

The economics of groundnut production in fatehabad district

Sharmila

Research Scholar, Chaudhary Devi Lal University, Sirsa, Haryana, India

Abstract

The present paper attempts an economic analysis of groundnut production in Fatehabad district of Haryana. Using data from interview schedule of 100 households selected through multistage purposive sampling technique, the paper analysed costs and returns for the groundnut producers of Fatehabad district for large, small and medium farmers. The paper also analysed the motivational factor and problems faced by groundnut producers of the districts. On the basis of the analysis the paper found that groundnut production in Fatehabad district is profitable only when we include explicit cost but once implicit costs are added the groundnut production turns a loss making venture for the farmers.

Keywords: groundnut production, production costs, returns, ranking analysis

1. Introduction

Agriculture plays a vital role in India's economy. About 54.6 Per cent of its population is engaged in agriculture and allied activities (census 2011). It contributes 17.4 per cent of the total gross value added (GVA) during 2014-15. The main crops of India are oilseeds, wheat, rice, sugarcane, tea, tobacco, cotton. Oilseed crops have a very important role in agriculture, industry, and export trade. India is one of the largest producers of oilseeds in the world and occupies an important position in the Indian agriculture economy of various countries. The important oilseeds crops grown in India are groundnut, rapeseed mustard, soybean, linseed, castor, sunflower, niger and safflower. Among the oilseed crops, groundnut is the most popular crop in India. It occupies a pre-eminent position in national edible oil economy. It is one of the most important food and cash crops of our country. Groundnut (*Arachis hypogea*) is a species in the legume or "bean" family. It is mainly grown in kharif season as a rain fed crop. Groundnut grows best in light sandy loam soil. They require five months of warm weather and an annual rainfall of 500 to 1000 mm or the equivalent in irrigation water. They need an acidic soil to grow preferably with 6.9-7 ph.

Groundnut is one of the most important cash and food crops of the world. Groundnut is important in the diet, being the major source of vegetable protein and edible fat. The haulms are a rich protein feed for livelihood. It contains about 25 per cent protein, 45 per cent edible oil and 26 per cent carbohydrates besides other essential nutrients. The groundnut seeds are a nutritional source of vitamin E, niacin, folic acid, calcium, phosphorus, magnesium, zinc, iron, riboflavin, thiamine and potassium (Madaki *et al.* 2016). Groundnut can be used eaten as raw or it can be used in making peanut butter, candy bars, and 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. (Singh *et al.* 2014) [12]. It is a good rotation crop, which builds up soil fertility by fixing atmospheric nitrogen through the root nodule bacteria and an efficient cover crop of lands exposed to soil erosion. (Kumar

et al. 2013). Groundnut is cultivated in tropical, sub-tropical and warm temperate regions between 40°N and 40°S latitudes. The major groundnut growing countries in the world are India, China, USA, and Nigeria.

India occupies first position in terms of area and second in terms of groundnut production in the world. In India groundnut is grown over an area of 4.8 million hectares with a total production of 6.56 million tonnes and average productivity of 1400 kg per hectare during 2014-15. [Agricultural statistics a glance of 2015] [1] Groundnut accounts to 25 % share in the total oilseeds production in India (Agricultural statistics at a glance 2015) [1] The major groundnut producing states of the country are Gujarat, Andhra Pradesh, Tamil Nadu, Karnataka, Maharashtra, Rajasthan and Uttar Pradesh.

In Haryana, groundnut is the major kharif oilseed crop. In Haryana groundnut is mainly produced in the districts of Fatehabad, Sirsa, Hisar, Bhiwani and Jhajjar. In this state groundnut is grown over an area of 1.3 thousand hectares with a total production of 1.5 thousand tonnes during 2014-15 (Statistical Abstract of Haryana 2014-15) [3].

