Original Research Article

Economic analysis of cost of production and return of groundnut in Jamnagar district of Gujarat.

Abstract

The present study was conducted inn year 2021-22.The study made use of a multistage sampling and random sampling technique to select 90 respondents among those 6 selected villages. Data for the study were collected with the aid of a well- structured questionnaires. This study revealed that at overall level, per hectare cost of cultivation, gross income, net income farm investment income, cost of production and input and output ratio of groundnut was worked out. The results indicated that the cost incurred by marginal, small and semi medium farms (Rs.67984.59/ha), (Rs.66206.25/ha) and (Rs.64579.85/ha) respectively. The gross return obtained per hectare by marginal, small and semi medium was (Rs.103785/ha), (Rs.111000/ha) and (Rs.119325/ha) respectively, net return per hectare marginal, small and semi medium farms (Rs.35800.41/ha), (Rs.44793.75/ha) and (Rs.54747.15/ha) respectively. Input- Output ratio per hectare was marginal (1:1.53), small (1:1.68), and medium (1:1.85) respectively. The cost of production per quintal for marginal, small and semi-medium was Rs.3635.54, Rs.44793.75 and Rs.54745.15 respectively.

Introduction

Groundnut (*Arachis hypogea* L.) is believed to be the native of Brazil to Peru, Argentina and Ghana, from where it was introduced into Jamaica, Cuba and other West Indies islands. The plant was introduced by Portuguese into Africa from where it was introduced into North America. It was introduced into India during the first half of the sixteenth century from one of the Pacific islands of China, where it was introduced earlier from either Central America or South America.

Peanut or groundnut is a species in the legume or "bean"family. The peanut was probably first domesticated and cultivated in the valleys of Paraguay. It is an annual herbaceous plant growing 30 to 50 cm (1.0 to 1.6 ft) tall. The leaves are opposite, pinnate with four leaflets (two opposite pairs; no terminal leaflet),each leaflet 1to7cmlong and 1to 3cm broad. Peanut are very

nutritional. They contains 567 kcal Calories, 16 g total carbohydrate, 9 g dietary fiber, 4g sugar, 26 g protein, 49 g total fat, 7g saturated fat, 16 g polyunsaturated fat, 24 g mono saturated fat, cholesterol 0 mg, sodium 18 mg, potassium 705 mg, vitamin b_1 0.9 mg, vitamin b_2 0.2mg, niacin 17.6 mg, vitamin b_6 0.5 mg, calcium 134 mg, iron 6.7 mg, magnesium 245 mgper100gms.

Over half of the groundnut harvested worldwide is crushed for oil. Asubstantial quantity of groundnut produced in developing countries is traded in domestic markets. International trade of groundnuts is mainly in the form of in shell (pods), shelled(kernels)and meal(cake). Worldwide 44,041,913 tonnes of peanut is produced per year. India comes second largest producer of peanut with 6,857,000 tonnes yearly production. Groundnut is a major oilseed crop and in 2021-22, groundnut In India, it is grown in an area of about 85 lakh hectares with the total production of 84 lakh tonnes. Its cultivation in India is mainly confined to the States of Gujarat, Andhra Pradesh, Tamil Nadu, Karnataka, Maharashtra, Madhya Pradesh, Uttar Pradesh, Rajasthan, Punjab and Orissa. About 80 % of the total area and 84 % of the total production in the country are confined to first five States. The highest productivity of groundnut (1604 kg/ha) is in State of Tamil Nadu, while in Gujarat the productivity is about 1190 kg/ha.

Research Methodology

District Jamnagar was selected purposively, because of highest area under groundnut in Gujarat. All the 6 block of Jamnagar districts was arranged in ascending order according to area under groundnut cultivation and block namely Lalpur from top was selected for this study. A list of 6 villages were selected randomly out of them. A list of all the groundnut growers of the selected 6 villages was prepared and divided in three groups viz. marginal (below 0- 1 ha), small (1-2 ha) and other (medium and large) farms (above 2 ha). A random sample of 30 marginal farms, 30medium and 30 large farms were selected randomly. Thus, 90 farmers were selected randomly from 6 selected villages in each category proportionately. This data were collected through personal interview using pre structured schedule, the data thus collected were subjected to tabular analysis and statistical tools.

Cost Concepts

Cost concept were used to estimate cost of production and to derived the measure of efficiency viz., Farm business income, family labor income and farm investment income. The cost concepts viz., Cost A1, Cost A2, Cost B1, Cost B2, Cost C1, Cost C2 and Cost c3 were used in the present study and they are derived as follows:

Cost A_1: All actual expense incurred in the production.

