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Status of groundnut and constraints faced by Telangana farmers in production and marketing

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Abstract

Groundnut is an important oilseed crop in India. India is the second largest groundnut-producing country in the world next to China. The present study was carried out based on the primary data obtained from framers and marketing intermediaries and secondary data collected from the website of the Directorate of Economics and Statistics. The results revealed that compound growth rates of the Indian and Telangana areas have negative trends while production and productivity were positive over the years. The combined Mahabubnagar district has a positive trend in the area, production and productivity of groundnut. The constraints faced by the farmers during the production and marketing of groundnut are attack of weeds, timely unavailability of labour in peak periods, higher seed costs, no support price to produce, forced sale and higher transportation costs etc.

Keywords: Groundnut, CAGR, constraints, production, marketing

Introduction

The world's tropics and subtropics are where groundnut (*Arachis hypogea* L.) is grown as an oilseed and supplemental food crop. Being the third most important source of vegetable protein and the fourth most important source of edible oil, groundnut is highly prized. It's thought to be a Brazilian native that Portuguese explorers brought to several other countries. During the early part of the sixteenth century, China brought groundnut to India. *Arachis hypogea*, the scientific name for groundnut, is a Fabaceae plant. It is known by several names, including peanut, goober, monkey nut, and poor man's cashew nut, among others, in different parts of the world. According to 2019 USDA figures, the top groundnut-growing nations include China, India, Nigeria, Senegal, Burma, etc. With 25.5 million tonnes of oilseeds produced on 32.26 million hectares of land, India holds a notable place in the world. According to statistics from India, the top groundnut-producing states are Gujarat, Andhra Pradesh, Tamil Nadu, Rajasthan, Karnataka, Madhya Pradesh, Telangana, and Maharashtra. Of these, Gujarat, Rajasthan, Tamil Nadu, and Andhra Pradesh contribute 69.85% and 73.84% of total area and output in India, respectively (Directorate of Economics & Statistics, DAC & FW). Among the states with 1.7 lakh hectares of land under groundnut cultivation, 3.7 lakh tonnes of production, and a yield of 2230 kg per hectare as of 2107-18, Telangana is one of the key states in the industry. Mahabubnagar, Warangal, Nalgonda, and Karimnagar districts all have extensive groundnut cultivation. Mahabubnagar is a dryland district that alone provides the state with up to 70% (1.18 lakh hectares) of its total area and 73% (2.71 lakh tonnes) of its total production. Nagarkurnool is the best region for groundnuts due to its ideal growing conditions, which include sandy loam soils. Farmers primarily grow rabi groundnut. Pedda Kothapally is the largest block in Mahabubnagar District's Nagarkurnool region, with 11392 hectares. Several studies on groundnut status have been conducted in India by numerous researchers, but the newly formed Telangana has few works in groundnut that aid in better understanding and modification suggestions. The current study helps us understand the groundnut status and bottlenecks that farmers face in groundnut production and marketing.

Materials and Methods

This work is based on secondary data regarding area, production and productivity which were collected from the annual report of the Directorate of Economics and Statistics, 2019 and

primary data of constraints faced by farmers in crop production and marketing of groundnut. Telangana was purposefully chosen for the study. Nagar Kurnool was one of the key groundnut-producing districts among the 33 districts. In Telangana, groundnut has been sown in around 1,07,676 hectares as on 6th February 2019. So far Nagarkurnool stood first in groundnut sown area with 40,806 hectares followed by Wanaparthy (22,290 ha) and Gadwal (8265 ha). Among the 20 blocks of Nagar Kurnool district, one development block i.e., Pedda kothapally block was selected for the present study based on acreage under groundnut. From the selected block, four villages were selected randomly on a maximum area basis for the present study total of sixty farmers (respondents) were selected for this study. The data used in the study to fulfill various objectives were collected from the selected farmers through personal interviews with the help of a pre-tested interview schedule designed for this purpose.

