

Estimation of Costs and Returns of Groundnut in Vizianagaram districts of Andhra Pradesh.

Abstract

Groundnut crop is one of the important oil seed crop grown in Vizianagaram district. Though the Groundnut is cultivated on small area but it contributes sizable share in total earnings of the cultivator. However, yield and profit from Groundnut cultivation is uncertain because it is very sensitive and it badly affects from extreme climatic conditions so it requires special attention.

The marketing of Groundnut from producer to consumer also involves various activities like transportation, loading, and storage, etc. During this process of marketing the quality as well as quantity of Groundnut get damaged and lost. The Groundnut growers face number of problems at each stage of production, marketing, and distribution like lack of technical knowledge, lack of market intelligence, inadequate transportation, and major market yard facilities.

The socio-economic characteristics of farmers i.e., size of family, educational status, land utilization pattern, cropping pattern and fixed capital investment were studied. The standard cost concepts i.e., cost 'A', and cost 'B', cost 'C' was used in present study.

Majority of groundnut respondents (36%) had farming experience of 2 – 9 years, about 37% had 10 to 20-year experience, 16% had 21-to-30-year experience, while 09% of the respondents had between 31 to 35-year experience of groundnut production. The mean years of farming experience was 17 years. This is an indication that more farmers are embracing production of the crop due to its profit advantage.

The total owned area is observed between 0.1-0.9 hectares of land, about 40% had 1 – 2 hectares, 22% had between 2 – 4 hectares and 07% had 4 – 10 hectares and none hold above 10 hectares. The average farm size is 1.5 hectares.

The cost A of groundnut cultivation was observed to be Rs.118560, Rs.115543, Rs.111606 and Rs.110040 per hectare of marginal, small, semi-medium, and medium land holding farmers.

Cost B it is the summation of Cost A, Rental Value of owned land and interest on value 67.89 of owned fixed capital.

It is observed as Rs.100281, Rs.97489, Rs.93760 and Rs.92036 per hectare of groundnut production in marginal, small, semi-medium and medium land holding farmers and the average value of cost B is Rs.95892 per hectare.

To find Cost C1 is the summation of Cost B and imputed value of family labor, family labor cost is given to be an Rs.7500, Rs.7550, Rs.7700 and Rs.8000 and got a solution of Rs.107781, Rs.105039, Rs.101460 and Rs.100036 per hectare.

Cost C2 it includes Cost B + 10 per cent of cost B. as managerial charges as calculated as a result Rs.118560, Rs.115543, Rs.115543 and Rs.110040 and the total input cost is also considered a cost C.

INDRODUCTION

India is the second largest groundnut oil producing country in the world, next to China. During 2018. India occupied about 13 per cent (5.8 million ha.) of world's oilseeds area, 5.2 per cent (25.2 million tons) of world's oilseeds production and 18 per cent of world's edible oil consumption. In the agricultural economy of India, oilseeds are very important, next to food grains in terms of area, production and value.

Groundnut is an income and employment oriented commercial crop and very much helpful for manufacturing vegetable oils. The groundnut seed oil content varies from 44 to 50 per cent, depending upon the varieties and agronomic conditions. Its oil finds extensive use as a cooking medium, both as refined oil and "Vanaspati ghee". It is also used in soap-making and in manufacture of cosmetics, lubricants, olein, stearin and their salts. Kernels are also eaten raw, roasted or sweetened. Groundnut Kernels have about 26.0 per cent protein, 47.5 per cent fat and 18.6 per cent carbohydrates, and they are rich in calcium, phosphorus, iron alongwith vitamin A, Band E. The Hand Picked and Selected (HPS) type of groundnut kernels are exported to other countries. The residual oilcake contains 7 to 8 per cent N, 1.5 per cent P₂O₅ and 1.2 per cent K₂O and can be used as a manure. It is important protein supplement in cattle and poultry rations. It is also consumed as a confectionary product. Its cake can be used for manufacturing artificial fiber.

The haulms (plant stalks) are fed (green, dried or silage) to livestock. Groundnut shell is used as fuel for manufacturing coarse-boards and cork substitutes.

