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# Unveiling the role of marketing intermediaries of apples in J&K

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### ABSTRACT

Over the years, horticulture emerged as a crucial and emerging part of agriculture, offering a wide range of choices to the farmers for crop diversification. It also provides sufficient opportunities for sustaining large number of agro industries which generate substantial employment opportunities. In India, there are a number of major fruits like banana, mango, citrus, papaya, apple, litchi, pineapple and many others. If we talk about the area covered under fruits we have found out that there is almost 100% increase in the area and 121% increase in production. Specifically speaking Apple is by far the most important fruit. Today, India ranks second in the world in terms of area under apple cultivation. With 2.5 million hectares under cultivation, India produces more than 1.4 million tonnes of apples every year (FAO). Among the fruit grown in India, apple has the third largest area under cultivation, after banana and mango. Being somewhat hard, the potential post-harvest losses in transportation are relatively low and shelf life compared to other tropical fruit grown in India is comparatively large.

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### Introduction

Over the years, horticulture emerged as a crucial and emerging part of agriculture, offering a wide range of choices to the farmers for crop diversification. It also provides sufficient opportunities for sustaining large number of agro industries which generate substantial employment opportunities. In India, there are a number of major fruits like banana, mango, citrus, papaya, apple, litchi, pineapple and many others. If we talk about the area covered under fruits we have found out that there is almost 100% increase in the area and 121% increase in production. Specifically speaking Apple is by far the most important fruit. Today, India ranks second in the world in terms of area under apple cultivation. With 2.5 million hectares under cultivation, India produces more than 1.4 million tonnes of apples every year (FAO). Among the fruit grown in India, apple has the third largest area under cultivation, after banana and mango. Being somewhat hard, the potential post-harvest losses in transportation are relatively low and shelf life compared to other tropical fruit grown in India is comparatively large. Apples are also being imported into India for a number of years now. In case of apples, the leading Apple producing states are Uttaranchal, Arunachal Pradesh, Himachal Pradesh and Jammu and Kashmir. J&K is having the largest share of about 63.38%. J&K is well known of its horticultural produce both in India and abroad. The state offers good scope for cultivation of all types of horticultural crops covering a variety of temperate fruits like apple, pear, peach, plum, apricot, almond, cherry and sub-tropical fruits like mango, guava, citrus litchi, phalsa, Berete. Horticulture is gaining momentum in the state as revealed by its contribution to the State Gross Domestic Product and to its relative share in the agriculture sector as well. Almost 45 percent of economic returns in agriculture sector are accounted for by horticulture showing its growing importance in the state economy. The growth of horticulture sector can be attributed to the various initiatives towards market interventions like

establishment of fruit mandies, provision for support price, technological support, awareness options, extension and research and exploitive market structure. The main objective of the study is to examine the supply chain activities of Fruits in India. More specifically the objectives of the study are as follows:

- To examine the role of various agencies in the Production and Marketing of Apples in J&K.
- To identify the various problems in the Supply Chain Network of apples.
- To suggest certain policy options for improving the efficiency.

#### Significance of the Study:-

As per a report, about 72 percent of the fruit and vegetable production in India goes waste because of lack of proper retailing and adequate storage capacity and the same thing happens in J&K state. Also J&K is the largest producer of apples having a share of 63.38 % and if out of this 72% of production gets wasted this means almost 45% of apples get wasted and this is not only the one reason. There are number of other factors which are leading to wastage like poor transportation facilities, poor infrastructure, poor seed quality, poor cold storage facilities. And by performing this survey the main focus is to understand these factors and then providing some solutions/suggestions which will increase the supply chain efficiency and also help in reducing the losses.

#### Research Design:-

The present study is confined to the Supply Chain Management in Indian Horticulture Industry with special reference to Apples. This study also provides various aspects of the Supply Chain Efficiency in the Horticulture Industry.

#### Methodology:

##### Type of Data:

- The study is based on the secondary as well as primary data.

