



**Research Paper**

# A case study on economic analysis of marketing and price spread of apple fruit in Kashmir Valley of J&K state

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**ABSTRACT :** The study was carried out in the Baramulla district of the Kashmir valley. Apple being main fruit in the district has predominant position in area, production and productivity. Both primary and secondary data was analyzed to interpret the results for this study. Primary data was collected from the 70 sample respondents from a cluster of 6 villages delineated from the Pattan zone along with market functionaries and other important players of value chain. The secondary data was collected from the relevant secondary sources. The studies revealed that majority of the farmers were marginal farmers with upto 2 hectares of land under apple orchards. Cost of apple cultivation works out to be Rs. 206730 per hectare with net returns to the tune of Rs. 496395 per hectare. The study of marketing of apple identified five marketing channels and the channel 1 viz., Producer-Whole seller/Commission agent-Retailer-Consumer, was the major route for apple trade as more than 30 per cent of the farmers produce was marketed through this channel. Marketing efficiency was found maximum (0.68%) in this channel for the obvious reason as it involves less number of intermediaries. The establishment of Terminal market of Sopore proved a major facilitator in the marketing of apple in the study area. The study of marketing of apple identified five marketing channels and the channel 1 viz., Producer-Wholeseller/Commission agent-Retailer-Consumer, was the major route for apple trade as more than 30 per cent of the farmers produce was marketed through this channel. Marketing efficiency was found maximum (0.68%) in this channel for the obvious reason as it involves less number of intermediaries. The establishment of Terminal market of Sopore proved a major facilitator in the marketing of apple in the study area.

**KEY WORDS :** Apple, Production, Marketing, Terminal market, Consumer, Marketing efficiency

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## INTRODUCTION :

Jammu and Kashmir State is well known for its niche in horticultural produce both in India and abroad (Malik, 2013). The state offers good scope for cultivation of

horticultural crops, covering a variety of temperate fruits like apple, cherry, pear, peach, plum, apricot, sub-tropical fruits like mango, guava, citrus litchi, and phalsa and nut crops like almond and walnut. Horticulture is gaining momentum in the state of J&K, as its contribution to the

GSDP has been around 7-8 per cent over the past few years. Triggering a perceptible change in the concept of horticulture development presently around 7.00 lakh families comprising of about 33 lakh people in the state are directly or indirectly associated with horticulture (Reshi *et al.*, 2010).

In the horticulture sector of the state, apple proved to be the most important fruit crop by exporting 7.00 Crore boxes annually. Apple is cultivated in almost all the ten districts of Kashmir region, with Baramullah, Kupwara, Shopian, Anantnag being the highest producers. The smaller quantities are also produced in a few pockets of Jammu and Ladakh regions. The harvesting of fruit begins from August for early maturing cultivars and continues till November with peak activity in September and October. The apple crop dominates the horticultural industry and has an important role in economic scenario of the state. Involving around half a million households, apple plays a key role in the rural economy of the state. Nearly 30 per cent of total produce of apple crop going waste due to pre-harvest drop, making total annual quantum of such fruit about 0.25 million metric tonnes (MT) (Shah, 1999).

Although apple production in the state is increasing with positive growth momentum but there is not a significant growth in exports. Weak production and supply chain along with poor marketing strategies, low transparency in the marketing system have together completely eroded incentive for producers to improve quality and productivity of apple. The improvement in the production is quite important, but marketing has also an equal role to give a crop commercial orientation. There have been multi-dimensional efforts to increase the production of apple in the state but market regulation has not received proper attention (Shaheen and Gupta, 2002). Apple marketing being complex phenomena requires special treatment and utmost care in the Kashmir Valley. The Present marketing system in the state has an inherent tendency to shift more benefits to intermediaries at the cost of apple growers. The present marketing structure is such that 87 per cent of the marketing functions are solely performed by these powerful intermediaries (Bhat, 2010).

James and Alston (1963) reported that stabilization of apple market was of considerable significance and observed that selling personals must be professionally sound and adequately equipped with current information on current supply, movement and future supply of fruits.

He further suggested that exchange of ideas, regarding methods and procedures of selling and merchandising between the members in widely scattered apple areas were important aspects in the work of stabilizing market. Drew (1962) proposed the use of predictive devices for analyzing pre-harvest estimates of regional production to regulate the flow of produce into the market and thereby to augment to producer's share in consumer's rupee.

