An analysis of Marketed Surplus and Price Spread of Cauliflower in S. Chotanagpur (Jharkhand) for Sustainable financial inclusion of Tribal Farmers

Shankar, Tara and Singh, K.M.

DAY-NRLM, Patna (Bihar), India, DRPCAU, Pusa, India

2016

An analysis of Marketed Surplus and Price Spread of Cauliflower in S. Chotanagpur(Jharkhand) for Sustainable financial inclusion of Tribal Farmers

Tara Shankar[1] and K. M. Singh[2],

Abstract

The study was undertaken to analyze marketed surplus and price spread for Cauliflower in S. Chotanagpur of Jharkhand. Cluster sampling techniques was used to select the sample villages and respondents. Primary data were collected by personal interview of respondents. Simple statistical tools were employed to accomplish different objectives of the study. The marketed surplus of the medium category of farms have slightly higher surplus than marginal, large and small categories of farms. Their relative proportion was 94.84 per cent, 94.51 per cent, 94.49 per cent and 94.48 per cent respectively of the total production. The share of producer in consumer rupee is high in channel were there are less number of intermediaries. The marketing cost incurred by wholesaler in different channels were estimated 5.01 per cent, 6.39 per cent and 7.88 per cent of the consumer price respectively and their corresponding net margins were 9.68 per cent, 9.61 per cent and 10.23 per cent of the price paid by the consumer.

Keywords: *Marketed Surplus, Cluster Sampling, Price Spread*

[1] Agriculture and NRM Expert, SLACC project, Lead technical support agency(WOTR) on behalf of MoRD (Govt of India), DAY-NRLM, Patna (Bihar) *E-mail: taraignou@gmail.com*

[2] Director, Extension Education, Dr. Rajendra Prasad Central Agricultural University, Pusa (Bihar) *E-mail: m.krishna.singh@gmail.com*

Introduction

The production of fruits and vegetables to farmers is of vital importance as it provides three to four times more cash income than cereals per hectare of land .The vegetable crops hold a great promise for accelerating income of the farmers. Realizing the importance of vegetable cultivation many farmers are diverting their resources towards vegetable crops. The production of vegetables being seasonal and face tremendous uncertainties on several counts.

Further, vegetables are extremely perishable in nature and, therefore, require speedy and efficient marketing. This gives rise to various problems to vegetable growers. High marketing cost, quantitative and qualitative losses at various stages, high level of price spread and unpredictable behavior of prices are some problems. Low marketed surplus, market imperfections and poor infrastructural facilities add to these problems. Therefore, in the backdrop of the situation it becomes worthwhile to conduct studies on marketing of vegetables so as to identify remedial measures for better management and to earn higher returns from vegetable crops.

Prasad (1993) conducted a study to identify the pattern and methods of sales and prices received by the vegetables growers in Jamshedpur and Ranchi markets of Bihar. Due to lack of adequate transport facility, small farmers usually prefer to sell their vegetables to the village intermediaries in Jamshedpur market. However, in Ranchi market the study found that co-operative marketing institution transact a substantially high proportion of vegetables. The study observed that higher marketing cost and large price spread was found due to high margins charged by the intermediaries on important vegetables. The study suggested development of market yard, storage, and transport facilities, so that efficient vegetable marketing can be attained.

Singh *et al.* (1994) had studied the production and marketing of hill vegetables in Himachal Pradesh and found that the producers' share of tomato and pea was 43.15 and 49.96 per cent respectively in the consumers' rupee. The study found that the marketing margins of wholesalers' were less than the retailers' margin, due to the fact that the retailers were noted to bear the major burden of losses and deterioration of quality of the produce.

Parmar *et al.* (1994) conducted and opinion survey regarding the marketing problems faced by vegetable growers of South Gujarat and revealed that spoilage and malpractices in weighing were the major problems. The study suggested the need for improvement in the marketing

system by regulating the marketing operations, establishment of efficient transportation system and co-operative marketing structure.

Kohli (2000) identified various problems of off-season vegetable growers in Himachal Pradesh. Some of the important problems are non-availability of reliable seeds, assured irrigation, timely supply of fertilizers and chemicals and high cost of packing material, etc. The study suggested the improvement of the production technology suitable varieties having resistance to insect pests and diseases, improving packing material and organized marketing of off-season vegetables.