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- The secondary data is used for the production as well as the area under fruits from the internet, journals, case studies, as well as the published reports etc.
- The primary data is collected by conducting an interview with the persons dealing in the mandis .They were then asked some questions regarding the various issues/problems in the flows of the network form the farmer end to the customer end.

**Sampling Design:**

**Sampling Units:** Farmers/Growers, Wholesalers, Exporters

**Sampling Method:** A convenience sampling method is used for collecting the primary data information form the growers, wholesalers and exporters. A questionnaire was prepared and consists of the questions relevant to the study.

**Sample Size:**

- Farmers/Growers: 25
- Wholesalers: 10
- Exporters: 10

**Limitations of the Study:** The data about the whole supply chain of apple was not completely accurate due to time and money constraint.

**Results and Discussions**

Before discussing the supply chain network of apples in J&K let us take an overview of the horticulture model, the various marketing intermediaries, existing supply chain as well as the total mark up in the chain. The Supply Chain of fruits varies in form and complexity depending upon the primary commodity under consideration and how it is produced, marketed, processed and consumed. Broadly speaking, there are three elements to the chain of any commodity: Growing, Processing and Selling. Each of these are linked by marketing activities. The supply chain of fruits is amongst the most straight forward, reflecting the emphasis placed on speed and quality assurance over price .At its simplest the product moves from the grower to the pack house (often part of the company) where if is packed and shipped to an importer sometimes known to as the primary marketing organization or contract manager which is responsible for delivering the product to the retailer.

**Horticulture Supply Chain Model:-**

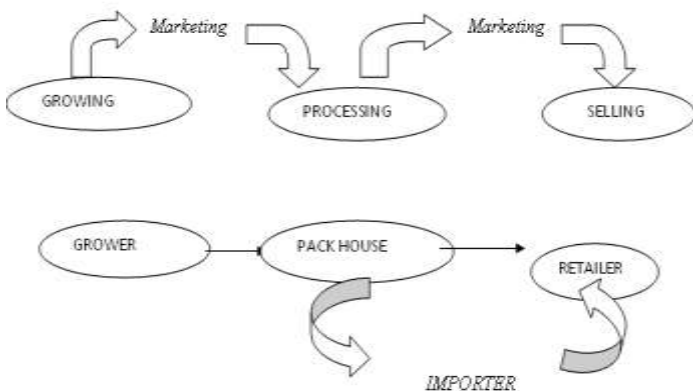


Figure 1: Horticulture Supply Chain Model

**Marketing Channel for Apples in India**

In the supply chain of fruits, there are a number of marketing intermediaries involved. The marketing chain is the sequence of stages involved in transferring produce from the farm to the consumer and contributes to the marketing costs. Let us take an overview of these marketing intermediaries. This channel starts from the farmers and ends at consumer end.

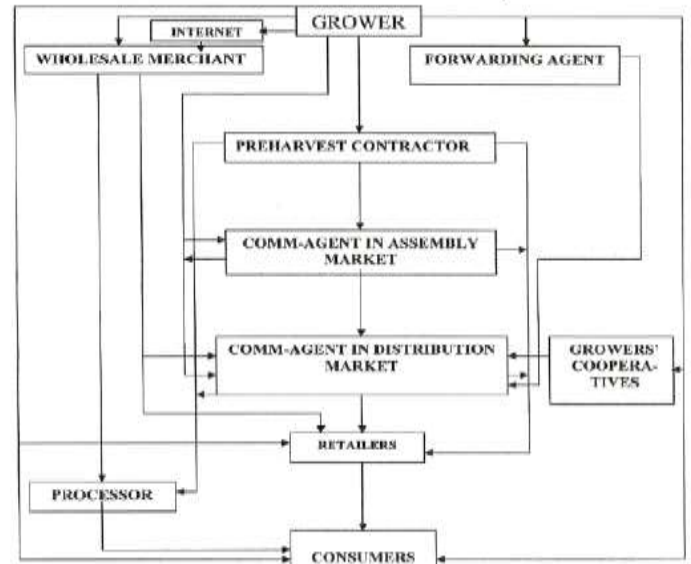


Figure 2: Marketing Channels for Apples

**Existing Supply Chain in Fruits**

Traditional supply chain in India for fresh produce is generally too long and fragmented where intermediaries collect a sizeable share from the price of the produce paid by consumers.