Bhat (2010) discussed about the marketing efficiency of apple is important for increase in production and fair returns to apple growers. Marketing efficiency is measured in terms of price spread. Lesser price spread means more marketing efficiency and *vice versa*. He found three marketing channels and concluded that marketing channel *i.e.*, Grower to consumer is having less price spread and more returns to growers but is rare in practice due to lack of marketing information, credit and institutional facilities, small holdings. Farmers pay a higher price for pesticides because of the presence of a number of intermediaries in the channel. The marketing efficiency has been relatively low in the channel where farmers purchase pesticides from the traders. Farmers apply pesticides indiscriminately in violation of the scientific recommendations. About one-third of the pesticides available in the market are reported to be either sub-standard or spurious. The existence of unlicensed dealers/ traders has further accentuated the magnitude of malpractices in the pesticide delivery system (Baba *et al.*, 2012).

Devadoss and Wahl (2004) provided an estimate of the responsiveness of apple consumption to changes in price, estimating an own-price elasticity of demand based on wholesale price data of -0.53. This is the only available estimate of the own-price elasticity of demand for apples in India and indicates that, on average, a 1 per cent increase in apple prices results in about a 0.53 per cent decline in the quantity consumed.

## MATERIALS AND METHODS :

The Sopore fruit mandi (terminal market) was selected to collect information relating to marketing and its functionaries. Out of which five pre-harvest contractors, five commission agents, ten wholesalers and five retailers were selected to achieve the objectives. Primary data which was collected from producers included information on demographic features- family size,

age, education, occupation, economic parameters and other aspects of apple production and marketing. Data from market functionaries related to apple marketing pattern and practices from Sopore terminal fruit market was also collected simultaneously and secondary data from the published sources as well.

#### Analytical tools:

To meet out the objectives of the present study, both tabular and functional/statistical approaches were employed for analysis and interpretation of results.

#### Marketing channels :

Apple is produced by large number of small farmers scattered around the valley whereas, the consumers are located throughout the country. The marketing system for apple is highly complex and comprises of different marketing channels for distribution of apple in different markets. In each channel, marketing efficiency was calculated by using modified marketing efficiency measure, given by Acharya and Agarwal (2001), which was estimated by commonly used formula:

$$\text{Marketing efficiency} = \frac{\text{Net price received by farmer (NP}_F)}{\text{Total marketing cost (MC) + Total marketing margin (MM)}}$$

## RESULTS AND DATA ANALYSIS :

The results obtained from the present investigation as well as relevant discussion have been summarized under following heads :

#### Marketing of apple :

An attempt has been made to study the important parameters of apple marketing like market functionaries, marketing costs and margins, issues of efficiency, price

realized by the growers and price spread in the study region.

#### Marketing costs of apple (box<sup>-1</sup>) :

The various stages of marketing and the cost incurred there-on at each stage are presented in Table 2. The results revealed a total marketing cost of Rs. 233.5 per box of apple. The expenditure incurred on different marketing stages is discussed as under.

#### Picking, assembling and grading cost :

The apples are picked manually by skilled labourers and assembled at a plain place matted with paddy straw. The apples are then graded again by skilled labourers according to any of the prevailing grades. The results revealed an expenditure of Rs. 25 (10.70%) was incurred on picking, assembling and grading of one box of apple. Operation wise, of the total marketing cost the share of expenditure on picking, assembling and grading was 4.28 per cent (Rs. 10), 2.14 per cent (Rs. 5) and 4.28 per cent (Rs. 10), respectively.

#### Packing cost :

An efficient packing aims at arranging the fruit in suitable compact containers to avoid spoilage, breakage and pilferage during transit in order to deliver good quality fruit to the consumers. The analysis of information on packing cost (Table 2) revealed that an amount of Rs. 93 (39.82%) was incurred on packing out of the total marketing cost of Rs.233.5 per box. Packing box alone costs Rs.65 (27.83%) when the grower used wooden boxes as packing material and Rs. 35 when he used the cardboard boxes. The packing cost included other packing material costs like packing labour, wrapping paper, paddy straw, nails, assembling and closing of box and labeling and stenciling, which worked out to be Rs. 15, Rs. 4, Rs.4, Re.1, Rs.3 and Rs.1 per box, respectively.

