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An economic analysis of production and marketing of groundnut in Mahasamund district of Chhattisgarh

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Abstract

The study conducted “an economic analysis of production and marketing of groundnut in Mahasamund district of Chhattisgarh State.” There are 5 blocks in Mahasamund district, from which Pithora and Basna blocks was selected for study. Out of the selected blocks total 4 villages was selected Mahasamund district for fulfillment of the objectives of study. Total sample of 100 farmers were selected randomly. The respondents were classified into three groups viz., marginal (<1.00 hectares), small (1.01-2.00 hectares), medium (2.01- 4.00 hectares) and large (4.01 hectares and above) farms. that the overall average size of holding of the selected households was 2.14 hectares. On an average family size was 5.51. Overall, majority of the selected house hold belonged to other backward class. The average total cultivated area was 2.37 hectare per farm. The average cropping intensity was 139.93 per cent. The coefficients of area and production of groundnut were found negative and non-significant whereas productivity was positive non-significant growth in Chhattisgarh state. The growth rate in area and production of groundnut in Mahasamund district was found significant and negative growth, whereas productivity was non-significant and positive growth. Overall average total cost of cultivation was found to be Rs. 35740.54/ha. The average yield per hectare of groundnut came to 11.13 qtl./ha The average gross return estimated was Rs. 55726.28/ha. The average net return was calculated as Rs. 19985.73/ha. An overall average the marketable surplus in groundnut is found to be 3.08 quintal constituting 80.81 per cent to total production. An overall average the quantity sold through village trader and wholesaler is estimated as 16.86 per cent and 83.19 per cent respectively in the study area.

Keywords: Gross returns, net returns, B: C ratio, input-output ratio

Introduction

Groundnut (*Arachis hypogea* L.) is an important oilseed crop in India, also known as groundnut, monkey nut, and manila nut. It is self-pollinated crop and belongs to Leguminaceae family. It gets its name from the Greek words Arachis means legume and hypogea refers to the formation of pods in the ground or underground. It is grown in the kharif, rabi and summer seasons. Groundnut is a member of sub-family Papilionaceae of family Leguminaceae. It consists of two subspecies i.e. hypogaea and fastigata. It was introduced to India by the Portuguese during the first half of the 16th century. It is reported that South America was the place from where groundnut cultivation originated and spread to Brazil, southern Bolivia and north-western Argentina. Cultivated Groundnut (*Arachis hypogaea* L.) belongs to genus arches in sub tribe stylosanthinae of tribe aescynomenea of family leguminaceae it is a self-pollinated, tropical, annual legume. The total area in groundnut crop in India is 0.85 million ha and production in 16.5 million tone and productivity is 1357kg/ha (2019-20) in Chhattisgarh total area in groundnut crop is 67.7 thousand ha and production is 70.2 thousand tones and productivity is 1036kg/ha (2019-20) in Mahasamund district

Methodology

Sampling technique of Mahasamund district of Chhattisgarh 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 villages and the respondents, different farmer involved in groundnut production and marketing in Mahasamund district. The details of the sampling techniques at various stages are given as under:

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Costs and returns of vegetable cultivation

Despite the costs & return was worked out by old concepts, a standard method of cost of cultivation of groundnut was also used. This method is accepted by The Commission of Agricultural Costs and Prices (CACP). Under this method, the cost of cultivation was computed by using the 7 Cost concepts, which are known as cost A₁, cost A₂ cost B₁, cost B₂ and cost C₁, cost C₂, and cost C₃.

Cost A₁: Consist of following 16 items of costs:-

1. Value of hired human labour (permanent and casual)
2. Value of owned bullock labour
3. Value of hired bullock labour
4. Value of owned machinery
5. Hired machinery charged
6. Value of fertilizers
7. Value of manure (produced on farm and purchased)
8. Value of seed (both farm-produced and purchased)
9. Value of insecticides and fungicides.
10. Irrigation charges (both of the owned and hired tube wells, pumping sets etc.)
11. canal-water charges
12. Land revenue, cesses and other taxes
13. Depreciation on farm implements (both of the bullock drawn and worked with human labour)
14. Depreciation on farm building, farm machinery.
15. Interest on the working capital.
16. Miscellaneous expenses (wages of artisans, and repairs to small farm implements)

Cost A₂ = Cost A₁ + Rent paid for Leased in Land.

