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An economic analysis of production and constraints of groundnut in Surguja district of Chhattisgarh

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Abstract

In this study shows an economic analysis of groundnut production in Surguja district of Chhattisgarh. The main objective of the study is to analyze cost of cultivation, economics of groundnut production and constraints in production of groundnut. Economics of groundnut production is more profitable in small size farms as compared to medium size farms and large size farms. The average cost of cultivation is worked out as Rs. 29673.10 per hectare which ranges from about Rs.30305.18 per hectare at small farms, Rs. 29329.60 Medium farms, Rs 28924.20 per hectare at large farms. The per quintal cost of production varied from Rs. 1900.45 at large farms, Rs. 2014.39 at medium farms to Rs. 2191.26 at small farms. The net returns varied from Rs. 34284.82 per hectare at small farms, Rs. 38515.40 per hectare at medium farms to Rs. 42115.80 per hectare at large farms along with an average of Rs. 37435.23 per hectare. The input-output ratio is observed as 1:1.13 at small farms to 1:1.45 at large farms.

Keywords: production, productivity, input-output ratio

Introduction

India is the second largest groundnut producer in the world after China (China is expected to produce 41% of the global output in 2015/16 and India 11%) and the leading exporter of shelled groundnuts (600,000 tons forecasted for 2015). Groundnuts account for about a quarter of all oilseeds produced in the country. India recorded the highest production of groundnut about 97.14 lakh tonnes in 2013-14, of which, Gujarat contributed nearly 49.21 lakh tonnes (50.66%), owing record productivity of 2670 kg/ha from 18.43 lakh ha area (Third Advanced Estimate dt. 13-5-2015). Hence, its price declined to Rs. 700 per 20 kg in November-December, 2013 lacking procurement support at MSP and compulsory registration for exports. Chhattisgarh state consist 27 districts. Out of which Surguja district contributes 10.81 per cent in area and 9.97 per cent production of groundnut. Therefore Surguja district is selected purposively. The district has 7 blocks. Out of Sitapur block is selected purposively based on highest area under crop. Five villages are selected randomly in this block viz. Guturma, Beljora, Lalitpur Rajaute, and Kerju. The world groundnut (in shell) harvested area in 2007 was 23.4 million ha with a total production of 34.9 million metric tons (Mt). In the state groundnuts area was 25.61 thousand ha production is 37.3 metric tones and productivity is 1456 kg/ha. Chhattisgarh state contributes 0.53 per cent area and 0.74 per cent production and 1379.4 kg/ha Productivity of groundnut in the country respectively.

Materials and Methods

Collection of data

The study is based on both primary and secondary data. The primary data was collected from the selected respondents with the help of pre-tested interview schedule by the personal interview method and secondary data was collected from Chhattisgarh agriculture statistics, land record office, annual districts statistics and other published and unpublished reports.

Methodology

Sampling technique in Sitapur block of Surguja district was purposively chosen as the study area because, it has the larger area under Groundnut cultivation in the district. A multistage simple random sampling technique (SRS) was adopted to select the block, villages and the respondents, market and different farmer involved in Groundnut production and marketing in Surguja district. The details of the sampling techniques at various stages are given as under:

Profitability concept

Gross income = (Quantity of main product X price of main product) + (Quantity of by product X price of by product.)

Net income = Gross income - Cost C₃

Family labour income = Gross income - Cost B₂

Family business income = Gross income - Cost A₁

$$\text{Benefit Cost Ratio} = \frac{\text{Gross income}}{\text{costc}_3}$$

Results and Discussion**Cost of cultivation****Cost of cultivation of Groundnut crop per hectare in different size of farms groups:**

The cost of cultivation of groundnut production is presented in Table 1. Though, all the operations are necessary in the

groundnut production the cost incurred on these operations is relatively less as compared to paddy production. It is clear from the figures that manure and fertilizer, sowing, intercultural operation, harvesting, threshing and winnowing are some labour intensive operations. The average cost of cultivation in groundnut production is about Rs. 29673.10 the average cost of purchase of seed is about 3524.44 for a hectare which is about 11.88 per cartage of total cost of cultivation. Manure and fertilizer applications are also costly operation in the groundnut production. The expenditure incurred on this operation is about Rs. 3514.56 per hectare (11.84). The expenditure on groundnut cultivation is about Rs. 30,305.18 cost incurred in small farms. Similarly medium farms and large farms the cost of cultivations incurred about Rs. 29,329.60 and 28,924.20 respectively.

