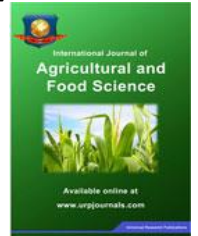




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### Review Article

## PROBLEMS AND PROSPECTS OF AGRICULTURAL MARKETING IN INDIA: AN OVERVIEW

A. Vadivelu<sup>1</sup> and B.R. Kiran<sup>2</sup>

<sup>1</sup>Research and Teaching Assistant in Economics, D.D.E., Kuvempu University Shankaraghatta – 577 451, India.

<sup>2</sup>Research and Teaching Assistant in Environmental Science, D.D.E., Kuvempu University Shankaraghatta – 577 451, India.

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### Abstract

Agriculture is different from industry and plays a significant role in the economic development of a nation. India's prosperity depends upon the agricultural prosperity. There are many kinds of agricultural products produced in India and the marketing of all these farm products generally tends to be a complex process. Agricultural marketing involves many operations and processes through which the food and raw materials move from the cultivated farm to the final consumers. Agriculture provides goods for consumption and exports and manufacturing sectors. The suitable marketing system should be designed so as to give proper reward or return to the efforts of the tiller of the soil. Market information is a means of increasing the efficiency of marketing system and promoting improved price formation. It is crucial to the farmers to make informed decisions about what to grow, when to harvest, to which market produce should be sent and whether or not to store it. Awareness of farmers on different components of market information and its utility was very poor (11 to 37 %) as compared to that of traders (75%). Out of the expectations of farmers on grades, quality, prices in potential markets, price projections; only real time arrivals and prices were documented and disseminated with traditional approach. Hence there is a need to create awareness among the farmers through the agricultural extension agencies like the State Department of Agriculture, Krishi Vigyan Kendras so that the marketing information on agriculture commodities are incorporated in the extension services along with production aspects to the farmers.

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**Key words** - Agriculture, Cultivation, Marketing, food-grains, commercial-crops

### INTRODUCTION

Agricultural marketing covers the services involved in moving an agricultural product from the farm to the consumer. Numerous interconnected activities are involved in doing this, such as planning production, growing and harvesting, grading, packing, transport, storage, agro-and food processing, distribution advertising and sale. Some definitions would even include "the acts of buying supplies, renting equipment, (and) paying labor", arguing that marketing is everything a business does. Such activities cannot take place without the exchange of information and are often heavily dependent on the availability of suitable finance (Penn State College of Agricultural Sciences -Agricultural Marketing, 2012) Marketing systems are dynamic; they are competitive and involve continuous change and improvement. Businesses that have lower costs, are more efficient, and can deliver quality products, are those that prosper. Those that have high costs, fail to adapt to changes in market demand and provide poorer quality is often forced out of business.

Marketing has to be customer-oriented and has to provide the farmer, transporter, trader, processor, etc. with a profit. This requires those involved in marketing chains to understand buyer requirements, both in terms of product and business conditions.

In Western countries considerable agricultural marketing support to farmers is often provided. In the USA, for example, the USDA operates the Agricultural Marketing Service. Support to developing countries with agricultural marketing development is carried out by various donor organizations and there is a trend for countries to develop their own Agricultural Marketing or Agribusiness units, often attached to ministries of agriculture. Activities include market information development, marketing extension, training in marketing and infrastructure development. Since the 1990s trends have seen the growing importance of supermarkets and a growing interest in contract farming, both of which impact significantly on the way in which marketing takes place. In India, there are network of cooperatives at the local,

regional, state and national levels that assist in agricultural marketing. The commodities that are mostly handled are food grains, jute, cotton, sugar, milk and areca nuts. Currently large enterprises, such as cooperative Indian sugar factories, spinning mills, and solvent-extraction plants mostly handle their own marketing operations independently. Medium- and small-sized enterprises, such as rice mills, oil mills, cotton ginning and pressing units, and jute baling units, mostly are affiliated with cooperative marketing societies.

Market information is an important facilitating function in the agriculture marketing system. It facilitates marketing decisions, regulates the competitive market process and simplifies marketing mechanisms. Market information is a means of increasing the efficiency of marketing system and promoting improved price formation. It is crucial to the farmers to make informed decisions about what to grow, when to harvest, to which market produce should be sent and whether or not to store it. Improved information should enable traders to move produce profitably from a surplus to a deficit market and to make decisions about the viability of carrying out storage where technically possible (Amrutha, 2009).

Agricultural marketing can be defined as the commercial functions involved in transferring agricultural products consisting of farm, horticultural and other allied products from producer to consumer. Agricultural marketing also reflect another dimension from supply of produce from rural to rural and rural to urban and from rural to industrial consumers. In the olden days selling of agricultural produce was easy as it was direct between the producer to the consumer either for money or for barter. In brief, it was selling not marketing. In the modern world it became challenging with the latest technologies and involvement of middlemen, commission agents who keep their margins and move the produce further. As it is well known more the number of mediatory more will be the costs as each transaction incurs expenses and invites profits. Ultimately when it comes to the producer the cost of the produce goes up steep. In the entire process of marketing the producer gets the lowest price and the ultimate consumer pays the highest as the involvement of more middlemen in the entire distribution process.

There are several complexities involved in agricultural marketing as agricultural produce involves element of risk like perish ability and it again depends on the type of produce. If the agriculture produce happens to be a seasonal one it involves another kind of risk. Likewise, there are several risk elements involved in agricultural marketing. The pricing of the produce depends on factors like seasonality and perish ability and it depends on the demand and supply also. And all these are interwoven and ultimately make a deep impact on agricultural marketing.

Agriculture in India has directly or indirectly continued to be the source of livelihood to majority of the population. Indian agriculture has seen a lot of changes in its structure. India, predominantly an agricultural economy, has healthy signs of transformation in agriculture and allied activities. India has seen agriculture as a precious tool of economic development as other sectors of production depend on it.

