Marketing Strategies In Apple Industry – An Empirical Study In Himachal Pradesh And Jammu & Kashmir

** Dr. Abdul Rauf*
*** Sajad A. Saraf*

INTRODUCTION

Apple (Malus pumila) is commercially the most important temperate fruit and is fourth among the most widely produced fruits in the world after banana, orange and grape. Apple is widely grown in the temperate regions of the world, and in the year 2007-08, the world apple production was estimated at 6.35 crore tonnes.China ranks first in the matter of apple production, accounting for nearly 36 per cent of global production followed by United states - 6.65 per cent, Turkey - 4.25 per cent, Poland - 4.13 per cent, Iran - 4.01 per cent, France - 3.64 per cent and, Italy - 3.31 per cent. The average share of Indian apple production based on 2007-08 data was 2.50 per cent and ranked 10th among the apple producing countries of the world. At present, India has achieved a production potential of 17.39 lakh tonnes annually. During the period 1973-74 to 2007-08, apple production in India recorded a growth of 2.42 per cent per annum. Presently, apple occupies 4.8 per cent of area under total fruits and contributes to 3.5 per cent towards total fruit production in India. In India, the production of apple is mainly confined to Jammu and Kashmir, Himachal Pradesh, Uttarakhand, Arunachal Pradesh, Nagaland and Sikkim. However, Himachal Pradesh and Jammu and Kashmir are the most important states, together accounting for 81 per cent of the total area and 92.63 per cent of the production in the country. In Himachal Pradesh, almost 92000 hectares of land is under apple production.80 per cent of the people in the state are directly or indirectly associated with this business. The apple in Himachal Pradesh alone accounts for more than 46.50 percent of area and 73.77 percent of production of all fruits grown in the state. In Jammu & Kashmir, the area under fruit cultivation has increased significantly- from 45,900 hectare to 1,11,814 hectares during period 2007-08. Apple occupied 44.10 percent of area and 90 percent of production of total fruits in the state. Kashmir is major apple-producing region of the country. It is the mainstay of the local economy with lakhs of rural people eking out their livelihood from this industry.

OBJECTIVES OF THE STUDY

The overall aim of the study is to analyze production and marketing states of apple in both Himachal Pradesh & Jammu and Kashmir. The major objectives of the study of the study were :

- To study the production and marketing efficiency in apple farming.
- To study the production and marketing problems of the apple farmers and suggest possible remedial measures.

METHODOLOGY

To meet the objectives of the present study, both primary as well as secondary data were collected. The primary data on cost of production, yield, marketable or marketed surplus, marketing costs, mode of transportation and problems faced by the growers in various aspects of production and marketing were collected on well designed pre-tested schedules by adopting a personal interview method from the selected households and traders in the study area and markets respectively during the year 2006-07 and 2007-08.For evaluating the economic efficiency of resources, Apple production function was estimated for per hundred bearing apple plants to measure returns.

MARKETABLE AND MARKETED SURPLUS

The Marketable and Marketed surplus of apple has been worked as follows:

* *Assistant Professor (Agricultural Economics),* Regional Research Station & Faculty of Agriculture, SKUAST-K, Wadura Sopore, Jammu & Kashmir - 193201. E-mail: raufjk@gmail.com
** *Assistant Professor (Agricultural Economics),* Regional Research Station & Faculty of Agriculture, SKUAST-K, Wadura Sopore, Jammu & Kashmir - 193201. E-mail: sajad.saraf@rediffmail.com.

Ms : T_p - C_h - Ck

Where,

M_s = Marketable Surplus

T_p = Total production worked out after deducting spoiled or diseased produce.

C_h = Home consumption.

C_k = Gift and kind payment.

M_t = Ms - Lm - Lt

Where,

M_t = Marketed Surplus i.e. actual quantity sold in the market.

M_s = Marketable surplus.

L_m = Losses during transportation & marketing.

L_t = Arbitrary deduction by traders at market.