Table 1: Cost of cultivation of Groundnut crop per hectare in different size of farms groups (Rs./ha)

S. No.	Particular	Size of Farms Groups			Sample Average
		Small	Medium	Large	
(A)	Variable Cost				
1.	Hired Labour	1345.00 (4.44)	2075.00 (7.07)	3350.00 (11.58)	2033.89 (6.90)
2.	Bullock power	1075.00 (3.55)	1050.00 (3.58)	1060 3.66	1063.33 (3.58)
3.	Machine power	4500.00 (14.85)	4450.00 (15.17)	4450.00 (15.39)	4472.22 (15.07)
4.	Seed	3540.00 (11.68)	3520.00 (12.00)	3500.00 (12.10)	3524.44 (11.88)
6.	Manure & fertilizer	3574.00 (11.79)	3525.00 (12.02)	3380.00 (11.69)	3514.56 (11.84)
7.	Plant protection	1350.00 (4.45)	1260.00 (4.30)	1175.00 (4.06)	1281.11 (4.31)
8.	Irrigation	1580.00 (5.21)	1500.00 (5.11)	1020.00 (3.53)	1428.89 (4.80)
9.	Interest on W.C. @ 2%	428.68 (1.41)	400.60 (1.37)	383.70 (1.33)	409.32 (1.38)
(B)	Fixed Cost				
1.	Depreciation on fixed cost	620.00 (2.05)	1035.00 (3.53)	1450.00 (5.01)	942.78 (3.20)
2.	Land revenue	55.00 (0.18)	55.00 (0.19)	55.00 (0.19)	55.00 (0.19)
3.	Rental value of Land	7000.00 (23.10)	7000.00 (23.87)	7000.00 (24.20)	7000.00 (23.60)
4.	Interest on F.C.@ 10%	767.50 (2.53)	809.00 (2.76)	850.50 (2.94)	799.78 (2.69)
(C)	Family labour	4470 (14.75)	2650 (9.04)	1250 (4.32)	3147.78 (10.53)
	Total (A+B+C)	30305.18 (100)	29329.60 (100)	28924.20 (100)	29673.10 (100)

Note: Figures in the parentheses indicate the percentages to the total cost of cultivation.

Cost of cultivation in Groundnut crop per hectare in different Size of Farms Group:

Table 2 reveals that cost concepts on different size of Farm grower per hectare. Cost A was highest in large size Farm (Rs. 18318.70/ha) followed by medium size Farm (Rs. 17780.60/ha) and lowest in small size Farm (Rs. 17392.68/ha) respectively. Cost B was highest in large size Farm (Rs.

27674.2/ha) as compared to medium size Farm (Rs. 26679.6/ha) and lowest in small size of Farm (Rs. 25835.18/ha) respectively. Cost C was lowest in large size Farm (Rs. 28924.20 /ha) and highest in small size Farm (Rs. 30305.18/ha). Sample average for Cost A, Cost B and Cost C was Rs. 17727.77/ha, Rs. 26525.32/ha and Rs. 29673.10/ha in different size of Farm grower.

