

# A study on the production and marketing cost of apple fruit in Kupwara District of Jammu and Kashmir

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## Abstract

*The present study was conducted in Kupwara district of Jammu and Kashmir State for the Apple growers of different farm size groups. This study was to examine the area, production and productivity of Apple in India as well as in Jammu and Kashmir State and also in Kupwara district.*

*However, the study also looked at cost of marketing of apple fruit box from grower to terminal markets. A sample of 80 apple growers from four villages was selected based on the Random sampling. The relevant information was gathered through primary and secondary data. Percentage analysis, Garrett ranking and benefit cost ratio were used for the analysis of data.*

**Keywords:** Apple, Marketing, production, Jammu and Kashmir.

## Introduction

Marketing is basically the process of movement of goods from producers to consumer at the desired time, place and form. The marketing process consequently involves both mental and physical aspects. Increased production of agricultural commodities would be of no worth, if efficient marketing does not follow it. Horticultural marketing process involves wide variety of functions such as: Assembling, Grading and Standardisation, Processing and Storage, Transportation, Wholesaling and Retailing. The process of horticultural marketing begins with the grower and ends up with the consumer. In between these two extreme ends one can find many intermediaries like Transporters, Warehouses, Owners, Commission agents, Wholesalers and Retailers etc. performing their duties to enable the horticultural marketing process to reach its completion.

Apple marketing being complex phenomena requires special treatment and utmost care at present in the Jammu and Kashmir. Apple cultivation is highly profitable economic activity in the state, which is famous for its quality apple. It is farm-based, labour intensive and commercially attractive economic activity. The income per acre is much higher than any other horticulture crops, if it is done in systematic way. In Apple fruit marketing, the growers normally do not sell the fruit directly to the ultimate consumers but generally involved various middleman like contractors, commission agents etc. Marketing of apple fruit however is quite complex and risky due to the perishable nature of the produce, seasonal production and bulkiness.

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 and is also unique for apple fruit. In Jammu and Kashmir the marketing arrangements of apple at different stages also play an important role in price levels at various stages viz. from gate to the ultimate users. These features make the marketing system of apple fruit different from other agricultural commodities.

Objectives of the study are:

1. To study the trends in area under apple cultivation, Production and Productivity of apple fruit in Kupwara district.
2. To estimate the marketing cost of apple fruit in Kupwara district of Jammu and Kashmir state.

## Research Methodology

In the present study both primary and secondary data were used. For the primary data, a multi-stage random sampling technique was used, district in the first stage and block in the second stage, villages in the third stage and growers in the fourth stage. Kupwara district is chosen for the study due to high concentration of area and production and block langate is chosen, four villages were chosen for the study namely Udipora, Kultur, Unisoo and Yaroo. 80 samples were taken from these four villages for the study, 20 samples from each village. The secondary data was collected from various statistical reports and sites. National Horticulture Board and Digest of statistics.

## Results and Discussion

**Fruit Crops in Indian Economy:** India is endowed with wide agro climatic conditions that offer immense scope for cultivation of various kinds of fruit crop. This provides an excellent platform for the country to emerge as a leading producer of fruit crop.

## Introduction of Apple fruit

Apple is one of the oldest fruits known to man. It has been found wild in most temperate parts of the world and cooler higher hills of sub-tropical areas. It was, probably first domesticated in the Caucasus, but fast spread all over Europe, even in pre-historical times. From Europe, apple spread to USA, Australia and South America. Apple is one of the most important horticultural produce and renowned worldwide for its health benefits. Jammu and Kashmir is one of the major apple producing zones in the north India and major portion of population is economically dependent on this industry. The present study will try to study the various sources of financing which are presently operational in this

very industry. This study shall also try to draw the conclusions about the efficacy of the various financial intermediaries currently operational in financing the fruit industry of the said region.<sup>2</sup>



**Apple fruit in India:** India is considered as the fruit and vegetable basket of the world. it being a home of wide variety of fruits and vegetables holds a unique position in production figures among all countries.<sup>6</sup> In apple fruit, India is the world’s 2<sup>nd</sup> largest apple producing country with an annual production of 88.98 million tonnes from an area of 7.21 million hectares.<sup>1</sup>

Table 1 revealed that area, production and productivity increased during the study period from 2007-08 to 2016-17, In apple fruit, the area in 2007-08 was 264 thousand hectares which increased to 305 thousand hectares and the production which was 2001 metric tonnes in 2000-01 increased to 2264 metric tonnes in 2016-17. Thus, it can be clearly seen in the table that area and production of apple fruit have continuously increased, but the productivity has not increased.

