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Constraint Analysis of Groundnut Cultivation in YSR District of Andhra Pradesh, India

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A B S T R A C T

Groundnut (*Arachis hypogea* L.,) is one of the world's important crops, ranking fifth in oil production. Groundnut seed is a rich food source providing quality vegetable oil (48%-50%), protein (26%-28%), dietary fibre, minerals and vitamins. Total world production of Groundnut was 47 million tonnes from 27 million hectares. In Andhra Pradesh Groundnut is cultivated in 7.35 lakh hectares with 10.43 lakh tonnes production and 1426 kg/ha productivity. The Groundnut area of YSR district is decreasing and same trend reflected in production and productivity also. In view of the above the present investigation was designed to study the constraints of farmers in Groundnut cultivation in YSR district. The data was collected through interview schedule designed for the purpose. Statistical tools like frequencies, percentages, and rankings were used. The results showed that non-availability of new varieties of seed material, high cost of fertilisers, lack of knowledge on recommended pesticides for each pest and disease, high cost of labour, complications in adoption of improved technology, inadequate quantity of credit, high cost of labour for harvesting, low market price to the produce and occurrence of drought were the important constraints perceived by the majority of respondents.

Introduction

Groundnut (*Arachis hypogea* L.,) is one of the world's important crops, ranking fifth in oil production. In addition, Rhizobia, in association with Groundnut plant fix atmospheric nitrogen into the soil, which improves soil fertility. Groundnut seed is a rich food source providing quality vegetable oil (48% - 50%), Protein (26 – 28%), dietary fibre, minerals and vitamins (Pasupuleti *et al.*, 2013). Globally Groundnut is grown in more than 100 countries situated in tropical, subtropical and worm temperate regions (Upadyay *et al.*, 2012). Total world production of Groundnut was 47 million tonnes from 27 million hectares. China, India, Nigeria, USA, Sudan, Myanmar, Indonesia and Senegal are the major countries producing Groundnut. The average yield of Groundnut

among the Groundnut growing countries in the world varies between 300 kg and 5400 kg/ha. During 2017, India produced 9.18 million tonnes from 5.3 million hectares with a productivity level of 1732 kg/ha. Six states namely Andhra Pradesh, Gujarath, Karnataka, Maharashtra, Rajasthan and Tamilnadu account for 90% of the total Groundnut area of the country. In AP Groundnut is cultivated in 7.35 lakhs hectares with 10.48 lakh tonnes production and 1426 kg/ha yield. Y.S.R Kadapa is one of the potential districts for Groundnut in Andhra Pradesh with average sown area 44,000 hectares and production of 71,000 tonnes, and 2667 kg/ha yield.

The groundnut area database of Y.S.R Kadapa (Table 1) reveals that decrease in the area sown, even in production and productivity. In spite of moderate gains in productivity in India, there remains a large gap in potential yield and yield realized at the farm level, particularly in rain fed agriculture. To design a focussed research programme to attain good yield gains in a consistent manner Identification of major constraints in Groundnut cultivation and ranking them in order of their intensity is very much needed.

Materials and Methods

The present study was conducted in Y.S.R district of Andhra Pradesh during 2018 with the sample size of 60 respondents by DAATTC and Krishi Vigyan Kendra, Utukur Scientists. The ex-post-facto research design was used for the study. Out of twelve agricultural divisions, six divisions were purposively selected *viz.,* Kamalapuram, Muddanuru, Pulivendula, Kadapa, Rayachoty, Lakkireddypalli. Ten farmers from each agricultural division were selected for the study purposively to determine farmers' perception towards constraints in Groundnut cultivation. For measuring the constraints, interview schedule was developed and response was recorded in the schedule itself. The frequency and percentage for each constraint was worked out and ranking was given.

Results and Discussion

Characteristics of respondents

The data (Table 2) indicated that majority (45%) of the respondents were from high age group (51 & above) followed by 38 and 17 percent from middle and young age group respectively. This might be due to the fact that only high age group farmers still doing farming and young age farmers moved to urban areas for business. In case of education, majority of the respondents were educated up to high school level, whereas 20 per cent up to primary school level, 18 percent up to degree & above, 15 Percent up to Intermediate and 13 Percent were illiterate. Bonla *et al.,* (2018) corroborated that Education level affects the adoption of new technologies, and thus the strategies for introduction of new varieties and new agronomic practices.

The data (Table 2) revealed that majority (42%) of the respondents having more (21 & above years) farming experience, whereas 30 and 28 percent respondents were from medium and low experience. This might be due to majority of the farmers were belonged to high age group.

In case of land holding, 60 percent of respondents had small land holding, whereas 15 percent had large, 13 percent had medium and 12 percent had marginal land holdings. Likewise when the data regarding annual income of respondents revealed that majority (75%) were getting less than one lakh income per annum followed by 25 percent respondents could able to get 1-2 lakhs per annum and no respondents was earning more than 2 lakhs per annum. This might be due to small land

holdings and also lower prices for farm produce of respondents.