Efficient backward and forward integration with agriculture has led to globally competitive production system in terms of cost and quality. Cooperatives seem to be well positioned to coordinate product differentiation at the farm level and to integrate forward into value added processing activities. Indian agriculture can be balanced and made efficient through proper and better management practices. The present study brings out past and present scenario of agricultural marketing prevailing in India, its challenges and future recommendations. Moreover the opportunities provide by agricultural marketing should be tapped effectively by the marketers (Shakeel-Ul-Rehman et al., 2012).

## **AGRICULTURAL MARKETING IN INDIA**

### **Problems and Prospects**

There are several challenges involved in marketing of agricultural produce. There is limited access to the market information, literacy level among the farmers is low, multiple channels of distribution that eats away the pockets of both farmers and consumers. The government funding of farmers is still at nascent stage and most of the small farmers still depend on the local moneylenders who are leeches and charge high rate of interest. There are too many vultures that eat away the benefits that the farmers are supposed to get. Although we say that technology have improved but it has not gone to the rural levels as it is confined to urban areas alone. There are several loopholes in the present legislation and there is no organized and regulated marketing system for marketing the agricultural produce. The farmers have to face so many hardships and have to overcome several hurdles to get fair and just price for their sweat.

### **GLOBALISATION**

The globalization has brought drastic changes in India across all sectors and it is more so on agriculture, farmers and made a deep impact on agricultural marketing. It is basically because of majority of Indians are farmers. It has brought several challenges and threats like uncertainty, turbulence, competitiveness, apart from compelling them to adapt to changes arising out of technologies. If it is the dark cloud there is silver lining like having excellent export opportunities for our agricultural products to the outside world.

### **AGRICULTURAL MARKET REFORMS**

Below are the certain measures that can be affected to bring out the reforms in agricultural marketing so as to ensure just and fair price for the farming community.

- Provide loans to the farmer at low rate of interest so that they will be freed from the clutches of local moneylenders who squeeze them. It is said that farmer in born into debt, lives in debt and dies in debt. Right from the beginning of the life, the poor farmers approach money lenders for investing into cultivation who levies very high rate of interest and who takes away the maximum amount of the share from the produce. In case if the crop fails due to natural calamities then the situation would be worse as the farmer is not in a position to pay his loans. And ultimately he is forced to sell the land at throw away price to the money lender.

- It is essential to provide subsidized power supply and loans to the farmers as the expenses towards power consumption takes considerable amount of investments.
- Generate a new distribution network that connects the farmers directly to the consumers to get maximum returns as the present channel of distribution involves multiple mediatory who take away the major portion of profits which otherwise the farmers is supposed to get.
- Elimination of the existing loopholes in the present legislations is warranted.
- There should be stringent action against black marketers and hoarders who buy the stocks from farmers at cheap prices and create artificial demand and then sell the stocks at higher prices.
- Creating local outlets at each village where the farmers sell their stocks directly to the consumers or the authorized buyers at fixed prices would help to a great extent. Intervention of government in this network is essential to bring the fruits to the farmers.
- At the village level there should be counseling centers for farmers about the worth of their stocks so that they can get fair price. The crucial role of Non-Governmental Organizations (NGOs) is needed in this context.
- The existing legislations are outdated and are not in tune with the changing trends and technological inventions and the same need to be updated forthwith.
- The retail revolution has brought several changes in the retail sector where the retail giants buy in bulk directly from the suppliers and sell to the consumers directly and in this process they pass the benefits to the consumers as well. In the past the consumers were paying more for less as there were many channels of distribution system and now the consumers pay less for more.
- The government is already fulfilling the objective of providing reasonable prices for the basic food commodities through Public Distribution System with a network of 350,000 fair-price shops that are monitored by state governments. It is more effective in states like Punjab, Haryana and some parts of Uttar Pradesh. And the same needs to be strengthened across the country.
- Government should levy single entry tax instead of levying multiple entry taxes either directly or indirectly for the transactions and activities that are involved in agricultural marketing such as transportation, processing, grading etc., as it would benefit both farmers and consumers directly.

#### **FARMERS ROLE IN MARKETING**

Direct marketing of the agricultural produce is the need of the hour. Efforts may be made to provide facilities for lifting the entire stock that farmers are willing to sell with incentive price. There should be provision for storing the stocks such as godowns and warehouses. It helps the farmers to hold the stocks till the prices are stabilized. Usually immediately just after the harvest the prices would be low and if the farmers are patient in holding the same for some time it would fetch better prices. The brokers play the games during the trading of the agricultural stocks which the farmers do not know and realize because of improper information about the market prices. The brokers without

any investment and with their negotiation skills transfer stocks by buying at low prices and selling at higher prices to the other end. The farmers need to be educated in this regard.

There should be all-round rationalization and standardization of the prices through legislative means. Presently there is vast gap between the marketing strategies of agricultural produce in India and abroad and the same needs to be bridge. Remove the various malpractices prevalent in the present system. There is need to set up marketing committees which has the representation of growers, merchants, local bodies, traders and nominees from the govt. There should be collective and integrative efforts and energies from all quarters for ensuring just and price for farmers.

#### **NEED FOR AGRICULTURE MARKET INFORMATION SYSTEM**

Nickels (1978) in his book on the Principles of Marketing has stated that information is one key to increase marketing success for everyone. A market information system is an important tool used by modern management to aid in problem solving and decision making. Market Information System is a process of gathering, processing, storing and using information to make better marketing decisions and to improve marketing exchange (Amrutha, 2009).

Subrahmanyam and Mruthyunjaya (1978) based on their study on marketing of fruits and vegetables in Bangalore suggested for proper dissemination of market intelligence and information through all possible means of communication, for improving the marketing efficiency of fruits and vegetables.

Raigar (1988) in his conceptual analysis of Management Information System (MIS) and Management Science opined that though computers have of course a role to play in MIS, all computerized systems do not necessarily mean MIS nor does MIS necessarily imply computerized processing of data to create information.

Rahman (2003) reported that the growers received low prices in Bangladesh because of lack of market information which resulted in wide inter-market price variation. Improvement of agricultural market information services was necessary for domestic market efficiency and to integrate domestic agricultural market with regional and international market for sustainable development of agriculture sector and to ensure country's long run food security.

