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AN ECONOMIC ANALYSIS ON JACKFRUIT PRODUCTION AND MARKETING IN CUDDALORE DISTRICT OF TAMILNADU, INDIA

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Abstract

The study was carried out with an overall objective of evaluating the efficiency of jackfruit marketing in cuddalore district of Tamil Nadu. The specific objectives were to estimate the cost of cultivation and income obtained by Jack farmers., to compare and analyse the price spread pattern in different channels of Jackfruit marketing and to analyse the constraints encountered by farmers. in Jackfruit processing and marketing. Cuddalore district formed the universe of the study. With regard to selection of taluk, Panruti was purposively selected, since production wise, it occupied the first position among the various taluks of cuddalore district. The estimation of cost of cultivation revealed that, cultivation of jackfruit is more beneficial for farmers. The study also revealed that, market intermediaries gain more profit compared to the producer. This problem could be addressed only if the activities of market intermediaries are curtailed. An effective way in limiting the activities of intermediaries might be, announcement of advisory prices by the Government. Lack of awareness and needed guidance on value addition and export related affairs are found to be the major constraints prevailing in the jack growing belt. Establishment of a full fledged Jack Promotion Council in an identified potential locality could solve these issues by providing periodical trainings on these aspects.

Key Words : Jack Fruit, Cost of Cultivation, Price Spread Analysis.

Introduction

The jackfruit is indigenous to the rain forests of the Western Ghats of India and is cultivated throughout the tropical lowlands in South and Southeast Asia, parts of Central and Eastern Africa and Brazil. Major jackfruit producers are Bangladesh, India, Myanmar, Thailand, Vietnam, China, Philippines, Indonesia, Malaysia and Sri Lanka. It is a popular and relatively cheaper fruit in Southern Asia and other warm countries of both the hemispheres.

India is the second biggest producer of the fruit in the world and is considered as the motherland of jackfruit. In India, it has wide distribution in Assam, Tripura, Bihar, Uttar Pradesh, the foothills of the Himalayas and South Indian States of Kerala, Tamil Nadu and Karnataka.

Tamil Nadu is the one of the largest producer of jackfruit in India. The total cultivated area under jackfruit is 2,936 hectares. Cuddalore district has the highest area under jackfruit followed by Kanyakumari and Dindigul accounting to 682 hectares, 650 hectares and 429 hectares respectively.

The commercial cultivation of jack fruit is still at a primitive stage in all parts of India and the farmers are even unaware of the improved cultivation practices. Farmer encounters. many number of problems in the cultivation, harvesting and marketing of jack. In the cultivation stage, they have to manage with uncertainties and other natural calamities like, cyclone and drought. Water scarcity is one of the considering problem at the time of cultivation. In the harvesting stage due to the perishable nature much of fruits are wasted due to lack of storage facilities and lack of effective processing or preservation techniques. Unavailability of skilled labour for harvesting leads to damage of fruits. In the marketing stage they face problems relating price fluctuation, lack of reliable and updated market information, absence of proper standardization or grading procedure and inadequacy of institutionalised marketing infrastructure.

In this backdrop the study attempts to understand the problems of jackfruit cultivation and marketing in cuddalore district, its root causes and possible solutions.

The present study is undertaken with the following specific objectives:

Objectives of the study

- To estimate the cost of cultivation and income obtained by Jack farmers..
- To compare and analyse the price spread pattern in different channels of Jackfruit marketing.
- To analyse the constraints encountered by farmers., in Jackfruit processing and marketing.

Materials and Methods

Study Area

Cuddalore district formed the universe of the study. With regard to selection of taluk, panruti was purposively selected since, production wise, it occupied the first position in cuddalore district.

Selection of Farmer, Wholesaler and Retailer

From the selected taluk of panruti, 30 jack farmers. owning plantations between the age of 10-40 years. and 30 jack farmers owning plantations with less than 10 years. age were selected by simple random sampling. The data on the operational expenditure after the gestation period and income from the jack farm were collected from the farmers owning jack farm between the age of 10-40 years. (economic life period). The data on establishment cost and gestation period maintenance cost of jack farms were collected from the farmers. owning plantations with less than 10years. of age. This methodology was adopted since the farmers with older plantations neither possessed records nor able to recollect the original expense they incurred during the establishment phase of their plantations. Five wholesalers and ten retailers involved in jack marketing were selected at random, from the panruti market to collect data on the marketing cost involved and market margin realised by various intermediaries. Thus, the study sample contained a total of sixty farmers, five wholesalers and ten retailers, from panruti taluk.

