Value Chain Analysis of Groundnut in Tamil Nadu

Abstract

Oilseeds provide vegetable oils which not only form an essential part of human diet but also serve as an important raw material for the manufacture of soaps, paints, varnishes, hair oils, lubricants and various other products. Among all the oilseed crops groundnut is an important oilseed and supplementary food crop. It is also called as 'the king of oilseeds. In Tamil Nadu, Ground nut is being cultivated in almost all the districts. Totally, 240 farmers were contacted from 24 villages spread over in 8 blocks of 2 districts. Besides farmers, traders and processors were contacted in each district at the rate of 10 traders per district. Results indicated that there were 5 marketing channels through which groundnut were marketed by the sampled farmers. Nearly 23.33 percent of the sampled farmers sold the produce to the village merchants. The percentage of the sampled farmers marketed through commission agents and regulated markets were 25.00 and 33.33, respectively. +

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Keywords: Oilseeds, Value chain, Groundnut, Marketing Efficiency

Introduction

Agriculture in India plays a major role in the economic development and it is also the backbone of Indian economy. It provides livelihood to the majority of the population in India. India –has –the distinction of world's largest grower of oilseeds with an area of 26.13 million hectares and production of 25.30 million tons (DES, 2016-17). Oilseeds provide vegetable oils which not only form an essential part of human diet but also serve as an important raw material for the manufacture of soaps, paints, varnishes, hair oils, lubricants and various other products. Oil cakes are used as cattle feed and manures. The requirement of oils and fats in the country are met by the oilseeds like groundnut, rapeseed, mustard, sesame, sunflower, safflower, Niger, castor, soybean and cotton seed. Among all the oilseed crops groundnut is an important oilseed and supplementary food crop. Itis also called as 'the king of oilseeds. It is one of the most important food and cash crop of our

country. While being a valuable source of all the nutrients, it is also a low-priced commodity. Groundnut popularly known as 'wonder nut' and 'poor man's cashew nut'.

The major groundnut producing countries in the world are India, China, Nigeria, Senegal, Sudan, Burma and the United States of America. India is the world's leading producer of groundnut with 25 per cent share in production.

Groundnut occupied an area of 25.45million hectares with the production of 42.24 million metric tonnes in world. China is the largest producer of groundnut accounting for 40per cent of total world production followed by India 15 per cent during the year 2016. China and India, together, accounted for about 55per cent of world groundnut production. Nigeria (7 percent), United States of America (6percent), Sudan (3 per cent) Argentina (2.8 per cent), Indonesia (2.5 per cent), and Senegal (2 per cent) were the other major groundnut producing countries during the same years.

In context of the production of groundnut oil, China remains on top with a production of around 3.25 million tons followed by India with the production of around 1.27 million tons. The maximum area that is used for the production of this oilseed is bagged by India with around 4.83 million hectares that accounts up to 17.13 per cent share in the total area of the world which is around 28.18 million hectares. The country that gets maximum yield from the groundnut crop is China which has a yield of approximately 3.78 tones/ha. The world production has been in the uptrend since last decade and it is rising steadily.

In this background, the present study has been taken up to study the value chain analysis of groundnut in Tamil Nadu.

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In Tamil Nadu, Ground nut is being cultivated in almost all the districts. The traditional districts of groundnut cultivation are Thiruvannamalai, Vellore, Villupuram, Kancheepuram, Salem, Namakkal, Krishnagiri, Dharmapuri, Erode, Pudukkottai, Cuddalore and Madurai. Groundnut is cultivated in non-traditional districts also. The study was taken both in traditional and non-traditional area. At first stage two groundnut cultivating districts was considered representing higher production of groundnut. In each district four blocks were selected at random. Three villages were selected at random from each block. Ten farmers were selected from each village. Thus, 240 farmers were contacted from 24 villages spread over in 8 blocks of 2 districts. Besides farmers, traders and processors were contacted in each district at the rate of 10 traders per district. The details of sampling design is given in Table 1.