Tables 1 to 6 are showing trends of Indian agriculture aspects like estimates the area of food grains, production of food grains, yield of food grains, area under commercial crops, production of commercial crops and yield of commercial crops in last three consecutive Five Years Plan. As in the Table 1 estimation of the area of food grains clearly shows that cropping trends in agriculture is continuously changes in the last three consecutive Five Years Plan except Rice, cereals, Tur (Arhar) and Pulses. But the area of Bajra Ragi, small millets, Barley and Coarse cereals are reducing instead of wheat, jower, maize gram and pulses are acquiring more areas for yield. It shows quite changes in trend of food grains.

However, both Tables 2 & 3 also reflects on the area of

**TABLE 1: ALL INDIA ESTIMATES OF AREA OF FOOD GRAINS**

Crops	Ninth Five Year Plan					Tenth Five Year Plan					Eleventh Five Year Plan				
	1997-98	1998-99	1999-2000	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
Rice	43447	44802	45162	44712	44904	41176	42593	41907	43660	43814	43914	45537	41918	42862	44006
Wheat	26696	27523	27486	25731	26345	25196	26595	26383	26484	27995	28039	27752	28457	29069	29865
Jowar	10801	9794	10251	9856	9795	9300	9331	9092	8667	8473	7764	7531	7787	7382	6245
Bajra	9888	9297	8897	9829	9529	7740	10612	9233	9581	9508	9571	8753	8904	9612	8777
Maize	6321	6204	6422	6611	6582	6635	7343	7430	7588	7894	8117	8174	8262	8553	8782
Ragi	1657	1758	1634	1759	1647	1415	1666	1553	1534	1177	1387	1381	1268	1286	1176
Small Millets	1529	1495	1411	1424	1311	1201	1191	1101	1064	1010	1039	905	831	800	799
Barley	858	793	725	778	660	702	657	617	630	346	603	706	624	705	643
Coarse Cereals	31054	29341	29340	30257	29523	26992	30801	29025	29065	28708	28482	27450	27675	28339	26422
Cereals	101197	101666	101988	100700	100771	93364	99988	97315	99208	100516	100435	100739	98051	100270	100293
Tur (Arhar)	3359	3439	3427	3632	3328	3359	3516	3519	3581	3562	3726	3378	3466	4367	4007
Pulses (other than Tur)	7147	6910	6367	7026	7395	6592	8168	7799	7099	7114	7764	6431	7117	7953	7183
Gram	7563	8469	6146	5185	6416	5906	7048	6715	6926	7494	7544	7893	8169	9186	8299
Pulses (other than Gram)	4802	4683	5176	4505	4870	4639	4727	4731	4785	5022	4600	4393	4531	4897	4973
Pulses	22871	23501	21116	20348	22008	20496	23458	22763	22391	23192	23633	22094	23282	26402	24462
Foodgrains	12068	125167	123104	121048	122780	113860	123447	120078	121600	123708	124068	122834	121334	126671	124755

**Source:** Government of India- 'State of Indian Agriculture 2012-13', Ministry of Agriculture, Department of Agriculture and Co-operation, New Delhi.

**TABLE 2: ALL INDIA ESTIMATES OF PRODUCTION OF FOOD GRAINS**

Crops	Ninth Five Year Plan					Tenth Five Year Plan					Eleventh Five Year Plan				
	1997-98	1998-99	1999-2000	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
Rice	82544.5	86076.7	89682.9	84976.6	93340.0	71820.2	88526.0	83131.7	91793.4	93355.3	96692.9	99182.5	89092.9	95979.8	105311.0
Wheat	66349.9	71287.5	76368.9	69680.8	72766.3	65760.8	72156.2	68636.9	69354.5	75806.7	78570.2	80679.4	80803.6	86874.0	94882.1
Jowar	7528.1	8415.4	8684.9	7529.4	7556.8	7012.4	6681.3	7244.3	7629.6	7150.8	7925.9	7245.6	6698.2	7003.1	6006.5
Bajra	7644.4	6955.6	5782.2	6759.2	8284.0	4718.9	12109.3	7931.3	7684.0	8423.7	9970.1	8887.1	6506.4	10369.9	10276.0
Maize	10819.2	11147.7	11509.6	12043.2	13160.2	11151.7	14984.3	14172.0	14709.9	15097.0	18955.4	19731.4	16719.5	21725.8	21759.4
Ragi	2086.8	2608.1	2289.5	2731.7	2374.6	1315.7	1965.7	2432.4	2353.6	1443.6	2152.2	2039.9	1888.5	2193.5	1929.2
Small Millets	639.9	670.8	618.2	586.9	576.7	459.3	563.8	477.6	741.6	479.6	550.7	444.8	381.9	442.0	451.5
Barley	1679.4	1537.8	1447.0	1430.6	1424.5	1407.4	1297.6	1207.1	1220.6	1327.9	1196.1	1689.1	1354.7	1662.9	1618.7
Coarse Cereals	24763.4	25053.1	23214.6	24858.7	26712.2	19989.0	32216.8	26362.1	26736.7	25610.0	31894.6	28544.2	23833.3	33081.8	32463.3
Cereals	179292.2	188699.6	196383.2	285738.4	199483.1	163646.4	198284.2	185233.3	195217.2	203084.6	216013.5	219899.8	203445.6	226250.9	242234.4
Tur (Arhar)	1849.5	2707.9	2693.8	2246.3	2259.8	2185.8	2356.4	2346.9	2738.0	2314.1	3075.9	2265.5	2464.6	2861.1	2654.1
Pulses (other than Tur)	24401	2433.2	2122.4	2201.9	2578.4	1965.2	3808.3	2370.4	2126.8	2481.3	3327.3	2420.7	1739.7	4259.0	3403.8
Gram	6132.2	6800.7	5118.1	3855.4	5477.0	4236.8	5717.5	5469.4	5599.9	6333.7	5748.6	7060.2	7475.9	8221.1	7702.3
Pulses (other than Gram)	2549.0	2965.3	3483.8	2771.8	3056.9	2737.2	3023.0	2942.8	2919.7	3068.4	2609.7	2820.0	2981.7	2899.8	3328.8
Pulses	12970.8	14907.1	13418.1	11075.4	13368.1	11125.0	14905.2	13129.5	13384.4	14197.5	14761.5	14566.4	14661.8	18240.9	17089.0
Food grains	192263.0	203606.7	209801.3	196813.8	212851.2	174771.4	213189.4	198362.8	208601.6	217282.1	230775.0	234466.2	218107.4	244491.8	259323.4

