

Marketing of Banana in selected districts of India

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ABSTRACT

Marketing costs, margins and important marketing channels for 'Basrai' cv. (Dwarf cavendish) were examined on the basis of data collected from growers, co-operative societies and intermediaries in selected districts of India. Losses at farm after harvest and during marketing up to retail level were studied. Farmers sell their standing crop to pre-harvest contractors and also to co-operative societies and commission agents. The net price received by the farmer is slightly less when produce is sold through co-operative society since the society charges higher commission than private commission agents. The share of producer, trader/wholeseller and retailer in price paid by consumer was nearly 28, 22 and 40 percent, respectively in two major channels in which farmers sold the produce to buyers of distant market through co-operative societies and commission agents. Transportation cost increased with distance between production area and market and this increased marketing cost. At local market in Jalgaon, retailer's share was 63.13% in price paid by the consumer. The losses of banana fruit at farm, wholesale and retail levels were 5.38, 3.50 and 2.85%, respectively. Losses at farm included culled, very small-sized, splitted and black spotted fruit. Rotting and softening were the major causes of loss at retail level since the fruit was ripened just before the retail phase of marketing.

INTRODUCTION

Total area under banana in India, is 0.468 million ha, with annual production of 15.423 million metric tonnes. In Maharashtra, total area under banana cultivation is 63000 ha. Other major banana growing states in India are Tamilnadu, Andhra pradesh, Karnataka, Kerala, Gujarat, Assam and Orissa. Jalgaon district in Maharashtra alone occupies 41544 ha with total production of 2.8 million metric tonnes. Banana is an important cash crop in Jalgaon district of Maharashtra. The major banana producing tehsils (talukas) in Jalgaon district are Raver, Yawal and Bhusawal with average productivity of 50-60 metric tonne /ha. District of Burhanpur in Madhya Pradesh is also an important banana growing centre adjoining to Jalgaon.

Prices received by the growers vary in self-marketing and pre-harvest contracting. Price variation thus creates a uncertainty with respect

to income and production level of banana. There are no reports on price spread, market margins and post-harvest losses of banana grown in Jalgaon district and nearby areas, which are important pockets of cultivation in the country. Hence the present study was undertaken with objectives: 1. To understand the process of marketing and find out channels of marketing, 2. To study price spread (marketing costs and margins) and work out market efficiency and 3. To estimate losses at farm, wholesale and retail level.

MATERIALS AND METHODS

The data for the present study were generated during November 2001. Thirty farmers from Raver taluka (Jalgaon district) were randomly selected for collection of primary data. The marketing practices were recorded and plantations were surveyed for assessment of

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losses during peak harvesting season. Fifteen commission agents/pre-harvest contractors (village traders) and retailers were randomly selected at Jalgaon, Bhusawal (tehsil in Jalgaon), District Burhanpur and District Nagpur markets. Marketing practices (wholesale and retail) at these markets were recorded and data were also collected from buyers who came to Burhanpur and Jalgaon from distant markets. Farmers and market functionaries were interviewed using especially structured interview schedules to collect data. The channels of marketing were identified. The harvesting and post-harvest handling practices were also recorded since these have considerable bearing on extent of losses. Losses were ascertained at farm, wholesale and retail level. Losses from hundred banana bunches at each of surveyed farms were segregated and losses at farm level were ascertained. For determination of losses at wholesale and retail level at Nagpur, hundred bunches were taken at wholesale level while hundred hands were taken at retail level since banana is sold in dozens (each hand with nearly one dozen fruit) at retail level. The losses were estimated in the major channel of marketing i.e. producer--wholeseller (distant market)retailer. The marketing efficiency was estimated by the formula given below (Acharya and Agarwal 1999).

$$\text{Marketing efficiency} = \frac{\text{Net price received by the farmer}}{\text{Total marketing costs} + \text{Total of net margins}}$$

RESULTS AND DISCUSSION

Harvesting and transportation:- There are two crops of banana cultivated in Jalgaon district especially Raver viz. 'Mrig' and 'Kande' bahar and the harvesting of these crops starts in the months of May-June and October-November, respectively, two years after planting. Bunches are harvested usually with the help of sickle from the top and brought near the truck. Small and damaged fruits/hands are removed, bunches are weighed and loaded into the truck with banana leaves as cushioning material on the sides, at bottom and between the bunches.