The data (Table 2) regarding sources of information revealed that majority of the respondents were receiving information about agriculture from MAO's, followed by 27 percent from neighbours, 18 percent from AEO's, 10 percent from Scientists, 7 percent from Input dealers and none of them were receiving from ADA. This might be due to availability of MAO's nearer to them at mandal level only.

When the data (Table 2) of extension contact was seen, it revealed that the majority of the respondents (57%) are maintaining medium range of extension contacts, whereas 23 and 20 percent of them were maintained frequently and rarely. Similarly, the data of social participation indicates that majority (67%) did not have membership in any organization and 33 percent of them had membership in one organization.

The data (Table 2) indicated that majority of the respondents (82%) from family size is up to 5 followed by above 5 (18%). In case of family type majority of the respondents (65%) are from nuclear families followed 35 percent from Joint families.

Constraints analysis of groundnut cultivation

The major constraints in the Groundnut cultivation identified Viz., Seed, Manures & Fertilisers Insecticides & Pesticides, Labour, Technical constraints. Financial constraints, constraints related to cost, Marketing constraints and General constraints; under each head key constraints were given in the Interview schedule for collection of data, in different parts of the district. The Interview schedule was prepared with broad heads and specific heads.

Seed

In case of Seed (Table 3) majority (51.6%) Non – availability of seed material of new varieties was the major constraint followed by lack of knowledge about improved varieties (26.6%), 10 percent of them felt that the replacement of variety was very difficult and only 3.3 percent expressed problem with low germination percentage.

In case of Manures & Fertilisers (Table 3) majority (88.3%) farmers expressed fertilisers cost was very high. 3.3 percent of them felt there was shortage of fertilisers as constraint, 1.6 percent expressed there is under bagging of fertilisers. When we observe the data, there was no problem with regard to availability of manures fertilisers in time. The data (Table 3) regarding Insecticides & Pesticides revealed that majority (50%) of them expressed lack of knowledge on recommended pesticides for each pest and disease. 10 percent of them expressed difficulty to prepare the recommended concentration of solutions, 8.3 percent faced problem in availability of insecticides and pesticides in time.

When labour was taken as the constraint the data (Table 3) indicated that high cost of the labour (66.7%) was the major constraint which hold 1 rank among other problems, 10.0 percent of the respondent felt non – availability of labour during peak period and only 3.3 percent expressed difficulty in availability of skilled labour, where as 20 percent of them responded that for the cultivation of Groundnut crop from seed to seed there was high labour requirement.

The present findings are in accordance with Hemendra *et al.*, (2014) where he revealed that among the variable costs, the highest cost (22.6 %) was recorded for casual hired labour followed of imputed value of family labour (18 %) and seed (11.4 %).

Table.1 Groundnut database of YSR district for the past seven years

Year	Rainfall (mm)/year	Season	Area (ha)	Production (tonnes)	Productivity (kg/ha)
2012-13	597.8	Kharif	44179	11133.1	252
		Rabi	20395	31959	1567
2013-14	717.4	Kharif	42251	38110.4	902
		Rabi	17336	35365.4	2040
2014-15	411.3	Kharif	15754	6963.27	442
		Rabi	11588	15435.2	1332
2015-16	958.8	Kharif	28676	36619.3	1277
		Rabi	22124	47323.2	2139
2016-17	448.7	Kharif	52015	19558	376
		Rabi	13396	45988	3433
2017-18	742.30	Kharif	25315	39491	1560
		Rabi	18171	30673	1688
2018-19	311.0	Kharif	8627	8419.95	976
		Rabi	11,113	23630.68	2126

Table.2 Profile characteristics of farmers

S. No.	Particulars	Category	Frequency	Percentage
1.	**Age**	Young (upto 35)	10	17
		Middle (36 – 50)	23	38
		High (51 and above)	27	45
2.	**Education**	Illiterate	8	13
		Primary school	2	20
		High school	20	34
		Inter	09	15
		Degree & above	11	18
3.	**Farming Experience**	Up to 10 Years	17	28
		11 - 20	18	30
		21 and above	25	42
4.	**Size of holding**	Marginal (upto 1ha)	7	12
		Small (1-2.5 ha)	36	60
		Medium (2.5 – 5 ha)	08	13
		Large (5 ha and above)	09	15
5.	**Annual Income**	Upto 1 Lakh	45	75
		1 – 2 Lakhs	15	25
		Above 2 Lakhs	--	--
6.	**Sources of Information**	Scientists	6	10.00
		ADA's	--	--
		MAO 's	23	38.00
		AEO 's	11	18
		Neighbours	16	27.00
		Input dealers	04	7.00
7.	**Family Size**	Upto 5	49	82
		above 5	11	18
8.	**Family Type**	Joint	21	35
		Nuclear	39	65
9.	**Social participation**	No membership	40	67
		Membership in one organization	20	33
10.	**Extension contact**	Frequently	14	23.0
		Some times	34	57.0
		Rarely	12	20.0

