the gigantic NFS Scheme, the country is going to incur a heavy subsidy burden. The food grains requirement of NFS is around 54.9 million tonnes. Through other welfare schemes, about 6.5 million tonnes of food grains are distributed. The subsidy burden to the Government on FS is around ₹ 1.3 lakh crore per year which is about 1.3 per cent of Gross Domestic Product (GDP) at current prices. Bhalla (2013) estimated that the cost of NFS is around ₹ 3 lakh crores, while Gulati et.al. (2012) estimated it at ₹ 2.31 lakh crores. The subsidy burden to the Government of India (GoI) due to NFS is around ₹ 1.6 lakh crores. These estimates warrant that the country needs to focus on the increased production of food grains by way of increasing productivity and enhancing area under irrigation. The farmers of RBs are found to be investing their savings in creating additional irrigation facilities congenial for the production of food grains. Farmers of RBs are found to be using the necessary

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farm inputs on time, which contributes for higher production.

In order to reduce the subsidy cost of NFS, it is necessary to reduce the number of dependent households on the FS scheme. This is possible by enhancing the economic gains to the poor farmers to enable them to drop out of NFS in course of time. Thus, the RBs can reduce the dependence or the SMF on the NFS.

Significance of Farmers' Markets

The RBs were started in the erstwhile AP state on January 6th, 1999. RBs are important for the AP and Telangana states which produce annually more than 50 million tonnes of vegetables in 5 lakh hectares (Rao, 2008). Organised development of the RBs will have a great impact on the production and productivity of vegetables (Rao, 1999). The survey conducted by Durga (1999) for 12 vegetables in Visakhapatnam RBs show that the price benefit to the consumer ranges per quintal from ₹ 16.75 (Ginger) to ₹ 90.96 (cabbage) when compared with the local wholesale market (Poorna Market). The producers' share in the consumer rupee ranges from 36.76 per cent (Cabbage) to 70.89 per cent (Potatoes). The study by Reddy and Meena (2011) in 8 RBs in AP reveals that farmers participating in the RBs belong to SMF category, earning an average profit of ₹ 122 per qtl. They observed that the share of producer in the consumer rupee in these markets is up to 85 per cent while it is only 60 per cent in the local wholesale markets. Malik and Chamola (1998) observed that the producers' share in consumer rupee in Panchkula market in Haryana is up to 97 per cent. However, it is only 40 per cent in the case of the RB of Srikakulam (Reddy and Raju, 2000). Being a direct marketing model, the share of producer in the consumer rupee will be very high, indicating the efficiency of marketing, as indicated in the case of 12 vegetables traded in the RB of Guntur town of AP. The vegetable prices at the Guntur RB were consistently low when compared with the local retail markets (Mariadas and N. Krishna Mohan, 2012). A study

by Bhaskar (2000) also found that the RBs in Anantapur in AP were beneficial both to the farmer-sellers and the consumers. Wilson (1999) found that the RBs were a source of good employment for the participating farmers. The prices of vegetables in RBs were found attractive to the consumers (Eswara Prasad et al., 1999). Impact of RBs on urban consumers was studied by Krishna Veni (2009 and 2000) and they found them to be beneficial.

Selection of RBs

Presently there are 107 RBs in AP and Telangana. There exist 3 RBs in Hyderabad and 6 RBs in Ranga Reddy District. The RBs in Hyderabad are at Erragada, Falaknama and Mehdipatnam, while the ones in Ranga Reddy are at Kukatpally, Saroornagar, Alwal, Qutubullapur, Vanasthalipuram, and Ramakrishnapuram. Out of these 9 RBs, this random survey has been done at two in Hyderabad (Erragada and Mehdipatnam) and 3 in Ranga Reddy districts (Kukatpally, Alwal and Vanasthalipuram).

Methodology

The present study aims at the quantification of economic and social benefits accruing to the farmer-sellers from the SMF category, participating in the selected RBs in the twin cities of Hyderabad/Secunderabad and Ranga Reddy district in March, 2014. This study is based on the survey method. Data have been collected from both primary and secondary sources. For collecting primary data, a random sample of 65 farmers (13 farmers in each RB) were interviewed to elicit the desired information through a structured questionnaire was administered among the farmers to collect primary data. Secondary data have been collected from journals, reports and through informal discussion with officials of the department concerned. In these five markets a total of 11,689 farmers from 621 villages were identified and given Identity Cards (IC) to sell the farm produce. However, on an average, only 266 SMF were found to be the active participants (Table. I).

TABLE: LOCATION, VILLAGES COVERED AND AVERAGE NO. OF SELLERS/BUYERS VISITING RYTHU BAZARS

Rythu Bazar	Mandal	District	No. of Villages Covered	No. of Farmers Identified	Avg. No. of Farmer Sellers per day	Avg. No. of Consumers per day
Erragadda	Khairathabad	Hyderabad	333	8200	250	2000
Mehdipatnam	Asifnagar	Hyderabad	64	2000	300	1500
Kukatpally	Balanagar	Ranga Reddy	96	801	400	2200
Aiwal	Alwal	Ranga Reddy	78	320	770	2300
Vanasthalipuram	Hayathnagar	Ranga Reddy	50	368	160	5000
Total			621	11689	266	2600

Source: Field Survey & Rythu & lair Records, Directorate of Marketing, Hyderabad.

Economic gains to the farmers were calculated by valuing the movable and immovable assets acquired by them during the course of their participation in RBs. Similarly, social benefits gained by the farmers were calculated on the basis of their investments in social factors. The parameters considered for the socio-economic benefits of the farmers are:

I. Investment in Agriculture:

- Value of land purchased/developed
- Value of farm infrastructure developed *Viz.*, storage/pandal for creeper vegetable, digging/repairing of borewells and micro-irrigation (drip and sprinkler), etc.
- Farm investment (purchasing of agril. inputs)

II. Investment in Household activities:

- Value of house constructed/repaired
- Cost of marriage performed
- Cost of education to children

Survey Results

Majority of the farmers bringing vegetables on a daily basis to the RBs, are those who exclusively grow vegetables and their economy is largely dependent on the RBs. At the outset, it should be noted that participation of farmers in RBs is dwindling mainly due to the limited time available to them to sit in the RBs whole day and also due to the distance from their villages. Many farmers sell their produce in bulk in the local wholesale market in the morning hours and get back to their farming work in the evening. Some farmers with small quantity of produce prefer to sell to the other farmers who collect the produce and bring it to the RBs. Thus, some of the experienced farmers have become itinerant merchants/commission agents. These factors are responsible for the reduction in the number of farmer-sellers coming to the RBs.

The following feed back was received from the sample farmers which indicates the socio-economic empowerment they attained during the period of their participation in the RBs:

1. Most of the farmers are marginal and small with 2 to 4 acres of land;

2. Almost all the farmers bring their vegetables well packed (in crates/cartons) and are happy to sell in the RBs rather than in the wholesale markets;
3. All farmers have benefited from the RBs and improved their life style;
4. The price gains were productively utilized by the farm households;
5. Most of the farmers are the members of Self-Help Groups (SHGs) and depend only on institutional sources of credit;
6. Many farmers save money to generate immovable assets (land/house);
7. Many, farmers have converted their dry lands into irrigated lands by digging bore wells;
8. All farmers have diversified and grow multiple crops/vegetables;
9. The savings were utilized for educating their children; and
10. None of the farmers has debt burden.

It may be noted that the benefits got by the farmers are not exclusively because of their participation in RBs. Some of the farmers are growing other cereal crops as well and the aforementioned benefits could be partly due to that fact. Nevertheless, they all expressed the view that the RBs are contributing to their economic advancement in a big way. They are happy about the remunerative prices received in the RBs. They use the income generated in the process to meet their family expenditure, purchase agricultural inputs, clear the farm/SHGs loans, save and invest in agricultural infrastructure, vehicles, houses, improving irrigation facilities and educating their children etc.

Table 2 provides details relating to the channels into which the farmer's net return from participation in RBs over the years went in Hyderabad city. The figures are the averages per farmer. From the distribution of the net return it is clear that most of it, about 61 per cent is used by the farmers for educating their children. Farmers are using 12 per cent of their net return for repayment of loans. Land development accounts for 10 per cent of the return. Other channels into which the returns went were 'investment in movable property' (8%), 'family expenditure' (6%) and 'investment in immovable property' (3%).

TABLE 2: MARKET-WISE AVERAGE GAINS BY THE FARMER-SELLERS OF THE SELECTED RYTHU BAZARS
(*expenditure/investment in %*)

S. No	Name of the RB	Investment in land development	Expenditure for education	Investment in Immovable property@	Investment in movable property	Spent on family expenditure	Amount of Loan repaid *	All
1	2	3	4	5	6	7	8	9
1	Erragadda	62727 (21)	45000 (15)	40556 (13)	45000 (15)	80000 (26)	30000 (10)	303283 (100)

1	2	3	4	5	6	7	8	9
2	Mehdipatnam	241667 (14)	33714 (2)	1156000 (68)	60000 (4)	81000 (5)	125000 (7)	1697381 (100)
3	Kukatpally	85000 (6)	40250 (3)	1126667 (76)	—	76250 (5)	152500 (10)	1480667 (100)
4	Alwal	212167 (25)	83600 (10)	343333 (41)	—	92333 (11)	100833 (12)	832266 (100)
5	Vanasthalipuram	171666 (8)	422000 (20)	1275000 (60)	75000 (4)	76500 (4)	96667 (5)	2116833 (100)
Average		1,24,913 (10)	7,88,311 (61)	36,000 (3)	1,01,000 (8)	81,217 (6)	1,54,645 (12)	12,86,086 (100)

Source: Field Survey; @ land/house purchased or repaired; *repayment on present loans

NOTE: Figures in the parenthesis indicate the per cent to total amount spent/investment/expenditure

Impact of Income Received on Expenditure and Consumption of Households

Literature indicates that higher the income, better the food habits. The same is found to have happened to the farmer-sellers of RBs in Hyderabad. It is found during the course of the survey that with the increased income, farmers of RBs increased their spending on nutritive foods and reduced the consumption of cereals. It is revealed that the increased income of the households has a direct impact on the consumption of high value foods such as milk, butter, meat, sugar etc. Data also confirm that the increased income on the other hand has a negative impact on the consumption of the cereals by the households.

Relevance to Inclusive Growth

Thus, financial gains to the farmers in RBs, enabled them to build necessary farm infrastructure, enhance productivity, diversify into commercially beneficial crops mostly vegetables, invest in the education of their children, pay back the loans promptly and acquire movable and immovable properties. These growth parameters among the SMF of the RBs are the indicators of inclusive growth. With an assured repaying capacity through the regular income generated through RBs, the farmers are confidently raising crop loans mostly from institutional sources. This is a positive factor which reduces the agrarian distress/farmers' suicides. This also indirectly reduces the non-performing assets (NPAs) in the banking sector.

Concluding Remarks

The survey results confirm the positive effect of RBs on farm income, agricultural growth, social benefits and overall rural development. In this context, the states may embark on a massive expansion of the network of RBs. It may be ideal to have RBs within the reach of producing centers for an effective integration between them. This enables more number of SMF to join the main stream of agricultural and rural development in many ways. Based

on the existing farmers' markets in different parts of the country, a model can be developed nationally. The proposed model may consider the following aspects to effectively integrate the producing centers, farmer-sellers and urban and semi-urban consumers:

- i. In order to encourage more farmers to come to the RBs, a network of RBs should be established in such a way that the farmer-sellers need not travel more than 15 kms. to reach the RB. Similarly, to reduce the travel cost and time to the farmers, the producing centers should be provided with cheaper and convenient transport facilities, exclusively meant for the RB farmers.
- ii. Many farmer sellers are found to be sitting in sun and rain in the sample RBs. The consumers are also exposed to sun and rain. Farmers in the RBs should be provided with covered and clean elevated (3 high) platforms to keep their produce. In between the platforms the space should have water draining mechanism and also leave adequate space for sunlight. This ensures that more farmers and consumers visit the RBs.
- iii. In the sample RBs, it was found that much of the available space is used by sellers other than the identified farmers. The space in RBs should be allotted only to the identified farmer-sellers. In the event of shortage of space, the RBs may have two storied structures, where the upper floor is allotted to the farmers with tuber crops, SHGs and Cooperatives.
- iv. Assured water supply is essential for vegetable markets as their freshness is to be maintained till evening by frequent spraying of water which is more difficult in the summer days. RBs should have adequate water source both for drinking and cleaning the vegetables.
- v. RBs should have uninterrupted electricity supply,

good drainage facilities, parking space and security arrangements. These are lacking in almost all the markets taken up for the present study. In case the space for parking is not available, underground parking facilities may be provided in the RBs. Due to lack of parking facilities, many consumers refrain from visiting them. This is a reason why the retailers buy the produce from the RBs, and sell the same outside the compound wall of the RBs.

- vi. Many farmers are found to be leaving their unsold produce in the open in the RB, by just covering the heaps with a cloth/plastic sheet. This situation compels the farmers to come to the RB next day or sell the unsold produce at throw away prices at the end of the day. In this context, it is suggested that the lower portion of elevated platforms (3 high) should be converted into small cubicles (3X4) with locking facility, so that the farmers can store their unsold produce securely till they come again to the market, may be in 2 to 3 days. The marketing authorities may also earn some revenue by giving these cubicles to the needy farmers for a nominal charge.
- vii. Each RB should have an official administrative body comprising of both sellers and buyers, for redressal of grievances and to monitor the amenities in the markets. The cost of cleaning, security and parking facilities can be shared by the farmer-sellers with a nominal daily contribution to the “maintenance fund.” All RBs should have efficient and uninterrupted garbage management system.
- viii. At present the identification and issuance of the Identity Cards to the deserving SMF to sell vegetables and fruits in the RBs is very cumbersome. This should be made simple and monitored regularly to eliminate the non-performing farmer-members and provide an opportunity to the new members. The average number of permitted farmers should be in accordance with the space available in the RBs.
- ix. The price display for vegetables in RBs is usually kept at one place and generally written on a board with chalk. During the course of the day, these details get wiped out and since it is only at one place, many consumers miss to see them. Therefore, it is ideal to keep at least 4 such display boards, preferably computerized with lighted display.
- x. Each RB should have a public address system to make the necessary announcements.
- xi. None of the RBs under survey has clean and separate toilets for men and women. They should be built with the investment from the private operators and given to them to generate their revenue similar to the *sulabh* complexes.
- xii. In some of the RBs, vehicles enter and get parked inside creating problems for the market users. Motor vehicles/bullock carts/push carts should be strictly prohibited to enter the RBs between 6.00 am to 9.00 pm.
- xiii. Authorities of RBs should periodically check the vegetables, to check if they are sprayed with spurious chemicals, if weights used by the farmer-sellers are proper and if they honour the displayed prices. The membership of the defaulters should be cancelled or fines should be imposed on them.
- xiv. Markets should maintain all relevant data of the market users, commodities, grades, feeder villages, lot sizes, buying behavior of the consumers, peak hours, important days of demand and supply etc. and periodically call for the meetings of the sellers and buyers to get their suggestion to improve the functional and managerial aspects of the RBs. These ensure confidence among all the market users and increase their participation.
- xv. Non-members should not be allowed to sell in RBs.