Fatehabad district of Haryana is the second largest producer in terms of area and production. It is an agricultural dependent district of the state having cotton, wheat, rice, mustard and groundnut as the main crops. In view of the importance of the groundnut crop at district, state and national level, a study on the economics of the groundnut production has been taken up with the following objectives:

2. Objectives

1. To find out the trends in Area, Production and yield of groundnut crop.
2. To examine the economics of Groundnut production in Fatehabad District.
3. To know the motivational factors and problems of groundnut cultivators in Fatehabad district.

3. Methodology

Under this, area, time period, Sampling procedure, data collection and various techniques to extract the results have

been discussed. The study pertains to the Fatehabad district of Haryana State. To fulfill first objective the study period has been ranging from 2004-05 to 2014-15 while the rest of the duo objectives have been accomplished using primary data collected during 2015-16 through well structured scheduled and interview.

Multistage purposive sampling technique has been used to select the primary sampling unit's viz. households, in order to achieve the specific objectives. A total 100 of respondents from the selected villages have been selected randomly. The study has been done by dividing the entire sampled into small, medium and large farmers. To collecting the primary data, the time period has been selected from 2016 to 2017 through out scheduled questionnaire and interview and high sampling procedure. To obtain the results related to cost and returns of groundnut, the data has been tabulated and analyzed. For the purpose of analysis, logical tool and techniques such as average method has been used. Compound growth rates (C.G.R.) of *Area, Production and Yield* of groundnut have been worked out by fitting exponential function. Using the least square method, the following form of exponential function has been used to calculate compound growth rates:

$$Y=ab^t$$

Where,

Y= Area, Production,

Yield a=Constant; b=1+r;

r = Compound growth rate

t = time variable in years (1, 2 ----- 10)

The growth rate has been tested for significance by calculating 't' value where $t = r/s$, 's' is the standard error. Garrett's Ranking Technique is used to find out the most significant factor influencing the farmers to cultivate groundnut with the following formula

Percent Position = $100(R_{ij} - 0.5)$

$$x = \frac{100(R_i - 0.5)}{N_j}$$

Where,

R_{ij} = Rank given for the *i*th factor by the *j*th respondents.

N_j = Number of factors ranked by *j*th respondents.

This technique is employed to indicate the most important factor motivating the groundnut growers. The farmers asked to rank various factors in relation to groundnut cultivation. Accordingly, score value as per Garrett Ranking Technique for first rank to eleventh rank is as 83, 71, 64, 59, 54, 49, 45, 40, 35, 28, and 17 respectively. The per cent position of each rank is made into score by referring to the Table given by Henry Garrett. Same ranking method has been used to draw results related to the problems faced by farmers in Fatehabad district.

4. Results and Discussion

The data obtained from various issues of 'Statistical Abstract of Haryana' related to the growth behaviour in area, production and yield revealed that in case of area, 21.2 per cent compound growth has been observed while in case of production, the same has been noticed as 23.1 per cent. In

respect of yield, 2.6 per cent growth has been noticed. As far as the per cent change in area is concerned, negative results have been obtained during 2006-07, 2007-08, 2011-12 and 2014-15 respectively. The coefficient of variation has been found as 100.20 per cent. Regarding production of groundnut at the district level, the results have been registered in negative values during the same years as has been noticed in case of area depicts the negative impact of area on the production of groundnut in the concerned district. In respect of yield, the picture has not been remained much satisfactory as during the year 2005-06, -0.11 per cent change has been noticed. During 2007-08, -0.55 per cent change has been noticed, in case of the results related to the year 2007-08, -0.55 per cent change has been registered while the change during 2009-10 and 2011-12 has been noticed as -7.45 and -44.75 respectively.