**Source:** Government of India- 'State of Indian Agriculture 2012-13', Ministry of Agriculture, Department of Agriculture and Co-operation, New Delhi.

food grains. All the three food grains tables shows that basic food grains (rice, cereal, tur and pulses) have consistent trend and other food grains have been changed trends remarkably from traditional crops (ragi, bajra and barley etc..) to economy crops (wheat, maize, jower etc..). In the same manner commercial crops also shows their trends in five years plan. Edible and non edible oil seeds have consistent trends over the last fifteen years among the commercial crops. But few commercial crops like soybeans cotton and sugarcane have more space in Indian agricultural rather than the other commercial crops.

**SYSTEM OF AGRICULTURE MARKET INFORMATION**

Ramamritam et al. (2000) developed a system for providing agrarian pricing information to the rural Indian populace as a part of Media Lab Asia activities at IIT Bombay. The system, called Bhav Puchiye (meaning, "ask for the price", in Hindi), incorporates innovations from the perspective of interface design as well as from the perspective of data provisioning. Bhav Puchiye was an online application accessible using a web browser, for getting the price information of agrarian products at the

**TABLE 3: ALL INDIA ESTIMATES OF YIELD OF FOOD GRAINS**

Crops	Ninth Five Year Plan					Tenth Five Year Plan					Eleventh Five Year Plan				
	1997-98	1998-99	1999-2000	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
Rice	1900	1921	1986	1901	2079	1744	2078	1984	2102	2131	2202	2178	2125	2239	2393
Wheat	2485	2590	2778	2708	2762	2610	2713	2602	2619	2708	2802	2907	2839	2989	3177
Jowar	697	859	847	764	771	754	716	797	880	844	1021	962	860	949	962
Bajra	773	748	650	688	869	610	1141	859	802	886	1042	1015	731	1079	1171
Maize	1712	1797	1792	1822	2000	1681	2041	1907	1938	1912	2335	2414	2024	2540	2478
Ragi	1260	1483	1401	1553	1442	930	1180	1567	1534	1226	1552	1477	1489	1705	1641
Small Millets	418	449	438	412	440	383	473	434	443	475	530	491	460	553	565
Barley	1958	1940	1997	1840	2160	2006	1975	1958	1938	2055	1985	2394	2172	2357	2516
Coarse Cereals	1030	1081	1032	1042	1167	972	1314	1168	1178	1144	1410	1371	1119	1500	1564
Cereals	1772	1856	1926	1844	1980	1753	1983	1903	1968	2020	2151	2183	2075	2256	2415
Tur (Arhar)	551	787	786	618	679	651	670	667	765	650	826	671	711	655	662
Pulses (other than Tur)	341	352	333	313	349	298	466	304	300	349	429	376	244	536	474
Gram	811	803	833	744	853	717	811	815	808	845	762	895	915	895	928
Pulses (other than Gram)	531	633	673	615	628	590	640	622	610	611	567	642	658	592	669
Pulses	567	634	635	544	607	543	635	577	598	612	625	659	630	691	699
Food grains	1550	1627	1704	1626	1734	1535	1727	1652	1715	1756	1860	1909	1798	1930	2079

**Source:** Government of India- 'State of Indian Agriculture 2012-13', Ministry of Agriculture, Department of Agriculture and Co-operation, New Delhi.

**TABLE 4: AREA UNDER COMMERCIAL CROPS**

Crops	Ninth Five Year Plan					Tenth Five Year Plan					Eleventh Five Year Plan				
	1997-98	1998-99	1999-2000	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
Groundnut	7088.2	7396.0	6867.3	6558.6	6238.1	5935.5	5987.0	6640.4	6736.0	5615.1	6292.0	6164.9	5477.5	5856.1	5263.8
Castorsed	641.3	682.4	781.6	1079.6	716.6	583.2	717.2	743.0	864.2	628.4	786.9	866.2	734.9	880.3	1470.9
Nigerseed	520.9	494.8	480.1	439.9	478.0	414.4	431.7	429.9	414.4	469.0	407.6	393.4	375.5	371.0	364.4
Sesamum	1660.0	1609.0	1560.2	1720.0	1670.6	1444.4	1700.3	1844.0	1723.2	1703.2	1799.1	1809.1	1942.1	2083.2	1901
Rapeseed & Mustard	7041.0	6513.2	6026.8	4476.7	5073.0	4544.0	5428.1	7316.4	7276.5	6790.0	5825.5	6298.1	5588.0	6900.5	5893.5
Linseed	793.9	749.4	593.1	579.9	535.8	450.1	476.5	448.7	436.8	436.5	467.9	407.9	342.0	359.2	322.6
safflower	619.8	440.2	438.5	424.8	404.3	369.5	363.9	369.1	364.6	377.0	320.3	294.6	287.8	243.8	450.4
Sunflower	1743.4	1824.7	1288.1	1073.8	1176.8	1642.2	2003.5	2160.6	2339.6	2164.8	1911.6	1812.8	1476.5	929.0	731.9
soyabean	5986.1	6488.9	6222.4	6416.6	6343.1	6105.5	6554.7	7571.2	7707.5	8328.7	8881.7	9510.8	9734.7	9601.0	10109.1
Edible oilseed	24659.4	24766.8	22883.4	21110.4	21383.9	20455.5	22469.2	26331.6	26561.8	25447.8	25437.8	26283.7	24882.1	25984.7	24514.6
Non edible Oilseed	1435.8	1431.8	1374.7	1659.5	1252.4	1033.3	1193.7	1191.7	1301.0	1064.9	1254.8	1274.1	1076.9	1239.6	1793.5
Total Oilseeds	26094.6	26198.6	24258.1	22769.9	22636.3	21488.8	23662.9	27523.3	27862.8	26512.7	26692.6	27557.7	25959.0	27224.3	26308.1
Cotton	8868.0	9342.2	8709.5	8534.4	9131.8	7669.6	7597.9	8786.6	8677.1	9144.5	9413.7	9406.7	10131.7	11235.0	12178.0
Jute	906.2	848.3	846.6	827.9	873.1	864.5	849.0	773.9	759.8	792.9	814.1	785.6	811.2	773.6	809.0
Mesta	200.5	177.1	188.7	189.7	174.1	170.8	152.5	141.8	137.9	124.2	146.2	115.3	94.2	98.6	95.6
Sugarcane	3929.8	4054.9	4219.7	4315.7	4411.6	4520.3	3938.4	3661.5	4201.7	5150.8	5055.2	4415.4	4174.6	4884.8	5037.7