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AGRO-ECONOMIC RESEARCH

Evaluation of Price Support and Market Intervention Scheme in Rajasthan*

I. Introduction

The Agricultural Price Policy is one of the instruments that has helped farmers and brought about a noticeable change in the production and productivity of the agriculture sector. In view of the distorted and unregulated market conditions prevailing for agricultural produces in India, support prices are very imperative for farmers to get assured income from their crop cultivation. The agricultural price policy is aimed at intervening in agricultural produce markets to influence the level of fluctuations in prices and the price-spread from farm gate to the retail level. The Minimum Price Support Policy (MSP) linked to procurement has served the country well in the past three decades. However, in recent years it has started encountering problems mainly because of surpluses of several agricultural commodities and excessive built up of stocks with FCI. Even deficit states like Bihar, Assam, Eastern U.P. have started generating surpluses of certain cereals. Also, as a result of operation of the pricing Policy, private trade has not been able to play its role particularly in respect of two major cereals, namely wheat and rice that account for over 70 percent of total food grain production in the country. Under the MSP scheme prices of major agricultural commodities are not only exogenously determined but these prices are defended through nodal procurement agencies like FCI.

Agricultural price policy has come under serious attack in recent years for recommending higher support prices than warranted by the cost of production (CoP) and supposed distortion of the market, leading to food deprivation. There is broad recognition that the recent rapid increase in the minimum support prices for rice and wheat was a major contributor to recent problems of mounting buffer stocks. It is also blamed frequently for the spikes in prices of food items that reached their peaks in 2009. The Central agency often incurs loss in their operation of PSS and MIS and the amount of expenditure incurred in the above schemes suggest that Union and State Government spend considerable amount of public money in undertaking the above scheme; yet plight of growers of many of the above commodity continues. The market price of many agricultural commodities continues to rule below the Government announced support price of commodity. The wide gap between price received by producer and price paid by consumer of commodity is another important concern of marketing of agriculture commodities in the

country. In this backdrop, the Department of Economics and Statistics, Department of Agriculture and Cooperation, Ministry of Agriculture, Government of India had proposed state specific studies to evaluate the PSS and MIS, which were assigned to the A ERCs/units located at different states in India. Rajasthan is the second largest gram growing and producing states in India after Madhya Pradesh, accounting for 17.24 percent area and 13.07 percent production of the country in 2011-2012. In case of garlic also, Rajasthan ran, first in terms of area under this crop (24.25 percent) and third in production (19.26 percent) during 2011-2012. Thus, having predominance cultivation of these crops, it would be important to evaluate the PSS and MIS. Therefore, the Agro-Economic Research Centre, Vallabh Vidyanagar was entrusted to conduct the study for the states of Rajasthan covering gram and garlic crop with following specific objectives:

The specific objectives of the study are

- (i) To understand coverage of MIS and PSS across crops and regions.
- (ii) To ascertain factors that influence coverage of crops across regions in Rajasthan.
- (iii) To understand levels and basis of participation of farmers in MIS and PSS of selected crops in Rajasthan.
- (iv) To understand problem of different stakeholders in operation of MIS and PSS of selected crops in Rajasthan.
- (v) To study the effect of MIS and PSS on the market price of selected commodity in Rajasthan
- (vi) To assess efficiency of Central Agencies in operation of MIS and PSS of selected crops in Rajasthan.
- (vii) To suggest policy measures to improve operations of MIS and PSS in Rajasthan.

2. Study Framework

This study has been carried out for Rajasthan state by using primary and secondary level information. After preliminary investigation about the crop-wise and year-wise procurement under MIS/PSS in the State, two crops (one

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crop from each scheme *i.e.* PSS and MIS) were selected. The selected crops were gram (PSS) and garlic (MIS). For each of the above mentioned crop, two districts were selected on the basis of procurement done by the agencies appointed by the Government. In case of gram, Ajmer and Jaisalmer district were selected, as these districts represent extreme market related infrastructure for the crop. In case of garlic, Kota and Baran district were selected. Total 15 farmers were selected randomly from each village cluster so as to make the sample size 30 in each district. Thus,

total 60 farmers in each of the selected crop were selected (Table 1). As the selection of both the crop was done on the basis of procurement carried out by the nodal agencies in Rajasthan during recent past, therefore reference year differs. In case of gram, the data were collected from the beneficiaries for the agriculture year 2010-11 (Rabi 2011) and sold in April 2011 to June 2011. While in case of garlic, data were collected for the agriculture year 2011-12 (Rabi 2012) and sold in June 2012 and July 2012.

TABLE I: SELECTED CROP AND DISTRICTS IN RAJASTHAN

Crop	District	Block/ Market	Main Yard/ Sub- yard	Villages	No. of selected farmers
Gram	Jaisalmer	Nachana and Mohangarh	Sub-yards	Nachana. Mohangarh	30
	Ajmer	Kishangarh Kekadi	KUMS	Tiloniya. Faluda, Kekari. Kaleda. Molakiya. Titariva, Kohada. Mchoda Kala	30 30
Garlic	Kota	Ladpura and Sultanpur	KUMS	Tathed, Brajeshpura. Manasgaon, Sultanpur, Amarpura, Nautada Kherula	30
	Baran	Chipabarod	KUMS	Chipabarod, Tancha, Tanchi, Dholam, Borkhedi, Bherupura Gordhanpura. Setkolu	30

3. Procurement Agencies

A large number of public-sector institutions and cooperative marketing organizations were set up after Independence to improve the market structure, its conduct, and performance, and to help growers realize better returns for their produce. Government interventions in purchase of agricultural commodities under minimum price support programme. procurement of food grains. Market Intervention Scheme (MIS), monopoly purchase. open market purchases of commodities through Food Corporation of India (FCI), Cotton Corporation of India (CCI), Jute Corporation of India (JCI), Central Warehouse Corporation (CWC), National Consumer Cooperative Federation of India (NCCF), National Cooperative Marketing Federation (NAFED), Tobacco Board, and state oilseed federations. etc. have attained importance in recent years. With the intervention in the purchase and distribution of food grains (especially rice and wheat), Government purchase agency (Food Corporation of India) entered as an important market functionary in the trade of cereals.

Cooperatives have also assumed importance in the marketing channel with the encouraged to producers. NAFED and State Oilseed Federations act as a nodal agency for purchase of oilseeds at the Government announced support price. The quantity of commodities purchased by these agencies depended on the objective and target fixed for purchase to fulfill the defined objective.

Rice and Wheat are the two principal commodities where Government's role is most pronounced. Procurement operations for other crops are carried out only when market prices fall below MSP. Whatever stocks which are brought to the purchase centres falling within the specifications fixed by the Govt. of India are purchased at the fixed support price. If the farmers get prices better than the support price from other buyers such as traders / millers etc., the farmers are free to sell their produce to them. FCI and the State Government/its agencies ensure that the farmers are not compelled to sell their produce below support price.

Food Corporation of India

The FCI undertakes the functions of procurement including price support operations, storage, movement/transportation, distribution and sale of food grains and in an economical and efficient manner in order to achieve the objectives of the National Food Policy. Initially, the FCI served only four states in the southern part of the country. Slowly, it extended its services throughout the country. Today, the FCI is the unrivalled food marketing agency serving the interest of the farmers and consumers throughout the country. Financially, it is one of the largest public sector undertakings. Thus, FCI has been essential institutional instrument for implementation of food grains pricing policy.

It has worked as national nodal agency for providing price support to cereals producing farmers, maintenance of buffer stocks and food grains reserves and distribution of food grains to state agencies under the public distribution system. It is observed that there is significant increase in stock of food grains in the central pool over the period of time. Punjab and Haryana are dominant states where large quantity of rice and wheat were procured. Rajasthan accounts relatively better position in terms of wheat procurement during 2011-12 as compared to earlier years.

FCI is functioning in Rajasthan since 01.01.1966 and activities of procurement, storage, preservation of stocks and distribution have been undertaken successfully. In Rajasthan, at present eight FCI district offices are functioning namely Ajmer, Alwar, Bikaner, Jaipur, Jodhpur, Kota, Sriganganagar and Udaipur having their jurisdiction over 33 Revenue Districts. There are 36 FCI own depot, one CAP and 27 hired covered godowns and CAPS. Besides, godowns of CWC and RSWC are also being utilized for storage purpose as and when required. The overall capacity having FCI in Rajasthan region as on 31.12.2010 was around 17.57 lakh mt. which includes the CAP storage capacity of 3.22 lakh mt. Further, acquiring additional capacity, hiring of godowns from CWC/ RSWC and private parties are under progress.

The FCI generally not open procurement centers where the volume of procurement was likely to be uneconomical, *i.e.* less than 500mt. In such areas, other mechanism involving State agencies/other agencies like NAFED and NBHC operates the Centers. However, FCI will operate such centers to give MSP to farmers where State agencies do not operate. The purchase of wheat was undertaken by the FCI during last five years in Rajasthan. The district-wise/FCI district-wise procurement of wheat by FCI in Rajasthan indicates that procurement of wheat by FCI was mostly concentrated in Sriganganagar, Jaipur, Alwar and Kota districts. The cost of food grains is paid by cheque to the farmers by procurement agencies through bearer cheques up to value of Rs. 50000/- and account payee cheque over Rs. 50000/- of the local/nearest branch of the Bank to avoid delay in payment to the farmers. As per existing practice two staff members at every FCI purchase centre, *i.e.* Quality Inspector and pay point In-charge are authorized to sign the cheque facility.

National Agricultural Cooperative Marketing Federation of India Ltd

National Agricultural Cooperative Marketing Federation of India Ltd. (NAFED) is the Nodal Agency for procurement of selected oilseeds and pulses under Price Support Scheme of Government of India. NAFED also undertake the purchase of Cotton on Minimum Support Price for Cotton Corporation of India. NAFED commences the procurement from the farmers directly through its State Level Supporters (SLS) Cooperative network (RAJFED,

Tilam Sangh. KVSS) when the market rates of a particular commodity fall below or touch at MSP. These supports procure stocks from farmers as per prescribed quality/grade specifications through the Primary Cooperative Marketing Societies whereas Oilseeds Growers' Federations shall procure the stocks through their oilseeds growers; cooperative societies/ unions. The funds required for went under PSS are arranged by NAFED as well as by SLS if required. Payment to the farmer for the stock delivered under this scheme is made through account payee cheque (bearer cheque is also issued up to admissible limit). During 2011-2012. NAFED registered a business turnover of ~ 1063.28 crore. Out of this, domestic trade accounted acmmosed for Rs. 1051.76 crore (about 98.92 percent). Over the period of time, quantity of oilseeds procured by the NAFED under PSS has lower down. It indicates the lowering interest of NAFED as well as less need of procurement in the light of market prices always prevailing above MSP. In case of cotton procurement, since 2006-07, no procurement was made by the NAFED under MSP. During the last Rabi 2012 season, the market prices of Fair Average Quality of gram and masur (lentil) rules above the Minimum Support Prices of Rs. 288/- per quintal declared by the Government of India. Hence the procurement of Rabi pulses under PSS during Rabi 2012 season was not necessitated. The operations under MIS for the crops such as onion was undertaken by NAFED at the instance of Government of India when prices crash to unremunerative levels detrimental to the farmers' interest and also for maintaining the buffer stock. The NAFED had procured Onion under MIS in Karnataka (1996-97); Maharashtra (1999-2000) and Rajasthan (2004-05). After 2004-05, no procurement of onion was carried out by NAFED under MIS, NAFED had procured total 41952 mt. of wheat from 55 procurement centers in Rajasthan during 2007-08. Then after no procurement was carried out by the NA FED in Rajasthan.

Cotton Corporation of India (CCI)

CCI as a premier organization in public Sector and engaged in marketing of cotton acts as a role model in the procurement of kapas (seed cotton) through open auction, conducted by the APMCs, in the notified market yards. As and when kapas prices of any variety touch the level of MSP. CCI as a Nodal Agency of Government of India resorts to immediate market intervention and makes purchases of kapas at MSP without any quantitative limits. The MSPs of different varieties are fixed for FAQ grade kapas stipulating ill minimum quality parameters on staple length and mic value. Since total kapas arrivals in the market yards, do not match the prescribed parameters of FAQ grade, Corporation allows purchases of below FAQ grade kapas also by offering prices in commensurate with quality and within the MSP of the variety concerned. This helps the cotton farmers in selling their kapas produce under MSP operations and avoid distress sales. Depending upon the

intensity of these operations. Corporation creates required infrastructure in the form of regular procurement centres as well as satellite centres so that farmers are not compelled to travel long distances for selling their kapas produce. The state-wise operation of CCI indicates that level of cotton procurement at all India level was significantly high during the year 2008-09 as compared any other year reported. Among the states, Andhra Pradesh which is the third largest state in India in terms of area and production of cotton during 2011-2012, is major procurement hub of CCI. In Rajasthan, cotton procurement operations were carried out at Bhilwara and Sriganagar centers.

