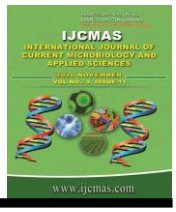
Int.J.Curr.Microbiol.App.Sci (2020) *9*(11): 2481-2486

International Journal of Current Microbiology and Applied Sciences
***ISSN: 2319-7706* Volume 9 Number 11 (2020)**
Journal homepage: http://www.ijcmas.com



Original Research Article https://doi.org/10.20546/ijcmas.2020.911.299

Cost, Returns and Profitability of *Kharif* Groundnut in Solapur District of Maharashtra, India

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Keywords

Groundnut, Cost, Gross return, Net profit and B:C ratio

Article Info

Accepted:
17 October 2020
Available Online:
10 November 2020

A B S T R A C T

Groundnut (*Arachis hypogea* L.) member of Papillionace subfamily of Fabiace family which comprises important oilseed crop in the world. It is self pollinated crop. China is the largest producer of groundnut in the world accounting for more than 40% followed by India with about 15% share. Though, India is the largest cultivator of groundnut crop in terms of acreage. India has remained in the second among the top groundnut producing countries despite having the largest area under groundnut cultivation in the world. For the present study two tehsils were selected on the basis of highest area under crop i.e. Pandharpur and Malshirus. From these two tehsils, total 10 villages selected randomly and from these 10 villages, 9 farmers were selected from each village, Therefore total 90 groundnut growers were selected for study. Information collected from groundnut growers were analyzed and result obtained that, Cost-A was Rs. 94953.32, Cost- B was Rs. 138808.95 and Cost- C was 143199.76. Gross return obtained was Rs. 202606.74 and net profit was Rs. 59406.98. B: C ratio was 1.41.

Introduction

Groundnut (*Arachis hypogea L.*) is the member of Papilionace subfamily of the Fabiace family which comprises important edible oilseed crop in the world. It is self pollinated crop. Groundnut introduced in India by Portuguese during first half of the sixteenth century. It has been reported that Brazil was the place from where groundnut originated.

Groundnut is important oilseed crop in world and India also. The oil content depends on agro-climatic condition containing 44-50% oil. It is edible oil owing that high content of digestible protein (22-30%), vitamins (E, K, and B complex), minerals including phosphorus, calcium, magnesium, potassium and also contains some phyto sterol. In groundnut protein content (25.2%), starch (11.5%), soluble sugars (4.5%), crude fibers (2.1%), moisture (6%). Total carbohydrate presents in it is 18.6 gram. Kernels used for consumption in raw and roasted form having calorific value 34 gram/100 gram. Groundnut oil cake contains 7 to 8% N, 1.5% P, 1.2% K used as a fertilizers and supplement to animal and poultry also. The haulms used as for livestock purpose as a fodder. The shell used as a fuel and in manufacturing of cork and other substitutes. Groundnut is legume crop

used to symbiotic fixation of Nitrogen in soil. Groundnut contains one amino acid like a cystine used for animal growth. It contains some vitamins also Thiamine (1.14gm), Riboflavin (0.13gm), Niacin (17.2gm) in raw kernels. While in roasted kernels it contains 0.32gm, 0.13gm, and 17.2gm respectively.

China is the largest producer of groundnut in the world accounting for more than 40% followed by India with about 15% share. Though, India is the largest cultivator of groundnut crop in terms of acreage, low yields kept her in the second place in terms of output. India has remained in the second among the top groundnut producing countries despite having the largest area under groundnut cultivation in the world.

The crop survey findings were released during IOPEPC (Indian Oilseed and Produce Export Promotion Council) Global Oilseed Conference (IGOC) during 19th-21st October, 2019 at Hotel Hyatt Regency, Deira, Dubai which gives the total area under *kharif* groundnut was 3931700 Ha., production estimated was 6860205 tones and yield obtained was 1745 kg / ha. (Source: Agriwatch.com)

In Maharashtra total area under *kharif* groundnut crop during 2019 is 187500 ha and total production is 193827 tones along with productivity 1034 kg / ha. In Maharashtra Groundnut is important oilseed crop which is cultivated in all season. In Maharashtra mostly groundnut varieties used for cultivation are TAG-24, Phule Vyas, Phule Pragati, TG-26, JKG-194, AK-159, SB-11. (Sources: www. iopepc.org.)