The furnished results related to the growth and variation in the area, production and yield revealed that the maximum growth has been during the year 2013-14 as 115.38 per cent growth has been registered in case of area while the maximum growth in case of production has been observed during the year 2013-14 as 123.34 per cent. Regarding the growth behaviour of yield in the state, it has been remained highest during 2013-14 as the value during the concerned year has been noticed as 21.44 per cent. As far as the compound growth is concerned, it has been observed as 6.6, 12.6 and 10.1 respectively in case of area, production and yield. So, it can be concluded on the basis of the above discussion that the trends have been very similar in Fatehabad with Haryana as in both of the cases; negative results have been observed during the same time periods in relation to area and production of groundnut. Except for that, it has also been surfaced by the findings that maximum change has recorded lagged year at district level when observed this kind of trend at state level. As far as area and production is taken into account, there has not been huge gap between the trends observed at district and state level. However, slight different results have been found in case of yield at national level when make a comparison with the results at district and state level.

4.1 Economics of Groundnut Production in Fatehabad District

i) Costs and Returns from the cultivation of Groundnut in case of Small Farmers

The final results related to the cost and returns of groundnut production in Fatehabad district are presented through table 1. It is revealed by the results that rental value of land has been the major component of total production cost of groundnut production in Fatehabad as it has estimated as Rs. 8423.07 accounted as 34.08 per cent as far as the fixed cost is taken into account while the part of variable has been estimated as 65.97 per cent to the total cost in which 13.70 per cent has accounted for irrigation followed by 9.56 per cent to the total in case of Threshing /Winnowing. As far as the returns from groundnut are considered, Rs. 18220.19 has been accounted for the value of main product. The value of by product has been estimated at Rs. 1119.05 which led the total production to Rs.19339.24. The returns have been estimated in negative terms when we take into account total cost however, the value has been accounted in positive terms with Rs. 3002.62 when net returns are obtained through the difference of gross and variable.

Table 1: Costs and Returns from the cultivation of Groundnut in case of Small Farmers

Sr.No.	Items	Cost/Returns (Rs.)	Percentage to total cost
1	Preparatory Tillage	653.84	2.64
2	Ploughing	461.53	1.86
3	Seed	1808.46	7.30
4	Sowing	400.00	1.62
5	Fertiliger and manure	1097.76	4.43
6	Irrigation	3392.31	13.70
7	Hoeing/Weeding	1438.46	5.81
8	Plant Protection/Pesticide	456.92	1.85
9	Harvesting	1838.46	7.43
10	Threshing /Winnowing	2369.23	9.56
11	Miscellaneous	635.71	2.57
12	Interest on working capital	1164.21	4.70
13	Transporation charges	619.23	2.50
14	Variable cost	16336.62	65.97
15	Rental value of land	8423.07	34.08
16	Total cost	24759.69	100.00
17	Production Main Product	4.74	-
18	Price	3838	-
19	Value of Main Product	18220.19	-
20	Value of by Product	1119.05	-
21	Gross Returns	19339.24	-
22	Net Returns (Gross Returns- Total Cost)	-5420.45	-
23	Net Returns (Gross Returns-Variable Cost)	3002.62	-

Source: Primary Survey

ii) Costs and Returns from the cultivation of Groundnut in case of Medium Farmers

The final results related to Cost and Returns from the cultivation of Groundnut in case of Medium Farmers are presented through table 2 and reveals that 64.76 per cent has been the part of total cost. Irrigation, Threshing /Winnowing

and Harvesting have been the main components of the total variable cost. 35.35 per cent has been the share of the total cost. The total returns has been estimated at 19898.43 while the returns when subtract total cost has been registered as Rs. -4079.74. When the returns have been recorded by taking into account only variable cost, it has been noticed as Rs. 4374.8.