ANALYSIS, RESULTS AND DISCUSSION

❁ **Maintenance Cost During Bearing Stage :** Apple plantations have a gestation period of about 9 years to reach the bearing stage. For estimating the cost and returns estimates for apple crop; it has been assumed that the establishment cost has been spread over 32 years of bearing life on pro-rated basis using interest rate of 12 per cent. **(i)** First bearing starts from 9th year in both the study areas **(ii)** The major operations and input requirement vary in 9-11, 12-13, 14-16, 17-21 and 22-40 years and **(iii)** Total economic life of the plantations is 40 years in both the states.

❁ **Maintenance Cost, Yield & Returns From Apple Orchards Of Himachal Pradesh :** Maintenance cost, yield & returns from apple orchards are depicted in Table-1. The Table reveals situation of Himachal farms. The average production was found in the range of 36.90 quintals in initial stage that increased to 103.74 quintals during 17-21 years and finally decreased to 100.75 quintals in 22-40 year age group. Average cost per kg ranged between ₹ 4.36 and ₹ 9.85. The output-input ratio is an index of profitability The index of profitability varied between 1.70 and 3.89 in various age groups. It was highest in 17-21 years group, followed by 32-40 year group and 14-16 years age group.

Table 1: Maintenance Cost, Yield & Returns From Apple Orchards During Bearing Stage In Himachal Farms (₹ /100 trees)

Items	Age of plantation in years				
	9-11	12-13	14-16	17-21	22-40
Himachal farms					
Total cost. (₹)	36386.49	39032.22	41456.06	44794.87	44242.52
Average production (qt).	36.90	56.91	82.65	103.74	100.75
Gross return. (₹)	62018.63	95649.05	138902.66	174356.61	170108.22
Net return (₹)	25632.13	56675.05	97437.61	129562.01	125865.72
Average cost per kg.	9.85	6.84	5.01	4.31	4.36
Output/Input ratio.	1.70	2.45	3.34	3.89	3.84

JAMMU & KASHMIR

Maintenance Cost, Yield & Returns From Apple Orchards During Bearing Stage : Table-2 reveals bearing conditions of Kashmir Farms. The average production was found to vary from 38.09 quintals in initial stage to 108.09 kg during 17-21 years, which finally decreased to 106.11 quintals in the 22-40 year age group. Average cost per kg ranged between ₹ 4.07 and ₹ 9.35. The output-input ratio as previously revealed is an index of profitability The index of profitability varied between 1.78 and 4.10 in various groups.

APPLE MARKETING SYSTEM

The marketing of apples continues to be a difficult task- and in the whole process of fruit growing, an attempt has been

Table 2 : Maintenance Cost, Yield & Returns From Apple Orchards During Bearing Stage In Jammu And Kashmir Farm (₹ /100 trees)

Items	Age of plantation in years				
	9-11	12-13	14-16	17-21	22-40
Jammu and Kashmir Farms					
Overall farms					
Total cost. (₹)	35654.65	37977.08	40478.87	43984.47	43189.77
Average production (qt).	38.09	59.03	86.16	108.09	106.11
Gross return. (₹)	63676.80	99542.01	144021.83	172724.20	177313.83
Net return (₹)	28022.14	61564.93	103542.95	136619.65	133824.05
Average cost per kg.	9.35	6.37	4.69	4.07	4.09
Output/input ratio.	1.78	2.68	3.62	4.10	4.07

made to study the important aspects of apple marketing - like Marketable and Marketed Surplus and marketing problems encountered by the growers in the study regions. The apple growers in the study areas sell most of their marketable surplus in the markets outside the state and the rest is sold within the states. A small portion is kept for home consumption, gifts and for other purposes. Since very high proportion of total production constitute the marketable surplus and the product is highly perishable in nature, it therefore, becomes important to analyze its marketing system in greater details.

❁ **Distribution And Marketing Channels :** Distributing markets are those, where the produce from the producing areas comes first and from where, a large part of the produce is distributed to other markets. This chain of intermediaries/ functionaries is called the marketing channel. The following channels were identified as important channels on sampled farms of Himachal Pradesh and Jammu and Kashmir for marketing of their produce.

A - Producer-pre-harvest contractor- - commission agent/wholesaler-retailer consumer

B - Producer- Forwarding agent - commission agent/wholesaler-retailer consumer

C - Producer - commission agent/wholesaler-retailer - consumer

D - Producer - Producers Cooperative Society- commission agent/wholesaler- consumer

E - Producer-HPMC-Processing unit

F - Producer-Retailer - Consumer

The information regarding average distribution of apples through various marketing channels have been placed in Table 3 & 4 respectively.