State Level Procurement Agencies

Rajasthan State Cooperative Marketing Federation

Rajasthan State Cooperative Marketing Federation (RAJFED) is apex state level organization of agricultural marketing cooperatives in Rajasthan. During the year 2011-12, RAJFED registered the business of agriculture commodities to the tune of Rs. 3114.88 lakh. Besides this, RAJFED acted as an agent of FCI in procurement of wheat and bajara (worth of Rs. 116.62 lakh), and for NAFED in procurement of gram and urad (worth of Rs. 1395.31 lakh). The district-wise procurement of wheat and gram by RAJFED in Rajasthan during 2006-07 to 2011-12 shows that wheat procurement by RAJFED has been concentrated in the district of Sriganaganagar, part of Kota and Udaipur. During last two years, wheat procurement was very low or negligible. The market rates were higher than MSP, therefore, no procurement was carried out at most of the places. In case of gram, RAJFED had procured about 6332 metric tonnes from total 123 procurement centers in the state during July 2011, total worth of about Rs. 1330 lakhs.

The garlic procurement by the RAJFED during 2012-13 was confined to two districts, viz. Kota and Jodhpur and three centres therein. Total 3711.50 mt. of garlic was procured by the RAJFED at the price of Rs. 1700/- per quintal. After procurement of garlic from the three procurement centres as mentioned below, RAJFED sold it in outside state market such as Chandigarh, Nainital and Delhi. Due to low market price for garlic and high procurement cost plus marketing cost has put this business under loss. The loss incurred by the RAJFED in garlic procurement was Rs. 21.86 lakh, while State government total loss was to the tune of Rs. 430 lakh.

Rajasthan State Cooperative Oil Seed Growers Federation Limited (Tilam Sangh)

Tilam Sangh is the apex organization in Rajasthan State Cooperative Oil Seed Growers Federation Limited (Tilam Sangh), Rajasthan. The procurement of oilseeds, food grains and other commodities by Tilam Sangh under PSS and MIS during 2005-2012 indicates that Tilam Sangh participated in procurement of oilseed crop, i.e. rapeseed

mustard during 2002, 2005 to 2007. After that, wheat procurement was done by Tilam Sangh heavily.

During 2012. Tilam Sangh had procured about 2570 million tones of garlic from three procurement centers under MIS. The procurement of garlic under MIS was undertaken at the rate of Rs. 1700/- per quintal at Chipabadaud, Zalraparapatan and Keshorayapatan centers. After procurement of garlic from the farmers (on an average total cost procurement was estimated to be Rs. 1817/- per quintal), Tilam Sangh invited quotations towards sale of purchased garlic (with condition to sell produce outside the State). On the basis of highest tender quotation, the produce was sold to the respective party. The price realized by the Tilam Sangh through tender process was around Rs. 7.72 per kg, while procurement cost was Rs. 18.17 per kg. Thus, after deducting total procurement plus incidental charges from sale realization, per kg loss incurred by Tilam Sangh was estimated to be Rs. 10.45/-. The trader who purchased garlic through tender reported that garlic was sold in Madhya Pradesh, Gujarat and South Indian states.

Other Purchase Partners of FCI

The other purchase partners of FCI in the state has not been actively participating or purchased negligible quantity of agricultural commodities from the market during last few years such as (a) Rajasthan State Warehouse Corporation (RSWC); (b) National Bulk Handling Corporation (NBHC) Ltd.; (c) National Collateral Management Services Limited (NCMSL).

4. Socio-Economic Characteristics

Selected Area

Rajasthan is the largest state of India constituting 10.4 per cent of total geographical area and 5.67 per cent of total population of India. The state is endowed with diverse soil and weather conditions comprising of several agro climatic situations, warm humid in south eastern parts to dry cool in western parts of the state. About 65 per cent population (56.5 million) of the state are dependent on agriculture and allied activities for their livelihood. Agriculture in Rajasthan is primarily rainfed covering country's 13.27 per cent of available land. The diversity in climatic conditions of the state creates potentiality to develop certain belts of horticultural crops in the state. The arid state which receives not more than an annual rainfall of 25 cm thrives on agriculture that is done with irrigation systems and painstaking efforts of the poor farmers of Rajasthan. As a major portion of the state is parched and infertile, the risk and instability in agricultural production and productivity are quite high. The agriculture production in the State mainly depends on monsoon and irrigation potential which is low in comparison of the vast land of the State. Rajasthan state shows variation in productivity with a ratio of 1:11 between lowest and highest productivity district. Districts

like Banner, Jaisalmer and Churu located in Thar Desert are among the lowest productivity districts of the country. Extreme climate and soil type are the main factors for low productivity in these districts. One hectare of land was found to be generate crop output of value less than Rs. 5 thousand. However, productivity was more than Rs. 31 thousand in districts Baran and Kota. There exist regional differences in agriculture due to terrain, rainfall, irrigation facilities and technology inputs. In districts like Ganganagar, Hanumangarh, Bharatpur, Dausa, Alwar, Kota and Sawai madhaopur, farmers produce high input based cash crops, whereas southern and western Rajasthan single crop for domestic consumption is the norm. The major rabi crops are barley, wheat, gram, pulses and oil seeds. The kharif crops include bajara, pulses, jowar, maize, groundnuts and paddy in some areas.

The economic indicators of the selected districts shows that in terms of human development. Kota ranks second in the state. Though share of agriculture sector in NSDP is relatively higher in Jaisalmer and Ajmer than Kota. the cropping intensity is higher in Kota and Baran as compared to other two selected districts as well as state average due to high irrigation intensity. The difference in agricultural development can be easily seen from the yield level in dry districts compared to irrigated districts (Kota and Baran). Also the normal rainfall is also higher in these districts. The per market number of rural population fed is highest in Jaisalmer followed by Ajmer indicating low spread of markets in these districts.

Selected Crops

Gram is major rabi crop grown in Rajasthan, with area of 1.43 million ha. and 0.99 million tonnes of production in 2011-12. Rajasthan accounts for 17.24 per cent area and 13.07 per cent of production at national level. About 46.5 per cent area under gram was covered with irrigation in 2009-10 as compared to 32.20 per cent at national level. However, productivity level of gram in Rajasthan (691 kg/ha.) is much lower than national average (912 kg/ha.). The top five gram growing districts (during TE 2009-10) are Churu, Hanumangarh, Bikaner, Ganganagar and Jhunjhunu. The Jaisalmer district stands at sixth position in terms of area under gram and seventh terms of production during TE 2009-10. However, significant quantity of gram was procured under PSS at the centre located at Ajmer, Jaisalmer, Tonk, Jaipur and Sikar.

Garlic (*Allium sativum*) is one of the important horticultural bulb crops grown and used as a spice or condiment throughout India. Among the Garlic growing states in India. Rajasthan rank second in terms of its share in area (24.25 per cent) and third in terms of production (19.26 per cent) at national level in 2011-2012. However productivity level is much low in Rajasthan as compared to other competing states. Unawareness of farmers about improved varieties, climate, soil and agrotechniques.

diseases and pest damaging the crops and their control measures as well as post-harvest management are though main reasons, inadequate market support is also responsible for limiting the production and productivity indirectly. The districtwise picture in Rajasthan indicates that the districts like Baran, Chittorgarh, Jalawad, Jodhpur are major garlic producing districts in the State. However, most of the procurement of garlic under MIS in Rajasthan was carried out Kota, Jodhpur, Jhalawar, Bundi and Baran districts in June, 2012.

District-wise Details of Study Area

The land use classification of selected districts over three time periods shows that the net sown area has increased by about 5 to 6 per cent point in 2010-11 over 1990-91 in Ajmer and Baran districts as well as at State level, while it has marginally increased in Kota district. However, in case of Jaisalmer, where hardly 6 per cent of geographical area land was under cultivation, increased by about 13 per cent points during corresponding years. While opposite picture could be noticed in case of area sown more than once. Ajmer, Kota and Baran districts could able to bring more area under area sown more than once may be due to availability of irrigation and good monsoon during the recent past. Because of same, the cropping intensity of these three districts was much higher than Jaisalmer district as well as State as a whole.

The average land holding in Rajasthan was 3.07 ha. in 2010-11, which was fourth highest size of state average holdings (after Punjab, Nagaland, and Arunachal Pradesh), while national average was 1.16 ha. Among the selected districts as well, Jaisalmer had highest size of holding of (10.5 ha), while other three districts has between 2.1-2.7 ha. Though the average land holding of farmers in Rajasthan is relatively between than the holdings of farmers in rest of the country, the inequality in land holding is an important issue. Small and marginal farmers constitute about 50 per cent of the total farmers with only about 11 per cent of the total land area. The large land owners account for 9.1 per cent of the number of landholders and account for about 43 per cent of the land area. Among the districts as well, it can be seen that small and marginal farmers constitute about more than 50 percent of the total farmers with only about 11-15 per cent of the total land area. Thus, dependence of large number of farmers on small area indicates uneven distribution of land holdings as well as role of agriculture in the welfare of the rural areas.

The details about the implements, infrastructure and institutions in selected districts indicate that there is significant increase in number of tractors in 2011-12 as compared to 1992-93. Most of the villages are electrified and connected with the roads. Except Jaisalmer districts, the cooperative societies network has widen in other districts as well as at State as a whole. Number of Krishi

Vigyan Kendra (KVK) and Krishi Upag Mandi (KUMS) are not changed.

The irrigation is the most important input of agriculture which determines the level of output. It is observed that the percentage of net irrigated area to net sown area was 24.0 per cent in 2008-09, which has increased by 10.2 per cent points over 1990-91. The well and tube wells are the major sources of irrigation at the State level. Among the selected districts, Kota and Baran districts are highly irrigated having more than 88 per cent cultivated land under irrigation. In case of Kota district, canal is the major source of irrigation followed by well and tube wells, while groundwater is major source in case of Baran district. Ajmer district depends on groundwater for irrigation accounting about 30 per cent net sown area under irrigation. Jaisalmer district has hardly 15 per cent net sown area under irrigation, which largely depend on canal water. This may be due to soil and climatic conditions of this district.

The cropping pattern of the selected districts and the State shows that over a period of time, there is slight change in the cropping patterns of the selected districts. Jowar, bajara and moog are the major kharif crops, while gram and wheat are the major rabi crops grown in Ajmer district. Moog has emerged as major kharif pulse crops since 2001 onward. However in case of cash crop such as cotton, share in GCA has declined over the period of time. In case of Jaisalmer district, bajara and guar has been grown as major kharif crop, while gram and rapeseed are major rabi crops. Though bajara accounts for about 17 per cent of GCA in 2011-12, its share has declined from as high as 69.27 percent in 1980-1982, while share of guar crop increased to 50.68 per cent in 2011-12 from 28.85 per cent in 1980-82. Among the rabi crops, share of gram, rapeseed and mustard increased after 2001.

In case of Kota and Baran districts, major kharif crops grown are soybean, rice, maize, urad and Sesamum, while wheat and gram are major rabi crops. Soybean accounts for more than 32 per cent of GCA in case of Kota, while same accounts for about 40 per cent in Baran district. Selected crop, *i.e.* garlic share in GCA in both the selected districts ranges between 2.7 to 3.0 per cent in 2011-12. Over the period of time, there is decline in the share of Jowar and Maize crop in both districts, this may be due to

shift in acreage from this crop to Soybean crop. Increase in area under wheat and rapeseed in Kota, and only in case of wheat in Baran resulted in decline in area under gram crop. This may be due to increase in level of profit in Wheat as compared to gram cultivation may be due to significant increase in MSP.

Village Cluster- wise Details

The details about the market and marketed related other infrastructure and institution available in and or near village cluster indicates that the all the selected village cluster were having basic necessary infrastructure and institutions. But none of them have farm produce storage structure indicates immediate investment in this aspect. Due to non-availability of same, farmers are force to sell their produce immediately after harvest when generally prices are low.

5. Major Findings

Coverage of MIS and PSS

The procurement carried out by the procurement agencies in Rajasthan during last ten years shows that under PSS. procurement operations were carried in Rajasthan for the selected crops such as wheat, gram, rapeseed and mustard, while garlic crop was procured under MIS (Table 2).

Arrival and Prices of Targeted Commodity in Important Mandies

The month-wise arrival and prices of gram during the year 2011 and garlic during the period from January, 2012 to February, 2013 in selected mandies of Rajasthan shows that the highest market price for gram was realized in the month of October and November when arrival was the lowest in the year (Table 3). At the time of arrival of gram in the market, price per quintal of gram was below declared MSP (Rs. 2085 per quintal in March 2011 and Rs. 1965 per quintal in April, 2011 in Kisangadh mandi and Rs. 1970/- per quintal in April, 2011 in Kekri mandi). Thus, market prices of gram ruled below declared MSP of Rs. 2100/- during two months and therefore Government had carried out procurement operation during the three month period of April to June, 2011.

TABLE 2: MIS/PSS IN DIFFERENT DISTRICTS OF STATE IN DIFFERENT YEARS

Year	Crops	Covering districts	Major Procurement Agencies	MIS/ PSS
1	2	3	4	5
2005-06	Rapeseed and Mustard	Ajmer, Jaipur, Jodhpur, Kota, Sikar, Jhunjhunu, Bikaner, Churu, Ganganagar, Hanumangarh, Jaisalmer, Nagore, Pali, Baran and Jalore	RAJFED and Tilam Sangh	PSS

TABLE 2: MIS/PSS IN DIFFERENT DISTRICTS OF STATE IN DIFFERENT YEARS—CONTD.

1	2	3	4	5
2006-07	Rapeseed and Mustard	Ajmer, Bharatpur, Kota, Bikaner, Jaipur, S.Ganganagar, Jodhpur and Udaipur	Tilam Sangh	PSS
2007-08	Rapeseed and Mustard	Ajmer, Bharatpur, Kota, Bikaner, Jaipur, S.Ganganagar, Jodhpur and Udaipur	RAJFED and Tilam Sangh	PSS
2004-05	Onion	Jodhpur, Nagore, Sikar, Jhunjhunu, Jaipur	RAJFED	MIS
2004-05	Coriander	Kota, Baran, Jhalawar	RAJFED and NAFED	MIS
2006-07	Wheat	Alwar, Ajmer, Kota, Bikaner, Jaipur, S. Ganganagar, Jodhpur and Udaipur	FCI, RSWC	PSS
2007-08	Wheat	Alwar, Ajmer, Kota, Bikaner, Jaipur, S.Ganganagar Jodhpur and Udaipur	FCI, RAJFED, Tilam Sangh, NAFED	PSS
2008-09	Wheat	Alwar, Ajmer, Kota, Bikaner, Jaipur, S.Ganganagar, Jodhpur and Udaipur	FCI, RAJFED, Tilam Sangh	PSS
2009-10	Wheat	Alwar, Ajmer, Kota, Bikaner, Jaipur, S.Ganganagar, Jodhpur and Udaipur	FCI, RAJFED, Tilam Sangh	PSS
2010-11	Wheat	Alwar, Ajmer, Kota, Bikaner, Jaipur, S.Ganganagar, Jodhpur and Udaipur	FCI, Tilam Sangh	PSS
2011-12	Gram	Ajmer, Bhilwara, Karuli, S.Madhopur, Dausa, Jaipur, Jhunjhunu, Tonk, Jaisalmer, Pali, Kota, Baran and Bundi	RAJFED and Tilam Sangh	PSS
2012-13	Garlic	Kota, Baran, Jhalawar and Bundi	RAJ FED, Tilam Sangh	MIS
2012-13	Urad	Ajmer, Bhilwara, etc	RAJFED	PSS

NOTE: Figures for 2012-2013 are provisional. *Source:* NAFED), Jaipur.

