

Litchi Exports from India: Investigating the Value Chain Perspectives

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Abstract

The present study was conducted in major litchi growing and exporting clusters of the country. Post harvest losses have been the major hindrances of litchi export from India. It was observed that A and B grade of litchi (in Bihar and Uttarakhand states of the country) account for about 20 and 40 per cent of the total production respectively at farmers' level and rest is C grade (25 percent). The domestic marketing of litchi is not well organized and suffers from inefficiencies during entire value chain due to which wastage is very high which results in low producer share in the consumer rupee (40%). The transactions in the domestic markets are not transparent and the commission agents charge more than the prescribed. The target markets for Litchi export (both fresh and processed) are European markets, Russia, Gulf countries, UK, Canada, USA etc.

Introduction

India is second largest producer of litchi in the world after China. Presently litchi is cultivated in an area of about 58,200 ha with a total production of 356.2 thousand metric tones indicating the productivity level of 6.1 metric tones/ ha. About 37000 MT

(1.0%) of litchi fruit is exported annually to the Middle-east, Europe, Russia and Canada from India. APEDA and NAFED are the major export promoters of litchi from the sub-continent. Due to a very short production season of around two months in a year, market gluts and over supply leading to distress sale are frequent happenings in litchi trade. In Uttarakhand Litchi is grown in the districts of Nainital, Dehradun, Udham Singh Nagar and some parts of Pithoragarh and Pauri. The major varieties grown here are Rose Scented, Early Seedless, Late Seedless, Calcutta, Pyazi, Dehradun, Dehra Rose and Muzzafarpur. Litchi of Uttarakhand, due to its peculiar taste, has become very popular worldwide and has emerged as the most potential fruit crop to earn foreign exchange through exports.

The market forces of demand and supply have been in serious engagement with each other since 1995 consequent upon the establishment of the World Trade Organization (WTO). The changing consumer knowledge, behavior as well as reliability of scientific merit on associated risk factors have brought the food safety issues into sharper focus.

Objectives

Keeping in view the importance of Litchi in Uttarakhand, this study was conducted with following objectives:

- Status of Litchi production;
- Global perspective of litchi;
- Marketing system of litchi and channels followed by growers;
- Constrains, prospects and potential for export of Litchi in value chain, and
- SWOT analysis for exports of litchi

Methodology

To achieve the above objectives both primary and secondary data were used. Primary data was collected from farmers, traders and exporters through well structured pre-tested questionnaire by following systematic and appropriate research techniques. The data regarding domestic and international marketing have been collected from main Litchi growing areas of Uttarakhand i.e. Dehradun, Nainital and Udham Singh Nagar districts. The secondary information was gathered from APEDA, New Delhi and Agri-Export Development Unit, Dehradun. Simple statistical methods such as ratios, percentage, figures were used.

Status of Litchi Production in India

The major litchi producing belts in different states are as follows:

- Uttarakhand (Dehradun, Udham Singh Nagar, Pithoragarh, Nainital and Haridwar)
- West Bengal (Murshidabad, 24-Paraganas)
- Bihar (Muzzafarpur, East Champaran, Samastipur, Vaisali, Bhagalpur)
- Assam (Kamrup, Sonipur, Bongaigaon)
- Punjab (Gurdaspur, Ropar, Hoshiyarpur)
- Uttar Pradesh (Saharanpur)

- Jharkhand & Tripura

The state-wise area and production of litchi is shown in Table 1. The table shows that maximum area under litchi was in Bihar followed by Uttarakhand.

Table 1: State-Wise Area and Production of Litchi

States	Area(000' Ha)			Production (000' MT)		
	1991-92	2000-01	2001-02	1991-92	2000-01	2001-02
Bihar	19.1	25.3	27.77	191.2	303.3	221.7
West Bengal	3.3	4.2	5.9	14.5	42.0	61.4
Assam	4.0	4.1	4.1	4.1	18.4	18.7
Punjab	1.5	1.2	1.2	9.1	11.5	11.6
Orrisa	#	3.5	3.5	#	8.2	10.2
Tripura	11.9	1.6	1.7	5.7	8.9	9.0
Jharkhand	#	0.5	1.5	#	5.0	7.5
Uttarakhand	8.4	8.9	7.8	10.0	8.8	7.5
Nagaland	0.0	0.8	0.8	0.1	4.0	4.0
Others	1.1	3.5	4.0	9.1	1.9	4.5
Total	49.3	53.6	58.2	243.8	412.0	356.2