Cost B₁ = Cost A₁ + Interest on value of Owned fixed Capital assets (excluding land)

Cost B₂ = Cost B₁ + Rental value of owned 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 taking as managerial allowances.

Income over different cost

Income over cost A₁ = Gross Return – Cost A₁

Income over cost A₂ = Gross Return – Cost A₂

Income over cost B₁ = Gross Return – Cost B₁

Income over cost B₂ = Gross Return – Cost B₂

Income over cost C₁ = Gross Return – Cost C₁

Income over cost C₂ = Gross Return – Cost C₂

Income over cost C₃ = Gross Return – Cost C₃

Net income

It is the difference between total return and total expenses. So,

Net income = Gross income - Total expenses

Input – output ratio

It is the ratio of input and output, which is an under

Input - Output Ratio = Value of output / Value of input used

Results and Discussion

The cost and returns of groundnut in the study area

Cost of cultivation

Cost of cultivation of groundnut at the sampled farms

The cost of cultivation of groundnut is presented in Table 1. The table reveals that overall average total cost of cultivation was found to be Rs. 35740.54/ha., which varies from Rs. 34118.37/ha. at marginal farms to Rs. 38759.66/ha. at large farms. The data indicated that the cost of cultivation showed increasing trend with increasing farm size. The higher cost incurred on cultivation was by large farms followed by medium farms. The contribution of overall average human labour cost for cultivation of crop was found to be Rs. 14950.68/ha. The overall average power use cost share to total cost for cultivation was observed as Rs. 3289.32/ha., which was 9.20 per cent to the total cost of cultivation, which was higher at large farms Rs.4724.96/ha., followed by medium Rs. 3860.45/ha., small farms Rs. 2932.57/ha., and marginal farms Rs. 2641.76/ha. The contribution of total bullock labour estimated was Rs. 1290.79/ha., which ranged from Rs. 1861.94/ha. at marginal farms to Rs. 0.00/ha. at large farms. The share of overall average material cost was Rs. 6434.74/ha., in which seed cost was higher i.e. Rs. 3868.21/ha., followed by cost of manure and fertilizer Rs.1109.58/ha. The overall average variable or input cost for cultivation of crop was observed as Rs. 25661.72/ha., which was 71.80 per cent of total cost of cultivation, which varies from Rs. 24162.01/ha. at marginal to Rs.28447.25/ha. at large farms. The figure shows that overall average variable or input cost increases with farm size. The overall average fixed cost was found to be Rs. 10078.82/ha. Irrespective of farm size rental value of owned land (Rs. 9000.00/ha.) contributes 25.18 per cent to the total cost of cultivation.

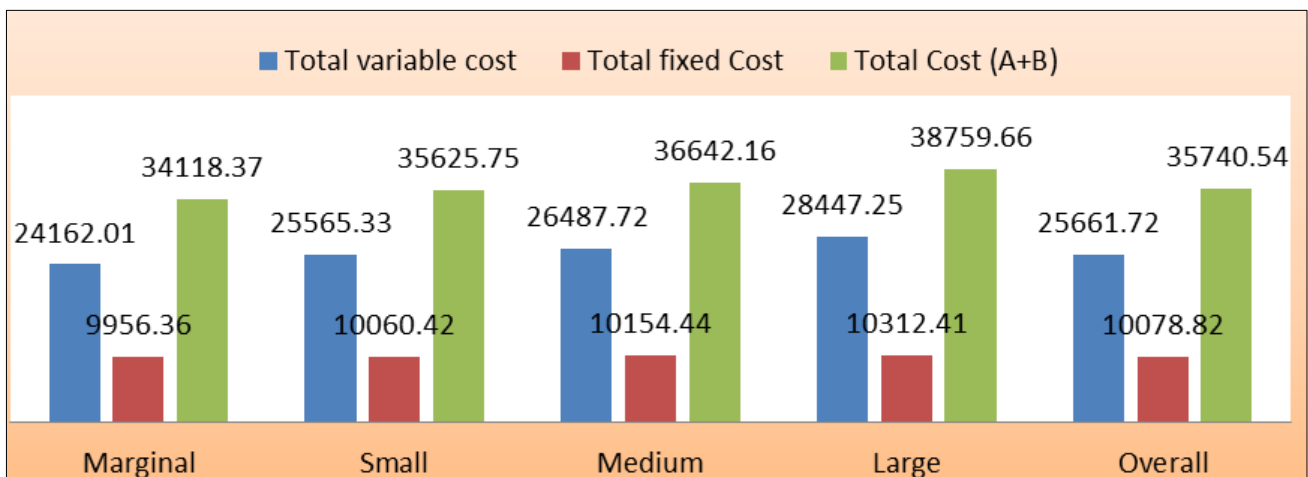


Fig 1: Cost of cultivation, gross return and net returns at sample farm

Table 1: Costs of Cultivation of Groundnut at sampled households (Rs./ha.)