In case of garlic, data shows that during the high arrival month of April to May, the price was around Rs. 650 per quintal as compared to slack month of January to March, when it was between Rs. 1100/- to 3300/- per quintal (Table 4). The procurement of garlic under MIS was carried out from June 6, 2012 to July 6, 2012 at the rate of Rs. 1700/- per quintal during June, 2012 when prices were very low, which has resulted in huge loss to the government.

Trend in Average Prices of Grain and Garlic in Rajasthan

During the period from 1990-91 to 2010-11, average prices of gram in Rajasthan has increased steadily from Rs. 658 per quintal in 1990-91 to Rs. 2150 per quintal in 2010-11. with some exceptions of slight lower down during 1995-96, 2002-2003 and 2003--2004. However, in case of garlic, prices of garlic have been highly fluctuating during the years during 1999-2000 to 2010-11, as low as Rs. 645/- and as high as Rs. 6420/-. As garlic is semi-perishable commodity and thus prices fluctuates heavily which ultimately affect the income of the farmer.

**TABLE 3: MONTH-WISE ARRIVAL AND MARKET PRICE OF GRAM IN KISHANGADH AND KEKRI MANDIS OF RAJASTHAN
(PERIOD- JAN. TO DEC., 2011)**

Months	Gram Crop							
	Kishaneadh Mandi				Kekri Mandi			
	Mini- mum (Rs/qtls)	Maxi- mum (Rs/qtls)	Average (Rsiqt1s)	Arrival (Qt.)	Mini- mum (Rs/qtls)	Maxi- mum (Rsiqt1s)	Average (Rsiqt1s)	Arrival (Qt.)
Jan. 2011	1900	2400	2150	30.0	2150	2280	2200	3
Feb.20 I I	2251	2300	2276	27.0	—	—	—	—
Mar2011	800	2370	2085	15610	2000	2225	2100	2736
Apr. 2011	1860	2070	1965	76635	1950	2050	1970	60221
May 2011	2050	2235	2143	49434	1965	2185	2150	32444
June 2011	2210	2497	2354	13140	2215	7790	2250	9679
July 2011	2450	2875	2663	5046	2600	2811	2800	1038
Aug.2011	2500	2950	2725	4167	2700	2950	2900	239
Sep.20 II	2500	3650	3075	1706	2800	2700	2600	21
Oct. 2011	2800	3100	2950	950	2756	3000	2950	190
Nov. 2011	2850	3195	3023	708	2650	2800	2700	6
Dec.2011	2650	3100	2875	460	2700	2900	2850	750

Source: [Intp://rsamb.rajasthan.gov.in/](http://rsamb.rajasthan.gov.in/)

**TABLE 4: MONTH-WISE ARRIVAL AND MARKET PRICE OF GARLIC IN KOTA AND BARAN MANDIS OF RAJASTHAN
(JAN. 2012 TO FEB. 2013)**

Months	Garlic							
	Kota				Baran			
	Minimum (Rsic/t1s)	Maximum (Rs/qt1s)	Average (Rs/qt1s)	Arrival (Qt.)	Minimum (Rs/qtls)	Maximum (Rs/qtls)	Average (Rs/qtls)	Arrival (Qt.)
Jan. 2012	2900	3800	3284	4894	n.a.	n.a.	n.a.	n.a.
Feb. 2012	1000	3625	1243	2051	n.a.	n.a.	n.a.	n.a.
Mar. 2012	1000	1312	1108	48643	n.a.	n.a.	n.a.	n.a.
Apr. 2012	800	1250	1031	143507	n.a.	n.a.	n.a.	n.a.
May 2012	550	1121	715	123716	640	1050	801	12650
June 2012	650	1099	865	116296	590	1050	837	11570
July 2012	626	975	756	92893	680	1150	841	13600
Aug. 2012	700	1151	867	28620	920	1230	1048	4075
Sep.2012	550	890	712	36223	650	1150	938	4800
Oct.2012	538	1012	666	38525	690	980	858	6450
Nov.2012	500	861	616	42324	600	840	740	4650
Dec.2012	400	650	471	35098	570	860	773	3050
Jan. 2013	400	750	481	20921	600	1037	763	4850
Feb. 2013	350	741	435	11274	430	1000	726	3625

NOTES: Garlic was procured under MIS in Rajasthan was during the period of 06/06/2012 to 06/07/2012;
n.a.- Not available. Source: <http://rsamb.rajasthan.gov.in/>

Proportion of Procurement to Market Arrival

The proportion of procurement to total market arrival (in metric tons) of targeted crop in selected districts shows that ratio of procurement to market arrival at state level is higher in case of garlic than gram, while opposite picture

at selected district level (Table 5). The price fixed by the government as MSP for gram and MIP for Garlic was Rs. 2100/- per quintal and Rs. 1700/- per quintal respectively. All the charges towards procurement including mandi tax, transport, cost of bag was paid by the procurement agency.

TABLE 5: PROPORTION OF PROCUREMENT TO TOTAL MARKET ARRIVAL OF GRAM (AJMER AND JAISALMER DISTRICT) AND GARLIC (BARAN AND KOTA DISTRICT)

Crop and Districts	2008-09		2009-10		2010-11		2011-12	
	Qty. Procured	Total Market Arrivals	Qty. Procured	Total Market Arrivals	Qty. Procured	Total Market Arrivals	Qty. Procured	Total Market Arrivals
Gram								
Ajmer	—	3275	—	2663	1278 (37.5)	3412	—	46431
Jaisalmer		4595	—	12310	1016 (20.4)	4975	—	23099
Rajasthan	—	336943	—	460422	6333 (4.0)	156531	—	852622
Garlic								
Baran	—	25808	—	15695	—	14867	1333 (21.9)	6085
Kota		1449	—	118	—	52	3712 (5.2)	70979
Rajasthan	—	51590	—	25616	—	21782	6280 (6.9)	91519

NOTE: Figures in parenthesis are percentage to total market arrival; Arrival figures for Garlic for the year 2011-12 is total of arrival during all the months of 2012 (as data was not available).

Source: WWW.mandionline.com

Factors Influencing Coverage of Crops under MIS and PSS

The information related to the factors influencing the coverage of crops under MIS and PSS was collected and presented. Area under targeted crop has increased in the selected districts during last few years. The productivity of gram is fluctuating during period under consideration in both districts; this may be due to heavy dependence on rainfall and low soil moisture availability.

Procurement Costs

From the details of the costs incurred in procurement of gram and garlic crop under PSS and MIS in APMC/KUMS as perceived by the nodal agency, it is observed that RAJFED which was nodal agency for procurement of gram incurred about average cost of Rs. 296/- per quintal in addition to MSP rate of Rs. 2100/- per quintal. The Society and RAJFED each adds 1 percent amount of MSP rate as their margin in procurement operations.

In case of garlic crop, procurement operations was carried out by the RAJFED and Tilam Sangh during June 2012, and the procurement cost incurred by both the agencies ranges between Rs. 2120/- to Rs. 2174/- per quintal

including the MIS declared rate of Rs. 1700/- per quintal. The administrative expenses were charged by RAJFED/ Tilam Sangh at the rate of 2.5 percent of Market Intervention Price (MIS) declared by the government.

Input-Output Details of Gram and Garlic

Both the crops are grown in *rahi* season. The crops are sown directly on the field in the month of October at the seed rate of 60 kg./ha. in case of gram and 250 qtls/ha. bulbs of garlic. Pod borer and thrips is the major insect pest on Gram and Garlic respectively. Both the crops generally reach to the harvesting stage in 130-150 days of sowing. The average productivity level at KVK centre recorded is 15-20 quintals/ha. in case of Gram and 100-120 qtls/ha in case of garlic. However, information received from other sources slightly differs.

MSP and Cost of Production of Gram

The relationship between MSP and Cost of Cultivation of gram in Rajasthan by using CACP data for the period from 1992-93 to 2009-10 indicates that the estimated cost of cultivation for Gram at cost A2 has increased by about 265 percent in 2009-10 over base year 1992-1993 (from Rs. 1655/- in 1992-93 to Rs. 6032/- in 2009-10), while per

hectare returns over Cost A2 increased by lower rate of 197 percent during corresponding two years (Table 6). However, MSP rate for gram has been increased significantly by more than 188 percent in 2009-10 over the base year 1992-93, *i.e.* increased from Rs. 600/- per quintal in 1992-93 to Rs. 1730/- per quintal in 2009-10.

Thus, gram cultivation is profitable venture in Rajasthan. However, if you consider the per quintal production cost (at C2) of gram and MSP, one could see that despite significant increase in MSP during last one decade, if prices fall below the MSP, it would not have covered the production cost (at C2).

TABLE 6: COST OF CULTIVATION OF GRAM IN RAJASTHAN (1992-93 TO 2009-10)

Year	Cost of Cultivation		Cost of Return (Rs./ha.)	Return (Rs/ha) Over		Cost of Production (Rs/qt.)		MSP (Rs.qtls.)
	Paid cost (Cost A2)	Total (Cost C2)		Cost C2	Cost A2	Paid cost (Cost A2)	Total (Cost C2)	
1992-93	1655	3453	5863	2410	4208	222	450	600
1994-95	2037	4503	7069	2566	5032	232	513	640
1995-96	2190	4878	7471	2593	5281	287	628	670
1996-97	2302	5201	7948	2747	5646	365	806	7001
1997-98	2962	5983	8632	2649	5670	369	728	740
1998-99	2530	5096	6960	1864	4430	393	790	815
1999-00	2807	7315	8284	969	5477	481	1250	895
2000-01	4158	10500	15171	4671	11013	517	1244	1015
2001-02	5503	11154	12302	1148	6799	732	1451	1100
2002-03	4738	11303	13181	1878	8443	642	1543	1200
2003-04	3335	7368	8535	1167	5200	592	1339	1220
2004-05	3298	7038	10157	3119	6859	522	1095	1400
2005-06	4754	11878	17954	6076	13200	648	1488	1425
2006-07	3881	14381	25592	11211	19711	519	1248	1435
2007-08	5996	13954	19702	5748	13705	814	1818	1445
2008-09	6045	12611	17151	4540	11105	891	1692	1600
2009-10	6032	14386	18531	4145	12498	738	1774	1730

Source: Varghese. et al. 2009 (Maharana Pratap University of Agriculture and Technology, Udaipur).

Levels and Basis of Participation of Farmers in MIS and PSS

The process of procuring crops under MIS and PSS are carried out by the agencies such as RAJFED and Tilam Sangh after they receive necessary instructions from their head office/ state government/central government (see. Box 1). The KVSS/cooperative societies accordingly directed to procure the commodities (after following the necessary steps/procedure such as advertisement, issuing coupon, checking FAQ norms, etc.) from the decided procurement centers.

It has been argued by many scholars that coverage of farmers under MIS as well as PSS is very low. If we compare both schemes (though both are different in nature and objective), it is observed that among selected farmers, total number of farmers who had availed benefit from MIS are relatively more in number than the beneficiaries of PSS scheme. Obviously, the semi-perishable nature of garlic and no scientific storage availability for same pushed the farmers to sale under MIS scheme. However, absolute numbers of farmers who have availed benefit of either scheme are very low.

Box 1: PROCESS OF PROCURING CROPS UNDER MIS/PSS BY NODAL AGENCY IN AREA

Sr No.	Particulars	PSS- Gram (2011-2012)	MIS- Garlic (2012-2013)	TILAM SANGH
1	Procurement Agency	RAJFED	RAJEED	TILAM SANGH
2	Date of Notification by GOI to State Horticulture Department	Not Applicable	01.06.2012	01.06.2012
3	Date of Notification by GOI to Procurement Agency	29.03.2011	Not Applicable	Not Applicable 02.06.2012
4	Date of Notification by State Govt. to Procurement Agency	30.03.2011	02.06.2012	
5	Date of Notification Procurement Agency to Cooperative Societies	30.03.2011	02.06.2012	02.06.2012
6	Period declared by GOI for procurement	07.04.2011 to 30.06.2011	One month June 6, 2012 to July 7, 2012	One month June 6, 2012 to July 7, 2012
7	Procurement target fixed (mt)	Not fixed	Not fixed	30.000
8	Price (Rs./qtls)	2100/-	1700/-	1700/-
9	Overhead expenses (Rs./qt1s)	296/-	420/-	425/-

Source: Office of RAJFED Tilam Sangh, Jaipur.

Details about the Assets of Sample Farmers

In case of gram growing farmers, only large farmers had taken land on lease. However in case of Kota district where garlic crop is grown small and medium farmers also taken land on lease during, the year under study. As it was expected, due to having availability of irrigation facilities with Kota and Baran districts, numbers of pump sets, milch animals are relatively higher than other two selected districts for gram crop. Almost 80 percent of households in all selected districts are having concrete house.

Institutional Support to the Sample Farmers

The data on institutional support in terms of bank loan received by the farmers were collected in order to know reach of these agencies in rural areas. It can be observed that all the selected farmers has availed the loan facility. Very surprisingly, small and marginal farmers from Baran district has availed loan facility to the tune of Rs. 1.4 to 1.5 lakhs, which is higher than other groups in that district. The purpose of loan was mainly for production followed by construction and purchase of implements.

