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Agricultural Situation in India

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The Journal is brought out by the Directorate of Economics and Statistics, Ministry of Agriculture. It aims at presenting a factual and integrated picture of the food and Agricultural Situation in India on month to month basis. The views expressed, if any, are not necessarily those of the Government of India.

NOTE TO CONTRIBUTORS

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

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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.

A. General Survey

Trends in Food Grain Prices

During the month of June 2013, the All India Index Number of Wholesale Price (2004-05=100) of food grains increased by 1.57 per cent from 216.9 in May, 2013 to 220.3 in June, 2013.

The Wholesale Price Index (WPI) Number of cereals increased by 2.10 per cent from 213.8 to 218.3 whereas the WPI of pulses declined by 0.82 per cent from 231.6 to 229.7 during the same period.

The Wholesale Price Index (WPI) Number of wheat declined by 1.84 per cent from 201.3 to 205.0 while that of rice increased by 2.56 per cent from 210.9 to 216.3 during the same period.

Weather, Rainfall and Reservoir situation during July, 2013

Cumulative Monsoon (June to September) Rainfall for the country as a whole during the period 01st June to 31st July, 2013 is 17% more than LPA. Rainfall in the four broad geographical divisions of the country during the above period was higher than LPA by 25% in North West India, 46% in Central India, 27% in South Peninsula and lower by (-) 33% in East & North East India.

Out of a total of 36 meteorological sub-divisions, 30 sub-divisions received excess/normal rainfall and 06 sub-divisions received deficient/scanty rainfall.

Central Water Commission monitors 84 major reservoirs in the country which have a total live capacity of 154.42 BCM at Full Reservoir Level (FRL). Current live storage in these reservoirs as on 01st August, 2013 was 97.35 BCM as against 45.86 BCM on 01.08.2012(last year) and 59.45 BCM of normal storage (average storage of the last 10 years). Current year's storage is 212% of the last year's and 164% of the normal storage.

As per latest information available on sowing of crops, around 77% of the normal area under kharif crops have been sown upto 02.08.2013. Area sown under all kharif crops taken together has been reported to be 819.99 lakh hectares at All India Level as compared to 776.22 lakh hectares average area on the corresponding date. Area coverage (as compared to average area) is higher by 10.5 lakh ha. in Maize, 2.7 lakh ha. in Coarse Cereals, 5.5 lakh ha. in Tur, 2.0 lakh ha. in Urad, 1.1 lakh ha. in Groundnut, 25.8 lakh ha. in Soyabean, 2.0 lakh ha. in Sugarcane and 4.9 lakh ha. in Cotton. Area coverage is lower (compared to average area) under Jowar (-4.9 lakh ha.) and Bajra (-2.7 lakh ha.).

A statement indicating comparative position of area coverage under major Kharif crops during 2013-14 (upto 02.08.2013) and the corresponding period of last year is given in the following table:

All India Crop Situation – Kharif (2013-14) AS ON 26-07-2013(in lakh hectares)

Crop Name	Normal area for whole kharif season	Normal area as on date	Area Sown Reported			Absolute change over(+/-)	
			This year 2013	% of Normal for Whole season	Last year2012	Normal As on date	Last Year
Rice	392.18	239.23	238.87	60.9	231.43	-0.4	7.4
Jowar	30.65	23.56	18.69	61.0	19.28	-4.9	-0.6
Bajra	89.27	62.38	59.70	66.9	45.93	-2.7	13.8
Maize	71.48	64.42	74.91	104.8	62.85	10.5	12.1
Total Coarse cereals	213.15	160.39	163.07	76.5	135.75	2.7	27.3
Total Cereals	605.33	399.62	401.94	66.4	367.18	2.3	34.8
Tur	37.89	27.22	32.68	86.3	26.66	5.5	6.0
Urad	22.95	16.59	18.56	80.9	16.63	2.0	1.9
Moong	26.41	18.12	18.21	69.0	12.16	0.1	6.1
Others	23.54	11.85	10.05	42.7	7.54	-1.8	2.5
Total Pulses	110.78	73.78	79.50	71.8	62.99	5.7	16.5
Total Foodgrains	716.11	473.40	481.44	67.2	430.17	8.0	51.3

ALL INDIA CROP SITUATION – KHARIF (2013-14) AS ON 26-07-2013 (in lakh hectares)-*contd.*

Crop Name	Normal area for whole kharif season	Normal area as on date	Area Sown Reported			Absolute change over(+/-)	
			This year 2013	% of Normal for Whole season	Last year2012	Normal As on date	Last Year
Groundnut	49.02	36.10	37.24	76.0	28.78	1.1	8.5
Soyabean	95.68	92.93	118.76	124.1	103.6	25.8	15.7
Sunflower	5.13	2.03	1.84	35.8	1.13	-0.2	0.7
Sesamum	19.07	10.35	10.95	57.4	9.52	0.6	1.4
Niger	3.82	0.62	0.95	24.8	0.52	0.3	0.4
Castor	9.48	2.45	3.47	36.6	1.85	1.0	1.6
Total oilseed	182.20	144.49	173.21	95.1	144.87	28.7	28.3
Cotton	104.73	103.63	108.52	103.6	101.12	4.9	7.4
Sugarcane	47.14	46.50	48.53	103.0	50.06	2.0	-1.5
Jute	9.09	8.21	8.29	91.2	8.35	0.1	-0.1
All Crops	1059.26	776.22	819.99	77.4	734.57	43.8	85.4

Source: Crops & TMOP Divisions, DAC

A. Agriculture

Procurement: Procurement of rice as on 3rd June, 2013 was 34.13 million tonnes in Kharif Marketing Season as against 32.86 million tonnes procured last year in the corresponding period respectively. This represents an increase of 3.86 per cent. Wheat procurement during Rabi Marketing Season 2013-14 is 25.03 million tonnes as compared to 34.77 million tonnes during the corresponding period last year.

TABLE 1 – PROCUREMENT IN MILLION TONNES

	2010-11	2011-12	2012-13	2013-14
Rice	34.20	35.04	33.55*	--
Wheat	22.51	28.34	38.15	25.08*
Total	56.71	63.38	71.70	25.08

* Position as on 5.7.2013

Off-take: Off-take of rice during the month of May, 2013 was 23.84 lakh tonnes. This comprises 21.67 lakh tonnes under TPDS and 2.17 lakh tonnes under other schemes. In respect of wheat, the total off-take was 18.95 lakh tonnes comprising of 15.23 lakh tonnes under TPDS and 3.72 lakh tonnes under other schemes.

Stocks: Stocks of food grains (rice and wheat) held by FCI as on July 1, 2013 were 73.91 million tonnes, which is lower by 8.21 per cent compared to the level of 80.52 million tonnes as on July 1, 2012.

Table 2 – Off-take and Stocks of Food Grains (million tonnes)

	Off-take			Stocks	
	2011-12	2012-13	2013-14 (Upto May 2013)	July 1, 2012	July 1,2013
Rice	32.12	32.64	4.63	30.71	31.51
Wheat	24.26	33.21	3.82	49.81	42.40
Total	56.38	65.85	8.45	80.52	73.91

B. Growth of Economy:

As per the Provisional Estimates of the Central Statistics Office (CSO), the growth in Gross Domestic Product (GDP) at factor cost at constant (2004-05 prices) is estimated at 5.0 per cent in 2012-13 with agriculture, industry and services registering growth rates of 1.9 per cent, 2.1 per cent and 7.1 per cent respectively. As per the First Revised Estimates, the growth in GDP at factor cost at constant (2004-05) prices is estimated at 6.2 per cent in 2011-12. At disaggregated level, this (First Revised 2011-12) comprises growth of 3.6 per cent in agriculture and allied activities, 3.5 per cent in industry and 8.2 per cent in services. The growth in GDP is placed at 4.8 per cent in the fourth quarter of 2012-13.

Table-3 : Growth of GDP at Factor Cost by Economic Activity (at 2004-05 prices)

	Sector	Growth			Percentage Share in GDP		
		2010-11	2011-12 (1R)	2012-13 (PE)	2010-11 (2R)	2011-12 (1R)	2012-13 (PE)
1	Agriculture, forestry & fishing	7.9	3.6	1.9	14.5	14.1	13.7
2	Industry	9.2	3.5	2.1	28.2	27.5	26.7
A	Mining & quarrying	4.9	-0.6	-0.6	2.2	2.1	2.0
B	Manufacturing	9.7	2.7	1.0	16.2	15.7	15.1
C	Electricity, gas & water supply	5.2	6.5	4.2	1.9	1.9	1.9

TABLE-3 : GROWTH OF GDP AT FACTOR COST BY ECONOMIC ACTIVITY (AT 2004-05 PRICES)-*contd.*

	Sector	Growth			Percentage Share in GDP		
		2010-11	2011-12 (1R)	2012-13 (PE)	2010-11 (2R)	2011-12 (1R)	2012-13 (PE)
d	Construction	10.2	5.6	4.3	7.9	7.9	7.8
3	Services	9.8	8.2	7.1	57.3	58.4	59.6
a	Trade, hostels, transports & communication	12.3	7.0	6.4	27.3	27.5	27.8
b	Financing, insurance, real estate & business services	10.1	11.7	8.6	17.2	18.1	18.7
c	Community, social and personal services	4.3	6.0	6.6	12.8	12.8	13.0
4	GDP at factor cost	9.3	6.2	5.0	100.0	100.0	100.0

1R – 1st Revised Estimates, PE Provisional Estimates Source: CSO

TABLE 4 : QUARTERLY GROWTH ESTIMATE OF GDP (YEAR-ON-YEAR PER CENT)

	Sector	2011-12				2012-13			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1	Agriculture, forestry & fishing	5.4	3.2	4.1	2.0	2.9	1.7	1.8	1.4
2	Industry	5.7	3.8	2.6	2.1	1.8	1.3	2.5	2.7
a	Mining & quarrying	-0.4	-5.3	-2.6	5.2	0.4	1.7	-0.7	-3.1
b	Manufacturing	7.4	3.1	0.7	0.1	-1.0	0.1	2.5	2.6
c	Electricity, gas & water supply	6.6	8.4	7.7	3.5	6.2	3.2	4.5	2.8
d	Construction	3.8	6.5	6.9	5.1	7.0	3.1	2.9	4.4
3	Services	8.9	8.5	8.3	7.3	7.7	7.6	6.7	6.6
a	Trade, hostels, transports & communication	9.5	7.0	6.9	5.1	6.1	6.8	6.4	6.2
b	Financing, insurance, real estate & business services	11.6	12.3	11.4	11.3	9.3	8.3	7.8	9.1
c	Community, social and personal services	3.5	6.5	6.8	6.8	8.9	8.4	5.6	4.0
4	GDP at factor cost	7.5	6.5	6.0	5.1	5.4	5.2	4.7	4.8

Source : CSO

B. Articles

Vegetable production, utilization pattern and post-harvest losses – An analysis in Jorhat district of Assam

Sumi Dutta and C. Hazarika[1]

Vegetable is an essential item in our every day meal as it contains the entire required nutrient for a balance diet. The Indian council of Medical Research has recommended that the vegetable requirement in India is 280 g/day/person. But the per capita availability of vegetable in India is much lower which are just 120 g/day/person.

Vegetables are inherently perishable in nature. During the process of distribution and marketing, substantial losses are incurred which range from a slight loss of quality to total spoilage. Post harvest losses may occur at any point in the marketing process from the initial harvest through assembly and distribution to the final consumer. The seasonal gluts and lack of infrastructure and marketing facilities in the developing countries have significant effect on the extent of post harvest loss of vegetable. The cause of these losses are many, viz. physical damage during handling and transport, physiological decay, water loss or sometimes simply because there is a surplus in the market place and absence of adequate numbers of buyers.

In Jorhat, the vegetable area is about 5.22 per cent of the state total and it produces about 4.57 per cent of the total vegetable production of the state. Table 1 and 2shows the block wise area, production and productivity of vegetables in Jorhat district of Assam during 2007-08 and 2008-09 respectively. Among the eight different blocks of Jorhat, Dhekorgorah block is the major vegetable growing block having an area of 1751 (14.82 per cent).

Table 3 presents the area, production, and productivity in Alengmora circle. Cauliflower, cabbage, potato, lady's finger and brinjal are the major vegetables grown in the Alengmora circle.

The present study is conducted in Jorhat district of Assam and North West Development Block is selected on the basis of area coverage and highest production of vegetable among the various block of Jorhat district. The present study is designed to gather information regarding the volume of marketed and marketable surplus of vegetables and post-harvest losses at various levels of marketing.

[1] Ph.D. scholar and Professor respectively, Department of Agricultural Economics, Assam Agricultural University, Jorhat -785013, Assam

TABLE 1--BLOCK WISE AREA, PRODUCTION AND PRODUCTIVITY OF VEGETABLES OF JORHAT DISTRICT DURING 2007-08

Crops	Ujoni Majuli	Majuli	Dhekorgorah	Cipahikhola	Koliapani	Bagchung	Selenghat	Titabor	Total		
	Area	Area	Area	Area	Area	Area	Area	Area	Area	Production	Productivity
Kharif vegetables	406	398	542	548	541	470	484	490	3879	33602.55	8662.68
Rabi vegetables	842	811	1105	1018	984	1021	896	678	7355	46472.60	6318.50
total	1248	1209	1647	1566	1524	1491	1380	1168	11234	80075.15	7127.93

TABLE 2--BLOCK WISE AREA, PRODUCTION AND PRODUCTIVITY OF VEGETABLES OF JORHAT DISTRICT DURING 2008-09

Crops	Ujoni Majuli	Majuli	Dhekorgorah	Cipahikhola	Koliapani	Bagchung	Selenghat	Titabor	Total		
	Area	Area	Area	Area	Area	Area	Area	Area	Area	Production	Productivity
Kharif vegetables	410	402	558	572	551	471	493	480	3937	34330.69	8720.00
Rabi vegetables	924	894	1193	1101	1074	1039	919	734	7878	51712.36	6564.15
Total	1334	1296	1751	1673	1625	1510	1412	1214	11815	7283	86043.05

TABLE 3 -- AREA, PRODUCTION AND PRODUCTIVITY OF VEGETABLE CROPS UNDER ALENGMORA CIRCLE

Crops	2001		2002		2003		2004		2005		2006	
	A (ha)	P (MT)	A (ha)	P (MT)	A (ha)	P (MT)	A (ha)	P (MT)	A (ha)	P (MT)	A (ha)	P (MT)
Winter	280	4900	490	8575	375	6563	355	6213	440	7700	520	9100
Cauliflower	152	3040	270	5400	418	8360	620	12400	580	11600	620	12400
Cabbage	82	2050	140	3500	150	3750	162	4050	172	4300	188	4700
Knolkhol	58	468	120	960	131	1048	144	1152	122	976	110	880
Brinjal	102	1530	250	3750	310	4650	490	7350	432	6480	312	4680
French bean	35	193	80	440	75	413	92	506	66	363	58	319
Raddish	55	660	75	900	68	816	73	876	68	816	66	792
Carrot	20	300	35	525	30	450	35	525	28	420	26	390
Potato	320	2624	525	4305	488	4002	495	4059	520	4264	555	4551
Squash	150	1200	161	1288	158	1264	182	1456	160	1280	172	1376
Summer												
Cucumber	62	186	75	225	85	255	88	264	69	207	72	216
Ridge gourd	10	70	25	175	80	560	58	406	62	434	59	413
Ash gourd	33	330	55	550	110	1100	67	670	53	530	38	380
Snake gourd	8	64	17	136	12	84	15	120	12	84	10	80
Bitter gourd	53	451	77	655	67	570	58	493	49	417	44	374
Lady's finger	210	2520	225	2700	210	2520	321	3852	310	3720	333	3996
Pumpkin	213	2024	215	2043	165	1568	222	2109	210	1995	211	2005
Pointed gourd	62	403	85	553	105	683	120	780	95	618	43	280
Coriander	205	615	60	180	66	198	45	135	42	126	39	117
Chilli	50	250	125	625	180	900	73	365	150	750	105	525

TABLE 3 -- AREA, PRODUCTION AND PRODUCTIVITY OF VEGETABLE CROPS UNDER ALENGMORA CIRCLE

Crops	2007		2008		2009		2010		Productivity (q/ha)
	A (ha)	P (MT)	A (ha)	P (MT)	A (ha)	P (MT)	A (ha)	P (MT)	
Winter	700	12250	610	10675	592	10360	615	10763	175
Cauliflower	715	14300	705	14100	666	13320	620	12400	200
Cabbage	192	4800	155	3875	139	3475	153	3825	250
Knolkhol	99	792	105	840	122	976	131	1048	80
Brinjal	333	4995	321	4815	311	4665	299	4485	150
French bean	62	341	66	363	49	270	58	319	55
Raddish	53	636	49	588	62	744	60	720	120
Carrot	32	480	22	330	19	285	25	375	150
Potato	498	4084	515	4223	496	4067	510	4182	82
Squash	175	1400	170	1360	165	1320	182	1456	80
Summer									
Cucumber	66	198	59	177	82	246	65	195	30
Ridge gourd	77	539	68	476	72	504	69	483	70
Ash gourd	26	260	44	440	42	420	43	430	100
Snake gourd	12	96	8	64	12	96	10	80	80
Bitter gourd	38	323	47	400	52	442	48	408	85
Lady's finger	410	4920	319	3828	382	4584	349	4188	120
Pumpkin	292	2774	215	2043	198	1881	225	2138	95
Pointed gourd	32	208	28	182	25	163	20	423	65
Coriander	44	132	38	114	29	87	32	96	30
Chilli	115	575	105	525	98	490	112	560	50

A = Area in ha

P = Production in MT

Productivity: qt/ha. The productivity is taken in average of 10 years of each crop.

Methodology

The present study is an attempt to analyze the marketable and marketed surpluses and post-harvest losses of selected vegetables in Jorhat district of Assam. The sampling design followed for the study is Multi stage random sampling design. Block form the first stage units, village is the second and the sample vegetable growers are the third and ultimate stage of units of sampling. The primary data were collected using a specially pre-tested questionnaire through personal interview method. Secondary data were also collected from various published sources.

Collection of data

A list of cultivators along with their total operational holding was collected from the District Agricultural office. The households of the village were listed separately under three stratification according to the size of their operational holdings. The classification norms according to which size groups were made are given below:

Small group : Farms having size of below 2.0 hectares of land as operational holding was considered as small farm.

Medium group : Farms having 2.0 hectares to below 4.0 hectares of land as operational holdings was considered as medium farms

Large group : Farms having 4.0 hectares and above land as operational holdings was considered as large farm.

Thus a total sample of 120 farmers comprising 20 small, 73 medium and 27 large were selected based on proportion to the vegetable growers. The distribution of sample farmers according to size classes of holding in Alengmora village is presented below.

Distribution of sample farmers according to size classes of holdings in Alengmora village

Category of farmers	Sample size
Small (below 2.0 ha)	20
Medium (2.0 ha – 4.0 ha)	73
Large (Above 4.0 ha)	27
Total	120

To collect the information on post harvest losses in various operations at market level market intermediaries were also interviewed. The distribution of market intermediaries' are- Wholesaler – 10, Retailer -15 and Commission agent – 5. Thus, a total of 30 middlemen were selected.