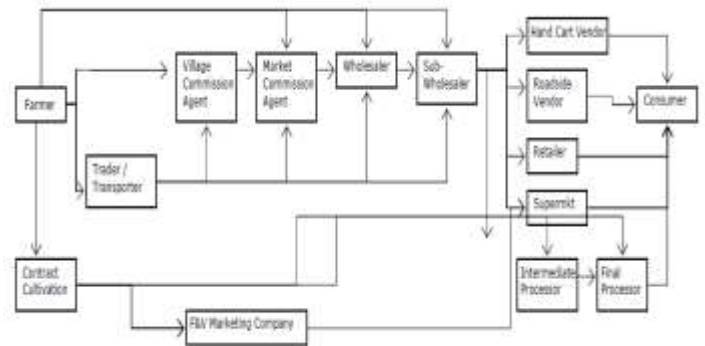


Figure 3: Supply Chain network of Fruits

**Supply Chain flows of Apples in J&K**

For the production of apples the mandi people purchase some land on a rental/lease basis in HP, Srinagar. They are having their suppliers in those areas that take care of the production in those areas and then send them those apples. Once the apples reach the mandi they were first unloaded, then grading and sorting is performed and auctioning is performed .They also send the apples to other states. The remaining apples will then be kept in cold storage and they are taken out when there will be a large demand of that product.

**Role of Different Agencies:**

**National Horticulture Mission**

- ✓ The launch of the National Horticulture Mission will provide a stable income base for farmers and growers across the country, and enable them to diversify into high value crops with great export potential.
- ✓ Through the mission small and marginal farmers would be particularly benefited, as the Mission focuses on technology led growth, especially precision farming, high-tech horticulture and micro-irrigation.
- ✓ An end-to-end approach would ensure direct linkages with processing and marketing as well as development for a supply

chain that will enable centres of production to develop, within potential zones – all over the country.

✓ Backward and forward linkages would ensure employment among the rural unemployed, both men and women, as also bridge the gap between urban and rural sectors.

#### National Bank for Agriculture and Rural Development

✓ It came into existence on July 12, 1982. It is established for providing credit for the promotion of agriculture, small scale industries, handicrafts and other allied economic activities in rural areas with a view to promote integrated rural development.

✓ Under plantation and horticulture discipline, refinance assistance has grown manifold from Rs.2800 lakhs during 1982-83 to 29,203 lakhs during 2002-03 amounting to 4.3% of total disbursement made by NABARD.

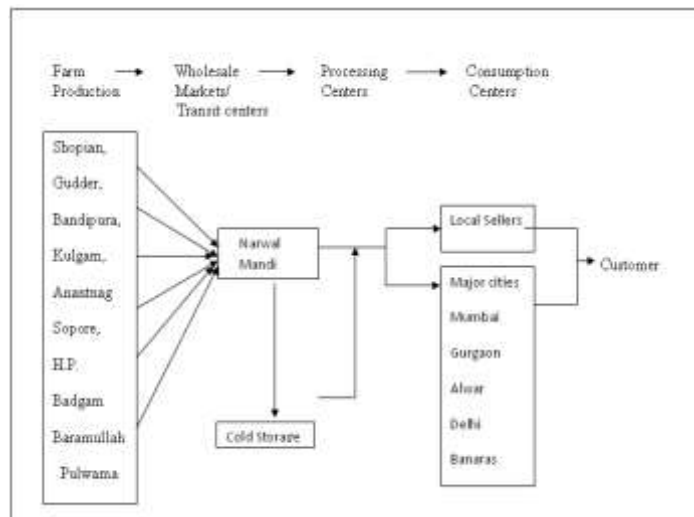
✓ Activities related to fruits, plantation crops, ornamental crops, spice crops, aromatic and essential oil yielding crops, betel vine, sericulture, beekeeping, mushrooms, medicinal plants and tissue culture are covered.