Table 2: Cost of cultivation in Groundnut crop per hectare in different Size of Farms Group Number of Respondents = 90 (Rs./ha)

Cost Concepts	Size of Farms Groups			Sample Average
	Small	Medium	Large	
Cost A	17392.68	17780.60	18318.70	17727.77
Cost B	25835.18	26679.6	27674.2	26525.32
Cost C	30305.18	29329.60	28924.20	29673.10

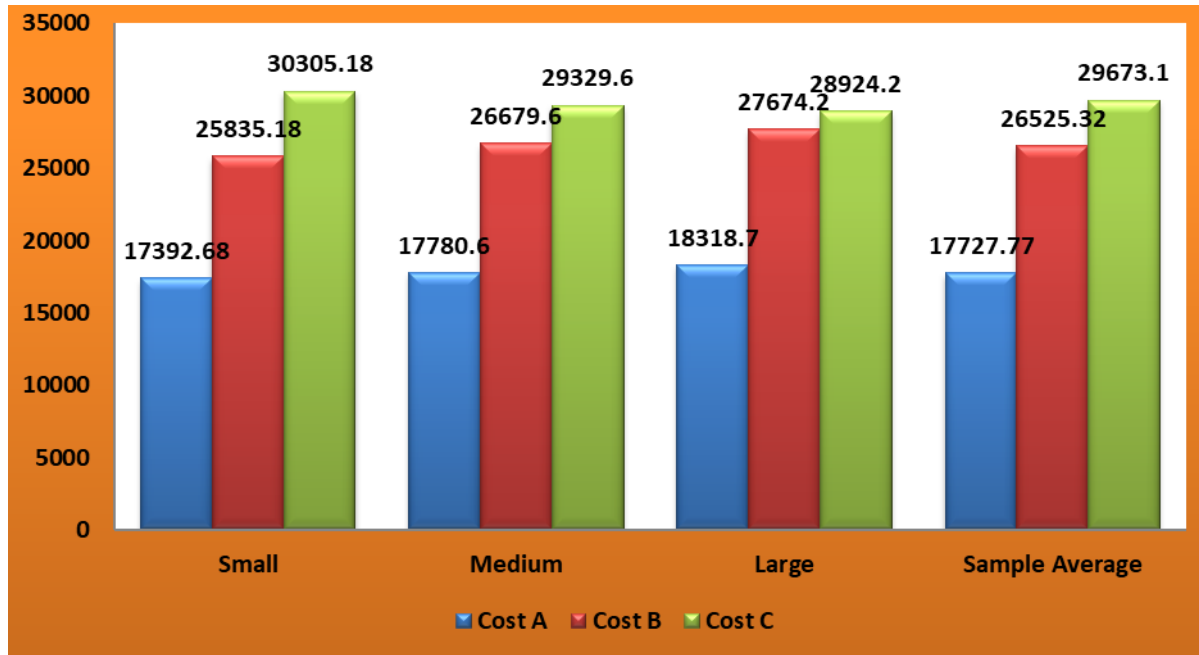


Fig 1: Cost of cultivation in Groundnut crop per hectare in different Size of Farms Group

Cost and returns in Groundnut crop per hectare in different size of farm groups:

The economics of groundnut production is presented in Table 3. It is clear from the fig 2 that the average cost of cultivation is worked out as Rs. 29673.10 per hectare which ranges from about Rs.30305.18 per hectare at small farms, Rs. 29329.60 Medium farms, Rs 28924.20 per hectare at large farms. The per quintal cost of production varied from Rs. 1900.45 at large farms, Rs. 2014.39 at medium farms to Rs. 2191.26 at small farms. It is interesting to note here that whereas the cost of cultivation is increasing as the size of holding increased, the per quintal cost of production showing just reverse trend

mainly due to relatively less yield at smaller farms. The average yield of groundnut is observed as 14.38 quintals in the study area while the price of main product is Rs. 4500.00 per quintal. The per hectare net return depends on the per hectare yield of this crop as the price realized by farmers is not much varying across different categories. The net returns varied from Rs. 34284.82 per hectare at small farms, Rs. 38515.40 per hectare at medium farms to Rs. 42115.80 per hectare at large farms along with an average of Rs. 37435.23 per hectare. The input-output ratio is observed as 1:1.13 at small farms to 1:1.45 at large farms.