Source: Indian Horticulture Data Base – 2003, National Horticulture Board, India.

included in others

In India, litchi maturity starts in the middle of May in the states of Tripura, West Bengal, Jharkhand; end of May and June in North Bihar, followed by Northern Tarai region of Himalaya in Uttarakhand. The state wise shares of various states in Litchi production are given in Fig. 1 In the state of Uttarakhand the litchi grown in tarai region mature during first fortnight of June and in the valley of Pithoragarh during second fortnight of August and offer rich potentials being off season.

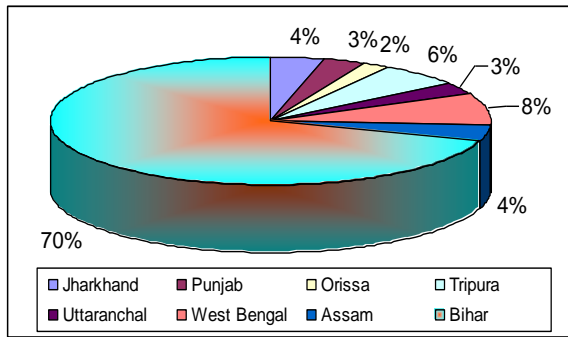


Fig. 1: Share of different states in litchi production

The proportion of area under different varieties of Litchi is given in Fig. 2. The table shows that maximum area was under Rose Scented variety being 37 per cent followed by Calcatthia (26%) and Shahi (21%).

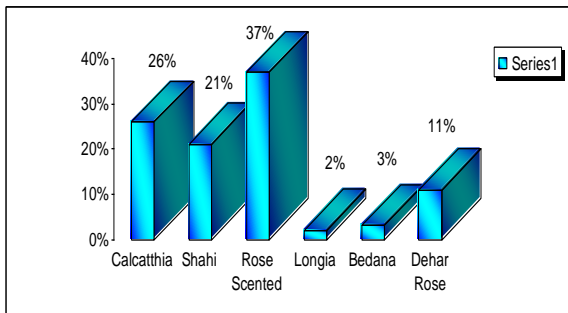


Fig.2: Proportion of area under different varieties of litchi in Uttarakhand

Major Exporting Countries

Australia (exporting about 25-30 percent of the total production), the other Litchi producing countries in this region are exporting very little (0.2-5.5 %) of their total production. The reasons are mainly that all the producing countries have a good domestic market and lack proper cool-chain and other exporting facilities. Small quantities of Litchi are, however, frozen and canned (about 2,500 MT in China and 500 MT in Taiwan Province of China) and exported to Japan, USA, Canada, Malaysia, Republic of Korea and

Australia. There is a strong domestic market for fresh Litchi in almost all the major producing countries, particularly China, India, Australia and others. The expansion of fresh Litchi market will depend on (a) High quality of the fruits, (b) Availability for a larger period through lengthening cropping season and (c) Improved production systems and infrastructure for post-harvest management

Major Importing Countries

Among the major international markets Hong Kong and Singapore receive approximately 12 to 15 thousand MT of Litchi from China and Taiwan during June-July. Taiwan exported about 5,900 MT of Litchi in 1999, and the main destinations were Philippines (1,735 MT), USA (1,191 MT), Japan (933 MT), Canada (930 MT), Thailand (489 MT) and Singapore (408 MT).

The European markets import about 20,000 MT of fresh Litchi of which nearly 50 per cent is imported by France alone and the rest mainly by Germany and the United Kingdom. The market is especially lively between Christmas and New Year's Day.

The main suppliers are Madagascar and South Africa during this period. The same markets also receive a small quantity from Australia during Christmas and from Thailand between July and August (400 MT), India (about 25 MT), China and Taiwan. The Litchi market in the United Arab Emirates, Saudi Arabia, Yemen, Lebanon, Dubai and Canada are expanding and can be targeted.