Weighment of bunches is noted by the representatives of the commission agents or societies depending on the agency through which produce is sold. A truckload of 10 tonne contains around 700-800 bunches depending upon the size of bunch i.e. 10-15 kg. Only 'A' and 'B' grade produce is sent to the distant markets and the left over 'C' grade is sold to the local retailers. Transportation charge for 10 tonne of bunches by road from Jalgaon to Mumbai is roughly Rs. 8500/-, for Pune and Nagpur it is Rs. 7500/- while for Delhi and Lucknow cost is Rs. 16000/-. Bananas are also sent to distant markets by train from Raver, and Nimbhora (Railway) etc. in Jalgaon district. The transportation charge by rail from Jalgaon to Delhi is Rs. 8000/- per wagon (capacity 20 tonne) and Rs. 3000 from farm to railway station. Thus the transportation charges are less by train as compared to road transport. Time taken by train from Jalgaon to Delhi is 4-5 days while truck takes 2-3 days.

Marketing

Co-operative societies

There are 48 societies of farmers for sale of banana in Jalgaon district, however only few are actively functioning. About 50% farmers sell their produce through these societies. Co-operative societies provide loans (Rs 3000-3500/acre @ interest rate of 16%) to the farmers according to the size of banana plantation. The farmers who sell their produce through co-operative societies are the members of the societies. These societies deal with other fruits and vegetables also and the membership varies from 100 to 600. There are no societies exclusively working for the marketing of banana. The holding sizes under banana plantation vary from 1 acre to 100 acres among the farmers and accordingly their share in the societies.

The societies purchase produce of the members at farm and sell it to the wholeseller of distant markets like Delhi, Mumbai, Pune, Lucknow, Nagpur etc. The produce is directly transported from farm to distant markets. There is no system of auctioning for banana in Jalgaon district. The rate is decided by M/s Sharma and company who is the biggest banana commission

agent of Raver. The rate is fixed on the basis of demand and prevailing prices in distant markets like Delhi, Lucknow, Mumbai etc. All societies and commission agents in Jalgaon district consider the rate fixed by M/s Sharma and Company as a standard one and do the transactions accordingly. The transportation charges are borne by the purchaser of distant market. For the services of harvesting, weighing and loading, the societies charge commission @ 3% from the farmer and 1% from the purchaser of distant market.

Commission agents

There are commission agents in every taluka like Raver, Yawal, Bhusawal and Jalgaon. The commission agents (also called as 'Group') also act as pre-harvest contractors and purchase the produce from farmers as well as from the societies. As a pre-harvest contractor, they book the farm with advance payment i.e. Rs. 2000/acre or @ Rs.10/plant. They get the produce harvested and pay Rs. 100/- per truck load for cutting of bunches and Rs. 100/- per truck load for weighing. The farmers pay Rs.1 /bunch to carry it from farm to truck or where the weighing is done. The purchaser pays loading charges @Rs. 300/- per truck load and also pays unloading and transportation charges. For these operations the commission agent charges 2% from the purchaser of distant market and 1% from the producers. Commission charged from the purchaser of distant market varies depending on availability of fruit and it varies from 2-5%.

Marketing channels

There are three most important channels through which almost 95% banana produce is marketed from Jalgaon district.

