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EXISTING MARKETING MECHANISM FOR MARKETING OF MAJOR HORTICULTURAL CROPS IN BIHAR

Meera Kumari* and M.K. Wadhwani
Bihar Agricultural College, Sabour, Bhagalpur, Bihar-813210
***Corresponding author** (Meera Kumari) **Email :** rakshitakshit@gmail.com

ABSTRACT

There are several marketing agencies for the marketing of different fruits, ranging from pre-harvest contractors to wholesalers, and commission agents are present for marketing of fruits and vegetables in Bihar. Result indicated that marketable surplus of potato ranges from86 to 92 per cent, tomato between 96 to 99 per cent, brinjal between 97 to 98 per cent, cabbage between 90 to 98 per cent, cauliflower between 97 to 98 per cent and okra between 96 to 99 per cent respectively. Except for potato, the marketed surplus is 100 per cent, which is reflective of short shelf life and low availability of processing and warehousing. In case of fruits, marketable surplus of litchi is estimated around 82 per cent, mango around 88 per cent, makhana around 88 per cent and banana around 86 per cent. Even in case of fruits, marketable surplus and marketed surplus do not vary much. The most common channel were consists of producer-pre-harvest contractor-wholesaler/commission agents-retailer-consumer. Poor financial condition of farmers , higher marketing cost & lack of packaging facility followed by shortage of labour of both nature i.e. skill and unskilled during the peak marketing season are most common problems for marketing of all most all the produce in Bihar. To minimise post-harvest losses appropriate cold storage and knowledge of proper marketing is not available. The producers' share in wholesale price continues to be small (about 35 percent) with the major share going to market intermediaries as marketing cost, because of inefficient supply chains. Therefore, supply chain management may be a powerful tool in linking farmers to the markets for sustainable income generation. Accesses to markets and marketing information by smallholder farmers depending on agriculture in Bihar have always been challenging

Key word : *Horticultural crops, marketing cost, marketing margins, channels.*

Horticultural crops constitute a significant component of total agricultural production of the country and cover nearly 11.6 million ha area with a total production of over 91 million tonnes per year. Production of fruits and vegetables play an important role in generating employment, income and meeting household nutritional security. The combined annual production of fruits and vegetables in India is likely to cross 377 million tonnes (MT) mark by 2021 from the current level of over 227 MT. However, the projected production of fruits and vegetables would only cater to domestic demand leaving no scope for growth on export front because the huge wastage would continue to rise simultaneously in absence of on-farm processing facilities. Currently over 77 MT fruits and about 150 MT vegetables are produced in India and their production is growing at a compounded annual growth rate ranging between 5-6 per cent respectively.

Bihar is endowed with very fertile plain land and subtropical climate, holds a vast potential for growing a large variety of horticultural crops. Many tropical and subtropical fruits, vegetables, tuber crops, medicinal and aromatic plants, flowers, spices and plantation crops are grown commercially in the state. Presently fruits and vegetable crops cover about 1.0 million ha accounting for roughly 19.5% of the net cropped area and 14% of gross cropped area of the state. There has been a substantial increase both in area and production of these crops in the last three decades. Now the state ranks fourth in fruit production and third in vegetable production in the country. The state is also one of the leading producers of spices for which there is good demand in domestic as well as foreign markets. It is the largest producer of Litchi, Makhana, Guava, Lady's finger in India. The state already exports Litchi, and snow pea. It has competitiveness in and fruit such as banana, mango, litchi and vegetables like onions, tomato, potato and brinjal. High, stable and regular supply of agricultural produce provides adequate opportunity for marketing and food processing industries. Considering the highest rate of population increase in the country there is a need to lay more emphasis on horticultural crops than others because they are capable give 10 to 20 times higher yield than

cereals or pulses and thus are more paying with distinctly higher benefit/cost ratios. The Marketing of horticulture produce plays a very important role in stimulating production and consumption as well as in increasing the pace of economic growth. It is however, unfortunate that the marketing sectorin the field of horticulture has not progressed to the extent desired. Along the supply chain, the incremental cost in India is estimated to be nearly 30 per cent at the farmer's level, followed by a maximum of 35 per cent at the level of the trader, 14.7 per cent at the wholesaler's level and finally an incremental cost of 21.6 per cent at the retailer's level

Any target for production can be achieved only if the farmer get proper price for their produce. Hence the success of this agriculture development strategy is dependent upon taking appropriate measures in the fields of marketing and processing. Agriculture marketing has been in the public domain with explicit limitations. With this background it has been planned to find out the status of production as well as marketing of major fruits and vegetables in Bihar.

