



Hill Agriculture: Marketing of Vegetables in Nainital District, Uttarakhand

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ABSTRACT

Though India has emerged as a major producer of horticultural crops and the share of horticulture in the economy has been increasing, there is still a lot of scope in harnessing the potential of this sector. Sectors like horticulture (both fruit and vegetable cultivation) have a comparative advantage in the hilly region due to its agro-climatic conditions. The study was conducted in Dhari block of Nainital district, Uttarakhand. Both primary and secondary data was collected for the study purpose. Four vegetables covering maximum area under vegetable cultivation was selected. On this basis, pea, cabbage, french bean and tomato are selected for the study. There is only one major marketing channel prevailing in the study area, Haldwani mandi itself and same was used by majority of the sample farmers for selling their produce. Channel-I was found out to be the major marketing channel, as 89.74 per cent of the total farmers growing pea, 90.62 per cent of the total farmers growing cabbage and 89.28 per cent of the total farmers growing tomato were selling their produce through channel-I.

1. Introduction

India is endowed with a remarkably heterogeneous area characterized by a great diversity of agro climatic zones, allowing for production of a variety of horticultural crops such as fruits, vegetables, flowers, spices, plantation crops, root and tuber crops, and medicinal and aromatic crops. Horticulture exports have helped the country to earn Rs 14,000 crore in 2011-12. Horticulture accounts for 30% of India's agricultural GDP from 8.5% of the cropped area. (Economic Survey 2015-16). Though India has emerged as a major producer of horticultural crops and the share of horticulture in the economy has been increasing, there is still a lot of scope in harnessing the potential of this sector. Fruits and vegetables account for nearly 90% of the total horticulture production in the country. India is now the second largest producer of fruits and vegetables in the world and is the leader in several horticultural crops,

namely mango, banana, papaya, cashew nut, areca nut, potato, and okra. (Horticultural Statistics at a Glance 2015). The production share of vegetables ranked the highest among the Horticultural crops followed by fruits and plantation crops. The trend for production for vegetables shows around 156.3 million tonnes production in 2012-13 and mark continuously increasing trend. Uttarakhand is primarily a mountainous state with only about ten percent of its total geographical area in the plains. Further, with more than three-fourths (78 percent) of its total population dependent on agriculture for livelihood. Agriculture is an important sector in state's economy and contributes 15.5% in Gross State Domestic Product. The yield from the field crops is not very high in the hilly areas of the state. This is largely due to the mountainous terrain that makes it impossible to adopt mechanized modern agriculture in these areas. Thus, these crops are produced in the hills mostly to fulfil the subsistence needs of the farmers. Sectors like horticulture (both fruit and vegetable cultivation) have a comparative advantage in the region due to its agro-climatic conditions.

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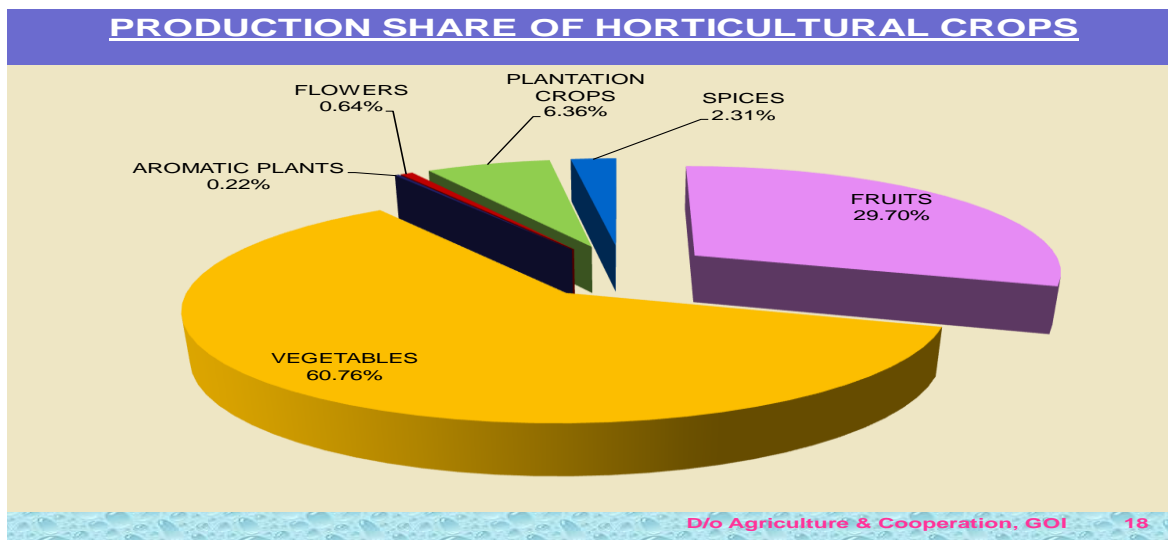


