

Training Needs of Farmers in Adoption of Groundnut Production Technologies in Ariyalur District of Tamil Nadu



S. Rajaguru, T.Kalidasan, M.Kavaskar, D.Vengatesan and P.Ramesh

Abstract: Groundnut is called as the king of oil seed. It plays an important role in oil seed economy of India. Groundnut oil is mainly used as cooking purpose and also used for manufacturing soaps, cosmetics, shaving creams and lubricants. Groundnut was cultivated both as rainfed and irrigated crop. Increased productivity greatly depends on available technologies and extent of adoption by farmers. With poor productivity, the economy of major groundnut district of Tamil Nadu like Ariyalur has been shattered as evidences with debt ridden farmers and migrating agricultural labourers of the region. Even through considerable changes with regard to knowledge and skills among the groundnut farmers were brought by the scientists and extension personnel, still there is a wide gap to be filled in by effective training programmes. If the training programmes are need based, a definite improvement in the knowledge level of groundnut farmers would occur leading to increased productivity and there is a possibility to make the predominant small and marginal farming systems more sustainable. Keeping these in view, the research study was taken in Ariyalur district of Tamil Nadu with the following objectives. Analyze the training needs of groundnut farmers on production technologies through the use of objective techniques. It would be of great use to find out the relationship between the selected independent variables and dependent variable. Identification of problems faced by groundnut farmers in adopting the recommended practices and their perceived solutions will be of immediate use in removing the existing deficiencies and to plan a sound future strategy of training the groundnut farmers. Proportionate random sampling procedure was applied to select 120 respondents from the district. The data were collected by using a well-structured interview schedule, and analyzed with statistical tools like percentage analysis, cumulative frequency method, and correlation and regression analysis.

It could be observed that out of the eleven major subject areas, only four areas viz., 'plant protection measures', 'fertilizer application', 'micronutrient application' and 'weed management' were the most needed areas on which trainings were demanded. 'Lack of suitable weed control measures' was the fifth most important constraint expressed by (90.83 per cent) of the respondents in groundnut cultivation.

Keywords : Training needs. Farmers, constraints, groundnut .

I. INTRODUCTION

The groundnut belongs to the family Leguminosae, sub-family Papilionoidae genus *Arachis* and species *hypogaea* (Isleib et al., 1994). The genus name *Arachis* stems from a-rachis (Greek, meaning without spine) in reference to the absence of erect branches. The species name *hypogaea* stems from hupo-gè (Greek, meaning below the earth) and relate to the gynophore (flower stalk or peg) that grows downward into the earth so that the pod develops underground. The King of Oil Seeds is groundnuts. Groundnuts are otherwise called as woundernut, peanut and poor man's cashewnut.

Oilseeds occupy an important position in the agriculture and economy of our country. They provided vegetable oils which not only from an essential part of the human diet but also serve as an important raw material for the manufacture of soaps, paints, varnishes, hair oils, lubricants and various other products. Oil cakes are used as cattle feed and manures oilseeds and their products are valuable foreign exchange earners also. The requirements of oils and fats in the country are met by the oil seeds like groundnut, rapeseed, mustard, sesame, sunflower, safflower, niger, castor, soybean and cottonseed.

"The uses of groundnut are diverse all parts of the plant can be used. The nut (kernel) is a rich source of edible oil, containing 36 to 54 per cent oil and 25 to 32 per cent protein" (Anonymous, 2019). About two-thirds of world production is crushed for oil, which makes it an important oilseed crop. India is one of the largest producers of oilseeds in the world and occupies important position in the India economy. In India, groundnut was cultivated in 45.69 lakh hectares with a production of 62.21 lakh tonnes in 2017-2018. The major growing states are Gujarat, Rajasthan, Tamil Nadu, Andhra Pradesh, Karnataka, Madhya Pradesh and Maharashtra. Groundnut is a major crop under oil seeds cultivated in Tamilnadu.

