



SUPPLY CHAIN OF BANANA IN KAUSHAMBI DISTRICT OF U.P.

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Abstract

The banana is one of the most primitive, cultivated tropical fruits in India which ranks next to mango in area and production. Excess production of fruits and vegetables are transported from the producer to ultimate consumers. During the process of movements of banana several intermediaries are involved. The main objective of the study was to study existing supply chain and its management in marketing of banana. The study was undertaken in Kaushambi district of U.P. Multistage sampling technique was adopted for selection of respondents. A total of 170 banana growers (i.e. 86 small, 57 medium and 27 large growers) were selected. Banana cultivation per hectare for small size farms was 0.39 ha, 0.85 ha for medium size farms and 1.30 ha for large size of farms group. The actual marketed surplus was highest in large size farms (688.27 qt.) followed by medium and small size of farms group (659.83 qt. and 612.66 qt.) respectively. The study reveals that disposal pattern of actual Marketable surplus of Banana in three different marketing channels i.e. channel I, channel II and channel III, Channel II was most prevalent adopted by the growers in the study area, as the highest percentage of the produce was transacted through channel II (Producer → Commission Agent → Retailer → Consumer) i.e. 68.08 per cent of growers followed by 16.66 per cent through channel I and 15.26 per cent through channel III respectively. The total market cost was higher in channel III (Rs.325.50). And the total marketing margin and price spread was also seen higher in channel III (Rs. 210.00 and Rs.535.50) because in the channel III there are maximum number of intermediates. The producer share in consumer rupee was higher in channel I, (69.41 per cent) and the marketing efficiency was also higher in channel I, (5.56 per cent). Due to less number of intermediary's supply chain I, (Producer – Retailer -Consumer) was found to be most suitable chain in context of marketing of banana. By strengthen this channel per cent share of transected fruit can be increased.

Key words: banana, disposal pattern, Kaushambi, marketing channel, Supply chain.

I. INTRODUCTION

Distribution comprises movement of banana from producer up to it reaches to ultimate consumer. In this process the fruit must pass through various hands except where it is directly sold to consumers by the producer's, a rare phenomenon. In this chain, various agencies like growers, pre-harvest contractors, commission agents, whole sellers and retailers etc. are engaged. Farmers reported the prevalent supply channel of banana in the district as follows;

1. Producer → Retailer → Consumer
2. Producer → Commission Agent → Retailer → Consumer
3. Producer → Commission Agent → Whole seller → Retailer → Consumer

The nearest market for study area is Mundera mandi of Allahabad district. Some quantity of produce also goes to Delhi, Pratapgarh, Karvi, Banda, Jhansi and Varanasi. Maximum three levels of intermediaries are present in supply chain commission agents, wholesalers and retailers.

II. METHODOLOGY

District Kaushambi was selected purposively because of banana cultivation in the area on large scale. Multistage sampling technique was adopted for selection of respondents. Out of eight development blocks 50 per cent blocks are selected purposively because of more area under banana cultivation. They are Manjhanpur, Nevada, Mooratganj and Kaushambi. Out of 376 villages 3 per cent villages were selected by simple Random Sampling method. Thereafter, 20 per cent of banana growers, total of 170 (86 small, 57 medium and 27 large) were selected by simple Random Sampling Technique. A total of 71 market functionaries were studied (23 respondents of primary market and 48 respondents of secondary market). Primary data as per objectives of the study are collected with the help of pre-tested schedules by survey method during 2014-15.

III. RESULTS AND DISCUSSION

Table 1 Disposal Pattern of Banana Crop per hectare in different size of Farms Groups of overall year.