Figure 1. Production share of Horticultural crops in India
Source: D/o Agriculture & Cooperation, GOI

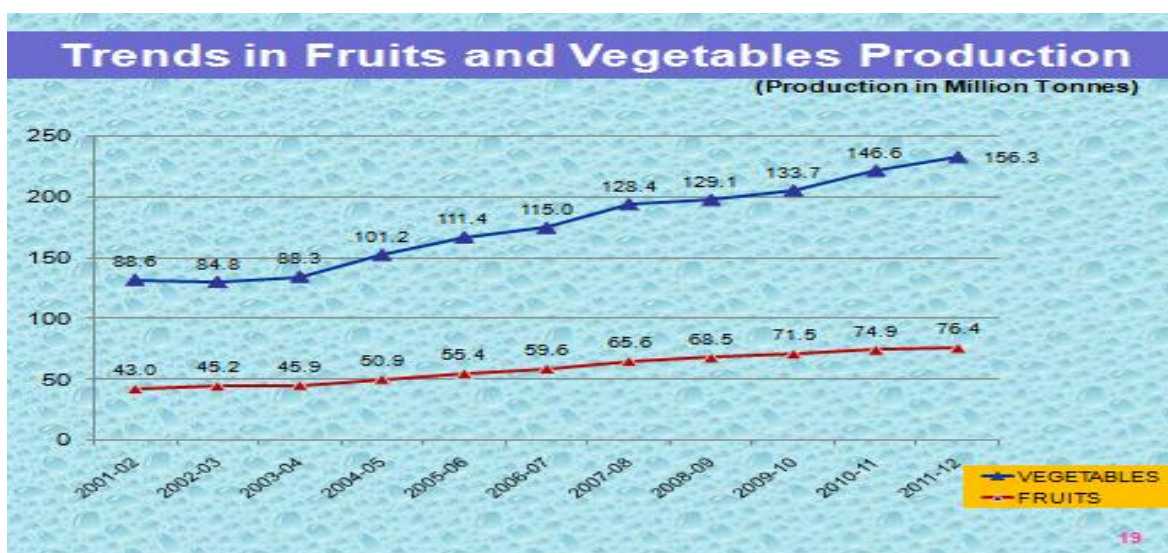


Figure 2. Trends in Fruits and vegetables production in India
Source: D/o Agriculture & Cooperation, GOI

The various constraints faced by the vegetable growers are their poor resource base and the resources at the disposal of the farmers are allocated in accordance of the importance and suitability of enterprises on the farms. Productivity of vegetable crops is unable to reach its optimum level. Low productivity may be attributed to poor infrastructure, poor irrigation, small and fragmented land holdings, and low investment capacity of the farmers, fragile ecosystem and inaccessibility to technology. Therefore, it is not enough just to produce a vegetable; it must be produced efficiently and marketed successfully. According to an estimate the price that a vegetable producer receives is 30-35% of the price that consumer pays, which is indicative of high marketing margins and costs. At one hand the length of marketing channels and the extent of marketing functions

performed such as transportation, packaging, storage and warehousing add to cost of marketing and price spread, and at the other, the market imperfections provide disincentives to the growers in vegetable marketing. The perishable nature of the vegetables also results in inability on the part of producers to manage supply in assembling markets.

Objectives

- To examine the marketing pattern of vegetable growers.
- To estimate marketing cost, margins and price spread in vegetable marketing through different channels.