✓ Maximum funds are allotted to plantation crops (40%) followed by fruits (30%) and floriculture (6%).

✓ In order to meet the challenges of globalization and economic liberalization, steps have been taken to enhance the competitiveness of Indian Horticulture.

✓ These include cultivation of high value and low volume crops, high-tech horticulture, precision farming, organic farming, value addition through post-harvest technology, biotechnology and export oriented ventures.

✓ NABARD also provides R&D grants to develop the need based technology to the Agriculture Universities and other institutions.



**Figure 4: Supply Chain flows of Apples in J&K Technology Mission**

✓ A Centrally Sponsored Scheme on Technology Mission for Integrated Development of Horticulture in North Eastern region including Sikkim was approved with an outlay of Rs. 229.38 crore for the IX Five Year Plan period.

✓ The implementation of the scheme has been extended to the States of Jammu and Kashmir, Himachal Pradesh and Uttarakhand during the 10th plan with an additional outlay of Rs. 260.00 crore.

✓ The scheme aims at establishing convergence and synergy among numerous ongoing governmental programmes through horizontal and vertical integration of these programmes, to ensure adequate, appropriate, timely and concurrent attention to

all the links in the production, post-harvest and consumption chain.

✓ During 2006-07, an amount of Rs. 157.50 crore was released, out of which Rs. 81.86 crore was for North Eastern States and Rs. 75.63 crore for Jammu and Kashmir, Himachal Pradesh and Uttarakhand.

#### Fruit and Vegetable Mandies

✓ At present three main fruit and vegetable markets are operating with one each at Nowpora- Sopore, Parimpora-Srinagar and Narwal-Jammu.

✓ These markets are being developed into main centres for collection and sales of fruit and vegetable in bulk.

✓ The Department has launched a campaign aimed at implementing the APMR Act in every fruit and vegetable market area in consonance with the provision of the Act. The Act stands enforced in the markets of Sopore, Narwal, Shopian, Kulgam, Chararisharief, Baramulla, Kupwara and Handwara, besides, terminal market of Parimpora.

✓ The work to establish 6 fruit and vegetable mandis at Poonch, Rajouri, Akhnoor, Batote, Kathua and Bishnah (Samba) in Jammu Division is in progress.

#### Fruit Growers Co-operative Marketing Societies

✓ The fruit growers of the State are small and marginal farmers having small holdings.

✓ The Government has set up Horticulture, Planning and Marketing Organisation which helps the small fruit growers and organizes them into co-operative fold, in order to save them from the exploitation by fruit commission agents and money lenders.

✓ These societies promote direct dispatch of fruit to the markets within the country and help to regulate the supplies within limits to lessen the chances of glut controversy in the market(s).

✓ These societies also help the growers in grading and packing the fruit to save excessive damage of the product.

✓ The number of fruit growers co-operative societies registered with Directorate of Horticulture, P&M up to 2006-07 is 261 with the membership of 19194.

#### MoU, Signed for Horticulture Promotion in J&K

✓ The Department of Agriculture Production, J&K, and Agriculture Produce Export Authority (APEDA) Government of India, New Delhi has entered into an agreement for the promotion of horticulture in the State.

✓ Both the agencies have signed two Memorandums of Understanding (MoU) in this regard.

✓ One MoU was regarding the development of Post-Harvest management facilities and infrastructure in the state of Jammu & Kashmir while the other was for setting up of a Walk-in-Type Cold Room facility at Srinagar International Airport.

✓ Both the Memorandums of Understanding have big dimensions and utility for the farmers of the state.

✓ The MoUs will enable the state Government to explore all the possibilities of developing and elaborating a comprehensive cold chain system besides a walk-in-Type Cold Room facility at Srinagar International Airport for an efficient and sufficient management of Agriculture /Horticulture produce, in furtherance of which the marketing system will be further improved and benefit the farmer community.