(Quantity in quintal)

Sl. No.	Particulars	Size of Farms Groups			Sample Average
		Small	Medium	Large	
1.	Area under Banana cultivation per hectare	0.39	0.85	1.30	0.75
2.	Total production of Banana in quintals per Farms level	616.66 (100.00)	663.33 (100.00)	690.00 (100.00)	656.66 (100.00)
3.	Retain for Banana (in tons)				
i.	Home Consumption	1.20 (0.19)	1.0 (0.15)	0.50 (0.07)	0.90 (0.13)
ii.	Kind Payment as wages	1.50 (0.24)	2.0 (0.30)	0.75 (0.10)	1.41 (0.21)
iii.	Relatives and religious purpose	1.30 (0.21)	0.50 (0.07)	0.45 (0.06)	0.75 (0.11)
iv.	Retain for next years				
4.	Total retention for Banana	4 (0.64)	3.50 (0.52)	1.7 (0.24)	3.06 (0.46)
5	Marketable surplus	612.66 (99.35)	659.83 (99.47)	688.27 (99.75)	653.58 (99.53)

Note: Figures in the parenthesis indicate percentage to the total

It's revealed from the above table that the area under Banana cultivation per hectare for small size farms was 0.39 ha, 0.85 ha for medium size farms and 1.30 ha for large size of farms group, which constituted on sample average of 0.75 ha respectively. Total production of Banana in quintal was highest in large size farms (690.00 qtl) as compared to medium (663.33 qtl) and was lowest in small size farms (616.66 qtl).

The quantity retained for Banana growers was for home consumption, some of the quantity was used as kind payment to labours as wages, some of the quantity used as gift for religious purpose. The highest percent of the produce was retained by small size farms (0.64 per cent) followed by medium size farms (0.52 per cent) and large size farms (0.24 per cent) respectively. This also indicated that highest percentage marketable surplus was found by large size farms 99.75 percent followed by 99.47 per cent in medium size farms and 98.35 percent in small size of farms groups. This makes the sample average for marketable surplus of 99.53 per cent of the total production.

Table 2 Disposal Pattern of Marketable Surplus in different channels of marketing in different size of Farms Groups.

(Quantity in quintal)

Sl. No.	Particulars	Size of Farms Groups			Sample Average
		Small	Medium	Large	
1.	Marketable surplus from own Farm	612.66	659.83	688.27	653.58
2.	Quantity Purchased from Other Farms	-	-	-	-
3.	Actual Marketable Surplus (in quintal)	612.66	659.83	688.27	653.58
4.	Disposal of actual Marketed Surplus of Banana in Different Marketing Channels				
i	Producer-Retailer- consumer	66.65 (10.88)	28.50 (4.32)	13.76 (2.00)	108.91 (16.66)
ii.	Producer- Commission Agents - Retailer-consumer	408.03 (66.60)	562.50 (85.25)	379.71 (55.17)	444.95 (68.08)
iii	Producer - Commission Agents- Wholesaler- Retailer- Consumer	137.90 (22.51)	68.68 (10.41)	294.71 (42.82)	99.73 (15.26)

Note: Figures in the parenthesis indicate percentage to the total

Disposal pattern of marketable surplus of Banana is shown in the Table 2. It could be seen from the table that actual marketed surplus was highest in large size farms (688.27 qt.) followed by medium and small size of farms group (659.83 qt. and 612.66 qt.) respectively. The table reveals that disposal pattern of actual Marketable surplus of Banana in three different marketing channels i.e. channel I, channel II and channel III, Channel II was most prevalent adopted by the growers in the study area, as the highest percentage of the produce was transacted through channel II i.e. 68.08 per cent of growers followed by 16.66 per cent through channel I and 15.26 per cent through channel I respectively.

Table 3 Marketing Cost, Marketing Margin and Price Spread in Channel-I, Producer → Retailer → Consumer

Sl.No.	Particulars	Rs./ Quintal
I	Cost incurred by the producer	
i.	Weighing charges	15.00 (1.45)
ii.	Loading and unloading charges	15.00 (1.45)
iii.	Miscellaneous charges	5.0 (0.48)
2	Total marketing cost	35.00 (3.39)
3.	Net price received by producer	765.00 (74.27)
4.	Sale price of produce to Retailer	800.00 (77.66)
II	Cost incurred by the Retailer	
i.	Transport charges	50.00 (4.85)
ii.	Losses & Miscellaneous charges	10.00 (0.97)
5.	Total Marketing cost	65.00 (6.31)
6.	Net price received by Retailer	945.00 (91.74)
7.	Retailer's margin	85.00 (8.25)
8.	Sale price to consumer	1030.00 (100)

9.	Price Spread	185.00 (17.96)
10.	Producer's share in consumer's Rupees (%)	69.41
11.	Marketing Efficiency (in %)	5.56

Note: Figure in the parenthesis indicates percentage to the total consumer price.

