Journal of Pharmacognosy and Phytochemistry

Available online at www.phytojournal.com

E-ISSN: 2278-4136
P-ISSN: 2349-8234
JPP 2018; 7(3): 462-465
Received: 09-03-2018
Accepted: 11-04-2018

RK Rout
College of Agriculture, OUAT, Kalahandi, Bhawanipatna, Odisha, India

S Behera
Krishi Vigyan Kendra, Kalahandi, Bhawanipatna, Odisha, India

M Jena
Krishi Vigyan Kendra, Kalahandi, Bhawanipatna, Odisha, India

P Nanda
Krishi Vigyan Kendra, Keonjhar, Odisha, India

Correspondence
RK Rout
College of Agriculture, OUAT, Kalahandi, Bhawanipatna, Odisha, India

Economic analysis of groundnut crop in western district of Odisha

RK Rout, S Behera, M Jena and P Nanda

Abstract
The present study was conducted to analyze the economics of groundnut crop. The study area was selected on the basis of highest area and production under this crop. The selected area was Kalahandi district of Odisha under groundnut crop. The present investigation was carried out to study the cost of cultivation and constraints in production confronted by farmer of selected groundnut crop. The overall cost of production was Rs. 46026.11 on cost C_3 basis. The gross income per hectare in cultivation of groundnut was Rs. 89712.17. The net income was workout Rs. 43086.06. However, return on per rupee with rental value owned land was 2.13 and without rental value 2.22. The study of constraints in production of the groundnut crop revealed that all the production problems were common in the study area. The timely not availability of labour, irrigation supply, electricity, lack of storage facility at farm level, weeding problem, unawareness of the seed rate were the major constraints identified in production of oilseed crops

Keywords: Economic, groundnut crop, irrigation supply, electricity

Introduction
Groundnut is a major oilseed and a supplementary food crop of India. With an all-season annual acreage of 55-60 lakh hectares, India ranks first in acreage and with a production of about 80 lakh tonnes, ranks second after China. Andhra Pradesh, Gujarat, Karnataka, Maharashtra, Rajasthan and Tamil Nadu collectively accounted 87.62% of the national kharif-2016 acreage. Majority of groundnut farmers belong to marginal and small land holding category. In low average rainfall areas, the farmers having no access to supplementary irrigation, raise the crop with minimal inputs. Among the oilseed crops groundnut is most popular crop in India. It occupies a pre-eminent position in the national edible oil economy. It is regarded as poor man's almonds since it contains about 25 per cent protein, 45 per cent edible oil and 26 per cent carbohydrates besides other essential nutrients. Groundnut can be used like other legumes and grains to make lactose free milk like beverage, peanut milk. The oilcake obtained after the extraction of the oil is a valuable organic manure and animal feed. It contains 7-8 per cent nitrogen, 1.5 per cent phosphorus and 1.5 per cent potash. The demand for oilseeds in India is rising at a faster rate and will be doubled by 2020 AD resulting in rising gap between domestic supply and consumption. The present level of oilseed production of the country needs to be increased by three times to meet out the projected demand for edible oil.

Materials and methods
The present study was conducted in the Odisha state. Multi-stage stratified sampling was used for the selection of primary data of the study. Groundnut was selected on the basis of highest area. For the present study, kalahandi district was selected purposefully. Two blocks were selected from the selected district. Three villages from selected blocks were selected on the basis of highest area and 10 farmers were selected from each village (sample size is 60). A list of all farmers growing selected groundnut crop in selected villages was prepared and arranged in ascending order on the basis of area under groundnut crop. The cumulative total method was used to categorize the farmers in different size groups *i.e.* small, medium and large. The sixty farmers were selected randomly from selected blocks. Both primary as well as secondary data were used for the present study. Information regarding various cost components in production of groundnut crop *viz.* costs of various inputs, quantity through personal interview method on pre-structured data schedule.

Analytical framework
Cost of cultivation: The cost of cultivation of groundnut crop was worked out by using various cost concepts defined below (Raju and Rao, 2004) [5].

Cost A1: It includes

Value of hired human labour, value of hired and owned animal labour, value of hired and owned machine labour, value of seed (both farm seed and purchased), value of manures (owned and purchased) and fertilizers, depreciation on fixed assets, irrigation charges, land revenue, interest on working capital and miscellaneous expenses.

Cost A2: Cost A1 + rent paid for leased in land.

Cost B1: Cost A1+ interest of fixed capital (excluding land)

Cost B2: Cost B1 + rental value of owned land + rent 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.

Cost of production

$$\text{Cost of production/qt} = \frac{\text{Cost of cultivation-value of by product /ha.}}{\text{Quantity of main product/ha}}$$

Constraints in production

The constraints in production of groundnut crop were studied by using simple tabular method in percentage term.