Sharan and Singh (2002) examine the pattern of sales, marketing costs and margins for kinnow in Rajasthan. They found in their study that the producer's share in consumer's rupee is more in direct sale as compared to contract sale, due to elimination of pre-harvest contractor. Marketing cost and margin indicate that producer's share in consumer's rupee may be increased by decreasing the number of intermediaries in the existing marketing system. The study was attempted to accomplish following two objectives:

1) To estimate marketed surplus of Cauliflower on different farms categories.

2) To determine the price spread for Cauliflower in different farms categories.

Methodology

The present study has been conducted in Ranchi District of Jharkhand through using stratified random sampling method among 150 vegetable cultivators which was selected randomly from 6 villages (25 farmers in each village) of three blocks namely Kanke, Bero and Mandar (2 villages in each block). The sample farmers were classified into marginal, small, medium and large farmers. The data received from the sample farmers were collected through personal interview with the help of pre-tested schedules.

A cluster of two villages was selected from each block/division following cluster sampling techniques. List of vegetable (cauliflower) growers in sample village were prepared and arranged in order of area under vegetable. From each division 50 vegetable growers, spread equally in sample villages, were selected randomly to make a sample size of 150 farmers. The respondent were then classified into marginal (<1 ha.), small (1-2 ha.), medium (2-4 ha.) and large (> 4 ha.) categories as per the area under vegetable crop. Primary data were collected by personal interview following survey method approach. Simple statistical tools averages, percentage were employed to accomplish the different objectives of the study. In order to estimate marketed surplus of Cauliflower on different categories of farms, following formula was used:

MS=TP-TR,

Where MS = Marketed surplus,

TP= Total production,

TR= Total requirement (Home consumption, seed, gifts, kind payments, etc.)

The marketed surplus has been estimated as follows:

MT= MS- Loss incurred at farm during transit

Where, MT = Marketed surplus, MS= Marketable surplus

The marketing cost incurred by vegetable growers was computed by using following formula:

C= CF + Cmi,

Where C = Total Cost,

CF= Cost paid by farmers

Cmi = Cost incurred by middle man

In order to calculate marketing margins following formula was used:

Ami = PRi – (Ppi+ Cmi), Where

Ami = Absolute margin of middleman,

PRi = Total value of receipts per quintal (sales price),

Ppi = Purchase value of goods per quintal (purchase price)

Cmi = Cost incurred on marketing per quintal, In order to estimate producer's share in consumer rupee following formula was used:

PS = (PF÷PR) X 100 Where,

PS = Producer's share in consumer's rupee,

PF = Price received by farmer/producer per kg

PR = Retail price (consumer's price) per kg

Result & Discussion:

Table 1 presents the per hectare production, marketable surplus of Cauliflower on sampled farms in study area. The table reveals that the marginal farms have much higher per hectare production than large, small and medium farms. It was 300.05 quintals, 290.91 quintals, 280.08 quintals and 271.79 quintals per hectare respectively.

The marketable surplus under this crop was reported as high as more than 97 per cent of the total production and medium farms have slightly higher marketable surplus than small, large and marginal farms categories which is because of the higher home consumption made by the

marginal, small and large farms as compared to medium farms. As far as marketed surplus is concerned, the medium category of farms have slightly higher surplus than marginal, large and small categories of farms. Their relative proportion was 94.84 per cent, 94.51 per cent, 94.49 per cent and 94.48 per cent respectively of the total production.

Table 1: Marketable and Marketed Surplus of Cauliflower on Sampled Farms

Sl No	Particular	Farm Size				
		Marginal Farms	Small Farms	Medium Farms	Large Farms	All Farms
1	Total Production	300.05 (100)	280.08 (100)	271.79 (100)	290.91 (100)	285.70 (100)
2	Utilization					
	(i)Home Consumption	5.25 (1.74)	4.90 (1.75)	3.79 (1.39)	4.82 (1.66)	4.69 (1.64)
	ii)Gifts and others	2.96 (0.98)	2.58 (0.92)	3.01 (1.10)	2.98 (1.02)	2.88 (1.01)
3	Marketable Surplus	291.84 (97.26)	272.6 (97.32)	264.99 (97.49)	283.11 (97.31)	278.13 (97.35)
4	Losses	8.28 (2.75)	7.98 (2.84)	7.21 (2.65)	8.21 (2.82)	7.92 (2.77)
5	Marketed Surplus	283.56 (94.51)	264.62 (94.48)	257.78 (94.84)	274.9 (94.49)	270.21 (94.58)

Note: Figures in parentheses represents percentage of total production

The following three marketing channels were identified in the study area for marketing of the Cauliflower.