Cropping Pattern of the Sample Farmers

The cropping pattern followed by the sample farmers in selected districts indicates that more than 50 percent cultivated area was under gram in case of small farmers, while corresponding figures were ranges between 24-32 percent in case of medium and large farmers in Ajmer district. Whereas around 40 percent area of GCA of medium

and large land holding size farmers was under gram in Jaisalmer district. Though on an average around 12.15 percent of gross cropped area was under garlic in Baran and Kota districts, the marginal farmers were dominant in terms of high share in area under this crop in 2011-12 (to gross cropped area) as compared to the other land holding size groups. Soybean is the main kharif crops of the sample farmers of Kota and Baran districts followed by garlic, while garlic was rabi main crop. If we compare cropping pattern in Jaisalmer and Ajmer with Kota and Baran, one can very clearly notice the difference of irrigation in cropping pattern. More number of cash crops such as vegetables and spices are grown in Kota and Baran districts and garlic is one of them.

Production Cost of the Sample Farmers

The production cost (explicit) of gram and garlic Crop (in Rs./ ha.) at farmers level indicates that in case of gram crop cultivation, the highest share of total cost incurred for hiring out the labour followed by land preparation cost of material (such as seed, fertilizers and chemical). The cost of irrigation and hired implements accounted for about 9-10 percent of total cost. The farmers could harvest about 9.95 quintals of gram in one hectare by spending total cost of Rs. 21828/- (i.e. production cost per quintal is Rs. 2194/-). The market price realized by farmer was Rs. 2264/- per quintal, which was more than the cost of production, resulted in marginal profit to the farmer to the tune of Rs. 70/- per quintal or Rs. 694/- per ha.

In case of garlic crop cultivation, cost of labour accounted for as high as 42.7 percent of total cost followed by cost of material (33.5 percent). For cultivation of one hectare of garlic, farmer had to invest on an average Rs. 98331 /-, which fetched him production of about 80.23 quintals of garlic. The per quintal production cost for garlic is estimated to be Rs. 1226/-, whereas price realized by the farmers was Rs. 1237/- per quintal, resulted in negligible profit of Rs. 11/- per quintal. Thus, price declared by the government under MIS was much higher (Rs. 1700/- per qt.) than production and market price, which has helped the farmers ultimately.

Crop Produce Disposal Pattern and Marketing Channel

It would be important to know about the crop production use and disposal pattern of the selected crop by the sample farmers. The crop production and its disposal (per farmer as well as per hectare) of the sample farmers indicates that in case of gram during both the years, small farmer had sold his total output in the market, whereas in other land holding size, more than 90 percent of total production was sold in market (Table 8). The price per quintal realized by the small farmer was the highest, followed by large and medium farmer in both years. While in case of garlic production, except small farmer during 2011-12, all others have sold more than 90 percent of produce in the market. Thus, almost all the production was marketed and very miniscule quantity was kept of home consumption as well as marketable surplus.

Out of the total production of gram crop by the sample farmers, about 72 percent of output was sold under PSS scheme, while 25 percent to commission agent and remaining was sold to village trader. Thus, due to price support scheme, farmers have benefited. In case of garlic production sale, on an average only about 46 percent of output was sold under the market intervention scheme, while 41 percent of output was sold to Commission Agents. Thus, in case of MIS, benefits could reach to less number of farmers despite of semi-perishable nature of commodity. The price per quintal for gram crop realized by the farmers through commission agents was the highest than any other channel. This is because of remaining output was sold to commission agent after the sale under PSS. However, in case of MIS, price per quintal offered by the government and received by the farmers was much higher (Rs. 1700/-) as compared price realized by the farmer from commission agent (Rs.985/-) village

assembler and village trader. Thus, in true sense there was fall in market prices of garlic and thus MIS has provided the support to farmers by procuring the garlic at the very high rate as compared to market rate.

TABLE 8: DIFFERENT MARKETING CHANNELS FOR SAMPLE FARMERS OF GRAM AND GARLIC CROPS

Crop	Marketing channel	% of output sold	Price received (Rs./qtl)
Gram	Price Support Scheme	71.74	2100
	Commission Agent	25.17	2817
	Village Assembler	3.09	1560
	Total	100.00	2264
Garlic	Market Intervention Scheme	45.76	1700
	Commission Agent	41.25	881
	Village Assembler/Trader	10.60	806
	Total	100.00	1237

It was observed that on an average farmer incurred about Rs. 73 per quintal cost in marketing of gram when he sold to commission agent. while under PSS. he incurred less cost of about Rs.45/- per quintal, may be due to payment of mandi taxes by the procurement agency. While in case of garlic crop, high cost of transportation and packing material and labour cost as well as commission in market put together Rs. 61.30/- marketing cost for farmer when he sold his produce to commission agent, while in case of MIS Rs. 52.5/- per quintal cost was incurred. In view of low marketing cost in case of sale of produce to village trader/assembler and urgent need of money, farmer generally prefers to sell it in village, however, price realized in this channel was very low.

Farmers Perceptions about PSS and MIS Operation

From the farmers perceptions about PSS and MIS operations in Gram and Garlic crop, it is observed that about 22 percent farmers in case of gram and 10 percent farmers in case of garlic opined that there was increase in farm income due to PSS and MIS, while about 65 percent and 48 percent farmers respectively mentioned that PSS/ MIS covered cost of production of targeted crop (Table 9). Also significant number of farmers opined the increase in area under these crops which are covered under PSS/MIS.

TABLE 9: FARMERS PERCEPTIONS ABOUT PSS OPERATION IN GRAM AND MIS OPERATION IN GARLIC CROP

Sl. No.	Particulars	% or sample Farmer reporting Particulars problem	
		Gram crop (PSS)	Garlic Crop (MIS)
i.	<i>Portion of Output rejected by buyers</i>		
	(b) By Government agency	3.80	5.68
	(c) By Private traders	0.18	1.14
ii.	<i>Rejection stage of produce</i>		
	(a) At the level of field	0.00	0.00
	(b) In the market (some portion)	Yes	Yes
iii.	<i>Possible reasons/for exclusion of farmers from MIS/PSS</i>		
	(a) Farmers not aware of MIS/PSS	0.00	0.00
	(b) Farmers not interested in selling through MIS/PSS	0.00	0.00
	(c) Long and lengthy process and not got good remunerative Price	48.39	28.30
	(d) Not got a chance, political interference	22.58	39.62
	(e) They procured very less quantity	29.03	22.64
	(f) Sold prior to private Trader	0.00	9.43
iv.	<i>Poreption about the results outputs MIS PSS</i>		
	(a) MIS/PSS helped in increasing area under targeted crop	43.33	30.00
	(b) MIS/PSS covered cost of production of targeted crop	65.00	48.33
	(c) Increase in farm income after implementation of MIS/PSS	21.67	10.00

Source: Field Survey Data.

In case of problems, farmers mentioned that long and lengthy process and not received good remunerative price, not got a chance to sell under the scheme, political interference, as well as very less quantity procurement under the scheme are major one. The produce gets rejected at the market level only, at not the field level. The proportion of the rejection would be as per FAQ norms in case of procurement under PSS and MIS. In case of rejection at market level was due to quality norms. Thus, lower price would be offered to the farmer in that case.

The farmers reported the severity of problem perceived by them in marketing of targeted crop (Table 10). In case of gram crop marketing, top ranked problems perceived by farmers are delay in payments, lack of processing units,

non-availability of cold storage/ warehousing facility and existing market price of produce is not sufficient. The main reasons which could insist the farmer not to sell his produce to PSS/MIS are discrimination on the basis of standard of produce/quality (as purchase are made on FAQ norms), delay in price received and long distance of procurement centre. In case of garlic marketing, the main problems identified are lack of processing units, non-availability of cold storage/ warehousing facility, delay in payments, long distance of regulated market and existing market price of produce is not sufficient. Thus, in order to give remunerative prices to the farmers and to prevent them from distress sale, these bottlenecks need to be removed. The storage and processing facilities need to be created on priority basis.

TABLE 10: PROBLEMS PERCEIVED BY SAMPLE FARMERS IN MARKETING OF GRAM AND GARLIC

Sr. No.	Constraints	%of farmers reporting the severity of problem					
		Gram (PSS)			Garlic (MIS)		
		High	Moderate	Low	High	Moderate	Low
1.	Existing market price of produce is not sufficient	65.0	13.3	21.7	73.3	11.7	15.0
2.	Packaging material is costly	60.0	13.3	26.7	31.7	28.3	40.0
3.	Packages/ container not returned to the growers (as per agreement)	21.7	13.3	65.0	6.7	3.3	90.0
4.	Cheating by middleme:						
	(a) in price	0.0	0.0	100.0	0.0	0.0	100.0
	(b) Weighing	0.0	0.0	100.0	0.0	0.0	100.0
	(c) Other problems in selling-produce	0.0	0.0	100.0	0.0	0.0	100.0
5.	Non- availability of Transport	15.0	8.3	76.7	1.7	8.3	90.0
6.	Non receipt of payment in time	45.0	11.7	43.3	33.3	38.3	28.3
7.	MIS/PSS operation are irregular	3.3	16.7	80.0	48.3	6.7	45.0
8.	Non-availability of cold storage/warehousing facility	73.3	13.3	13.3	95.0	0.0	5.0
9.	Lack of Processing Units	80.0	5.0	15.0	96.7	0.0	3.3
10.	Delay in payments	81.7	1.7	16.7	76.7	6.7	16.7
11.	Extent of organized market of targeted produce:						
	a) distance of regulated market	40.0	31.7	28.3	78.3	0.0	21.7
12.	Reason for not sell to PSS/M IS						
	(a) Long Distance:					0.0	21.7
	Low Moderate High (<5 km), (5-10 km), (>10 km)	68.3	1.7	30.0	78.3		
	(b) Delay in Price received	81.7	1.7	16.7	76.7	6.7	16.7
	(c) Discrimination on the basis of standard of produce/quality	88.3	8.3	3.3	55.0	38.3	6.7

Problems and Views of Different Stakeholder in Operations of MIS and PSS

Procurement Agencies (RAJFED and Tilam Sangh)

Non-availability of adequate storage facility.

The unavailability of gunny bags in time at procurement centre.

The political interference in the process of the procurement.

Short period of time span stipulated by the Government for procurement.

Delay ill necessary instructions by the higher authorities regarding storage, transport.

Monopolistic kind of situation in the market. Application of FAQ norms when there is huge supply.

Govt./Agricultural Officials Experiences and Views about MIS and PSS Operation

They are partially involved in MIS and PSS operation.

Prices should be given as per quality viz. high price for good quality produce and low price for low quality produce.

There should be hundred percent procurement of the crop in the selected area.

No produce should be rejected at the procurement centre. If produce could categorized under the FAQ norms, it should be purchased at lower price.

Girdavri Report (crop sowing report) should be issued by district official only once with mention about this purpose with proper online computerized system to prevent the fraud claim/sale arises by the farmers.

The minimum support price should be declared by CACP differently for different agro-climatic conditions of the area.

Fodder crop should be procured under the PSS operation in Rajasthan to prevent cyclic draught situation.

Time to time weather information should be provided to the farmers by Agro metrology Department.

Procurement information should be made available to the farmers well before the harvest in order to price discrimination by the private traders.

6. Policy Measures to Improve Operations of MIS and PSS

The study brings out the policy implication as given below:

The nodal agencies should decide, in consultation with the State Governments, the location and number of purchase centers to be set up much in advance of the marketing season. The information regarding number and location of purchase centers should be given wide publicity through media, radio, television, leaflets, etc.

Procurement agency should come to purchase as soon as the harvesting is over, not after two weeks of harvest. Also the management of KVSS/ primary cooperative marketing societies needs to be improved.

The nodal agency should make it sure that they possess the adequate gunny bags at procurement centers in advance by taking into consideration the estimated production of commodity in that region and expected quantum as market arrival.

Information about both the scheme and FAQ norms should be made available to the farmers through media, leaflet and any other extension mode. Due to ignorance of FAQ norms of the farmers, unscrupulous elements enter the market and purchase agricultural commodities at much lower price than the MSPs fixed by the Government. In this way, the farmers are exploited. Cases of farmers being turned back on the ground of non-conformity with the FAQ norms are also frequent, leading to hardship and resentment amongst the farmers.

Due to non-availability of adequate storage facility with the depot, procurement gets delay as well as transportation cost also increases. Therefore, government should make necessary arrangements towards adequate storage facility before announcing the procurement.

The speedy decisions as well as necessary instructions by the higher authorities regarding storage, transport as well as final decision on place of selling of crop, would help in minimizing the losses.

Girdavri Report (crop sowing report) should be issued by district official only once with mention about the purpose

with proper online computerized system to prevent the fraud claim sale arises by the farmers.

Adequate trained administrative staff should be placed at the procurement centre in order to avoid any misunderstanding between farmers and the officials.

The Minimum Support Price (MSP) mechanism should be implemented effectively across the regions. No political interference should be allowed in procurement process.

The Market Intervention Scheme (MIS) should be strengthened to respond speedily to exigencies especially in the case of sensitive crops in the rainfed areas.

It was also experienced that there are a number of institutions involved in procurement process having inadequate coordination between them.

The Market Intervention Scheme (MIS) suffers from limited operations, since it is implemented on the request of the State Government(s) willing to bear 50 per cent of the losses, incurred if any, in its implementation. The implementation of the scheme needs to be made more flexible and easy.

The agricultural officials should be involved in MIS and PSS operation. The role of the Agriculture Produce Market Committees and State Agriculture Marketing Boards should be transformed from mere regulatory focus to promotion of grading, branding, packaging and development of markets for local produce.

Announcing a hike in MSP alone will not guarantee any profit for cultivators, unless post-harvesting arrangements such as procurement centres, storage facilities, transport, etc. are established. Except paddy and wheat crops, the procurement facilities for other crops are woefully poor even today, which allows the middlemen to fiddle with the process. Therefore, this needs to be improved at a war footing level.

As long as the services of nodal agencies are being used for market intervention and procurement, etc., they must be given full support so as to enable them to operate efficiently. Necessary budgetary provisions need to be made by the Government in this regard so that their operations could be carried out smoothly. Likewise, the role of banks in financing the public and cooperative procuring agencies need to be made more active and participative.

The Government of India should encourage the state government to initiated market intervention operations well in advance for saving the farmers in distress. The operational efficiency of purchasing agencies needs to be toned up in the context of cost efficient purchases *vis-a-vis* competitive sales so as to avoid or reduce losses.