Particular	Marginal	Small	Medium	Large	Overall
A. Variable Cost					
1. Material cost					
a. Seed	3615.11 (10.60)	4059.31 (11.39)	3897.04 (10.64)	4237.71 (10.93)	3882.61 (10.86)
b. Manures and fertilizer	1076.86 (3.16)	1104.11 (3.10)	1126.8 (3.08)	1214.99 (3.13)	1114.77 (3.12)
c. Plant protection	829.66 (2.43)	856.33 (2.40)	1057.28 (2.89)	1155.68 (2.98)	934.59 (2.61)
d. Irrigation charges	476.5 (1.40)	502.35 (1.41)	514.87 (1.41)	553.08 (1.43)	502.77 (1.41)
Total material	5998.14 (17.58)	6522.1 (18.31)	6595.99 (18.00)	7161.46 (18.48)	6434.74 (18.00)
2. Human labour cost					
a. Family labour	10539.25 (30.89)	10988.33 (30.84)	10860.45 (29.64)	3119 (8.05)	9691.05 (27.12)
b. Hired labour	4053.56 (11.88)	4139.05 (11.62)	4152.08 (11.33)	12347.7 (31.86)	5259.63 (14.72)
Total human	14592.81 (42.77)	15127.38 (42.46)	15012.52 (40.97)	15466.7 (39.90)	14950.68 (41.83)
3. Power use cost					
a. Bullock labour	1861.94 (5.46)	1658.53 (4.66)	741.98 (2.02)	0 (0.00)	1290.79 (3.61)
b. Machine power	779.82 (2.29)	1274.04 (3.58)	3118.47 (8.51)	4724.96 (12.19)	1998.53 (5.59)
Total power use	2641.76 (7.74)	2932.57 (8.23)	3860.45 (10.54)	4724.96 (12.19)	3289.32 (9.20)
Interest on variable capital	929.31 (2.72)	983.28 (2.76)	1018.76 (2.78)	1094.13 (2.82)	986.99 (2.76)
Total variable cost	24162.01 (70.82)	25565.33 (71.76)	26487.72 (72.29)	28447.25 (73.39)	25661.72 (71.80)
B. Fixed Cost					
a. Depreciation	206.85 (0.61)	303.2 (0.85)	390.26 (1.07)	536.53 (1.38)	320.24 (0.90)
b. Land revenue	12 (0.04)	12 (0.03)	12 (0.03)	12 (0.03)	12 (0.03)
c. Rental value	9000 (26.38)	9000 (25.26)	9000 (24.56)	9000 (23.22)	9000 (25.18)
d. Interest on fixed	737.51 (2.16)	745.22 (2.09)	752.18 (2.05)	763.88 (1.97)	746.58 (2.09)
Total fixed Cost	9956.36 (29.18)	10060.42 (28.24)	10154.44 (27.71)	10312.41 (26.61)	10078.82 (28.20)
Total Cost (A+B)	34118.37 (100.00)	35625.75 (100.00)	36642.16 (100.00)	38759.66 (100.00)	35740.54 (100.00)

Note: Figures in parenthesis were percentage to the total cost of cultivation

Measures of farm profit of groundnut at the sampled farms: The yield, value of output per hectare and cost of production per quintal of groundnut on the sample farms have been worked out in Table 2. It indicates that the average yield per hectare of groundnut came to 11.13 qtl./ha., where higher yield was found at large farms 12.07 qtl./ha. and the lowest

was observed at small farms 10.86 qtl./ha. The average gross return estimated was Rs. 55726.28/ha., which varies from Rs. 56005.91 /ha. at marginal farms and Rs. 59881.56/ha. at large farms. The average net return was calculated as Rs. 19985.73/ha., which was higher at marginal farms (Rs.21887.53/ha.) followed by large (Rs. 21121.90/ha.) farms.