Cost A1

1. Value if hired human labour.
2. Value of hired bullock labour
3. Value of owned bullock labour.
4. Value of owned machinery labour.
5. Hired Machinery Charges.
6. Value of seed (both farm produced and purchase).
7. Value of insecticides and pesticides.
8. Value of manure (owned and purchase)
9. Value of fertilizer.
10. Depreciation on implements and farm buildings.
11. Irrigation charges.
12. Land revenue, cesses and other taxes.
13. Interest on working capital.
14. Miscellaneous expenses (Artisans etc.)

Cost A_2: Cost A_1 + rent paid for leased in land.

Cost B_1: Cost A_2 + interest on value of own fixed capital assets.

Cost B_2: Cost B_1 + rental value of own land**.**

Cost C_1: Cost B_1 + imputed value of family labor.

Cost C_2: Cost B_2 + imputed value of family labor.

Cost C_3: Cost$_2$ + 10 % of cost $C_2$to account for managerial input of farmer.

Cost C3: Cost C2* + value of management input at 10 percent of total cost (C2*)

1. Total costs = Total variable cost (TVC) + Total Fixed Cost (TFC)
    - Interest on working capital: It was calculated @4% per annum for half of the crop period.
    - Interest on fixed capital: It was calculated @10% per annum for the crop period.
    - Rental value of owned land: It was calculated based on the prevailing rates in the sampling villages.
    - Depreciation: It presents the value by which a farm resource decreased in value as a result of cause other than a change in general Groundnut of the item. Straight line method was used for calculating the depreciation:

Income measures

a. Gross income: It includes the final Groundnut of main product and by product of the crop.

b. Net income: Net income = Gross income – Cost C2

c. Family labour income: It is measured on earning of a farmer and his labour and managerial work. It is equal to gross income minus total expenses excluding wage of unpaid family labour.

Family labour income = Gross income - Cost B2

d. Farm business income: It is a measure of earning of farmer and his family for his capital investment, labour and managerial work.

Farm business income = Gross income – Cost A1

e. Farm investment income: This is the sum of net income, rental value of owned land and interest on fixed capital.

B. C. Ratio (Input output ratio) = O / I Where, I = Total input and O = Total outputB. C. Ratio (Input output ratio) = O / I Where, I = Total input and O = Total output.

Results and Discussion

Cost of cultivation and returns from Groundnut

The description of cost of cultivation and returns from main and by product of groundnut is given below.

Table 1 Component wise cost of cultivation of groundnut (Rs)

Sr. No.	Particulars	marginal	small	semi medium	Average
1	Hired labour	8560 (12.59)	8185.5 (12.36)	7971.5 (12.34)	8239 (12.43)
2	Machinery labour charges	1926 (2.83)	1765.5 (2.67)	1712 (2.65)	1801.17 (2.72)
3	Cost of seed	11770 (17.31)	11877 (17.94)	11984 (18.56)	11877 (17.93)
4	Cost of manures	4815 (7.08)	4654.5 (7.03)	4467.25 (6.92)	4645.6 (7.01)
5	Cost of fertilizers	8474.4 (12.47)	8287.15 (12.52)	8078.5 (12.51)	8280.67 (12.50)
6	Cost of irrigation	3317 (4.88)	2782 (4.20)	2568 (3.98)	2889 (4.36)
7	Cost of plant protection	4681.25 (6.87)	4547.5 (6.87)	4467.25 (6.92)	4565.3 (6.89)
8	Interest on working capital 8%	3217.49 (4.73)	3156.5 (4.77)	2926.45 (4.53)	3100.1 (4.68)
9	Depreciation on fixed capital	2354 (3.46)	2241.65 (3.33)	2166.75 (3.36)	2254.1 (3.40)
10	Rental value of own land	10700 (15.74)	10700 (16.16)	10700 (16.57)	10700 (16.51)
11	interest on fixed capital 12%	4424.45 (6.51)	4424.45 (6.80)	4173 (6.46)	4340.6 (6.55)
12	Family labour charges	3745 (5.51)	3584.5 (5.41)	3365.15 (5.21)	3564.9 (5.38)
13	Total cost of cultivation	67984.59	66206.25	64579.85	66256.9

Table1: reveals that the average cost of different production activities and process like hired labour Rs. 8560; machinery labour charges Rs. 1926; cost of seed Rs.11770; cost of manures Rs. 4815; cost of fertilizers Rs. 8474.4; irrigation charges Rs. 3317; plant protection charges Rs.4681.25; Interest on working capital Rs.3217.49; depreciation on fixed capital Rs. 2354; Rental

value of own land 10700; Interest on fixed capital 4424.45; family labour charges Rs. 3745 and total cost of cultivation was Rs. 67984.59.