Table.3 Constraints perceived by the farmers

S. No.	Constraints perceived by the farmers	Frequency	percentage	Rank
Seed				
1.	Low germination percentage	02	3.3	4
2.	Replacement of variety is very difficult	06	10.0	3
3.	**Non-availability of seed material of new varieties**	**31**	**51.7**	**1**
4.	Lack of knowledge about improved varieties	16	26.7	2
Manures and fertilizers				
1.	Shortage of fertilizers	02	3.3	2
2.	Non-availability of manures/ fertilizers in time	-	-	-
3.	**High cost of fertilisers**	**53**	**88.3**	**1**
4.	Under bagging of fertilizers	1	1.7	3
Insecticides and pesticides				
1.	**Lack of knowledge on recommended pesticides for each pest and disease**	**30**	**50.0**	**1**
2.	Non- availability of insecticides and pesticides in time	05	8.3	3
3.	Difficult to prepare the recommended concentration of solutions	06	10.0	2
Labour				
1.	Non-availability of skilled labour	02	3.3	4
2.	Non-availability of labour during peak period	06	10.0	3
3.	High Cost of labour	40	66.7	1
4.	High labour requirement	12	20.0	2
S.No	**Technical Constraints**			
1.	Improved technologies are not suitable to small and fragmented land holdings	13	21.7	2
2.	Lack of technical guidance regarding improved technologies	13	21.7	2
3.	Complications in adoption of improved technology	14	23.3	1
4.	Not able to solve the problem technically	07	11.7	4
5.	Non-availability of after sales services by companies	02	3.3	6
6.	Non-availability of spare parts locally	05	8.3	5
S.No	**Financial constraints**			
1.	Rate of interest is very high	09	15.0	3
2.	Non availability of credit in time	05	8.3	4
3.	Complex, lengthy and rigid procedure of bank finance	11	18.4	2
4.	Inadequate quantity of credit	14	23.3	1
5.	Very low guidance on credit availability to farmers	03	5.0	5
S.No	**Constraints related to cost**			
1.	High initial investment	26	43.3	2
2.	High cost of seed material	01	1.70	3
3.	High cost of fertilizers			
4.	High cost of pesticides and fungicides			
5.	High cost of labour for harvesting	33	55.0	1
S.No	**Marketing constraints**			
1.	Fluctuations in market price	21	35.0	2
2.	Exploitation by middlemen	07	11.7	3
3.	High commission charges	01	1.7	5
4.	Low prices to the produce in market	29	48.3	1
5.	Markets are far away	02	3.3	4
6.	Lack of information regarding demand and supply	--	--	--
7.	Delayed cash payment	--	--	--
8.	Absence of support price in case of glut in the market	--	--	--
9.	Inadequate physical facilities in market	--	--	--
S.No	**General constraints**			
1.	More incidence of pest and diseases	--	--	--
2.	Irregular supply of electricity	-	-	-
3.	Lack of mechanization	05	8.4	4
4.	Fragmentation of land holdings	01	1.6	5
5.	Lack of insurance support			
6.	Lack of irrigation facilities	12	20	2
7.	Lack of soil and water testing facilities	--	--	--
8.	Lack of information about government schemes and subsidies	-	-	-
9.	Occurrence of drought	**36**	**60.0**	**1**
10.	Deers and wild boars	06	10.0	3

The data (Table 3) on Technical constraints revealed that majority (23.3%) were facing complications in adoption of improved technology. 21.6 percent expressed non – suitability of improved technologies to small and fragmented land holdings (21.6%) and lack of technical guidance regarding improved technologies are the next ranked major constraint.

Data (Table 3) on financial constraints indicated that majority (23.3%) responded that credit given to them was inadequate for Groundnut cultivation. 18.3 percent expressed that procedure of bank finance is complex & lengthy and 15 percent of them felt the rate of interest was very high.

When cost is studied as a constraint majority (55%) expressed cost incurred on labour for harvesting was more and followed by high cost during initial investment (43.3%)

The data (Table 3) on marketing constraints indicated that majority (48.3%) expressed low price for the Groundnut and 35 percent felt fluctuations in market price was the next major constraint.

General constraints data (Table 3) indicated that majority (60.0%) of the respondents expressed occurrence of drought was the major problem and (20.0%) percent felt lack of irrigation facilities was the next major constraint.

It was concluded that Non – availability of new varieties of seed material, high cost of fertilisers, lack of knowledge on recommended pesticides for each pest and disease, high cost of labour, complications in adoption of improved technology, Inadequate quantity of credit, high cost of labour for harvesting, low market price to the produce and occurrence of drought perceived to be important constraints by majority of the respondents. These problems need to be solved through research institutions by identifying on the priority constraints of Groundnut of their region for a profitable solution. Socio economic, policy and infrastructure related issues affecting Groundnut productivity and production by dealing at government level for removing impediments in repealing the benefits of research outputs by farmers, and linkage with marketing and financial institutions for providing storage facility at least mandal level.

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