Most of the sample farmers decide crops to be sown without taking into consideration of MSP of particular

crops as well as they sell crop produce within the village. In view of huge buffer stock of rice and wheat and at the same time shortfalls in the supply of oilseeds and pulses, MSP policy should be used for correcting this imbalance and for achieving the desired crop diversification.

The political clout of farmer lobbies and their bargaining with the government remain a major influence

on conceptualization of remunerative prices, fixing of MSP and adequacy of arrangement for procurement of crop outputs. As a consequence, the economic aspects of price support like providing incentives to farmers and promoting growth did not receive the emphasis they need and a large part of agriculture remained excluded from the benefits of price support measures.

COMMODITY REVIEWS

Foodgrains

During the month of October, 2014 the Wholesale Price Index (Base 2004-05=100) of pulses declined by 1.12%, Cereals declined by 0.34% and foodgrains declined by 0.46% respectively over the previous month.

ALL INDIA INDEX NUMBER OF WHOLESALE PRICES

(Base: 2004-2005=100)

Commodity	Weight	WPI for the Month of October, 2014	WPI for the Month of September, 2014	WPI A year ago	Percentage change	
					during A month	A year
1	2	3	4	5	6	7
Rice	1.793	247.0	247.3	232.0	-0.12	6.47
Wheat	1.116	209.5	209.7	213.6	-0.10	-1.92
Jowar	0.096	293.3	296.1	241.5	-0.95	21.45
Bajra	0.115	252.4	258.6	251.7	-2.40	0.28
Maize	0.217	235.7	239.8	247.1	-1.71	-4.61
Barley	0.017	232.7	227.5	213.6	2.29	8.94
Ragi	0.019	330.0	332.7	330.1	-0.81	-0.03
Cereals	3.373	235.8	236.6	228.3	-0.34	3.29
Pulses	0.717	238.2	240.9	229.0	-1.12	4.02
Foodgrains	4.09	236.2	237.3	228.4	-0.46	3.42

Source: Office of the Economic Adviser, Ministry of Commerce and Industry

Behaviour of Wholesale Prices

The following Table indicates the State wise trend of

Wholesale Prices of Cereals during the month of October, 2014.

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

Procurement of Rice

The total procurement of Rice in the current marketing season *i.e* 2014-2015, up to 31.10.2014 stood at 6.93

million tonnes, as against 8.00 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 2014-15 (Upto 31.10.2014)		Corresponding period of last year 2013-14		Marketing Year (October-September)			
	Procure- ment	%age to Total	Procure- ment	%age to Total	Procure- ment	%age to Total	Procure- ment	%age to Total
1	2	3	4	5	6	7	8	9
Andhra Pradesh	0	0.00	0	0.00	3722	11.76	6464	19.00
Chhatisgarh	0	0.00	0	0.00	4290	13.56	4804	14.12
Haryana	1603	23.13	2170	27.12	2406	7.60	2609	7.67
Maharashtra	0	0.00	0	0.00	161	0.51	192	0.56
Punjab	5261	75.92	5779	72.2	8106	25.62	8558	25.16
Tamil Nadu	1	0.03	39	0.49	684	2.16	481	1.41
Uttar Pradesh	5	0.07	5	0.06	1127	3.56	2286	6.72
Uttarakhand	1	0.01	0	0.00	463	1.46	497	1.46
Others	58	0.84	9	0.11	10678	33.75	8129	23.89
Total	6930	100.00	8002	100.00	31637	100.00	34020	100.00

Source: Department of Food & Public Distribution.

Procurement of Wheat

The total procurement of wheat in the current marketing season *i.e* 2014-2015 up to June, 2014 is 27.99 million

tonnes against a total of 25.04 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 2014-15 (Upto 31.10.2014)		Corresponding period of last year 2013-14		Marketing Year (October-September)			
	Procure- ment	%age to Total	Procure- ment	%age to Total	Procure- ment	%age to Total	Procure- ment	%age to Total
1	2	3	4	5	6	7	8	9
Haryana	6495	23.20	5873	23.45	5873	23.41	8665	22.71
Madhya Pradesh	7094	25.34	6325	25.26	6355	25.33	8493	22.76
Punjab	11641	41.58	10878	43.44	10897	43.43	12834	33.64
Rajasthan	2159	7.71	1268	5.06	1268	5.06	1964	5.15
Uttar Pradesh	599	2.14	683	2.73	683	2.72	5063	13.27
Others	6	0.02	13	0.05	16	0.06	1129	2.96
Total	27994	100.00	25040	100.00	25092	100.00	38148	100.00

Source: Department of Food & Public Distribution

COMMERCIAL CROPS

Oilseeds and Edible Oils

The Wholesale Price Index (WPI) of nine major oilseeds as a group stood at 205.5 in October, 2014 showing a decrease of 3.2 per cent over the previous month. However, it increased by 6.9 per cent over the previous year. The WPI of Soyabean (10.6 per cent), Copra (6.8 per cent), Groundnut seed (1.6 per cent), Cotton Seed (1.2 per cent), Safflower seed (0.9 per cent), Sunflower Seed (0.5 per cent) and Gingelly seed (0.3 per cent) decreased over the previous month. However, the WPI of Rape & Mustard Seed (1.3 per cent) increased over the previous month. The WPI of Niger Seed remained unchanged over the previous month.

The Wholesale Price Index (WPI) of Edible Oils as a group stood at 144.1 in October, 2014 showing an increase of 0.5 per cent over the previous month. However, it decreased by 2.9 per cent over the previous year. The WPI of Soyabean Oil (2.2 per cent), Cotton seed oil (1.9 per cent), Gingelly Oil (0.7 per cent), Sunflower Oil (0.6 per cent) and Groundnut Oil (0.1 per cent) increased over the previous month. However, the WPI of Copra oil (0.2 per cent) and Mustard Oil (0.1 per cent) decreased over the previous month.

Fruits & Vegetable

The Wholesale Price Index (WPI) of Fruits & Vegetable as a group stood at 272.8 in October, 2014 showing a decrease of 6.2 per cent over the previous month. However, it increased by 2.8 per cent over the previous year.

Potato

The Wholesale Price Index (WPI) of Potato stood at 421.4 in October, 2014 showing an increase of 2.3 per cent and 78.0 per cent over the previous month and over the previous year, respectively.

Onion

The Wholesale Price Index (WPI) of Onion stood 332.6 in October, 2014 showing a fall of 6.2 per cent and 57.1 per cent over the previous month and over the previous year, respectively.

Condiments & Spices

The Wholesale Price Index (WPI) of Condiments & Spices (Group) stood at 302.8 in October, 2014 showing a decrease of 0.7 per cent over the previous month. However, it increased by 26.6 per cent over the previous year. The WPI of Black Pepper, Chillies (Dry) and Turmeric increased by 2.9 per cent, 2.0 per cent and 0.8 per cent over the previous month.

Raw Cotton

The Wholesale Price Index (WPI) of Raw Cotton stood at 195.3 in October, 2014 showing a fall of 9.2 per cent and 14.1 per cent over the previous month and over the previous year, respectively.

Raw Jute

The Wholesale Price Index (WPI) of Raw Jute stood at 277.1 in October, 2014 showing an increase of 3.4 per cent and 6.7 per cent over the previous month and over the previous year, respectively.

WHOLESALE PRICE INDEX OF COMMERCIAL CROPS

(Base Year: 2004-05=100)

Commodity	Latest	Month	Year	Percentage Variation Over	
	OCTOBER, 14	SEPTEMBER, 14	OCTOBER, 14	A Month	A Year
1	2	3	4	5	6
Oil Seeds	205.5	212.4	198.7	-3.2	6.9
Groundnut Seed	217.1	220.7	215.3	-1.6	2.5
Rape & Mustard Seed	193.0	191.4	189.5	1.3	1.0
Cotton Seed	181.1	183.3	184.4	-1.7	-0.6
Copra (Coconut)	192.9	206.9	122.1	-6.8	69.5
Gingelly Seed (Sesamum)	435.6	437.0	395.8	-0.3	10.4
Niger Seed	203.9	203.9	175.1	0.0	16.4
Safflower (Kardi Seed)	125.4	126.6	155.1	-0.9	-18.4
Sunflower	184.2	185.1	195.1	-0.5	-5.1
Soyabean	181.0	202.4	209.8	-10.6	-3.5
Edible Oils	144.1	143.4	147.7	0.5	-2.9
Groundnut Oil	163.0	162.8	179.1	0.1	-9.1

WHOLESALE PRICE INDEX OF COMMERCIAL CROPS—CONTD.

1	2	3	4	5	6
Cotton Seed Oil	179.9	176.5	184.7	1.9	-4.4
Mustard & Rapeseed Oil	155.2	155.4	153.4	-0.1	1.3
Soyabean Oil	153.7	150.4	160.1	2.2	-6.1
Copra Oil	136.5	136.8	124.0	-0.2	10.3
Sunflower Oil	122.6	121.9	134.9	0.6	-9.6
Gingelly Oil	177.4	176.1	175.6	0.7	0.3
Fruits & Vegetables	272.8	290.8	282.8	-6.2	2.8
Potato	421.4	411.9	231.4	2.3	78.0
Onion	332.6	354.7	826.7	-6.2	-57.1
Condiments & Spices	302.8	304.8	240.7	-0.7	26.6
Black Pepper	759.1	737.7	547.6	2.9	34.7
Chillies(Dry)	298.7	292.9	257.0	2.0	14.0
Turmeric	225.2	223.5	212.6	0.8	5.1
Raw Cotton	195.3	215.0	250.3	-9.2	-14.1
Raw Jute	277.1	267.9	259.6	3.4	6.7

STATISTICAL TABLES

WAGES

I. DAILY AGRICULTURAL WAGES IN SOME STATES (OPERATION-WISE)

State	District	Centre	Month & Year	Normal Daily Working Hours	Unskilled Labour						Skilled Labour			
					Field Labour		Other Agri. Labour		Carpenter		Heedsman Black Smith Cobbler	Carpenter	Black Smith	Cobbler
					M	W	M	W	M	W				
Andhra Pradesh	Krishna	Ghantasala	March, 14	8	262.5	190	300	NA	150	NA	NA	NA	NA	
	Guntur	Tadikonda	March, 14	8	265	200	250	NA	250	NA	NA	NA	NA	
	Ranga Reddy	Arutala	March, 14	8	237.5	187.5	275	NA	NA	NA	NA	NA	NA	
Karnataka	Bangalore	Harisandra	Sep, 13	8	250	200	200	175	200	180	300	250	NA	
	Tumkur	Gidlahali	Dec, 13	8	175	165	180	170	180	170	200	180	NA	
Maharashtra	Nagpur	Mau&	Feb, 12	8	100	100	NA	NA	NA	NA	NA	NA	NA	
	A hmedn agar	Akole	Feb, 12	8	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Jharkhand	Ranchi	Gaitalsood	April, 12	8	100	100	NA	90	90	NA	58	58	NA	

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

State	District	Centre	Month & Year	Normal Daily Working Hours	Unskilled Labour						Skilled Labour			
					Field Labour		Other Agri. Labour		Carpenter		Heedsman Black Smith Cobbler	Carpenter	Black Smith	Cobbler
					M	W	M	W	M	W				
Andhra Pradesh	Krishna	Ghantasala	March, 14	8	262.5	190	300	NA	150	NA	NA	NA	NA	
	Guntur	Tadikonda	March, 14	8	265	200	250	NA	250	NA	NA	NA	NA	
	Ranga Reddy	Arutala	March, 14	8	237.5	187.5	275	NA	NA	NA	NA	NA	NA	
Karnataka	Bangalore	Harisandra	Sep, 13	8	250	200	200	175	200	180	300	250	NA	
	Tumkur	Gidlahali	Dec, 13	8	175	165	180	170	180	170	200	180	NA	
Maharashtra	Nagpur	Mauda	Feb, 12	8	100	100	NA	NA	NA	NA	NA	NA	NA	
	Ahmednagar	Akole	Feb, 12	8	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Jharkhand	Ranchi	Gaitalsood	April.12	8	100	100	NA	90	90	NA	58	58	NA	

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

State	District	Centre	Month & Year	Type of Labour	Normal Daily Working Hours	Ploughing	Sewing	Weeding	Harvesting	Other Agri. Labour	Skilled Labour			
											Heedsman	Carpenter	Black Smith	Cobbler
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Assam	Barpeta	Loharapara	March, 12	M	8	180	180	180	180	180	NA	180	180	180
				W	8	NA	NA	160	160	160	NA	NA	NA	NA
Bihar	Mtizalialptir	Bhalui Rasul	June, 12	M	8	130	120	80	130	150	120	200	180	250
				W	8	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Sliekbpira	Ktaut	June, 12	M	8	NA	NA	185	NA	185	NA	245	NA	NA
					8	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chhattisgarh	Dhamtari	Sihaba	March, 14	M	8	NA	NA	150	80	80	80	250	100	80
				W	8	NA	NA	80	80	70	80	150	NA	NA
Gujarat	Rajkot	Rajkot	Jan, 13	M	8	209	225	150	170	147	150	360	360	240
					8	NA	169	150	179	145	142	NA	NA	NA
	Dahod	Dahoil	Jan, 13	M	8	100	100	100	100	100	NA	200	144	150
					8	NA	100	100	100	100	NA	NA	NA	NA
Haryana	Panipat	Ugarakheri	Aug, 14	M	8	350	300	350	300	300	NA	NA	NA	NA
				W	8	NA	250	250	NA	250	NA	NA	NA	NA
Himachal Pradesh	Mandi	Mandi	Dec, 13	M	8	NA	162	162	162	162	NA	260	240	240
				W	8	NA	162	162	162	162	NA	NA	NA	NA
Kerala	Kozhikode	Koduvally	Jan, 14	M	4-8	NA	NA	NA	NA	NA	NA	NA	NA	NA
				W	4-8	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Palakkad	Elappally	Jan, 14	M	4-8	400	350	NA	450	433	NA	550	NA	NA
				W	4-8	NA	NA	300	450	250	NA	NA	NA	NA
Madhya Pradesh	Hosangabad	Sangarkhera	June, 14	M	8	150	130	150	150	125	100	350	350	NA
				W	8	NA	130	150	150	125	100	NA	NA	NA
	Santa	Kolar	June, 14	M	S	NA	NA	NA	NA	NA	NA	NA	NA	NA
				W	S	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Shyopurkala	Vijaypur	June, 14	M	8	NA	NA	NA	NA	NA	NA	NA	NA	NA
				W	8	NA	NA	NA	NA	NA	NA	NA	NA	NA
Odisha	Bhandrak	Chandbali	June, 14	M	8	290	250	NA	2990	262.5	250	300	250	250
				W	8	NA	NA	NA	200	212.5	200	NA	NA	NA
	Ganjam	Aska	Jun, 14	M	8	250	200	NA	250	270	200	400	300	200
				W	8	NA	100	100	150	110	100	NA	NA	NA
Punjab	Ludhiyana	Pakhowal	June, 2013	M	8	265	270	270	270	260	NA	325	NA	NA
				W	8	NA	NA	NA	NA	NA	NA	NA	NA	NA