✓ This facility is going to ensure the development of pre-cooling facilities, storing, improved packaging and efficient marketing of the fresh fruits, vegetables and flowers grown in the state of Jammu and Kashmir.

**Apple Insurance Scheme**

✓ As a significant measure to reform and promote Horticulture Sector, the Jammu and Kashmir Bank Limited has decided to launch Apple Insurance Scheme.

✓ For introducing modern pre and post-harvest technologies in the Horticulture sector, the Government under public private tie up with Jammu and Kashmir Bank Ltd. has decided to construct a chain of compressed AIR (CA) stores in each district of the State to withstand stiff market competition in the liberal trade regime.

✓ The Government have devised a well thought strategy to increase productivity from 10 MTs to 20 MTs per hectare during the 11th five year plan by way of encouraging public private participation.

**Problems with the Existing Supply Chain**

**Farmer/grower problems:**

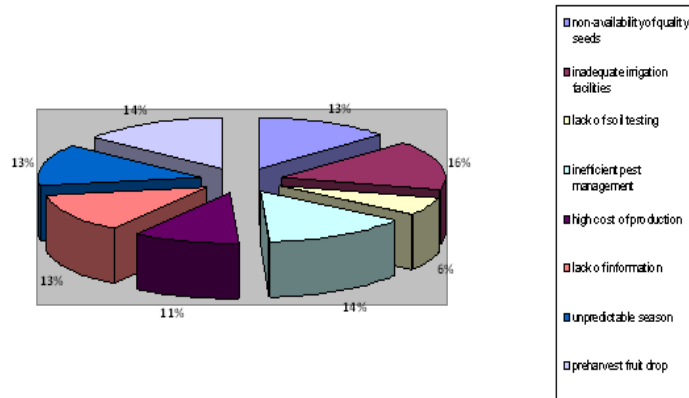


Figure 14:- Various problems at the farmer end

**Wholesaler problems:**

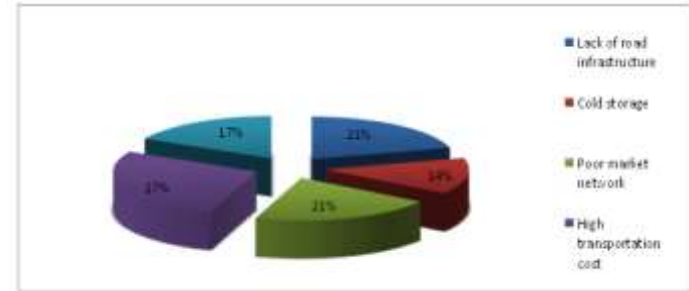


Figure 15:- Problems identified at the Wholesaler end

From the diagram it is clear that transportation is one problem which is faced by most wholesalers. Cold storage also a problem but they are having their traditional way of keeping their fruits and most of them are satisfied with that.

**Exporter problems:**

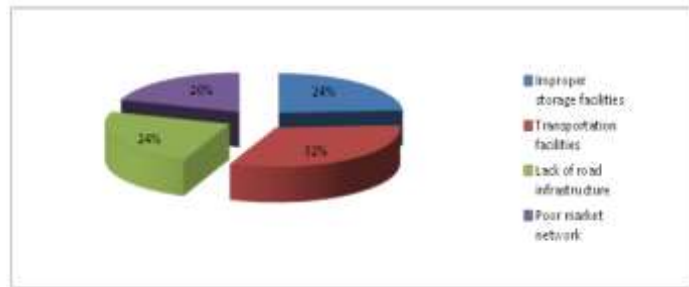


Figure 16:- Problems at the Exporter End

**Conclusions and Suggestions:-**

**Conclusions**

1. The fruit industry is the second most important industry after tourism in Jammu and Kashmir and Kashmir probably is most

ideal unparalleled area in the world for growing temperate and dry fruits

2. Apples are the third most widely produced fruit in the world after bananas, and grapes and just ahead of oranges. Apples are produced in many countries with a temperate climate. Newer varieties have permitted expansion of production into ever-hotter areas.