Present status of major fruits and vegetables in Bihar : Bihar produces a large quantity of different kinds of vegetables. Bihar is the largest producer of okra, second largest producer of cabbage, third largest producer of potato, brinjal, onion and cauliflower and significant producer of other vegetables within India. Due to significant surplus in vegetable production Bihar is prominent sourcing destination for neighbouring states like west Bengal, Jharkhand and eastern parts of Uttar Pradesh. The total vegetable production in the state is estimated around 14467.2 thousand tones. The production of major vegetable in the state along with respective national ranking is provided in the table1. As far fruits are concerned state produces large quantities of a variety of fruits. It is the largest producer of litchi, third largest producer of pineapple and fourth largest producer of mango in India. The major fruit producing districts mostly overlap with the vegetable producing ones. Muzaffarpur and Vaishali districts lead in litchi and banana production. However, Darbhanga, Champaran (East and West), Vaishali lead in mango production and Rohtas and Bhojpur lead in guava production. Present statusof area and production of major fruits of Bihar has been mentioned below.

With increase in availability a shift in consumption pattern in favour of fruits and vegetables was observed for all the socio-economic groups living in rural and urban area (Kumar and Mathur 1996, Kumar' 1998). It is hypothesized that the urbanization shift in dietary pattern economic and population growth will enhance the fruit consumption per person and national demand in future. (Source: Horticulture Statistics Division, DAC&FW)

Comparative analysis of availability of fruits and vegetables in Bihar and India : In India, average household consumption of fruit and vegetable are 182–362gm/day/capita. When we compared it Bihar it was only 112gm (estimated by Kumari, *et.al.,*) which is lower than the amount recommended by the F.A.O. However availability of vegetables is comparatively more than that of recommended amounts as well as availability of vegetables to our nation as a whole. I.e. 430 gm/.day/ person. It clearly indicates that there is huge potentiality of this crop in Bihar.

Status of marketing : Marketing of horticultural crops is quite complex and very risky due to the perishable nature of the produce, seasonal production and glutens. The spectrum of prices from producer to consumer, which is an outcome of demand and supply of transactions between various intermediaries at different levels in the marketing system, is also unique for fruits and vegetables. Moreover, the marketing arrangements at different stages also play an important role in price levels at various stages viz. from farm gate to the ultimate user. These features make the marketing system of fruits and vegetables to differ from other agricultural commodities, particularly in providing time, form and space utilities. While the market infrastructure is better developed for food grains, fruits and vegetables markets are not that well developed and markets are congested and unhygienic (Sharan, 1998).

In the state of Bihar there is no regulated/organized market till major share of marketable surplus is marketed through private traders. This is mainly due to the fact that quality of market infrastructure and support services are poor and the transportation and informal transaction costs discourage farmers from going to the markets directly. It has been observed that market facilities and the distance of the market are the major factors which influence farmer's decision to sell at the markets. It has been revealed through empirical research that the probability of selling at the market increases with an improvement of market facilities or due to a decrease in distance to markets. There is practically no infrastructure for cleaning, grading and

Table-1 : Status of states assistance sanctioned for marketing infrastructure projects under NHM scheme.