Channel-A

About 11 percent of the sample orchardists patronized this channel in Himachal Pradesh and more than 17 per cent growers did the same in J&K. The orchardists who are risk averse generally adopt this link in the marketing channel. Pre-harvest contractors purchase standing crops and undertake to perform all the functions necessary for the disposal of the produce. About 10 per cent of sample orchardists' average produce is sold through this channel in HP and nearly 13 per cent orchardists sell their produce in the same manner in Jammu & Kashmir.

Channel-B

In this channel, nearly 14 percent and 19 percent growers dispose off 9.56 and 6.53 percent apple produce in HP and J&K respectively, through forwarding agents. These agents have links with growers, wholesalers, retailers and transporters. The main job of these agents is to make necessary arrangements for transport, loading/ unloading and clearance of produce at various points. They charge two rupees per box of apple and sometimes, additional charges of ₹ 1.5 to ₹ 2.0 per box are charged from producers in the name of clearance charges. The loading and unloading charges are also paid by growers to these agents. Delivery of the fruit boxes to specified agency in the specified market is the responsibility of forwarding agents.

Table 3: Average Quantity Of Apple Marketed Through Different Channels In Study Areas Of Himachal Pradesh (2007-08) (Boxes Per Farm)

	Small Farms		Large Farms		Over all Farms	
	No. of growers	Qnty. sold	No. of growers	Qnty. sold	No. of growers	Qnty. sold
Channel A.	5	70 (10.46)	4	180 (10.01)	9	119 (9.99)
Channel B.	7	77 (11.51)	4	178 (9.89)	11	114 (9.56)
Channel C.	24	371 (55.45)	22	990 (55.04)	46	668 (56.04)
Channel D.	10	118 (28.14)	8	361 (20.06)	18	230 (19.29)
Channel E.	10	18 (2.69)	9	49 (2.73)	19	33 (2.77)
Channel F.	2	15 (2.25)	2	41 (2.27)	4	28 (2.35)
Total		**669.00 (100.00)**		**1799 (100.00)**		**1192.00 (100.00)**

Channel-C

With more than 56 percent of produce in HP and 64 percent in J&K, routed through this channel, the channel was found most popular among apple producers in both the study regions. The commission agents act as a mediator between sellers and buyers. These persons are specialized in the art of selling the produce. The commission agents also act as wholesalers on occasions when large supplies come in the market. They buy and sell for their own gain. Commission agents charge 8 percent commission from the sale value of produce from buyers. In Delhi market, these agents charge 8 percent commission from producers in the pretext of tradition and 8 percent from buyers in the pretext of law.

Channel-D

In certain villages, orchardists have formed cooperative societies to handle the marketing of their produce as well as to provide critical inputs required for fruit production.

Table 4 : Average Quantity Of Apple Marketed Through Different Channels In Study Areas Of Jammu & Kashmir (2007-08). (Boxes Per Farm)

	Small Farms		Large Farms		Over all	
	No. of growers	Qnty.sold	No. of growers	Qnty.sold	No. of growers	Qnty.sold
Channel A.	14	102 (16.83)	3	168 (10.77)	17	112 (13.07)
Channel B.	13	39 (6.43)	2	171 (10.96)	15	56 (6.53)
Channel C.	29	352 (58.09)	13	1012 (64.87)	42	555 (64.76)
Channel D.	9	76 (12.54)	3	127 (8.14)	12	88 (10.27)
Channel E.	22	18 (2.97)	11	43 (2.76)	33	20 (2.33)
Channel F.	4	19 (3.14)	2	39 (2.50)	6	26 (3.04)
Total		**606 (100.00)**		**1560 (100.00)**		**857 (100.00)**

They generally perform the role of forwarding agents. The fruit is auctioned in the specified market by hiring the services of commission agents in the presence of nominee of the society. These societies charge five rupees per box from the sale value of the produce for rendering their services. Nearly 22 percent sample growers sold about 19 percent produce through this channel in Himachal orchards, while 15 percent growers in J&K sold 10.27 percent of total sample produce through this agency.