**Status of Apple fruit in Jammu and Kashmir:** Apple cultivation is highly profitable economic activity in the

State, which is famous for its quality apple. It is farm-based, labour intensive and commercially attractive economic activity. The income per acre is much higher than any other horticulture crops, if it is done in systematic way. Apple production plays an important role in improving the standard of living, per capita income poverty alleviation, employment generation etc.<sup>5</sup> More than half percentage of the population is engaged in the cultivation of apple directly or indirectly in the state. The improvement in production is quite important, but the marketing has equal importance to develop a commercial crop.

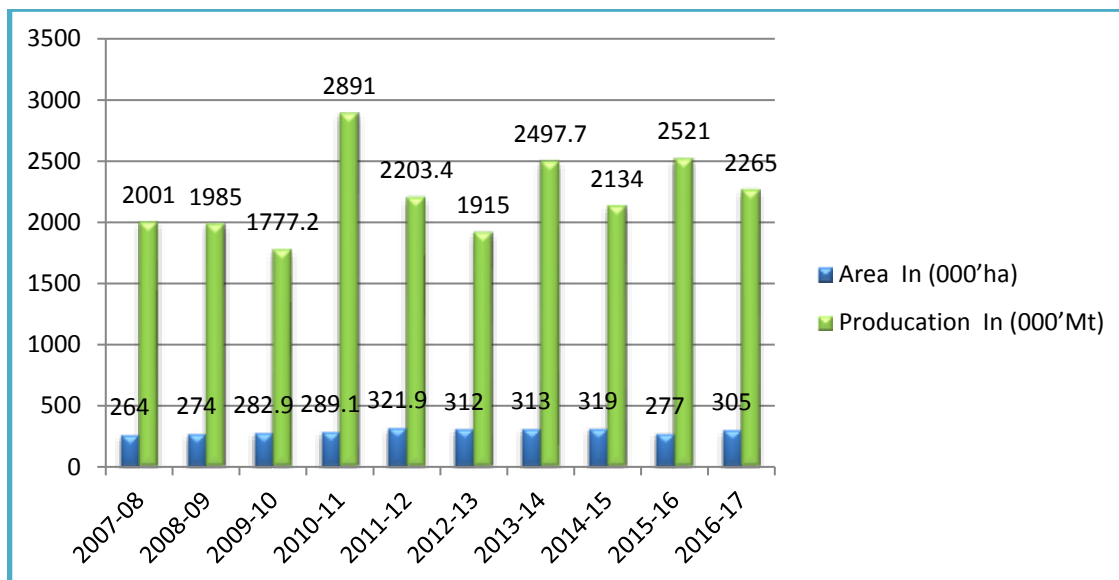
Apple production has comparatively more advantages than other agricultural production.<sup>3</sup> In India, 77% of apple and walnut production belongs to Jammu and Kashmir and percentage share of state in India’s total horticulture production is showing an increasing trend and the state has been declared as the “Agri. Export Zone for apples and Walnuts”.<sup>7</sup> The State of Jammu and Kashmir is considered to be a reservoir of a large variety of horticulture crops like Apples, pears, almonds etc.

The analysis revealed that area under apple fruit has increased by 2.18% from 20008-09 to 2017-18, while as production by 3.51% during the same period, inspite of many folds increase in area and production, yield has remained almost stagnant at around 11 metric tonnes during the study period. However, by the concentrated efforts of the growers, yield has picked up and in 2017-18 the yield has increased to 11.45 and the highest yield is recorded during the year 2015-16 and it was recorded more than 12 metric tonnes per hectare. Area under apple has witnessed a continuous increase from 2008-09 onwards. During 2008-09 the area under apple fruit was 132538 hectares which increased to 164411 hectares in 2017-18. The production of the apple fruit has also shown the same pattern as its production has increased by many folds. The production in 2008 was 1332811 and it has increased to 31882774. It is clearly seen in the table that the percentage of apple fruit is highest.