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

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Rajasthan	Barmer	Vishala	Feb, 14	hi	8	310	310	NA	NA	NA	100	400	300	300
				W	8	310	310	NA	NA	NA	NA	NA	300	NA
	Jalore	Panwa	Feb, 14	NI	8	NA	NA	NA	NA	NA	200	350	300	NA
				W	0	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tamil Nadu	Thanjavur	Pulyarnathain	May, 14	M	8	NA	300	NA	300	Int 62	NA	NA	NA	NA
				W	8	NA	120	126	122	III II	NA	NA	NA	NA
	Tirunelveli	Malayakulam	May, 14	M	8	NA	130	NA	300	05407	NA	NA	NA	NA
				W	8	NA	150	138	150	300	NA	NA	NA	NA
Tripura	State Average		March, 12	M	8	238	201	203	209	207	199	253	235	240
				W	8	NA	154	152	154	154	149	NA	NA	NA
Uttar Pradesh*	Meerut	Ganeshpur	Apr, 14	NI	8	250	211	231	NA	234	NA	369	NA	NA
				W	8	NA	181	196	181	191	NA	NA	NA	NA
	Auraiya	Auraiya	Apr, 14	M	8	NA	NA	NA	NA	150	NA	250	NA	NA
				W	8	NA	NA	NA	150	150	NA	NA	NA	NA
	Chandauli	Chandauli	Apr, 14	M	8	NA	NA	200	200	200	NA	350	NA	NA
				W	8	NA	NA	200	200	200	NA	NA	NA	NA

M-Man

W-Woman

NA- Not Available

NR- Not Reported

* States reported district average daily wages

PRICES

2. WHOLESALE PRICES OF CERTAIN AGRICULTURAL COMMODITIES AND ANIMAL HUSBANDRY PRODUCTS AT SELECTED CENTRES IN INDIA

(Month end Prices in ₹)

Commodity	Variety	Unit	State	Centre	Oct.-14	Sep.-14	Oct.-13
Wheat	PBW 343	Quintal	Punjab	Amritsar	1500	1500	1500
Wheat	Dara	Quintal	Uttar Pradesh	Chandausi	1480	—	1500
Wheat	Lokvan	Quintal	Madhya Pradesh	Bhopal	1650	1650	1780
Jowar	—	Quintal	Maharashtra	Mumbai	2400	2350	2450
Gram	No. III	Quintal	Madhya Pradesh	Sehore	2400	7235	2866
Maize	Yellow	Quintal	Uttar Pradesh	Kanpur	1230	1315	—
Gram Split	—	Quintal	Bihar	Patna	4445	4445	4650
Gram Split	—	Quintal	Maharashtra	Mumbai	3800	3900	5800
Arhar Split	—	Quintal	Bihar	Patna	6890	6890	6750
Arhar Split	—	Quintal	Maharashtra	Mumbai	6750	6750	6500
Arhar Split	—	Quintal	NCT of Delhi	Delhi	6060	6035	6775
Arhar Split	Sort II	Quintal	Tamil Nadu	Chennai	7800	7400	6700
Gur	—	Quintal	Maharashtra	Mumbai	4600	4300	3420
Gur	Sort II	Quintal	Tamil Nadu	Coimbatore	4300	4300	4000
Gur	Balti	Quintal	Uttar Pradesh	Udapur	2500	2700	7875
Mustard Seed	Black (S)	Quintal	Uttar Pradesh	Kanpur	3300	3325	3250
Mustard Seed	Black	Quintal	West Bengal	Raniganj	3600	3600	3700
Mustard Seed	—	Quintal	West Bengal	Kolkata	3900	3900	4000
Linseed	Buda Dana	Quintal	Uttar Pradesh	Kanpur	4150	4150	4125
Linseed	Small	Quintal	Uttar Pradesh	Varanasi	—	—	3690
Cotton Seed	Mixed	Quintal	Tamil Nadu	Virudhunagar	1400	1800	1900
Cotton Seed	MCU 5	Quintal	Tamil Nadu	Coimbatore	2000	2375	1550
Castor Seed	—	Quintal	Andhra Pradesh	Hyderabad	3900	3725	3150
Sesamum Seed	White	Quintal	Uttar Pradesh	Varanasi	13400	13000	6685
Copra	FAQ	Quintal	Kerala	Alleppey	9900	10150	6600
Groundnut	Pods	Quintal	Tamil Nadu	Coimbatore	4500	5000	3800
Groundnut	—	Quintal	Maharashtra	Mumbai	5300	5400	7400
Mustard Oil	—	15 Kg.	Uttar Pradesh	Kanpur	1173	1200	1179
Mustard Oil	Ordinary	15 Kg.	West Bengal	Kolkata	1230	1230	1215
Groundnut Oil	—	15 Kg.	Maharashtra	Mumbai	1320	1163	1350

2. WHOLESALE PRICES OF CERTAIN AGRICULTURAL COMMODITIES AND ANIMAL HUSBANDRY PRODUCTS AT SELECTED CENTRES IN INDIA—CONTD.

(Month end Prices in ₹)

Commodity	Variety	Unit	State	Centre	Oct.-14	Sep.-14	Oct.-13
Groundnut Oil	Ordinary	15 Kg.	Tamil Nadu	Chennai	1260	1298	1313
Linseed Oil	—	15 Kg.	Uttar Pradesh	Kanpur	1425	1414	1230
Castor Oil	—	15 Kg.	Andhra Pradesh	Hyderabad	1268	1238	1080
Sesamum Oil	—	15 K".	NCT of Delhi	Delhi	1870	1860	1400
Sesamum Oil	Ordinary	15 Kg.	Tamil Nadu	Chennai	2700	2475	2700
Coconut Oil	—	15 Kg.	Kerala	Cochin	2175	2265	1425
Mustard Cake	—	Quintal	Uttar Pradesh	Kanpur	1810	1775	1690
Groundnut Cake	—	Quintal	Andhra Pradesh	Hyderabad	3243	3500	2571
Cotton/Kapas	NH 44	Quintal	Andhra Pradesh	Nandyal	3750	4300	3800
Cottora/Kapas	LRA	Quintal	Tamil Nadu	Virudhunagar	—	—	—
Jute Raw	TD 5	Quintal	West Bengal	Kolkata	2955	1775	2645
Jute Raw	W 5	Quintal	West Bengal	Kolkata	2905	2725	2595
Oranges	—	100 No.	NCT of Delhi	Delhi	667	—	—
Oranges	Big	100 No.	Tamil Nadu	Chennai	580	630	580
Oranges	Nagpuri	100 No.	West Bengal	Kolkata	—	—	—
Banana	—	100 No.	NCT of Delhi	Delhi	333	375	250
Banana	Medium	100 No.	Tamil Nadu	Kodaikkanal	483	478	420
Cashewnuts	Raw	Quintal	Maharashtra	Mumbai	59000	58000	57500
Almonds	—	Quintal	Maharashtra	Mumbai	67000	65000	59000
Walnuts	—	Quintal	Maharashtra	Mumbai	66000	65000	67500
Kishmish	—	Quintal	Maharashtra	Mumbai	20000	19000	13500
Peas Green	—	Quintal	Maharashtra	Mumbai	4600	4700	4700
Tomatoes	Ripe	Quintal	Uttar Pradesh	Kanpur	1400	2200	2200
Ladyfinger	—	Quintal	Tamil Nadu	Chennai	2300	1500	2000
Cauliflower	—	100 No.	Tamil Nadu	Chennai	2200	1425	1800
Potatoes	Red	Quintal	Bihar	Patna	2030	1890	1250
Potatoes	Desi	Quintal	West Bengal	Kolkata	1800	1700	1400
Potatoes	Sort I	Quintal	Tamil Nadu	Mettupalayam	2778	3100	2341
Onions	Pole	Quintal	Maharashtra	Nashik	1100	1200	3200
Turmeric	Nadan	Quintal	Kerala	Cochin	11000	10000	10000
Turmeric	Salam	Quintal	Tamil Nadu	Chennai	8800	9300	9400
Chillies	—	Quintal	Bihar	Patna	9170	9200	8000
Black Pepper	Nadan	Quintal	Kerala	Kozhikode	65500	55000	45000
Ginger	Dry	Quintal	Kerala	Cochin	24000	23500	15500

2. WHOLESALE PRICES OF CERTAIN AGRICULTURAL COMMODITIES AND ANIMAL HUSBANDRY PRODUCTS AT SELECTED CENTRES IN INDIA—CONCLD.

(Month end Prices in ₹)

Commodity	Variety	Unit	State	Centre	Oct.-14	Sep.-14	Oct.-13
Cardamom	Major	Quintal	NCT of Delhi	Delhi	140000	135000	120000
Cardamom	Small	Quintal	West Bengal	Kolkata	120000	120000	95000
Milk	Cow	100 Liters	NCT of Delhi	Delhi	—	—	—
Milk	Buffalo	100 Liters	West Bengal	Kolkata	3600	3600	3600
Ghee Deshi	Deshi No 1	Quintal	NCT of Delhi	Delhi	30682	30015	28681
Ghee Deshi	—	Quintal	Maharashtra	Mumbai	39000	36000	30500
Ghee Deshi	Desi	Quintal	Uttar Pradesh	Kanpur	33440	33000	30600
Fish	Rohu	Quintal	NCT of Delhi	Delhi	11000	10500	10000
Fish	Pomphrets	Quintal	Tamil Nadu	Chennai	29200	28000	29000
Eggs	Madras	1000 No.	West Bengal	Kolkata	4200	4200	3800
Tea	—	Quintal	Bihar	Patna	21150	21350	20000
Tea	Atti Kunna	Quintal	Tamil Nadu	Coimbatore	—	13000	9000
Coffee	Plant-A	Quintal	Tamil Nadu	Coimbatore	30000	30000	26000
Coffee	Rubusta	Quintal	Tamil Nadu	Coimbatore	15500	15500	14000
Tobacco	Kampila	Quintal	Uttar Pradesh	Farukhabad	4600	4750	2850
Tobacco	Raisa	Quintal	Uttar Pradesh	Farukhabad	3600	3600	2750
Tobacco	Bidi Tobacco	Quintal	West Bengal	Kolkata	3900	3900	3700
Rubber	—	Quintal	Kerala	Kottayam	11400	10400	14900
Arecanut	Pheton	Quintal	Tamil Nadu	Chennai	29800	29800	29000

3. MONTH-END WHOLESALE PRICES OF SOME IMPORTANT AGRICULTURAL COMMODITIES IN INTERNATIONAL MARKETS DURING YEAR 2014

Commodity	Variety	Country	Centre	Unit	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
CARDAMOM	Guatemala	U.K.	-	Dollar/M.T.	9000.00	9000.00	9000.00	9000.00	9000.00	9000.00	9000.00	9000.00	9000.00	9000.00
	Bold Green			Rs./Qtl	56079.00	55818.00	54216.00	55008.00	53010.00	54072.00	54054.00	54549.00	54729.00	55287.00
CASHEW KERNELS	Spot U.K. 320s	U.K.	-	Dollar/lbs	3.46	3.44	3.46	3.40	3.48	3.55	3.55	3.52	3.60	3.68
				Rs./Qtl	47516.61	47022.08	45938.06	45800.88	45175.83	47007.79	46992.15	47021.72	48249.09	49824.15
CASTOR OIL,	Spot U.K. 320s	U.K.	-	Dollar/M.T.	7648.65	7614.88	7623.07	7497.06	7673.14	7837.34	7802.62	7763.90	7876.39	8114.12
	Any Origin ex tank Rotterdam	Netherlands	-	Rs./Qtl	47658.74	47227.49	45921.37	45422.03	45194.79	47086.74	46862.54	47057.00	47896.33	49845.04
CELERY SEED	ASTA cif	India	-	Dollar/M.T.	1600.00	1500.00	1500.00	1675.00	1650.00	1655.00	1675.00	1775.00	1703.00	1753.00
				Rs./Qtl	9969.60	10240.80	10237.60	10237.60	9718.50	9943.24	10060.05	10152.18	10355.94	10768.68
CHILLIES	Birds eye	Africa	-	Dollar/M.T.	4100.00	4100.00	4100.00	4100.00	4100.00	4100.00	4100.00	4100.00	4100.00	4100.00
	2005 crop			Rs./Qtl	25547.10	25428.20	24698.40	25059.20	24149.00	24632.80	24624.60	24850.10	24932.10	25186.30
CINNAMON BARK		Madagascar	-	Dollar/M.T.	1100.00	1100.00	1100.00	1276.00	1276.00	1276.00	1276.00	1276.00	1276.00	1276.00
				Rs./Qtl	6854.10	6822.20	6626.40	7798.91	7515.64	7666.21	7663.66	7733.84	7759.36	7759.36
CLOVES	Singapore	Madagascar	-	Dollar/M.T.	13250.00	13250.00	12600.00	12600.00	12600.00	12800.00	12800.00	12800.00	9900.00	9900.00
				Rs./Qtl	82560.75	82176.50	75902.40	77011.20	74214.00	76902.40	76876.80	77880.80	60201.90	60815.70
COCONUT OIL Indonesia,	Crude	Netherlands	-	Dollar/M.T.	1280.00	1420.00	1355.00	1375.00	1385.00	1360.00	1285.00	1075.00	1210.00	1250.00
	Philippine/ cif Rotterdam			Rs./Qtl	7975.68	8806.84	8162.52	8404.00	8157.65	8170.88	7717.71	6515.58	7358.01	7678.75
COPRA	Phillipines	Phillipine	-	Dollar/M.T.	806.50	895.50	851.00	867.00	873.00	854.00	806.50	692.00	762.00	759.00
	cif Rotterdam			Rs./Qtl	5025.30	5553.89	5126.42	599.10	5141.97	5130.83	4843.84	4194.21	4633.72	4662.54
CORRIANDER		India	-	Dollar/M.T.	1500.00	1500.00	1500.00	1500.00	1500.00	1500.00	1500.00	1500.00	2000.00	2000.00
				Rs./Qtl	9346.50	9303.00	9036.00	9168.00	8835.00	9012.00	9009.00	9091.50	12162.00	12286.00
CUMMIN SEED		India	-	Dollar/M.T.	2250.00	2250.00	2250.00	2250.00	2250.00	2250.00	2250.00	2250.00	2250.00	2250.00
				Rs./Qtl	14019.75	13954.50	13554.00	13752.00	13252.50	13518.00	13513.50	13637.25	13682.25	13821.75
Fennel seed		India	-	Dollar/M.T.	2600.00	2600.00	2600.00	2600.00	2600.00	2600.00	2600.00	2600.00	2600.00	2600.00
				Rs./Qtl	16200.60	16125.20	15662.40	15891.20	15514.00	15620.80	15615.60	15758.60	15810.60	15810.60
GINGER	Split	Nigeria	-	Dollar/M.T.	1800.00	1800.00	2300.00	2300.00	2300.00	2300.00	2300.00	2300.00	2300.00	2300.00
				Rs./Qtl	11215.80	11163.60	13855.20	14057.60	13547.00	13818.40	13813.80	13940.30	13986.30	14128.90
GROUNDNUT kernels	US 2005, 40/50	European Ports	-	Dollar/M.T.	1250.00	1250.00	1220.00	1200.00	1180.00	1180.00	1180.00	1200.00	1230.00	1370.00
				Rs./Qtl	7788.75	7752.50	7349.28	7334.40	6950.20	7089.44	7087.08	7273.20	7479.63	8415.91