3. Amri (Ambri Kashmiri), American trel (American Apiroque), Delicious (Red Delicious), Maharaji (White Dotted Red), Hazaratbali (Benoni), Kesri (Cox’s Orange Pippin) are some of the choicest varieties of apples in J&K.

4. One of the most important problem faced by the Indian agriculture industry is the inefficient supply chain. About 72 percent of the fruit and vegetable production in India goes waste because of lack of proper retailing and adequate storage capacity.

5. The fruit supply chain is very complex as it involves a large number of intermediaries.

6. There are a number of marketing channels, of which the predominant are:

- a) Farmer - Pre-harvest contractor - Commission agent - Wholesaler - Retailer - Consumer.
- b) Farmer - Forwarding agent - Commission Agent - Wholesaler - Retailer - Consumer.
- c) Farmer - Commission agent - Wholesaler - Retailer - Consumer.

The sale through pre-harvest contractors is the most important system of marketing. Normally, the small orchardists sell their crop at flowering stage to contractors who organize plant protection practices, picking and packaging of fruits. The medium and large orchardists prefer to market their produce through channels (b) and (c).

7. India has a wide range of soil and climatic conditions for producing Apples. In spite of India’s wide range of soil and climatic conditions the horticulture sector is facing constraints. Major constraints in production and marketing in fresh fruits and vegetable are:

- ✓ Non availability of quality seeds
- ✓ Inadequate irrigation facilities
- ✓ Lack of soil testing facility
- ✓ Inefficiency in pest management
- ✓ Credit availability constraint
- ✓ High cost of production
- ✓ Lack of information
- ✓ Huge post-harvest losses
- ✓ Lack of road infrastructure
- ✓ Cold storage
- ✓ Inadequate space
- ✓ Poor market network
- ✓ High transportation cost
- ✓ Proper pricing
- ✓ Good quality

8. The supply chain in order to run efficiently need to build a strong relationship between the retailers and farmers for procurement and extension services regarding the use of the of inputs, production technology, information on harvesting, prices, pre-cooling, grading, sorting.

9. The Government must initiate strong measures to remove constraints in infrastructure such as setting up distribution centers, cold chains and link the roads to the markets.

**Suggestions:-****For improving the productivity, the following steps are to be undertaken:**

- Replacement of old and unproductive plants.
- Development of new varieties of fruits.
- Development of irrigation sources.
- Adoption of integrated pest management.
- Farm credit
- Disease forecasting system to regulate the pesticide usage.

**Post-harvest management of fruits**

- On farm storage
- Innovative packaging solutions for fresh fruits
- Enforcement of grading act.
- Cold Storages
- Transportation efficiency
- Infrastructure development
- Technological awareness of the farmer.
- Training to farmers regarding post-harvest issues

**Export market for fruit industry**

- Fruit mandies at district level.
- Efficient Transport facilities
- Improvement in Road Connectivity
- Investment in transportation infrastructure – refer trucks,
- Fruit export market
- Export oriented technologies and methodologies for fruit industry
- Cost competitiveness and efficient marketing system of fruit industry

**The following Potential Participants should also understand their roles:**

- Banking and Financial Institutions
  - Corporates
  - Exporters
  - Farmers' / Growers Associations/ Organizations
  - Jammu and Kashmir Horticulture Planning and Marketing department
  - Horticultural Research Institutions
  - J&K State Agricultural Produce Marketing Board
  - J&K State Government
  - Importers
  - Ministry of Food Processing Industries
  - National Horticulture Board
  - NGOs
  - Industry representatives
5. Information Technology should be used for improving the efficiency of the Supply Chain.
6. A modern supply chain should use climate control technology and modern packaging and handling, from the time of harvest of the produce to the point of sale. Thus modern cold chains are to be designed to start right from the farms. Such a supply chain

not only reduces value loss and damages across the chain it also enhances the life of the produce.

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