**Table 1**  
**Area, Production and Productivity of Apple in India**

Year	Area In (000’ha)	% of Total fruit Production	Production In (000’Mt)	% of Total Fruit Production	Productivity
2007-08	264	4.5	2001.0	3.1	7.58
2008-09	274	4.5	1985.0	2.9	7.24
2009-10	282.9	4.5	1777.2	2.5	6.28
2010-11	289.1	4.5	2891.0	3.9	10
2011-12	321.9	4.8	2203.4	2.8	6.85
2012-13	312.0	4.4	1915.0	2.3	6.15
2013-14	313	4.3	2497.7	2.8	7.98
2014-15	319	5.2	2134.0	2.4	6.69
2015-16	277	4.3	2521.0	2.8	9.10
2016-17	305	4.7	2265.0	2.4	7.42

Source: UN Food & Agriculture organisation (FAO)



Source: Table 1

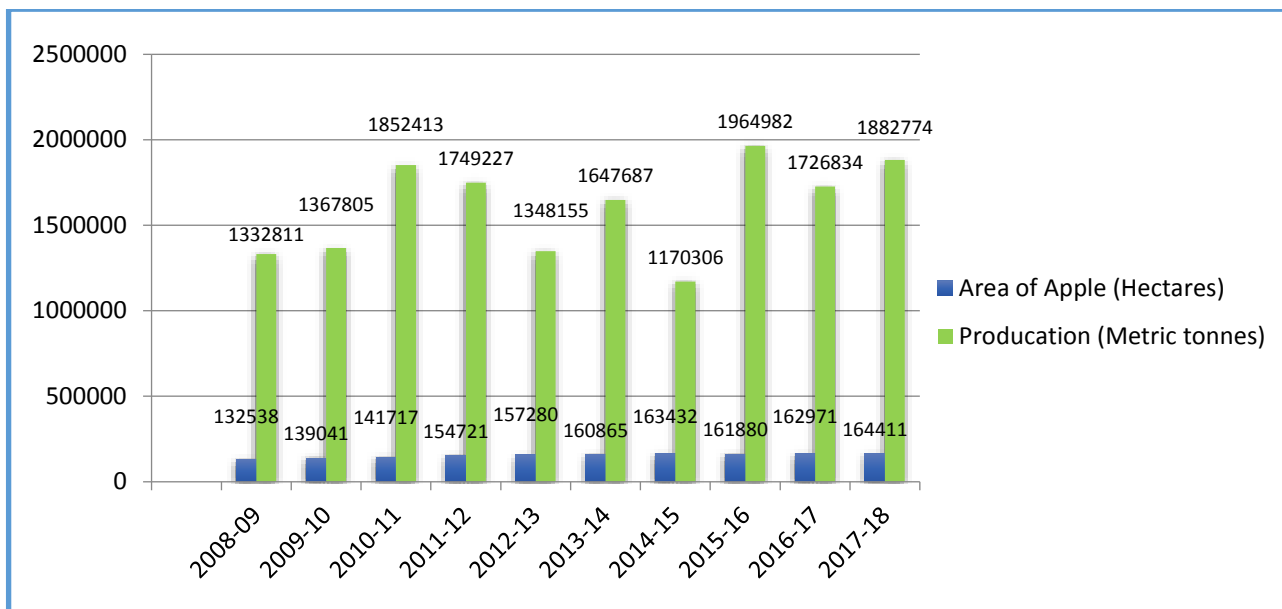
Figure 1: Area and production of apple fruit in India



Table 2  
Area, Production and Productivity of Total fruits and Apple in Jammu and Kashmir