The orchardist has to bear a huge amount of money (27.83% of the total marketing cost) to meet the cost of wooden packing, which, if minimized by some innovative packing material would considerably reduce the total marketing cost of apples. Therefore, efforts need to be devised to find out any alternative means for the prevailing wooden packing boxes. The other packing boxes such as the carton boxes that cost about Rs.35 per box are still not accepted by the majority of farmers, due to the lack of infrastructure in the orchards. The growing concern about the dwindling timber plantation meant for wooden box manufacturing also aggravates the need to

Sr. No.	Functionaries	Sample selected (No.)
1.	Farmers	70
2.	Pre-harvest contractors	5
3.	Commission agents	5
4.	Wholesalers	10
5.	Retailers	5
6.	Processors	2
7.	Controlled atmospheric storage units	3
	Total	100

seek an alternative to such packings.

Functionaries are involved, performing numerous business activities called marketing functions. Following were some commonly encountered channels of apple distribution in the sampled area.

Apple distribution comprised movement of produce from producer to ultimate consumer. In this process the

fruit has to pass through more than one functionary, except when it is directly sold to consumer by the producer. The chain involves various intermediaries like growers, pre-harvest contactors, whole sellers, retailers' etc. and is called the marketing channel. The following channels were identified as important channels in the sampled area for the marketing of produce (Table 3).

**Table 2: Marketing cost of apple** **(Rs. per box\*)**

Sr. No.	Cost components	Amount (Rs.)	%age of total cost
1.	<b>Pre-packing cost</b>		
	Picking charges	10.00	4.28
	Assembling charges	5.00	2.14
	Grading charges	10.00	4.00
	Sub-total	25.00	10.70
2.	<b>Packing cost</b>		
	Cost of wooden packing box	65.00	27.83
	Cost of wrapping paper	4.00	1.71
	Cost of paddy straw	4.00	1.71
	Cost of nails	1.00	0.42
	Cost of packing (labour charges)	15.00	6.42
	Closing and assembling of boxes	3.00	1.28
	Labelling and stencilling	1.00	0.42
	Sub-total	93.00	39.82
3.	<b>Transportation cost</b>		
	Carnage of go-down, loading and unloading charges	5.00	2.14
	Orchard to road head	15.00	6.42
	Forwarding charges	30.00	12.84
	Freight to Delhi	55.00	23.55
	Loading at road head	3.00	1.28
	Unloading at destination	2.00	0.85
	Communication etc	0.50	0.21
	Sub-total	110.50	47.32
4.	<b>Miscellaneous costs/charges</b>	5.00	2.14
	Grand total**	233.50	100.00

Source: Field survey, 2015

\* Standard wooden box contains 18 kg of apple

\*\*This does not include commission and market fee paid @ of 10% of the total bill

**Table 3: Marketing channels of apple**

Channel-I	Producer-Whole seller/Commission agent-Retailer-Consumer
Channel-II	Producer-Pre-harvest contractor- Whole seller/Commission agent-Retailer-Consumer
Channel-III	Producer-Commission agent- Whole seller-Retailer-Consumer
Channel-IV	Producer-Pre-harvest contractor- Commission agent- Whole seller-Retailer-Consumer
Channel-V	Producer-Post-harvest contractor/potential growers-Commission agent- Whole seller-Retailer-Consumer

Source: Field survey, 2015

### Mode of sale of apple followed by sample respondents :

Producers are basically owners of the orchards. They produce apple of their own expenses but at the time of fruit setting most of the producers leased out the orchard to pre-harvest contractors

Mode of sale (Table 4) in different channels is given as under:

#### Channel-I

The marketing channel was most popular among the apple growers in the study area, with more than 37.14 per cent of produce routing through this channel. 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 wholeseller on occasions when large

supplies come in the market. They buy and sell for their own gain. Commission agents charge 12 per cent commission from the sale value of produce from the buyers.

#### Channel – II :

About more than 21.43 per cent of the sample orchardists sold their produce through this channel. The pre-harvest contractors purchase standing crops and undertake to perform all the functions necessary for the disposal of the produce.

#### Channel – III :

In this channel, nearly 7.14 per cent of the apple produce is disposed off by the growers through the commission agents. These agents have a direct link with the growers, wholesalers and the retailers.

