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## Economic Analysis of Groundnut Production in Andhra Pradesh

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### Abstract

For the study on cost of cultivation of groundnut crop in Andhra Pradesh, the data was obtained from Directorate of Economics and Statistics, Ministry of Agriculture, Government of India. The cost of cultivation was found to be Rs. 55142.26. Among the operational costs, labour cost accounted to a major share of 60%, indicating the labour intensive nature of groundnut cultivation. The cost of cultivation and the gross returns analysed during the two periods noted that cost of cultivation (C2) increased by 40% where as A2+FL increased by 52% against the increase of 25% in the gross returns. The cost of production was higher in Andhra Pradesh than other major groundnut producing states Gujarat and Tamil Nadu. The cost of cultivation needs to be reduced by opting good management practices and more mechanization so as to make groundnut cultivation profitable in Andhra Pradesh.

**Keywords:** Cost of cultivation, economics, groundnut, returns

### 1. Introduction

One of the important legume crops of tropical and semiarid regions is groundnut, major source of edible oil and protein. Groundnut kernels contain 47-53% oil and 25-36% protein (Prasad et al., 2010; Banla et al., 2018; Taru et al., 2008). The major producers of groundnut are India, China and USA, which together account for over two-thirds of global output. Other important producers are Nigeria, Senegal, Sudan and Argentina (Freman et al., 1999). India ranks first in the production of groundnut production among the major edible oilseed crops (Rai et al., 2016). Major states producing groundnut are Gujarat, Rajasthan, Andhra Pradesh, Tamil Nadu, Karnataka, Madhya Pradesh, Telangana, Maharashtra and West Bengal. Andhra Pradesh stands third in groundnut production after Gujarat and Rajasthan (Table 1). The present study was carried out with an objective of analysing the profitability of groundnut in Andhra Pradesh over the past decade.

### 2. Materials and Methods

The cost concepts approach of farm costing is widely used in India (Raju and Rao, 1990). These cost concepts include Cost A1, A2, B1, B2, C1, C2, and C3.

COST A<sub>1</sub> includes value of hired human labour, value of hired

Table 1: Indian Production of Groundnut

S r. No.	State	Production (000 Tonnes)	Share (%)
1.	Gujarat	3,940.00	42.92
2.	Rajasthan	1,260.00	13.73
3.	Andhra Pradesh	1,040.00	11.33
4.	Tamil Nadu	970	10.57
5.	Karnataka	560	6.1
6.	Madhya Pradesh	350	3.81
7.	Telangana	350	3.81
8.	Maharashtra	330	3.59
9.	Others	210	2.29
10.	West Bengal	170	1.85
	Total	9,180.00	

Source: Ministry of Agriculture

bullock labour, value of owned bullock labour, value of owned machinery labour, hired machinery charges, value of seed (both farm produced and purchased), value of insecticides and pesticides, value of manure (owned and purchased), value of fertilizer, depreciation on implements and farm buildings,



irrigation charges, land revenue, cess and other taxes, interest on working capital, miscellaneous expenses.

$COST A_2 = COST A_1 + \text{rent paid for leased in land}$

$COST B_1 = COST A_1 + \text{interest on value of owned fixed capital assets (excluding land)}$

$COST B_2 = COST B_1 + \text{rental value of owned land (net of land revenue)} + \text{rent paid for leased land}$

$COST C_1 = COST B_1 + \text{imputed value of family labour}$

$COST C_2 = COST B_2 + \text{imputed value of family labour}$

$COST C_3 = COST C_2 + \text{value of management input at 10\% of total cost (C}_2\text{)}$

The secondary data pertaining to the cost of cultivation of the groundnut crop for combined Andhra Pradesh for different years were collected from Directorate of Economics and Statistics, Ministry of Agriculture, Government of India. The statistical tools viz., simple averages, trends, percentages, growth rates and regression analysis were applied to analyze the data.