Result discussion

The experimental findings obtained from the present study have been discussed in following heads:

Cost concepts

The Table 1 revealed that the cost A_1 which included the cost of various variable components and cost of depreciation on fixed assets, land revenue and amount of interest on working capital except imputed value of family labour and rent paid for leased land, interest on fixed capital and value was Rs. 34061.99 on overall basis. This cost was found increasing trend with the increase farm size. The cost A_2 which included rent paid for leased in with cost A_1 and this cost same as the cost A1 which indicated that no leased land was operated by any selected farmers for cultivation of groundnut in the study area. The average value of cost B_1 was worked out Rs. 36504.96. This cost was also having positive correlation with the farm size (Deoghare and Agarwal, 1994) [2]. However, rental value of owned land was the same for all farmers, but was found higher in large farms due to higher interest rest on fixed capital followed by medium farms. In cost B_2, rental value of owned land and rent paid for leased in land included with cost B_1 and was estimated on an average about Rs. 38271.42. It was higher due to interest paid on fixed assets and was recorded increasing trend with increase the farm size (Sharma *et al*. 2002) [6]. In case of cost C_1, imputed value of family labour and value of cost B_1 included with this cost, the average cost C_1 was worked out about Rs. 40075.46. Cost C2 included the value of cost B_2 plus imputed value of family labour and was estimated about Rs. 41841.92 of total cost. The cost C_2 indicated the contribution of family labour in the various operations performed on a cultivation of groundnut crop. The cost C_3 included the total cost of production (cost C_2) plus 10 per cent of the cost C_2 as management cost. This cost showed the role of household played their role as a manager in cultivation of the crop.

Table 1: Cost of cultivation per hectare of groundnut on different farm size holdings (Rs/ha.)

Costs	Small (n-25)	Medium (n-25)	Large (n-15)	Mean
1	2	3	4	5
Cost A_1	32215.00	35339.86	35436.50	34061.99
Cost A_2	32215.00	35339.86	35436.50	34061.99
Cost B_1	34470.05	38400.28	37369.40	36504.96
Cost B_2	36080.80	40236.54	39302.30	38271.42
Cost C_1	38335.85	41621.78	40913.05	40075.46
Cost C_2	39946.60	43458.04	42845.95	41841.92
Cost C_3	43941.26	47803.84	47130.55	46026.11

Cost of production

The cost of production per quintal of groundnut on different cost concepts basis is given in Table 2. It is evident from Table 2 that the overall cost of production per quintal of groundnut was Rs. 1900.56 on C_3 basis. The cost of production on C_3 per quintal small, medium and large farms was Rs 2009.86, Rs. 1871.34 and Rs. 1769.12 respectively

Table 2: Cost of production of groundnut per quintal on different farm size holdings (Rs. /Qtl.)

Costs	Small	Medium	Large	Mean
1	2	3	4	5
Cost A_1	1385.46	1302.73	1249.84	1322.86
Cost A_2	1385.46	1302.73	1249.84	1322.86
Cost B_1	1505.54	1442.35	1335.67	1440.82
Cost B_2	1591.31	1526.12	1421.51	1526.12
Cost C_1	1711.39	1589.31	1493.03	1613.23
Cost C_2	1797.16	1673.09	1578.86	1698.52
Cost C_3	2009.86	1871.34	1769.12	1900.56

Profitability of groundnut

The production per hectare of groundnut and gross returns on sample farms are given in Table 3. This table revealed that on an average, productivity of groundnut was 20.76 quintals per hectare. The yield was highest (22.52 quintals) on large farms, followed by medium farms (21.92 quintals) and small farmers (18.78 quintals) which indicated that the size of holding increased the productivity of groundnut in the study area. The gross returns increased with increase in the size of holding (Gaddi *et al*. 2002). On an average Rs. 89712.17 was worked out as a gross income from the crop in the sowing area.

Table 3: Profitability per hectare of groundnut cultivation on different size holdings

Size holding	Yield main (q/ha)	Value of main product	By-product (q/ha)	Value of Byproduct	Gross income (Rs. /ha.)
1	2	3	4	5	6
Small	18.78	75120.00	30.98	6196.00	81316.00
Medium	21.92	87680.00	33.92	6784.00	94464.00
Large	22.52	90080.00	36.45	7290.00	97370.00
Average	20.76	83046.67	33.33	6665.50	89712.17