Years	Area of Apple (Hectares)	Area of total fruits (Hectares)	Production (Metric tonnes)	Production of total fruits (Metric tonnes)	Productivity (M/H)
2008-09	132538	306693	1332811	1691322	10.05
2009-10	139041	320127	1367805	1674887	9.83
2010-11	141717	325071	1852413	2221982	13.07
2011-12	154721	341372	1749227	2157752	11.30
2012-13	157280	346981	1348155	1742124	8.57
2013-14	160865	355092	1647687	2073948	10.24
2014-15	163432	359066	1170306	1542676	7.16
2015-16	161880	336784	1964982	2487429	12.13
2016-17	162971	338528	1726834	2234980	10.59
2017-18	164411	333728	1882774	2429822	11.45

Source: - Directorate of Economics & Statistics Government of Jammu and Kashmir



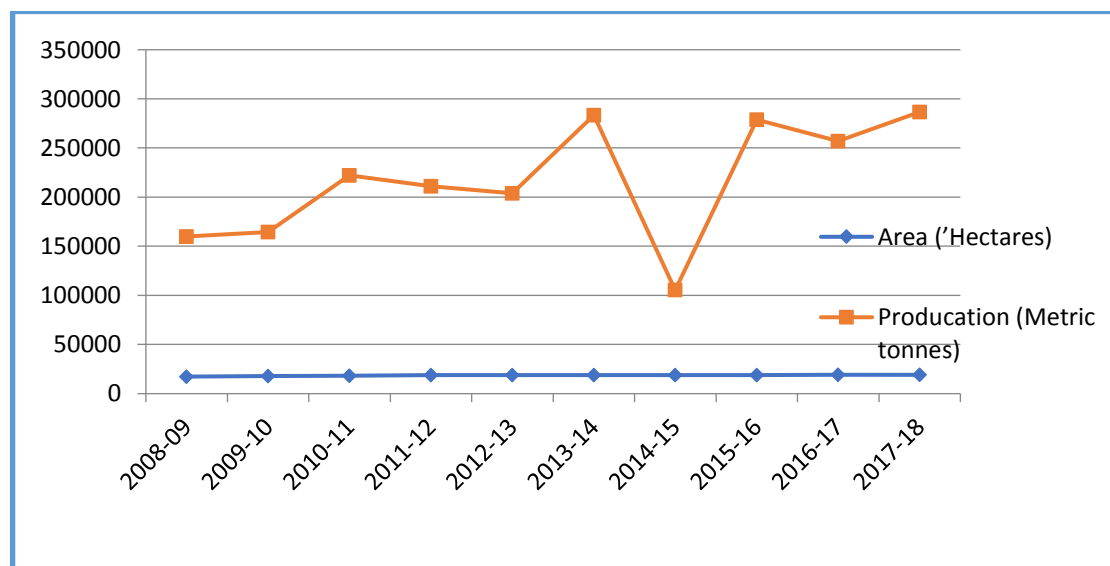
Source: Table 2

Figure 2: Area and production of apple fruit in Jammu and Kashmir

Table 3  
Area, Production and Productivity of Apple in Kupwara District

Year	Area ('Hectares)	Production (Metric tonnes)	Productivity (M/H)
2008-09	17367	159772	9.20
2009-10	17888	164565	9.19
2010-11	18246	222163	12.17
2011-12	18885	211054	11.17
2012-13	18942	203743	10.75
2013-14	18981	283444	14.93
2014-15	19021	105369	5.53
2015-16	19015	278657	14.65
2016-17	19107	257072	13.45
2017-18	19137	286628	14.97

Source: - Directorate of Economics & Statistics Government of Jammu and Kashmir



Source: Table 3

Figure 3: Area and production of Apple fruit in district Kupwara

**Apple fruit in district Kupwara:** District Kupwara is being considered as horticulture rich district among all other districts of Jammu and Kashmir and as per census about 70% of population of district Kupwara depends upon horticulture for their livelihood. Horticulture emerges out as a larger contributor of economy of the particular district.<sup>9</sup>

Marketing facilities should be provided to horticulture producers for the promotion of horticulture produces. Proper communication should be made between horticulture producers and marketers of the horticulture produces.<sup>9</sup> Apple and walnuts are the major contributor of horticulture crops in the district.