2. Methodology

The proposed study was conducted in Dhari block of Nainital district. Both primary and secondary data was collected for the study purpose. Selection of vegetables: Four vegetables covering maximum area under vegetable cultivation was selected. On this basis, pea, cabbage, french bean and tomato are selected for the study. Around 60 farmers was selected from the 4 villages with the restriction that 15 farmers represent each vegetable. To attain the first objective *i.e.* the disposal pattern of vegetable growers, Simple descriptive analysis was used. To estimate marketing cost, margins and price spread in vegetable marketing through different channels. Total cost of marketing was worked out by summing up the cost incurred by producer and middle man on different marketing function.

- Marketing cost(C) = $C_F + C_{m1} + C_{m2} + C_{m3} + \dots C_{mi}$

Where C is Total cost of marketing of the vegetable.

C_F is Cost paid by the producer from time the leaves the farm till he sells.

C_{mi} is Cost incurred by the i^{th} middlemen in the process of buying and selling the product.

- Similarly, Producers share in consumer's rupee can be worked out as percentage of price received by producer to the price paid by the consumer.

$$P_s = (P_f / P_r) * 100 \quad \text{where} \quad P_f = P_A - C_F$$

- Where P_s is Producers share in Consumers rupee
- P_f is Producers Price
- P_r is Retail price
- P_A is Wholesale price
- C_F is Marketing cost incurred by vegetable growers.

Absolute margin of i^{th} middlemen (A_{mi}): $A_{mi} = P_{Ri} - (P_{Pi} - C_{mi})$

Where P_{Ri} = Total value of receipts per unit (sale price)

P_{Pi} = Purchase value of goods per unit (purchase price)

C_{mi} = Cost incurred on marketing per unit.

Accordingly, Price spread was tabulated for marketing channel.

3. Results

A. Marketing Pattern of Vegetables

The present section deals with presentation and discussion of results pertaining to marketing channels of vegetables prevailing in the study area. In fact, there is only one major marketing channel prevailing in the study area, Haldwani mandi itself and same was used by majority of the sample farmers for selling their produce. Table 1

shows the distribution of sample farmers using different channels for marketing of vegetables. The observed channels for disposing off the produce were as follows:

Channel-I : Producer- wholesaler-cum-commission agent (WCA) –retailer -consumer

Channel-II : Producer –retailer -consumer

Channel-III : Producer -wholesaler-cum-commission agent (WCA) –outside the district

Out of three different channels operating in the marketing of vegetables, Channel-III was operating outside the Nainital district. Hence, third channel was not included in the study.

Therefore, it is worth mentioning here that analysis was performed for channel-I and channel-II only.

It is evident from the Table1 that sample farmers were selling their produce either through marketing channel-I or through marketing channel-II. Channel-I was found out to be the major marketing channel, as 89.74 per cent of the total farmers growing pea, 90.62 per cent of the total farmers growing cabbage and 89.28 per cent of the total farmers growing tomato were selling their produce through channel-

I. Further, it can be seen from Table 1 that this percentage was even higher in bean as only 8 per cent of the total farmers sold their produce through channel-II. Method of direct selling to the retailer was less pronounced marketing practice in the study area. In fact, selling of produce through producer-wholesaler-cum-commission agent-retailer-consumer was the most common marketing channel for marketing of the produce.

Table 1. Marketing channels in different vegetables

Marketing channel	Pea	Cabbage	Tomato	Bean
Channel-I	35 (89.74)	29 (90.62)	25 (89.28)	23 (92)
Channel-II	4 (10.26)	3 (9.38)	3 (10.72)	2 (8.00)
Total	39	32	28	25

Note: Figures in the parenthesis are percentage to the total number of farmers

2. Marketing Cost, Marketing Margins, Price Spread and Producer's Share in Consumer's Rupee in Disposal of Vegetables This describes the various aspects of marketing of vegetables like marketing cost, marketing margins, price spread and producer's share in consumer's rupee. The price spread in different marketing channels prevailing in the movement of pea, cabbage, tomato and bean from producer to consumer in Dhari block of Nainital district has been discussed.