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Groundnut was cultivated in 2.89 lakh hectares with a production of 8.94 lakh tonnes in Tamil Nadu during 2017-18. The major groundnut cultivating districts are Ariyalur, Thiruvannamalai, Villupuram, Vellore, Kanchipuram, Thiruvallur, Namakkal, Krishnagiri, Erode, Salem and Dharmapuri. In Ariyalur district, groundnut was cultivated in an area of about 14530.00 hectares during 2017-18. Cultivation of groundnut is the main source of income for many farmers. The present was designed to assess the training needs of groundnut farmers and to study their relationship with selected profile characteristics of farmers. In order to meet the needs of increasing population, production targets have to go up. It would be possible only by training needs of the farmers and the improved production technologies in groundnut cultivation.

II. METHODOLOGY

Large area under groundnut cultivation in Ariyalur district and presence of the Krishi Vigyan Kendra (KVK) at Solanmadevi were considered for the selection of Ariyalur district for the present study. Maximum area under groundnut cultivation criteria was considered for selection of taluk, block and villages. Finally six villages were selected. A sample size of 120 respondents was considered for the study. The number of respondents for each of the six villages were selected based on the proportionate random sampling technique. Training needs of groundnut growers were assessed in major subject matter areas as well as in specific subject matter areas. The specific subject matter areas were identified from the review of literature and based on discussion with the Agricultural officers and scientists from Krishi Vigyan Kendra. The training needs of groundnut growers in the major subject matter areas were assessed by using the three-point continuum viz., most needed, needed and not needed with the score of 3, 2 and 1. The method followed by Kathiresan (2013) was adopted for this purpose. The respondents were asked to indicate any of three responses against each specific matter area under the training need. The response for the three subject matter areas thus summed up gave the total training need score for each of the major subject matter area. Constraint analysis is becoming one of the important components of extension research. Without analyzing the constraints, it is impossible to diffuse the technologies among the farming community. One of the objectives of the study was to enumerate the constraints. The possible constraints were enumerated from related studies in consultation with the biological and social scientists and the farmers of the non-sample area. The respondents were asked to give their responses whether they had faced the constraints in the previous year. The results were interpreted in percentage. A well structured interview schedule was prepared in English taking into consideration of the various objectives of the study. Necessary precautions were taken to ensure that the questions in the schedule were unambiguous, concise, complete and necessary modifications were carried out before the administration. The schedule was then translated into Tamil for easy administration. Preliminary visits were made to get basic data regarding the study area. Rapport was developed with the respondents through

informal discussion. Data were collected by personal interview with the respondents in their farms and homes. The following statistical tools were used for the analysis and interpretation of the data viz., percentage analysis, cumulative frequency method, zero order correlation and multiple regression analysis

III. RESULTS AND DISCUSSION

Training Needs of Groundnut Growers

As already discussed under methodology, each of the major subject matter areas were ranked based on the mean score values. The results on training needs of groundnut growers on major subject areas are presented in Table- 1.

It could be revealed from Table- 1, that the training needs for 'plant protection measures' (MS 2.80), 'fertilizer application' (MS 2.70), 'micronutrient application' (MS 2.60), 'weed management' (2.26), 'varieties' (MS 2.02), 'seed rate' (MS 1.94), 'spacing' (MS 1.92), 'irrigation' (MS 1.50), 'sowing' (MS 1.42), field preparation (MS 1.55) and 'time of harvest' (MS 1.32) were perceived in the descending order of importance.

It could be inferred that out of the eleven major subject areas, only four viz., 'plant protection measures', 'fertilizer application', 'micronutrient application' and 'weed management' were the most needed areas on which trainings were demanded as the score for these areas ranged from 2.25 to 3.00. The 'varieties', 'seed rate', 'spacing', 'field preparation' and 'irrigation' were the technologies for which the respondents expressed need for training as the scores for these areas were ranging from 1.50 to 2.24. Training was not needed in the remaining two areas viz., 'sowing', and 'time of harvest', as the scores for these areas ranged from 0.75 to 1.49.

Table-1. Training needs of groundnut growers in major subject matter areas

S.No.	Major subject matter areas	Mean score	Rank
1	Varieties	2.02	V
2	Sowing	1.42	X
3	Seed rate	1.94	VI
4	Field preparation	1.55	VIII
5	Spacing	1.92	VII
6	Irrigation	1.50	IX
7	Fertilizer application	2.70	II
8	Weed management	2.26	IV
9	Plant protection measures	2.80	I
10	Micro nutrient application	2.60	III
11	Time of harvest	1.32	XI

Association and Contribution of Characteristics of the Respondents with Training Needs of Groundnut Growers.