Table 3 reveals that there is only one intermediary i.e. Retailer, through which Banana reaches to the consumers. This is the shortest channel among three identified channels. The producer sells his produce to the Retailers and through retailers the produce reaches to consumers after collecting margin. Average marketing cost when producers sold their produce to Retailers was Rs. 35.00/qt. Sale price of the produce to retailers was Rs. 800.00/qt. In this channel the Price spread was Rs.185.00/qt. Producer's share in consumer's Rupee was 69.41per cent and Marketing Efficiency was 5.56 per cent.

**Table 4 Marketing Cost, Marketing Margin and Price Spread in Channel-II, Producer
 →Commission Agent→ Retailer → Consumer**

Sl.No.	Particulars	Rs./ Quintal
1.	Cost incurred by the producer	
i.	Transportation cost	50.00 (5.12)
ii.	Weighing charges	15.00 (1.53)
iii.	Loading and unloading charges	15.00 (1.53)
iv.	Miscellaneous charges	12.50 (1.28)
2	Total marketing cost	92.50 (9.48)
3.	Net price received by producer	607.50 (62.30)
4.	Sale price of producer to Commission Agent	700.00 (71.79)
5.	Cost incurred by the Commission Agents	
i.	Transport charges	50.00 (5.12)
ii	Weighing charges	15.00 (1.53)
iii.	Loading and unloading charges	15.00 (1.53)
iv.	Losses & Miscellaneous charges	5.00 (0.51)
6.	Total Marketing cost	85.00 (8.71)
7.	Net price received by Commission Agent	805.00 (82.56)
8.	Commission Agent's margin	40.00 (4.10)
9..	Sale price of commission agent's to Retailers	845.00 (86.66)
10.	Cost incurred by the Retailers	
i.	Transport charges	60.00 (6.15)
ii.	Weighing charges	10.00 (1.02)
iii.	Loading-unloading charges	10.00 (1.02)
iv.	Miscellaneous charges	5.00 (0.51)
11	Total Marketing cost	85.00 (8.71)

12.	Net price received by Retailers	890.00 (91.28)
13.	Retailer Margin	85.00 (8.71)
14.	Sale price of Retailers to consumers	975.00 (100)
15..	Price Spread	422.50
16.	Consumers paid price	975 (100.00)
17.	Producer's share in consumer's Rupees (%)	62.30
18.	Marketing Efficiency (in %)	2.51

Note: Figure in the parenthesis indicates percentage to the total consumer price.

Table 4 reveals the marketing cost, marketing margin, and price spread for channel II. Two intermediaries were identified through which Banana reaches to the consumer's i.e. commission agents and Retailers. The producer sells his produce to the commission, who in turn sell it to retailers in the market. Finally, the produce reaches to consumers after collecting margin. Average marketing cost when producers sold their produce to commission agents in the market was Rs.85.00/qt. Among these cost miscellaneous charges was most important which accounted for Rs. 5.00, followed by transportation Rs. 50/qt, loading and unloading cost Rs.15.00/qt. Sale price of the produce to retailers was Rs.845.00/qt. In these channels marketing cost of the producer, commission agents and retailers was 26.92 percent.

Table 5 Marketing Cost, Marketing Margin and Price Spread in different Size of Farms Group.

Channel-III Producer →Commission Agent → Wholesaler →Retailer →Consumer

Sl. No.	Particulars	Rs./ Quintal
1.	Cost incurred by the producer	
i.	Transportation cost	50.00 (3.96)
ii.	Weighing charges	15.00 (1.18)
Iii	Loading and unloading charges	15.00 (1.18)
iv.	Miscellaneous charges	18.50 (1.46)
2	Total marketing cost	98.50 (7.80)
3.	Net price received by producer	601.50 (47.66)
4.	Sale price of producer to Commissioner agent	700.00 (55.46)
5.	Cost incurred by the Commission Agents	
i.	Transport charges	50.00 (3.96)
ii.	Weighing charges	15.00 (1.18)
iii.	Loading and unloading charges	15.00 (1.18)
iv.	Losses & Miscellaneous charges	5.00 (0.39)
6.	Total Marketing cost	85.00 (6.73)
7.	Net price received by commission agent	765.00 (60.61)
8.	Sale price	850.00 (67.35)
9.	Commission agent's margin	40.00