Marketed and marketable surplus

Tabular analysis was carried out to see the volume of marketed and marketable surplus. Marketable surplus is the residual left with the farm family after meeting his requirements for family consumption, kind payment, requirement for feed, seed, non market transactions etc. Marketed surplus is the actual amount sold out in the market. Six important variables were identified which might affect the marketed surplus of vegetables. A brief description of these influential variables has been stated below:

X_1 = Area under vegetables in hectare

X_2 = Production in quintals

X_3 = Home consumption in quintals

X_4 = Payment in kind in quintals

X_5 = Seed in quintals

X_6 = others in quintals

To study the impact of each factor influencing marketed surplus regression analysis was carried out taking the quantity of marketed surplus as dependent variables against the independent variables for small, medium and large farmers.

The following regression model was fitted to the primary data on the above mentioned variables.

$$Yi = B_1 + B_2X_{1i} + B_3X_{2i} + \ldots\ldots\ldots\ldots + B_kX_{ki} + U_i$$

i = 1, 2, 3 ..... n

This can be expressed in matrix notation as,

$$Y = XB + U$$

Where, $Y = (Y_1, Y_2 \ldots\ldots\ldots\ldots Y_n)$

$B = (B_1, B_2 \ldots\ldots\ldots\ldots B_k)$

$U = (U_1, U_2 \ldots\ldots\ldots\ldots U_n)$ and

$$X = \begin{bmatrix} 1 & X_{21} \ldots\ldots\ldots\ldots\ldots\ldots X_{k1} \\ 1 & X_{22} \ldots\ldots\ldots\ldots\ldots\ldots X_{k2} \\ . & . \quad\quad . \\ & . \quad\quad . \\ . & . \\ . & . \quad\quad . \\ 1 & X_{2n} \ldots\ldots\ldots\ldots\ldots\ldots X_{kn} \end{bmatrix}$$

Here K-1 signifies number of independent variables which ranges from 1-6.

Where, Y = Amount of marketed surplus in quintal

X_1 = Area under vegetables
X_2 = Production
X_3 = Home consumption
X_4 = Payment in kind
X_5 = Seed
X_6 = Others
B_1 = Constant
B_{k-1} = Unknown parameter

Zero order correlation matrixes between marketed surplus and factors affecting it were examined to see the degree and nature of relationship.

The regression coefficients were tested against the table value to see the effect of the different influential variables.

Post-harvest losses

Post harvest losses at farm level in various operations like assembling, packaging, storage, transportation, losses in market were also estimated. Similarly post-harvest losses at market level were estimated at various operations like assembling, packaging, storage, transportation, losses in market. The quantity of post harvest losses was estimated as percentage to the total production.

Results and Discussion

Land distribution pattern

Majority of the sample farmers possessed owned cultivated land. Table 4 shows the land utilization pattern of the sample farmers across various size group of holding. Table shows that only the medium and large farmers leased out land. Highest percentage of (8.91 per cent) leased in land is found in case of medium farmers. The average size of operational holdings was found to be 3.50 ha. The table also shows that the area under field crops and plantation crops are very less as the sample farmers are mostly vegetables growers and the study area is also suitable for vegetable production.

TABLE 4--LAND UTILIZATION PATTERN IN DIFFERENT SIZE OF THE SAMPLE FARM (2011)

Category of farmers	Total cultivated land (ha)	Own land (ha)	Land leased in (ha)	Land leased out (ha)	Area under fields crops (ha)	Area under plantation crops (ha)	Area under vegetables (ha)	Size of operational holdings (ha)
Small	1.13	1.07	0.08	-	0.02	-	1.13	1.15
	(100)	(93.05)	(6.96)		(1.74)		(98.27)	
Medium	3.93	3.83	0.35	0.25	0.76	-	2.82	3.93
	(100)	(97.47)	(8.91)	(6.36)	(19.34)		(71.77)	

TABLE 4--LAND UTILIZATION PATTERN IN DIFFERENT SIZE OF THE SAMPLE FARM (2011)-*Contd.*

Category of farmers	Total cultivated land (ha)	Own land (ha)	Land leased in (ha)	Land leased out (ha)	Area under fields crops (ha)	Area under plantation crops (ha)	Area under vegetables (ha)	Size of operational holdings (ha)
Large	5.42	5.42	0.09	0.09	1.10	0.04	4.28	5.42
	(100)	(100)	(1.66)	(1.66)	(20.29)	(0.74)	(78.97)	
Average	3.50	3.44	0.17	0.11	0.63	0.01	2.74	3.50
	(100)	(98.29)	(4.86)	(3.14)	(17.99)	(0.29)	(78.28)	

Figures in parentheses indicate percentage to the total size of operational holdings

Area, production and productivity of vegetable growers

The Table 5 shows that the average area cultivated was 2.74 hectares, average production was 203.05 q and average productivity was 74.11 q/ha. The productivity was found to be increasing as farm size increases.

Marketable and marketed surplus

Table 6 represents the area, production, and non market transaction, marketable and marketed surplus of vegetables. The analysis was carried out for different categories of farmer. The table revealed that the average area under vegetable was 1.13 ha, 2.82 ha and 4.28 ha for small, medium and large group of farmers respectively. The average production was highest in large group of farmer followed by medium and small group, the amount being

TABLE 5--AREA, PRODUCTION AND PRODUCTIVITY OF VEGETABLES IN THE SAMPLE GROWERS (2011)

Category of farmers	Average area (ha)	Average production (q)	Average productivity (q/ha)
Small	1.13	61.05	54.03
Medium	2.82	205.87	73.00
Large	4.28	342.22	79.96
Average	2.74	203.05	74.11

TABLE 6--UTILIZATION PATTERN OF VEGETABLES IN THE SAMPLE GROWERS

Category of farmers	Area (ha)	Production (q)	Home consumption (q)	Payment in kind (q)	Seed (q)	Others (q)	Marketable surplus (q)	Marketed surplus (q)
Small	1.13	61.05	0.62	0.42	0.60	0.36	59.03	60.50
		(100.00)	(1.02)	(0.69)	(0.99)	(0.59)	(96.69)	(99.50)
Medium	2.82	205.87	1.45	0.69	0.95	0.69	201.95	203.39
		(100.00)	(0.70)	(0.33)	(0.46)	(0.34)	(98.09)	(98.80)
Large	4.28	342.22	1.60	0.69	0.94	0.76	338.22	340.19
		(100.00)	(0.47)	(0.20)	(0.27)	(0.22)	(98.83)	(99.41)
Average	2.74	203.05	1.22	0.60	0.83	0.60	199.73	201.36
		(100.00)	(0.59)	(0.29)	(0.41)	(0.29)	(97.87)	(98.67)

Figures in parentheses indicate percentage to the total production

342.22 q, 205.87 q and 61.05 q respectively. Table also shows that 0.99per cent of the total produce of small group of farmers are stored for seed. Medium group of farmers stored 0.46 per cent and large group of farmers stored 0.27 per cent of their total produce for seed. The percentage of home consumption to the total production was found to be highest in (1.02 per cent) case of small farmers and its decreases as the farm size increases. The marketed surplus was highest for the large group, the amount being 340.19 q (99.41 per cent) followed by 203.39 q (98.80 per cent) and 60.50 q (99.50 per cent) respectively for medium and small groups of farmers. On an average the marketable surplus was found to be 97.87 per cent of total production whereas the marketed surplus was found to be 98.67 per cent. From the table it is seen that marketed surplus was higher than the marketable surplus for all groups of farmers. This is due the fact that vegetable are inherently perishable in nature with seasonal production and requires scientific storage structures to store the product. To maintain its regular supply, it becomes a must to store it in cold storage. Due to lack of cold storage facilities in the study area, the sample farmers had to sell their produce after harvest. Thus, distress sale was observed and marketed surplus become higher than the marketable surplus.

Factors affecting marketable surplus

An attempt was made to find out the major variables affecting the volume of marketable surplus. Six independent variables like area in ha (X_1), production in qt (X_2), family consumption in qt (X_3), kind payments in qt (X_4), feed and seed in qt (X_5) and others non-market transaction in qt (X_6) and the marketable surplus as dependent variables (Y), a regression analysis was carried out. The result of the analysis is presented below.

$$Y = 3.496\ X_1 + 1.020^{*}\ X_2 - 1.901\ X_3 - 3.301\ X_4 - 0.575\ X_5 - 4.873\ X_6$$

(3.085) (0.026) (3.277) (4.926) (4.344) (5.683)

$R^2 = 0.9919$

N=120

Figures in parentheses indicate standard error.

* Significant at 10 percent probability level

Though the volume of R^2 was found to be satisfactory, the equation does not provide a clear picture about the major factors affecting marketable surplus of sample vegetables growers. Only the variable productivity(X_2) was found to be significant. All other variable, though not significant, are with proper signs. These may be because of the fact that, the family consumption of vegetables is very low in the sample area and they do not use a heavy amount as seed or feed.

Post-harvest losses

As vegetables are perishable in nature so during the process of distribution and marketing substantial losses are incurred. Post-harvest losses may occur at any point in the marketing process from the initial harvest through assembly and distribution to the final consumer. The seasonal gluts and lack of infrastructure and marketing is also another reason for post-harvest loss. The Table 7 represents the post-harvest losses found in the study area. It represents the losses at farmer's level and market level. At farmer's level, the total loss was found to be 4.06 g i.e. 2.43 per cent of the total marketed surplus and at market level, the total loss was found to be 74.80 q i.e. 12.50 per cent of the total marketed surplus. Thus the total post- harvest loss of vegetables in the sample area was found to be 14.93 per cent, out of which 2.43 per cent loss took place at farmer's level and 12.50 per cent loss occurred at market level.

TABLE 7-- POST HARVEST LOSSES AT FARMER'S LEVEL

Category of farmers	Marketed surplus (q)	During assembling (q)	During packaging (q)	Storage (q)	Transportation (q)	Losses in market (q)	Total loss (q)
Small	60.50	0.23	0.10	0.12	0.05	0.05	0.55
	(100.00)	(0.38)	(0.17)	(0.20)	(0.08)	(0.08)	(0.91)
Medium	203.39	0.25	0.02	1.20	1.00	0.01	2.48
	(100.00)	(0.12)	(0.01)	(0.59)	(0.49)	(0.01)	(1.22)
Large	340.19	0.02	0.01	0.50	0.25	0.25	1.03
	(100.00)	(0.06)	(0.03)	(1.25)	(0.74)	(0.74)	(3.30)
Average	201.36	0.5	0.13	1.82	1.3	0.31	4.06
	(100.00)	(0.25)	(0.65)	(0.90)	(0.65)	(0.15)	(2.43)

Figures in parentheses indicate percentage to the total marketed surplus

Post harvest losses at market level

Type of middlemen	Quantity transacted (q)	Loss during assembling (q)	Loss during packaging (q)	Loss during storage (q)	Loss during transportation (q)	Losses in market (q)	Total loss (q)
Retailer	598.04	8.67	-	17.76	11.48	10.47	48.38
	(100.00)	(1.45)		(2.97)	(1.92)	(1.75)	(8.09)
Wholesaler	507.43	3.25	-	11.26	6.99	4.92	26.42
	(100.00)	(0.64)		(2.22)	(1.38)	(0.97)	(5.21)
Total	1105.47	11.92	-	29.02	18.47	15.39	74.80
	(100.00)	(1.99)		(4.85)	(3.08)	(2.57)	(12.50)

Figures in parentheses indicate percentage to the total volume of transaction

Conclusion

The following conclusions can be drawn from the above discussions on marketable surplus and post-harvest losses.

(1) The marketed surplus of vegetables was increased with the increase in farm size and it was directly related to total production, area under vegetable but adversely related to home consumption, payment in kind and seeds.

(2) The most significant factor that directly affected the marketed surplus was total production.

(3) The post-harvest losses were found highest for the medium farmers both at the farmer's level as well as market level. This might be due to the lack of proper storage and transportation facilities.

(4) Total post- harvest loss of vegetables in the sample area was found to be 14.93 per cent of the total marketed surplus, out of which 2.43 per cent loss took place at the farmer's level and 12.50 per cent loss occurred at the market level.

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Arecanut Marketing in Kerala – Method of sale and Channels

Dr. N. Karunakaran*

ABSTRACT

A unique feature of Kerala's agriculture is that the cropping pattern in the state has shifted in favour of commercial crops. In this shift, plantation crops increased considerably. Arecanut is an important commercial crop in Kerala. There are no exclusive markets for the sale of arecanut in Kerala. Marketing system in Kerala include primary, secondary and terminal markets. In earlier times trade in arecanut was monopolistic in nature. This has changed since the mid seventies as a result of the establishment of CAMPCO. In Kerala arecanut growers follow different methods of sale; majority of the farmers follow the method of selling arecanut to the traders in the village immediately after harvest. Arecanut marketing channel involves a number of market intermediaries. Most of the produce passes through village traders, itinerant merchants, private wholesalers, the CAMPCO and the retailers. Lower price spread and better price to the arecanut growers indicate higher efficiency in co-operative marketing channel than any other marketing channel in Kerala.

Introduction

Arecanut palm grows in different climatic and soil conditions mainly in India, Bangladesh, Srilanka, Malaysia, Indonesia, Philippines and Myanmar. In India, among the arecanut growing states, Kerala, Karnataka and Assam account for 95 percentage of the total area and 90 percentage of the total production. In Kerala, arecanut is cultivated in all districts. The proportion of area under arecanut in the state is very high when compared with other states. In terms of income, it occupies an important place in the economy of Kerala and is predominantly a small farmer's crop.

In spite of its importance, the efficiency of arecanut marketing is very weak in Kerala. There are no exclusive markets for the sale of Arecanut in the state. The marketing system, involves primary, secondary and terminal markets.

Primary or local markets are known as 'Chandha' are held once in a week on a fixed day in the neighbourhood of a group of villages. These markets are organised by statutory bodies. Haggling and bargaining are common in these markets. A number of middle men like village traders, itinerant merchants, private commission agents, etc operate in these markets.

The secondary markets are regular wholesale markets held at fixed places and are usually situated in the district or Taluk headquarters and important trade centres. These markets are permanent in nature. Both assembling and distribution takes place in these markets. The important intermediaries in these markets are private wholesalers,

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CAMPCO (Central Arecanut Marketing and Processing Co-operative Ltd) depots, etc.

The third type called terminal markets are those in which the produce is assembled for further distribution for intra and inter-state trades and for exports. These types of markets are common in the trade of processed arecanut.

The structure of arecanut market is altered by the establishment of co-operative marketing societies in Kerala. The first co-operative marketing society for arecanut in the state was set up in 1943 at Kumaranellur. At present, there are more than 15 co-operative marketing societies functioning in Kerala. Most of these are now working as the agents of the CAMPCO. The structure of arecanut market is also affected by the establishment of CAMPCO.

Arecanut growers usually sell their produce immediately after harvest or after dry in the sun. But certain growers stored ripe arecanut in pits or stepped in water for consumption during off-season. In Kerala there is no scientific storage facility at the producer level. Though warehouse facilities are available in the state, the quantity stored is very small. The wholesalers store the produce in their own go downs, mostly at the market centres.

Studies on arecanut marking have attracted very little attention from the researchers in the state. The effort to raise efficiency necessitates investigations into the various aspects of arecanut marketing. The present paper is an attempt to analyse the different methods of sale and marketing channels for arecanut in Kerala.

Methodology and Materials

The study is based on both primary and secondary data. Primary data was collected from Seventy two arecanut growers in the Kasaragod District in Kerala, whose major source of income is from arecanut cultivation. The major source of secondary data are various published reports of the Department of Economics and statistics, Thiruvananthapuram, State planning Board, Government of Kerala, Directorate of Cocoa, Arecanut and spices Development, Kozhikode and Directorate of Economics and statistics, Government of India.

Analysis, Discussion and Results

In Kerala the area and production of arecanut is spread in almost all districts. Table 1 show that the area under cultivation of arecanut during the last five decades witnessed tremendous progress in Kerala.

TABLE 1- Decadal Change in the Cultivation of Arecanut Crop in Kerala

Sl. No.	Districts	1970-71 over 1960-61	1980-81 over 1970-71	1990-91 over 1980-81	2000-01 over 1990-91	2009-10 over 2000-01	2009-10 over 1960-61
1	Thiruvananthapuram	34.18	-31.66	-42.71	-41.46	-2.45	-70.00
2	Kollam	117.29	-49.05	-51.01	17.29	-5.94	-40.17
3	Pathanamthitta	-	-	-	-4.73	-4.49	-9.01
4	Kottayam	17.00	-52.35	-46.57	6.97	32.85	-57.67
5	Alappuzha	85.26	-32.56	-42.30	33.39	-23.08	-26.04
6	Ernakulam	125.19	-32.94	-37.64	10.48	22.86	27.84
7	Idukki	-	-	-37.68	136.33	-6.28	38.04
8	Trissur	196.21	-45.92	-17.44	29.64	-0.42	70.71
9	Palakkad	26.51	-65.36	18.58	52.06	78.05	40.69
10	Malappuram	-	-	37.88	32.86	8.65	99.03
11	Kozhikkode	7.57	-65.09	-11.22	77.88	14.65	-32.01
12	Wayanad	-	-	-	287.72	102.44	684.89
13	Kannur	57.19	13.09	-27.92	21.95	-15.16	-15.67
14	Kasaragod	-	-	-	10.16	11.43	22.75
15	State	58.16	-28.64	5.81	34.81	10.74	78.29

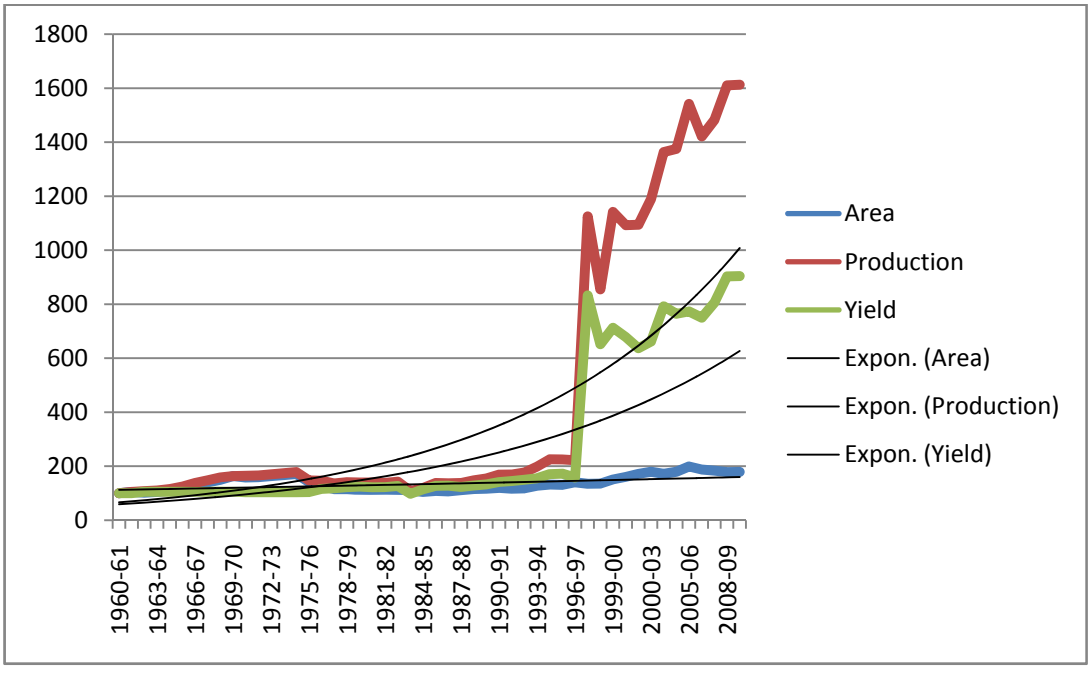
Source: - Computed from (i) Statistics for planning (various issues), Department of Economics and Statistics, Govt. of Kerala, Thiruvananthapuram.