Estimation of Cost of Cultivation

The cost of cultivation format advocated by Commission for Agricultural Costs and Prices (TNAU) was adopted for this study with needed modification to suit to a perennial crop and is presented below.

i. Jack is a perennial crop with a gestation period of 7 years.. The establishment cost and maintenance cost during the gestation period were accounted considering the respondent wise inflated values with reference to the actual year of expenditure.

ii. The establishment cost and maintenance cost of the respective years were compounded to its future value with reference to its last year of gestation phase (*i.e.*, 7th year) in order to accommodate the time value of money.

iii. The amortized share of the establishment and gestation period maintenance cost was included under cost B_1 for further estimation of gross cost.

Cost A_1

It includes all actual expenses in cash and kind incurred during production by the farmer.

1) Value of hired human labour
2) Value of bullock labour (Hired / Owned)
3) Value of machine power (Hired / Owned)
4) Value of seedlings (Farm produced / Purchased)
5) Value of insecticides and pesticides
6) Value of manure (Owned / Purchased)
7) Value of fertilizers
8) Depreciation of implements and farm building
9) Irrigation charges
10) Transportation charges
11) Interest on working capital
12) Miscellaneous expenses

Cost A_2 = Cost A_1 + rent paid for leased in land

Cost B_1 = Cost A_2 + interest on value of owned capital assets (excluding land) + amortized share of establishment and gestation period maintenance cost

Cost B_2 = Cost B_1 + rental value of owned land

Cost C_1 = Cost B_1 + imputed value of family labour

Cost C_2 = Cost B_2 + imputed value of family labour

Cost C_3 = Cost C_2 × 1.10 (10% of cost C_2 added to C_2)

Cost C_3 is added in order to provide allowance for managerial functions undertaken by the farmer.

$$\text{Cost of Production} = \frac{\text{Cost } C_3 - \text{Value of by product}}{\text{Yield}}$$

Price Spread Analysis

Price spread in general is referred to as difference between the price paid by the ultimate consumer and that received by the growers per unit of the commodity. Price spread analysis would estimate the share of different market functionaries in the consumer's rupee and this would often facilitate the unders tanding of the relative efficiencies and otherwise of alternate marketing channels. For the present study, concurrent margin method is used to analyze the price spread.