Table 3 shows the area, production and productivity of Apple fruit in the Kupwara district of Jammu and Kashmir. During the tenure of one decade, the area under apple fruit was 17367 hectares in 2008-09 and it has increased to 19137 hectares in 2017-18 resulting an annual compound growth rate of 0.98%. In production, Apple fruit was 159772 metric tonnes in 2008-09 which increased to 286628 metric tonnes in 2017-18 resulting an annual growth rate of 6.02%.

The above table and graph clearly show that there is continuous increase of production in the study period but the production of fruit has decreased to 105369 metric tonnes in 2014-15. The main reason for the less production was due to floods which has damaged the fruit production in the state and that time was the peak season of the apple fruit. The productivity of apple fruit has increased from 9.20 in 2008-09 to 14.97 in 2017-18.

**Marketing cost of apple fruit:** Marketing costs refer to the charges incurred by participants of marketing process for bringing the produce from producing areas till it reaches the ultimate consumers. It includes the labour costs involving assembling, grading, packing, storage, loading/unloading, transport, commission charges, market fee etc.

Table shows the marketing cost incurred by the grower to send the apple fruit box to the ultimate customer. This cost is only when the grower sends the apple fruit near the terminal market which is in Sopore town. This terminal market is Asia's second fruit terminal. Following are the terms which are used in marketing cost of apple in the table.

**(i) 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 the privileging grades. Some growers are packing the apple fruit in the orchards while maximum number of growers store the apple fruit and then start packaging after the final picking of apples.

**(ii) Packing Cost:** An efficient packaging aims at arranging the fruit in suitable compact container to avoid spoilage, breakage and pilferage during transit in order to deliver good

quality fruit to the consumer. In Jammu and Kashmir both wooden and card board boxes were used for the packaging of apple fruit but the cardboard boxes are used mostly for those apples which are of low quality. The packaging cost included other packing material if the grower used wooden boxes for packaging like packing material costs like packing labour, wrapping paper, paddy straw, nails, assembling and closing of box and labelling and stencilling.

**(iii) Transportation cost:** Apple is perishable fruit and it requires efficient transportation for quick disposal. The transportation cost of apple has been computed taking into the freight incurred to lift the fruit from the orchards to market and also the loading, unloading and forwarding charges.

**(iv) Miscellaneous cost:** Miscellaneous cost includes the expenditure incurred on watch and ward, incidentals and advertises.

The above Marketing cost of apple is only when we sell the fruit in Terminal market (Sopore). If we send this apple box to Delhi or any other market like Mumbai, Hyderabad, Kolkata, then additional 40-50 rupees will be added in transportation cost and 30-35 rupees in forwarding charges and the total cost will be around Rs. 245 per box.

The table clearly depicts that the marketing cost of Apple fruit is 156.48 rupees per box in four villages namely Udipora, Kulturu, Yaroo and Unisoo and the highest marketing cost is observed in Yaroo villages which is 164.15 rupees followed by 163.55 rupees in Unisoo, 151.45 rupees in Kulturu villages and 146.8 rupees in Udipora.

The main cost in apple marketing is packing cost which is highest in Yaroo village i.e. 105 (per box) followed by Unisoo village 102.9 (per box), 102.65(per box) in Kulturu and 98.3(per box) in Udipora. Another highest cost in apple fruit marketing is transportation cost which is 26.15 rupees per box) in Yaroo village, 24.65 rupees (per box) in Unisoo, 24.3 rupees (per box) in Kulturu and 21 rupees in Udipora village.

Under packing head, the highest cost is measured in wooden boxes which are 66.5 rupees average in these villages. To reduce the packing cost standard boxes should be available so that fruits can be transported and sent to other markets easily. There are cardboard boxes available in the market, but these are not well standardised when they are sent to nearby markets, their packing gets loose.

Government should make their best to focus on the horticulture sector especially Apple fruit sector because the economy of the state mainly depends on horticulture sector. Wooden boxes are mostly used in Jammu and Kashmir State for apple fruit but there are also various demerits to these boxes and in peak season the cost of wooden box rises and the rate goes to 75-80 rupees.