The import of Indian litchi is increasing in the European markets. The international prices for Litchi are determined by the quality and some other parameters such as price of litchi. The price elasticity is, however, slowly reducing with more predictable supply from the various sources but during the lean season it is available at a high premium. Litchi is a highly perishable fruit. Hence, the packaging and transportation

cost from the country of origin to the consuming country also affects the price.

Prices in the importing countries are lowest during peak supply period (December to March), prices then rise during late spring and summer at peak when only limited quantities are available in the world market and that too in India.

Post Harvest Handling and Marketing

Litchi fruit is highly perishable and requires special kind of post harvest handling. Freshly harvested fruits retain its color and quality only for 2-5 days at room temperature. Harvest at proper maturity stage during early in the morning, prevention of mechanical damage while harvesting, pre cooling, sulphitation and acidification and low temperature maintenance are some critical factors that, when optimized, allow the shelf-life of fruits for as long as six weeks. Post harvest losses have been the major hindrances of litchi export from India. It Was observed that A and B grade of litchi in Uttarakhand account for about 20 and 40 per cent of the total production respectively at farmers' level and rest is C grade (25 percent). The wastage in the form of leaves etc. also accounts for about 15 percent.

The post harvest operations for handling of fresh litchi fruits for export market can be broadly grouped into carry of produce to pack house, pack house operations, packaging standards, storage and transportation to national /international markets (Fig. 4). The packing operation for export is done at low temperature. Litchi is completely dried before packing and storage because moisture from either washing or condensation increases the chance of developing disease on the fruits. Quality Litchi is packed generally in CFB boxes of 2kgs with proper marking and labeling as per the requirement of importing country such as

country of origin; product, variety, net weight; name and address of exporter and importer, bar coding to take of traceability. But domestic markets require packing by various sizes (5 kg. boxes most common) due to high cost of packaging material.

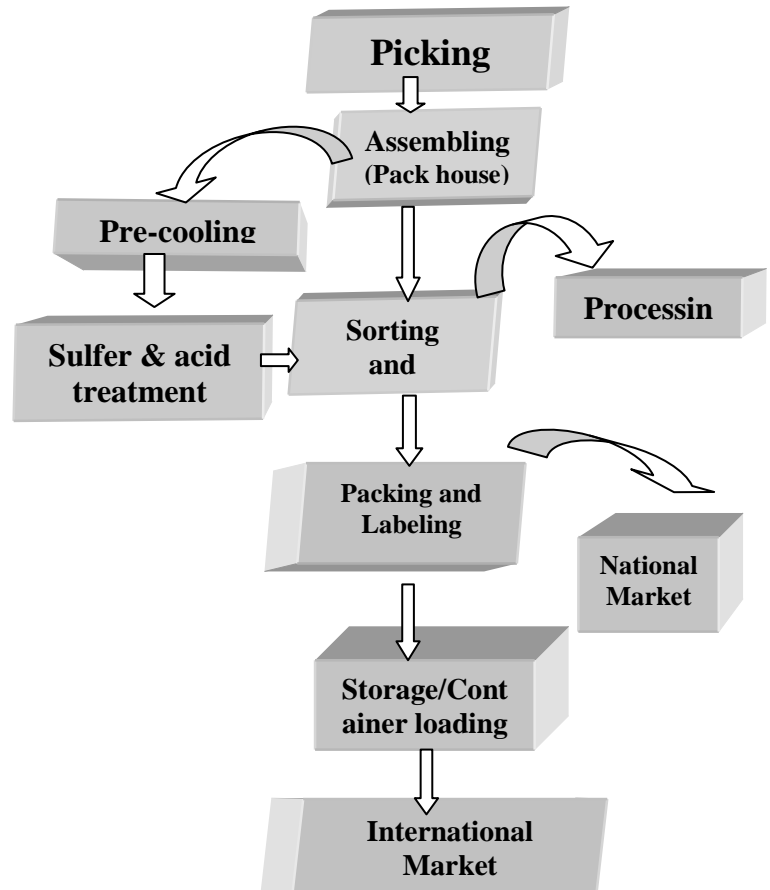


Fig. 4: Post Harvest Operation in Litchi

Marketing Cost: Domestic and International

Litchi is generally exported by air, although they may be shipped by sea if the cold chain is maintained. Transportation from the packing facility to the airport should be in cool trucks if the fruits have already been cooled. In all cases, trucks should be covered to prevent contact with wind, rain, and sun. Air shipments are made in aircraft containers or aircraft pallets. Heat buildup in containers is

possible, especially when it is exposed to the sun in the airport during handling.