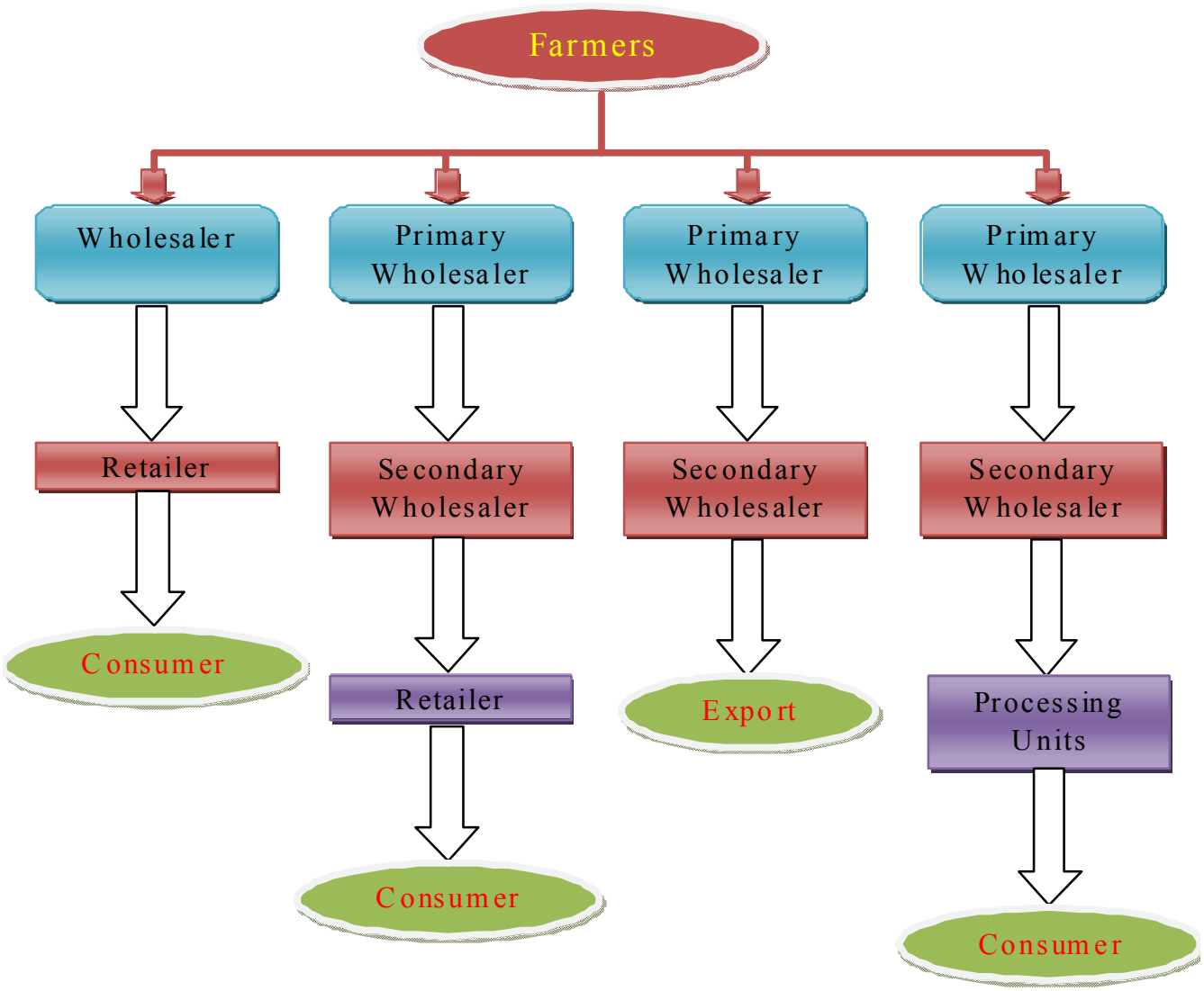

Fig. 1: Marketing Channels for Jackfruit

Information on prices prevailed and the cost involved in marketing of Jackfruit at different stages of all identified marketing channels were collected from the farmers. and market functionaries.

Farmer's Share in Consumer Rupee

Further, the Farmer's share in consumer rupee was calculated with the help of the following formula.

$Fs = (Fp/Cp) \times 100$

Where,

Fs = Farmer's share in consumer rupee (percentage)

Fp = Farmer's price

Cp = consumer's price

Garrett's Ranking Technique

To study the constraints in Jack trade, Garrett's ranking technique was employed (Garette, 1969). The order of merit assigned by the respondents were converted in to ranks using the formula,

$$\text{Percent position} = \frac{100\ (R_{ij} - 0.5)}{N_j}$$

Where,

R_{ij} = rank given for i^{th} factor by j^{th} individual

N_j = number of factors ranked by j^{th} individual

By referring to Garrett's table, the percentage positions estimated were converted in to scores and then for each factor the scores of various respondents were added and mean value was arrived at. These means were arranged in descending order. The problem having the highest mean value was considered as the most important and was given the highest rank and vice versa.

Results and Discussion

Cost of Cultivation of Jackfruit

The establishment cost, maintenance cost during the gestation period and operational cost after the gestation period, incurred in the cultivation of Jackfruit has been worked out and details are presented in Table 1, 2, 3.

Establishment Cost of Jack Plantation

It could be seen from table I that the establishment cost for Jack in the first year was Rs. 22,780. The compounded future value with reference to the last year of gestation phase (*i.e.*, 7th year) was Rs. 44,391.