Channel-E

HPMC is the major functionary in this channel. Through this channel, culled apples are sold to HPMC for processing purposes. HPMC has opened seasonal collection centres in apple producing belts for procuring the processing grade apples. About 1100 bags of apple from Kullu sample area and 640 bags from J&K area were procured during the study year.

Channel-F

In this channel, the fruits of a particular lot are sold directly to the retailers in the consuming markets. They do so to have quick returns and avoid various market charges. Twenty eight boxes of apples were sold through this channel by four orchardists in Kullu region and 26 boxes by 6 orchardists in Baramulla study region during reference year.

❁Marketing Costs Borne By Wholesalers : The marketing costs and margins of wholesalers dealing with apple trade have been summarized in Table-5. It is quite visible from the Table 5 that the total marketing costs borne by the wholesalers hovered around ₹ 25 per box (in Bangalore market) and about ₹ 21-23/- per box (in Chandigarh market), ₹ 23 per box (in Delhi market) for Himachal and Jammu & Kashmir origin. Fee and spoilage constitutes an important component of wholesalers costs, followed by loading/ unloading charges and local transport etc. Wholesaler' marketing margin ranged between ₹ 64.54 - ₹ 71.22 in Bangalore market, ₹ 64.64 - ₹ 65.80 in Delhi market, ₹ 60.78 - ₹ 65.78 in Ambala market and ₹ 49.50 - ₹ 51.36 per box in Chandigarh market for the fruits of Himachal and Jammu & Kashmir origin. These margins were on the higher side for the apples of H.P. origin.

Table 5: Marketing Cost And Margins Of Apples Borne By Wholesalers In Different Markets For The Year (2007-08). **(₹/ Box)**

Items		Markets							
		Ambala		Bangalore		Chandigarh		Delhi	
		HP origin apple	J&K origin apple	HP origin apple	J&K origin apple	HP origin apple	J&K origin apple	HP origin apple	J&K origin apple
A.	Gross price paid by wholesaler	398.00	389.00	444.00	439.00	343.00	339.00	394.00	390.00
B.	Cost component of wholesaler								
i)	Labour charges	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
ii)	Loading/ unloading	4.00	4.00	4.50	4.50	4.50	4.50	4.00	4.00
iii)	Spoilage @ 2%	7.96	7.82	8.8	8.68	8.68	6.70	7.88	7.80
iv)	Post & Telegraph	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
v)	Market fee	7.96	7.82	8.88	8.68	6.86	6.70	7.88	7.80
vi)	Local transport	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
	Sub total	**23.52**	**23.24**	**25.78**	**25.46**	**23.64**	**21.5**	**23.36**	**23.20**
C.	Wholesalers market margin	60.78	65.76	71.22	64.54	51.36	49.50	64.64	65.80
D.	Selling price of the wholesaler	485.00	478.00	541.00	529.00	418.00	410.00	482.00	479.00

❁Marketable and Marketed Surplus: In Himachal Pradesh, more than 99 per cent of the produce of an average farm is meant for the purpose of sale in the market. This amount requires the proper marketing arrangements. The marketed surplus primarily depends upon economic consideration like size of holdings, total production and the other factors like size of family and post harvest losses, for increasing marketed surplus, therefore, total production needs to be enhanced and post harvest losses need to be minimized. Table 6 reveals that at an overall level, about 89.90 per cent of the apple was sold outside Himachal Pradesh, while a meager quantity of about 9.63 per cent was sold in Himachal Pradesh by farmers. It is important to note that small apple growers sold 89.42 per cent of their produce outside HP and large growers sold 89.97 per cent of their produce outside the state. Marketing losses were 5.94 per cent on small farms and 3.15 per cent in large farms and at an overall level, these losses were estimated at 4.0 per cent of the total produce. At an overall level, average per farm total marketable surplus worked out to be 1242.02 boxes i.e., 99.44 per cent of the total production. Marketable surplus of small farms was 712 boxes, and of large size farms, it was1858 boxes. The boxes sold had standard weight of 18 kg apples in both farm categories. In Jammu & Kashmir study area, of the total average production, the marketable surplus accounted for 99.52 per cent and on-farm consumption including gifts was 0.47 per cent (Table-7). Of the total marketable surplus, nearly 9.42 per cent is sold within the state and the rest is marketed outside the state in distant markets. The percentage of marketable surplus varied from 99.25 per cent on small farms to 99.82 per cent on large farm. It is very interesting to note that small orchardists sell larger quantity of total produce (11.64%) within the state, whereas on large farms, this proportion was nearly six per cent of gross