**Table 4: Mode of sale in different channels**

Sr. No.	Marketing channel	No. of farmers	Per cent
1.	Producer-Wholeseller/Commission agent-retailer-consumer	26	37.14
2.	Producer-Pre-harvest contractor wholeseller/ Commission agent-retailer-consumer	15	21.43
3.	Producer-Commission agent-whole seller-retailer-Consumer	5	7.14
4.	Producer-pre-harvest contractor-commission agent-wholeseller-retailer-consumer	17	24.29
5.	Producer-post-harvest contractor/potential growers-commission agent-wholeseller-retailer-consumer	7	10.00
	Total	70	100

Source: Field survey, 2015

**Table 5: Marketing costs, margins and price spread in different channels of apple (Values in terms of % of consumer's price)**

Functionary	Marketing channels				
	I	II	III	IV	V
Expenses incurred by producer	22.24	-	35.92	11.61	-
Producers net margin	45.93	43.35	37.19	27.85	28.92
Commission agents margin	-	-	7.31	7.31	7.31
Expenses incurred by pre-harvest contractor	-	22.24	-	-	35.92
Sale price of pre-harvest contractor	-	90.07	-	-	73.86
Pre-harvest contractors margin	-	4.09	-	-	9.02
Expenses incurred by post-harvest contractor	-	-	-	17.02	-
Sale price of post-harvest contractor	-	-	-	74.17	-
Post-harvest contractors margin	-	-	-	10.29	-
Expense incurred by whole seller	0.48	0.48	3.06	3.06	3.06
Sale price of whole seller	72.54	72.54	78.92	78.92	78.92
Whole sellers margin	3.88	3.88	2.75	1.80	2.12
Expenses incurred by retailer	12.08	12.08	12.57	12.57	12.57
Retailer margin	15.38	15.38	8.51	8.51	8.51
Sale price of retailer/consumers price	100.00	100.00	100.00	100.00	100.00

**Channel –IV :**

This marketing channel was also found to be popular among the apple growers in the study area, with 24.29 per cent of produce routing through this channel. The commission agents act as a mediator between sellers and buyers. The commission agents have a direct link with the pre-harvest contractors and the wholesalers. They buy the produce from the contractors and sell to the whole sellers at 12 per cent commission from the sale of the value of the produce.

**Channel – V :**

In certain villages growers have formed groups to handle the marketing of their produce as well as to provide critical inputs required for the fruit production. They generally perform the role of forwarding agents. Nearly 10 per cent of the produce was sold through this channel.

**Marketing costs, margins and price spread in different channels of apple :**

The price spread consists of marketing costs and margins of intermediaries involved in the marketing process. It explains the variance in the price received by the producer and price paid by the consumer. The study of price spread is very essential from the stand point of efficiency of the marketing system. The channel wise price spread in terms of per cent of consumers price is given in Table 5.

A cursory glance of the Table 5 revealed that, net price received by farmer (NPRF) is more in channel I (68.17 % of the consumer’s price) followed by channel III and IV because farmer directly sold their produce to the whole seller. To sum up NPRF is more in the channel where the numbers of intermediaries are very less.

As far as the price spread of apple was concerned, pre harvest contractor’s (PHC) margin was more than commission agent because of more bargaining power. Retailer margin is more in channel I and channel II than other channels because he sold the produce in much small quantities and furnishes it before consumers on relatively

high prices.

It could be concluded that producers received higher proportion of consumer’s price as net return in channels with lower number of intermediaries. It was seen that net price received by farmer decreased considerably with increased in number intermediaries in marketing chain of apple. In order to improve net profit of producer/farmer and provide competitive price to consumer, it is necessary to reduce number of intermediaries in marketing supply chain.