- 1) Farmer- Co-operative society-Purchaser (distant markets)-Retailer- Consumer
- 2)Farmer- Commission agent-Purchaser (distant market)- Retailer- Consumer
- 3) Farmer- Commission agent- Local Retailer - Consumer

Burhanpur market

Burhanpur which is in Madhya Pradesh adjoining to Maharashtra (around 20 km from Raver) is also an important market for banana var.'Basrai'(Dwarf cavendish). It is the only market where the auction of banana takes place without seeing the produce. The transaction takes place based on the information provided about the quality and quantity of the produce on display board. Pre-harvest contractors do not bring the produce at Burhanpur market where the auction takes place. The pre-harvest contractors come with the details of the produce in the particular orchard specifying 'A' grade or 'B' grade produce and make note of it on auction board. The contractors of nearby villages and areas bordering Madhya Pradesh sell their produce at Burhanpur market. In this market, the contractors book the banana orchard by making advance payment i.e. Rs.10/plant in the month of Jan - Feb. for *Mrig* bahar crop and make a rough estimate of the produce of 'A', 'B' and 'C' grade.

The auction takes place between the contractor and the commission agent. Based on the requirement of the wholesaler of the distant market the commission agents purchase the produce through contractor and send it to the purchaser of the distant market. The contractor pays auction rate to the farmer and charge him 3% as commission. He also takes 10% commission from the commission agent purchasing the produce at Burhanpur. The commission agent of the Burhanpur sends the produce to the wholesaler of distant market on 10% commission. The purchaser pays Rs. 300/- per truck load for loading. The weighing is done by the labourers of pre-harvest contractors. Farmers pay only Rs.1 /bunch to carry it from farm to truck.

Channels of marketing at Burhanpur

Farmer-Contractor-C.A. of Burhanpur-Purchaser (distant markets)-Retailer-Consumer
 Local Retailer- Consumer

Bhusawal wholesale market

In Bhusawal town at wholesale market, farmers take 'C' grade produce to commission agent. 'A' and 'B' grade fruits mostly are sent to distant markets. The auction generally takes place between commission agent and retailers. The commission agent charges 3% commission each from farmer and retailers. It is a very small market and only few commission agents were found to operate in this business.

Retail markets (Jalgaon and Bhusawal)

The local retailers purchase the 'C' grade fruits from the commission agent (Group). Producers bring the produce in tempo from the farm and pay Rs. 600 towards transportation from farm to commission agent. Retailers ripen the banana hands cut from the bunches by dipping in ethrel solution. Hands are arranged in a heap and covered with banana leaves. The fruit ripens on 3rd day.

In about 4 tonnes of banana bunches purchased by a retailer at a time he gets nearly 35000 fruits of which 34000 fruits are of good quality and 1000 fruit contribute towards losses. Retailer sorts the produce in two grades viz. 'A' and 'B'. Out of 34000 good fruits, retailer gets 30,000 fruits of 'A' grade and 4000 fruits of 'B' grade. Retailer sells 'A' grade produce @ Rs 10-12/dz and grade 'B' in Rs7-8/dz. Fruits are also sold further to small retailers @ Rs 50/- per 100 fruits. On an average a retailer sells 2000 fruits (about 140-160 hands) in a day.

Nagpur Market

In Nagpur market (nearly 600 km. from Jalgaon), fruit arrive from August onwards from Jalgaon and Bhusawal. For transport purpose unpacked bunches are arranged in horizontal rows with stalk end opposite to each other and green banana leaves placed as cushioning material in the trucks. At the time of arrival at Nagpur, fruits are green and firm.

Marketing process at Nagpur

Wholesellers usually purchase the fruits from farmer through the commission agent at the place of production. A truck load of 10 tonnes contains 70-75 thousand fruits. Wholeseller pays commission and transportation charge. At Nagpur wholesale market as the fruit arrives, wholesaler pays for the unloading, reloading and 1.05% market cess. After unloading at wholesale market, fruits are sorted out in to 4 Categories i. e. 'A', 'B', 'C', 'D' depending upon the quality and size of fruits. In general, it includes 6 tonnes (60%) of grade 'A', 2 tonnes (20 %) of grade 'B', 1 tonne (10 %) of grade 'C' and 0.5 tonne (5%) of grade 'D'. About 0.5 tonne per truck load goes as waste material (stem of banana bunches). Wholeseller has to pay for sorting. After sorting, fruits are ripened by the wholeseller as below:

Method of ripening

After sorting, fruits are dipped in a solution of ethrel (10 ml in 16 liters water). Nearly 100 ml ethrel is required for ripening of fruit from one truck load. Ethrel costs Rs 150/- per 100 ml. After dipping, fruits are kept on floor by making a heap for one day. Next day, heap is covered with gunny bags and ice kept on the covered heap to maintain temperature. Fruit ripens on 4th day.