Measurement of Compound Growth Rate (CAGR)

The compound growth rates in area, production and productivity of groundnut crop were worked out in the Telangana state and Nagar Kurnool district by fitting an exponential function. The formula used to calculate CAGR is

$$Y = A B^t e^{ut}$$

Taking log on both sides

$$\log Y = \log A + t \log B + ut$$

Assuming $\log Y = y$, $\log A = a$ and $\log B = b$

$$\text{We get } y = a + bt + ut$$

where $t = 1, 2, \dots, n$

After regression between y and t

We have values of a and b

Where

a = Constant, b = regression coefficient and ut = disturbance term of year 't'

$$\text{As } b = 1 + r$$

$$\text{Hence } r = b - 1$$

Where,

r = Compound growth rate Anti $(\log b - 1) / 100$

t = Time variable ($t = 1, 2, 3, \dots, n$)

y = Area/production/productivity of groundnut.

Garrett's ranking technique: The choice stated by the respondents was ranked using Garrett's ranking method based on several parameters. According to this method, respondents were asked to rank each element, and the results of these rankings were then transformed into score values using the following formula:

$$\text{Percent position} = \frac{100(R_{ij} - 0.5)}{N_j}$$

Where

R_{ij} = Rank given by respondent j to a particular variable of i .

N_j = Total number of variables ranked by j^{th} respondents.

The percent position estimated is translated into scores using Garrett's Table. After adding up each person's scores for each factor, the total value of scores and mean scores are determined. The most significant factor is thought to be the one with the highest mean value.

Results and Discussions

CAGR was used to estimate the pattern of growth in the cultivation, production and yield levels of the crop in a particular region.

CAGR Of India

The groundnut parameters in India are presented in Table number 1. The CAGR of area, production and productivity in groundnut in India was estimated for the period from 2000-2018. The area of ranges from 6.56 million hectares in 2000 to 4.89 million hectares in 2018. The production in the year 2000 was 6.41 million tonnes and increased to 9.25 million tonnes in 2018. The range of peanut productivity ranges from 977 kg/ha in 2000 to 1893 kg in 2018. The area of groundnut in India has a negative growth rate of -1.84 percent in the period of 2000-2018. There were more fluctuations in the area of groundnut cultivation due to a lot of competition from the other oilseed crops like soybean and mustard and other commercial crops. The highest area of cultivation with 6.74 million hectares was observed in the year 2005-06. The compound growth rate of production was positive at 1.37 percent in this 18-year of period. The lowest production was 4.12 million tonnes in 2002-03 and the highest was observed in the year 2013-14 with 9.71 million tonnes. The production levels of groundnut in India were always fluctuating. The growth rate of productivity of groundnut in India was positive at 3.27 percent. Almost in all the years, there was an increasing yield level with few failures like in the year 2002-03 which observed the lowest yield level with 694 kg/ha. After 2013-14 yield levels were always more than 1400 kg/ha and the highest yield level in the year 2017-18 with 1893 kg/ha. The increasing competition among cereals, oilseeds and commercial crops there was a decreasing area of cultivation and with improved inputs, technology and scientific guidance groundnut crop has an increasing production and productivity.

CAGR of Telangana state

The compound growth rate of groundnut parameters like area, production and productivity in Telangana are tabled in Table 2. The growth rates in the area were negative at -2.07 percent and production and productivity were positive at 2.4 percent and 4.68 percent respectively. The area of cultivation under groundnut was decreasing with fluctuations was highest in 2000-01 with 2.62 lakh hectares and lowest in 2011-12 with 1.71 lakh hectares. The production ranges from 2.96 lakh tonnes in 2000-02 to 3.7 lakh tonnes in 2017-18. The productivity ranges from 1128 kg/ha to 2230 kg/ha.