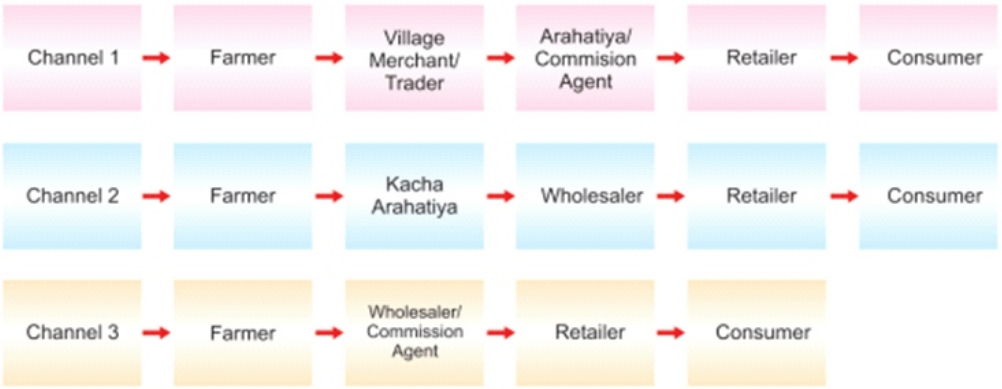
State	Rural Primary Market		Wholesale Market		Terminal Market Complex	
	No. of projects	Assistance	No. of projects	Assistance	No. of projects	Assistance
Anhdra Pradesh	16	60.00	17	744.96	—	—
Bihar	0	0.00	—	—	—	—
Chhattisgarh	0	0.00	2	1245.78	—	—
Delhi	0	0.00	—	—	—	—
Goa	1	3.75	—	—	—	—
Gujarat	1	3.75	—	—	—	—
Haryana	0	0.00	30	5863.75	—	—
Jharkhand	38	225.72	—	—	—	—
Karnataka	14	47.45	19	1573.33	—	—
Kerala	25	214.25	—	—	—	—
Madhya Pradesh	8	33.25	1	918.62	—	—
Maharashtra	12	46.70	—	—	1	0.00
Odisha	48	216.89	—	—	1	2490.00
Punjab	11	41.25	7	58.46	—	—
Rajasthan	16	59.27	—	—	—	—
Tamil Nadu	50	187.50	1	27.50	3	12324.00
Uttar Pradesh	4	90.84	11	1599.22	—	—
West Bengal	26	92.68	—	—	—	—
Total	270	1324.00	88	12031.62	5	14814.00

Source : Mission for Integrated Development of Horticulture (MIDH), DAC&FW. This table itself explained that there is no project in Bihar for the development of market infra-structure.

standardization, SPS measures and quality certification, labeling, packaging and ripening chambers etc. The market yards are highly congested during the peak hours with highly unhygienic conditions. Moreover, there is no centralized auction system and the auctions are organized by the traders in an unprofessional and non transparent manner discouraging the fair and transparent trade. The provision of transparent transactions through electronic auction can be acritical factor of enhancing market efficiencies and bringing a large proportion of the produce to the markets. Result indicated that marketable surplus of potato ranges from86 to 92 per cent, tomato between 96 to 99 per cent, brinjal between 97 to 98 per cent, cabbage between 90 to 98 per cent, cauliflower between 97 to 98 per cent and okra between 96 to 99 per cent respectively. Except for potato, the marketed surplus is 100 per cent, which is reflective of short shelf life and low availability of processing and warehousing. In case of fruits, marketable surplus of litchi is estimated around 82 per cent, mango around 88 per cent, makhana around 88 per cent and banana around 86 per cent. Even in case of fruits, marketable surplus and marketed surplus do not vary much.

Existing Marketing Mechanism : The existing marketing system is largely unorganized and manual. The prevailing practice in marketing of horticultural crops is mostly middlemen driven. On an average the produce changes at least six to seven hands before it reaches to the kitchen of the end consumer. Multiple handling affects the quality and finally the retail prices of the produce. On an average, the retailer sells 60-70% of his produce at market rate and rest 30-40% below the market rate. Since he has the compulsion to sell the produce same day, such kind of selling pattern is quite prevalent in fruit and vegetable retail. In the value chain, the flow of information is restricted to certain levels only. The produce do not have proper information about the demand supply situations in the consumption market and hence are not able to capture the price arbitrage in the distant market. Since farmers typically borrow money from the traditional sources i.e. the buyers of their produce, they have an obligation to sell the produce to them only. This limits the alternatives to sell through other channel as farmers have the fear of not being able to get the credit in next session. The marketing cost is approximately 50-60%of the price realized by the farmer.

Three channels through which the produce is marketed



Source : compiled by author.