Table 2: Costs and Returns from the cultivation of Groundnut in case of Medium Farmers

Sr.No.	Items	Cost/Returns (Rs.)	Percentage to total cost
1	Preparatory Tillage	675.00	2.82
2	Ploughing	470.45	1.96
3	Seed	1831.81	7.64
4	Sowing	400.00	1.64
5	Fertiliger and manure	1153.36	4.81
6	Irrigation	2865.91	11.95
7	Hoeing/Weeding	1318.18	5.48
8	Plant Protection/Pesticide	506.36	2.11
9	Harvesting	1863.63	7.77
10	Threshing /Winnowing	2260.45	9.43
11	Miscellaneous	590.90	2.46
12	Interest on working capital	1114.86	4.65
13	Transportation charges	472.72	1.97
14	Variable cost	15523.63	64.76
15	Rental value of land	8454.54	35.35
16	Total cost	23978.17	100.00
17	Production Main Product	4.92	-
18	Price	3806.52	-
19	Value of Main Product	18728.09	-
20	Value of by Product	1169.57	-
21	Gross Returns	19898.43	-
22	Net Returns (Gross Returns- Total Cost)	-4079.74	-
23	Net Returns (Gross Returns-Variable Cost)	4374.8	-

Source: Primary Survey

iii) Costs and Returns from the cultivation of Groundnut

The furnished results related to the costs and returns of groundnut for large farmers for district Fatehabad have been

presented through table 3. It is revealed from the figures that maximum cost has been incurred on irrigation in case of large farmers as it has been remained 13.77 per cent. Except for

that, the cost of threshing/winnowing has also been found significant. But it has been rental cost of land which has been able to change the scenario of cost returns if included under cost. The total variable cost in case of large farmers has been accounted as 65.48 per cent to total cost. Regarding the net results, if fixed cost is added, there is huge loss for farmers to enter in the cultivation of Groundnut but if we are concerned only with the variable cost, a return of 4140.05 per acre for large farmers have been recorded.

Table 3: Costs and Returns from the cultivation of Groundnut in case of Large Farmers

Sr.No.	Items	Cost/Returns (Rs.)	Percentage to total cost
1	Preparatory Tillage	691.66	2.84
2	Ploughing	477.41	1.95
3	Seed	1806.45	7.41
4	Sowing	391.66	1.61
5	Fertiliger and manure	1258.06	5.16
6	Irrigation	3358.33	13.77
7	Hoeing/Weeding	1266.67	5.19
8	Plant Protection/Pesticide	531.25	2.18
9	Harvesting	1738.70	7.13
10	Threshing /Winnowing	2251.61	9.23
11	Miscellaneous	616.66	2.53
12	Interest on working capital	1151.07	4.72
13	Transportation charges	422.58	1.73
14	Variable cost	15962.11	65.48
15	Rental value of land	8416.66	34.52
16	Total cost	24378.77	100
17	Production Main Product	4.88	-
18	Price	3890.47	-
19	Value of Main Product	18985.49	-
20	Value of by Product	1116.67	-
21	Gross Returns	20102.16	-
22	Net Returns (Gross Returns- Total Cost)	-4276.61	
23	Net Returns (Gross Returns-Variable Cost)	4140.05	-

Source: Primary Survey

iv) Costs and Returns from the cultivation of Groundnut

The furnished results related to the combined cost and returns of groundnut for different categories of farmers for district Fatehabad have been presented through table 4. It is revealed from the figures that maximum cost has been incurred on irrigation in all type of farmers as it has been remained 13.78 per cent in case of large farmers. Except for that the cost of threshing/winnowing has also been found significant irrespective of the size of the farmers. But it has been rental cost of land which has been able to change the scenario of cost returns if included under cost. The total variable cost in case of all types of farmers has been accounted as the 65.41 per cent to the total cost. Regarding the net results, if fixed cost is added, there is huge loss for farmers to enter in the cultivation of Groundnut but if we are concerned only with the variable cost, a return of Rs. 3839.14 per acre for farmers have been recorded. As far as the overall net returns are taken

into account when total cost is included, it has been accounted as -4592.27 per acre at overall level.