In the medium size farmers the average cost of different production activities and process like hired labour Rs. 8185.5; machinery labour charges Rs. 1765.5; cost of seed Rs.11877; cost of manures Rs. 4654.5; cost of fertilizers Rs. 8287.15; irrigation charges Rs. 2782; plant protection charges Rs.4547.5; Interest on working capital Rs.3156.5; depreciation on fixed capital Rs. 2241.65; Rental value of own land 10700; Interest on fixed capital 4424.45; family labour charges Rs. 3584.5 and total cost of cultivation was Rs. 66206.25.

In the large size farmers the average cost of different production activities and process like hired labour Rs. 7971.5; machinery labour charges Rs. 1712; cost of seed Rs.11984; cost of manures Rs. 4467.25; cost of fertilizers Rs. 8078.5; irrigation charges Rs. 2568; plant protection charges Rs.4467.25; Interest on working capital Rs.2926.45; depreciation on fixed capital Rs. 2166.75; Rental value of own land 10700; Interest on fixed capital 4173; family labour charges Rs. 3365.15 and total cost of cultivation was Rs. 64579.85.

Among sample average cost of different production activities and process like hired labour Rs. 8239; machinery labour charges Rs.1801.17; cost of seed Rs.11877; cost of manures Rs. 4645.6; cost of fertilizers Rs.8280.67; irrigation charges Rs. 2889; plant protection charges Rs.4565.3; Interest on working capital Rs.3100.1; depreciation on fixed capital Rs. 2254.1; Rental value of own land 10700; Interest on fixed capital 4340; family labour charges Rs3564.9 and total cost of cultivation was Rs. 66256.9.

Table 2 average composition of economics of groundnut production & return (Rs)

Sr. No.	Particulars	Marginal	Small	Semi medium	Sample average
1	Cost A1	49115.14	47497.3	46341.7	47651.38
2	Cost A2	59815.14	58197.3	57041.7	58351.38

3	Cost B	64239.59	62621.75	61214.7	62692.01
4	Cost C	67984.59	66206.25	64579.85	66256.90
5	Yield	18.7	20	21.5	20.07
6	Sale price	5550	5550	5550	5550.00
7	Gross return per hectare	103785	111000	119325	111370.00
8	Net return per hectare	35800.41	44793.75	54745.15	45113.10
9	Cost of production /qtl	3635.54	3310.31	3003.71	3316.52
10	Benefit-Cost ratio	1.53	1.68	1.85	1.68

Table 2: Reveals that the different component of economics of production and return in small size farm group like Cost A1 Rs. 49115.14; Cost A2 Rs.59815.14; Cost B Rs. 64239.59; in medium size famers Cost A1 Rs.47497.3; Cost A2 Rs. 58197.3; Cost B Rs. 62621.75; Cost C Rs.67984.59. and among the large size farm group Cost a1 Rs.46341.7; Cost A2 Rs.57041.7; Cost B Rs.61214.7 and cost C Rs.64579.85. The sample average of different type of cost like Cost A1, Cost A2, Cost B and Cost C was 47651.38; 58351.8; 62692.01 and 66256.90 respectively.

In small size farm average yield 18.7 qtl. Gross return per ha Rs.103785; net return per ha Rs.35800.41; cost of production per qtl. 3635.54 And input – output ratio 1.53.

In medium size farm average yield 20 qtl. Gross return per ha Rs.111000; net return per ha Rs.44793.75; cost of production per qtl. 3310.31 And input – output ratio 1.68. And in large size farm average yield 21.5 qtl. Gross return per ha Rs.119325; net return per ha Rs.54745.15; cost of production per qtl. 3003.71 And input – output ratio 1.85.

The average of sample farm size group yield 20.7 qtl. Gross return per ha Rs.111370; net return per ha Rs.45113.10; cost of production per qtl. 3316.52 And input – output ratio 1.68.

Summery and Conclusion

The results indicated that The cost incurred by marginal, small and semi medium farms (Rs.67984.59/ha),(Rs.66206.25/ha) and (Rs.64579.85/ha) respectively. The gross return obtained per hectare by marginal, small and semi medium was (Rs.103785/ha), (Rs.111000/ha) and (Rs.119325/ha) respectively, net return per hectare marginal, small and semi medium farms

(Rs.35800.41/ha), (Rs.44793.75/ha) and (Rs.54747.15/ha) respectively. Input- Output ratio per hectare was marginal (1:1.53), small (1:1.68), and medium (1:1.85) respectively. The cost of production per quintal for marginal, small and semi-medium was Rs.3635.54, Rs.44793.75 and Rs.54745.15 respectively.

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