Channel- I:
Producer → Village Traders → Commission Agents/Wholesaler → Retailer → Consumers
Channel- II:
Producer → Commission Agents → Wholesaler → Retailer → Consumer
Channel- III:
Producer → Wholesaler → Retailer → Consumer

Price spread of Cauliflower in Ranchi market through different channels of trade has been presented on Table-2. It was observed from the table, the producer who received higher price (Rs. 862.25) for their produce who opt channel-III followed by channel- II (Rs. 830.52) and III (Rs. 754.06). The respective share of producer in consumer rupee was 56.36 per cent, 54.29 per cent and 49.29 per cent for channels- III, II and I of Cauliflower in Ranchi market. The marketing cost paid by the producer through channel channels- I, II and III were estimated to be 4.30 per cent, 10.21 per cent and 4.03 per cent of the consumer price respectively. The table

indicates that the marketing cost incurred by wholesaler in channels- I, II and III were 5.01 per cent, 6.39 per cent and 7.88 per cent of the consumer price respectively and their corresponding net margins were 9.68 per cent, 9.61 per cent and 10.23 per cent of the price paid by the consumer. The marketing cost incurred by retailer worked out to be Rs. 64.32 and the net marketing margin to be Rs. 249.15 which was 4.21 per cent and 16.29 per cent respectively of the consumer rupee.

The study reveals that the marginal farms have much higher per hectare production than large, small and medium farms. It was 300.05 quintals, 290.91 quintals, 280.08 quintals and 271.79 quintals per hectare respectively. The marketable surplus under this crop was reported as high as more than 97 per cent of the total production and medium farms have slightly higher marketable surplus than small, large and marginal farms categories which is because of the higher home consumption made by the marginal, small and large farms as compared to medium farms. The Cauliflower was dispatched through all the four channels available for marketing of fresh vegetables by the sample farms in the study area. In case of Cauliflower more than 86 per cent produce of the total marketed surplus was routed through channel-II and III.

Table 2: Marketing Cost, Margin and Producer's Share in Consumer rupees of Cauliflower in Ranchi Market through Different Channel of Trade

Sl No	Particulars	Channel-I	Channel-II	Channel-III
1	Net Price Received by the Farmer	754.06 (49.29)	830.52 (54.29)	862.25 (56.36)
2	Marketing Cost Incurred by Framer	65.58 (4.30)	156.15 (10.21)	61.46 (4.03)
3	Village Trader's Purchase Price	819.86 (53.59)	-	-
4	Marketing Cost Incurred by Village Trader's	76.58 (5.01)	-	-
5	Net Margin of Village Trader's	64.32 (4.21)	-	-
6	Wholesaler's Purchase Price	960.65 (62.81)	971.22 (63.50)	923.91 (60.39)
7	Marketing Cost Incurred by Wholesaler's	76.51 (5.01)	97.65 (6.39)	120.42 (7.88)
8	Net Margin of Wholesaler's	148.02 (9.68)	147.01 (9.61)	156.45 (10.23)
9	Retailer's Purchase Price	1185.65 (77.50)	1185.65 (77.50)	1185.65 (77.50)
10	Marketing Cost Incurred by Retailer's	64.32 (4.21)	64.32 (4.21)	64.32 (4.21)

11	Net Margin of Retailers	249.15 (16.29)	249.15 (16.29)	249.15 (16.29)
12	Consumer's Price	1530 (100)	1530 (100)	1530 (100)
Producer's Share in Consumer rupee (in %)		**49.29**	**54.29**	**56.36**

Note: Figure in parentheses represents percentage of consumer price in market

The proportionate share of marginal, small, medium and large farms in channel-II was 62.33 per cent, 66.29 per cent, 63.64 per cent and 61.29 per cent respectively and in channel-III their respective share was 23.36 per cent, 19.78 per cent, 23.29 per cent and 26.11 per cent of their respective marketed surplus of the produce. It was also observed from study that the producer who received higher price (Rs. 862.25) for their produce who opt channel- III followed by channel- II (Rs. 830.52) and III (Rs. 754.06). The respective share of producer in consumer rupee was 56.36 per cent, 54.29 per cent and 49.29 per cent for channels- III, II and I of Cauliflower in Ranchi market.