(ii) Economic Review (various issues), State Planning Board, Govt. of Kerala, Thiruvananthapuram.

The trends in area, production and productivity of arecanut crop in Kerala over the years from 1960-61 to 2009-10 is shown in Figure 1.

Figure 1

Trends in Area, Production and Productivity of Arecanut crop in Kerala (1960-61 to 2009-10)



Arecanut growers in Kerala are following different methods of sale (Table 2). They are:

(1) Short-term contract sale of arecanut garden: Under this method, the arecanut grower enter into short term oral contract with village traders or the itinerant merchants for the sale of the whole of arecanut produce of their garden for one year at a price dictated by the traders depending upon the prospects of yield in the season and previous years' price. Harvesting, transport and sale of arecanut are done by the traders. Traders generally give advance amount to the growers to the extent of 50 percentage of the total amount. The rest is given to the growers after one or two months of the initial harvest. The main advantage of this method to the producer is timely availability of money before harvest and relief from harvesting, transportation and sale of the product. It possesses an important demerit that the producer gets much less price for his product. In the state, only 8.33 percent of farmers are engaged in this method of sale (Table 2).

(2) Long-term contract sale of arecanut garden: This method is similar to that of the first method. But the only difference is that instead of short term agreement, it is a long term oral or written contract between the growers and the itinerant merchant or village traders for two or more than two years. But the main disadvantage of this method is that the price given to the growers is much less than that of the first method. Table 2 reveals that only 5.55 percent of the total farmers are engaged in this method of sale.

(3) Sale to the traders in the village after harvest: Under this method arecanut growers harvest their produce and sell it in the village itself to the village traders or itinerant merchants in the form of semi ripe, fully ripe, fermented arecanut, de-husked and dried out. In the case of ripe and fermented arecanut price is settled based on the number of nuts. After settling the price, goods are delivered on the spot and payment is made in cash. After the purchase, the trader sale it to the wholesalers in the market centres. In Kerala majority of the farmers, that is, 37.5 percent follow this method of sale. One advantage of this method is that the producer gets better price than the first two methods.

(4) Sale to the wholesalers in the market by the producers: Under this method the producers harvests the produce and transport it for sale in the nearby market to wholesalers. Marketing of this include mainly the husked dry arecanut. Harvesting, transport and sale of arecanut are done by the growers. From the Table 2, it is revealed that about 29.17 percent of the total growers are following this type of sale. This method gives them still a better price than the earlier three methods. Since arecanut is a small farmer's crop, individual arecanut growers' marketable surplus is not large enough to benefit from the economies of bulk sale in transport, handling, bargaining, etc.

(5) Sale to the co-operative societies: Under this method producer sells his product to the co-operative societies in the market. This is through the various purchase depots established by CAMPCO in different parts of the state. Marketing of this include primarily the husked dry arecanut. Under this method the producer gets better price than the other methods of sale. Table 2 shows that 12.58 percentages of the total farmers are following this method of sale.

(6) Direct sale to the consumers by the producers: In this method the producer sells his product directly to the consumers in his village or in the primary markets. Under this method usually fully ripe arecanut is sold. In this case price is settled based on the number of nuts.

TABLE 2 -DESCRIPTION ABOUT THE METHOD OF SALE OF ARECANUT IN KERALA.

Sl. No.	Method of sale of arecanut	Number of farmers	Percentage to total number
1	Short term contract sale of Arecanut garden	6	8.33
2	Long term contract sale of Arecanut garden	4	5.55
3	Sale to the traders in the village after harvest	27	37.50
4	Sale to the wholesalers in the market by the producers	21	29.17
5	Sale to the co-operative societies	11	12.58
6	Direct sale to consumers by the producers	3	4.17
	Total	72	100.00

Source: - Primary Data

These observations revealed certain important marketing channels for arecanut in Kerala (Table.3). The operation involved in the movement of arecanut from the producers to the consumers could be grouped under two phases: assembling and distribution. Since there are many intermediaries in the marketing channel for arecanut, producers normally get only a reduced share of the consumers price depending on the distance between the assembling and the distributing centres, various market charges and margins and season of disposal.

TABLE. 3 Important Marketing Channels for Arecanut in Kerala.

Channel – I	Producer → Village Traders or Itinerant Merchants → Private Wholesaler → Retailer → Final Consumer
Channel – II	Producer → Private Wholesaler → Retailer → Final Consumer
Channel – III	Producer → Co-operative Societies (CAMPCO) → Retailer → Final Consumer
Channel – IV	Producer → Final Consumer

Source: - Primary Data

Among the different marketing channels as shown in Table 3 for arecanut, the first three are very important. The price spread through the first three marketing channels for arecanut is shown in Table 4. The gross price spread through the first channel is Rs 65 of which Rs 30 is the marketing cost. The rest Rs 19 is the margin retained by the intermediaries. The price spread come 92.85 percent of the price received by the producer and 48.15 percent of the price paid by the consumer. The price received by the producer through the second channel is Rs 75 per Kg, which is greater than through the first channel. The gross price spread through the second channel is less than the gross price of first channel. The primary producer received the highest price through the third channel. It is found that the gross price spread is very low through the third channel and is less than the gross price spread through the first two channels. The gross price spread as a percentage of farm prices and gross price spread as a percentage of retail prices are also less through this channel compared to the first two channels.

TABLE. 4- Price spread of arecanut through different marketing channels in Kerala. (Rupees per Kg)

Marketing channel	FP	RP	GPS	MC	MM	NPS	GPS as a percentage of FP	GPS as a percentage of RP
I	70	135	65	30	35	35	92.85	48.15
II	75	133	58	27	31	31	77.33	43.60
III	80	132	52	26	26	26	65	39.39

Source: - Primary Data

FP – Farm Price

RP– Retail Price

GPS – Gross Price Spread

MC – Marketing Cost

MM – Marketing Margin

NPS – Net Price Spread

Conclusion

In commodities like arecanut where production is concentrated in a few states and consumption spread all over the country, the system of marketing assumes great importance. Marketing of arecanut product is influenced by the trends in area and production of the crop over a period, imports, exports and domestic consumption, structure of the market, storage and transport facilities, availability of market information, marketing inspection, research, training, etc. The analyses of arecanut marketing revealed six different methods of sale and marketing channels in Kerala. Among these, channel III (producer → co-operative societies (CAMPCO) → Retailer → Final consumer) is an efficient marketing channel. This is due to the reason that this channel provides better price to the arecanut producer than any other marketing channels and price spread is minimum. Lower price spread and better price to the arecanut growers in co-operative marketing channel than any other marketing channel in Kerala indicate higher efficiency and establishment of more co-operative markets including CAMPCO throughout the state.

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Potentialities of Horticultural Crops in Changing Economic Condition of the Farmers in Assam – A Case Study in Kamrup District

Dr. Moromi Gogoi & Dr. Gautam Kakaty*

1.1 Introduction

Assam is traditionally rich in horticultural crops due to its diverse and unique agro –climatic condition which is conducive for growing wide range of horticultural crops like various fruits, vegetables, flowers, spices, nuts, tuber crops and medicinal and aromatic plants. In Assam, horticultural crops cover an area of 5.65 lakh hectares which accounts 14.70 per cent of the total cultivable area of 38.39 lakh hectares in 2010-11 and the state produces more than 15.0 lakh MT of fruits, 29.0 lakh MT of vegetables and 1.0 lakh MT of spices besides nut crops, flowers and medicinal & aromatic plants annually. The important fruit crops in the state are banana, pineapple, citrus, jackfruit, guava and litchi. Coconut, arecanut and betel vine are predominant plantation crops. Vegetables like, potato, sweet potato, tapioca, colocasia and yams cucurbits, peas, beans and okra are cultivated in commercial scale in recent years. Ginger and turmeric occupy prime position among the spices.

1.2. Importance of Horticultural Crops

Horticulture is an important segment of Agriculture, contributing about one-fifth share of the Agriculture and allied sectors. There has been a perceptible change in the consumption pattern of the people characterized by declining share of food grains and the increasing share of non-foodgrain items in the consumption baskets particularly, fruits and vegetables. Rapidly growing demand for horticultural commodities and products especially for processed fruits and vegetables as well as booming floriculture market is an evidence of the phenomenon that is expected to accelerate horticultural growth in the state. Consequently, horticulture is set to assume a greater role and importance within the agriculture sector and eventually in the state economy. Moreover, in a flood prone state like Assam where productivity of major crops like rice is not stable, increase in production of horticultural crops can minimize the impact of crop failure and provide monetary security to the farmers. The horticultural crops have the potential to generate gainful employment, promote trade and commence and earn foreign exchange besides fighting against malnutrition. The average labour required for growing horticultural crops is about 450-2,500 mandays as compared to only 150 – 200 mandays for field crops in a year. (Government of India: "Food Processing Industries in India", Ministry of Food Processing Industries, Govt. of India, New Delhi, 1993, p.1) . Apart from these, it also helps in maintaining the ecological balance and produces increased biomass per unit of area as well as increases the aesthetic value.

Considering the importance of horticulture in the North- East States, the Government of India introduced Technology Mission for Integrated Development of Horticulture (TMIDH) in North-Eastern Region including Sikkim in 2001-02. Implementation of TMIDH Scheme has brought some significant changes in production and yield of horticultural crops in Assam. For instance, Production was increased 32.45 percent for fruit crops, 32.60 percent for spices and 86.96 percent for vegetable crops in 2011-12 over 2000-01 while productivity was raised to 6.14 percent for fruit crops, 9.78 percent for spices and 37.20 percent for vegetable crops during the same period. Thus, the commercial horticultural crops cultivation through TMIDH is expected to play a significant role in increasing employment potential and income as well as changing the life style of the people of Assam and North –Eastern States.

1.3 Objectives

The present paper has been undertaken with the following objectives :

1. to study the area production and productivity of horticultural crops grown by the sample farmers
2. to assess the income earned by the sample farmers from horticulture crops and traditional crop i.e. paddy
3. to analyse the problems of horticultural crops cultivation of the sample farmers
4. to suggest policy measures

1.4 Methodology and Data base

The present study is based on primary level data collected from the 50 sample farmers in two blocks of Kamrup district of Assam by adopting random sampling method. Data were collected through personal interview with the horticulture crops growers and with the help of specially structured schedule along with a questionnaire. Some relevant secondary level information were also collected from different published and unpublished data from research journals, periodicals and official records of Directorate of Economics and Statistics, Government of Assam.

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1.5 Result and Discussion

In Assam, there has been a significant increase in area and production of horticultural crops during the last two decades. Table-1 reflects that area, production and productivity of all the major horticulture crop groups were increased during the period of 2004-05 to 2011-12. In case of area, the Compound Growth Rate (CGR %) was found highest in fruits (19.12%) followed by vegetables (16.17%), spices (15.13%) and tuber crops (6.67%). Regarding production, highest CGR was found in fruits and least was found in tuber crops cultivation. In case of productivity CGR was found highest against tuber crops and lowest in spices cultivation.

TABLE: 1 Trend of Area, Production & Productivity of Horticultural Crops in Assam

(Area in lakh hectare, Production in lakh MT & Productivity in Kg. per hectare)

Crop		2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	CGR (%)
Fruits	Area	1.10	1.13	1.14	1.16	1.22	1.27	1.32	1.37	19.12
	Production	13.25	13.52	13.72	14.08	14.95	15.65	16.47	17.63	22.70
	Productivity	12,045	12,005	12,139	12,142	12,256	12,370	12,480	12,600	4.40
Tubers	Area	0.84	0.80	0.88	0.85	0.87	0.93	0.95	0.90	6.67
	Production	6.30	3.93	5.46	5.57	5.82	6.39	6.99	7.25	13.10
	Productivity	7,500	4,930	6,166	6,553	6,690	6,871	7,327	8,015	6.43
Vegetables	Area	2.23	2.32	2.36	2.38	2.42	2.51	2.60	2.66	16.17
	Production	36.61	38.18	38.87	39.18	40.52	42.55	44.70	46.20	20.76
	Productivity	16,417	16,485	16,469	16,462	16,744	16,952	17,192	17,380	5.54
Spices	Area	0.83	0.86	0.86	0.88	0.90	0.94	0.97	0.98	15.31
	Production	2.06	2.12	2.14	2.18	2.24	2.35	2.45	2.48	16.94
	Productivity	2,482	2,475	2,476	2,478	2,490	2,505	2,530	2,535	2.09

Source: Department of Agriculture, Govt. of Assam

1.6 Land Resources of the Sample Farmers

Land resource plays a strategic role in determination of economic, social and cultural progress of a farming community. Land is the basic input which provides food, employment and income to the farmers. Economic upliftment in the rural areas depends on availability of land resources and its judicious utilization. Table- 2

TABLE 2: DISTRIBUTION OF OPERATIONAL HOLDING BY THE SAMPLE FARMERS BYFARM SIZE GROUPS

(Area in Hectare)

Farm Size Groups	No. of H.H	Paddy			Horticultural Crops					Total Openl. Holding	Av. Size of Openl. Holding
		Irri.	Un Irri.	Total	Orange	Banana	Vegetables	Potato	Total		
Below 1.00 ha.	15	0.00	1.12	1.12	4.90	0.66	0.46	0.00	6.02	7.14	0.48
1.00 -- 2.00 ha.	18	2.38	1.68	4.06	12.81	1.65	0.68	0.75	15.89	19.95	1.11
2.00 -- 4.00 ha.	11	3.20	1.80	5.00	20.81	2.06	0.62	1.34	24.83	29.83	2.71
4.00 -- 10.00 ha.	6	2.12	1.98	4.10	16.98	2.03	1.54	0.49	21.04	25.14	4.19
Total	50	7.70	6.58	14.28	55.50	6.40	3.30	2.58	67.78	82.06	1.64
		(9.38)	**(8.02)**	**(17.40)**	**(67.63)**	**(7.80)**	**(4.02)**	**(3.14)**	**(82.60)**	**(100.00)**	

Irr.—>Irrigated Un-Irri --→ Un irrigated

Note: Figures in Parentheses indicates percentage to total operational holding

reflects the operational holding of the sample households by farm size groups. It was found that out of the total operational holding of 82.06 hectares, field crop occupied only 14.28 hectares (17.40 Percent) while horticulture crops covered 67.78 hectares (82.60 Percent) of land area. The average size of operational holding was found 0.48 hectare against marginal group, 1.11 hectares for small group, 2.71 for semi medium and 4.19 hectares against medium group of farmers. The overall average size of holding was worked out at 1.64 hectares.

1.7 Production Scenario of Crops

The extent of Production and productivity of crops grown by the sample farmers is an important determinant of the economic upliftment of the farmers. In the study area, it was tried to estimate the production and productivity of field crops and horticulture crops grown by the sample farmers and presented in Table-3.

TABLE-3: Area, Production and Productivity of Crops Grown by the Sample Farmers

(Area in Hectare, Production in Qtl. Yield in kg/ha)

Farm Size Groups	No. of H.H		Paddy (Ahu+Sali+Boro)			Horticultural Crops			
			Irri.	Un Irri.	Total	Orange	Banana	Vegetables (Kharif + Rabi)	Potato
		A	0.00	1.12	1.12	4.90	0.66	0.46	0.00
Below 1.00 ha.	15	P		40.23	40.23	575.75	100.39	78.32	
		Y		3,592	3,592	11750	15,210	17,025	
		A	2.38	1.68	4.06	12.81	1.65	0.68	0.75
1.00 -- 2.00 ha.	18	P	91.63	60.82	152.45	1437.03	214.91	108.88	76.88
		Y	3,850	3,620	3,755	11,218	13,025	16,012	10,250
		A	3.20	1.80	5.00	20.81	2.03	0.62	1.34
2.00 -- 4.00 ha.	11	P	121.12	61.65	182.77	2257.89	254.16	95.64	140.03
		Y	3,785	3,425	3,655	10,850	12,500	15,425	10,450
		A	2.12	1.98	4.10	16.98	2.06	1.54	0.49
4.00 -- 10.00 ha.	6	P	77.57	65.74	143.31	1804.13	266.77	22,4.35	48.29
		Y	3,659	3,320	3,495	10,625	12,950	14,568	9,856
		A	7.70	6.58	14.28	55.50	6.40	3.30	2.58
Total	50	P	290.32	228.43	518.75	6074.79	836.22	507.18	265.20
		Y	3,770	3,472	3,633	10,946	13,066	15,369	10,279

Table shows that of the total paddy area of 14.28 hectares, 53.92 percent had irrigation facility and rest 46.08 percent were rainfed. The average productivity of irrigated paddy was found 3,770 kg/ha while it was found 3,472 kg/ha. against un irrigated land. In case of orange cultivation, yield rate varied between 11,700 kg/ha. against marginal size group and 10,625 kg/ha. against large farm size groups. In banana cultivation, highest yield rate was obtained by marginal farm size group, followed by small, medium and semi medium group. The productivity of vegetables varied from 17,025 kg/ha. against marginal farm size group to 14,568 against medium size group and in potato cultivation, semi medium farmers earned highest return and medium farmers got least return. The overall average productivity was found 3,633 kg/ha. for paddy, 10,946 kg/ha. for orange, 13,066 kg/ha. for banana, 15,369 kg/ha. for vegetables and 10,279 kg/ha. against potato cultivation. From the analysis, it was observed that, the sample farmers able to earned better harvest from growing various horticultural crops along with traditional crop paddy.

1.8 Cost and Return from Crop Production

It was observed that the return from horticultural crops cultivation was much higher than the paddy cultivation. The estimated BCR was found 1:1.25 for paddy, while it was

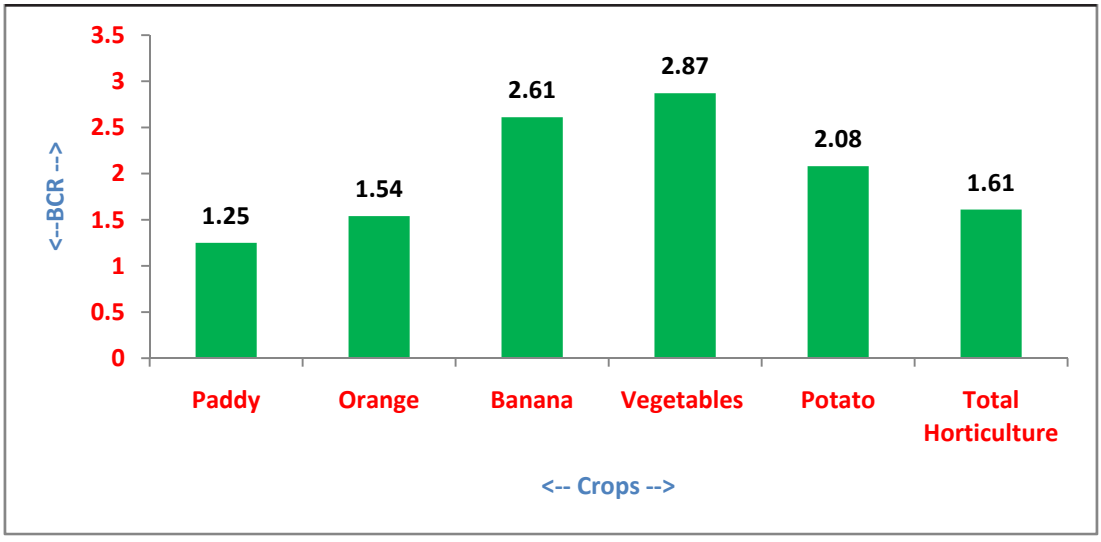
TABLE: 4 Cost and Return from Paddy and Horticultural Crops by the Sample Households

(In Rs.)