Table 4: Costs and Returns from the cultivation of Groundnut at Overall Level

Sr.No.	Items	Cost/Returns (Rs.)	Percentage to total cost
1	Preparatory Tillage	673.5	2.76
2	Ploughing	469.79	1.92
3	Seed	1815.57	7.45
4	Sowing	397.22	1.63
5	Fertiliger and manure	1169.73	4.79
6	Irrigation	3205.52	13.78
7	Hoeing/Weeding	1341.10	5.50
8	Plant Protection/Pesticide	498.18	2.04
9	Harvesting	1813.60	7.44
10	Threshing /Winnowing	2293.76	9.41
11	Miscellaneous	614.42	2.52
12	Interest on working capital	1143.38	4.69
13	Transportation charges	504.84	2.07
14	Variable cost	15940.96	65.41
15	Rental value of land	8431.42	34.59
16	Total cost	100.00	100.00
17	Production Main Product	4.85	-
18	Price	3844.24	-
19	Value of Main Product	18644.59	-
20	Value of by Product	1135.09	-
21	Gross Returns	19779.94	-
22	Net Returns (Gross Returns- Total Cost)	-4592.27	
23	Net Returns(Gross Returns- Variable Cost)	3839.14	-

Source: Primary Survey

It can be inferred from that the results presented for the concerned section that the variable cost component has played major role when it comes to the calculation of costs incurred for the groundnut production in district Fatehabad out of which irrigation has been noticed as the major faction on which maximum variable cost has to be incurred by all types of farmers irrespective of their categories. In relation to the economics of production of groundnut in Fatehabad district, it seems unviable for the cultivators to grow the crop under discussion if we are concerned only with the variable cost for the groundnut production. So, it may be proved a profitable venture to some extent to enter in.

4.2 Motivational Factors and Problems of Cultivators

The results have been presented by dividing it into two sections as follows:

i) Factors Motivating the Total Farmers to Cultivate the Groundnut –

Ranking Analysis: The results related to the factors motivated to the cultivators to cultivate the groundnut in Fatehabad district are presented through table 5 and reveals that suitability of soil has been the most stimulating factor which led to the respondents to cultivate the crop in point. The mean score in case of the same factor has been recorded as 62.44. In case of the same factor, it is also worth mentioning here that 25 farmers have accrued it first rank while second rank has been given to it by 16 farmers under the survey. Second position has been secured by the factor

more returns as indicated by its mean score which has been registered as 57.87. 54.26 mean score has been calculated in case of crop cycle factor as a major proportion of the respondents have agreed to the fact that groundnut; a crop

cycle induces them for its cultivation. But it is noticeable that experience, availability of land and cash crop has not been much successful to motivate the farmers for its cultivation which have been ranked as ninth, tenth and eleventh.

Table 5: Factors Motivating the Farmers to Cultivate the Groundnut – Ranking Analysis

Ranks	Scale and Score Value of Ranks											Mean Score	Rank
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI		
Scale value x factors	83	71	64	59	54	49	45	40	35	28	17		
Suitability of soil	f 25	16	17	10	7	6	5	5	4	3	2	62.44	I
	fx 2075	1136	1088	590	378	294	225	200	140	84	34		
More returns	f 9	18	21	13	10	7	5	6	4	4	3	57.87	II
	fx 747	1278	1344	767	540	343	225	240	140	112	51		
Less labour requirement	f 7	8	4	7	10	20	17	9	7	6	5	49.61	VII
	fx 581	568	256	413	540	980	765	360	245	168	85		
Crop cycle	f 13	12	15	9	11	7	5	6	9	6	7	54.26	III
	fx 1079	852	960	531	594	343	225	240	315	168	119		
Suitable for rainfed cultivation	f 9	8	5	18	12	5	6	10	8	10	9	49.73	VI
	fx 747	568	320	1062	648	245	270	400	280	280	153		
less risky	f 10	12	9	16	8	10	6	8	7	9	5	52.96	IV
	fx 830	852	576	944	432	490	270	320	245	252	85		
Less input cost	f 5	6	5	5	9	7	11	19	12	11	10	44.38	VIII
	fx 415	426	320	295	486	343	495	760	420	308	170		
Short term crop	f 5	8	10	9	11	10	17	10	7	5	8	52.08	V
	fx 415	852	640	531	594	490	765	400	245	140	136		
Experience	f 6	5	6	4	7	13	15	11	12	9	12	44.79	IX
	fx 498	355	384	236	378	637	675	440	420	252	204		
Availability of land	f 6	5	4	3	9	6	7	7	18	20	15	41.06	X
	fx 498	355	256	177	486	294	315	280	630	560	255		
Cash crop	f 5	2	4	6	6	9	6	9	12	17	24	38.66	XI
	fx 415	142	256	354	324	441	270	360	420	476	408		
Total	EF 100	100	100	100	100	100	100	100	100	100	100		