Table 1. Distribution of sampled farmers

S. No	District	Selected Blocks	Selected villages	Number of the farmers
1.	Thiruvannamalai	Thandarampet	a) Varagur b) Sathanur c) Vedankulam	30
		Thurinjipuram	a) Vedanthavadi b) Boothamangalam c) Nookkampadi	30
		Chetpet	a) Kothanthavadi b) Nambed c) Idaiyakulathur	30
		Kilpennathur	a) Kumarakudi b) Kalitheri c) Orangepudhur	30
2.	Villupuram	Melmalayanur	a)Kodukkankuppam b)Kotapoondi c)Elavanthavadi	30
		Gingee	a)Jayakondan b)Melidaiyakulam c)Anjanamchery	30
		Vallam	a)Kammanthur b)Keelpapampadi c)Thaiyur	30
		Marakanam	a)Aenthur b)Alankuppam c)Vadanerkunam	30

Study period

The primary data were collected from the sampled respondents in respect of production and marketing of groundnut to the agricultural year 2016-2017..

Collection of Data

Both primary and secondary data were collected for the study. The primary data required for the study were collected through personal interview with the help of a comprehensive interview schedule. Two separate sets of interview schedules were prepared, one for farmers and another one for the intermediaries. The questionnaires for the study were designed considering physical, cultural and socio-economic environment of groundnut production and marketing in the study area and the questionnaires were pre-tested and finalized. The interview schedule for farmers covered

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aspects such as general farm and household characteristics, details on cultivation practices adopted in groundnut cultivation and cost of cultivation, details on marketing of groundnut, problems in production and marketing, etc. The schedule for intermediaries covered aspects such as general characteristics, quantity and quality of groundnut handled, reasons for preference of a particular marketing channel, and the problems faced, etc. Information about cost incurred and profit realized by different market functionaries were also collected to estimate the price spread.

Value Chain Analysis

Price Spread Analysis

Information on prices prevailed and the costs involved in marketing of groundnut at different stages of marketing channel were collected from the farmers and traders. The costs of marketing include transport, weighing, loading and unloading, packing, storage, losses due to spoilage, and other incidental expenses incurred for marketing the produce.

In the process of marketing of groundnut, the difference between price paid by the consumer and that received by the groundnut producer for an equivalent quantity of groundnut was defined as "price spread". Data on profits of the various market functionaries involved in moving the produce from the initial point of production till it reached the ultimate consumer were collected. In this study, sum-of-average gross margin method was used in the estimation of price spread.

a. Sum-of-Average Gross Margin Method

The average gross margins of all the intermediaries were added to obtain the total marketing margin as well as the break up of the consumer's rupee.

$$MT = \Sigma \left[\frac{\{ S_i - P_i \}}{Q_i} \right]_{i=1}$$

where,

MT = Total Marketing Margin

S_i = Sale value of a product for i^{th} intermediary

P_i = Purchase value paid by the i^{th} intermediary

Q_i = Quantity of the product handled by the i^{th} intermediary

i = 1, 2, 3 … N (Number of intermediaries involved in the supply chain)

b. 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

Marketing Efficiency

Marketing efficiency is a measure of market performance. The movement of goods from producers to the ultimate consumers at the lowest possible cost consistent with the provision of service desired by the consumers is termed as efficient marketing.

a. Shepherd's Formula

Shepherd (1965) suggested that the ratio of total value of goods marketed to the marketing cost could be used as a measure of marketing efficiency. The higher this ratio, higher would be the efficiency and vice versa. This can be expressed in the following form:

$$ME = [(V/I)-1]$$

where,

ME = Index of marketing efficiency

V = Value of goods sold

I = Total marketing cost

b. Acharya's Approach

According to Acharya (2003), an ideal measure of marketing efficiency, particularly for comparing the efficiency of alternate markets channels should take into account all of the following:

a) Total marketing costs (MC)
b) Net marketing margin (MM)
c) Prices received by the farmer (FP)
d) Prices paid by the consumer (RP)

Further, the measure should reflect the following relationship between each of these variables and the marketing efficiency.

i) Higher the (a), the lower the efficiency

ii) Higher the (b), the lower the efficiency

iii) Higher the (c), the higher the efficiency

iv) Higher the (d), the lower the efficiency

As there is an exact relationship among four variables, i.e. a+b+c = d, any three of these could be used to arrive at a measure for comparing the marketing efficiency.