Farm Size Groups	No. of H.H	Cost and Return	Crops					Total Horticulture Crops
			Paddy	Orange	Banana	Vegetables	Potato	
		Gross Income	40,230	3,69,390	46,691	48,555	0	5,04,866
Below 1.00 ha.	15	Cost of Production	32,184	2,46,264	16,665	13,915		3,09,028
		Net Income	8,046	1,23,126	30,026	34,640	0	1,95,838
		Gross Income	1,52,446	8,94,439	1,07,342	65,329	53,813	12,73,368
1.00 -- 2.00 ha.	18	Cost of Production	1,18,911	6,25,769	43,758	21,862	24,344	8,34,643
		Net Income	33,535	2,68,670	63,584	43,467	29,469	4,38,725
		Gross Income	1,82,770	1,357,582	1,53,667	59,294	84,018	18,37,331
2.00 -- 4.00 ha.	11	Cost of Production	1,47,130	9,80,567	52,015	20,714	42,329	12,42,756
		Net Income	35,640	3,77,015	1,01,652	38,580	41,689	5,94,576
		Gross Income	1,43,307	1,4,43,300	1,24,056	1,35,730	34,772	18,81,164
4.00 -- 10.00 ha.	6	Cost of Production	1,16,798	7,85,291	52,823	51,219	16,293	10,22,423
		Net Income	26,509	6,58,009	71,233	84,511	18,479	8,58,742
		Gross Income	5,18,753	40,64,711	4,31,756	3,08,908	1,72,602	54,96,730
Total	50	Cost of Production	4,15,023	26,37,891	1,65,261	1,07,710	82,965	34,08,849
		Net Income	1,03,730	14,26,820	2,66,496	2,01,198	89,637	20,87,881
		Total B.C.R	1.25	1.54	2.61	2.87	2.08	1.61

BCR →Benefit Cost Ratio

Fig. 1 : Benefit-Cost Ratio of Crops grown by the Sample Farmers



1:1.54 for orange, 1:2.61 for Banana, 1:2.87 for Vegetables and 1:2.08 for Potato cultivation. Combining all the horticultural crops the estimated BCR was found 1:1.61. (Table-4 and Fig. 1)

1.9 Employment Generation in Horticultural Crops Cultivation by the Sample Farmers

The horticulture sector is the prime avenue in generation of employment for the sample farmers. Table-5 and fig.2 shows the employment potential created by horticultural crops. In the study area, it was observed

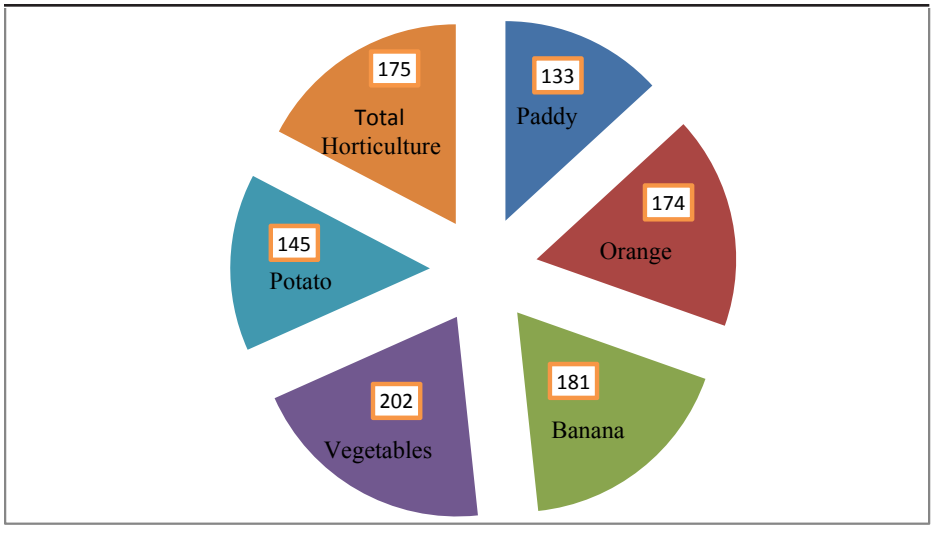
TABLE 5: EMPLOYMENT OF LABOUR IN CROPS CULTIVATION BY THE SAMPLE FARMERS

(Mandays = 8 hours)

Farm Size Groups	No. of H.H	Paddy			Horticulture Crops				
		Irri.	Un Irri.	Total	Orange	Banana	Vegetables	Potato	Total
Below 1.00 ha.	15	0	142	142	809	114	90		1012
		0	(127)	(127)	(165)	(172)	(195)	0	(168)
1.00 -- 2.00 ha.	18	319	215	534	2178	287	131	106	2701
		(134)	(128)	(132)	(170)	(174)	(192)	(141)	(170)
2.00 -- 4.00 ha.	11	426	236	661	3600	375	125	194	4294
		(133)	(131)	(132)	(173)	(182)	(201)	(145)	(173)
4.00 -- 10.00 ha.	6	296	267	554	3056	386	322	73	3837
		(137)	(135)	(136)	(180)	(190)	(209)	(149)	(182)
Total	50	1031	860	1891	9643	1161	667	373	11844
		(135)	(131)	(133)	(174)	(181)	(202)	(145)	(175)

Note: Figures in Parentheses indicates Per Hectare Mandays

Fig. 2 : Per Hectare Mandays Requirement in Crops Cultivation by the Sample Farmers



that employment of mandays was much higher in different horticultural crops cultivation as compared to paddy cultivation. The per hectare labour engagement in paddy cultivation was estimated at 133 mandays. But, in horticultural crops cultivation, it was 174 for orange, 181 for banana, 202 for vegetables and 145 for potato cultivation. Combining all the horticultural crops grown by the sample farmers the per hectare employment of mandays was found 175. From the Table, it was clear that horticulture sector enabled the sample farmers to provide employment and thereby improved the economy of the rural people.

1.9 Problems Faced by the Sample Horticultural Crops Growers

Although, the state of Assam has the potential for development of horticulture sector with its wide range of topographical and agro-climatic variations, and the sample farmers able to develop their economic condition by growing varieties of horticultural crops in to some extent, yet, they faced certain problems which are mainly :

1. **Poor cultivation practices and low yield** : Non-adoption of scientific cultivation practices are the major constraints for poor return from most of the horticultural crops in the state. Despite conducive environment, the productivity and growth of all horticultural crops are lower than the all India average.

2. **Lack of desirable planting material**: The disease free, true to type genuine planting material is absolutely lacking in case of a number of horticultural crops growers. It is imperative to generate disease free & healthy planting materials & screening of planting materials before use is of utmost importance.

3. **Lack of marketing facilities**: Due to lack of organized marketing structure the farmers are getting low return as compared to their counterparts in other states of India. Due to perishable nature of the products and absence of adequate market support, the farmers sell their produce at a throw away prices to the middleman without even getting the opportunity to display them.

4. **Scarcity of trained manpower and extension support**: Dearth of trained manpower and inadequate extension support can be considered another set of pressing problem in the way of horticultural development in the study area.

5. **Problems of processing and Storage**: Till today, there are a few number of cold storage facilities available; few processing units exist but are not functioning up to the desired capacity in the study area.

6. **Absence of adequate insurance coverage**: Risk management in horticultural crops is almost non-existent although the crops like onion and potato are covered under the National Agriculture Insurance Scheme. There is a need to cover the risk in case of other horticultural crops as well, perhaps on the basis of potential production coverage instead of average yield. This would encourage higher investment to achieve higher productivity.

7. **Lack of credit facilities to the fruit growers**: It was observed in the study area that in many occasions the fruit growers reported to distress sale at lower price by making pre- harvest contract, as they needed cash to purchase essential items for other emergent purposes. The institutional credit was not easily available to the commercial fruit growers in particular for which they approached the village money lenders for loan at high rate of interest which is considered one of the major constraints for growing horticultural crops on commercial line.

1.10 Future Thrust

For an integrated approach to horticultural development in Assam and in the study area, the following imperatives of development in a holistic manner requires due consideration :

1. Identification of area specific major horticultural crops and preparation of systematic local specific crop planning agro-climatically suitable for the region.

2. Access to scientific post harvest management techniques to ensure and minimize post harvest loss and receipt of remunerative price to farmers for their crops cultivation.

3. Rapid expansion of infrastructure facilities for providing forward and backward linkage with due emphasis and priority on development of market, transport and communication network.

4. Setting up of new research and development institutions and upgrading of existing ones.

5. Proper incentives should be given particularly to the youth for taking up co-operative and entrepreneurial programmes in horticulture including setting up of processing units.

6. Develop cost effective technology within the reach of the farmers.

7. Technological improvement of existing indigenous

methods for improving quality and productivity of horticultural crops.

8. Establishment of cold storage centres with proper grading facilities at selects location

9. Strengthening of the rural primary market network.

10. Provision of incentives for the establishment of Processing Plants for the processing and preservation of existing marketable surplus of major crops of the state such as pineapple, banana, jackfruit etc.

1.11 Conclusion

The findings of the study revealed that horticultural crops cultivation gives immense opportunities for increasing income and employment to the people living in rural areas of Assam. The availability of vast areas of land suitable for horticultural plantations and the natural inclination of the local people towards kitchen-yard horticulture indicates the potentialities of horticulture development in the state. The vast opportunities available to horticultural development in Assam needs to be optimally tapped and strengthened through a concerted effort so as to serve as the ultimate solution to the problem of horticultural growers in Assam.

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Agricultural Prices In India

It Is An Old Adage That Agricultural Prices Mirror The Economy Of A Country. It Is More True In The Case Of An Agricultural Country Like India. Viewed From This Angle, It Is Quite An Important Publication. It Gives Information On Index Numbers, Farm (Harvest) Prices, Wholesale And Retail Prices Of Various Agricultural Commodities, Etc.

Economic Aspects of Sugarcane Cultivation in Nellore District of Andhra Pradesh

Srikala M* and T.V. Neelakanta Sastry **

ABSTRACT

The results revealed that the major economic practices were preparation of land, water management, weed control and pest and disease management. Maximum labour absorption was in harvesting (56.98 per cent) followed by irrigation (13.68 per cent) and preparation of setts (7.15) and planting (7.76 per cent) in planted crop on the pooled farm. that the tractor use was 10, 12 and 11 hours per hectare on small, large and combined farms respectively. Transportation of inputs accounted for 100 per cent of total tractor hours on all the farms. The application of chemicals to control weeds on small, large and combined farms was 1, 1.20, 1.10 litres per hectare respectively. The use of rodenticides was to the extent of 8, 10 and 9 kg per hectare on small, large and combined farms respectively.

Key words: Sugarcane, Andhra Pradesh, Labour utilization, Material inputs

Introduction: Sugarcane is a major commercial crop consuming more labour force for planting. In India, during 2011-12, the area under sugarcane crop was 5.09 million hectares with a total production of 347.87 million tonnes (Directorate of Economics and Statistics & Ministry of Agriculture, 2012). The sugar industry is the second largest agro industry in India, next to textiles. In Andhra Pradesh, Sugarcane is grown in 2.40 lakh hectares. It is largely grown in Vishakapatnam, West Godavari, Medak, Chittoor, Krishna, Vizayanagaram, Nizamabad, Srikakulam and Nellore Districts with 90 per cent of the area under this crop. About 167.30 lakh tonnes of sugarcane is produced in the state (2011-12) (Directorate of Economics and Statistics &Ministry of Agriculture, 2012). From this about 11, 18000 tonnes of sugar is produced. Sugarcane planting is a time consuming and labour intensive operation in sugarcane cultivation. In the traditional method in India, all the sugarcane cultivation processes are carried out by manual labour except land preparation. Sugarcane planting requires manual power and a pair of bullock or a tractor with ridger to plant sugarcane setts in one hectare on an average.

Materials and Methods

The present study was undertaken in Nellore district as it is one of the important districts of Andhra Pradesh in sugarcane cultivation. The study was based on primary data collected from randomly selected four villages namely Kovur, Gangavaram, Rebala and Buchireddypalem which stood first and second respectively under sugarcane cultivation. From the selected two mandals, a list of villages under sugarcane crop was arranged in the descending order of their acreage. The first two villages from each mandal with highest area under the selected enterprise were selected for a detailed study. The selected villages were Kovur and from Kovur mandal and Buchireddypalem from Buchireddypalem mandal. From each of the selected villages, 20 farmers in each size group were selected at random. Thus 40 small and 40 large farmers constituted the sample of the study. The total number of sugarcane growers selected for the purpose of study was 80. The data used in the study to fulfill various objectives were collected from the selected farmers through personal interview with the help of pre-tested schedules designed for the purpose.

Results and discussion

Costs include the expenditure on various inputs and input services employed in the production process are given below.

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Human labour utilisation

Human labour is one of the important input services influencing the cost structure. Every cultural operation requires human labour for its successful completion. The operation wise human labour utilisation in sugarcane main and ratoon crop is presented in Table.1.

TABLE-1: HUMAN LABOUR UTILISATION- OPERATION WISE IN SUGARCANE CULTIVATION (IN MANDAYS PER HECTARE)

Sl. No.	Particulars	Main Crop			Ratoon Crop		
		Small	Large	Combined	Small	Large	Combined
1.	Land preparation	12.50 (3.62)	14.20 (3.83)	13.35 (3.73)	-	-	-
2.	Application of manures	8.04 (2.32)	9.50 (2.56)	8.77 (2.45)	5.04 (1.95)	6.00 (2.16)	5.52 (2.06)
3	Preparation of setts	24.90 (7.20)	26.33 (7.11)	25.61 (7.15)	-	-	-
4	Planting and pressing	25.64 (7.42)	29.90 (8.07)	27.77 (7.76)	-	-	-
5	Application of fertilizers	9.08 (2.63)	12.64 (3.41)	10.86 (3.03)	6.08 (2.35)	8.80 (3.17)	7.44 (2.78)
6	Weeding	11.00 (3.18)	9.20 (2.48)	10.10 (2.82)	9.00 (3.48)	8.00 (2.88)	8.50 (3.17)
7	Twisting	8.50 (2.46)	8.70 (2.35)	8.60 (2.40)	8.00 (3.09)	8.20 (2.96)	8.10 (3.02)
8	Irrigation	45.20 (13.07)	52.80 (14.25)	49.00 (13.68)	40.20 (15.53)	50.80 (18.32)	45.50 (16.97)
9	Harvesting	200.80 (58.10)	207.23 (55.93)	204.01 (56.98)	190.50 (73.60)	195.50 (70.50)	193.00 (72.00)
10	Total	345.66 (100.0)	370.50 (100.0)	358.07 (100.0)	258.82 (100.0)	277.30 (100.0)	268.06 (100.0)
11	Owned labour	120.25 (34.79)	-	60.12 (16.79)	90.25 (34.87)	-	45.12 (16.83)
12	Hired labour	225.41 (65.21)	370.50 (100.0)	297.95 (83.20)	168.57 (65.13)	277.30 (100.0)	222.94 (83.17)

Note: Figures in parentheses indicate percentages to the total.

Human labour utilisation in planted crop

The land utilised for sugarcane planting should be such that it should be easy to drain excess water whenever necessity arises. Sugarcane is planted during summer months from January to March in the study area. Therefore, there is a need for protecting the crop in its tender age by adequate irrigation. Since irrigation resources are not satisfactory in many areas, conservation of moisture in the soil to the maximum extent possible has to be arranged by bringing the soil to a fine tilth. After ploughing the soil, the fields are laid out into ridges and furrows. To accomplish this cultural operation, small and large farmers employed 12.50 and the 14.20 mandays per hectare respectively. The same was 13.35 mandays per hectare on combined farms. Application of manures and fertilizers is necessary to realize maximum yield. For the application of manures, 8.04 mandays were employed by small farmers while large

farmers needed 9.50 mandays and the same on combined farms was 8.77 mandays per hectare. The buds on the cuttings germinate to give plants. Top setts or cuttings are taken from a crop ready for harvest and used for planting. For undertaking this operation, the human labour requirement was 24.90, 26.33 and 25.61 mandays per hectare on small, large and combined farms respectively. Cane setts were spread along the ridges and planted in the furrows after letting water into the same. After the field dries up, the setts will be pressed down into the soil and light earthling up done. For this cultural operation, small and large farmers employed 25.64 and 29.90 mandays per hectare respectively. For the application of fertilizers 9.08 mandays were employed by small farmers while large farmers needed 12.64 mandays and the same on pooled farms was 10.86 mandays. Water is the most important part of a cane plant not only compositional but also physiological. Sugarcane requires water continuously. For undertaking this operation, the human labour requirement was 45.20, 52.80 and 49.00 mandays per hectare on small, large and combined farms respectively. Underlying the importance of clear cultivation, the sugarcane growers in the area were cautious in keeping the field as clean as possible. Weeding was undertaken by the farmers to keep the sugarcane field weed free employing 10.10 mandays per hectare on combined farms .Twisting required 8.50 mandays on small farms, 8.70 mandays on large farms and 8.60 mandays per hectare on combined farms. Among cultural operations done to sugarcane, steps to keep the crop errect are prominent in certain districts of Andhra Pradesh. Operation wise labour requirement had shown that 200.80 mandays (58.10 per cent), 207.23 mandays (55.93 per cent) and 204.01 mandays per hectare (56.98 per cent) were employed for harvesting alone on small, large and pooled farms respectively. Sugarcane being the water, nutritive exhaustive and labour intensive commercial crop utilised 345.66, 370.50 and 358.07 mandays of human labour per hectare on small, large and combined farms respectively.

Human labour utilisation in ratoon crop

Ratooning sugarcane is one of the important methods of reducing cost of production. When ratooning is done, cost of seed material can be eliminated and the preparatory cultivation charges will be lower than when the field is prepared for planting. Generally, one or two ratoons are kept after the harvest of the planted crop.

Human labour utilisation on ratoon crop presented in Table-1 revealed that the total labour utilisation was 258.82, 277.30 and 268.06 mandays per hectare on small, large and combined farms respectively.

It is noted that the maximum labour absorption was in harvesting (193.00 mandays) followed by irrigation (45.50 mandays) on combined farms. These two operations together accounted for 88.97 per cent of the total labour used on the combined farms. More or less the same trend persisted in both the size groups with regard to labour absorption. Further, it is observed that family labour use was 90.25 mandays per hectare on small farms. However on large farms, the total labour required was met by hiring.

The analysis of human labour utilisation in the cultivation of sugarcane planted and ratoon indicated direct relationship between labour use and the size of the farm. It is also noted that the major labour absorbing operations were harvesting, irrigation, preparing the seed setts and planting in the case of main crop and harvesting and irrigation in the case of ratoon crop as more than 85 per cent of total labour was used in these operations. It is further observed that maximum labour absorption was in harvesting (56.98 per cent) followed by irrigation (13.68 per cent) and preparation of setts (7.15) and planting (7.76 per cent) in planted crop on the pooled farms.

Bullock and machinery services

Bullocks and tractors were employed for operations like land preparation and transportation of inputs. The particulars of bullock and tractor services are presented in Table-2 and 3.