Source: Primary Survey

It is surfaced by the findings of the study that suitability of soil, more returns and crop cycle have been major patterns stimulated farmers for the adoption of the groundnut crop to grow while factors like experience, availability of land and cash crop have not proved enough to work as a stimuli for the farmers to come with the production of groundnut in district Fatehabad.

ii) Groundnut Cultivation Problems of total Farmers-Ranking Analysis: The results related to the problems of the respondents are furnished in table 6. It is found from the results that the low output has been given the main problem

by the farmers as the mean score for the same has been calculated as 59.63 placed it at first place while second has been attributed to the damage done by rodent and birds with the mean value of 54.80. After that, most vulnerable factor which has been identified by the farmers have been recorded as lack of high quality seeds and high cost of inputs with the value 53.63 and 51.85 respectively which have secured their places at third and forth respectively. It is also noticeable that among all problems, natural disasters have been given last rank by the groundnut cultivators which have accounted its mean score as 38.68.

Table 6: Groundnut Cultivation Problems Total Farmers-Ranking Analysis

Ranks	Scale and Score Value of Ranks										Mean Score	Rank
	I	II	III	IV	V	VI	VII	VIII	IX	X		
Scale value x factors	82	70	63	58	52	48	42	36	29	18		
Decreasing soil quality	f 6	5	6	6	9	8	11	13	20	16	42.18	IX
	fx 492	350	378	348	468	384	462	468	580	288		
Low output	f 27	15	12	9	7	6	5	9	5	5	59.63	I
	fx 2214	1050	756	522	364	288	210	324	145	90		
Low price	f 8	7	10	14	17	15	11	6	8	4	51.74	V
	fx 656	490	630	812	884	720	462	216	232	72		
High cost of input	f 9	10	7	12	19	11	13	9	4	6	51.85	IV
	fx 738	700	441	696	988	528	546	324	116	108		
Severity of pest & diseases	f 8	9	10	11	11	19	10	9	8	5	51.04	VI
	fx 656	630	630	638	572	912	420	324	232	90		
Damage by rodent and birds	f 11	18	13	11	9	8	12	7	5	6	54.80	II
	fx 902	1260	819	638	468	384	504	252	145	108		

Lack of High quality seeds	f fx	9 738	13 910	17 1071	16 928	8 416	9 432	7 294	6 216	8 232	7 126	53.63	III
Lack of finance	f fx	10 820	11 770	7 441	6 348	9 468	9 432	8 336	10 360	13 377	17 306	46.58	VIII
Lack of water facility	f fx	8 656	9 630	12 756	8 464	5 260	8 384	8 336	18 630	11 319	13 234	46.69	VII
Natural disasters	f fx	4 328	3 210	6 378	7 406	6 312	7 336	15 630	13 468	18 522	21 378	38.68	X
Total	f	100	100	100	100	100	100	100	100	100	100		

Source: Primary Survey

So, it is concluded on the basis of the final results presented into present section that low output, damage by rodent and birds and high costs of inputs have been remained the major problems put forward by the farmers when enquired. So, it is found that if this type of problems should be resolved timely, maximum may be made by farmers as point out by them.

5. Main Findings of the Study

The findings related to the trends in area, production and yield of groundnut, the major results related to the costs and returns from the crop have been discussed under here. Except for that, the main findings related to the motivational factors and problems faced by farmers have also been discussed.