B. Price spread in channel-I: Producer- wholesaler-cum-commission agent (WCA) – retailer - consumer

Pea :

The results of estimated price spread for pea in channel-I is given in Table 2. It reveals that the marketing cost incurred by the producer, WCA and retailer in marketing of one quintal pea was Rs. 214.39, Rs. 3.22 and Rs. 104.56 which accounted for 14.78, 0.22 and 7.21 per cent to consumer's rupee, respectively. Absolute marketing margin realized by wholesaler-cum-commission agent was found out to be Rs. 81.17 per quintal, whereas, per quintal margins *i.e.* absolute marketing margin, per cent margin and mark up margin for retailer was estimated at Rs. 290.56, 20.03 per cent and 27.54 per cent, respectively. The total price spread for pea in this channel was found out to be 42.04 per cent. It means that in each rupee paid by the consumer, producer realized 57.96 parts.

Table 2. Price spread for pea in channel-I (Rs/Qtl)

S. No.	Particulars	Pea	Percentage to consumer's rupee
1.	Marketing cost incurred by producer	214.39	14.78
2.	Price received by producer	1054.88	72.75
3.	Net price realized by producer	840.49	57.96
4.	Marketing cost by WCA	3.22	0.22
5.	WCA's commission charge	84.39	5.82
6.	WCA margins	81.17	5.59
7.	Retailer's purchase price	1054.88	72.75
8.	Marketing cost incurred by retailer	104.56	7.21
9.	Net price borne by retailer	1136.88	78.41
10.	Retailer's sale price	1450	
11.	Retailer's margin		
a.	Absolute margin	290.56	20.03
b.	Per cent margin (%)	20.03	
c.	Mark up margin (%)	27.54	
12.	Consumer's purchase price	1450	
13.	Price spread (%)	42.04	
14.	Producer's share in consumer's rupee (%)	57.96	

Cabbage

Price spread for cabbage in channel-I is presented in Table 3 and the percentage share of various costs to consumer's rupee is also given in the table. Table 3 reveals that per quintal marketing cost incurred by producer, WCA and retailer was Rs. 173.76, Rs. 0.49 and Rs. 85.59 which accounted for 23.01, 0.06 and 11.38 per cent to consumer's rupee, respectively. Table 5.4.2 further reveals that absolute margin realized by WCA was Rs. 43.27 per quintal and that of retailer was Rs. 122.10 per quintal. The total price spread for cabbage in this channel was 50.56 per cent and producer's share in consumer's rupee was 49.44 per cent.

Table 3. Price spread for cabbage in channel-I (Rs/Qtl)

S. No.	Particulars	Cabbage	Percentage to consumer's rupee
1.	Marketing cost incurred by producer	173.76	23.01
2.	Price received by producer	547.01	72.45
3.	Net price realized by producer	373.25	49.44
4.	Marketing cost by WCA	0.49	0.06
5.	WCA's commission charge	43.76	5.79
6.	WCA margins	43.27	5.73
7.	Retailer's purchase price	547.01	72.45
8.	Marketing cost incurred by retailer	85.89	11.38
9.	Net price borne by retailer	629.01	83.31
10.	Retailer's sale price	755	
11.	Retailer's margin		
a.	Absolute margin	122.10	16.17
b.	Per cent margin (%)	16.17	
c.	Mark up margin (%)	22.32	
12.	Consumer's purchase price	755	
13.	Price spread (%)	50.56	
14.	Producer's share in consumer's rupee (%)	49.44	

Tomato

Table 4 shows the price spread for tomato in channel-I. The marketing cost of producer, WCA and retailer as depicted in the table was Rs. 288.97, Rs. 1.31 and Rs. 90.97 per quintal contributing 21.33, 0.09 and 6.71 per cent to the consumer's rupee, respectively. The absolute margin realized by the WCA accounted for 5.68 per cent to the consumer's rupee. Further, absolute margin, per cent margin and mark up margin were found out to be Rs. 301.81 per quintal, 22.27 and 31.36 per cent, respectively. Price spread was 50.31 per cent and producer's share in consumer's rupee turned out to be 49.69 per cent.