**Source:** Government of India- 'State of Indian Agriculture 2012-13', Ministry of Agriculture, Department of Agriculture and Co-operation, New Delhi.

nearby mandis (i.e. wholesale markets). Bhav Puchiye eliminated the need for textual input from a user, but without employing pull-down menus. It used an 'Inverted Pyramid Approach' to give the maximum relevant results to the end users with minimal inputs from the users. Specifically a complete iconic interface was presented to a user who visited one of the tele-centers, which have begun to dot the rural Indian landscape. The interface incorporated multiple panels neatly juxtaposed with each other. They presented a choice of commodities (from which

a user chose the commodity of interest), a map of the state or district the user was from nearby towns, cities etc., highlighted and the users location at the center of the map and a calendar (from which the user selected the date of interest). The motivation was to empower producers of agricultural commodities with information that allowed them maximize their revenues by eliminating inaccurate or false information that resulted from the presence of middlemen or agents. Inverted Pyramid Approach, was used which was specifically designed keeping in mind the

**Table 5: PRODUCTION OF COMMERCIAL CROPS**

Production (000 tonnes)

Crops	Ninth Five Year Plan					Tenth Five Year Plan					Eleventh Five Year Plan				
	1997-98	1998-99	1999-2000	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
Groundnut	7370.4	8980.0	5250.0	6410.0	7027.5	4121.1	8126.5	6774.4	7993.3	4863.5	9182.5	7168.1	5428.5	8264.8	6963.7
Castorseed	830.0	840.3	770.0	880.0	652.6	427.5	796.7	793.4	990.7	762.3	1053.6	1171.1	1009.0	1350.3	2294.9
Nigerseed	139.9	139.9	150.3	110.0	129.9	86.2	108.9	112.2	108.0	120.9	109.5	117.0	99.9	107.7	98.1
Sesamum	570.0	530.0	479.9	520.0	697.8	441.3	782.1	674.1	641.1	618.4	756.9	640.3	588.4	893.0	810.3
Rapeseed & Mustard	4699.9	5659.9	5790.0	4190.0	5082.6	3879.8	6291.4	7593.1	8131.2	7437.8	5833.6	7200.7	6608.1	8178.7	6603.7
Linseed	240.0	270.0	240.0	200.0	209.1	176.7	196.5	169.7	172.5	167.9	163.4	169.2	153.7	146.5	152.5
safflower	120.0	240.0	260.0	200.0	220.6	178.5	134.9	173.6	228.6	240.3	224.5	189.2	178.8	150.4	145.3
Sunflower	889.6	950.1	690.1	649.9	679.5	872.6	930.4	1186.7	1439.0	1227.5	1463.1	1158.0	850.7	651.1	516.7
soyabean	6460.0	7140.0	7080.0	5280.0	5962.0	4654.7	7818.9	6876.3	8273.5	8850.8	10968.2	9905.4	9964.5	12736.4	12213.5
Edible oilseed	20249.8	23639.6	19700.3	17359.9	19800.6	14234.2	24193.1	23390.4	26814.7	23359.2	28538.3	26378.7	23719.0	30982.1	27351.3
Non edible Oilseed	1070.0	1110.3	1010.0	1080.0	861.7	604.2	993.2	963.1	1163.2	930.2	1217.0	1340.2	1162.7	1496.9	2447.4
Total Oilseeds	21319.8	24749.9	20710.3	18439.9	20662.3	14838.4	25186.3	24353.5	27977.9	24289.4	29755.3	27719.0	24881.6	32479.0	29798.7
Cotton	10850.0	12290.0	1153.0	9520.0	9997.0	8623.7	13729.0	16428.6	18499.0	22631.8	25884.1	22276.2	24021.8	33000.0	35200.0
Jute	9960.0	8840.0	9420.0	9320.0	10583.0	10273.7	10251.6	9399.3	9969.5	10317.1	10220.1	9634.4	11230.4	10009.4	10735.6
Mesta	1060.0	970.0	1130.0	1240.0	1094.4	1001.7	921.3	873.0	870.1	955.9	990.4	730.9	587.0	610.8	663.0
Sugarcane	279540.0	288720.0	299320.0	295960.0	297207.8	287383.2	233861.8	237088.4	281171.8	355519.7	348187.9	285029.3	292301.6	342381.6	361036.6

Source: Government of India- 'State of Indian Agriculture 2012-13', Ministry of Agriculture, Department of Agriculture and Co-operation, New Delhi.

**Table 6: YIELD OF COMMERCIAL CROPS**

Yield (Kgs./Hect.)

