

Factors Influencing the Adoption of Pre-and Post-Harvest Management Technologies of Groundnut in Telangana State

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ABSTRACT: Groundnut (*Arachis hypogea*) is one of the important oilseed crop due to its nutritional value and high consumption all over the world. India ranks second in groundnut production in the world. Groundnut seeds contains (40–56%) edible oil, (20–30%) protein, (10–20%) carbohydrate and several nutritional components. There is a gap between the yield obtained in demonstrations plots and farmers' fields. There are several reasons that contribute for these yield gaps, non- adoption of recommended technologies is one of the major reason. The reasons for non-adoption may be due to low knowledge and other socio-economic constraints encountered by the farmers. The present study was conducted in Mahabubnagar district of Telangana State. A total of 60 respondents were selected from 8 villages of Koilkonda and Mohammadabad mandals by simple random sampling method. Majority (56.7%) of groundnut farmers belonged to medium level of adoption. The characteristics like age had negative and non-significant relationship with extent of adoption of technologies while size of landholding, annual income, farming experience, irrigation potential, social participation, input acquisition pattern, achievement motivation, risk taking ability, market intelligence had positive an significant relationship with extent of adoption technologies and education, annual income, information seeking behaviour and knowledge had positive and highly significant relationship with extent of adoption pre- and post- harvest management technologies of groundnut crop.

Keywords: Groundnut growers, socio-economic characters, adoption, pre- and post-harvest technologies.

INTRODUCTION

Groundnut (*Arachis hypogea*) is one of the important oilseed crop due to its nutritional value and high consumption all over the world. India ranks second in groundnut production in the world. The NARS has developed many new technologies for increasing the yield of groundnut, but the adoption of these technologies by the farmers is far less than the anticipated. There is a huge Yield Gap between FLDs plot and farmers' practice. There are several reasons that contribute for these yield gaps, non- adoption of recommended technologies is one of the major reason. The reasons for non-adoption may be due to low knowledge and other socio-economic constraints encountered by the farmers. Hence, awareness has to be created among farming community about the suitable technologies in groundnut cultivation. Adoption of

proper pre- and post-harvest management technologies plays a crucial role for improving famers' yields. Timely and proper adoption of the recommended technologies is important to control the incidence of pest and diseases and for obtaining the potential yield. The present study was conducted with the objectives to study the profile characteristics of the groundnut farmers, analyse the practice wise extent of adoption of pre- and post-harvest management technologies, and understand relationship between profile characteristics of groundnut farmers and their extent of adoption of pre- and post-harvest management technologies .

METHODOLOGY

The study was conducted in Mahabubnagar district of Telangana State. Two mandals from the district viz., Koilkonda and Mohammadabad were selected based on the highest area under groundnut. From each mandal,

four villages were selected based on the area under groundnut and FLD conducted in the villages. Sixty respondents were selected from the eight villages by simple random sampling method. The variables were selected based on the discussion with the experts. A semi-structured schedule was developed for the study and data were collected by personal interview of the respondents. To measure the extent of adoption of recommended pre- and post-harvest technologies in groundnut, the important practices (15 items) were listed and responses of farmers were recorded on a three-point continuum. Based on the farmers' response, a score of 3, 2 and 1 was given for full adoption, partial adoption and low adoption, respectively.

RESULTS AND DISCUSSION

Socio-economic characteristics of farmers. The results (Table 1) indicated the distribution of the farmers according to their profile characteristics. More than half of the respondents belonged to middle age group (60.0%), where as most (26.7%) of the farmers were educated up to primary level. Majority (40.0%) of the farmers possessed small size land holdings and most (43.3%) of the farmers belonged to lower- middle group of annual income. Majority (70.0%) of the farmers had medium farming experience, categorized under low training (63.3%). In case of irrigation potential, majority (48.3%) of farmers had bore well as a major source of irrigation, medium level of social participation (56.6%), medium input acquisition pattern (53.4%), medium information seeking behaviour (66.7%), medium achievement motivation (65.0%), medium risk orientation (55.0%), medium knowledge (60.0%), low market intelligence (46.6%) and medium adoption (56.7%).

Extent of adoption of pre- and post-harvest technologies by the farmers. The results (Table 2) indicated that majority (56.7%) of the farmers belonged to medium level of adoption followed by low (25.0%) and high (18.3%) adoption level. The reason for

medium to low adoption might be because of medium knowledge, medium risk taking ability, medium input acquisition pattern and no proper trainings received regarding management technologies, low awareness about the new technologies. The results were similar with the findings of Shasani *et al.* (2020); Hadiya *et al.* (2016).