Table 6: Marketable And Marketed Surplus Of Himachal Apple In The Study Area (2007-2008) **(Boxes/Farm)**

Items		Category		
		Small	Large	Overall
1.	Area (ha.)	0.871	2.161	1.450
2.	Total production	719.00 (100.00)	1865.00 (100.00)	1249.00 (100)
3.	Total consumption	4.00 (0.55)	5.00 (0.26)	4.46 (0.36)
4.	Gifts	3.00 (0.41)	2.00 (0.10)	2.53 (0.20)
5.	Total Marketable surplus	712.00 (99.02)	1858.00 (99.62)	1242.02 (99.44)
a)	Marketable surplus sold within HP	69.00 (9.59)	180.00 (9.65)	120.33 (9.63)
b)	Marketable surplus sold outside HP	643.00 (89.42)	1678.00 (89.97)	1121.68 (89.80)
6.	Losses	42.70 (5.94)	58.76 (3.15)	50.13 (4.01)
7.	Marketed surplus	669.30 (93.08)	1799.24 (96.47)	1191.89 (95.43)

Note : Figures In Parentheses Are Percentages To Total Production.

produce. The total marketed surplus varied from 90.51 per cent (small orchards) to 94.64 per cent (large orchards) with 92.45 per cent at an overall level. The market losses were estimated at 7.07 per cent on an average, and it varied from 5.17 per cent (large orchards) to 8.74 per cent on small orchards. The losses were found more in Baramulla study site as compared to Kullu region. Relatively high humidity conditions, long distance markets, frequent road blockages may be cited as the reasons for higher post harvest losses in J & K region. The boxes sold had standard weight of 18 kg apples in both farm categories.

Table 7 : Marketable And Marketed Surplus Of Kashmir Apple In The Study Area (2007-2008)

(Boxes/Farm)

Items		Category		
		Small	Large	Overall
1.	Area (ha.)	0.509	1.156	0.665
2.	Total production	670.00 (100.00)	1648.00 (100.00)	926.72 (100.00)
3.	Total consumption	3.00 (0.44)	2.00 (0.42)	2.73 (0.29)
4.	Gifts	2.00 (0.29)	1.00 (0.24)	1.73 (0.18)
5.	Total marketable surplus	665.00 (99.25)	1645.00 (99.82)	922.25 (99.52)
a)	Marketable surplus sold within J&K	78.00 (11.64)	113.00 (6.37)	87.19 (9.42)
b)	Marketable surplus sold outside J&K.	587.00 (87.61)	1532.00 (92.96)	835.06 (90.11)
6	Losses.	58.56 (8.74)	85.25 (5.17)	65.57 (7.07)
7.	Marketed surplus	606.44 (99.51)	1559.75 (94.64)	856.68 (92.45)

Note : Figures In Parentheses Are Percentages To Total Production.

❁Inter- State Differences In Various Problems: Chi-square test was also carried out - whether the problems identified are orchard category specific or they are independent of farm categories. The results of chi-square test for different production and marketing problems as explained, between pairs of different farm categories and between same category, but between the states have been furnished in Table-8. It is interesting to note from the table that the production problems i.e. skilled labour, fertilizer, plant protection and other problems as related to seedlings, FYM and irrigation do not differ significantly between categories of various farm groups. This implies that the above mentioned problems are being faced by the growers, irrespective of their farm size and location of the farms. In case of marketing problems, problem of malpractices was faced by all classes of orchardists in the market. Similarly, there existed no statistical difference in grading and packing, packing material and storage facility problems between the large as well as between the small orchards of both the states, between small and large orchards of Jammu & Kashmir, and average orchardists of both the states. However, the chi-square analysis revealed that grading and packing problems in respect