Income from groundnut cultivation

A comparison of various income measures from groundnut cultivation in Kalahandi district are given in Table 4. It is evident from Table 4 that on an overall basis, gross income per hectare of groundnut cultivation was Rs. 89712.17 on sample farms. It was Rs. 81316.00, Rs. 94464.00and Rs. 97370.00 on small, medium and large farms, respectively. The gross income per hectare from groundnut cultivation was highest on large farms as compared to medium and small farms (Adisarwanto *et al*. 2000) [1] mainly because of higher productivity on large farms. Return over variable cost was worked out by deducting the cost A1 from the gross income and found higher on small farms than the medium and large farms due to less variable cost, which was Rs. 49101.00, Rs. 59124.15 and Rs. 61933.50 small, medium and large, respectively. Farm business income represents returns over variable cost and rent paid for leased in land (Cost A2) as it was returns from variable cost because no leased in land was operated by farmers in study area. In case of family labour income cost B2 was deducted from the gross income, it was Rs. 45235.20, Rs. 54227.47 and Rs. 58067.70 respectively on small, medium and large farms. On an overall, family labour income was worked out Rs. 50840.75 per hectare. The overall net income from groundnut cultivation was Rs. 47270.25 per hectare. Among different size groups, it was Rs. 41369.40, Rs. 51005.97 and Rs. 54524.05 per hectare on small, medium and large, farm size of holdings, respectively. Returns to management were estimated Rs. 37374.74, Rs. 46660.16 and Rs. 50239.46 on small, medium and large farms, respectively. The overall basis return per rupee was 3.13. The return per rupee was highest on large farms followed by medium and small farms.

Table 4: Returns from cultivation of groundnut crop on different farm size holdings (Rs. /ha.)

Particulars	Small	Medium	Large	Mean
1	2	3	4	5
Gross income	81316.00	94464.00	97370.00	89712.17
Returns over variable cost	49101.00	59124.15	61933.50	55050.18
Farm business income	49101.00	59124.15	61933.50	55050.18
Family labour income	45235.20	54227.47	58067.70	50840.75
Net income	41369.40	51005.97	54524.05	47270.25
Returns to mgt.	37374.74	46660.16	50239.46	43086.06
Returns per rupee	2.04	2.17	2.27	2.13
Returns per rupee without rental value of own land	2.12	2.27	2.38	2.22

Net returns per hectare on different cost concept basis

The net return on different cost concept basis was worked out by deducting the respective cost from the gross income minus cost A_1, A_2 etc. and is presented in Table 5. An overall basis, returns from the cost A_1, and A_2, was same Rs. 55050.18 and on cost B_1, B_2, C_1, C_2 and C_3 were Rs. 52607.21, Rs. 50840.75, Rs. 49036.71, Rs. 47270.25 and Rs. 43086.06 per hectare of groundnut cultivation respectively.The net returns increased with increase in size of holding mainly because of underutilization of resources in case of small & medium farms (Rajput and Verma, 2000) [3].

Table 5: Net returns per hectare from groundnut cultivation on different cost concepts basis

Costs	Small	Medium	Large	Mean
1	2	3	4	5
Cost A_1	49101.00	59124.15	61933.50	55050.18
Cost A_2	49101.00	59124.15	61933.50	55050.18
Cost B_1	46845.95	56063.72	60000.60	52607.21
Cost B_2	45235.20	54227.47	58067.70	50840.75
Cost C_1	42980.15	52842.22	56456.95	49036.71
Cost C_2	41369.40	51005.97	54524.05	47270.25
Cost C_3	37374.74	46660.16	50239.46	43086.06

Returns per rupee of investment

Returns per rupee of investment from groundnut cultivation on the basis of different cost concept are given in Table 6. An average, the returns per rupee of investment on cost A_1, A_2, B_1, B_2, C_1, C_2 and C_3 were 2.62, 2.62, 2.44, 2.33, 2.22, 2.13 and 1.94 respectively. The return per rupee increased with increase in size of holding (Rajput *et al*. 1998) [4].

Table 6: Returns per rupee of investment from groundnut cultivation in Jaipur district

Particular	Small	Medium	Large	Mean
1	2	3	4	5
Cost A_1	2.52	2.67	2.75	2.62
Cost A_2	2.52	2.67	2.75	2.62
Cost B_1	2.36	2.46	2.61	2.44
Cost B_2	2.25	2.35	2.48	2.33
Cost C_1	2.12	2.27	2.38	2.22
Cost C_2	2.04	2.17	2.27	2.13
Cost C_3	1.85	1.98	2.07	1.94

Constraints in production of groundnut

The analysis of production constraints revealed (Table 7) that all farmers faced the problems such as no availability of quality seed in time, recommended dose of seed rate problems in timely sowing due to availability of machine labour, seed, insecticides etc. Among the production constraints, majority of the farmers (74.76%) of study area facing the problem in weeding due to non-availability of hired labour during weeding time. About 67 per cent farmers reported that labour was the major problem especially during harvesting and weeding time. On an average 53.45 per cent farmers reported the problem of erratic electricity supply for operating tube well. About 30-52 per cent majority of the farmers faced the problems of seed availability, seed treatment, recommended seed rate, credit etc. In the study area. 24.43 per cent farmers reported that they are not getting fertilizers in sufficient quantity timely and 33.55 per cent farmers reported that they are not getting MSP price.