Land clearing and irrigation constituted the major portion of the total establishment cost occupying 17.55 percent and 35.11 per cent of total cost respectively.

The expenses incurred for other operations *viz.*, weeding, pit making, seedlings and transportation, planting, staking and mulching, organic manures, fertilizers and plant protection which accounted for a comparatively less share in the establishment cost Table 1.

Table 1 : Establishment Cost of Jack Plantation (First Year).

(Rs/acre)

S.No	Operations	Cost (Rs.)
1.	Land clearing	
	a) Human labour	4000 (17.55)
	b) Tractor	1500 (6.58)
2.	Pit making	1600 (7.02)
3.	Seedlings and transportation	3400 (14.92)
4.	Planting, Staking, and Mulching	800 (3.51)
5.	Weeding	600 (2.63)
6.	Organic manures	1500 (6.58)
7.	Fertilizers	780 (3.42)
8.	Irrigation	8000 (35.11)
9.	Plant protection	600 (2.63)
	Total cost	Rs. 22,780 (100.00)
	Compounded future establishment at 7th year	44,391
	Average no.of trees / acre	40
	Cost per tree	570

Table 2: Maintenance Cost of Jack Plantations.

(Rs/acre)

S. No.	Operations	2nd Year	3rd Year	4th Year	5th Year	6th Year	7th Year
1.	Seedling, Transportation	700	-	-	-	-	-
2.	Planting, Staking and Mulching	400	-	-	-	-	-
3.	Weeding	750	750	900	900	1050	1050
4.	Manuring						
	a) Organic	750	750	1500	1700	1700	2000
	b) Inorganic	1800	1800	2100	2100	2300	2560
5.	Plant protection	1500	1500	1800	2100	2100	2100
6.	Irrigation	2400	2400	2400	3000	3000	3000
	Total cost	8300	7200	8700	9800	10,150	10,710
	Compounded future value	14,704	11,595	12,737	13,044	12,281	11,781
	Cost per tree	207	180	218	245	254	267

Gestation Period Maintenance Cost of Jack Plantations

The Gestation period maintenance cost was incurred up to seventh year of planting and the costs are more or less equal during all the seven years. It could be seen from the table that during the gestation period in all the years from 2nd to 7th year irrigation constituted the major share of expenses followed by expenses on manuring and plant protection Table 2.

Cost of Cultivation of Jack Fruit

Using the above information, the cost of cultivation was worked out and the details on cost and returns are furnished in the Table 3.

Neem cake was the only organic manure used for production of jackfruit. 100kg per acre was applied incurring a cost of Rs. 15 per kg, which was estimated as Rs. 1500 per acre. For the application of organic manures 2 men labous were engaged at the wage rate of Rs. 300 per labour which was estimated as Rs. 600 per acre. DAP, potash and urea were the key fertilizers used for production of jackfruit. 50kg DAP, 50kg Potash and 10kg Urea were applied to one acre of Jack farm at the cost of Rs. 26 per kg, Rs. 15 per kg, Rs. 10 per kg respectively. It accounted to an expenditure of Rs. 1300, Rs. 750 and Rs. 60 per acre respectively. For the application of fertilize Rs. 2 men labous were engaged at the wage rate of Rs. 300 per labour, which was estimated as Rs. 600 per acre.

Monocrotophos was the only plant protection chemical used for jackfruit production in panruti taluk. It was sprayed 6 times per year at the rate of 250 ml for one spray incurring a cost of Rs. 600 per acre. For the application, 6 men labous were engaged at the wage rate of Rs. 300 per labour, which is estimated as Rs. 1800 per acre.

Irrigation was the main aspect of cultivation of jackfruit. The crop was irrigated 20 times per year. For every irrigation, 2 men labous were engaged at the wage rate of Rs. 400 per labour, which was estimated as Rs. 16000 per acre.

After maturity of jackfruit, on an average, 10 harvests were made per year. For every harvesting

Table 3: Cost of Cultivation of Jackfruit.