Conclusion

The study showed that the marginal farms have much higher per hectare production than large, small and medium farms. It was 300.05 quintals, 290.91 quintals, 280.08 quintals and 271.79 quintals per hectare respectively in case of Cauliflower in study area. As far as marketed surplus is concerned, the medium category of farms have slightly higher surplus than marginal, large and small categories of farms. Their relative proportion was 94.84 per cent, 94.51 per cent, 94.49 per cent and 94.48 per cent respectively of the total production. There are three main prevailing channels of marketing via which maximum marketed surplus were disposed in study area. The share of producer in consumer rupee is high in channel were there are less number of intermediaries. The marketing cost incurred by wholesaler in different channels were estimated 5.01 per cent, 6.39 per cent and 7.88 per cent of the consumer price respectively and their corresponding net margins were 9.68 per cent, 9.61 per cent and 10.23 per cent of the price paid by the consumer.

However the present study suffers from some limitations too as it was based on data collected for one year crop only (that is, crop year 2009-10), which may not necessarily holds true for other periods as well. To take the case of seasonal variation data should have been for three years at least. The data used here are collected by survey method through personal interview, face to-face association with farm respondents and observation method at a single point of time. The

fresh produce farmers hardly maintain any record of output, input used and money spends on different farm operation and on purchase packing material etc. Although, every efforts has been made to extract correct and accurate information yet possibilities of some false information on the part of respondent could not be ruled out.

References:

Abhay Kumar, R.K.P. Singh, K.M. Singh, R.C. Bharati, Shiv Jee, B.P. Bhatt.2016. Changes in structure of labor participation and wage dynamics in Jharkhand. http://dx.doi.org/10.13140/RG.2.1.1743.1443

Abhay Kumar, R.K.P. Singh, K.M. Singh, R.C. Bharati, Shiv Jee, B.P. Bhatt.2016. Agricultural transformation in VDSA villages in Jharkhand. http://dx.doi.org/10.13140/RG.2.1.3316.0086

Bart,Minten, K.M Singh, and R.Sutradhar, 2013. Branding and agricultural value chains in developing countries: Insights from Bihar (India). *Food Policy (Elsevier, The Netherland),* 38 (Feb 2013): 23-34Chauhan R. S. and Singh J. N (1998), vegetable Marketing Systems in Azamgarh district of U.P. Indian Journal of Agricultural Economics, 53(3), p 413.

Gupta S.P and Rathor N. S (1998), marketing of Vegetables in Raipur District of Chhattisgarh State: An Economic Analysis. Indian Journal of Agricultural Economics, 53 (3), p 393.

Kasar D.V., Ambre B.S., Raut, R.C. and Rasane V.S (1994),marketing of Bittergourd in Ahmednagar district of Maharashtra.Indian Journal of AgriculturalMarketing,8(2),pp246–249.

Kohli, U.K (2000), off-season Vegetable Production: Perspective and Strategies, L.R. Verma (ed.), Natural Resources and Development in Himalya, Malhotra Publishing House, New Delhi, pp 184-208.

M.S.Meena, K.M.Singh, R.K.P.Singh, Anjani Kumar, Abhay Kumar, and V. P. Chahal. 2017. Inequality and determinants of income among rural households in tribal dominated areas of Jharkhand. *Indian Journal of Agricultural Sciences*. 87(1):92-96.

M.S.Meena and K.M.Singh. 2009. Farmer's attitude towards post-harvest aspects of horticultural crops. *Indian Research Journal of Extension Education*, 9 (3):15-19.

Parmar, G.D.; Khunt, K. A.; and Desai, D.R (1994), marketing of Vegetables in South Gujarat, Indian Journal of Agricultural Marketing, 8(2), pp 258-263.

Prasad, A (1993), vegetable marketing: A Case Study of two Agricultural Markets of Bihar, Bihar Journal of Agriculture Marketing, 2(2).

Sharan, S.P. and Singh, V.K (2002), marketing of Kinnow in Rajasthan, Indian Journal of Agricultural Marketing, XLV(3), pp 2-4.

Shiyani, R. L. Kuchhadiya, D. B. and Patat M. V (1980), marketing of vegetables in South Saurashtra Zone of Maharashtra. Indian Journal of Agricultural Marketing 12(1 & 2), pp 156–160.

Singh, R.; Sharma, T.R.; and Sharma, K (1994), production and Marketing of Hill Vegetables: A Study of Himachal Pradesh, Indian Journal of Agricultural Marketing 37(2), pp 23-28.

Note: This paper has been drawn from thesis submitted by the first author for award of PhD degree to Tilka Manjhi Bhagalpur University, Bhagalpur (Bihar).