TABLE-2: CATTLE LABOUR UTILISATION – OPERATION WISE IN SUGARCANE CULTIVATION (IN CATTLE PAIR DAYS PER HECTARE)

Sl. No.	Particulars	Main Crop			Ratoon Crop		
		Small	Large	Combined	Small	Large	Combined
1.	Ploughing	3.00 (15.66)	0.61 (3.36)	1.80 (9.65)	-	-	-
2.	Intercultural operations	16.16 (84.34)	17.57 (96.64)	16.86 (90.35)	15.00 (100.0)	16.20 (100.0)	15.60 (100.0)
3	Total	19.16 (100.0)	18.18 (100.0)	18.67 (100.0)	15.00 (100.0)	16.20 (100.)	15.60 (100.)
4	Owned	12.16 (63.47)	-	6.08 (32.57)	9.75 (65.00)	-	4.87 (31.22)
5	Hired	7.00 (36.53)	18.18 (100.0)	12.59 (67.43)	5.25 (35.00)	16.20 (100.0)	10.73 (68.78)

Note: Figures in parentheses indicate percentages to the total.

TABLE: 3 TRACTOR POWER UTILISATION – OPERATION WISE IN SUGARCANE CULTIVATION (IN HOURS PER HECTARE)

Sl. No.	Particulars	Main Crop			Ratoon Crop		
		Small	Large	Combined	Small	Large	Combined
1.	Ploughing	21.50 (60.80)	23.75 (61.29)	22.65 (61.08)	-	-	-
2.	Transportation of inputs	13.86 (39.20)	15.00 (38.71)	14.43 (38.92)	10.00 (100.0)	12.00 (100.0)	11.00 (100.0)
3	Total	35.36 (100.0)	38.75 (100.0)	37.05 (100.0)	10.00 (100.0)	12.00 (100.0)	11.00 (100.0)
4	Owned	-	18.50 (47.74_	9.25 (25.00)	-	5.75 (47.92)	2.87 (26.10)
5	Hired	35.36 (100.0)	20.25 (52.26)	27.80 (75.00)	10.00 (100.0)	6.25 (52.08)	8.13 (73.90)

Note: Figures in parentheses indicate percentages to the total.

Bullock and machinery services in main/planted crop

It is discernable from the data furnished in Table-2 and 3 that the cattle labour used in growing one hectare of sugarcane planted was 19.16, 18.18 and 18.67 cattle pair days on small, large and combined farms respectively, Maximum cattle labour use was for inter- cultivation accounting for 84.34, 96.64 and 90.35 per cent respectively on the above said farms. The share of hired cattle labour on small and large farms was 36.53 and 100 per cent respectively.

The results presented in Table 2 and 3 revealed that the tractor use was maximum at 38.75 hours per hectare on large farms followed by 37.05 hours on pooled farms and 35.36 hours on small farms. The tractor use showed positive relationship with the size of holding indicating greater degree of mechanization on large farms. Farmers employed tractor services for ploughing (22.65 hours) and transportation of inputs (14.43 hours) accounting for 61.08 and 38.92 per cent of total tractor use on pooled farms respectively. The same trend was observed on both the size groups.

Bullock and tractor use in ratoon crop

It is evident from the Table 2 and 3 that the total bullock labour used in the cultivation of one hectare of sugarcane ratoon varied from 15.00 cattle pair days on small farms to 16.20 cattle pair days on large farms. The same on combined farms was 15.60 cattle pair days. The entire cattle labour was used for inter cultivation since there was no need of cattle labour for land preparation.

The results presented in Table 2 and 3 show that the tractor use was 10, 12 and 11 hours per hectare on small, large and combined farms respectively. Transportation of inputs accounted for 100 per cent of total tractor hours on all the farms.

Material inputs

Production of a commodity not only requires resource services viz., human labour, cattle labour, machinery services etc. but also material inputs like seeds, manures, fertilizers, plant protection chemicals etc., the details of which are presented in Table- 4.

TABLE- 4: MATERIAL INPUTS USED IN SUGARCANE CULTIVATION (PER HECTARE)

Sl. No.	Particulars	Units	Main Crop			Ratoon Crop		
			Small	Large	Combined	Small	Large	Combined
1.	Seed	Tonnes	9.64	9.91	9.77	-	-	-
2.	FYM	Tonnes	10.78	12.00	11.39	8.00	8.20	8.10
3	Fertilizers	Kgs						
	N		288.40	345.00	316.70	220.40	250.00	235.20
	P		107.02	127.80	117.41	80.00	100.00	90.01
	K		112.50	150.00	131.25	90.50	120.00	105.25
4.	Weedicides	Lts	1.16	1.54	1.35	1.00	1.20	1.10
5.	Rodenticides	Kgs	12.00	15.00	13.50	8.00	10.00	9.00

Material input utilisation in the cultivation of main/ planted crop.

It is evident from Table- 4 that small, large and pooled farms used 9.64, 9.91 and 9.77 tonnes of sugarcane per hectare respectively for seed purpose. On an average, 11.39 tonnes of FYM per hectare was applied on combined farms and this varied from 10.78 tonnes on small farms to 12 tonnes on large farms. Chemical fertilizers were also applied and the breakup of the same into N, P and K resulted in 288.40 kg 107.02 kg and 112.50 kg per hectare respectively on small farms, 345 kg, 127.80 kg and 150 kg on large farms, 316.70 kg, 117.41 kg and 131.25 kg on combined farms respectively. Weedicides were used to the extent of 1.16 litres, 1.54 litres and 1.35 litres per hectare on small, large and combined farms respectively. To control rats farmers used 12kg, 15kg and 13.50kg of rodenticides on the above said categories of farms.

Material utilisation in the cultivation of ratoon crop

It is evident from Table-4 that small, large and combined farms used 8.00, 8.20 and 8.10 tonnes of FYM per hectare respectively. On an average, small farmers applied 220.40, 80 and 90.50 kg of N, P and K per hectare respectively. Large farmers used 250, 100 and 120 kg of N, P, and K per hectare respectively. The respondents as a whole applied 235.20, 90.01 and 105.25 kg of N, P and K per hectare respectively. It is also noticed from the table that application of chemicals to control weeds on small, large and combined farms was 1, 1.20, 1.10 litres per hectare respectively. The use of rodenticides was to the extent of 8, 10 and 9 kg per hectare on small, large and combined farms respectively.

Conclusion:

1. The total human labour utilised was 345.66, 370.50, 358.07 mandays per hectare in main crop on small, large and combined farms respectively. The same in the cultivation of ratoon crop was 258.82, 277.30 and 268.06 mandays per hectare on the above said categories farms. The maximum labour absorption was in harvesting (56.98 per cent) followed by irrigation (13.68 per cent), planting (7.76 per cent), preparation of setts (7.15 per cent) and land preparation (3.73 per cent) on combined farms in the case of main crop. About 72 per cent of the total labour was utilised for harvesting alone in the ratoon cultivation.

2. The cattle labour used in growing one hectare of sugarcane planted was 19.16, 18.18 and 18.67. cattle pair days on small, large and combined farms while that of tractor power use was 35.36, 38.75 and 37.05 hours respectively on the above said size groups.

3. The bullock labour used in the cultivation of one hectare of sugarcane (ratoon) varied from 15.00 cattle pair days on small farms to 16.20 cattle pair days on large farms. The tractor use on small, large and combined farms was 10, 12 and 11 hours per hectare respectively.

4. Farmers used 9.77 tonnes of sugarcane for seed, 11.39 tonnes of FYM, 316.70 kg N, 117.41 kg of P and 131.25 kg K, 1.35 litres of weedicide and 13.50 kg of rodenticides per hectare in the cultivation of sugarcane planted. To cultivate a hectare of ratoon, farmers used 8.10 tonnes of FYM, 235.20 kg of N, 90.01 kg of P and 105.25 kg of K, 1.10 litres of weedicide and 9 kg of rodenticides.

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Impact Of MGNREGA On Wage Rates, Food Security And Rural Urban Migration In Andhra Pradesh*

I

Introduction:

It was realized that a sustainable strategy of poverty has to be based on increasing the productive employment opportunities in the process of growth itself. As a result, the stress was laid on employment and poverty alleviation in the Sixth Five Year Plan onwards.

A)**National Rural Employment Programme (NREP):**

The Ministry of Rural Development, Government of India launched National Rural Employment Programme (NREP) in October 2980 to generate additional gainful employment in rural areas with an outlay of Rs. 1620 crores, which was to be shared equally between the Central Government and State Governments. The important objective of this programme was creation of durable assets. This programme apparently lacked a direct focus on the target-group for whom it was meant.

B) **Rural Landless Employment Guarantee Programme (RLEGP) :**

This Programme was introduced by the Ministry of Rural Development, Government of India on 15th August, 1983 to supplement NREP with the objective of improving and expanding employment opportunities for the rural landless. The prime objective of this programme was providing guarantee of employment to at least one member of every landless household upto 100 days in a year and creating durable assets for strengthening the infrastructure so as to meet the growing needs of the rural economy. During 1985 the Central Committee approved 320 projects with an estimated cost of Rs. 906.59 crores. The target for employment generation in 1983-84 and 1984-85 was fixed at 360 million man days against which 72.27 per cent of man days of employment was actually generated. Hence both the projects viz. NREP and RLEGP were merged as Jawahar Rozgar Yojana (JRY).

C) **Jawahar Rozgar Yojana (JRY)**:

Jawahar Rozgar Yojana (JRY) was launched in the last year of 7th Five Year Plan with a total allocation of Rs. 2,600 crores to generate 931million man-days of employment. The primary objective of the programme was generation of additional employment on productive works, which would either be of sustained benefit to the poor or to contribute to the creation of rural infrastructure.

Under the programme, projects were to be executed by the Government Ministries and agencies without the contractors so that full benefits of wages should go to the workers. The payments to contractors constituted at least 10 per cent of the cost of project. Clear-cut guidelines were absent regarding the Criteria to be used by the Panchayats in selecting the rural poor.

D) **Employment Assurance Scheme (EAS):**

The Scheme was launched on 2nd October, 1993 in 1775 identified backward blocks situated in drought prone, desert, tribal and hill areas in which the revamped public distribution system was in operation by District Rural Development Agency (DRDA).

However, it was felt that a stage has come when the development of village infrastructure needs to be taken up in a planned manner. This could best be done by the village Panchayats who are closest to the ground realities and who can effectively determine their local needs. Accordingly, the Government had restructured the existing wage employment programme namely Jawahar Yojana (JRY) and Employment Assurance Scheme (EAS) and the new programme is named as Jawahar Gram Samridhi Yojana (JGSY).

E) **Jawahar Gram Samridhi Yojana (JGSY) :**

This programme was dedicated entirely to the development of rural infrastructure at the village level and implemented by the Village Panchayats. This programme came into effect from 1st April, 1999. The primary objective of JGSY was creation of demand driven community village infrastructure including durable assets at the village level and assets to enable the rural poor to increase the opportunities for sustained employment. The secondary objective was

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generation of wage employment for the unemployed poor in the rural areas. The JGSY was implemented by village level institutions (PRIs) while the EAS relied on the State Administrative apparatus. Consequently EAS and JGSY were merged into a new scheme, the "Sampoorna Grameen Rozgar Yojana " (SGRY).

F) Sampoorna Grameen Rozgar Yojana (SGRY):

The "Sampoorna Grameen Rozgar Yojana" (SGRY) was started in September, 2001. The objectives of SGRY were to provide additional wage employment in rural areas and also food security, alongside the creation of durable community, social and economic assets and infrastructure development. The SGRY also encompasses all food for work programmes in the country since it includes a special component for augmenting food security through additional wage employment in calamity affected rural areas. There was a need for substantial additional investment in these districts to convert their surplus labour into required capital formation solving livelihood issues. Such an attempt was started in January 2000-01 by Ministry of Rural Development, Government of India by introducing a new programme "The National Food for Work Programme"(NFFWP).

G) National Food for Work Programme (NFFWP):

An attempt was made, through the programme, to co-ordinate among different on-going schemes, which had wage employment potential, so that the focused approach provides a solid base for the districts to take-off on their own. It was felt that there was an excess flow of food grains for the poor through the wage employment schemes.

H) National Rural Employment Guarantee Act (MGNREGA):

In the annals of employment generation schemes this programme is a milestone. This act was passed in the year 2005. MGNREGA has extensive in-built transparency safeguards. The act is designed to offer employment within 15 days of application work, if the employment cannot be provided by the authorities, then daily unemployment allowance has to be paid.

Features of MGNREGA :

i) Time bound employment guarantee and wage payment within 15 days.

ii) Incentive-disincentive structure to the State Governments for providing employment, as 90 percent of the cost for employment provided is borne by the Centre while payment of unemployment allowances are borne by the State Governments (at their own cost); and

iii) Emphasis on labour intensive works prohibiting the use of contractors and machinery.

iv) The Act mandates 33 per cent participation for women.

v) The cost sharing is 75 per cent and 25 per cent by Central and State Governments respectively.

Features of MGNREGA :

a) Adult members of rural households submit their name, age and address with photo to the Gram Panchayat.

b) The Gram Panchayat registers households after making enquiry and issues a job card which contains the details of adult member enrolled and his/her photo.

c) Registered person can submit an application for work in writing (for at least fourteen days of continuous work) either to Panchayat or to Programme Officer.

d) The Panchayat/ Programme Officer will accept the valid application and issue dated receipt of application and the letter providing work will be sent to the applicant and also displayed at Panchayat Office.

e) The employment will be provided within a radius of 5 kilometers and if it is above 5 kilometers, extra wage will be paid.

f) If employment under the scheme is not provided within fifteen days of receipt of the application, the daily unemployment allowance will be paid to the applicant.

Phases of MGNREGA:

I Phase- Notified in 200 districts with effect from 2nd February, 2006.

II Phase -Extended to 130 districts in the financial year 2007-08 (113 districts from 1st April,2007 and 17 districts of UP were notified with effect from 15th May, 2007).

III Phase- Remaining districts in all the states /UTs were notified from 1st April, 2008.

I. The Problem:

Keeping in view several success and failure cases of earlier employment programmes, the MGNREGA was launched in the year 2005 with high expectations in terms of employment generation, alleviation of poverty, food security, halting migration and overall rural development. Though there are numerous studies, the limited studies made field studies from the beneficiaries. As the scheme is in its initial stage, it is inevitable for a study to evaluate the scheme for its impact on rural poor. How much distressed and disadvantageous sections are benefited in the form of relative wage, unseasonal wage support by MGNREGA works and the impact on the rural incomes. It is to be brought to the sharp focus to formulate policies. Hence, there is a need for the exploration of field level deficiencies across Andhra Pradesh. In this connection, the Ministry of Agriculture, Government of India asked its Agro-Economic Research Centres to take up an evaluation study on the implementation of MGNREGA in their respective states. Therefore, the Agro-Economic Research Centre, Andhra University, Visakhapatnam has taken up the evaluation study in Andhra Pradesh, with the following objectives:

J. Objectives of the study:

1. To measure the extent of man power employment generated under MGNREGA, their various socio-economic characteristics and gender variability in all the districts implementing MGNREGA since its inception in Andhra Pradesh;

2. To compare wage differentials between MGNREGA activities and other wage employment activities;

3. To know the effect of MGNREGA on the pattern of migration from rural to urban areas;

4. To find out the nature of assets created under MGNREGA and their durability.

5. To identify factors determining the participation of people in MGNREGA scheme and whether MGNREGA has been successful in ensuring better food security to the beneficiaries; and

6. To assess the implementation of MGNREGA, its functioning and to suggest suitable policy measures to further strengthen the programme.

K. Data base and Methodology:

The study is based on both primary and secondary data. For primary data, reference period is January, 2009 to December 2009. Five districts namely 1) Adilabad, 2) Chittoor, 3) Mahboobnagar, 4)Srikakulam and 5) Krishna are selected for the study from the state of Andhra Pradesh. From each district, two villages are selected keeping into account their distance from the location of the district or the main city/town. One village is selected from the nearby periphery of around 5 kilometers of the district/ city head quarters and the second village is selected from the farthest location of 20 kilometers or more than that. From each selected village, primary data is collected from 20 participants in MGNREGA and 5 non-participants working as wage employed. Thus 10 villages are selected and a total number of 250 households are surveyed in detail with the help of a structrured questionnaire. Therefore, in A.P. 200 participants and 50 non-participants are surveyed to estimate the variations specially and temporarily. For selecting participant households, a list of all beneficiaries in the village is obtained from the Gram Panchayat or Programme Officer in the village along with the information of caste and gender. After getting the list, the participant households are selected giving proportionate representation to the community i.e., i) Scheduled Castes ii)Scheduled Tribes iii)Other Backward Castes and iv) Other Castes, through a stratified random sampling method with a due representation to gender. Since the list of non-participants of MGNREGA is not available, the non-participating households are selected with analogues design of MGNREGA workers. To analyze the incomes and consumption aspects of the participants, Gini ratio's and to analyze the determinants of participation in MGNREGA, the Logit function are adopted to find the variations across selected groups of workers and villages.

In addition to household questionnaire, a village schedule is also canvassed to capture the general changes that have taken place in the village during the last half decade and to take note of increase in labour charges for agricultural operations after the implementation of MGNREGA. The qualitative questions in the village schedule helps to know the change in standard of life. Village schedule in each village is canvassed with the help of a group discussion with Panchayat members, officials, educated and other well-informed people available in the village.

L. An overview:

The present study report is divided into seven chapters. The first chapter being the introductory chapter, the second chapter presents the Man Power Employment generated under MGNREGA and its socio-economic characteristics. The third chapter deals with the household characteristics and their income and consumption pattern while the fourth chapter focuses on work profile under MGNREGA, wage structure and migration issues. The fifth chapter analyzes the functioning of MGNREGA probing the qualitative aspects and the sixth chapter discusses the impact of MGNREGA on village economy. Finally, concluding remarks and policy suggestions are presented in the seventh chapter.

II

Man Power Employment Generated under MGNREGA and its Socio-Economic Characteristics:

The scheme showed a better performance during 2009-10 than 2010-11 and 2008-09. A gradual improvement is observed in case of beneficiaries of land reform/IAY and disabled beneficiary households during the three years. However, the basic objective of the Act in providing at least 100 days of guaranteed wage employment is not achieved as expected. The number of projects undertaken in the state was increased from year to year. Increase in the number of works completed from 2008-09 to 2010-11 is observed in case of water conservation and water harvesting and Micro Irrigation works while a decrease is noticed in case of land development works and provision of Irrigation facilities. Viewing the performance of all ongoing projects from 2008-09 to 2010-11, a decrease in number in almost all activities except in the case of Rural Connectivity activities, harvesting works, land development works and provision of irrigation facilities. It is observed that about 33.25 per cent of increased amount was spent on complete projects during 2009-10 compared to the previous year. Between 2009-10 and 2010-11, the increase in the amount spent is reported around 72 per cent. Observing over the performance of the three years, larger amounts were spent on ongoing projects during 2009-10 than in the years 2010-11 and 2008-09.