Table 2: Measures of farm Profit by category of farms in groundnut crop

Particular	Marginal	Small	Medium	Large	Overall
1. Main Product/Pods (qtl./ha)	11.09	10.86	10.93	12.07	11.13
Price (Rs./qtl.)	4908.33	4850	4846.67	4821.88	4866.88
2. By product (qtl./ha)	15.53	15.2	15.3	16.9	15.58
Price (Rs./qtl.)	100	100	100	100	100
3. Gross returns (Rs./ha)	56005.91	54180.25	54494.81	59881.56	55726.28
4. Cost of cultivation (Rs./ha)	34118.37	35625.75	36642.16	38759.66	35740.54
5. Net returns (Rs./ha)	21887.53	18554.5	17852.65	21121.9	19985.73
6. Cost of production (Rs./qtl)	3075.41	3281.13	3353.02	3211.68	3211.83
Income analysis					
i. Farm business income	42164.29	39288.04	38465.28	34004.78	39423.36

ii.	Family labour income	32426.78	29542.83	28713.1	24240.9	29676.78
iii.	Net income	21887.53	18554.5	17852.65	21121.9	19985.73
iv.	Farm investment income	31625.04	28299.72	27604.83	30885.78	29732.31
7.	Input output ratio	01:01.64	01:01.52	01:01.48	01:01.54	01:01.55
8.	Input output ratio	01:01.64	01:01.52	01:01.48	01:01.54	01:01.55

Cost concept – cost and return of groundnut on the sampled households: The cost and returns on the basis of cost concept in the cultivation of groundnut have been presented in Table 1. Table portrays that on an overall average per hectare Cost A₁, Cost A₂, Cost B₁, Cost B₂, Cost C₁, Cost C₂ and Cost C₃ were worked out to be Rs. 16302.92, Rs. 16302.92, Rs. 17049.49, Rs. 26049.49, Rs.26560.37, Rs. 26740.54 and Rs. 39314.60 respectively in overall average farm situation. These costs were observed highest at Rs.

25876.78/ha, Rs. 25876.78/ha, Rs. 26740.54/ha, Rs. 35740.54/ha, Rs. 29759.66/ha, Rs. 38759.66/ha and Rs. 42635.63/ha, respectively under large farm situation. The incomes over different costs were also worked out. The overall average per hectare income over Cost A₁, Cost A₂, Cost B₁, Cost B₂, Cost C₁, Cost C₂ and Cost C₃ calculated was Rs. 39423.36/ha, Rs. 39423.36/ha, Rs. 29676.78/ha, Rs. 29676.78/ha, Rs. 28985.73/ha, Rs. 19985.73/ha and Rs. 16411.68/ha, respectively.

Table 3: Break-up of total cost and income obtained over different cost of cultivation of groundnut (Rs./ha.)

Particular	Marginal	Small	Medium	Large	Overall
A. Break-up of costs					
Cost A ₁	13841.62	14892.21	16029.53	25876.78	16302.92
Cost A ₂	13841.62	14892.21	16029.53	25876.78	16302.92
Cost B ₁	14579.12	15637.42	16781.71	26640.66	17049.49
Cost B ₂	23579.12	24637.42	25781.71	35640.66	26049.49
Cost C ₁	25118.37	26625.75	27642.16	29759.66	26740.54
Cost C ₂	34118.37	35625.75	36642.16	38759.66	35740.54
Cost C ₃	37530.21	39188.32	40306.38	42635.63	39314.60
B. Return obtained over different costs					
Return over A ₁	42164.29	39288.04	38465.28	34004.78	39423.36
Return over A ₂	42164.29	39288.04	38465.28	34004.78	39423.36
Return over B ₁	41426.78	38542.83	37713.1	33240.9	38676.78
Return over B ₂	32426.78	29542.83	28713.1	24240.9	29676.78
Return over C ₁	30887.53	27554.5	26852.65	30121.9	28985.73
Return over C ₂	21887.53	18554.5	17852.65	21121.9	19985.73
Return over C ₃	18475.7	14991.93	14188.43	17245.93	16411.68

Suggestions

In view of finding of this study, it may be suggested that there is need to increase the profitability from groundnut cultivation by the use of low cost farm machinery, irrigation, good quality and high yielding varieties, use of balanced fertilizers and agrochemical, improved package and practices, marketing and remunerative prices, effective extension along with conducive policy measures.

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