5.1 Findings related to Trends in Area, Production and Yield of Groundnut in Fatehabad, Haryana and India

- Growth in Area, Production and Yield of Groundnut Production in Fatehabad District: As far as the per centage change in area of groundnut in Fatehabad is concerned, negative results have been obtained during 2006-07, 2007-08, 2011-12 and 2014-15 respectively. Regarding production of groundnut at the district level, the results have been registered in negative values during the same years as has been noticed in case of area depict the negative impact of area on the production of groundnut in the concerned district. In respect of yield, the picture has not been remained much satisfactory as the growth behaviour has been observed in negative terms during 2005-06, 2007-08, 2009-10 and 2011-12 so, a blend of positive and negative results have been surfaced regarding the growth behaviour in Fatehabad district.
- Growth in Area, Production and Yield of Groundnut Production in Haryana State: It is revealed that the maximum growth in case of area and production has been revealed during the year 2013-14 with the value of 115.38 per cent and 123.34 per cent Regarding the growth behaviour of yield in the state, it has been remained highest during 2012-13 as the value during the concerned year has been noticed as 21.44 per cent.
- Growth in Area, Production and Yield of Groundnut Production in India: The results related to the growth in Area, Production and Yield of Groundnut Production in India showed the 6.6 per cent, 12.6 per cent and 10.1 per cent compound growth rates in case of area, production and yield.

5.2 Findings related to the Economics of Groundnut Production in Fatehabad District

- *Costs and Returns from the cultivation of Groundnut in case of Small Farmers:* it is indicated by the final results related to the cost and returns of groundnut production in

Fatehabad that rental value of land has been the major component of total production cost of groundnut production in Fatehabad while the part of variable has been estimated as 65.97 per cent to the total cost. As far as the returns from groundnut are considered, it has been found that returns have been estimated in negative terms when we take into account total cost however, the value has been accounted in positive terms with Rs. 3002.62 when net returns are obtained through the difference of gross and variable costs.

- *Costs and Returns from the cultivation of Groundnut in case of Medium Farmers:* The final results related to Cost and Returns from the cultivation of Groundnut in case of Medium Farmers showed that 64.76 per cent has been the part of variable cost to total cost. Irrigation, Threshing /Winnowing and Harvesting have been the main components of the total variable costs. The total returns have been estimated at 19898.43 when we subtract total cost from total returns, we get Rs. -4079.74. When the returns have been recorded by taking into account only variable cost, it has been noticed as Rs. 4374.8.
- *Costs and Returns from the cultivation of Groundnut in case of Large Farmers:* It was revealed from the results that maximum cost has been incurred on irrigation in case of large farmers as it has been remained 13.77 per cent. Except for that, the cost of threshing/winnowing has also been found significant. Regarding the net results, if fixed cost is added, there is huge loss for farmers to enter in the cultivation of Groundnut but if we are concerned only with the variable cost, a return of 4140.05 per acre for large farmers have been recorded.
- *Costs and Returns from the cultivation of Groundnut:* it was revealed from the results that maximum cost has been incurred on irrigation in all types of farmers as it has been remained 13.78 per cent in case of large farmers. Except for that the cost of threshing/winnowing has also been found significant irrespective of the size of the farmers. As far as the overall net returns are taken into account when total cost is included, it has been accounted as - 4592.27 per acre at overall level.

5.3 Main Findings related to the Motivational Factors and Problems of Cultivators

- *Factors Motivating the Small Farmers to Cultivate the Groundnut – Ranking Analysis:* It was revealed by the findings of the study that maximum mean score representing the most motivating factor for the farmers to cultivate groundnut which has been observed as the suitability of the soil followed by more returns and crop cycle whose mean scores have been calculated as 62.39, 58.39 and 54.75 respectively. The mean value for less

labour requirement, suitable for rain fed cultivation, less risk, less input cost, short term crop, experience, availability have the score value as 49.25, 50.46, 54.17, 42.75, 51.08, 48.61, 38.92 respectively.