**Marketing efficiency :**

Marketing efficiency essentially reflects the degree of market performance. An efficient marketing system is an effective agent of change and an important means of raising income level of orchardists and satisfaction level of consumers. It can be harnessed to improve the quality of life of the masses. The existence of competitive conditions and desire to maximize profit are the main forces which induce firms to operate efficiently. In this section an attempt has been made to measure the marketing efficiency, particularly for comparing the efficiency of alternate markets/channels in apple trade. The marketing efficiency of different channels as presented in the Table 6 revealed that the channel-I (0.68) turns out to be economically more efficient, followed by channel –III and channel- IV (0.43) and least efficient is channel-II (0.28). It was observed that producer got maximum share of consumer’s rupee in the channel where, produce was directly marketed to whole seller. The contractor in turn trade their produce to whole seller at higher prices than producer, because of higher bargaining power. An orchardist could earn maximum share of consumer’s price in the channel where he sells his produce directly to the whole seller. However, lack of liquidity potential, ignorance of market demand etc capitalizes into distress sale. Liberal cheap credit facility along with other incentives to apple growers would definitely increase their bargaining power.

The study on marketing of apple revealed the

**Table 6: Marketing efficiency of apple in different channels**

(in %)

Sr. No.	Particulars	Channels				
		I	II	III	IV	V
1.	Net price received by the farmer	68.17	28.92	43.35	39.46	28.92
2.	Total marketing cost	34.80	34.80	51.55	44.26	51.55
3.	Total marketing margin	65.19	66.70	48.45	48.45	48.57
4.	Marketing efficiency	0.68	0.28	0.43	0.43	0.29

following significant features related to market practice that need attention as part of the value chain improvement effort. The major destination of Kashmir apples is the Azadpur Mandi, which is a buyer's market and designed to be so. Manipulation of prices by traders in the Mandi is resorted through a) stopping apple trucks at the border of entry in to Delhi, use of cold stores to alter supply of apples in the mandi, keeping away small buyers with artificially high price quotes and later reducing prices to low levels to benefit preferred buyers and use of proxies in auctions. The markets within the state are comparatively better in price determination and transparency. Growers with pre-harvest contracts (PHC) access the markets easier, but lose out on full benefit of market prices on account of their taking money in advance. Free growers find it difficult to enter markets even when the demand is brisk and the commission agents prefer their 'captive growers' with PHC. Setting up satellite markets has helped growers (especially the free ones) in marketing. Farmers who market apples through co-operatives realize higher prices. Trade margins range from 42 to 73 per cent in the different channels of marketing.

Price discovery by grower would be more realistic and effective if he is able to hold back and store his produce for some time. The farmer needs to have conditions (local storage and financial capacity to hold) under which distress selling can be checked.

The study on marketing of apple revealed the following significant features related to market practice that need attention as part of the value chain improvement effort. (2) The major destination of Kashmir apples is the Azadpur Mandi, which is a buyer's market and designed to be so. (3) Manipulation of prices by traders in the Mandi is resorted through a) stopping apple trucks at the border of entry in to Delhi, use of cold stores to alter supply of apples in the mandi, keeping away small buyers with artificially high price quotes and later reducing prices to low levels to benefit preferred buyers and use of proxies in auctions. (4) The markets within the state are comparatively better in price determination and transparency. Growers with pre harvest contracts (PHC) access the markets easier, but lose out on full benefit of market prices on account of their taking money in advance. (5) Free growers find it difficult to enter markets even when the demand is brisk and the commission agents prefer their 'captive growers' with PHC.

### Recommendation :

Establishment of Horticulture Marketing Training Institute: A Horticulture Marketing Training Institute should be established for training and education of personnel engaged in various activities of marketing viz., packing, grading, and standardization etc. (2) Efforts should be made to dilute the influence of commission and forwarding agents on apple trade and to establish such a distribution system of fruit as would ensure direct sale to the consumer. This type of marketing channel will be remunerative. (3) Establishment of Marketing Information and news service: Market information centers should be established which will provide the apple growers and traders' day to day knowledge and information about the situation and trends prevailing in the various marketing centers within and outside the state. Such a facility will help the growers/traders to take decisions about future market strategy. (4) Skill development in market management: Adequate arrangements should be made for imparting training and education to the growers so as to equip them to face the marketing challenges. Growers should be trained in the art of bargaining, selling, price fixation and so on. (5) Promotion of co-operative marketing: Co-operative marketing is a unique pattern of marketing where the growers sell their produce to the co-operatives organized with the help of the Government. There are some co-operative societies in the state, but their number being inadequate and inefficient to meet the requirements of the apple industry. (6) Marketing fellowships: State Government should extend fellowships to young growers/traders to study marketing methods and administration in the advanced institutions of learning.

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