Table 3: Cost and returns of Groundnut production at farms group: (Rs./ha) Number of Respondent = 90

S. No.	Particulars	Size of Farms Groups			Sample Average
		Small	Medium	Large	
1.	Cost of cultivation (Rs./ha)	30305.18	29329.6	28924.2	29673.10
2.	Production (Qt/ha)				
a.	Main-product	13.83	14.56	15.22	14.38
b.	By-product	15.7	16.5	17	16.26
3.	Cost of production (Rs./qtl)				
a.	Main-product Price (Rs./qtl)	2191.26	2014.39	1900.45	2067.78
4.	Return (Rs./qtl)				
a.	Main-product	4500.00	4500.00	4500.00	4500.00
b.	By-product	150.00	150.00	150.00	150.00
5.	Return (Rs./ha)				
a.	Main-product	62235.00	65520.00	68490.00	64720.00
b.	By-product	2355.00	2325.00	2550.00	2388.33
6.	Gross return (Rs./ha)	64590.00	67845.00	71040.00	67108.33
7.	Net return (Rs./ha)	34284.82	38515.40	42115.80	37435.23
8.	Net return (Rs./qtl)	2308.74	2485.61	2599.55	2432.32
	Input-output ratio	1:1.13	1:1.31	1:1.45	1:1.26
	B:C ratio	1:1.13	1:1.31	1:1.46	1:1.26

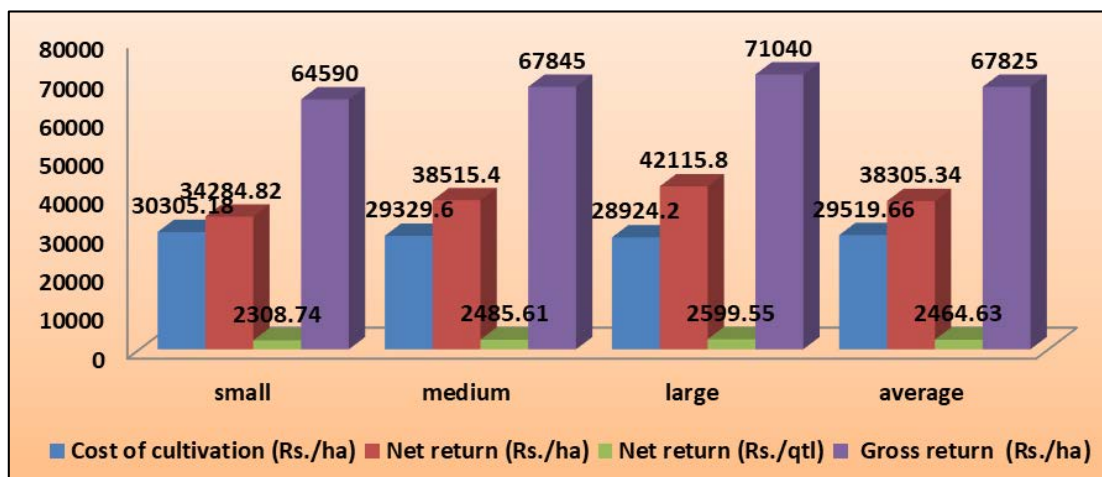


Fig 2: Cost and return of groundnut cultivation.