The following measure is suggested by Acharya,

c. Calkin's index $ME = FP \div (MC + MM)$

The Calkin's index of marketing efficiency is estimated using the following formula.

$$\text{Marketing efficiency} = 1 + \left(\frac{\text{Sum of profit or margin}}{\text{Sum of marketing cost}} \right)$$

The lower the value of the index, higher would be the efficiency.

Results and Discussion

Input use and cost of groundnut under Irrigated and rainfed condition

Input use and cost incurred in groundnut cultivation under rainfed and irrigated conditions are presented in Table 2.

It could be seen from the table that total cost per hectare was Rs.34789 and Rs.30968 under irrigated and rainfed groundnut cultivation, respectively. Overall cost per hectare was Rs.32550. Under irrigated condition the major cost item was human labour which accounted for about 43 percent and the share of female labour alone was 36 percent. The next important cost item was seed which accounted for 21 percent.

In the rainfed cultivation cost of human labour accounted for 43 percent and seed cost was about 22 percent. These two were the major cost items. The fertilize cost was higher under irrigated condition than rainfed. The share of fertilizer cost was around 14 percent and pesticides and weedicides accounted for about 2 percent both under irrigated and rainfed condition.

Table 2. Quantity of Inputs used in Groundnut cultivation (Rs/ha)

S. No	Particulars	Irrigated				Rainfed				Overall			
		Quantity	Average unit price	Cost	Percentage	Quantity	Average unit price	Cost	Percentage	Quantity	Average unit price	Cost	Percentage
1	Seed (Kg/ha)	107.15	67.68	7251.91	20.85	99.33	67.36	6690.87	21.61	102.55	67.5	6922.13	21.27
2	Labour (Man days/ha)												
i	Male	10.94	250.05	2735.55	7.86	4.94	303.81	1500.82	4.85	7.41	271.12	2009.00	6.17
ii	Female	109.59	112.81	12362.85	35.54	102.32	114.70	11736.10	37.90	105.32	113.89	11994.89	36.85
3	Machineries (Hours/ha)	14.8	248.90	3683.72	10.59	9.54	303.80	2898.25	9.36	11.71	275.26	3223.29	9.90
4	Animal Power (hours/ha)	1.06	536.37	568.55	1.63	1.41	342.86	483.43	1.56	1.27	409.38	519.91	1.60
5	Fertilizers (Kg/ha)												
I	Organic	11.46	99.48	1140.04	3.28	8.43	252.19	2125.96	6.87	9.68	177.71	1720.23	5.28
Ii	In organic	332.13	14.66	4869.03	14.00	407.49	11.80	4808.38	15.53	376.45	12.84	4833.62	14.85
	Sub Total				17.28				22.40				20.13
6	Plant protection (ml/ha)												
I	Pesticide	1146.28	0.86	985.80	2.83	952.62	0.76	723.99	2.34	1032.41	0.81	836.25	2.57
Ii	Weedicide	0	0	0	0	0	0	0	0	0	0	0	0
7	Irrigation	6.29	189.47	1191.77	3.43	0	0	0	0	2.59	189.47	490.73	1.51
	Total			**34789.21**	**100.00**			**30967.81**	**100.00**			**32550.06**	**100.**

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Animal power use was 1.63 percent and 1.56 percent under irrigated and rainfed conditions, respectively. Machineries accounted for 10.59 percent under irrigated and 9.36 percent under rainfed condition.

In total, inputs used, seed cost, labour use and machine power, animal power use was found to be higher under irrigated condition than rained cultivation.

Overall cost and returns of groundnut

The overall cost and returns of groundnut was estimated and given in Table 3**.**

Table 3. Costs and Returns of Groundnut in the Sample Farms (Rs./ha)

S.No	Particulars	Gross Income	Cost of Cultivation	Net Income
1	Rainfed	61596.19	**30967.81**	30628.38
2	Irrigated	67237.45	**34789.21**	32450.26

It is obvious from the table that cost of cultivation under rainfed condition was Rs. 30967.81 per ha and Rs. 34789.21 per ha under irrigated condition. The net income realised was Rs. 30628.38 and Rs.32450.26 per ha in rainfed and irrigated condition respectively. The results reveal that net income from groundnut was found to be higher under irrigated condition.