(Rs/acre)

Inputs	Quantity with Units	Cost (Rs.)
Cost A_1		
Organic Manures	Rs 15×100kg, 2 labours × Rs 300	2100 (1.99)
Inorganic Fertilizers	Rs 2110, 2 labours × Rs 300	2710 (2.57)
Plant protection chemicals	Rs 100×6 times, 6 labours × Rs 300	2400 (2.28)
Irrigation charges	20 times/yr × 2 labours × Rs 400	16000 (15.19)
Harvesting	10 harvests × 2 labours × Rs 500	10000 (9.49)
Loading	10 loadings × 4 women labours × Rs 150	6000 (5.67)
Transporting cost	10 loadings × Rs 400	4000 (3.79)
Other Miscellaneous expenses	-	2000 (1.90)
Total		44210 (41.98)
Interest on working capital @ 7%	-	3095 (2.94)
Depreciation of fixed capital	-	2250 (2.13)
Total Cost A_1		49555 (47.06)
Rent paid for leased-in land	-	Nil
Total Cost A_2	Cost A_1+ Rent paid for leased-in land	49555 (47.06)
Interest on owned fixed capital	-	6500
Amortized share of establishment cost and gestation period maintenance cost (40 years)	-	8920
Total Cost B_1	Cost A_2+ Interest on owned fixed assets+ Amortized share of establishment and gestation period maintenance cost	64,975
Rental value of owned land	1/3 value of output	21,658
Total Cost B_2	Cost B_1+ Rental value of owned land	86,633
Imputed value of family labour	-	10,000
Total Cost C_1	-	-
Total Cost C_2	Cost B_2+ Imputed value of family labour	96,633
Total Cost C_3	Cost C_2× 1.10 (10% of Cost C_2 added to Cost C_2)	1,05,296
Yield (kg)	-	32000
Output price (Rs/Kg)	-	10.00
Gross Return	-	320000
Net Return	-	2,14,704
Net Return per Rupee	-	3.03
Cost of Production (Rs/Kg)	-	3.29

2 skilled men labous were engaged at the wage rate of Rs. 500 per labour. The estimated total cost for harvesting was Rs. 10000 per acre. After harvesting of jackfruit, immediate loading is essential due to perishability of the produce. For every loading 4 women labous were engaged at the wage rate of Rs. 150 per labour. The cost incurred for loading was Rs. 6000. The transportation cost to nearby market was estimated as Rs. 4000 for 10 loadings. The cost considered for other miscellaneous expenses was Rs. 2000 per acre. The total operating cost was estimated as Rs. 44,210 per acre. Interest on working capital was estimated at the rate of 7 per cent. It worked out to Rs. 3095. Depreciation on capital assets was estimated as Rs. 2250 per acre. Since jack cultivation is done in own land by all respondents, rent paid for leased-in land is excluded. Interest on owned fixed assets was estimated at the rate of 7 per cent and it worked out to Rs. 6500. Amortized share of establishment cost and gestation period maintenance cost was estimated as Rs. 8920. Rental value of owned land was estimated as one third value of output. It accounted to Rs. 21,658. The average family labour wages was estimated as Rs. 10,000 per annum. The total cost c_2 was multiplied by 1.10 (10% of cost c_2 added to cost c_2) and is considered as total cost c_3 and it accounted to Rs. 1,05,296. The average estimated yield of Jackfruit was 32 tonnes per acre, whereas average output price was Rs. 10/kg. The gross return was estimated as Rs. 3,20,000 per acre, whereas

Table 4: Price Spread of Jackfruit (Channel-I).

Particulars	Price/kg
Net price received by farmer	9.75 (39.00)
Marketing cost for the farmer	
Transporting cost	0.15 (0.60)
Labour charge for loading	0.10 (0.40)
Sub total	0.25
Selling price of farmer	10.00
Purchase price of Wholesaler	10.00
Marketing cost of Wholesaler	
Labour charge for unloading	0.10 (0.40)
Godown maintenance	1.00 (4.00)
Wastage @ 10%	0.10 (0.40)
Sub total	1.20
Margin of Wholesaler	8.80 (35.20)
Selling price of Wholesaler	20.00
Purchase price of Retailer	20.00
Marketing cost of Retailer	
Transporting cost	0.15 (0.60)
Labour for loading and unloading	0.20 (0.80)
Sub total	0.35
Margin of Retailer	4.65 (18.60)
Selling price of Retailer to Consumer	25 (100.00)

net return of farmer was Rs. 2,14,704/acre. The average cost of production for 1 kg fruit is Rs. 3.29, and the net return per rupee worked out to 3.03.