The results (Table 3) indicated that majority of the farmers fully adopted the practices such as land preparation (85.0%), followed by use of improved seeds (80.0%), fertilizers (71.7%), optimum time of harvesting (65.0%) and time of sowing (60.0%), dry pod threshing (58.3%), management of pest and diseases (53.3%) and weed management (50.0%). Farmers had proper knowledge and benefited by adoption of the practices in reducing the yield losses due to pests and diseases, producing quality produce due to optimum time of sowing and proper use of good quality seed and hence will continue to use the recommended practices each season.

The practices which were partially adopted by the farmers were optimum spacing (60.0%), recommended seed rate (45.0%), water management (36.6%), weed management (31.6%), sun drying of groundnut pods (30.0%), optimum time of sowing (28.3%) and threshing (26.7%). Majority of the farmers had not adopted any value addition in groundnut (91.6%) and sold their produce directly in the market, seed treatment (78.3%) and use of hermetic bags for storage of groundnut pods (63.3%). Few of the farmers had not adopted management of pests and diseases (31.7%), sun drying of groundnut pods (26.7%), optimum seed spacing (25.0%) and optimum seed rate (21.7%). Farmers were not aware of the technologies, lack of processing units for value addition in groundnut, poor knowledge about importance of the seed treatment, lack of proper trainings, majority of the farmers were not able to purchase the hermetic storage bags because of high cost.

Table 1: Distribution of farmers according to their socio- economic characters (n=60).

Characteristics	F (%)
Age	
Young age (up to 35 years)	10 (16.7)
Middle age (36-50 yeas)	36 (60.0)
Old age(above 50 years)	14 (23.3)
Education	
Illiterate	10 (16.67)
Can read and write	8 (13.3)
Primary school	16 (26.7)
Upper primary school	12 (20.0)
Secondary school	5 (8.3)
Senior secondary	3 (5.0)
Under graduation	4 (6.7)
Post-graduation	2 (3.3)
Size of land holding	
Marginal (<1 ha)	8 (13.3)
Small (1-2 ha)	24 (40.0)
Semi-medium (2-4 ha)	13 (21.6)
Medium (4- 10ha)	11 (18.3)

Large(above 10 ha)	2 (3.3)
Annual income	
Low income (< Rs. 70,069)	12 (20.0)
Lower- middle (Rs. 70,070- RS 2,73,099)	26 (43.3)
Upper-middle (Rs. 2,73,1000- RS 8,45,955)	18 (30.0)
High (>Rs. 8,45,956)	4(6.7)
Farming experience	
Low (below 4.940)	8 (13.4)
Medium (4.94- 12.66)	42 (70.0)
High (above 12.66)	10 (16.7)
Mean= 8.80S.D=3.86	
Trainings undergone	
Low (below 2.16)	38 (63.3)
Medium (2.16-4.20)	16 (26.7)
High (>4.20)	6 (10.0)
Mean=3.18 S.D=1.02	
Irrigation potential	
Wells	18 (30.0)
Bore wells	29 (48.4)
Canals +wells	9 (15.0)
Canals	4 (6.7)
Social participation	
Low (below 2.08)	11 (18.3)
Medium (2.08-4.72)	34 (56.7)
High(above 4.72)	15 (25.0)
Mean= 3.40 S.D=1.32	
Input acquisition pattern	
Low (below 7.00)	9 (15.0)
Medium(7.00-11.10)	32 (53.4)
High (above 11.10)	19 (31.6)
Mean= 9.05S.D=2.05	
Information seeking behaviour	
Low (below 13.20)	12 (20.0)
Medium (13.20-19.19)	40 (66.7)
High (above 19.19)	8 (13.4)
Mean=16.20S.D=2.99	
Achievement motivation	
Low (below 12.68)	8 (13.4)
Medium (12.68-17.08)	39 (65.0)
High (above 17.08)	13 (21.6)
Mean=14.08 S.D=2.20	
Risk taking ability	
Low (below 6.91)	10 (16.7)
Medium (6.91-11.59)	33 (55.0)
High (above 11.59)	17 (28.3)
Mean= 9.25S.D=2.34	
Knowledge	
Low (below 10.58)	11 (18.3)
Medium (10.58-15.46)	36 (60.0)
High (above 15.46)	13 (21.6)
Mean= 13.02S.D=2.44	
Market intelligence	
Low (below 6.09)	28 (46.6)
Medium (6.09-10.15)	12 (20.0)
High (above 10.15)	20 (33.3)
Mean=8.12S.D=2.03	

Table 2: Distribution of farmers according to their extent of adoption of pre- and post-harvest management technologies of groundnut crop (n=60).