Nagpur retail Market Retailers purchase grade 'A' fruits for Rs. 700-720/- per 1000 fruits (i.e. Rs. 8.40-8.60/dz.) and grade 'B' 500-600/- per 1000 fruits (i.e. Rs 6-7.20 /dz.) The retail price is Rs10/dz for grade 'A' fruit for and Rs. 8-9 /dz. for grade 'B'.

Mahabanana

Although Jalgaon district covers the largest area under banana in Maharashtra, due to lack of availability of export quality produce the export of banana is negligible (0.05%). Taking cue from 'Mahagrape' and its success as a co-operative venture of grape growers of Maharashtra, the banana growers in Jalgaon district came forward recently for the formation of 'Mahabanana' a federation of co-operative societies with an objective to promote export and provide technical guidance to growers.

Price spread and marketing efficiency

Price received by the producer was almost same in case of selling through co-operative society and through private commission agent (Group), since the similar rates were paid by them. Commission agents charged 1% while co-operative societies charged 3% commission from farmer. The higher commission by the co-operative societies was due to other services they provide like supply of inputs, loans to farmers and arranging for harvesting and marketing. The market efficiency was almost similar (0.39-0.41) in the three channels (Table 1) where produce was sold through co-operative society, commission agents and contractors. Share of producer in the price paid by the consumer was 28-29%, which was quite low. The wholesalers' margin was considerably higher (21.85-23.13% of consumer price). The retailers' margin was even higher (33-40% of consumer price). It was evident from the data that retailers at distant market get ripened fruit from the wholesalers and increase the price by 70-80%. In local market at Jalgaon, where fruits are sold to retailers through commission agents, the marketing efficiency was the least (0.35) and retailer's margin was more than double the producer's sale price (Table 2). Price spread in local channel (Table 2) indicated that there is no wholesaler in this trade and hence price paid by the consumer was less as compared with retail price in distant market (Table 1). However, in local Jalgaon market retailers gained exorbitant margin (63.13%) since urban consumers had no alternative source of banana fruit. Selvin and Radhakrishnan (1990) reported that farmers predominantly sold standing crop of banana to pre-harvest contractors in Malappuram district of Kerala. However farmers' share in price paid by the consumers was 72% in the channel: Producer- preharvest contractor-commission agent retailer- consumer. The retailer's margin was only 12.25% in price paid by the consumer which can be attributed to local market where retailers have not much scope to increase prices due to local availability of fruit in every household in Kerala. In case of vegetables (bitter gourd and tomato), marketing efficiency was lower (0.92-0.98) in channel:-Producer-wholesaler-retailer-consumer as compared with higher efficiency (1.44-1.45) in channel of Producer-retailer-consumer (Chole *et al.*, 2002). This indicated that longer the marketing chain

with more intermediaries, lower the marketing efficiency. Marketing of pomegranate through co-operative society resulted in higher marketing efficiency (1.06) with better returns to growers (Ladaniya *et al.* 2003). Veerakumaran and Satheesh (2002) reported that societies were successful in providing quality vegetables at reasonable price in accurate weight.

The marketing structure studied in present investigation indicated that there is no regulation/control on prices at retail level and retailers are free to sell the produce at any prices they desired. Moreover, there are no regulations about fruit quality also. The system of farmers' market (*Rythu bazar* as started in Andhra Pradesh), where farmers sell the produce directly to consumers, can increase the producer's share in price paid by the consumer at least in production areas and around cities and towns.