Marketing system of vegetables varies considerably from farmer to farmer depending upon the nature of the vegetables and their capacity. Marketing of vegetables changes hands three to four times between producers and consumers. It means that the multiple intermediaries exist in the marketing system of vegetables. There is predominance of sales in primary / rural market ("*haat")*. Sale at the village level in case of large farmers is less than small category of farmers. This is found as a common pattern in case of all major vegetables. Interestingly, in most of the districts vegetables are not being sold in the agricultural market yard.. The rural primary markets where substantial proportions of vegetables are sold are not developed from the market infrastructure point of view. The regulatory measures are also not enforced. The process of marketing of fruits in general, passes through four hands, before it reaches the final consumers.A straightforward approach to reduce this would be to reduce the level of intermediation between the farmer and the final consumers, thereby increasing the profit margins for the real producers and also an extension in demand for fruits. There is complete control of private intermediaries over the operation of trade in these rural oriented markets. As such, transaction of vegetables is being made by a chain of intermediaries namely, katcha arhatiya, broker, agent of the wholesaler / commission agent, wholesaler /commission agent and retailers

It is thus found that the sales at low prices, little grading at the village level, tie-in-sales, presence of large chain of intermediaries and high marketing costs and margins – all these tendencies seem to persist across the regions in the State. Production system is also not encouraging as there has been low productivity of fruits and vegetables due to low adoption of scientific cultivation of these crops.

Market Arrival : In terms of market arrival, potato holds the top position followed by onion, tomato, green chillies, brinjal, ginger, greenpea and lady's finger respectively in terms of their volume.In terms of quantity of arrival of fruit, they are in the order of mango, banana, litchi, guava,. The seasonality is important factor in market arrival of fruits and vegetables.

Marketing Channel : Majority of the farmers sell their produce at the village level. It has been found that there is no fix strategy being followed in the adoption of marketing channels but it varies from place to place and commodity to commodity. However there is multiple level of intermediation in the supply chain increasing the cost and deteriorating the quality of the produce. In case of fruits it is mostly sold to the contractors before plucking. This is mainly followed by the producers to mitigate the risk. The other common channel for fruits particularly for banana is producer- wholesaler /commission agent- retailer-consumer. Moreover, most of the production of state is sold outside mainly in case of fruits as mango, litchi and banana. Bihar is largest producer of litchi which has a short shelf life of 2-3 days under ambient conditions. The fruit is available only for a short period of time in the month of May- June. The shelf life of the fruit can be extended by proper post-harvest treatment up to2-3 weeks. The enhance activity in the area of litchi pack houses and processing in the state will substantially increase farmers' realization.

In case of vegetables also, there is a dominance of chain of village level intermediaries agents towhom major proportion of the produce is sold. Producers sell the vegetables at the village level rural primary markets as hat. Farmers also do not have any access to the price information in the nearby areas Table-2.

Cost of Marketing : In terms of the various marketing costs borne by different players, retailers and farmers typically bear the cost of sorting and cleaning, farmer and village intermediary bear the cost of packing and bagging, intermediaries bear the cost of weighing, loading and unloading, wholesalers mainly bear the cost of storage, if any, transport charges are shared between all the players in varying proportion, physical handling/losses are borne by farmer, wholesaler and retailer and market charges by the intermediaries. However, it was found that the producer has to bear in some proportion or the other, the cost of various items of marketing. This leads to a low realisation at the farm level whereas the cost at terminal mandi is more or less at par with major mandis in the country, giving no specific advantage to the producers/processors or consumers. Retailers do not have to pay any commission to the wholesalers for commodities. The relative share of farmers' cost were more for commodities such as cabbage, cauliflower, brinjal, lady's finger, and apple. For the rest commission was the major cost item incurred by the farmer producers.

Marketing Margin : It is expressed as percent of consumer price, for the selected vegetables ranged from 22.17 percent (green pea) to 50.25 percent (tomato), and for fruits it ranged from 33.14 percent for sapota to 69.43 percent for litchi. For none of the commodities studied here the marketing margin was lower than one-third of the consumer rupee the highest among other costs

Marketing Efficiency : Variation in price difference and margin in absolute terms for the same commodity in different markets could be partly attributed to the varieties chosen by the consumer. Therefore, the marketing cost and margin is expressed as percentage to the price difference. The high percentage of margin to price difference is indicative of possible large trade profits (or inefficiencies), and poor marketing efficiency in fruits and vegetables.