Category	F (%)
Low adoption (Below 32.33)	15 (25.0)
Medium adoption (32.33- 37.83)	34 (56.0)
High adoption (Above 37.83)	11 (18.3)
TOTAL	60

Table 3: Practice wise adoption of recommended practices of groundnut production.

Practice	Full adoption F (%)	Partial adoption F (%)	Non-adoption F (%)
Land preparation	51 (85.0)	6(10.0)	4 (6.7)
Time of sowing	36(60.0)	17 (28.3)	7 (11.7)
Use of recommended variety	48 (80.0)	7 (11.7)	4 (6.3)
Seed rate	20 (33.3)	27 (45.0)	13 (21.7)
Seed treatment	5 (8.3)	8 (13.3)	47(78.3)
Spacing	12 (20.0)	33 (60.0)	15 (25.0)
Fertilizer use	43 (71.7)	10(16.6)	7(11.7)
Weed management	30 (50.0)	19 (31.6)	11 (18.3)
Water management	28 (46.7)	22 (36.6)	10 (16.7)
Management of pests and diseases	32 (53.3)	9 (15.0)	19 (31.7)
Optimum time of harvesting	39(65.0)	9(15.0)	12 (20.0)
Method of threshing	35(58.3)	16(26.7)	9 (15.0)
Method of drying	26 (41.7)	18(30.0)	16(26.7)
Method of storage	10 (16.7)	12 (20.0)	38 (63.3)
Value addition practices	5 (8.3)	0 (0.0)	55 (91.6)

f – (Frequency), (%) - (Percent)

Table 4: Correlation between selected profile characteristics of groundnut farmers and their extent of adoption of pre- and post- harvest management technologies.

Variable No.	Characteristics	Correlation coefficient (r)
X1	Age	-0.203 NS
X2	Education	0.312**
X3	Size of landholding	0.273*
X4	Annual income	0.226*
X5	Farming experience	0.219*
X6	Trainings undergone	0.435**
X7	Irrigation potential	0.241*
X8	Social participation	0.284*
X9	Input acquisition pattern	0.291*
X10	Information seeking behaviour	0.251**
X11	Achievement motivation	0.235*
X12	Risk taking ability	0.243*
X13	Knowledge	0.370**
X14	Market intelligence	0.215*

* = Significant at 0.05 level; ** = Significant at 0.01 level; NS = Non- significant

The results (Table 4) indicated that the age had negative and non-significant relationship with extent of adoption.

The independent variables like education, size of landholding, annual income, farming experience, trainings undergone, irrigation potential, social participation, input acquisition pattern, information seeking behaviour, achievement motivation, risk taking ability, knowledge, market intelligence had positive and significant relationship with extent of adoption pre- and post- harvest management technologies of groundnut crop. The findings were in congruence with of that of Shasani *et al.* (2020); Meena *et al.* (2019); Kumar *et al.* (2019); Prasad *et al.* (2019); Gorfad (2018), Hadiya *et al.* (2016); Rai *et al.* (2016); Chand and Meena (2011).

CONCLUSION

Farmers of the district had adopted the recommended practices of pre-harvest management in groundnut such as recommended variety, optimum seed rate and spacing, irrigation management, weed management and timely management of pests and diseases. But, the adoption of post-harvest management practices such as proper drying (<8% moisture level) and storing in

hermetic bags, which are very important to reduce the aflatoxin contamination and storage pests were less than the anticipated. Farmers had not adopted any value addition in groundnut at farm level due to the need for immediate sale to local agents and local market to clear off the borrowed loans.

Further it is suggested that farmers need to be educated on the adoption of the technologies through conducting proper trainings on crop management practices, demonstrations, creating awareness on the importance of value addition in groundnut, increasing the frequency of contact of extension agencies for timely information and establishment of processing units at local level will go a long way in popularizing the post-harvest management practices.

FUTURE SCOPE

Groundnut is one of the important oilseeds crop in the country and consumption of groundnut is increasing in the recent years because of increasing health consciousness, which indicates to increase the production of the groundnut by improving the cost-effective technologies required for higher yield and setting up processing units, advanced machinery

followed by increasing the adoption of the developed technologies by the farming community through proper awareness campaigns and providing regular need based trainings to farmers and forming farmers associations respectively.

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