		(3.16)
10.	Sale price of commission agent to wholesaler	890.00 (70.52)
11.	Cost incurred by the wholesaler	
i.	Transport charges	30.00 (2.37)
ii.	Loading-unloading charges	15.00 (1.18)
iii.	Weighing charges	15.00 (1.18)
iv.	Miscellaneous charges	5.00 (0.39)
12.	Total Marketing cost	65.00 (5.15)
13.	Wholesalers' margin	50.00 (3.96)
14.	Net price received by Retailers	1035.00 (82)
15.	Sale price of wholesaler's to Retailer	1100.00 (87.16)
16.	Cost incurred by the Retailer	
i.	Transport charges	40.00 (3.16)
ii.	Weighing charges	15.00 (1.18)
iii.	Loading and unloading charges	15.00 (1.18)
iv.	Losses & Miscellaneous charges	7.00 (0.55)
17.	Total Marketing cost	77.00 (6.10)
18.	Net price received by Retailer	1,185.00 (93.89)
19.	Sale price of Retailer to Consumer	1,262.00 (100)
20.	Retailer Margin	85.00 (6.73)
21.	Price Spread	500.50 (39.65)
22.	Producer's share to consumers Rupees (%)	48.98
23.	Marketing Efficiency (in %)	2.45

Note: Figure in the parenthesis indicates percentage to the total consumer price.

Table 5 reveals the marketing cost, marketing margin, and price spread for channel III. Three intermediaries were identified through which Banana reaches to the consumer's i.e. commission agents, wholesalers and Retailers. This is the longest channel among three identified channels. The producer sells his produce to the Commission agent, who in turn sells it to it to the wholesalers. Wholesalers sell it to the Retailers and then produce reaches to consumers after collecting margin. Average marketing cost when producers sold their produce to Commission agent was Rs.98.50. In these channel marketing cost of the producer, commission agent, wholesalers and retailers was 26.68 per cent.

Table 6 Estimation of Total Marketing Cost and Marketing Margin in different Channels

Sl. No.	Particulars	Channel I	Channel II	Channel III
1	Total marketing cost	100.00	262.50	325.50
2.	Total marketing margins	85.00	125.00	210.00
3.	Price spread	185.00	387.50	535.50
4.	Producer's share in consumer rupee in percent	69.41	62.30	49.30

5.	Marketing efficiency in percent	5.56	2.51	2.27
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Table 6 reveals the total market cost was higher in channel III (Rs.325.50). And the total marketing margin and price spread was also seen higher in channel III (Rs. 210.00 and Rs.535.50) because in the channel III there are maximum number of intermediates. The producer share in consumer rupee was higher in channel I, 69.41 per cent and the marketing efficiency was also higher in channel I, 5.56 per cent. Babu Ram Shakya in 2013 studied that due to less number of intermediary's supply chain I, (Producer – Retailer -Consumer) was found to be most suitable chain in context of marketing of banana.

IV. CONCLUSION

There are 3 supply channels of banana prevailing in the study area. Actual marketed surplus was highest in large size farms. Channel I: Producer → Retailer → Consumer, is the shortest channel having lowest total Marketing Cost, total Marketing Margin and Price spread. The channel I is also showing the highest Producer's share in consumers' rupee and Marketing Efficiency. It is the most effective channel observed in the study area. But only 16.66 per cent of the produce was being transacted through channel. It could be very beneficial for the banana growers to build air conditioned warehouses where farmers can store their harvested bananas while waiting for the market to pick up again. This can be done cheaply by using solar energy since there is abundant sun light in the region. Promotion of processing of banana produce and value addition will enable grower to get higher returns. To ensure highest Marketing Efficiency Banana Growers Association should be formed. This would also enable them to pool resources together.

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