The zero-order correlation analysis was computed to know the association of characteristics of the respondents

with their training needs of groundnut growers and the results are given in Table-2.

Table-2. Association and contribution of characteristics of the respondents with training needs of groundnut growers. (n=120)

Var.No	Variables	'r' value	Standardized Regression Co-efficient	Standard error	't' value
X ₁	Age	0.031NS	0.157	1.047	1.013NS
X ₂	Educational Status	0.271**	0.486	0.192	2.531**
X ₃	Occupational Status	0.115 NS	-0.189	2.521	-1.637NS
X ₄	Annual income	-0.022NS	-0.029	0.007	-0.271NS
X ₅	Farm size	-0.172NS	-0.049	0.927	-0.410NS
X ₆	Farming experience	0.196**	2.498	0.986	2.533**
X ₇	Social participation	0.098 NS	0.066	0.130	0.655NS
X ₈	Extension agency contact	-0.199*	0.726	0.411	1.766*
X ₉	Mass media exposure	-0.126 NS	0.052	0.022	0.497NS
X ₁₀	Information seeking behavior	-0.193*	0.600	0.341	1.759*
X ₁₁	Information sharing behaviour	0.122 NS	3.441	1.786	1.926*
X ₁₂	Innovativeness	0.212*	1.498	0.821	1.824*
X ₁₃	Risk orientation	0.086 NS	0.068	0.777	0.706NS
X ₁₄	Training undergone	-0.198*	0.135	0.813	1.331NS
X ₁₅	Decision making	0.062 NS	-0.148	0.168	-1.202NS

$a=9.312 \quad R^2=0.5123F = 6.082^{**}$

- * - Significant at 5.00 per cent level of probability
- ** - Significant at 1.00 per cent level of probability
- NS - Non- significant

It could be seen from Table-2, that, out of fifteen variables considered for the study, six variables viz., educational status (X₂), farming experience (X₆), extension agency contact (X₈), information seeking behavior (X₁₀), innovativeness (X₁₂) and training undergone(X₁₄) were found to have positive and significant relationship with their training needs of groundnut growers.

Among the significant variables, only two variables namely educational Status(X₂) and farming experience(X₆) were found to be highly significant at one per cent level of probability. The remaining four variables were found to be significant at five per cent level of probability. Educational status showed a positive and highly significant relationship with training needs. Farmers with higher educational status would have adequate awareness on the recommended groundnut technologies, which in turn might have resulted in higher training needs about groundnut cultivation. This finding is in line with the findings of Arunkumar (2018).

Farming experience was found to be positively and highly significant relationship with training needs at one per cent level of probability. In general, farmers with more farming experience would try to practice new technologies which require efficient training. The finding is in line with the

findings of Pratheebkumar (2012). Extension agency contact showed a positive and significant relationship with training needs of the respondents at five per cent level of probability. It could be justified that the variable extension agency contact would have provided awareness about the recommended technologies in groundnut cultivation, hence, it may be stated that better extension agency contact would influence the training needs of groundnut growers. The finding is in line with the findings of Jangid et al.(2009).

Information seeking behaviour was found to have a positive and significant relationship level of probability at five per cent with training needs. This is quite natural that farmers who are always seeking for new information would always in need for training. Innovativeness was found to have a positive and significant relationship at five per cent level of relationship with training needs. Farmers with more innovativeness would try to practice new technologies, which required efficient training. This finding drives support from the findings of Kathiresan (2013). Training undergone was found to be positively and significantly relationship with training needs at five per cent level of probability.

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Most of the respondents had attended one or more training programmes. This finding is in line with the findings of Pratheebkumar (2012).

Contribution of Characteristics of the Respondents with their Training Needs of Groundnut Growers.

In order to find out, which of the independent variables explained the variation in the training needs and also to know the extent of contribution, multiple regression analysis was carried out and the results are presented in Table-2.