Groundnut is grown on a large scale in almost all the tropical and sub-tropical countries of the world.

The total world groundnut production is about 36.66 million tonnes from 21.8 million hectares (2016). The major groundnut producing countries are China, India, Nigeria, USA, Indonesia, Argentina, Sudan, Senegal and Myanmar. With 6.0 million hectares and 8.2 million tones of nuts in shell, India share 22 per cent of the world's groundnut area and 21 per cent of the total groundnut production, and ranked first in area and second in production of groundnut in the world during 2020-2021.

Research Methodology

Sampling design: Since the study was aimed at finding out the economics of production and marketing of Groundnut, the sample for the study necessarily involved the selection of cultivators as well as market intermediaries for gathering the relevant data.

Selection of the districts: The study was conducted in Vizianagaram district, which is purposively selected because it serves a great deal of convenience to the researcher in terms of accessibility, familiarity with area, time, money, and effort.

Selection of blocks: A complete list of blocks obtained from district headquarter. there are 2 blocks in Vizianagaram district out of them s.kota block selected purposively for this study. There are 28 blocks in the vizianagaram district and 1 block is is selected according to area of production.

Selection of villages: The s.kota block is a revenue block in the vizianagaram district of Andhra Pradesh, India. It has a total of 25 panchayat villages. 5percent of production area is selected randomly in S.kota block for the present study. namely Dharmavaram, Pedha kandepalli, Pothanaoalli, Madhupada, Gairampeta, Sethampeta.

Selection of Farmers -Intensive survey of each selected village was made in consultation with the village Dhrmavaram. Then list of all the Groundnut growing 10 percent farmers was prepared from

villages. All the Groundnut growing farmers were classified into three standard size groups on the basis of size of their operational land holdings.

Marginal farmer (below 1 ha)

Small farmer (1-2 ha),

Medium farmer (2-10ha)

From this list 100 respondents were selected randomly through proportionate allocation to the population.

Analysis of Data

Cost concepts are widely used because of their relevant in the decision-making process. This means the costs serve as a basis to expand the size of cultivated land, to buy the requisite capital assets and inputs. The concepts of cost have been classified into four categories depending on the purpose of the study. Cost concepts used are briefly explained below.

The following cost concepts were used to find out the costs structure in the production of groundnut.

Variable costs (seeds, Manure, Fertilizer, Human labour etc.).

Fixed costs (Rental value of land, Interest in fixed capital Depreciation).

1. Total costs = Total variable cost (TVC) + Total Fixed Cost (TFC)

Cost A: It includes,

Value of hired human labour,

Value of hired bullock labour,

Value of owned bullock labour,

Value of tractor charges,

Value of seed/seedlings (farm produced and/ or purchase)

Value of manure and cakes owned (farm and/or purchased)

Value of fertilizers,

Value of manures,

Irrigation Charges,

Depreciation on farm buildings

Interest on working capital,

Other paid out expenses, if any

Cost A2 = Cost A1 + rent paid for leased in-land.

Cost B1 = Cost A2+ interest on fixed capital assets (excluding land)

Cost B2= Cost B1 + rental value of owned land + rent paid for leased-in land.

Cost C1 = Cost B1 + imputed value of family labour.

Cost C2=Cost B2+ imputed value of family labour.

Cost C3= Cost C2 + 10 per cent of cost C2 as management cost

The Cost of expenditure incurred towards land revenue, transportation, contractual work etc., was included under the head of other paid out expenses.

Cost of Cultivation of Main product (Rs. /Ha.) = total cost (cost A1+ costA2+ costB1 + costB2+ costC1+cost C2 + mcostC3)

Cost of Cultivation of By-Product (Rs. /Ha.) = total cost (cost A1+ cost A2+ costB +costB2+ costC1+ costC2 + costC3)

Cost of production of main product (Rs. / q) = Total cost of cultivation in Rs.

Quantity of main product in qtls

Cost of production of by-product product (Rs\ q) = Total cost of cultivation in Rs.