Price Spread in the Identified Jackfruit Marketing Channels

Price spread in general, is referred to as the difference between price paid by the consumer and the price received by the farmer for an equivalent quantity of the produce. This analysis involved computation of different costs and profit margins at each stage and their expression as a percentage to the consumer price. Panruti block of Cuddalore district was selected to study the price spread pattern of Jackfruit marketing due to its high popularity in Jackfruit cultivation. Among the various marketing channels originated from panruti, the major channels catering to the needs of the people were identified and examined. Four channels were identified, as explained below (Fig. 1).

Price Spread of Jackfruit in Channel I

This is a marketing channel in which the farmer sells the produce to a wholesaler and in turn it is sold to local retailers. It could be noticed that, in channel I, purchase price of consumer was very less compared to other channels due to locational advantage. The net price received by the farmers. was Rs. 10/kg, which constituted about 40 per cent of the consumer's price. The marketing cost incurred by wholesaler (Rs. 1.20/kg) was higher than the retailer (Rs. 0.35/kg), which accounted to 4.8 and 1.4 per cent of the consumer's price respectively. The marketing margin of wholesaler (Rs. 8.80/kg) was higher than the retailer (Rs. 4.65/kg), which accounted to 35.2 per cent and 18.6 per cent of the consumer's price respectively Table 4.

Table 5: Price Spread of Jackfruit (Channel-II).

Particulars	Price/kg
Net price received by farmer	9.75 (24.37)
Marketing cost for the farmer	
Transporting cost	0.15 (0.370
Labour charge for loading	0.10 (0.25)
Sub total	0.25
Selling price of farmer	10.00
Purchase price of Primary wholesaler	10.00
Marketing cost of Primary wholesaler	
Labour charge for unloading	0.10 (0.40)
Godown maintenance	1.00 (2.50)
Wastage @ 10%	0.10 (0.25)
Transporting cost	5.00 (12.5)
Sub total	6.20
Margin of Primary wholesaler	8.80 (22.00)
Selling price of Primary wholesaler	25.00
Purchase price of Secondary wholesaler	25.00
Marketing cost of Secondary wholesaler	
Labour for unloading	0.15 (0.37)
Godown maintenance	1.75 (4.37)
Wastage @ 10%	0.25 (0.62)
Sub total	2.15
Margin of Secondary wholesaler	7.85 (19.62)
Selling price of Secondary wholesaler	35
Purchase price of Retailer	35
Marketing cost of Retailer	
Transporting cost	0.20 (0.50)
Labour for loading and unloading	0.30 (0.75)
Sub total	0.50 (1.25)
Margin of Retailer	4.50 (11.25)
Selling price of Retailer to Consumer	40 (100.00)

Price Spread of Jackfruit in Channel II

As far as channel II is concerned, the produce was moved from farmers to primary wholesaler of Tamilnadu as like channel I. But afterwards the produce was sold to secondary wholesalers at Andhrapradesh especially to Vijayawada wholesalers. Then it was sold to retailers of Vijayawada and surrounding areas. In channel II, it could be noticed that, the purchase price of consumer

Table 6: Price Spread of Jackfruit (Channel-III).