Of the total number of muster rolls used 91.71 per cent of the muster rolls are verified during 2010-11 and 2009-10 and only 88.16 per cent in the year 2008-09. The percentage of verification of muster rolls ranged from 90.25 in Prakasam district to 92.80 in Mahaboobnagar district during 2010-11. Glancing across the districts similar performance is observed during 2009-10 and 2010-11. Six districts have reported to have got the muster rolls verified below 80 per cent during 2008-09. The social audit was held in 86.47 per cent of Gram Panchayats in 2010-11, 92.65 per cent of Panchayats in 2009-10 and only in 73.76 per cent of Gram Panchayats during 2008-09 in the state. The percentage of number of Panchayats among the 2nd and 3rd phase of districts in which social audit was held ranged from 59.95 in Guntur to 97.67 in Kurnool district during 2009-10, from 64.77 in Rangareddy to 99.77 in Adilabad during 2010-11 and from 7.56 in Krishna district to 98.74 in Rangareddy during 2008-09. Meager percentage of GPs have reported to have conducted social audit in the districts of Visakhapatnam, Krishna and West Godavari. This is due to irresponsibility and negligence by the GP staff in the respective districts. Out of the total works taken up, during the three years, 9.15 per cent of district level and 91.65 per cent of block level works during 2010-11, 9.15 per cent at district level and 91.25 per cent at block level during 2009-10 and 9.08 per cent at district level and 90.88 per cent at block level during 2008-09 were inspected. Out of the total number of Gram Panchayats in the state 91.28 per cent of Gram Panchayats held Gram Sabhas and VMC meetings were held in 1.11 per cent of Panchayats during 2010-11, Gram Sabhas in 98.41 Panchayats and VMC meeting in 10.47 per cent of Panchayats during 2009-10 and 98.22 per cent of Gram Sabhas and 84.94 per cent of VMC meetings were held during 2008-09. Where the socio-economic awareness are the level of development is high, there the rigidity of political dynamism appears much. As the Krishna, Guntur and Nellore districts show much lower representation of the Gram Sabhas held, it indicates the people's participation or mobilization in the local administration at lower level. Out of the total number of complaints received in the state during the three years, 98.17 per cent in 2010-11, 91.70 per cent in 2009-10 and 96.26 per cent in 2008-09, were disposed. Four districts during 2010-11, six districts in 2009-10 have disposed cent percent of the received complaints.

Out of the total number of accounts opened in state in each year, 13.36 per cent of accounts in Banks and 86.64 per cent of accounts in Post Offices during 2010-11, 14.04 per cent in Banks and 85.96 per cent in Post Offices during 2009-10 and 8.34 per cent in Banks and 91.66 per cent of accounts in Post Offices in 2008-09 were opened. Moreover, out of the total amount disbursed in each year, 27.05 per cent of amount from Banks and 72.95 per cent of amount from Post Offices during 2010-11, 19.98 per cent of the amount from Banks and 80.02 per cent of amount through Post Offices during 2009-10and 26.75 per cent of the amount from Banks and 73.25 per cent through Post Offices in 2008-09 were disbursed. No joint account is reported either in Banks or in Post Offices in any of the 22 districts. Across the districts the percentage of total amount through both agencies taken together ranged from 1.56 in Krishna district to 6.81 in Srikakulam district during 2010-11. It is further observed that the number of Post Office accounts has increased about 5.87 per cent over the year 2009-10. During 2009-10, the percentage of amounts disbursed through banks ranged across the districts from 0.01 in Nellore district to 26.39 in Visakhapatnam out of the total amount disbursed in the state. While the percentage of amounts disbursed through Post Offices among districts varied from 0.01 in Visakhapatnam to 8.09 in Vizianagaram district, the disbursement amounts is reported to be Nil in Krishna and West Godavari districts. During 2008-09 no bank account was opened in Visakhapatnam and West Godavari districts.

In Andhra Pradesh, no district has reported to have paid unemployment allowance during 2010-11. Out of the total number of works taken up in the year 2010-11, 83.56 per cent of works were estimated to likely to be spilled over from current year to next financial year. About 27.82

lakhs of new works are proposed for the next financial year with an estimated cost of Rs. 631659.49 lakhs and the person days to be generated is about 4418.63 lakhs. Out of the total estimated cost in the state 61.25 per cent of the amount is expected to spend on unskilled wage and 38.75 per cent of the amount on material including skilled and semiskilled wages. Across the districts the percentage of the total estimated cost varied from 0.68 in Karimnagar district to 6.46 in Rangareddy district. Moreover, the percentage of estimated cost on unskilled wage ranged from 0.73 in Karimnagar to 6.49 in Rangareddy district. While the percentage of material cost varied from 0.60 in Karimnagar to 6.40 in Rangareddy district.

III

Household Characteristics and their Income and Consumption Pattern:

The aggregate size of the household is reported to be 4.03 while the average size for beneficiary and non-beneficiary households respectively are 4.20 and 3.44. An aggregate per cent of 88.40 from males have reported themselves as decision makers. About 85 per cent of households reported themselves as wage earners. On the whole 5.21 percentage of households taking both categories together, have reported migration during 2009. It is observed that more number of days have been engaged in agricultural casual labour work than other activities. About 35 per cent of man days were reported to be engaged in agricultural casual labour work by beneficiary households while their participation was only about 32 per cent of man days under MGNREGA. Across different activities the per household net income varied from 1.70 per cent from migrant workers to 32.61 per cent of income through agricultural wages. Higher percentages of incomes are reported by agricultural wages and livestock activities. On the other hand, the per household net income from all activities in case of non-beneficiary households is reported to be Rs. 43,441/-. Higher percentages of incomes are reported through Agriculture/Livestock activities and non-agricultural wage rates. Comparing with NSS data of 2004-05 the consumption of cereals by beneficiaries is comparatively lower than the data of NSS 2004-05. On the other hand the cereal consumption is reported about 15.88 kgs by non-beneficiaries households, which is higher than the NSS reported quantity of cereals per month. Moreover, the edible oil consumption is reported higher by both beneficiary and non-beneficiary households when compared to NSS data of consumption. Interestingly the consumption of poultry meat and confectionary by both categories of households is reported much higher than the consumption data of NSS further respective items in 2004-05. The monthly consumption expenditure on total food items are reported higher by both categories of households against the expenditure shown in NSS round 2004-05. Interestingly the expenditure on clothes and fuel shown in NSS data are much higher than the expenditure reported by beneficiary and non-beneficiary households. On the whole, the expenditure pattern on consumption of food and non-food items is comparatively improved through the wages earned by beneficiary households. Moreover, the gini co-efficient of income of non-beneficiary households indicate more inequality than the beneficiary households and even to the aggregate co-efficient of income. This reason may be attributed to the wages of different works in which the non-beneficiary households have involved. On the other hand the gini co-efficient of consumption is reported higher by beneficiary households where as the non-beneficiaries reported a lower co-efficient than the average gini co-efficient.

Glancing over the performance of the beneficiary sample households, it can be observed that more number of days were reported to be involved in other works than under MGNREGA works. This is due to the non-availability of adequate number of days of work under MGNREGA activities. Observing the wage earning activities of beneficiary households, more incomes are reported to have earned through other activities than from MGNREGA works. The co-efficient of variation on both food and non-food items taken together for beneficiary households ranged from 23.94 in Krishna district to 37.77 in Mahboobnagar district and varied between 19.46 in Krishna district and 52.63 in Adilabad district for non-beneficiary households. The impact of MGNREGA scheme on the improvement in the percentages of consumption of food and non-food items for sample households is only marginal but not as much as expected.

Comparing the Gini Co-efficients of income and consumption, the Gini Co-efficients of consumption have not shown considerable inequality between beneficiary and non-beneficiary households of Adilabad district. Higher ratio of concentration is reported in case of consumption of non-beneficiaries in Chittoor district, which means higher inequality than beneficiary households. In Mahboobnagar district, the inequality in incomes and consumption is comparatively reported higher by the non-beneficiaries than the beneficiary households. Much variation is not observed with regard to per household consumption between beneficiary and non-beneficiary households of Srikakulam district. In Krishna district, considerable inequalities in incomes were not reported between beneficiary and non-beneficiary households. However, considerable inequality in the consumption is reported higher among beneficiary households than among non-beneficiary households.

The logit function explains the willingness of the households to participate in MGNREGA works, in spite of

getting works other than MGNREGA elsewhere.

IV

Work Profile under MGNREGA, Wage Structure and Migration issues:

Viewing the overall performance of the districts, the aggregate number of members per households is reported as 2.01. The per household number of days employed are reported to be 43.10 while across caste groups, the per household number of days of employment ranged between 35.89 in General category and 59.58 in Scheduled Tribe category. The per household number of days of employment in women category reported to be 19.68. An overall wage range of Rs. 97.56 is reported in the state, while across caste groups the wage rates are ranged from 63.90 in Scheduled Tribe category to Rs. 100.44 in OBC category. The average wage rate for women is reported to be Rs. 77/-.

Out of the total sample of 200 households, 41.50 per cent of households were engaged in Land Development works, 27 per cent of households were employed in Micro Irrigation works, 22.50 per cent of households in Water Conservation and Water Harvesting, 5 per cent in Provision of Irrigation facility works and 4 per cent of households were employed in Rural connectivity activities. Among the total sample of households 75.50 per cent of households reported the quality of the assets created are good and 24.50 per cent of households have reported in quality of the assets as very good. None of the households have reported to have received unemployment allowance for not getting work under MGNREGA after registration.

The aggregate wage rates for all types of works involved by the households are reported higher than the wage rates of MGNREGA. The male labourers of non-beneficiary households have reported higher wage rates than the wage rates of beneficiary males for involving in Agricultural and Non-agricultural Casual Labour work. Moreover, the co-efficients of variation for non-agricultural casual labour work are reported 9.18 and 6.78 respectively for beneficiary and non-beneficiary households compared to Agricultural Casual Labour work attended by both categories of households. However, much variation of wage rates is observed in case of female migrant workers of beneficiary households and male migrant workers of non-beneficiary households. The wage rates of all works other than NREGA are reported higher than the MGNREGA wage rates. Moreover, much variation is observed in the wage rates between males and females for all works other than MGNREGA. Due to higher wage rates for the works other than MGNREGA works, the labourers are very much inclined towards the other works than MGNREGA works.

Viewing the overall performance of total sample households, the number of members per household who migrated from the villages are reported to be 0.2 and the same number of households returned back to their parental village to participate in NREGA works. Out of the total number of members returned back to their parental village, 70 per cent of the members worked earlier nearby town, 20 per cent of the members in the same district and 10 per cent of the members in the same state. Moreover, during their migration period, 60 per cent of the members were engaged in construction works and 40 per cent were engaged in Trading and Transport services. Moreover, 80 per cent of the total migrated households reported that they have shifted to that place only last year and only 20 per cent have reported to have migrated during before last year. All the members returned back to the parental village reported that their family is better off now compared to previous occupation.

Observing the village level performance of MGNREGA scheme, one can understand that the Government is providing employment but not full of 100 days to every household demanded employment as targeted in the act. No sample household, in the sample villages, received unemployment allowance for not getting work under MGNREGA after registration. The wage rates reported in the sample villages for MGNREGA works ranged between Rs. 91.05 and Rs. 95.92, which are higher than the state average wage rate of Rs.90.35 during 2009-10. Much variation in the aggregate wage rates of MGNREGA works is observed in Chittoor, Adilabad and Krishna districts when compared to Mahboobnagar and Srikakulam districts. The reason may be attributed to the inconsistent number of days of employment for different types of MGNREGA works. The labourers are more attracted by the higher wages paid for agricultural and non-agricultural works than the wages paid for MGNREGA works. The migration of members is not only due to non-availability of work but also to earn a better wage rate than the stipulated wage rates in MGNREGA works. However, in some cases where the members failed to achieve a better wage rate at their migrated places, there from they obviously returned back to their parent villages to earn at least a minimum wage to maintain their livelihood.

V

Household Assets Holdings:

It clearly divulges the level of distance of asset holding in between two groups in A.P. It is found that agricultural implements and live stock show less variation

in the per house holding between two groups. In aggregate of both participants and non-participants for all study villages, it is reported that the highest is land with 65% followed by housing property.

Household Status on Borrowings and their Financial Vulnerability:

There is significant fact that both the groups are equally in the hands of 'traders-cum-money lenders'. It reports the local traders influence in financial matters in rural area. When compared to all other groups, land employment is meager but it is comparatively high to beneficiaries.

Household Strength on Borrowing and other Household Assets of Sample Villages:

A significant fact appears that the highest borrowing (80%) is available to both groups – beneficiaries and non-beneficiaries by the SHG in village followed by bank/post office/ other institution. There is no availability of credit from co-operative society to either group. One welcome feature is that the least appears from 'doing wage work to those whom they are indebted'. This indicates decline of attached labour in the study area.

Qualitative Functioning of MGNREGA from Sample Villages :

There is no payment of fees or charges or bribe to get a 'Job Card'. All the participants informed the job card with them only. Nowhere the job card is kept or engaged. The work application was received and arranged employment as per 90% participants, while 10% of them disagreed with the statement. There is no existence of unemployment allowance and the participants are unable to inform regarding this aspect. The payments of wages are similar to both men and women in the scheme as informed by 90% participants. Measurement of work was done mostly on team basis or collective basis rather than individual one. And the wages are paid fortnightly. All the work site facilities are available in the study area. Economic usefulness of work is accepted by all the participants. All the participants by 100% informed the usefulness of the work. Labour migration to city has become a feature for some part of the labour, despite MGNREGA has been there in sample districts. All the participants unanimously expressed the existence of higher wages to the labour who commute to the towns. Awareness of respondents about MGNREGA implementation is fully acknowledged in the accrual of 'Potential of Benefits' of MGNREGA, the respondents are satisfied with the benefits received. It is observed that there is good food security established to the workers. Further they reported that the scheme helped them to come out from poverty chains. Food security has shown lot of strength in the sample villages of Andhra Pradesh. All family members of participants have expressed that they had two meals across the whole year during 2009. There is no other opinion in case of food security.

Some Qualitative aspects of MGNREGA in A.P.:

All the participants answered that there was no demand for any bribe to job card issuing. All the job cards are kept with the participants. The 20% of the participants informed that there was higher wage and, therefore, they migrated to town. Some of the workers came back from town due to non-fitness of body to the manual work and also the overage of the labour.

Potential Benefits of MGNREGA in A.P.:

All the participants reported the enhancement of food security. As previously discussed, all the workers of the scheme have divulged a very strong positive impact on poverty. Because of the scheme, the women workers found economic independence which is applicable to all the workers in the sample villages of Andhra Pradesh. The programme has reduced indebtedness among the participants (90%).

Quantitative aspect of food security of sample villages of A.P.:

There is existence of sufficient food for the whole year and no worker from the scheme suffered from any deprivations. Main expenditure faced by the participants is for education by 34% and for medical by 66%. They reported that these are the basic heads which are demanding much expenditure out of their incomes. To develop the scheme, the participants (60%)viewed for the increase of number of days of scheme. The 40% of workers informed that there should be available works nearer to

village, since the villagers found much problem to reach the distant worksites and additional time and energy taken to reach these sites. The landless labour should be given higher priority in the allocation of work. This is to be covered 100% of the workers of the village. It will enable them to enhance their income levels and to possess stable income sources.

VI

Infrastructures available in the sample villages in A.P.:

All the villages (100%) have road connectivity, while the rail connectivity is 100% from nearest village with average distance of 18.70 kms. Post office shows its presence in 80 per cent villages, while 20 per cent villages visit the nearest villages by covering the average distance of 5.50 kms. The Agricultural Marketing Centre (AMC) is available to neither study village but farmers are to transport their produce to nearest villages which are located at 14.70 kms. average overall distance. The Self-Help Groups are formed and available to 80 per cent villages and 20 per cent villages are to move to 9.50 kms of the nearest village. All the villages (100%) have primary schools, despite the secondary schools are located in 50% villages. Every village possesses Gram Panchayat Office, while fair price shop is only available to 70 per cent villages and the others are to go 8.70 kms to purchase subsidized goods.

Occupational Structure in sample villages:

The dependence on agriculture has been declined and the rural non-farm occupation has shown much increase. Transport and communication showed much growth (from 2.08% to 1.08%), while the counter trend appeared for cultivation (from 45.87% to 43.80%). It clearly signifies the diversification of rural occupational structure.

Wage rates of labour in all sample villages (State level/ Overall):

The shift of wages in between 2005 and 2009 took place in the villages in A.P. for male and female. The increase in agricultural wage for female is higher (80%) than that of male (60%). It may be ascribed to the effect of MGNREGA. In case of non agricultural wage, the male has better edge in getting good wage than for female, whereas female has good increase in wage for construction work rather than the wage of male.

Average prevailing labour charges for Agricultural Operations in sample villages by overall/State:

There have been continued acceleration charges for different agricultural operations in study villages in Andhra Pradesh. Out of the charges, the charge for cane-cutting is the highest and followed by threshing of paddy during the study period 2009-11. The other higher charges of agriculture operations are paddy weeding, transplanting and harvesting of paddy.

Qualitative changes in sample villages during last one year in A.P.:

There was shortage of agricultural wage labour at some point during last year, as expressed by 70 per cent participants and the same trend was true even after MGNREGA implementation. After implementation of MGNREGA, some workers came back from town to village to work, was reported by 60 per cent participants and the remaining participants indicated the existence of migration to towns. The commutation of agricultural workers in between village and town has increased as responded by 40 per cent participants. All the participants (100%) unanimously have informed the increase of standard of living.

Qualitative Functioning of MGNREGA in A.P.:

There is 100 per cent shortage of agricultural labour at same point during July, August, November and December. After MGNREGA implementation, there has been shortage of agricultural labour by 100 per cent in September, October and November months. The household consumption increased in pulses and oil by 25 per cent due to the impact of MGNREGA for all the participants. The scheme has certainly impacted positively over the education of children of the participants and they said that there was 20 per cent increase for their children. In the study villages still attached labour has existed as per 40 per cent participants and 60 per cent participants informed no attached labour after the scheme in force. Many participants (62%) suggested to stop the MGNREGA scheme during agricultural peak season. As a whole the scheme was given very good sway on the lives of agricultural labour in the study villages of Andhra Pradesh.

Policy Suggestions

1. **100 days Employment Norm:**

Much can be done under this scheme when the works are taken out of the seasons of agricultural activity, when the participants will anticipate the employment. Thus the fulfillment of 100 days employment could be done in an acceptable way across the community. It is still to be achieved 100 days in A.P., provided no damage to farming activity.

2. **Long term works**:

A fascinating point is that the long term works are to be launched, instead of the other. This will stabilize the availability of works in the vicinity and further it generates durable and long-lasting works which may be envisaged as Rural Connectivity, Water Harvesting, Land development works, irrigation generating works etc.

3. **Unemployment Allowance**:

The Unemployment Allowance may scarcely be mull over in the areas where the employment channels are null and void and the labour force is under strains due to the problem of finding employment. Where the poverty is high in the districts for example Ananthpur, there the unemployment allowance becomes a stabilizing factor for consumption of the labour. There is dire need to do some in favour of such labour force in areas in question with good discrimination to avoid wastage of funds of the scheme. But it is found as a whole absent grossly across all districts in Andhra Pradesh.

4. **Gram Sabhas, VMCs and Social Audit**:

Decision making and useful work generation could be achieved in villages through their interest and pro-active role. A reasonable formal propaganda could ensure interest among villagers. It is observed that the Gram Sabhas are held at low ebb in some districts viz. Guntur, Krishna and Nellore which are well developed. The Village Monitoring Committee activity is to be much promoted to strengthen the coordination of works and payments. Though the social audit is applauded in A.P., there is much lacuna. Still some districts display bottom level performance, however, these districts are developed. Hence there is a need of refurbishing the administrative set up in West Godavari, Krishna and Visakhapatnam districts.

5. **Alternative Payment Channel** :

Post offices are doing good service in the payments of MGNREGA rather than banks in the study area. It is high time to ponder over the mobile banking every day or no less than in specified days and timings. It will generate saving attitude in the rural people and it facilitates to take the wages in time and it generates deposits to the banks. If it is costly affair, it is better to arrange some specified 'Automatic Teller Machines' for this purpose, since this scheme has practice of issuing job cards which can be converted into bank debit card or identity card for payment from the teller machine to worker.