Objective

To identify the costs, returns and profitability in groundnut production

Materials and Methods

Multistage sampling design was adopted for selection of the district, tehsil, village and groundnut growers. In first stage, Solapur district was purposively selected on the basis of highest area under groundnut crop. In the second stage, Malshiras and Pandharpur tehsils were selected on the basis of highest area under groundnut crop. In the third stage, 5 villages were selected from each selected tehsils. In the fourth stage, from each of the selected villages, 9 groundnut growers were randomly selected. In this way 90 groundnut growers were selected for the present study. Data were collected with the help of pre tested schedule by personal interview method for the year 2019-2020. Data were converted to per hectare basis in tabular form; statistical tools like arithmetic mean, percentage and ratio were used for accounting the cost and returns in groundnut production.

The cost concept like Cost –A, Cost –B, and Cost –C were used for cost evaluation and to calculate profitability in groundnut production. Cost - A include the item namely, hired human labour, bullock labour, machine labour, seed, fertilizer, plant protection, irrigation, land revenue, incidental charges, interest on working capital and depreciation on assets. Cost-B comprises of the cost-A plus rental value of land and interest on fixed capital. Cost-C includes the cost-B plus family labour cost. The terms and concepts used in present study were as fallows. Interest on working capital included by charging interest at the rate of 6 per cent items of expenditure as hired human labour, bullock labour, machine labour, seed, fertilizers, manures, plant protection, land revenue an incidental charges for crop duration. Depreciation is the decrease in the value of asset and 10 per cent on the present value at the beginning of the year of farm implements and machinery was taken and only the

proportionate charges were taken for the estimate as 1/6th the value of gross produce that is value of main product plus value of by product minus land revenue. Interest on fixed capital by charging interest at the rate of 11 per cent on investment on commonly used assets like wooden implements, iron implements which were distributed on cropped area.

Results and Discussion

Per hectare physical inputs used and output obtained in groundnut production

Per hectare physical inputs and outputs of groundnut production were calculated and presented in Table 1. It was revealed that, the hired human labour used was 91.68 man days, family human labour was 16.8 man days, bullock pairs used was 5.97 pair days, machine labour used was 14.34 hours/ha, seed used was 180.81 kg/ha, manure used was 21.53 quintal/ha.

Use of urea, 10:26:26, SSP, MOP, DAP was 119.58, 99.41, 121.62, 117.90 and 113.07 kg/ha, respectively in groundnut farm. Spraying of insecticides or pesticides was 4.42 ml/ha. Irrigation used was 12509.30 $m^{3.}$ It was also observed that, main produce of groundnut was 52.55 quintals/ha and by produce was 3.11 quintals/ha.

Table.1 Per hectare use of physical input and outputs in groundnut production Unit/ha

Sr. No	Particulars	Unit	Groundnut farm
INPUT			
1.	**Hired human labour**	man day	91.68
2.	**Family human labour**	man day	16.80
3.	**Bullock labour**	pair day	5.97
4.	**Machine labour**	hr.	14.34
5.	**Seed**	kg	180.81
6.	**Manure**	qtl	21.53
7.	**Fertilizer**		
	Urea	kg	119.58
	10:26:26	kg	99.41
	SSP	kg	121.62
	MOP	kg	117.90
	DAP	kg	113.07
8.	**Plant protection**	ml	4.42
9.	**Irrigation**	m^3	12509.30
OUTPUT			
10.	**Main produce**	qtl.	52.55
11.	**By-produce**	qtl.	3.11