Crops	Ninth Five Year Plan					Tenth Five Year Plan					Eleventh Five Year Plan				
	1997-98	1998-99	1999-2000	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
Groundnut	1040	1214	764	977	1127	694	1357	1020	1187	866	1459	1163	991	1411	1323
Castorseed	1294	1231	985	815	911	733	1111	1068	1146	1213	1339	1352	1373	1534	1560
Nigerseed	269	282	313	250	272	208	252	261	261	258	269	297	266	290	269
Sesamum	343	329	308	302	418	306	460	366	372	363	421	354	303	429	426
Rapeseed & Mustard	668	869	961	936	1002	854	1159	1038	1117	1095	1001	1143	1183	1185	1121
Linseed	302	360	405	345	390	393	412	378	395	385	349	415	449	408	473
safflower	194	545	593	471	546	483	371	470	627	637	701	642	621	617	580
Sunflower	510	521	536	605	577	531	464	549	615	567	765	639	576	701	706
soyabean	1079	1100	1138	823	940	762	1193	908	1073	1063	1235	1041	1024	1327	1208
Edible oilseed	821	954	861	822	926	696	1077	888	1010	918	1122	1004	953	1192	1116
Non edible Oilseed	746	775	735	651	688	585	832	808	894	874	970	1052	1080	1208	1365
Total Oilseeds	817	945	854	810	913	691	1064	885	1004	916	1115	1006	958	1193	1133
Cotton	208	224	225	190	186	191	307	318	362	421	467	403	403	499	491
Jute	1978	1876	2003	2026	2182	2139	2173	2186	2362	2342	2260	2207	2492	2329	2389
Mesta	952	986	1078	1177	1131	1056	1087	1108	1136	1210	1219	1141	1121	1115	1245
Sugarcane	71133	71203	70934	68578	67370	63576	59380	64752	66919	69022	68877	64553	70020	70091	71667

Source: Government of India- 'State of Indian Agriculture 2012-13', Ministry of Agriculture, Department of Agriculture and Co-operation, New Delhi.

needs of farmers. To ensure deeper penetration in rural India the application was designed to be made available online, accessible through kiosks or tele-centers in villages or via telephones.

Kiresur et al. (2001) explored the Decision support systems

(DSS) in forecasting of oilseeds scenario in India through a system dynamic model. They observed that the oilseeds scenario is rapidly changing, the forecasting needs a dynamic approach to account for the complex nature of the agricultural sector and its backward and forward linkages

with other sectors of the economy. The system dynamic approach was found to fill the gap. System dynamics method is a computer aided structural modeling technique in which time varying effects can be explicitly considered. The DSS projected demand – supply gap of about two million tonnes of edible oil by 2010 AD. The simulated scenario forecasted demand for 15 million tonnes of edible oils leaving a net gap of about 2.7 mt in domestic availability of edible oils by 2010 AD. The review of simulation results suggested that the model developed can be successfully used for strategic planning as the simulated data gave close resemblance with the existing system.

Metkewar and Acharya, (2001) suggested possible alternatives to approach the problem of formulation of the arrival-prices information systems for the regulated markets in Maharashtra as;

- a) A dynamic system
- b) Artificial neural network and
- c) Fuzzy – Dynamical system.

They suggested that a model free approach would be appropriate as arriving at appropriate functional forms and examining the stability of the dynamic system would be a very difficult task given the various market forces affecting the system and given the state of information that is maintained at the market committees.

Rai et al. (2001) in their study on application of information technology in agricultural marketing explained the necessity for developing a Farmers Agriculture Information System (FAIS) which could be operated at Zonal Agricultural Research Stations (ZARSSs), Krishi Vigyan Kendras (KVKs), Agricultural Marketing Corporations (Mandis) and Extension centers of SAU's where farmers normally assemble for various reasons.

Anonymous (2002) reported that the National Horticulture Board (NHB) had launched a scheme for development of marketing of horticulture produce realizing that a sound system of marketing with the latest and accurate information on prices and arrivals on the Internet was important for effective disposal of highly perishable horticultural crops. The NHB has been catering to this need since 1988 with 33 marketing information centres located all over India called NHB NET. These centres collected the market information and sent it to a coordinating cell for publication of monthly bulletins ([www.nhb.gov.in](http://www.nhb.gov.in)).

Dhankar (2003) studied the Agril Marketing information system network (Agmarknet) in India and found that almost all the states and union territories were providing market information in one form or the other for the benefit of market users like producers, traders and consumers. However, the information was collected and disseminated by conventional methods which caused inordinate delay in communicating the information to different target groups, and thus adversely affecting their economic interest. Therefore there was a need to improve the present market information system by linking all Agricultural Produce Market Committees / wholesale markets, State Agricultural Marketing Boards and State Directorates of Marketing and Inspection (DMI) with the DMI of the Ministry of Agriculture for effective and efficient information exchange. Thus, the Department of Agriculture and Co-

operation in the Union Ministry of Agriculture sanctioned a central sector scheme to NICNET to link 810 nodes through its attached office, DMI during 2000-02.

Gunatilke (2003) reported that the private sector played a major role in production and marketing in Sri Lanka while the State sector played a supportive role in facilitating them and for the improvement of the living standards of the farmer population. The Market Information System was completely based on private sector participation. Rahman (2003) reported that the existing service capability of Market Information System was very poor in Bangladesh. The limitations were non availability of required information, unreliable and untimely availability of information and lack of awareness among farmers with respect to the use of available information.

Shreshtha (2003) identified that duplication of efforts, lack of standardization, inadequate network for information flow, lack of coordination and integration among various agencies as some of the limitations of Market Information System in Nepal. The researcher also reported that the information service served the needs of the policy makers rather than the producers and traders.

Yan Bo and Bu Yibio, (2003) studied the agricultural marketing system in China and found that the major information sources of Chinese farmers were other farmers, television and broadcast. The Chinese farmers were not sensitive to the price changes on future market and international market. Similar results were obtained by Rana and Astuti, 2003.

Anonymous (2004) studied the information system and its uses in Chinese agriculture. Accordingly, the Ministry of Agriculture (MOA) initiated research on computer application in agriculture during Seventh Five Year Plan for the first time and the first professional journal entitled "Computer Application in Agriculture" started to appear in 1986. In order to achieve industrialization and market-orientation of agriculture through Internet, Ministry of Agriculture developed the website known as China Agricultural Information Network (CAIN), one of the earliest government websites related to agriculture. CAIN also emphasizes on services for production operation and market.