6. **Mobilization of Savings**:

It is better to start some saving mobilizing fund groups for example thrift fund groups among the participants to meet their exigencies and further it reduces the dependency on other sources which charge 24% interest or more based on the need and emergency of participant borrower. They may be given short term life and health insurance coverage within the purview of scheme through the paltry contribution of the participant.

7. **Location of works**:

To save time and energy of the participants, it would be much sought after the works in the vicinity of participants of the scheme. It is observed that there are some linkages of labour demand with, other works and urban area across all days for middle age group of labour and this scheme is a source of employment to women and to the segment of the more than middle aged labour.

8. **MGNREGA: A Custodian for Higher Wage from vicinity and migration**:

There is no change in migration except during no demand in from other areas. Wage of the scheme has been acting as a buffer wage/opportunity wage to the labour and they trade off the supply of labour based on the seasons of agriculture, construction works from other sources other than the MGNREGA and the demand derived from urban areas due to variety of works in recent past. This appears very rampant for middle aged or able bodied labour. Therefore, the migration aspect has not been curtailed because of the scheme, instead it has in another way continued with higher wages when compared

to the previous lower wages. Thus the scheme has affected positively, to have higher level of the bargaining power of the labour and or changed total demand and supply labour linkages. These linkages ultimately have become positive and resourceful to the manual labour in all the study districts. To this end, cultivators are unable to find labour not only during the seasons of farming but also in other periods through the existing wage of the locality. It is very difficult to conclude that MGNREGA has reduced migration rather than reinforced the wage structure to the labour in other avenues, since all the sample villages of all sample districts of this study exhibit this trend across all the developed and backward districts in A.P. In case of women and aged men, the migration has been sharply declined and they go along the scheme in their villages and they find good wages (not below of scheme wage) in their villages.

9. **Impact on Agriculture and Alternative**:

A significant fact is divulged through this study regarding labour linkages and cultivation. As such it is important and pertinent to note the dependence of cultivator on manual labour to be reduced through mechanization and to shift to new methodologies, since the scheme has very extensive affect on the availability of labour over cultivation and its wage structure. This is apparent through the phenomenon observed from the sample villages. While it is highly suggested that the scheme may be kept under pending during peak agricultural seasons by villagers, it would be better to readjust the schedule of works of the scheme with variations based on the agricultural cropping pattern, rainfed cultivation and irrigation levels of the districts in question. At least a district may be taken as a unit to do this exercise as this makes flexible to administer the scheme.

D. Commodity Reviews

(i) Foodgrains

During the month of June,2013 the Wholesale Price Index (Base 2004-05=100) of pulses declined by 0.82%, Foodgrains and cereals increased by 1.57% and 2.10% respectively over the previous month.

ALL INDIA INDEX NUMBER OF WHOLESALE PRICES

(Base: 2004-2005=100)

Commodity	Weight (%)	WPI for the Month of June 2013	WPI for the Month of May 2013	WPI A year ago	Percentage change during	
					A month	A year
1	2	3	3	5	6	7
Rice	1.793	216.3	210.9	181.6	2.56	19.11
Wheat	1.116	205.0	201.3	180.1	1.84	13.83
Jowar	0.096	246.3	251.5	235.3	-2.07	4.67
Bajra	0.115	265.3	264.2	209.7	0.42	26.51
Maize	0.217	255.5	246.9	219.2	3.48	16.56
Barley	0.017	208.2	206.4	200.0	0.87	4.10
Ragi	0.019	346.3	349.6	224.0	-0.94	54.60
Cereals	3.373	218.3	213.8	186.3	2.10	17.18
Pulses	0.717	229.7	231.6	226.1	-0.82	1.59
Foodgrains	4.09	220.3	216.9	193.3	1.57	13.97

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

Behaviour of Wholesale Prices

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

Commodity	Main Trend	Rising	Falling	Mixed	Steady
Rice	Rising & Steady	Gujarat Uttar Pradesh	Jharkhand		Haryana Kerala
Wheat	Rising	Jharkhand Punjab Karnataka	Gujarat Maharashtra	Rajasthan U.P.	
Jowar	Steady	Gujarat		. Maharastra	Karnataka Rajasthan
Bajra	Falling	Tamilnadu	Gujarat Karnataka U.P.		A.P. Rajasthan
Maize	Rising	Gujarat Jharkhand Karnataka Rajasthan U.P.			

Procurement of Rice

The total procurement of Rice in the current marketing season i.e 2012-2013, upto 28.06.2013 stood at 33473 thousand tonnes, as against 33567 thousand tonnes of rice procured, during the corresponding period of last year. The details are given in the following table :

PROCUREMENT OF RICE

(In Thousand Tonnes)

State	Marketing Season 2012-13 (upto 28.06.2013)		Corresponding Period of last Year 2011-12		Marketing Year (October-September) 2011-12		2010-11	
	Procurement	%age to Total	Procurement	%age to Total	Procurement	%age to Total	Procurement	%age to Total
1	2	3	4	5	6	7	8	9
Andhra Pradesh	6267	18.72	7290	21.72	7548	21.53	9609	28.10
Chhatisgarh	4804	14.35	4114	12.26	4115	11.74	3746	10.95
Haryana	2608	7.79	2007	5.98	2007	5.72	1687	4.93
Maharashtra	189	0.56	190	0.57	190	0.54	308	0.90
Punjab	8558	25.57	7731	23.03	7731	22.05	8635	25.25
Tamil Nadu	478	1.43	1596	4.75	1596	4.55	1543	4.51
Uttar Pradesh	2283	6.83	3345	9.97	3357	9.58	2554	7.47
Uttarakhand	490	1.46	364	1.08	378	1.08	422	1.23
Others	7796	23.29	6930	20.65	8138	23.21	5694	16.65
Total	33473	100.00	33567	100.00	35060	100.00	34198	100.00

Source: Department of Food & Public Distribution.

Procurement of Wheat

The total procurement of wheat in the current marketing season i.e 2013-2014 upto June,2013 is 25084 thousand tonnes against a total of 37642 thousand tonnes of wheat procured during last year. The details are given in the following table:

PROCUREMENT OF WHEAT

(In Thousand Tonnes)

State	Marketing Season 2013-14 (upto 28.06.2013)		Corresponding Period of last Year 2012-13		Marketing Year (April-March) 2012-13		2011-12	
	Procurement	%age to Total	Procurement	%age to Total	Procurement	%age to Total	Procurement	%age to Total
1	2	3	4	5	6	7	8	9
Haryana	5873	23.41	8666	23.02	8665	22.71	6928	24.45
Madhya Pradesh	6355	25.33	8507	22.60	8493	22.26	4965	17.52
Punjab	10889	43.41	12827	34.08	12834	33.64	10958	38.67
Rajasthan	1268	5.06	1826	4.85	1964	5.15	1303	4.60
Uttar Pradesh	683	2.72	4982	13.24	5063	13.27	3461	12.21
Others	16	0.06	834	2.22	1129	2.96	720	2.54
Total	25084	100.00	37642	100.00	38148	100.00	28335	100.00

Source: Department of Food & Public Distribution.

(ii) Commercial Crops

Oilseeds And Edible Oils:

The Wholesale Price Index (WPI) of nine major oilseeds as a group stood at 202.4 in June, 2013 showing a fall of 2.4 percent over the previous month. However, it increased by 9.9 percent over the previous year.

The Wholesale Price Index (WPI) of all individual oilseeds showed a mixed trend. The WPI of Gingelly seed (4.8 percent), Copra (4.6 percent), Safflower (4.3 percent), Cotton Seed (2.9 percent), Rape & Mustard (1.3 percent) and Sunflower (0.8 percent) increased over the previous month. However, the WPI of Soyabean (6.6 percent), Groundnut seed (6.6 percent) and Niger seed (3.7 percent) decreased over the previous month. The Wholesale Price Index (WPI) of Edible Oils as a group stood 146.2 in June, 2013 showing a fall of 0.6 percent over the previous month. However, it increased by 0.1 percent over the previous year. The WPI of Gingelly Oil (4.3 percent), Groundnut Oil (3.6 percent), Mustard Oil (0.4 percent), Cottonseed Oil (0.4 percent), Sunflower Oil (0.2 percent) and Soyabean Oil (0.1 percent) increased over the previous month. However, the WPI of Copra oil (1.2 percent) increased over the previous month.

Fruits & Vegetable:

The Wholesale Price Index (WPI) of Fruits & Vegetable as a group stood at 232.8 in June, 2013 showing an increase of 8.5 percent and 9.4 percent over the previous month and over the previous year.

Potato:

The Wholesale Price Index (WPI) of Potato stood at 213.3 in June, 2013 showing an increase of 3.5 percent over the previous month. However, it decreased by 8.4 percent over the previous year. ONION: The Wholesale Price Index (WPI) of Onion stood 339.1 in June, 2013 showing an increase of 26.3 percent and 114.8 percent over the previous month and over the previous year.

Condiments & Spices:

The Wholesale Price Index (WPI) of Condiments & Spices (Group) stood at 229.7 in June, 2013 showing a fall of 1.0 percent over the previous month. However, it increased by 17.0 percent over the previous year.

The WPI of Black Pepper increased by 0.5 percent over the previous month. However, the WPI of Turmeric and Chillies (Dry) decreased by 2.3 percent and 1.1 percent over the previous month.

Raw Cotton:

The Wholesale Price Index (WPI) of Raw Cotton stood at 225.3 in June, 2013 an increase of 5.6 percent and 13.3 percent over the previous month and over the previous year.

Raw Jute:

The Wholesale Price Index (WPI) of Raw Jute stood at 258.3 in July, 2013 showing a fall of 3.6 percent over the previous month. However, it increased by 13.7 percent over the previous year.

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

(Base Year : 2004-05=100)

Commodity	Latest June,13	Month May,13	Year June,12	% Variation Over	
				A Month	A Year
OIL SEEDS	202.4	207.3	184.1	-2.4	9.9
Groundnut Seed	243.1	260.2	232.7	-6.6	4.5
Rape & Mustard Seed	188.0	185.6	179.4	1.3	4.8
Cotton Seed	173.0	168.1	146.3	2.9	18.3
Copra (Coconut)	94.9	90.7	90.3	4.6	5.1
Gingelly Seed (Sesamum)	366.1	349.4	245.3	4.8	49.2
Niger Seed	170.6	177.1	203.4	-3.7	-16.1
Safflower (Kardi Seed)	163.6	156.8	150.1	4.3	9.0
Sunflower	191.7	190.1	178.4	0.8	7.5
Soyabean	231.1	247.4	208.1	-6.6	11.1
EDIBLE OILS	146.2	147.1	146.1	-0.6	0.1
Groundnut Oil	193.3	200.5	190.6	-3.6	1.4
Cotton Seed Oil	165.9	166.5	170.7	-0.4	-2.8
Mustard & Rapeseed Oil	152.2	152.8	151.2	-0.4	0.7
Soyabean Oil	159.4	159.5	157.0	-0.1	1.5
Copra Oil	117.0	115.6	115.4	1.2	1.4
Sunflower Oil	132.4	132.7	134.9	-0.2	-1.9
Gingelly Oil	178.7	186.8	152.2	-4.3	17.4
FRUITS & VEGETABLES	232.8	214.5	212.7	8.5	9.4
Potato	213.3	206.1	232.8	3.5	-8.4
Onion	339.1	268.5	157.9	26.3	114.8
CONDIMENTS & SPICES	229.7	232.0	196.3	-1.0	17.0
Black Pepper	497.2	494.8	497.9	0.5	-0.1
Chillies(Dry)	244.9	247.5	220.1	-1.1	11.3
Turmeric	220.1	225.3	140.9	-2.3	56.2
Raw Cotton	225.3	213.3	198.8	5.6	13.3
Raw Jute	258.3	268.0	227.1	-3.6	13.7

PART- II--Statistical Tables

A. Wages

1. Daily Agricultural Wages In Some States (Category - Wise)

(In Rupess)

State/Dist	Village	Month & Year	Normal Daily workig Hours	Field Labour			Other Agi. Labour			Herdsman			Skilled Labour		
				Man	Wo-man	Non Adult	Man	Wo-man	Non Adult	Man	Wo-man	Non Adult	Car-pen-ter	Black-smith	Cob-bler
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Andhra pradesh															
Krishna	Ghantasala	Feb,13	8	250	150	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Guntur	Tadikonda	Feb,13	8	250	NA		NA	NA	NA	200	NA	NA	NA	NA	NA
Rangareddy	Arutla	Feb,13	8	225	175	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Karnataka															
Bangalore	Harisandra	May to June,12	8	200	150	NA	200	150	NA	250	180	NA	300	300	NA
Tumkur	Gedlahali	May to June,12	8	160	160	NA	180	160	NA	180	160	NA	180	180	NA
Maharashtra															
Nagpur	Mauda	Feb,12	8	100	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ahmednagar	Akole	Feb,12	8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Jharkhand															
Ranchi	Gaintalsood	April, 12	8	100	100	NA	90	90	NA	58	58	NA	170	150	NA

1.1 Daily Agricultural Wages In Some States (Operation-Wise)

(In Rs.)

State/ Distt	Center	Month & Year	Type of Labour	Nor-mal Daily Work-ing Hours	Plough-ing	Sowing	Weeding	Har-vesting	Other Agri. Labour	Herds-man	Skilled Labour		
											Car-penter	Black-smith	Cob-bler
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Assam													
Barpeta	Loharapara	March,12	M	8	180	180	180	180	180	180	180	180	180
			W	8	NA	NA	160	160	160	NA	NA	NA	NA
Bihar													
Muzaf-farpur	Bhalui Rasul	April to June,12	M	8	130	120	80	130	150	120	200	180	250
			W	8	NA	NA	NA	NA	NA	NA	NA	NA	NA
Shekhpura	Kutaut	May & June,12	M	8	NA	NA	185	NA	185	NA	245	NA	NA
			W	8	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chhattisgarh													
Dhamtari	Sihaba	Apr,2013	M	8	NA	NA		100	80	100	250	100	100
			W	8	NA	NA		80	80	80	150	100	80
Gujarat													
Rajkot	Rajkot	Jan,13	M	8	209	225	150	170	147	150	360	360	240
			W	8	NA	169	150	179	145	142	NA	NA	NA

1.1 Daily Agricultural Wages In Some States (Operation-Wise)-*contd.*

(In Rs.)

State/ Distt	Center	Month & Year	Type of Labour	Normal Daily Working Hours	Ploughing	Sowing	Weeding	Harvesting	Other Agri. Labour	Herdsman	Skilled Labour		
											Carpenter	Blacksmith	Cobbler
1	2	3	4	5	6	7	8	9	10	11	12	13	14
Dahod	Dahod	Jan,13	M	8	100	100	100	100	100	NA	200	144	150
			W	8	NA	100	100	100	100	NA	NA	NA	NA
Haryana									100				
Panipat	Ugarakheri	March,13	M	8	180	180	180	200	180	NA	400	400	NA
			W	8	NA	150	150	180	150	NA	NA	NA	NA
Himanchal Pradesh													
Mandi	Mandi	Nov to Dec10	M		300	110	110	110	110	110	200	200	NA
			W		NA	110	110	110	110	110	NA	NA	NA
Kerala													
Kozhikode	Koduvally	March,13	M	4 to 8	820	500	NA	500	660	NA	600	NA	NA
			W	4 to 8	NA	NA	400	400	450	NA	NA	NA	NA
Palakkad	Elappally	March,13	M	4 to 8	NA	NA	NA	400	400	NA	500	NA	NA
			W	4 to 8	NA	NA	NA	300	200	NA	NA	NA	NA
Mdhya Pradesh													
Hoshangabad	Sangarkhera	March,13	M	8	150	100	100	160	100	100	350	350	150
			W	8	NA	100	100	160	100	100	NA	NA	NA
Satna	Kotar	March,13	M	8					NA				
			W	8									
Shyopur Kala	Vijaypur	March,13	M	8	150	150	NA	NA	NA	50	200	200	NA
			W	8	NA	150	NA	NA	NA	NA	NA	NA	NA
Odisha													
Bhadrak	Chandbali	March,13	M	8	200	120	120	250	208.33	150	350	300	150
			W	8	NA	100	100	200	153.33	140	NA	NA	NA
Ganjam	Aska	March,13	M	8	250	200	200	200	216.66	200	350	250	200
			W	8	NA	130	150	150	130	150	NA	NA	NA
Punjab													
Ludhiana	Pakhowal	June, 08	M	8	NA	NA	90	95	NA	99.44	NA	NA	NA
					NA	NA	NA	NA	NA	NA	NA	NA	NA
Rajsthan													
Barmer	Vishala	March,13	M	8	NA								
			W	8									
Jalore	Panwa	March,13	M	8	NA	NA	200	NA	NA	200	350	300	NA
			W	8	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tamil Nadu													
Thanjavur													
	Pulvarnatham	Feb,13	M	6	NR								

1.1 Daily Agricultural Wages In Some States (Operation-Wise)-*contd.*

(In Rs.)