Quantity of by-product in qtls. /q)

Procedure for determining the value of the product:

The value of the product was computed at the actual prices received by the respondents from the market agency during the study period.

Income measures

Following income measures were used to fulfil the second objective

1. Gross income: Synonymous with value of output (both main and by product) evaluated at harvest prices. $GI = Q_m * P_m$

Where,

GI=Gross Income Q_m = Quantity of main product P_m = Price of main product

2. Farm business income =Gross income - Cost A1 (Cost A2 in case of tenant operated land)

3. Family labour income = Gross income - Cost B2

4. Net income=Gross income – Cost C2

5. Return to mgt.= Gross Income-Cost C1

6. Return per rupee of investment= Gross Income (G.I)/ ha

Total Cost (cost C2)/ha

Benefit cost - ratio

The benefit cost ratio (BCR) will be worked out by using following formulation

B:C ratio = Present worth of benefit

Present worth of cost

Results and Discussion

Cost of groundnut cultivation per hectare:

The cost of cultivation indicates the investment on the variable inputs used in the cultivation and the services rendered by fixed assets. The two major categories of cost involved in crop production. These are fixed and variable costs. Fixed costs (FC) refer to those costs that do not vary with the level of production or output while variable costs (VC) refer to those costs that vary with output. The cost input used by cultivators in the cultivation of groundnut was calculated for contribution of each input in total costs in all the four different size farm groups. The cost of cultivation of groundnut of sample farms is worked out in Rs/ha.

Total Cost = Total Variable Cost + Total Fixed Costs

Table 1. Cost of Groundnut cultivation in different size farm groups

S. NO	PARTICULAR	SIZE OF FARM GROUPS				AVERAGE
		Marginal	Small	Semi - medium	Medium	
1.	LAND PREPARATION	20349 (17.16)	17723 (15.33)	14256 (12.77)	12287 (11.15)	16153.8 (14.17)
2.	COST OF SEED	6293 (5.03)	6266 (5.45)	6266 (5.61)	6266 (5.69)	6272.75 (5.5)
3.	MANURES & FERTILIZERS	19643 (16.56)	19700 (17.04)	19771 (17.71)	19770 (17.96)	19721 (17.30)
4.	COST OF PPC	9912 (8.36)	9912 (8.57)	9912 (8.88)	9912 (9)	9912 (8.69)
5.	COST OF IRRIGATION	4500 (3.79)	4000 (3.46)	3500 (3.13)	3000 (2.72)	3750 (3.29)
6.	HIRED HUMAN LABOUR	21548 (18.17)	21548 (18.64)	21548 (19.35)	21548 (19.58)	21548 (18.91)
	MATERIAL COST	82245 (69.36)	79149 (68.64)	75253 (67.48)	72783 (66.16)	77357.5 (67.89)
7.	INTREST ON WORKING CAPITAL	5757.15 (4.8)	5540.43 (4.79)	5267.71 (4.71)	5094.81 (4.62)	5415.025 (4.75)

8.	DEPRECIATION	2403 (2.02)	2689 (2.32)	2700 (2.41)	3359 (3.05)	2788 (2.44)
9.	LAND REVENUE	73 (0.06)	73 (0.06)	73 (0.06)	73 (0.06)	73 (0.06)
	COST A	90478.15	87451.43	83293.71	81309.81	85633.52
10.	RENTAL VALUE OF LAND	9000 (7.59)	9200 (7.96)	9600 (8.6)	9800 (8.9)	9400 (8.25)
11.	INTREST ON FIXED CAPITAL	803 (0.66)	837 (0.72)	866 (0.71)	926 (0.86)	858 (0.75)
	COST B	100281	97489	93760	92036	95892
12.	OWNED LABOUR	7500 (6.32)	7550 (6.53)	7700 (6.89)	8000 (7.27)	7688 (6.74)
	COST C1	107781	105039	101460	100036	103580
13.	10 PER CENT OF COST C1. AS MANAGERIAL CHARGES	10778.1 (9.09)	10503.9 (9.09)	10146.0 (9.09)	10003.6 (9.09)	10358.0 (9.09)
	COST C2	118560	115543	111606	110040	113938
	TOTAL INPUT COST (COST C)	118560	115543	111606	110040	113938