China's ministry of agriculture has established an information centre to act as a nodal agency for constructing the information system for country's rural market. MOA has also initiated the action plan for the program of rural market information service under tenth five year plan (2001-2005). A rural market information system construction leading group and office setup by MOA will be responsible for planning, guiding and supervising the action plan of rural market information service nationwide. The action plan concentrates on providing timely and accurate information for the development of rural economy, the strategic restructuring of agriculture sector and the increase of farmers' income. The aim is to establish rural market information service network through strong collaboration of news media, agricultural information websites, teams of farmer information collectors and agricultural socialization service organizations. To enhance the role of radio and other information distribution

channels, the time for broadcasting the rural market information on CCTV-7 has been increased. This will play at least 1.5 hours of information programs focusing on price, supply and demand, technology and policy. (www.nistads.res.in)

ITC e-choupal portal launched in June 2000 carries the mandi prices across the state, which is fed in daily by each of the mandi commission agents who have joined the ITC system it also offers the prices that ITC hopes to buy at. (www.echoupal.com).

Sidhu *et al.* (2008) employed a simultaneous (four) equation model to estimate the contribution of institutional credit towards use of production inputs, private investments and agricultural growth. The study revealed that supply of production credit doubled and that of investment credit increased by about 80 per cent during the period 2001-02 to 2003-04. The relationship between use of variable inputs and production credit disbursement was found to be highly significant. A similar relationship prevailed between private capital formation and investment credit. Thus results have further exhibited significant and positive impact of capital investments on productivity with elasticity of 1.02. It, therefore, becomes imperative that first the demand for agricultural credit in each state/region be assessed, depending on crop patterns and current inputs and capital requirements in relation to targeted output growth-rate and then, policy framework should be put in place to meet those requirements, instead of increasing the credit supply uniformly across the board in all the states/regions of the country. Such a policy sometimes proves counterproductive and that appears to have happened in the Punjab agriculture.

Cheluvaregappa (2007) applied ARIMA model in his study to forecast the monthly prices of copra in Tiptur market of Karnataka. He considered monthly time series data of copra prices from 1975 to 2005. Post period forecasted values depicted the same pattern of actual prices of copra. The fitted model for these monthly prices of copra was (4, 1, 5).

Nikhil (2008) in his study on arecanut marketing and prices under economic liberalization in Karnataka fitted an interactive Auto regressive Integrated Moving Average Process (ARIMA) to monthly average prices of two varieties of arecanut. The ACF and PACF showed autoregressive and moving average process with seasonality component in the selected markets. The auto correlation coefficients were significant in both the varieties which implied that there was a strong seasonality component in the error terms. Using the model the prices of both types of arecanut were ex-post forecasted. Accordingly, prices of both reached a peak in the month of August and declined thereafter.

Kashyap and Raut, (2006) in their paper suggested that, marketers need to design creative solutions like e-marketing to overcome challenges typical of the rural environment such as physical distribution, channel management promotion and communication. The “anytime-anywhere” advantage of e-marketing leads to efficient price discovery, offers economy of transaction for trading and more transparent and competitive setting.

Brithal, et.al., (2007) in their study suggested that by building efficient and effective supply chain using state of the art techniques it is possible to serve the population with value added food, while simultaneously ensuring remunerative prices to farmers.

Tripathi and Prasad, (2009) reported that Indian agriculture has progressed not only in out-put and yield terms but the structural changes have also contributed .

Pathak, (2009) in his research paper stated that the contribution of agriculture in growth of a nation is constituted by the growth of the products within the sector itself as well as the agricultural development permits the other sectors to develop by the goods produced in the domestic and international market.

#### **PATTERN OF AWARENESS AND SOURCES OF MARKET INFORMATION**

The awareness on market information in general was found to be relatively poor in case of farmers as compared to the traders since the accessibility of market information in terms of communication systems is very poor in case of farmers. The status of assets on audio visual and communication systems of farmers clearly indicated that radio followed by television were the only assets owned by small farmers. The advanced communication systems like mobile phones were owned by medium and large farmers. A few large farmers also subscribed to agriculture magazines like Annadata, Krishimunnade and Krishipete. However, traders with all the modern and advanced communication gadgets were able to source the market information easily and regularly.

The awareness on market information pertains to only arrivals and prices in local markets in all the categories of farmers. The other important production and marketing parameters like post harvest handlings, grading and standardization, etc were not known to the small and medium farmers but a few large farmers were aware of them. However, the traders were better informed on market information including arrivals, prices, quality/standardization, area, prices in reference markets, imports and exports. The illiteracy of farmers (75%) might have contributed to the poor awareness on market information by farmers as compared to traders, wherein 82 per cent of the traders were with collegiate education. Thus, due to poor awareness on market information by farmers vis-à-vis traders the advantages of regulated and orderly market were not realized by the farmers.

Radio and newspapers were the major sources of market information to farmers in general and a few large farmers also sought information from sources like television, magazines and internet at the house hold level. The sources of market information to farmers at village level were found to be friends, neighbours and relatives. Similarly, commission agents formed major source of market information for all categories of farmers at market level indicating that the farmers did not depend much on the market sources like notice boards and announcements. Thus, the formal agencies like RSK's, SHG's, Co-operative societies and Gram Panchayats at village level; and market intelligence cell and regulated markets at market level did not form the major sources of market information to the



farmers.

Similar observations were made by Yan Bo and Bu Yibio (2003) in China, Rana and Astuti (2003) in Indonesia, Gunatilake (2003) in Sri Lanka and Shreshtha (2003) in Nepal. Similarly, traders also depended on fellow traders, contacts in other markets, news papers etc for their market information. A few traders also depended on APMC bulletins, Agricultural magazines and announcements by APMC. Therefore, it is necessary to strengthen the existing formal sources of market information with information and communication technology so as to provide relevant and scientific information to the farmers and other stake holders so as to enable them to make right decisions in their production and marketing of onion. In this regard, networking of market information at hobli level in the state through existing Raita Samparka Kendras (RSK's and village knowledge centers (VKC's) needs to be developed.