State/ Distt	Center	Month & Year	Type of Labour	Normal Daily Working Hours	Ploughing	Sowing	Weeding	Harvesting	Other Agri. Labour	Herdsman	Skilled Labour		
											Carpenter	Blacksmith	Cobbler
1	2	3	4	5	6	7	8	9	10	11	12	13	14
			W	5									
Tirunelveli	Malayakulam (Kurvikulam)	Feb,13	M	8	NA	NA	NA	NA	NA	NA	NA	NA	NA
			W	8	NA	120	NA	NA	NA	NA	NA	NA	NA
Tripura													
Agartala	Govt. Agri. Farm Lembucheera		M	8	NR								
			W	8									
Uttar Pradesh*													
Meerut	Ganeshpur	Jan,13	M	8	205	207	206	204	206	NA	320	NA	NA
			W	8	NA	180	180	180	180	NA	NA	NA	NA
Aurraiya	Aurraiya	Jan,13	M	8	150	193	192	150	193	NA	300	NA	NA
			W	8	NA	160	167	120	167	NA	NA	NA	NA
Chandauli	Chandauli	Jan,13	M	8	150	150	125	125	125	NA	271	NA	NA
			W	8	NA	150	125	125	125	NA	NA	NA	NA

M-Man W-Woman

N.A - Not Available N.R.-Not Reported

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

B. Prices

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

(Month end Prices in Rupees)

Commodity	Variety	Unit	State	Centre	Jun-13	May-13	Jun-12
Wheat	PBW 343	Quintal	Punjab	Amritsar	1450	1375	NA
Wheat	Dara	Quintal	Uttar Pradesh	Chandausi	1475	1390	1230
Wheat	Lokvan	Quintal	Madhya Pradesh	Bhopal	1570	1650	1239
Jowar	-	Quintal	Maharashtra	Mumbai	2600	2600	2350
Gram	No III	Quintal	Madhya Pradesh	Sehore	-	-	2200
Maize	Yellow	Quintal	Uttar Pradesh	Kanpur	1380	-	985
Gram Split	-	Quintal	Bihar	Patna	5220	5140	4930
Gram Split	-	Quintal	Maharashtra	Mumbai	6000	6200	4350
Arhar Split	-	Quintal	Bihar	Patna	6150	6100	6000
Arhar Split	-	Quintal	Maharashtra	Mumbai	6500	6800	5200
Arhar Split	-	Quintal	NCT of Delhi	Delhi	6350	6400	6200
Arhar Split	Sort II	Quintal	Tamil Nadu	Chennai	6300	6300	6700
Gur	-	Quintal	Maharashtra	Mumbai	3450	3500	3250
Gur	Sort II	Quintal	Tamil Nadu	Coimbatore	3400	3400	3050
Gur	Balti	Quintal	Uttar Pradesh	Hapur	2970	2800	3050
Mustard Seed	Black (S)	Quintal	Uttar Pradesh	Kanpur	3250	3160	3450
Mustard Seed	Black	Quintal	West Bengal	Raniganj	3550	3900	3400
Mustard Seed	-	Quintal	West Bengal	Kolkata	3750	3700	4000
Linseed	Bada Dana	Quintal	Uttar Pradesh	Kanpur	4175	3875	3200
Linseed	Small	Quintal	Uttar Pradesh	Varanasi	3480	3320	3160
Cotton Seed	Mixed	Quintal	Tamil Nadu	Virudhunagar	1600	1600	1250
Cotton Seed	MCU 5	Quintal	Tamil Nadu	Coimbatore	1550	1550	1550
Castor Seed	-	Quintal	Andhra Pradesh	Hyderabad	3100	3050	3300
Sesamum Seed	White	Quintal	Uttar Pradesh	Varanasi	6380	6250	6400
Copra	FAQ	Quintal	Kerala	Alleppey	4800	4350	4250
Groundnut	Pods	Quintal	Tamil Nadu	Coimbatore	4000	4000	3850
Groundnut	-	Quintal	Maharashtra	Mumbai	7400	7600	6250
Mustard Oil	-	15 Kg.	Uttar Pradesh	Kanpur	1170	1239	1256
Mustard Oil	Ordinary	15 Kg.	West Bengal	Kolkata	1155	1140	1365
Groundnut Oil	-	15 Kg.	Maharashtra	Mumbai	1575	1650	1800
Groundnut Oil	Ordinary	15 Kg.	Tamil Nadu	Chennai	1485	1650	1725
Linseed Oil	-	15 Kg.	Uttar Pradesh	Kanpur	1335	-	1406
Castor Oil	-	15 Kg.	Andhra Pradesh	Hyderabad	1073	1065	1103
Sesamum Oil	-	15 Kg.	NCT of Delhi	Delhi	1650	1700	1400
Sesamum Oil	Ordinary	15 Kg.	Tamil Nadu	Chennai	2400	2550	1800
Coconut Oil	-	15 Kg.	Kerala	Cochin	1043	923	953
Mustard Cake	-	Quintal	Uttar Pradesh	Kanpur	1625	1675	1670
Groundnut Cake	-	Quintal	Andhra Pradesh	Hyderabad	3357	3143	2857

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

(Month end Prices in Rupees)

Commodity	Variety	Unit	State	Centre	Jun-13	May-13	Jun-12
Cotton/Kapas	NH 44	Quintal	Andhra Pradesh	Nandyal	4350	4300	3450
Cotton/Kapas	LRA	Quintal	Tamil Nadu	Virudhunagar	3800	3700	3500
Jute Raw	TD 5	Quintal	West Bengal	Kolkata	2630	2785	2600
Jute Raw	W 5	Quintal	West Bengal	Kolkata	2630	2785	2575
Oranges	-	100 No	NCT of Delhi	Delhi	NA	NA	NA
Oranges	Big	100 No	Tamil Nadu	Chennai	630	610	550
Oranges	Nagpuri	100 No	West Bengal	Kolkata	-	-	NA
Banana	-	100 No.	NCT of Delhi	Delhi	183	183	208
Banana	Medium	100 No.	Tamil Nadu	Kodaikkanal	396	388	317
Cashewnuts	Raw	Quintal	Maharashtra	Mumbai	49000	48000	45000
Almonds	-	Quintal	Maharashtra	Mumbai	46000	46000	43500
Walnuts	-	Quintal	Maharashtra	Mumbai	57000	62500	53000
Kishmish	-	Quintal	Maharashtra	Mumbai	13000	13500	12500
Peas Green	-	Quintal	Maharashtra	Mumbai	4000	3650	2550
Tomatoes	Ripe	Quintal	Uttar Pradesh	Kanpur	1590	1150	1440
Ladyfinger	-	Quintal	Tamil Nadu	Chennai	1700	2200	2700
Cauliflower	-	100 No.	Tamil Nadu	Chennai	1920	1850	1500
Potatoes	Red	Quintal	Bihar	Patna	900	720	1080
Potatoes	Desi	Quintal	West Bengal	Kolkata	800	840	1340
Potatoes	Sort I	Quintal	Tamil Nadu	Mettuppalayam	3122	-	2624
Onions	Pole	Quintal	Maharashtra	Nashik	1450	950	450
Turmeric	Nadan	Quintal	Kerala	Cochin	10500	10500	7500
Turmeric	Salam	Quintal	Tamil Nadu	Chennai	9850	9700	5300
Chillies	-	Quintal	Bihar	Patna	7970	7920	7700
Black Pepper	Nadan	Quintal	Kerala	Kozhikode	36500	31000	36800
Ginger	Dry	Quintal	Kerala	Cochin	17000	15500	9000
Cardamom	Major	Quintal	NCT of Delhi	Delhi	115000	100000	70000
Cardamom	Small	Quintal	West Bengal	Kolkata	90000	110000	110000
Milk	Cow	100 Liters	NCT of Delhi	Delhi	3800	3800	3400
Milk	Buffalo	100 Liters	West Bengal	Kolkata	3200	3200	3200
Ghee Deshi	Deshi No 1	Quintal	NCT of Delhi	Delhi	29015	28681	27547
Ghee Deshi	-	Quintal	Maharashtra	Mumbai	25708	25500	25800
Ghee Deshi	Desi	Quintal	Uttar Pradesh	Kanpur	29350	-	28150
Fish	Rohu	Quintal	NCT of Delhi	Delhi	9000	8500	6500
Fish	Pomphrets	Quintal	Tamil Nadu	Chennai	31500	30000	28000
Eggs	Madras	1000 No.	West Bengal	Kolkata	4000	3500	3200
Tea	-	Quintal	Bihar	Patna	19900	19900	19650
Tea	Atti Kunna	Quintal	Tamil Nadu	Coimbatore	9000	9000	NA
Coffee	Plant-A	Quintal	Tamil Nadu	Coimbatore	26000	26000	26000
Coffee	Rubusta	Quintal	Tamil Nadu	Coimbatore	14000	14000	14000
Tobacco	Kampila	Quintal	Uttar Pradesh	Farukhabad	2650	2650	2210
Tobacco	Raisa	Quintal	Uttar Pradesh	Farukhabad	2550	2550	2100
Tobacco	Bidi Tobacco	Quintal	West Bengal	Kolkata	3600	3450	4500
Rubber	-	Quintal	Kerala	Kottayam	16300	15700	17500
Arecanut	Pheton	Quintal	Tamil Nadu	Chennai	28500	28000	28000

N. A. -Not Available NT- Not Transaction

3. Month-end Wholesale Prices of Some Important Agricultural Commodities in International Market During Year, 2013

Commodity	Variety	Country	Centre	Unit	Jan	Feb	Mar	Apr	May	Jun
CARDAMOM	Guatmala Bold Green	U.K.	-	Dollar/M.T.	16500.00	16500.00	16500.00	17000.00	14250.00	14250.00
				Rs./Qtl	88572.00	89875.50	89743.50	92174.00	80341.50	84887.25
CASHEW KERNELS	Spot U.K. 320s	U.K.	-	Dollar/lbs	3.60	3.60	3.66	3.64	3.55	3.55
				Rs./Qtl	42591.86	43218.68	43874.45	43498.32	44112.84	46608.76
	Spot U.K. 320s	U.K.	-	Dollar/M.T.	7915.09	7898.35	8056.22	8024.08	7861.23	7864.07
				Rs./Qtl	42488.20	43022.31	43817.78	43506.56	44321.61	46846.26
CASTOR OIL	Any Origin ex tank Rotterdam	Netherlands	-	Dollar/M.T.	1690.00	1650.00	1650.00	1600.00	1500.00	1520.00
				Rs./Qtl	9071.92	8987.55	8974.35	8675.20	8457.00	9054.64
CELERY SEED	ASTA cif	India	-	Dollar/M.T.	1500.00	1500.00	1500.00	1500.00	1500.00	1500.00
				Rs./Qtl	8052.00	8170.50	8158.50	8133.00	8457.00	8935.50
CHILLIES	Birds eye 2005 crop	Africa	-	Dollar/M.T.	5000.00	4250.00	4250.00	4100.00	4100.00	4100.00
				Rs./Qtl	26840.00	23149.75	23115.75	22230.20	23115.80	24423.70
CINNAMON BARK		Madagascar	-	Dollar/M.T.	1100.00	1100.00	1100.00	1100.00	1100.00	1100.00
				Rs./Qtl	5904.80	5991.70	5982.90	5964.20	6201.80	6552.70
CLOVES	Singapore	Madagascar	-	Dollar/M.T.	9500.00	9500.00	9500.00	12000.00	12000.00	11850.00
				Rs./Qtl	50996.00	51746.50	51670.50	65064.00	67656.00	70590.45
COCONUT OIL	Crude Phillipine/Indonesia	Netherlands	-	Dollar/M.T.	815.00	850.00	805.00	800.00	850.00	925.00
				Rs./Qtl	4374.92	4629.95	4378.40	4337.60	4792.30	5510.23
COPRA	Phillipines cif Rotterdam	Phillipine	-	Dollar/M.T.	538.00	530.00	505.00	476.00	527.00	581.00
				Rs./Qtl	2887.98	2886.91	2746.70	2580.87	2971.23	3461.02
CORRIANDER		India	-	Dollar/M.T.	1150.00	1150.00	1150.00	1150.00	1150.00	1150.00
				Rs./Qtl	6173.20	6264.05	6254.85	6235.30	6483.70	6850.55
CUMMIN SEED		India	-	Dollar/M.T.	2889.00	2889.00	2889.00	2889.00	2889.00	2889.00
				Rs./Qtl	15508.15	15736.38	15713.27	15664.16	16288.18	17209.77
Fennel seed		India	-	Dollar/M.T.	2600.00	2600.00	2600.00	2600.00	2600.00	2600.00
				Rs./Qtl	13956.80	14162.20	14141.40	14097.20	14658.80	15488.20
GINGER	Split	Nigeria	-	Dollar/M.T.	2400.00	2400.00	2400.00	2400.00	1810.00	2005.00
				Rs./Qtl	12883.20	13072.80	13053.60	13012.80	10204.78	11943.79
GROUNDNUT kernels	US 2005, 40/50	European Ports	-	Dollar/M.T.	1275.00	1350.00			1350.00	1380.00
				Rs./Qtl	6844.20	7353.45	-	-	7611.30	8220.66
GROUNDNUT OIL	Crude Any Origin cif Rotterdam	U.K.	-	Dollar/M.T.	2200.00					
				Rs./Qtl	11809.60	-	-	-	-	-
LENTILS	Turkish Red Split Crop 1+1 water	U.K.	-	Pound/M.T.	522.72	655.20	660.98	647.80	656.64	644.45
				Rs./Qtl	4428.48	5446.68	5438.54	5422.09	5637.91	5956.65
MAIZE		U.S.A.	Chicago	C/56 lbs	720.75	700.50	735.25	639.50	665.00	682.25
				Rs./Qtl	1520.51	1499.54	1571.62	1362.68	1473.46	1597.22
OATS		CANADA	Winnipeg	Dollar/M.T.	359.83	384.62	406.44	401.94	366.25	411.85
				Rs./Qtl	1931.57	2095.03	2210.63	2179.32	2064.92	2453.39
PALM KERNAL OIL	Crude Malaysia/Indonesia	Netherlands	-	Dollar/M.T.	795.00	855.00	815.00	840.00	840.00	860.00
				Rs./Qtl	4267.56	4657.19	4432.79	4554.48	4735.92	5123.02
PALM OIL	Crude Malaysian/Sumatra,	Netherlands	-	Dollar/M.T.	855.00	860.00	850.00	830.00	860.00	873.00
				Rs./Qtl	4589.64	4684.42	4623.15	4500.26	4848.68	5200.46
PEPPER (Black)	Sarawak Black lable	Malaysia	-	Dollar/M.T.		7300.00				
				Rs./Qtl	-	39763.10	-	-	-	-

3. Month-end Wholesale Prices of Some Important Agricultural Commodities in International Market During Year, 2013-*contd.*

Commodity	Variety	Country	Centre	Unit	Jan	Feb	Mar	Apr	May	Jun
RAPESEED	Canola	CANADA	Winnipeg	Can Dollar/M.T.	605.80 3244.06	644.20 3448.40	638.00 3415.21	637.60 3388.84	640.50 3505.46	608.70 3495.16
	UK delivered rapeseed, delivered	U.K.	-	Pound/M.T. Rs./Qtl	379.00 3210.89	389.00 3233.76	393.00 3233.60	394.00 3297.78	375.00 3219.75	346.00 3198.08
RAPESEED OIL	Refined bleached and deodorised	U.K.	-	Pound/M.T. Rs./Qtl	871.00 7379.11	908.00 7548.20	867.00 7133.68	819.00 6855.03	855.00 7341.03	841.00 7773.36
SOYABEAN MEAL	UK produced 49% oil & protein	U.K.	-	Pound/M.T. Rs./Qtl	351.00 2973.67	379.00 3150.63	376.00 3093.73	-	409.00 3511.67	388.00 3586.28
SOYABEAN OIL		U.S.A.	-	C/lbs Rs./Qtl	52.03 6155.71	52.07 6251.10	50.82 6092.08	49.18 5877.05	48.63 6042.84	49.35 6479.27
	Refined bleached and deodorised	U.K.	-	Pound/M.T. Rs./Qtl	826.00 6997.87	849.00 7057.74	839.00 6903.29	768.00 6428.16	774.00 6645.56	737.00 6812.09
SOYABEANS	US NO.2 yellow	Netherlands	Chicago	Dollar/M.T. Rs./Qtl	596.70 3203.09	594.10 3236.06	580.10 3155.16	569.20 3086.20	510.10 2875.94	519.80 3096.45
		U.S.A.	-	C/60 lbs Rs./Qtl	1437.00 2830.97	1482.75 2964.09	1453.75 2901.85	1345.25 2676.88	1501.75 3107.34	1523.00 3329.61
SUNFLOWER SEED OIL	Refined bleached and deodorised	U.K.	-	Pound/M.T. Rs./Qtl	983.00 8327.98	1018.00 8462.63	963.00 7923.56	934.00 7817.58	845.00 7255.17	801.00 7403.64
TALLOW	High grade delivered	U.K.	London	Pound/M.T. Rs./Qtl	550.00 4659.60	460.00 3823.98	440.00 3620.32	440.00 3682.80	440.00 3777.84	440.00 4066.92
TURMERIC	Madras finger spot/cif	India	-	Dollar/M.T. Rs./Qtl	850.00 4562.80	850.00 4629.95	850.00 4623.15	850.00 4608.70	850.00 4792.30	850.00 5063.45
WALNUTS	Indian light halves	U.K.	-	Pound/M.T. Rs./Qtl	7500.00 63540.00	7500.00 62347.50	7950.00 65412.60	7750.00 64867.50	7980.00 68516.28	7980.00 73759.14
Wheat		U.S.A.	Chicago	C/60 lbs Rs./Qtl	774.75 1526.30	738.50 1476.30	736.75 1470.64	691.75 1376.50	702.75 1454.09	707.00 1545.66

Source: Public Ledger

Exchange Rate	Jan	Feb	Mar	Apr	May	Jun
US Dollar	53.68	54.47	54.39	54.22	56.38	59.57
CAN Dollar	53.55	53.53	53.53	53.15	54.73	57.42
UK Pound	84.72	83.13	82.28	83.70	85.86	92.43

4. Sowing and Harvesting Operations normally in progress during August, 2013

State	Sowing	Harvesting
(1)	(2)	(3)
Andhra Pradesh	Winter rice, Jowar (K), Bajra, Maize (K), Ragi (K), Small Millets (K),Urad (K), Tur(K), Mung (K), Other Kharif Pulses, Chillies (Dry), Groundnut, Castor Seed, Cotton, Mesta, Sweet Potato,Nigerseed	Autumn rice, Small Millets (K), Mung (K) , Other Kharif pulses, Sesamum
Assam	-	Autumn rice, Maize, Jute, Mesta
Bihar	Winter Rice, Jowar (K), Bajra, Small Millets (K), Tur (K), Groundnut, Castor seed	Jute, Mesta
Gujarat	Winter Rice, Chillies (Dry), Tobacco, Castor seed, Sesamum, Cotton	--
Himachal Pradesh	Bajra	Sesamum
Jammu & Kashmir	Small Millets (K), (Late).	Maize, Small Millets (K), (Early), Sannhemp
Karnataka	Autumn Rice, Winter Rice, Bajra, Ragi, Small Millets (K), Urad (K), Mung (K), Other Kharif Pulses, Potato (Plains), Chillies (DRY), Tobacco, Castor Seed, Groundnut, Cotton, Sweet Potato, Nigerseed	Maize (K), Urad (K), Mung (K), Summer Potato (Hills), Tobacco, Sesamum, Sweet Potato, Sannhemp, Onion, (1st crop).
Kerala	Winter Rice, Tur (K),Other Kharif Pulses (Kulthi), Sesamum (2nd crop), Cotton, Tapioca (3rd crop)	Autumn Rice, Ragi, Small Millets (K), Tur (K), Urad (K), Mung (K), Other Kharif Pulses, Lemon Grass, Tapioca (1st crop)
Madhya Pradesh	Autumn Rice, Jowar (K), Bajra, Small Millets (K), Urad (K), Mung (K), Other Kharif Pulses,Summer Potato,Ginger, Chillies (Dry), Tobacco, Castor Seed, Sesamum, Sweet Potato, Nigerseed	Maize
Maharashtra	Tobacco, Castor Seed, Cotton	Maize(K)
Manipur	Sweet Potato	Autumn Rice, Maize, Jute
Orissa	Winter Rice, Summer Potato (Plains), Chillies (Dry)	Chillies (Dry), Jute
Punjab and Haryana	Autumn Rice, Bajra, Ragi, Castor Seed	Small millets (K), Winter Potato (Hills)
Rajasthan	Autumn Rice, Jowar (K), Small Millets (K), Urad (K), Mung (K), Other Kharif Pulses, Winter Potato (Plains), Chillies (Dry), Tobacco (2nd crop), Groundnut, Castor Seed, Sesamum, Sannhemp	--
Tamil Nadu	Autumn Rice, Jowar (K), Bajra, Ragi,Small Millets (K), Tur (K), Mung (K),Sugarcane, Chillies (Dry) (Early), Groundnut (Late), Castor Seed, Sesamum (Late), Cotton, Sannhemp, Tapioca.	Summer Potato, Sugarcane, Chillies (Dry), Sesamum (Early), Cotton (Early), Sannhemp, Onion.
Tripura	Winter rice	Autumn Rice, Sesamum, Jute
Uttar Pradesh	Winter Rice, Bajra, Chillies (Dry), Sesamum, Sweet Potato, Turmeric, Tapioca (1st crop)	Maize, Chillies (Dry), Jute
West Bengal	Winter Rice, Tur (K), Ginger, Chillies (Dry), Sesamum (Early)	Autumn Rice, Maize, Chillies (Dry), Jute
Delhi	Tur (K)	--
Andaman and Nicobar Islands	--	Autumn Rice

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