It reveals that overall cost of cultivation of groundnut crop was Rs/ha 113938 and share of materials input cost was found to be Rs. 77357.5, which shared to 67.89 percent to the total cost. The large contribution has been observed in human labor use with Rs 21548 and shared of 18.91 percent to the total cost. The power use in the form of tractor hour was contributed the minimum share to the total cost of cultivation of groundnut, which shared 14.17 percent followed by fertilizer shared the maximum (17.30%) followed by seeds (5.5%), irrigation (3.29%). The input value of family labor use was noticed to be Rs. /Ha 7688. The cost of cultivation of groundnut per hectare in marginal, small, semi-medium and medium farm groups is Rs.118560,

Rs. 115543, Rs.111606 and Rs.110040 respectively and the average cost of cultivation per hectare is 113938. The table clearly indicates that, the cost of cultivation of groundnut per hectare in marginal size group is higher than small and semi-medium farm groups followed by medium size group.

Size of Holdings And irrigation at sampled farms

Size of holding and irrigation at sampled forms is presented in table 2. The per farm total cultivated area is observed to be 0.8 hectares, 1.3 hectares, 2.3 hectares and 4.1 hectares at marginal, small, semi-medium and medium farms respectively along with the 2.13 hectares as an overall average. It is clear from the table that the leased in land is varied from 0.0 percent at small farms, 2.3 percent at semi-medium and 4.8 percent at medium farms to total cultivated area. The overall percentage of irrigated area is only 76.5 percent of the total cultivated land. The average area of watermelon under cultivation is 1.82 hectares with percentage of 85.45 percentage.

Table 2.

Size of holding and irrigation at sampled farms. (Ha/farms)

S. No.	Particulars	Marginal	Small	Semi Medium	Medium	Average
1	Total owned area	0.8 (100)	1.3 (100)	2.3 (100)	4.1 (100)	2.13 (100)
2	Leased- in land	-	-	0.5 (2.3%)	0.2 (4.8%)	0.35 (16.43%)
3	Leased - out land	-	-	-	-	-
4	Total cultivated area	0.8 (100)	1.3 (100)	2.3 (100)	4.1 (100)	2.13 (100)
5	Irrigated area	0.45 (56.25%)	0.9 (69.23%)	1.7 (73.91%)	3.5 (85.37%)	1.63 (76.5%)
6	Un-irrigated area	0.35 (43.75%)	0.4 (30.77%)	0.6 (26.09%)	0.6 (14.63%)	0.49 (22.97%)

7	Area Under water melon	0.75 (93.75%)	1.1 (84.61%)	1.9 (82.61%)	3.5 (85.37%)	1.82 (85.45%)
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Table 3.
Cost and returns of groundnut

S.NO	PARTICULARS	SIZE OF FARM GROUPS				AVERAGE
		Marginal	Small	Semi -medium	Medium	
1	Groundnut production in quintals	42	45	46	48	45.25
2	Total cost	118560	115543	111606	110040	113938
3	Gross income	155652	166770	170476	177888	167696.5
4	Net income	37092	51227	58870	67848	53758.5
5	B:C ratio	1:31	1:44	1:53	1:62	1:47

Cost on labor use involved in groundnut in marginal, small, semi-medium and medium.

Groups is found to be Rs. 113938 per hectare respectively.

Conclusion

The first hypothesis of the study, I The cost of production will increase in the decrease of farm size. Therefore, the total cost of selected sample farmer is Rs. 142288, Rs. 141030, Rs. 137040, and Rs. 135465 per hectare for marginal, small, semi-medium and large farmers respectively. On the above observation its clearly seen the cost of production is increasing, hence the first hypothesis proved.

The greater number of middlemen individuals the cost of marketing will increase.

Three major channels of distribution were observed in marketing of groundnut.

Producer → Consumer

Producer → Retailer → Consume

Producer → Commission agent/Wholesaler → Retailer → Consumer

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