- *Factors Motivating the Medium Farmers to Cultivate the Groundnut – Ranking Analysis:* it was revealed that suitability of soil has been the most stimulating factor which led to the respondents to cultivate the crop in point. Second position has been secured by the factor more returns as indicated by its mean score which has been registered as 57.64. But it is noticeable that availability of land and the nature of the crop as cash crop have not been much successful to motivate the farmers for its cultivation.
- *Factors Motivating the Large Farmers to Cultivate the Groundnut – Ranking Analysis:* It was revealed by the results that 8 respondents have given first rank to the suitability of soil as a most boosting factor for the cultivation of groundnut Whereas 5 and 6 respondents have attributed to it second and third rank regarding its influence on their crop selection for cultivation purpose. Experience, cash crop and less input cost have not been so vital as cleared from the ranks given as ninth, tenth and eleventh respectively.
- *Factors Motivating the Total Farmers to Cultivate the Groundnut – Ranking Analysis:* it was revealed that suitability of soil has been the most stimulating factor which led to the respondents to cultivate the crop in point. The mean score in case of the same factor has been recorded as 62.44. Second position has been secured by the factor more returns as indicated by its mean score which has been registered as 57.87. But it is noticeable that experience, availability of land and cash crop has not been much successful to motivate the farmers for its cultivation which have been ranked as ninth, tenth and eleventh.

5.4 Groundnut Cultivation Problems - Ranking Analysis

- *Groundnut Cultivation Problems in case of Small Farmers-Ranking Analysis:* The results related to the problems encountered by the groundnut growers found that 41.25 mean score has been obtained in case of low output while cultivating the groundnut which has resulted into 57.25 mean score in that case. Lack of finance and lack of water facility has also been mentioned by more than half of the farmers with the mean value as 52.00 and 50.07.
- *Groundnut Cultivation Problems in case of Medium Farmers-Ranking Analysis:* The results related to the problems in case of medium farmers showed that the low output has been accorded as the main problem by the farmers as the mean score for the same has been calculated as 60.97 placed it at first place while second rank has been attributed to the damage done by rodent and birds with the mean value of 54.74. It is also noticeable that among all problems, decreasing soil quality has been given second last rank by the groundnut cultivators which have accounted its mean score as 40.97 while the last rank has been given to natural disasters.
- *Groundnut Cultivation Problems in case of Large Farmers-Ranking Analysis:* The furnished results related to the problems faced by cultivators revealed that majority of the respondents have agreed to the fact that they have to

face the problem related to the low output in respect of the cultivation of groundnut as 60.06 mean value has been obtained in the case under point. Except for that, lack of high quality seeds has also been a major concern for a large chunk of respondents which ultimately ended up with the low yield in the groundnut production. Except for that, severity of pest and disease, lack of water supply, natural disaster, lack of finance, decreasing soil quality have also been attributed to the problems encountered by the cultivators.

- *Groundnut Cultivation Problems in case of total Farmers-Ranking Analysis:* It was found that the low output has been given the main problem by the farmers as the mean score for the same has been calculated as 59.63 placed it at first place while second has been attributed to the damage done by rodent and birds with the mean value of 54.80. It is also noticeable that among all problems, natural disasters have been given last rank by the groundnut cultivators which have accounted its mean score as 38.68.

On the basis of the above findings, it can be concluded that if estimation is recorded as a laymen by considering only explicit cost when we comes to examine the economics of groundnut production in Fatehabad district, it has been proved a profitable occupation which should be opted for but if implicit cost is added to the analysis, it turns for the worse as it has proved a venture of loss for the farmers. Instead of it, there are many problems indicated by farmers which have aggravated the situation which is crying out for mends. So, it is immediate need to take remedial steps to stem out the bottlenecks so that conclusive results can be found. Some of the following suggestions may be proved a remedial steps, must be implemented for the better results

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