Commodity	Variety	Country	Centre	Unit	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
GROUNDNUT Oil	Crude Any	U.K.	-	Dollar/M.T.	1500.00	1500.00	1500.00	1180.00	1180.00	1180.00	1180.00	1180.00	1180.00	1200.00
	Origin cif Rotterdam			Rs./Qtl	9346.50	9303.00	9036.00	7212.16	6950.20	7089.44	7087.08	7151.98	7175.58	7371.60
LENTILS	Turkish Red	U.K.	-	Pound/M.T.	606.12	599.00	602.12	594.90	597.93	588.72	-	-	-	-
	Split Crop 1+1 water			Rs./Qtl	6230.91	6201.78	6023.61	6112.00	5890.21	6022.02	-	-	-	-
MAIZE		U.S.A.	Chicago	C/56 lbs	427.50	455.50	484.50	503.50	472.50	441.00	362.50	359.50	329.50	375.25
				Rs./Qtl	1046.85	1110.23	1147.02	1209.42	1093.73	1041.26	855.63	856.32	787.45	905.93
OATS		CANADA	Winnipeg	Dollar/M.T.	465.48	569.22	445.04	446.35	368.48	362.40	355.63	400.28	367.97	397.39
				Rs./Qtl	2900.41	3530.30	2680.92	2728.09	2170.35	2177.30	2135.91	2426.10	2237.63	2441.17
PALM KERNAL OIL	Crude	Netherlands	-	Dollar/M.T.	1170.00	1375.00	1350.00	1300.00	1245.00	1235.00	1120.00	845.00	935.00	965.00
	Malaysia/Indonesia,			Rs./Qtl	7290.27	8527.75	8132.40	7945.60	7333.05	7419.88	6726.72	5121.55	5685.74	5928.00
PALM Oil	Crude	Netherlands	-	Dollar/M.T.	855.00	950.00	923.00	903.00	875.00	873.00	820.00	723.00	710.00	740.00
	Malaysian/Sumatra,			Rs./Qtl	5327.51	5891.90	5560.15	5519.14	5153.75	5244.98	4924.92	4322.10	4317.51	4545.82
PEPPER (Black)	Sarawak	Malaysia	-	Dollar/M.T.	-	-	-	-	-	-	9600.00	10000.00	10000.00	10000.00
	Black lable			Rs./Qtl	-	-	-	-	-	-	57657.60	60610.00	60810.00	61430.00
RAPESEED	Canola	CANADA	Winnipeg	Can Dollar/M.T.	423.80	415.50	458.20	445.80	466.50	483.30	438.00	424.20	400.10	444.40
				Rs./Qtl	2366.92	2316.83	2502.23	2472.41	2535.43	2715.66	2448.42	2368.73	2196.95	2438.87
RAPESEED	UK delivered rapeseed delivered	U.K.	-	Pound/M.T.	278.00	304.00	325.00	330.00	273.00	269.00	258.00	240.00	232.00	225.00
				Rs./Qtl	2857.84	3147.01	3251.30	3390.42	2689.32	2751.60	2632.89	2413.20	2303.06	2211.75
RAPESEED OIL	Refined bleached and deodorised	U.K.	-	Pound/M.T.	668.00	681.00	706.00	711.00	675.00	657.00	607.00	590.00	578.00	636.00
				Rs./Qtl	6867.04	7049.71	7062.82	7304.81	6649.43	6720.45	6194.44	5932.45	5737.81	6251.88
SOYABEAN Meal	UK produced 49% Oil & protein	U.K.	-	Pound/M.T.	366.00	410.00	412.00	384.00	371.00	343.00	311.00	338.00	342.00	354.00
				Rs./Qtl	3762.40	4244.32	4121.65	394.22	3654.72	3508.55	3173.76	3398.59	3395.03	3479.82
SOYABEAN OIL	Refined bleached and deodorised	U.S.A.	-	Rs./Qtl	37.10	41.20	40.73	4250.00	3963.00	40.65	36.20	32.86	32.62	34.18
		U.K.		Pound/M.T.	5094.90	5631.71	5407.68	5725.11	5144.59	5382.72	4791.88	4389.58	4371.90	4627.69
SOYABEANS	US NO.2 yellow	Netherlands	Chicago	Dollar/M.T.	563.90	492.20	504.70	517.30	523.00	512.30	463.60	453.10	415.90	453.90
				Rs./Qtl	3513.66	3052.62	3040.31	3161.74	3080.47	3077.90	2784.38	2746.24	2529.09	2788.31
SUNFLOWER SEED OIL	Refined bleached and deodorised	U.S.A.	-	C/60 lbs	1269.25	1407.25	1440.00	1468.50	1497.75	1415.75	1201.00	1119.75	936.75	1043.00
				Rs./Qtl	2902.49	3203.09	3183.56	3294.00	3237.58	3121.64	2647.25	2490.76	2090.57	2351.42
SUNFLOWER SEED OIL	Refined bleached and deodorised	U.K.	-	Pound/M.T.	710.00	732.00	696.00	720.00	693.00	680.00	683.00	637.00	654.00	665.00
				Rs./Qtl	7298.80	7577.66	6962.78	7397.28	6826.74	6955.72	6970.02	6405.04	6492.26	6536.95

Commodity	Variety	Country	Centre	Unit	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
TALLOW	High grade delivered	U.K.	London	Pound/M.T. Rs./Qtl	465.00 4780.20	445.00 4606.64	445.00 4451.78	445.00 4571.93	420.00 4137.42	405.00 4142.75	400.00 4082.00	350.00 3519.25	350.00 3474.45	350.00 3440.50
TURMERIC	Madras finger	India	spot/cif	Dollar/M.T. Rs./Qtl	850.00 Rs./Qtl	850.00 5296.35	850.00 5271.70	850.00 5120.40	850.00 5195.20	850.00 5006.50	850.00 5106.80	850.00 5105.10	850.00 5151.85	— 5168.85
WALNUTS	Indian light halves	U.K.		Pound/M.T. Rs./Qtl	8130.00 83576.40	8130.00 84161.76	8130.00 81332.52	8130.00 83527.62	8130.00 80088.63	8130.00 83161.77	— —	— —	— —	— —
Wheat		U.S.A.	Chicago	C60lbs Rs./Qtl	551.50 1261.16	600.00 1365.68	696.75 1540.38	676.50 1517.46	638.75 1380.74	575.50 1268.94	530.75 1169.88	539.50 1200.06	480.25 1071.79	538.25 1213.47
				Exchange Rate	Jan.	Feb.	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
				US Dollar	62.31	62.02	60.24	61.12	58.90	60.08	60.06	60.61	60.81	61.43
				Can Dollar	55.85	55.76	54.61	55.46	54.35	56.19	55.90	55.84	54.91	54.88
				UK Pound	102.80	103.52	100.04	102.74	98.51	102/29	102.05	100.55	99.27	98.30

Source: Public ledger

CROP PRODUCTION

4, SOWING AND HARVESTING OPERATIONS NORMALLY IN PROGRESS DURING THE MONTH OF DECEMBER, 2014

State	Sowing	Harvesting
(I)	(2)	(3)
Andhra Pradesh	Summer Rice, Jowar(R), Maize, Ragi, Small Millets (R), Gram, Urad (R), Mung (R)	Winter Rice, Urad(K), Bajra, Ragi (K), Small Millets (K), Sugarcane, Ginger, Mesta, Sweet Potato, Groundnut, Nigerseed, Onion
Assam	Wheat	Winter Rice, Sugarcane, Castor seed, Sesamum
Bihar	Wheat, Barley, Gram, Winter Potato (Plains), Sugarcane, Linseed	Winter Rice, Jowar(K), Bajra, Winter Potato (Plains), Groundnut, Cotton
Gujarat	Winter Potato(Hills), Sugarcane, Onion	Winter Rice, Jowar(K), Sugarcane, Ginger, Chillies (Dry), Tobacco, Caster seed, Sesamum, Cotton, Turmeric
Himachal Pradesh	Onion	Sugarcane, Ginger, Chillies (Dry), Cotton, Turmeric
Jammu & Kashmir	Onion	Winter Potato (Plains), Sugarcane, Ginger, Chillies (Dry), Sesamum
Karnataka	Summer Rice, Gram, Urad (R), Mung (R), Winter Potato (Plains) , Summer Potato (Plains), Sugarcane, Onion	Summer Rice, Gram, Urad (K),Mung (K), Ragi, Small Millets (K), Tur (K), other Kharif Pulses, Winter Potato (Plains), Summer Potato (Plains), Sugarcane, Chillies (Dry), Tobacco, Groundnut, Castor seed, Sesamum, Cotton, Mesta, Sweet Potato, Sannhemp, Nigerseed, Kardiseed, Tapioca
Kerala	Summer Rice, Sugarcane, Sesamum (3rd Crop), Sweet Potato (3rd Crop)	Winter Rice, Ragi, Small Millets (R), Tur (R), Other Kharif Pulses, Other Rabi Pulses, Sugarcane, Ginger, Pepper Black, Sesamum (2nd Crop), Sweet Potato (2nd Crop), Turmeric, Tapioca
Madhya Pradesh	Winter Potato (Hills), Sugarcane, Castorseed, Onion	Autumn Rice, Jowar (K), Bajra, Small Millets (K), Tur (K), Mung (R), Other Rabi Pulses, Summer Potato (Plains), Chillies (Dry), Tobacco, Ginger, Sugarcane, Castorseed, Sesamum, Cotton, Jute, Mesta, Sweet Potato, Turmeric, Sannhemp, Nigerseed
Maharashtra	Maize, (R), Other Rabi Pulses, Sugarcane, Onion	Winter Rice, Jowar (K), Small Millets (K), Sugarcane, Chillies (Dry), Groundnut, Sesamum, Cotton, Sannhemp, Nigerseed
Manipur		Winter Rice, Sweet Potato

4, SOWING AND HARVESTING OPERATIONS NORMALLY IN PROGRESS DURING THE MONTH OF DECEMBER, 2014—CONTD.

(1)	(2)	(3)
Orissa	Summer Rice, Bajra (R), Urad (R), Mung (R), Chillies (Dry), Rape & Mustard, Cotton (Late)	Winter Rice, Sugarcane, Chillies (Dry), Groundnut, Castorseed, Cotton (Early), Mesta, Nigerseed
Punjab and Haryana	Wheat, Barley, Winter Potato (Plains), Tobacco, Onion	Summer Potato, Sugarcane, Ginger, Chillies (Dry), Groundnut, Cotton, Sweet Potato, Turmeric, Sannhemp
Rajasthan	Wheat, Barley, Tobacco, (3rd Crop)	Autumn Rice, Jowar (K), Small Millets (K), Tur (K), Urad (K), Mung (K), other Kharif Pulses, Winter Potato (Plains), Sugarcane, Chillies (Dry), Tobacco, Groundnut, Sesamum, Cotton
Tamil Nadu	Winter Rice, Jowar (R), Bajra, Tur (R), other Rabi Pulses (Kulthi), Winter Potato (Hills), Sugarcane, Chillies (Dry), Tobacco, Onion	Autumn Rice, Jowar (K), Bajra, Ragi, Small Millets (K), Gram, Tur (K), Mung (K), Winter Potato (Hills), Sugarcane, Pepper Black, Chillies (Dry), Groundnut, Castor seed, Sesamum, Cotton, Onion, Tapioca
Tripura	Summer Rice, Urad (R), Mung (R), other Rabi Pulses, Winter potato (Plains), Chillies (Dry), Tobacco	Winter Rice, Sugarcane, Cotton
Uttar Pradesh	Wheat, Winter Potato (Hills), Sugarcane, Tobacco, Onion	Winter Rice, Jowar (K), Tur (K), Winter Potato (Plains), Summer Potato, Sugarcane, Groundnut, Rape & Mustard, Cotton, Sweet Potato, Tapioca
West Bengal	Summer Rice, Wheat, Gram, Urad (R), Mung (R), other Rabi Pulses, Sugarcane, Tobacco, Chillies (Dry)	Winter Rice, Tur (K), Urad (K), Mung (R), other Rabi Pulses, Sugarcane, Ginger, Chillies (Dry), Sesamum, Mesta
Delhi	Tobacco	Sugarcane
Andaman & Nicobar Island		Winter Rice

(K) - Kharif

(R) - Rabi