Particulars	Price/kg
Net price received by farmer	9.75 (19.11)
Marketing cost for the farmer	
Transporting cost	0.15 (0.29)
Labour charge for loading	0.10 (0.19)
Sub total	0.25
Selling price of farmer	10.00
Purchase price of Primary wholesaler	10.00
Marketing cost of Primary wholesaler	
Labour charge for unloading	0.10 (0.19)
Godown maintenance	1.00 (1.96)
Wastage @ 10%	0.10 (0.19)
Transporting cost	8.00 (15.68)
Sub total	9.20
Margin of Primary wholesaler	8.80 (17.25)
Selling price of Primary wholesaler	28.00
Purchase price of Secondary wholesaler	28.00
Marketing cost of Secondary wholesaler	
Labour for unloading	0.15 (0.29)
Godown maintenance	1.75 (3.43)
Wastage @ 10%	0.25 (0.49)
Exporting charges for other countries	5.00 (9.80)
Sub total	7.15
Margin of Secondary wholesaler	15.85 (31.07)
Selling price of Secondary wholesaler	51 (100.00)
(Export Price)	51

was high when compared to channel I. This was because of marketing cost especially the transportation cost incurred by primary wholesaler in moving the produce to Vijayawada and the marketing margin grabbed by secondary wholesaler. The net price received by the farmer was Rs. 10/kg, which constituted about 25 per cent of the consumer price. The marketing cost incurred by primary wholesaler (Rs. 6.20/kg) was higher than the secondary wholesaler (Rs. 2.15/kg) and retailer (Rs. 0.50/kg) which accounted to 15.5 per cent, 5.37 per cent and 1.25 per cent of the consumer's price respectively. The marketing margin of the primary wholesaler (Rs. 8.80/kg) was also high when compared to secondary wholesaler (Rs. 7.85/kg) and retailer (Rs. 4.50/kg), which accounted to 22 per cent, 19.62 per cent and 11.25 per cent of the consumer's price respectively Table 5.

Price Spread of Jackfruit in Channel III

Channel III is an important channel as like channel II, through which also a larger proportion of panruti Jack is transacted. In this channel the primary wholesaler sold their produce to secondary wholesaler cum exporter of Jack. The secondary wholesaler located at Mumbai, in

Table 7: Price Spread of Jackfruit (Channel-IV).

Particulars	Price/kg
Net price received by farmer	9.75 (6.50)
Marketing cost for the farmer	
Transporting cost	0.15 (0.10)
Labour charge for loading	0.10 (0.06)
Sub total	0.25
Selling price of farmer	10.00
Purchase price of Primary wholesaler	10.00
Marketing cost of Primary wholesaler	
Labour charge for unloading	0.10 (0.06)
Godown maintenance	1.00 (0.66)
Wastage @ 10%	0.10 (0.06)
Transporting cost	5.00 (3.33)
Sub total	6.20
Margin of Primary wholesaler	8.55 (5.70)
Selling price of Primary wholesaler	25.00
Purchase price of Secondary wholesaler	25.00
Marketing cost of Secondary wholesaler	
Labour for unloading	0.15 (0.10)
Godown maintenance	1.75 (1.16)
Wastage @ 10%	0.25 (0.16)
Sub total	2.15
Margin of Secondary wholesaler	7.85 (5.23)
Selling price of Secondary wholesaler	35
Purchase price of Processing units/ Bakery	35
1kg of raw fruit is equivalent to 270 gm of edible pulp (or) 500 gm of Halwa	
Cost for making Halwa	
Ingredients	25 (16.66)
Packing	3 (2.00)
Maintenance cost	2 (1.33)
Sub total	30
Margin for 500 gm Halwa (equivalent to 1 kg raw fruit)	85 (56.66)
Selling Price	150 (100.00)

turn export the Jack to Gulf countries especially UAE. This channel was not traced after this stage because of time and money limitations. In this channel also, the net price received by the farmer was Rs. 10/kg. The marketing cost incurred by primary wholesaler (Rs. 9.20/kg) was higher than the secondary wholesaler (Rs. 7.15/kg), which accounted to 18.03 per cent and 14.01 per cent of the consumer's price respectively. The marketing margin of the secondary wholesaler (Rs. 15.85/kg) is very much higher than primary wholesaler (Rs. 8.80/kg), which accounted to 31.07 per cent, and 17.25 per cent of the consumer's price respectively Table 6.

Table 8: Consolidated Statement of Price Spread for Different Marketing Channels of Jackfruit.