Table 2: Producer’s Share Marketing Cost for Domestic and Export Markets in Litchi (Rs. / Kg)

Cost component	Domestic (Delhi)	Export (Dubai)
Fresh produce	12	22
Picking, assembling, sorting and grading	2	3
Sulphitation and pre-cooling	-	10
Packaging, labeling etc.	4	8
Loading and unloading	2	3
Transportation up to destination	1	55
Miscellaneous (clearing charges etc.)	-	3
Total Cost	21	104
Average whole sale price	30	180

The marketing cost of domestic and international market has been present in Table 2. The table reveals that the cost incurred on marketing is about rupees nine and Rs. 79 per kg. respectively, for Delhi and Dubai markets. The table further shows that cost of marketing is about five times that of domestic as lot of logestics are required in international trade but the absolute producer’s share is twice meaning by more returns to farmers. The producers have to under go lot of prerequisite such as pre-cooling sulphur and acid treatment, refrigerator transportation. The marketing of litchi is not well organized and therefore suffers from inefficiencies during entire value chain. The farmers market their litchi through (Fig.5) the following channels:

It has been identified that due to inefficiencies in the marketing the wastage is very high which results in low producer share in the consumer rupee (40%). The transactions in the domestic markets are not transparent and the commission agents charge more than the prescribed and in some cases it is more than six percent. During the survey, the exporters highlighted that despite of large orders they

could not supply due to absence of logistic support required for export.

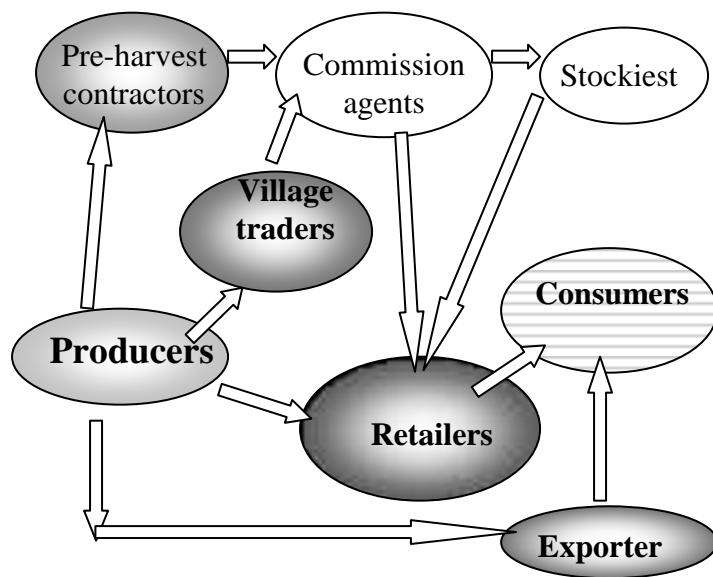


Fig.5: Marketing channels followed by Litchi growers

Constraints in Promotion of Exports

The study conducted in various parts of Uttarakhand shows that poor performance of the state in export of Litchi and other agricultural produce is attributed to number of reasons which are:

- Low productivity and poor quality.
- Lack of infrastructural facilities for post harvest management and marketing.
- Poor availability of quality planting materials of export oriented varieties.
- Slow pace in adoption of improved technologies due to poor extension management.
- Limited number of cultivars suitable for export purposes.
- Low awareness and poor transfer of different IPM programmes.
- Lack of quality standards in packaging and grading for export.

- Lack of efficient market intelligence/information.
- Poor coordination among different organizations of Uttarakhand which create hindrance in proper implementation of various technologies under field conditions.
- Inadequacy of trained manpower, which create problem in proper dissemination of effective and economical technologies.

Export Promotion Strategies

In Uttarakhand efforts are being made to overcome various constraints of export promotion since the establishment of a separate export zone for litchi. This has resulted in increase in its export by promoting and implementing of various programmes, technologies and development of infrastructure for post harvest management: Ensure the availability of quality planting materials of the export oriented varieties.