Needs of Hours : Improvement in the vegetables marketing system is utmost important by bringing out the enforcement of regulatory measures along with creation of market infrastructure facilities such as transportation, storage. Post-harvest management for increasing marketing efficiency is also need of hour. Grading and packaging need special attention in this regard. Efficient vegetable co-operative with credit and marketing linkages is also required to enhance the bargaining power of producers. Restricting membership at the primary level (depending upon relative proportion of number of marginal and small producers and the volume of output) in certain areas may be considered. These societies may be organisationally and functionally structured as a agribusiness consortium which will take care of both production and marketing through giving institutional strength to backward and forward linkages.

Constraints in marketing of major fruits and vegetables in Bihar : Despite of having strong base of production of vegetable due to high cost of marketing, packaging materials, excessive deduction by trader, problems of transportation means, discomfort in Mandy ,low bargaining power, lack of information about price and shortage of cooling facility, improper weighing practices, lack of market information, delay in sale , delay in payment and one of the utmost important i.e. lack of effective market regulation in our state ,producers were not able to export the produce to other state or the country. It may further revealed that according to ranking assigned to each constraints low price spread, low bargaining power, lack of market information were identified as the top three constraints in marketing. Later on it was tested to check the extent of influence of these assigned constraints in decision on marketing of these crops in the study area by using Kendall's coefficient of concordance test. The Chi-square at n-1d.f – was estimated at 60.918 and calculated value was 64.38 observed to be greater than Chi-square table value at1%and 5% level of significance. Indicated major problem of farmers were inadequate knowledge of market information system, and dis-satisfaction from market price of fruits and vegetables& major constraints identified for vegetable marketing were unavailability of cold storage facility; lack of processing plant in the state etc.

CONCLUSIONS

There are several marketing agencies for the marketing of different fruits, ranging from pre-harvest contractors to wholesalers, and commission agents are present for marketing of fruits and vegetables in Bihar. Therefore while sale out the produce marketing risk is associated

to them. Contract sale helps the producers to avoid the risk. There are large number of intermediaries present between the producer and the final consumer, ranging from village merchants, small commission agents and dealers in villages. It clearly indicated that major part of share will goes to private trader as there is no organised and commodity specific market are available so far in our state. The most common channel were consists of producer-pre-harvest contractor-wholesaler/commission agents-retailer-consumer. Poor financial condition of farmers , higher marketing cost & lack of packaging facility followed by shortage of labour of both nature i.e. skill and unskilled during the peak marketing season are most common problems for marketing of all most all the produce in Bihar. To minimise post-harvest losses appropriate cold storage and knowledge of proper marketing is not available. The producers' share in wholesale price continues to be small (about 35 percent) with the major share going to market intermediaries as marketing cost, because of inefficient supply chains. Therefore, supply chain management may be a powerful tool in linking farmers to the markets for sustainable income generation. Accesses to markets and marketing information by smallholder farmers depending on agriculture in in Bihar have always been challenging. Factors such as poor road infrastructure, illiteracy, financial constraints, poor communication means and lack of access to information, all limited their access to markets. These smallholders depend on traditional means of communication and sell their produce at the farm gate and local markets. This has not been fruitful for these poor farmers as traders, intermediaries and other stakeholders in the chain take a large share of their produce. As a result, rural farmers remain poor and agriculture contributes little to their income, economy and welfare. The use of information and communication technologies (ICTs) is one approach to linking small farmers to the market.

RECOMMENDATIONS

It is important to bring markets under regulation and put them under the supervision of a well-represented market committee.

It is important to bring more numbers of buyers and sellers to the wholesale markets so as to encourage healthy competition

Improvements in market infrastructure such as storage (godown) facilities, cold storage, better loading and weighing facilities, proper stalls, better road links etc. would also be helpful in improving the marketing efficiency.

Improvement in cold chain facilities for marketing of fruits and vegetables is required.

Efforts to improve the transparency in the market operations through better supervision by the market committee would be another important factor in improving themarketing efficiency.

Improvement in marketing efficiency by improving the market information system by making available latest and extensive market information to all market participants through the use of internet facilities and other means of communication.

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