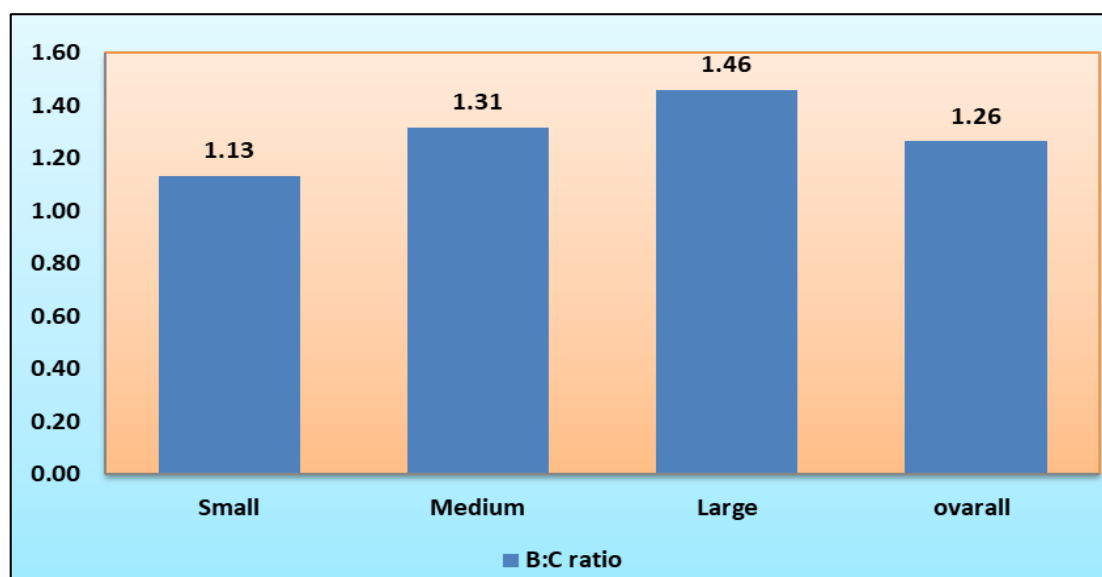


Fig 3: B:C ratio of groundnut cultivation.

Constraints in groundnut production

The constraints in groundnut production are presented in Table 5. Major constraints pertaining to cultivation of groundnuts were lack of resources (83 per cent) is generally faced by small category farmers. Due to this reason, these farmers are not able to invest for better production technology. Here is a need for creation of grower’s co-operative societies which can cater the needs of the farmers related to crop production.

Lack of recommended package and practices particularly doses of fertilizer, insecticides and pesticides are perceived by 75.5 per cent of producers. Farmers told that timely advice in

this direction may improve the production of crop. They further perceived that soil-testing facilities should be created by the Department of Agriculture at atleast block level in order to test the soil fertility of land. About 70 per cent farmers faced this problem. According to them this step will also prove very useful in improving the productivity of this crop at one side and in reducing the per hectare cost of cultivation on the other. There is technological gap because the extension wing of department of agriculture is not making proper and sincere efforts to disseminate the technical know-how from research stations to the farmer’s fields.

Table 5: Constraints in groundnut production by the Farms Group

S. No.	Problems	Number of Respondents	
		Yes	No
1.	Lack of resources i.e. money	75 (83)	15 (17)
2.	Lack of recommended doses of fertilizers, insecticides and pesticides	68 (75.5)	22 (24.4)
3.	Lack of sufficient soil testing facilities	63 (70)	27 (30)
4.	Scarcity of labour during peak season	52 (57.7)	38 (42.3)
5.	Lack of irrigation water	50 (55.5)	40 (44.4)
6.	Lack of latest technical knowledge about the crop	44 (48.8)	46 (51.2)
7.	Lack of financing at reasonable rate of interest	36 (37.3)	54 (62.6)
8.	Lack of improved and high yielding varieties	32 (35.5)	58 (64.5)

Note: Figures in parentheses indicate percentage to total respondents.

The scarcity of labour is another problem as 57.7 per cent of farmers perceived it. This problem becomes more acute at the time of sowing and harvesting stage of the crop. Consequently, the farmers have to pay higher wages in order to complete the work in time.

Lack of financing at reasonable rate of interest is also a constraint as about 37.3 per cent producers are facing this problem. This problem can be overcome by financial institutions through providing the loan to the farmers at their doorstep. They are of an opinion that it is inconvenient and time taking procedure to get the money from financial institutions. Consequently, they are forced to take required money from money lenders of village at higher rate of interest in order to fulfill their crop requirement. More than 55.5 per cent farmers told that irrigation is not required in the crop if the rainfall is there with an appropriate regular interval during kharif season. According to farmers in the absence of adequate rainfall, they face scarcity of irrigation water in the mid reach and tail reach region of the study area as the canal water cannot reach to their fields.

About 49 per cent producers reported that they are not aware about the name and quantity of needed insecticides and pesticides in case if their crop is infested by any disease or pest. In such conditions, they are completely depending on the shopkeeper who sells the insecticides/pesticides. About one third farmer's think that the varieties of crop are very limited. According to them some more varieties of groundnuts should be evolved which may give good yield of this crop in the study area.

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