Table.2 Per hectare cost of cultivation in groundnut production

Sr. No	Particulars	Unit	Quantity	Amount(Rs)	Percent
1.	**Hired human labour**	man day	91.68	24393.25	17.03
2.	**Bullock labour**	pair day	5.97	2841.16	1.98
3.	**Machine labour**	hour	14.34	13977.32	9.76
4.	**Seed**	kg	180.81	20370.93	14.22
5.	**Manure**	qtl.	21.53	4306.97	3.06
6. **7.** **8.** **9.** **10.** **11.**	**Fertilizer** **Urea** **10:26:26** **SSP** **MOP** **DAP**	kg	 119.58 99.41 121.62 117.90 113.07	 717.48 2236.91 2726.62 707.44 2261.44	 0.50 1.56 1.90 0.49 1.57
12.	**Plant protection**	ml	4.42	4153.18	2.90
13.	**Irrigation**	m^3	12509.30	969.18	0.67
14.	**Land revenue**	-	-	350	0.24
15.	**Incidental charges**	-	-	450.5	0.31
16.	**Interest on working capital @ 6%**	-	-	5374.71	3.75
17.	**Depreciation on capital assets@10%**	-	-	9116.23	6.36
18.	**Cost A (1-17)**	-	-	**94953.32**	**66.30**
19.	**Rental value of land**	-	-	30632.42	21.4
20.	**Interest on fixed capital @ 11%**	-	-	13223.21	9.23
21.	**Cost B (18- 20)**	-	-	**138808.95**	**96.93**
22.	**Family human labour**	man day	18.99	4390.81	3.07
23.	**Cost C (21-22)**	-	-	**143199.76**	**100**

Table.3 Per hectare profitability of groundnut production (Rs/ha)

Sr.No.	Particulars	Amount
1.	Returns from main produce (Pods)	197989.30
2.	Returns from by produce	4617.44
3.	Gross returns (item 1+2)	202606.74
4.	Cost-A	94953.32
5.	Cost-B	138808.95
6.	Cost-C	143199.76
7.	Farm business income (Gross return minus cost-A)	107653.42
8.	Family labour income (Gross return minus cost-B)	63797.79
9.	Net profit (Gross return minus cost-C)	59406.98
10.	Output Input ratio (Gross return divided by cost-C)	1.41
11.	Per quintal cost of production (Cost-C minus by produce value divided by main produce quantity)	2637.15

Per hectare cost of cultivation of groundnut

Per hectare cost of cultivation of groundnut were calculated and presented in Table 2. The result observed that, the per hectare cost of cultivation i.e. Cost- C was Rs. 143199.76, Cost- A was Rs. 94953.32 and Cost -B was Rs. 138808.95 in which Cost-A consist 66.30 per cent, Cost-B, 96.93 per cent and cost-C was 100 per cent. Expenditure on hired human labour was Rs. 24393.25 i.e. 17.03 per cent.

On seed was Rs.20370.93(14.22per cent), followed by machinery labour calculated was Rs. 13977.32(9.76 per cent), depreciation on assets calculated was Rs. 9116.23(6.36 per cent), interest on working capital calculated was Rs. 5374.71(3.75per cent), manure calculated was Rs. 4306.97(3.06 per cent), plant protection calculated was Rs. 4153.18(2.90 per cent), bullock labour calculated was Rs. 2841.16(1.98 per cent), SSP calculated was Rs. 2726.62(1.90 per cent), DAP calculated was Rs. 2261.44(1.57 per cent), 10:26:26 calculated was Rs. 2236.91(1.56 per cent), irrigation calculated was Rs. 12509.30(0.67 per cent), urea calculated was Rs. 717.48(0.50 per cent), MOP calculated was Rs. 707.44(0.49 per cent), incidental charges calculated was Rs. 450.5(0.31 per cent) and land revenue calculated was Rs. 350(0.24 per cent).

Profitability of groundnut production

Per hectare profitability in groundnut production was accounted and presented in table 3. The results observed that, per hectare gross return was found to be Rs.2026.6.74.

Farm business income, family labour income and net profit/ha were Rs. 107653.42, Rs. 63797.79 and Rs. 59406.98 respectively. Output-input ratio was 1.41 and it shows that it was profitable crop. Per quintal cost of production of groundnut was Rs.2637.15.

From the above study, concluded that Cost- A was Rs. 94953.32, Cost- C was 138808.95 and Cost- C was 143199.76. Net profit obtained was Rs. 59406.98. B: C ratio was 1.41. It indicated that, groundnut crop was profitable crop.

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How to cite this article:

Sawant, S. L., R. D. Shelke and Jadhav, S. L. 2020. Cost, Returns and Profitability of *Kharif* Groundnut in Solapur District of Maharashtra, India. *Int.J.Curr.Microbiol.App.Sci.* 9(11): 2481-2486. doi: https://doi.org/10.20546/ijcmas.2020.911.299