Table 1: Area, Production and Productivity of Groundnut in India (Area in a million hectares) (Production in a million tonnes) (Productivity in Kg/ha)

S. No.	Year	Area	Production	Productivity
1	2000-01	6.56	6.41	977
2	2001-02	6.24	7.03	1127
3	2002-03	5.94	4.12	694
4	2003-04	5.99	8.13	1357
5	2004-05	6.64	6.77	1020
6	2005-06	6.74	7.99	1187
7	2006-07	5.62	4.86	866
8	2007-08	6.29	9.18	1459
9	2008-09	6.16	7.17	1163
10	2009-10	5.48	5.43	991
11	2010-11	5.86	8.26	1411
12	2011-12	5.26	6.96	1323
13	2012-13	4.72	4.70	995
14	2013-14	5.51	9.71	1764
15	2014-15	4.77	7.40	1552
16	2015-16	4.60	6.73	1465
17	2016-17	5.34	7.46	1398
18	2017-18	4.89	9.25	1893
CAGR		-1.84	1.37 ^{NS}	3.27
R ²		0.66	0.07	0.44
t-value		-5.6	1.1	3.6

(Source: Directorate of Economics and Statistics,2019)

Table 2: Area, Production and Productivity of Groundnut in Telangana. (Area in lakh hectares) (Production in lakh tonnes) (Productivity in Kg/ha)

S. No.	Year	Area	Production	Productivity
1	2000-01	2.62	2.96	1128
2	2001-02	2.37	2.50	1055
3	2002-03	1.94	1.60	825
4	2003-04	1.96	2.23	1139
5	2004-05	1.95	1.97	1011
6	2005-06	2.00	2.57	1287
7	2006-07	1.79	2.18	1219
8	2007-08	2.07	3.46	1673
9	2008-09	2.01	3.16	1573
10	2009-10	2.13	3.59	1682
11	2010-11	1.96	3.51	1793
12	2011-12	1.71	2.62	1529
13	2012-13	1.87	3.35	1789
14	2013-14	2.10	3.55	1691
15	2014-15	1.55	2.95	1907
16	2015-16	1.28	2.06	1611
17	2016-17	1.72	3.4	2060
18	2017-18	1.77	3.7	2230
CAGR		-2.07	2.4	4.68
R ²		0.49	0.26	0.79
t-value		-3.9	2.73	7.91

(Source: Directorate of Economics and Statistics,2019)

CAGR of Mahabubnagar: The growth rates of area, production and yield levels of groundnut in the combined Mahabubnagar district were presented in Table 3. The growth rates in the area, production and productivity in groundnut of the combined Mahabubnagar district were all positive with 0.99 percent, 7.45 percent and 6.40 percent respectively. The area under groundnut crop ranges from 118913 hectares in 2000-01 to 118913 hectares in 2017-18. Before the bifurcation of Andhra Pradesh there was almost an increasing trend in area of cultivation and the highest area was observed in the year 2013-14 with 126127 hectares. The production of groundnut increased to 271136 tonnes in 2017-18 from 98130 tonnes in 2000-01. There was a positive growth with slight fluctuations in the production. There was a drastic increase in production to 194000 tonnes in the year 20007-08 due to an

increase in productivity. The lowest production was observed in the year 2002-03 with 58802 tonnes. The productivity levels of groundnut in Mahabubnagar district were more than State and Indian statistics. The yield level in 2000-01 with 887 kg/ha and increased to 2280 Kg/ha in the year 2017-18.

Constraints of farmers in Groundnut Field: Constraints are the drawbacks in any activity to perform efficiently. The constraints in groundnut production here were studied in two sub-sections production constraints and marketing constraints. The production constraints faced by the farmers are presented in Table 4. The various problems in the production of groundnut among the farmers were identified and ranked according to their garret mean score.10 factors were selected for more prevalent production constraints. The major problem

among all farms was weed infestation with 60.71 garret mean score ranked first. Higher seed cost with a mean score of 60.58 ranked second. It is a major problem in both marginal and small farms. The third-ranked problem was the scarcity of capital has a garret mean score of 57.38. It is observed as the major problem in semi-medium farms. The unavailability of labour during the peak period in the study area ranked four with a mean score of 47.14. Lack of technical implements ranked five, and lack of quality seed ranked six. The other major problems in production are no scientific guidance, irrigational problems, unavailability of fertilizers and lack of soil tests were ranked in an order according to their mean score.