Particulars	Channel I	Channel II	Channel III	Channel IV
Farmers realization	10	10	10	10
Marketing costs (1)	1.8	9.1	13.6	38.6
Marketing margin (2)	13.2	20.9	24.4	101.4
Value addition in chain (1+2)	15	30	38	140
Consumer price	25	40	48	150
Producer's share in consumer rupee	40	25	20.83	6.66

Table 9: Garrett Ranking for Constraints Faced by Farmers in Marketing of Jackfruit.

S.No	Particulars	Rank
1.	Cartel formation by Wholesaler	I
2.	Lack of awareness and skills for value addition	II
3.	Lack of awareness on export procedures	III
4.	Lack of proper market information	IV
5.	Perishability	V
6.	Lack of skilled labour for harvesting	VI

Price Spread of Jackfruit in Channel IV

Channel IV is considered to be a potential one among all the four marketing channels, since this channel mainly focuses on value addition. Though many number of value added food items can be made out of Jack fruit, for this study, Jack halwa alone is considered taking in to account the availability of respondents in the study area. The net price received by the farmer was Rs. 10/kg, which constituted about 6.66 per cent of the consumer's price. The marketing cost incurred by processing units (Rs. 30/ kg) was higher than the primary wholesaler (Rs. 6.20/ kg), secondary wholesaler (Rs. 2.15/kg) which accounted to 20 per cent, 4.13 per cent, and 1.42 per cent of the consumer's price respectively. The marketing margin of the processing unit (Rs. 85/kg) was very much higher than primary wholesaler (Rs. 8.80/kg), and secondary wholesaler (Rs. 7.85/kg) which accounted to 56.66 per cent, 5.86 per cent and 5.23 per cent of the consumer's price respectively Table 7.

Consolidated Statement of Price Spread

The consolidated statement of the price spread analysis is presented in the table 7. A look at the results provided in this table could reveal the following inferences.

- In all the four jackfruit marketing channels, the price received by farmer was one and the same.
- Channel IV had high marketing cost and marketing margin followed by channel III and it is lowest with channel I.
- Producer's share in consumer rupee was high in channel I followed by channel II and the lowest one is channel IV.

The aim of price spread analysis would be to find out the means for enhancing ultimately the "Farmer's realization". The farmer's realization in all the four channels are found to be same *i.e.*, Rs. 10/kg. Comparatively, the chance for improving the Farmer's realization lies with channel III and channel IV.

Channel III is an export targeted channel, which has immense potential to explore. Involving farmers directly in the export process itself would improve their share in consumer's rupee. Likewise, Channel IV is one which relies on value added products of Jack fruit. Awareness on the value addition naturally would improve the utility of agricultural produces, in turn would enhance the demand for the product. With regard to this channel also, involving Jack farmers directly in the value addition process would improve the farmer's realization ultimately.

To achieve these goals, it is suggested that a "Jack Promotion Council" with an objective of providing training to farmers on export related technical aspects and value addition process may be established in panruti taluk.

Constraints Encountered by Farmer in Marketing of Jack Fruit

The problems encountered by jack farmer in marketing of jackfruit are presented in table 9. It could be understood from the table that 'cartel formation by wholesaler' ranked first followed by 'lack of awareness and skills for value addition' and 'Lack of awareness on export procedures' among various constraints. It was evident from Garrett ranking analysis also that farmers though interested in participating in the export and value addition processes directly, they are unable to proceed further due to lack of awareness on the related technical procedures. As suggested earlier establishing a Jack Promotion council could address these issues in holistic way and bring light in the lives of Jack Farme Rs. Table 9.

Policy Suggestions

i. Cost of cultivation revealed that, cultivation of jackfruit is more beneficial for farmers.. But, since is a perennial crop one has to wait for eight years for first yield of jackfruit. This problem could be better managed by cultivating an intercrop along with jack during this gestation period.

ii. Price spread analysis revealed that, market intermediaries gain more profit compared to the

producer. These problems could be addressed only if the activities of market intermediaries are curtailed. One among the effective ways in limiting the activities of intermediaries might be announcement of advisory prices by the government authorities.

iii. Lack of awareness and needed guidance on value addition and export related affairs are found to be the major constraints in the jack growing belt. A full fledged Jack Promotion Council in an identified potential locality would solve these issues, by providing periodical trainings on related aspects.

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