Table 8 : Chi-square Test For Different Production And Marketing Problems Between Different Categories Of Orchardists In The Study Regions

	Problems	Small (HP and J&K)	Large (HP and J&K)	Overall (HP and J&K)	Small and large of HP	Small and large of J&K
1.	Skilled labour	1.64	1.41	1.36	7.67	2.77
2.	Chemical fertilizer	0.97	0.64	1.41	0.50	0.37
3.	Plant protection measures	0.12	1.20	0.94	2.90	0.29
4.	Problems of irrigation, non-availability of healthy plants, and FYM	0.88	0.89	1.49	2.92	3.43
5.	Labour problems in grading and packing	1.36	3.70	1.05	10.12**	5.43
6.	Packing material problem	9.08	2.45	6.22	7.06	8.43
7.	Storage facility problem	1.82	2.19	1.66	2.69	6.27**
8.	Transportation problem	9.86**	7.68	5.60	10.76**	8.04***
9.	Market intelligence problem	12.15*	10.89	6.36	11.58	6.94
10.	Problem of mal practices in the market	4.14	6.84	3.16	4.32	9.16

* Significant at 10% level of significance; ** Significant at 5% level of significance ; *** Significant at 1% level of significance

of small and large growers were category specific, while storage facility problems worked out to be category specific for small and large orchardists of Jammu & Kashmir state. The transportation problems in respect of small and large categories of both the states were found to be significantly different, indicating this problem to be category specific. Significant difference was also adjudged between the small groups of HP and J&K with regard to transport problems. Market intelligence problem turned out to be category dependent, between small and large category of orchardists of H.P. and J&K, and even between the small of H.P. and small orchardists of J&K.

CONCLUSION

There is no denying that agriculture still remains at the centre stage of the Indian economy. Horticulture economy dominates the Agro economy of both the states of Himachal Pradesh and Jammu &Kashmir. The production in both the states is increasing every year, and so is the marketable surplus. Apple being a perennial horticultural crop, has long gestation period between initial cash outflow and first cash inflow, an extended period of output flowing from the initial investment and eventually, a gradual deterioration in the production capacity of the plant as age of plant increases. Of the total apple production in the country, Himachal Pradesh contributes about 35 per cent, while Jammu& Kashmir contributes about 48 per cent to the total share. The apple orchardists were seen to market their produce either through forwarding agents or through commission agents or directly to the wholesaler.

LIMITATIONS

In view of the increasing domestic and export demand, rates of growth need to be stepped up. However, the main constraints in pushing up apple production is volume insufficiency, low productivity, quality deficiencies, technological deficiencies, high production and transport cost, and lack of post-harvest infrastructural facilities. Future research should incorporate more variables so as to get better understanding of apple growers of both the state.

BIBLIOGRAPHY

1) Bhat, G.M. and Dhar, M.K. 1989. Resource Use efficiency of Apple cultivation in Jammu & Kashmir State. *Indian J. of. Economic.* 4(3): 611-616.

2) Brij Bala. 2006. Marketing systems for apple in Hills-problems and prospects-A case study of Kullu district, Himachal Pradesh). *Indian Journal of Agricultural Marketing:* 20(2): 101-105.

3) Farooqi, K D. 2003. Future of the Apples in the Apple state of India, Jammu & Kashmir. Cited from *Apple farming and livelihood in the Himalayas*. 112-116.

4) .Kar Amit., Atteri R. B. and Pramod Kumar. 2004. Marketing infrastructure in Himachal Pradesh an Integration of the Indian apple markets. *Indian Journal of Agriculture Marketing, Conference Special* 18(3): 243-252.

5) Negi Y S., Prashar R S and Tiwari S A.1997. Marketing of Himachal apples. A Spatio-temporal Analysis. *Agri Economic Research Review* 10(1): 88-92.

6) Sharma, L.R. 2003. Marketing and Trade of Indian Apples. *Acta Horticulture,* 696: 569-573.

7) Wani M H., Singh., R L, Bhat., A R.and Mir A N. 1993. Resource use efficiency and factor productivity in apple. *Agri. Economic Research Review,* 6(1): 26-35.