The marketing constraints faced by the farmers were tabulated and ranked based on their garret mean score were presented in Table 5. Six major problems faced by the farmers during marketing were selected and ranked with the garret ranking technique. Low price for the produce of the farmer was the major problem among all farms. It has a mean score of 61.23 and ranked first of all factors. The second major constraint was forced sale has a mean score of 52.60. It is the major constraint in the marginal farm group. Higher transportation cost of the produce ranked third has a mean score of 48.93 but it is the second most important constraint in semi-medium and medium farms. Lack of market information, malpractices in the market and lack of storage facilities are the other constraints that were ranked VI, V and VI respectively.

Out of all weed infestation, higher seed costs, scarcity of capital, no support price to the produce, unavailability of

labour and forced sale of produce are the major problems observed.

Table 3: Area, Production and Productivity of Groundnut in Mahabubnagar district. (Area in hectares) (Production in tonnes) (Productivity in Kg/ha)

S. No.	Year	Area	Production	Productivity
1	2000-01	110580	98130	887
2	2001-02	108261	97408	897
3	2002-03	90309	58802	651
4	2003-04	75370	68629	911
5	2004-05	76393	72299	946
6	2005-06	88446	104180	1178
7	2006-07	82829	88762	1070
8	2007-08	99000	194000	1960
9	2008-09	99472	162913	1640
10	2009-10	118474	218559	1840
11	2010-11	113386	228593	2020
12	2011-12	105779	154619	1460
13	2012-13	105000	193000	1835
14	2013-14	126127	220830	1751
15	2014-15	97398	197972	2033
16	2015-16	79061	126118	1595
17	2016-17	106662	230418	2160
18	2017-18	118913	271136	2280
CAGR		0.99 ^{NS}	7.45	6.40
R ²		0.11	0.63	0.75
t-value		1.41	5.26	6.92

(Source: Directorate of Economics and Statistics,2019)

Table 4: Production constraints of sample farmers in Groundnut Farm (Garret mean score)

S. No.	Particular	Size Group				Overall Mean Score	Ranks
		Marginal	Small	Semi Medium	Medium		
1	Lack of labour in peak time	54.73	53.73	58.87	59.33	56.66	IV
2	Lack of quality Seed	48.53	53.13	37.4	49.53	47.14	VI
3	Weeds and pests in crop	60.73	61.87	53.33	66.93	60.71	I
4	Unavailability of fertilizer	45.6	44.13	33.13	38.37	40.43	IX
5	Higher seed cost	61.07	65.33	58.2	57.73	60.58	II
6	Lack of soil tests	34.13	37.47	43.67	37.4	38.16	X
7	No scientific guidance	49.67	44.93	47.4	41.4	48.85	VII
8	Lack of technical implements	39.07	46.4	55.87	48.27	47.40	V
9	Scarcity of Capital	58.53	49.4	67	54.6	57.38	III
10	Irrigational problem	46.2	38.4	43.13	43.93	42.91	VIII

Table 5: Marketing constraints of sample farmers in Groundnut Farm (Garret mean score)

S. No.	Particular	Size Group				Overall Mean Score	Ranks
		Marginal	Small	Semi Medium	Medium		
1	Low price to the produce	59.13	60.93	59.20	65.66	61.23	I
2	Forced sale	60.40	56.93	44.46	48.60	52.60	II
3	Lack of market information	51.40	50.00	45.46	48.86	48.93	IV
4	Lack of storage facility	37.80	40.53	48.73	39.26	41.58	VI
5	Higher transportation cost	45.93	54.13	55.40	50.86	51.58	III
6	Malpractices in market	45.33	37.40	48.40	48.40	44.48	V

Conclusion

The present study concluded that groundnut significantly increased oilseed output in India. Positive growth rates were observed in output and productivity at the national, state, and regional levels due to a multitude of beneficial variables. Higher seed costs, reduced crop prices, forced sales, and greater weed infestation presented serious issues for groundnut growers. The cost of seed and other production expenses should be decreased by promoting research and development operations. The availability of finance at decreased interest rates helps farmers who are less dependent on informal borrowing. Marketing organisations should make

sure farmers are paid fairly for their produce to maintain their motivation.

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