The lack of awareness on different aspects of marketing of onion including arrivals and prices by farmers might have resulted in distress sale of onion in the market. It is worth noting that majority of the farmers were not aware of market information pertaining to preparation of the produce for the market by cleaning, drying, sorting and packing. Hence, the market extension activities need to be strengthened to create awareness among farmers on post harvest handling of the crop. In the existing agricultural extension education, only production technologies up to harvesting are covered ignoring post harvest management including marketing aspects.

Therefore, post harvest and marketing management techniques needs to be covered in transfer of technology (TOT) programmes of various public and private agricultural related institutions like State Departments of Agriculture, State Agricultural Universities, KVK's etc. In addition, production and post harvest management techniques may also be disseminated along with the market information using ICT.

#### **PATTERN OF DISSEMINATION OF MARKET INFORMATION**

The methodology employed in arriving at the arrivals and prices information was based on the entire population being recorded at the entry point, from tender data and the transactions of the commission agents, which is a common procedure in all the markets. With respect to the involvement of personnel in documentation of market information, all markets had regular employees and all the personnel involved were trained in documentation and were engaged in collection and documentation of market information of all the commodities traded in the respective markets. Collection of market information from all the commodities traded in the market by single personnel clearly indicates the lack of manpower in collection and documentation of market information in all the markets (Amrutha,2009).

The mode of dissemination remained the traditional notice boards and announcements after tender in all the markets. Similar observations were made by Dhankar (2003) and Ramamritam et al. (2000). As the markets are linked to maratavahini, the market information is being disseminated through the portal also. The price information is sent to the

news papers, AIR, television, District Information Office and District Statistical Officer on daily basis whereas, the annual reports are being circulated to the Zilla Panchayat, Agricultural Research Stations, Deputy Commissioner and the State Marketing Board.

The recipients of market information extended to the Gram Panchayat, Zilla Panchayat, Deputy Commissioner, District Statistical Officer, Agricultural Research Stations, State Department of Agriculture Marketing and the State Level Agriculture Marketing Board. Thus the markets were disseminating only the arrivals and prices information and were not able to disseminate other information such as area, production, prices in other markets, etc., even with such a vast information network for dissemination of market information. Hence, there is a need to incorporate other components of market information such as grade, standards, post harvest handling, storage, transportation etc. along with arrivals and pricing information. Similar observations were made by Subrahmanyam and Mruthyunjaya (1978) and Anonymous (2004).

#### **FOREIGN DIRECT INVESTMENT (FDI) IN AGRICULTURAL RETAIL MARKETING – INDIAN SCENARIO**

Over the last two decades, Indian economy has witnessed significant rise of FDI flows as well as remarkable increase in growth rate with favourable consequences on employment, infrastructure development and business climate. Fast Growing Indian economy accompanied by growing domestic consumer markets has raised the growth of retail sector at a faster rate mostly in unorganized sector (Table 7).

**TABLE 7: PERCENTAGE OF ORGANIZED RETAIL**

Retail sector	US	Thailand	China	India
Organized	85	40	20	03
Unorganized	15	60	80	97

Source: P.Shivkumar and S. Senthilkumar, 2011

Organized retail has huge potentiality which is still at a nascent stage, compared to other developing economies. With liberalization in 1990s organized retail sector has grown many folds when many Indian players like Shoppers Stop, Pantaloon Retail India Ltd, Spencer Retail ventured into the organized retail market. With the opening up of foreign direct investment in single brand retail and cash-and-carry formats Indian retail market gets new momentum. With liberalization in foreign trade policy in 1991, the Indian Government allowed 100% (Roy, 2012). Foreign investment in wholesale cash-and-carry and single branded retailing but prohibited foreign investment in retail. In 1997 restrictions were again imposed on retail sector but in 2006 these restrictions were lifted and opened in single brand retailing and in cash-and-carry formats. Indian retail industry becomes an attractive FDI destination of many global players and cash and carry format becomes the entry route for global retailing giants. Wal-Mart has forged an alliance with Bharti for cash-and-carry business and Bharti is concentrating on front-end retail. Tesco enters In Indian retail market through an alliance with Trent (Tata Group). Many foreign brands enter Indian retail sector either through Joint ventures with leading Indian retailers (like Louis Vuitton, Marks and Spencer Plc., Armani) or

through exclusive franchisees to set up shops in India (like McDonald's, KFC, Domino). In agricultural retailing FDI is not permitted in general. FDI has been permitted under automatic route in Floriculture, Horticulture, Development of seeds. Aqua-culture, Cultivation of mushrooms with the objective of promoting improved technology. In Tea plantation FDI up to 100 percent is permitted with prior approval and some restrictions. The share of FDI flows in agricultural sector regarding better seeds and improved technology is very low. With the entry of foreign direct investment, the Indian organized retail market has become more competitive in terms of implementing newer business models on the operational format and pricing and reinventing and improving the supply chain. FDI was generally not allowed in agricultural retail marketing although it has enormous growth potential in India particularly in agricultural marketing considering the limitations of the present setup regarding infrastructure, communication network in rural economy, inefficient supply chain (Roy, 2012).

### CONCLUSION

There is no doubt that in any marketing there is a motive towards profit involved and at the same time the marketing is to be based on certain values, principles and philosophies such as offering just and fair prices to the farmers who toil hard to till. Bringing necessary reforms coupled with proper price discovery mechanism through regulated market system will help streamline and strengthen agricultural marketing.

In order to avoid isolation of small-scale farmers from the benefits of agricultural produce they need to be integrated and informed with the market knowledge like fluctuations, demand and supply concepts which are the core of economy. Marketing of agriculture can be made effective if it is looked from the collective and integrative efforts from various quarters by addressing to farmers, middlemen, researchers and administrators. It is high time we brought out significant strategies in agricultural marketing with innovative and creative approaches to bring fruits of labor to the farmers.

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