Losses

At farm level, in a bunch of 10-15 kg (120-130 banana fingers) few fruits (fingers) were lost. The loss due to cracking increased when harvesting was delayed. Other type of loss included culled as well as black and red spotted fruits. The red spot was found in tissue-cultured banana only. In present study loss was estimated in fruits grown conventionally (not from tissue cultured plants). The total losses at farm level were 5.38% and it included splitted fruits (28.57%), cull, blemished, deformed fruit (42.8%) and fruits with black spots (28.57%). These fruits were removed manually from the bunches by growers before weighment. It may be debatable that whether this loss recorded at farm can be considered as post-harvest loss or not since loss was not contributed by post-harvest factors (handling, transportation etc.) and was already present in bunch while harvesting. The realization of loss was of course after harvest but causal factors were nutritional, diseases, pests and inherent factors (genetic) which are all related to cultivation.

During sorting at wholesale level at Nagpur (Jalgaon to Nagpur distance about 600 km), the losses were 3.50%. It included cut fruits (50%), culled (30%), bruised (15%) and splitted (5%).

Table 1. Price spread of 'Basrai' banana sold through Co-operative society, commission agents and preharvest contractor

Market functionaries, costs	Channel I Rs./dz	% of consumer's price	Channel II Rs./dz	% of Consumer's Price	Channel III Rs./dz	% of Consumer's Price
Net price received by the producer	3.50	29.16	3.46	28.83	4.27	28.46
Expenses incurred by the producer						
a. Commission						
b. Other marketing charges (market Fee, auction etc.)	0.10	0.83	0.036	0.3	0.13	0.87
c. Packing cost						
d. Transportation charges	-					
e. Processing cost	-					
f. Miscellaneous (For carrying bunch)	0.10	0.83	0.1	0.83	0.1	0.66
Sub-Total	0.20	1.66	0.14	1.6	0.23	1.53
Producer's sales price/ Commission agent or Wholesellers Purchase price	3.6		3.6		4.5	
Expenses of trader/wholeseller						
a. Commission of commission agent	0.036	0.3	0.072	0.60	0.45	3
b. Other marketing charges (market Fee, auction etc.)	-					
c. Packing cost/loading	0.03	0.25	0.03	0.25	0.03	0.2
d. Transportation charges including local transport)	0.90	7.5	0.90	7.5	1.6	10.67
e. Processing cost	-					
f. Miscellaneous (ripening)	0.02	0.16	0.02	0.16	0.02	0.13
Sub-Total	0.98	8.16	1.02	8.50	2.1	14
Traders margin	2.62	21.85	2.58	21.50	3.47	23.13
Producer's or traders or wholesalers sales price/ Retailer's purchase price	7.2		7.2		10.07	67
Expenses incurred by the retailer						
a. Commission of commission agent	-					
b. Other marketing charges (market Fee, auction etc.)	-					
c. Packing cost	-					
d. Transportation charges	-					
e. Processing cost	-					
f. Miscellaneous	-					
Sub-Total	-					
Retailer's Margin	4.8	40	4.8	40	4.93	33
Retailer's sales price/ Consumer's purchase price	12		12		15	
Marketing efficiency	0.41		0.40		0.39	

Channel I. Farmer-Co-operative societies- Purchaser of distant (Nagpur) markets-Retailer Consumer

Channel II. Farmer-Commission agent-Purchaser of distant (Nagpur) market-Retailer-Consumer

Local retailer Consumer

Channel III. Farmer-Contractor-C.A. of Burhanpur market-Purchaser of distant (Delhi) market-Retailer- Consumer

Note: In channel I, society charges 3% commission from farmer and 1% from purchaser

In channel II, commission agent charges 1% commission from farmer and 2% from purchaser

In channel III, contractor charges 3% commission from farmer. Commission agent takes 10% commission from purchaser.