**Picking of apples**



**Assembling of apples**



**Grading of apples**



**Wooden box used for apples in orchards**



**Packaging of apples**



**Final packaging of apples**



**Cardboard boxes used for apples**



**Wooden boxes used for apples**

**Table 4**  
**Marketing cost of apple in terminal market (Sopore)**

Cost components	Udipora	Kulturu	Unisoo	Yaroo	Average
<b>(1) Pre-Packing cost</b>					
(a) Picking charges	8	9.5	10	9	9.125
(b) Assembling charges	4	4.5	5	5.5	4.75
(c) Grading Charges	8.5	11.5	12.5	9.5	10.5
<b>Total</b>	<b>20.5</b>	<b>16.5</b>	<b>27.5</b>	<b>24</b>	<b>88.5</b>
<b>(2) Packing cost</b>					
(a) Cost of Wooden packing box	65	68	64	69	66.5
Cost of wrapping paper	5.5	3.8	3.9	4.5	4.425
(b) Cost of Paddy Straw	3.5	4.3	4.8	4.1	4.175
(c) Cost of nails	1.2	0.9	0.85	1	0.987
(d) Cost of packing	20	22	25	23	22.5
(e) Closing and assembling	2	2.5	3	2.2	2.425
(f) Labelling and stencilling	1.10	1.15	1.35	1.2	1.2
<b>Total</b>	<b>98.3</b>	<b>102.65</b>	<b>102.9</b>	<b>105</b>	<b>102.21</b>
<b>(3) Transportation cost</b>					
(a) Carnage of godown, loading and unloading charges	6	7.5	8.8	7.4	7.42
(b) Freight to Sopore Mandi	8	10	8.5	12	9.62
(c) Loading at road head	3	3	3.5	2.5	4
(d) Unloading at destination	3	3	3	3	3
(e) Communication etc	1.00	0.80	0.85	1.25	0.975
<b>Total</b>	<b>21</b>	<b>24.3</b>	<b>24.65</b>	<b>26.15</b>	<b>24.025</b>
<b>(4) Miscellaneous costs</b>	<b>7</b>	<b>8</b>	<b>8.5</b>	<b>9</b>	<b>8.125</b>
<b>Grand total</b>	<b>146.8</b>	<b>151.45</b>	<b>163.55</b>	<b>164.15</b>	<b>156.48</b>

Source: Primary data (Per Box)

\*Standard Wooden box contains 18kg of Apple

\*\*This does not include commission and market fee paid @ 12% of the total bill.

## Conclusion

The study has pursued primary as well as secondary data to accomplish its specific objectives. In district Kupwara, the economic condition is changing rapidly along with the State of Jammu and Kashmir through horticulture sector. In district Kupwara, the main cost in apple marketing is packing cost which is highest in Yaroo village i.e. 105 (per box) followed by Unisoo village 102.9 (per box), 102.65(per box) in Kulturu and 98.3(per box) in Udipora. Another highest cost in apple fruit marketing is transportation cost which is 26.15 rupees per box) in Yaroo village, 24.65 rupees (per box) in Unisoo, 24.3 rupees (per box) in Kulturu and 21 rupees in Udipora village.

Under packing costs, the highest cost is measured in wooden boxes which are 66.5 rupees average in these villages. To reduce the packing cost, standard boxes should be available so that fruits can be transported and sent to other markets easily. No doubt, horticulture sector is contributing to the J and K economy, but there are certain marketing challenges which create hindrances for further progress of this sector. Middle man exploitation, price fluctuations and unregulated market, high cost of transport, unauthorised deductions and

delay in payment were the major marketing challenges being faced by the apple fruit growers.

In order to overcome these challenges first middleman exploitation should be abolished as it reduces net amount of the cultivators. Secondly, market information centres should be established that will provide knowledge o the present happenings in the local and outside market. Thirdly, schemes, technologies, training programmes and production and marketing patterns should be properly implemented so that more and more people especially literate young people will get attracted towards the industry and will involve themselves in the apple industry. Government should appoint a professional horticulture team to educate and train the youth about horticulture, introduce new policies and schemes in order to cater their interest towards horticulture and use different technologies in the technology driven era.

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