### 3. Results and Discussion

#### 3.1. Costs and returns of groundnut cultivation

The component wise cost of cultivation of groundnut in Andhra Pradesh state in the past decade (2007-08 to 2016-17) was analysed to know the contribution of different components to the cost of cultivation (Table 2). It was observed that the operational costs accounted for 66% of the total cost, while fixed costs accounted for 34%. It is interesting to note that out of the operational costs, labour cost accounted for 60% indicating the labour intensive nature of groundnut cultivation. Under labour use cost, human labour occupied the major share followed by machine labour cost. Out of the material costs, seed occupied the major share of 22% indicating that seed cost is the major component in groundnut cultivation (Ani et al., 2013).

#### 3.2. Difference in the cost of cultivation (C2) (₹ ha<sup>-1</sup>) of Groundnut in Andhra Pradesh: Period I (2007-08 to 2011-12) and Period II (2012-13 to 2016-17)

The difference in the cost of cultivation (C2) (₹ ha<sup>-1</sup>) of groundnut in Andhra Pradesh between two periods Period I (2007-08 to 2011-12) and Period II (2012-13 to 2016-17) was analysed and presented in Table 3. The analysis revealed that per hectare cost of cultivation (C2) increased by 40% in the period II. It was noted that operational costs increased by 52% compared to fixed costs which increased by 18%. Highest increase is observed in fertilizer cost followed by seed and machine labour cost indicating that the farmers' expenditure on these components increased due to excessive use of fertilizers. Considerable increase in seed cost was also observed indicating the importance of this component in the groundnut cultivation. The increase in the machine labour cost

Table 2: Average cost of cultivation (C2) of groundnut in Andhra Pradesh (2007-08 to 2016-17)

Particulars	Rs ha <sup>-1</sup>	% of total cost
Operational cost	36261.54	65.76
Human labour	17336.27	31.44
Bullock labour	1608.52	2.92
Machine labour	2730.14	4.95
Seed	7921.71	14.37
Farm yard manure and fertilizers	4143.45	7.51
Insecticides	702.98	1.27
Irrigation charges	870.12	1.58
Others	26.81	0.05
Interest on working capital	921.55	1.67
Fixed cost	18880.72	34.24
Rental value of owned land	16328.66	29.61
Rent paid for leased in land	388.65	0.70
Land revenue, cess and taxes	0.80	0.00
Depreciation on implements and buildings	289.52	0.53
Interest on fixed capital	1873.09	3.40
Total cost (C2)	55142.26	100.00

may be due to non-availability of human labour and increased emphasis on mechanization (Raut et al., 2015).

The difference in the cost of cultivation as per the cost concepts (₹ ha<sup>-1</sup>) of groundnut in Andhra Pradesh between two periods (2007-08 to 2011-12 and 2012-13 to 2016-17) is presented in Table 4. Cost A1, Cost A2, Cost B1, Cost B2, Cost C1 and Cost C2 were calculated and presented. For this, revised methodology of CCS (Comprehensive Cost of Cultivation Scheme) was followed.

Cost A1 showed increase of 51.79% in 2012-17 over 2007-12, Cost A2 was found to be increased by 52.64, Cost B1, Cost B2 showed increase of 49.33, 38.90% in 2012-17 over 2007-12 (Table 4). Cost C1 showed an increase of 39.69% over 2007-12. Cost C2 was 44366.436 for a period of 2007-08 to 2011-12 and 61973.79 for the period of 2012-13 to 2016-17. There was increase of 39.69% in 2012-17 over 2007-12. The increase in costs is clearly visible in both paid out costs and fixed costs.