Table 4. Price spread for tomato in channel-I (Rs/Qtl)

S. No.	Particulars	Tomato	Percentage to consumer's rupee
1.	Marketing cost incurred by producer	288.97	21.33
2.	Price received by producer	962.22	71.01
3.	Net price realized by producer	673.25	49.69
4.	Marketing cost by WCA	1.31	0.09
5.	WCA's commission charge	76.97	5.68
6.	WCA margins	75.66	5.58
7.	Retailer's purchase price	962.22	71.01
8.	Marketing cost incurred by retailer	90.97	6.71
9.	Net price borne by retailer	1044.22	77.06
10.	Retailer's sale price	1355	
11.	Retailer's margin		
a.	Absolute margin	301.81	22.27
b.	Per cent margin (%)	22.27	
c.	Mark up margin (%)	31.36	
12.	Consumer's purchase price	1355	
13.	Price spread (%)	50.31	
14.	Producer's share in consumer's rupee (%)	49.69	

Bean

The results of estimated price spread for bean in channel-I are shown in Table 5. Table 5 indicates that per quintal marketing cost in channel-I for producer, WCA and retailer turned out to be Rs. 221.63, Rs. 1.63 and Rs. 94.95 contributing 13.54, 0.09 and 5.80 per cent to the consumer's rupee, respectively. Here absolute margin for WCA and retailer was Rs. 90 and Rs. 395.6 per quintal, respectively. The per cent margin was 21.18 per cent and mark up margin was 34.53 per cent for retailer in channel-I. Total price spread turned out to be 43.53 per cent and producer's share in consumer's rupee was 56.47 per cent.

Table 5. Price spread for bean in channel-I (Bean) (Rs/Qtl)

S. No.	Particulars	Bean	Percentage to consumer's rupee
1.	Marketing cost incurred by producer	221.63	13.54
2.	Price received by producer	1145.43	70.01
3.	Net price realized by producer	923.80	56.47
4.	Marketing cost by WCA	1.63	0.09
5.	WCA's commission charge	91.63	5.60
6.	WCA margins	90.00	5.50
7.	Retailer's purchase price	1145.45	70.01
8.	Marketing cost incurred by retailer	94.95	5.80
9.	Net price borne by retailer	1227.45	75.03
10.	Retailer's sale price	1636	
11.	Retailer's margin		
a.	Absolute margin	395.6	24.18
b.	Per cent margin (%)	24.18	
c.	Mark up margin (%)	34.53	
12.	Consumer's purchase price	1636	
13.	Price spread (%)	43.53	
14.	Producer's share in consumer's rupee (%)	56.47	

2. Price spread in channel-II: Producer -retailer – Cabbage: consumer

Pea :

Price spread for pea in channel-II is detailed in Table 6. Per quintal marketing cost incurred by producer (Rs. 96.67) and retailer (Rs. 53.27) for pea in channel-II was found to be lower than in channel-I. Absolute margin realized by the retailer was Rs. 420.33 per quintal accounting for 28.02 per cent to consumer's rupee. Similarly, per cent margin and mark up margin was 28.02 per cent and 40.95 per cent, respectively. Producer's share in consumer's rupee for pea in channel-II turned out to be higher than in channel-I *i.e.* 61.98 per cent.

Table 6. Price spread for pea in channel-II (Rs/Qtl)

S. No.	Particulars	Pea	Percentage to consumer's rupee
1.	Marketing cost incurred by producer	96.67	6.44
2.	Price received by producer	1026.4	68.42
3.	Net price realized by producer	929.73	61.98
4.	Price paid by retailer	1026.4	68.42
5.	Marketing cost incurred by retailer	53.27	3.55
6.	Net price borne by retailer	1079.67	71.98
7.	Retailer's sale price	1500	
8.	Retailer's margin		
a.	Absolute marketing margin	420.33	28.02
b.	Per cent margin (%)	28.02	
c.	Mark up margin (%)	40.95	
9.	Consumer's purchase price	1500	
10.	Price spread (%)	38.02	
11.	Producer's share in consumer's rupee (%)	61.98	

Price spread for cabbage is shown in Table 7 below. Per quintal marketing cost was estimated to be Rs. 96.67 and Rs. 45.02 for producer and retailer, respectively. Absolute margin realized by the retailer accounted for 27.35 per cent to the consumer's rupee. Price spread in cabbage in channel-II was 45.18 per cent. Producer was getting 54.82 part of each rupee paid by consumer.