Marketing channel for Groundnut

The disposal pattern of groundnut was collected, analyzed and presented in Table 4.

It is evident from the table that there were 5 marketing channels through which groundnut were marketed by the sample farmers. Nearly 23.33 percent of the sample farmers sold the produce to the village merchants. The percentage of the sample farmers marketed through commission agents and regulated markets were 25.00 and 33.33, respectively. The quantity sold to village merchants, commission agents and regulated markets were 26.77 percent, 30.74 percent and 29.38 percent, respectively. Direct sale to processor and sale through cooperative marketing societies were 9.17 and 3.94 percent respectively. Post harvest losses were found to be 2.14 percent of the production.

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Table 4 Disposal pattern of groundnut by the Sample farmers

S.No	Marketing channels	Number of farmers	Percentage to total sample farmers	Quantity sold (Qtls)	Percentage to total quantity sold
1	Farmers-Village merchants	14	23.33	176.86	26.77
2	Farmers-Processor	8	13.33	60.6	9.17
3	Farmers-Co-operative marketing society	3	5.00	26.00	3.94
4	Farmers-Commission agent-Processor/Whole saler/Local trader	15	25.00	203.1	30.74
5	Farmers-Regulated market-Whole saler/ Village merchant/Processor	20	33.33	194.08	29.38
Total		60	100.00	660.64	100.00

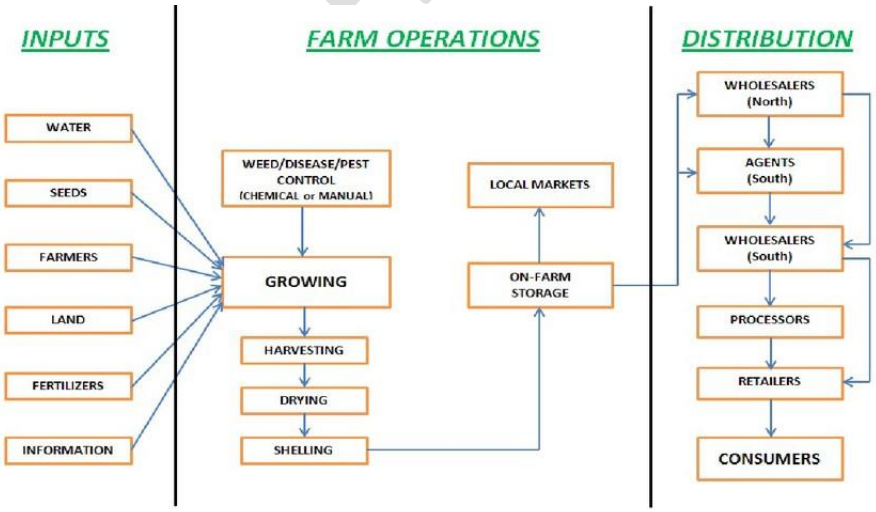

Fig 1. Farm operation protocol

Marketing cost of groundnut

The marketing cost incurred by the sample farmers in all the four marketing channels were collected and presented in Table 5.

Table 5. Marketing cost of groundnut by the Sample farmers

S. No	Particulars	Cost(Rs./Qtl)			
		Farmers-Regulated market	Farmers-Processor	Farmers-Commission agent	Farmers- Co-operative marketing society
1	Grading	20	-	10	-
2	Packing	25	15	-	25
3	Loading& Unloading	50	50	10	20
4	Commission charges	-	-	120	-
5	Transport cost	100	300	-	70
Total		**195**	**365**	**140**	**115**

It is obvious from the table 5 that marketing cost per quintal was found to be high with Rs.365 /quintal if the produce was sold through processors. It was Rs.195/quintal, Rs. 140/quintal and Rs. 115 /quintal when the produce was sold through Regulated markets, commission agents and cooperative marketing society, respectively.

On an average price received by the sample farmers was Rs.43 per quintal for dried groundnut pod.

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