It could be observed from the Table-2, that all the fifteen variables together explained 51.23 per cent of the variation in the training needs. The 'F' value was found to be significant one per cent level of probability. Hence, it could be concluded that a linear functional relationship between the independent and dependent variables could be established. Out of fifteen independent variables, two variables namely, educational status(X_2), and farming experience(X_6), had contributed highly significant and positively at one per cent level of probability. And the remaining variables viz., extension agency contact(X_8), information seeking behavior(X_{10}), information sharing behavior(X_{11}), innovativeness(X_{12}) and training undergone(X_{14}) contributed significantly and positively at five per cent level of probability towards training needs. All other variables were found to be non-significant. Hence it may be concluded that a unit increase in, educational status(X_2), farming experience(X_6), extension agency contact(X_8), information sharing behavior(X_{10}), information seeking behavior(X_{11}), innovativeness(X_{12}) and training undergone(X_{14}) would the training needs by 0.486, 2.498, 0.726, 3.441, 0.600, 1.498, 0.135 units respectively. Hence it could be inferred that the training needs of groundnut growers could be positively influenced by their educational status(X_2), farming experience(X_6), extension agency contact(X_8), information seeking behavior(X_{10}), information sharing behavior(X_{11}), innovativeness(X_{12}) and training undergone(X_{14}).

Constraints Faced by the Groundnut Growers

The findings on the constraints faced by the respondents in groundnut cultivator are presented in the Table-3.

Table-3. Constraints faced by groundnut growers (n=120)

S.No.	Constraints	No.	%	Rank
1	Lack of suitable weed control measures	109	90.83	I
2.	High cost of Inputs	98	81.67	II
3	Problem of Disease	92	76.67	III
4.	Lack of rainfall	90	75.00	IV
5.	Lack of remunerative price	84	70.00	V
6.	High cost of labour	70	58.33	VI

It could be inferred from the Table-3, that majority of the respondents (90.83 per cent) had lack of suitable weed control measures, followed by high cost of inputs (81.67 per cent), problem of disease (76.67 per cent), lack of rainfall (75.00 per cent), lack of remunerative price (70.00 per cent) and high cost of labour (58.33 per cent).

'Lack of suitable weed control measures' was the first and most important constraint expressed by (90.83 per cent of the respondents in groundnut cultivation. Most of the respondents reported that hand weeding was done by untrained labourers. Occurrence of heavy weed growth of *Trianthema portolacastrim*, was mainly responsible for reduction in yield. High cost of inputs (81.67 per cent) was the second major constraint by the respondents. The demand for inputs (fertilizers, hybrid seeds, etc.,) results in increase in the cost of the production.

Problem of Disease (76.67 per cent) was the third major constraint by the respondents. tikka leaf spot is very common in groundnut crop and sometime results in loss of yield. Lack of rainfall (75.00 per cent) was the fourth major constraint reported by the respondents. The recent climactic changes had resulted in low rainfall in the region. Lack of remunerative price (70.00 per cent) was the fifth major constraint reported by the respondents. There is a wide fluctuation of prices for before and after harvest season. High cost of labour (58.33 per cent) was the last major constraint reported by the respondents. The demand for labour result in increases in the cost of the labour.

IV. CONCLUSION

The respondents expressed high level of training needs for four major subject matter areas viz., 'plant protection measures', 'fertilizer application', 'micronutrient application' and 'weed management' were the most needed areas on which trainings were demanded as the score for these areas ranged from 2.25 to 3.00. Six independent variables namely educational status, farming experience, extension agency contact, information seeking behaviour, innovativeness, and risk orientation had positive and significant correlation with the training needs of groundnut growers. The constraints faced by majority of the respondents were lack of suitable weed control measures (90.83 per cent), high cost of inputs (81.67 per cent), problem of disease (76.67 per cent), lack of rainfall (75.00 per cent) and lack of remunerative price (70.00 per cent). While organizing training programme for groundnut growers, special emphasis should be given to impart training in the areas like plant protection measures, fertilizer application and weed management. Profile characteristics viz., age, educational status, occupational status, annual income, farm size, farming experience, social participation, extension agency contact, mass media exposure, innovativeness, information seeking behaviour, information sharing behaviour, risk orientation and training undergone, decision making should be taken care of the extension system in organizing training programme for groundnut growers in future. The training may be organized before the cropping season. As peripatetic training proves to be more useful than the other types, the training agencies may conduct more number of peripatetic trainings. The training programme may be arranged once in six months for a period of two days preferably in their villages.



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