- Reduction in losses through the development of suitable infrastructure and creation of awareness.
- Establishment of market system having forward and backward linkages.
- Development of quality testing laboratories.
- Skillful and efficient transfer of technology.
- Application of information technology.
- Adoption of technology has to be used more effectively to achieve the goal of improved productivity and enhanced competitiveness.
- Contract farming may be pursued more vigorously to make such ventures more self sufficient in infrastructure and other inputs can raise the level of their performance to meet the international commitments.
- Development of human resource for effective introduction and efficient

management of modern post harvest technology.

- Intensive training programme to be undertaken on sanitary and phytosanitary measures required for export, meeting the standards of international markets.

SWOT Analysis of Litchi Trade from India

Strengths

- India is one of the largest producers with the highest yield.
- Shahi variety which is considered to be the best is being grown in India.
- Indian Litchi is accepted worldwide for its peculiar taste and aroma.
- Lots of potential in the EU market and not much of competition faced because of the unique harvesting period.

Weaknesses

- Most of the exporters are not the land owners and thus they are concerned in increasing the output only for the contract duration.
- Improper post harvest practices being followed
- Inadequate cold storage facilities available
- Shorter harvesting period as compared to other countries
- High seed pulp ratio in Indian Litchi
- No significant R&D being carried out for improving the variety and planting material
- Inadequate research and extension support to address specific problems and link them with farming community and industry.

Opportunities

- High market demand due to the rising awareness and acceptance for exotic fruits provides enough opportunities

- Suitable agro climatic conditions available for adopting and growing HYVs.
- Attractive international prices for the produce
- Limited competition as only few countries supplying in the international market
- People becoming more and more health conscious globally.

Threats

- Some of the countries have extended their harvesting seasons and therefore their produce is available in the market for a longer period
- The present exporting countries (Taiwan, Madagascar, and Thailand) have well established marketing network for export.

From above analysis, it may be concluded that Litchi possesses short shelf life at ambient condition. Inadequate storage and transport facilities, lack of processing unit and vulnerability of fruits to prevailing temperature and humidity conditions during harvesting pose threat to the fruit quality. Hence, careful post harvest techniques should be adopted particularly for grading, packing and transportation under controlled condition for effective marketing. With the setting up of Agri-Export Zone for litchi in Uttarakhand, more emphasis is being given on exports. The government is also giving lot of support in the value chain by providing infrastructure such as pre-cooling facilities, pack-houses, cold storage, refrigerator vans etc. Considering the existing scenario, the markets to be targeted for Litchi export (both fresh and processed) are European markets, Russia, Gulf countries, UK, Canada, USA etc. India is at advantage over other competitors as the Litchi is available in the lean period i.e. May -July when the Litchi from other sources not available except Thailand and China

Therefore, Horticulture Technology Mission, APEDA, Directorate of Horticulture,

NHB etc. can play big role and facilitate to meet out the demand for Uttarakhand Litchi in Middle East Countries and UK. The capacity building programmes through Agri-Export Development Unit of Uttarakhand may be develop for farmers and other stake holders.

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Biographical Sketch

Dr. B.K. Sikka: Professor Sikka is presently Dean of the College Agribusiness Management at GBPUA&T, Pantnagar. He has more than 2 decades of experience in teaching, research and extension in agri-business marketing, agri-business supply chain management, international marketing, and farm management. He has handled number of projects sponsored by USAID, FAO, International Potato Centre, Lima, Peru, World Bank, ICIMOD, Nepal, Indo-German Projects, FAO and Ministry of Agriculture, Govt. of India. In addition to this, authored more than 200 research papers & research reports and published 8 books individually or jointly.

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by Government of India, Uttarakhand and many other organizations. He has guided number of students and many research publications to his credit. He has extensively work for development of hill agriculture. He has coordinated the Agri-clinics and Agribusiness Center Scheme of Government of India for many years.

Dr. Raka Saxena: She is Senior Scientist at National Dairy Research Institute, Karnal. She has experience in the areas related to Agribusiness Environment, Project Management and Agribusiness Economics & Policy. She has guided the more than 25 MBA students and published many research articles in reputed journals. She has played key role in organization of many capacity building programmes.