Table 7: The constraints in production and marketing of groundnut crop confronted by farmers (%)

Particulars	Small	Medium	Large	Mean
1	2	3	4	5
Timely not available of seed	30.1	33.33	36.2	32.70
Unaware about seed treatment	37.6	38.2	38.2	37.95
Unaware about recommended seed rate	50.2	54.8	54.9	52.91
Problems of timely sowing	18.8	20.2	22.2	20.12
Timely not availability of irrigation	26.9	27.8	30.4	28.08
Timely not availability of fertilizers	24.2	24	25.4	24.43
Timely not availability of insecticides and pesticides	11.4	12	14	12.25
Timely not availability of electricity	54.6	52.8	52.4	53.45
Weed problems	71.2	75.8	79.3	74.76
Timely not availability of labour	64.2	68.7	70.2	67.20
Timely not availability of credit	52.4	50.4	51.8	51.58
Selling below the MSP	32.4	34.8	33.8	33.55

Suggestions and policy implications

1. Government price policy: Government price policy should ensure better minimum support price by the Commission on Agricultural Costs and Prices (CACP) to the oilseeds growers for their produce, with a view to encourage the increase in area and production.
2. Electricity supply as per need should be made available to the farmers for adequate irrigation of oilseeds crops.
3. Agricultural credit: The central and state government should promote timely and adequate flow of agricultural credit, particularly to the small and medium farmers to adopt modern technology for increasing output and productivity and arrange the means for disposal of the farmers produce at MSP as rice to avoid distress sale of their produce.
4. The seed certification system should be reformed to encourage seed producers with integrity. Seed laws should be upgraded to enhance the availability of quality seeds with variety of options to the farmers.
5. Government should provide recommended package of practices to the farmers at the grass root level.

Conclusion

The present study was conducted in the Odisha as it is one of the major producing states of groundnut in India. Among the number of oilseeds crops grown in odisha state, groundnut crop was selected on the basis of highest area under this crop. For cultivation of groundnut, farmers spent average Rs. 71077.82 on one hectare land. The cost of cultivation was highest (Rs. 47803.84) on medium farm followed by large and small farms. About 74.00 per cent costs were estimated as variable cost. Among variable cost, the highest cost (22.6%) was recorded for causal hired labour followed of seed (11.4 %) and imputed value of family labour (09%). The overall cost of production was Rs. 46026.11 on cost C3 basis. The per quintal cost was higher on small farms followed by medium and large farms. On an average, gross income per hectare of groundnut cultivation was Rs. 89712.17. It was higher on large farms as compared to the medium and small farms. Return over variable cost was Rs. 55050.18. On an average family labour income was estimated Rs. 50840.75. It was higher in small farms followed by medium and large farms. The net income was worked out about Rs. 47270.25. It was recorded higher in large farms followed by medium farms. Return on per rupee with rental value of owned land was 2.13 and without rental value 2.22. The study of constraints in production of groundnut crop revealed that the farmers of study areas faced the problems. Among the various production problems, the major problem was timely not availability of human labour especially during weeding and harvesting time. About 74.76 per cent farmers of the study area reported this problem. Timely not availability of labour was another major problem for which about 67.2 per cent farmers reported. Timely not availability of seed, credit, fertilizers and irrigation were the common problems.

References

1. Adisarwanto T, Rahmianna AA, Nikkuni S. Soybean production and post-harvest technology in Indonesia. Workshop on Soybean Research, Malang, Indonesia. JIRCAS Working- Report. 2000; 24:13-24.
2. Deoghare PR, Agarwal MP. An analysis of production, demand and constraints to growth of edible oil in India. Agric. Situ. India. 1994; 49:25-28.
3. Rajput AM, Verma AR. Economic analysis of production and marketing of groundnut in Khargone district of Madhya Pradesh. Indian J Agric. Mktg. 2000; 14:65-72.
4. Rajput AM, Magar K, Mishra OR. Economics of groundnut production in Central India. Bihar J Agric Mktg. 1998; 6:87-95.
5. Raju VT, Rao DVS. Economics of farm production and management-cost concept, 2004, 182-183.
6. Sharma S, Yadav CJ, Yadav RN, Singh TR. Production and marketing of rapeseed and mustard in block Akbarpur, Kanpur district of Uttar Pradesh. Indian J Agric. Mktg. 2002; 16(3):119.