Table 2. Price spread for banana sold at Jalgaon

Market functionaries, costs	Channel I Rs./dz	% of consumer's price
Net price received by the producer	2.08	26
Expenses incurred by the producer		
a. Commission of commission agent	0.072	0.90
b. Other marketing charges (market Fee, auction etc.)		
c. Packing cost		
d. Transportation charges	0.25	3.12
e. Processing cost		
f. Miscellaneous	--	--
Sub-Total	0.32	4.00
Producer's sales price/ Commission agent or Wholesellers Purchase price	2.4	--
Expenses of trader/wholeseller		
a. Commission of commission agent	--	--
b. Other marketing charges (market Fee, auction etc.)	--	--
c. Packing cost/loading	--	--
d. Transportation charges	--	--
e. Processing cost	--	--
f. Miscellaneous	--	--
Sub-Total	--	--
Wholeseller's margin	--	--
Producer's or traders or wholesalers sales price/ Retailer's purchase price	2.4	--
Expenses incurred by the retailer		
a. Commission of commission agent	0.072	0.90
b. Other marketing charges (market Fee, auction etc.)	0.025	0.31
c. Packing cost		
d. Transportation charges		
e. Ripening cost	0.45	5.63
f. Miscellaneous		
Sub-Total	0.55	6.88
Retailer's Margin	5.05	63.13
Retailer's sales price/ Consumer's purchase price	8	
Marketing efficiency	0.35	

Channel: Farmer- Commission agent- Local Retailer-Consumer

After ripening, the losses at wholesale level were negligible (0.25%) which occurred mostly due to rupturing.

The lower losses till fruit reached to retail level could be attributed to un-ripened fruit which was green and hard. At consuming market, fruit is ripened and sold within 3-4 days. At retail level (Nagpur), loss was 2.85%, which occurred due to over ripening and rotting. Retailers informed that losses increased to 6% if it takes longer to sell. These findings indicated that total physical loss of banana fruit from farm to retail level was 11.73%. If loss at farm (which is not due to postharvest factors) is not included then postharvest loss was 6.35% in the channel : producer--wholeseller (Nagpur, distant market)retailer. Loss may increase depending on distance and time taken for sale particularly at retail level. In fruit crops losses depend on perishability of fruit also. Postharvest losses in pear, guava and grapes were reported to be 4.71,18.33 and 2.40%, respectively (Karam Singh *et al.* 2001).

Conclusion and policy implications

Nearly 50% of the 'Basrai'(Dwarf Cavendish) banana crop grown in Jalgaon district of Maharashtra is sold through co-operatives while rest is sold through private commission agents. Co-operative societies sell the fruit to wholesalers of distant market and also provide in-puts for cultivation to growers. Commission agents provide advance money to growers, purchase their fruit and market it with 1% commission. In Burhanpur, almost entire crop is sold through pre-harvest contractors who provide advance money to meet economic and social needs of the growers. Marketing efficiency was 0.41 and 0.40 when the fruits were sold through co-operative society and private commission agents, respectively since societies followed same channel after receiving fruit from growers. In Jalgaon local market, marketing efficiency was low (0.35) due to very high margin (63.13%) of retailers. Study indicated that with increase in margins and marketing costs, marketing efficiency decreased. Total loss of banana fruit from farm to retail level was 11.73%. Retail market is unorganised and unregulated where consumer has to bargain. At one end of the chain producers'

share in price paid by the consumer is 28-29% only whereas at the other end of the chain, consumers have to pay higher prices. Following recommendations emerged from the present study:- 1) Co-operative societies of growers and State Agricultural Marketing Board should re-engineer/re-orient their operations and strategies to offer the benefits of higher prices back to producer which would have stimulating effect on growers for higher production of quality fruit. For this purpose, these organizations should enter in to retailing and at the same time "Farmers' Markets" need also to be promoted. 2) Market intelligence:- National Horticulture Board and State Agric. Marketing Board should provide market information about daily arrivals, prices and demand in various markets of the country on internet. 3) Market finance:-The growers and their societies need credit facility through banks for marketing of produce which involves expenses and risks. 4) Market infrastructure: - The societies and growers need transport vehicles and storage facilities. 5) Crop insurance:- With the failure of crop due to natural calamities or pests and diseases, growers fall in the 'Debt-Trap' of commission agents and pre-harvest contractors whom they have to sell their produce subsequently (to clear the debt). Crop insurance schemes would help avoid such situation.

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