The cost of cultivation (₹ ha<sup>-1</sup>) and the gross returns analysed during the two periods noted that cost of cultivation (C2) increased by 40% whereas A2+FL increased by 52% against the increase of 25% in the gross returns. The net return over C2 was positive in the first period but negative in the second period as shown in Table 5. However, net returns over A2+FL was positive in both the periods. The cost of production



Table 3: Difference in the cost of cultivation (C2) (₹ ha<sup>-1</sup>) of groundnut in Andhra Pradesh between two periods

Particulars	2007-08 to 2011-12	% of total cost	2012-13 to 2016-17	% of total cost	% increase in 2012-17 over 2007-12
Operational cost	28367.51	63.94	43034.17	69.44	51.70
Human labour	14703.24	33.14	18870.01	30.45	28.34
Bullock labour	1352.57	3.05	1891.92	3.05	39.88
Machine labour	2121.28	4.78	3383.88	5.46	59.52
Seed	5372.94	12.11	10322.47	16.66	92.12
Farm yard manure and fertilizers	2685.51	6.05	5719.30	9.23	112.97
Insecticides	680.78	1.53	756.45	1.22	11.12
Irrigation charges	714.47	1.61	951.24	1.53	33.14
Others	19.12	0.04	42.65	0.07	123.06
Interest on working capital	717.61	1.62	1096.27	1.77	52.77
Fixed cost	15998.92	36.06	18939.62	30.56	18.38
Rental value of owned land	13718.75	30.92	16133.38	26.03	17.60
Rent paid for leased in land	275.70	0.62	627.00	1.01	127.42
Land revenue, cess and taxes	0.81	0.00	0.75	0.00	-7.41
Depreciation on implements and buildings	312.74	0.70	242.63	0.39	-22.42
Interest on fixed capital	1690.93	3.81	1935.87	3.12	14.49
Total cost (C2)	44366.44	100.00	61973.79	100.00	39.69

Table 4: Difference in the cost of cultivation as per the cost concepts (₹ ha<sup>-1</sup>) of Groundnut in Andhra Pradesh between two periods

Particulars	2007-08 to 2011-12	2012-13 to 2016-17	% increase in 2012-17 over 2007-12
Cost A1	23994.532	36420.25	51.79
Cost A2	24270.228	37047.24	52.64
Cost B1	25685.46	38356.12	49.33
Cost B2	39679.888	55116.49	38.90
Cost C1	30371.988	45213.42	48.87
Cost C2	44366.436	61973.79	39.69

Table 5: Variation in costs and returns of groundnut cultivation in two periods (₹ ha<sup>-1</sup>)

Year	Cost of cultivation (C2)	Cost of cultivation (A2+FL)	Gross returns	Net returns over Cost C2	Net returns over cost A2+FL	Cost of Production over C2 (₹ q <sup>-1</sup> )
2007-08 to 2011-12	44366.44	28956.76	46331.77	1965.33	17375.01	2402
2012-13 to 2016-17	61973.79	43904.54	57829.56	-4144.23	13925.02	4424

registered an increase of 84% in this period.

The Comparative cost of production with other states in the country is presented in Table 6 which shows that Maharashtra has highest cost of production over the years followed by Andhra Pradesh, Tamil Nadu, Gujarat and Rajasthan. The cost of production was higher in Andhra Pradesh than other major groundnut producing states Gujarat and Tamil Nadu. This may be due to low productivity of groundnut in AP.

Table 6: Comparison of cost of production (₹ q<sup>-1</sup>) with other states in the country

Year	Andhra Pradesh	Gujarat	Rajasthan	Tamilnadu	Maharashtra
2014-15	4607.64	3409.54	3777.03	3571.59	5783.84
2015-16	4058.00	3288.94	2316.16	4003.67	7243.58
2016-17	5019.01	3212.08	2495.15	4122.00	9355.86



#### 4. Conclusion

The total cost of cultivation increased significantly in the past decade. Among the operational costs, labour cost contributed 66% indicating the labour intensive nature of the crop. Among the material costs, seed cost contributed 22% of the operational costs. Though, the gross returns recorded increase in the past decade, the net returns over C2 cost of cultivation is negative in the second period. Based on the results it can be concluded that the cost of cultivation is to be reduced by good management practices and more mechanization so as to make groundnut cultivation profitable in Andhra Pradesh.

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