Table 7. Price spread for cabbage in channel-II (Rs/Qtl)

S. No.	Particulars	Cabbage	Percentage to consumer's rupee
1.	Marketing cost incurred by producer	96.67	12.16
2.	Price received by producer	532.5	66.98
3.	Net price realized by producer	435.83	54.82
4.	Price paid by retailer	532.5	66.98
5.	Marketing cost incurred by retailer	45.02	5.66
6.	Net price borne by retailer	577.52	72.64
7.	Retailer's sale price	795	
8.	Retailer's margin		
a.	Absolute marketing margin	217.48	27.35
b.	Per cent margin (%)	27.35	
c.	Mark up margin (%)	40.84	
9.	Consumer's purchase price	795	
10.	Price spread (%)	45.18	
11.	Producer's share in consumer's rupee (%)	54.82	

Tomato:

Price spread for tomato in channel-II is presented in Table 8. A perusal of the table reveals that per quintal marketing cost of producer and retailer was found out to be Rs. 172.00 and Rs. 46.77, accounting for 10.87 and 2.96 per cent to consumer's rupee. Further, the table shows that the margin received by the retailer *i.e.* absolute marketing margin, per cent margin and mark up margin were Rs. 456.06 per quintal, 28.82 and 42.24 per cent, respectively. Price spread in the channel turned out to be 42.64 per cent, whereas, producer's share in consumer's rupee (57.36 per cent) was higher for tomato in channel-II than in channel-I.

Table 8. Price spread for tomato in channel-II (Rs/Qtl)

S. No.	Particulars	Tomato	Percentage to consumer's rupee
1.	Marketing cost incurred by producer	172.00	10.87
2.	Price received by producer	1079.67	68.23
3.	Net price realized by producer	907.67	57.36
4.	Price paid by retailer	1079.67	68.23
5.	Marketing cost incurred by retailer	46.77	2.96
6.	Net price borne by retailer	1126.44	71.18
7.	Retailer's sale price	1582.50	
8.	Retailer's margin		
a.	Absolute marketing margin	456.06	28.82
b.	Per cent margin (%)	28.82	
c.	Mark up margin (%)	42.24	
9.	Consumer's purchase price	1582.50	
10.	Price spread (%)	42.64	
11.	Producer's share in consumer's rupee (%)	57.86	

Bean :

The results of estimated price spread for bean in channel-II are presented in Table 9. A perusal of the table reveals that marketing cost incurred by producer accounted for 4.93 per cent to consumer's rupee. Table further indicates the margins of retailer turned out to be Rs. 538.51 per quintal absolute margin, per cent marketing margin was 27.44 per cent and mark up margin 39.15 per cent. The total price spread in this channel was found to be 34.82 per cent. In this channel the per cent share of producer in consumer's rupee was 65.18. It means that in each rupee paid by the consumer, producer realized 65.18 parts.

Table 9. Price spread for bean in channel-II (Rs/Qtl)

S. No.	Particulars	Bean	Percentage to consumer's rupee
1.	Marketing cost incurred by producer	96.67	4.93
2.	Price received by producer	1375.5	70.11
3.	Net price realized by producer	1278.83	65.18
4.	Price paid by retailer	1375.5	70.11
5.	Marketing cost incurred by retailer	47.99	2.45
6.	Net price borne by retailer	1423.49	72.55
7.	Retailer's sale price	1962	
8.	Retailer's margin		
a.	Absolute marketing margin	538.51	27.45
b.	Per cent margin (%)	27.45	
c.	Mark up margin (%)	39.15	
9.	Consumer's purchase price	1962	
10.	Price spread (%)	34.82	
11.	Producer's share in consumer's rupee (%)	65.18	

Conclusion

There is only one major marketing channel prevailing in the study area, Haldwani mandi itself and same was used by majority of the sample farmers for selling their produce. Channel-I was found out to be the major marketing channel, as 89.74 per cent of the total farmers growing pea, 90.62 per cent of the total farmers growing cabbage and 89.28 per cent of the total farmers growing tomato were selling their

produce through channel-I. The favourable climatic condition of Nainital, in general offers vast potential for the development of vegetable crops. But there is a need to tap this potential so that production will be increased and vegetable growers will be benefitted. Production and marketing constraints are discouraging the producers to boost their production. The producers are facing hefty problems in producing their produce. The price spread, marketing margin are way to up high in all four vegetable types.

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