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Effective Communication modes Increases yield of Groundnut in Rural Agriculture of Kalwan Tahsil of Nashik District, Maharashtra, India

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Abstract

Groundnut (Arachis hypogea L.) is the major edible oilseed crop of India. It accounts for 45% of the area and 55% of the production of total oilseeds in the country. It also accounts for 43% of total oil production in the country. Within the country, Andhra Pradesh ranks second in both area and production. The crop is grown in rainy (85% area), post-rainy (10% area) and summer (5% area) seasons. The rainy season groundnut is generally Rainfed, while post-rainy and summer groundnuts are irrigated. Productivity of the crop is however low, primarily because of its cultivation in marginal and sub-marginal soils under Rainfed conditions subjected to frequent droughts, poor agronomic practices and low levels of input, use of traditional low yielding varieties, incidence of insect pests and diseases. The average yield of Kharip groundnut in India is extremely low, 750 kg/ha, compared to yields at over 3000kg / ha in the developed countries. In this research paper Forty eight farmers were selected from rural Tahsil i.e. Kalwan of Nashik District. All farmers are grouped into four classes A, B, C and D. Group 'A' and 'B' farmers were supplied Rhizobium biofertilizer packets for seed dressing. Farmers were communicated by seed dressing at homes, at fields, supplied pamphlets, arranging poster show in respective villages. To determine per hectare yield, pods were harvested and weighed separately. The pod yield of treated plots was compared with untreated plots. The pod yield data was recorded, tabulated and statistically analyzed. The pod yield increases by 18 to 21 %, which is stimulatory for Groundnut in Kharif season.

Keywords: Bio-fertilizer, Communication Modes, Groundnut, *Rhizobium*..

Introduction

In India 1985 –86 some 7.4 million hectare land was brought under cultivation and 4.7 million tones of dried pods were harvested and 1986 – 87, some 7.15 million hectare land was under cultivation of groundnut and 6.06 million tones of dried pods were harvested. This indicates that in India oil seeds accounts for one ninth of the total agricultural production and ranks next to food grains in importance. The crop productivity is directly related with use of manures and fertilizers. Fertilizer consumption in India is very low. Small and marginal farmers are unable to purchase and use chemical fertilizers. The availability of bio-compost from domestic cattle's is reduced due to a pressure on forest for fodder source and decreased number of domestic animals. The small landholders of the study area are not applying chemical fertilizers or FYM to groundnut fields presently. This had seriously affected the soil fertility and total soil hygiene. Our soils are mostly nitrogenous deficient. There is scope for production and use of nitrogenous fertilizers. The chemical fertilizer causes impact on soil micro flora and fauna. In such situation it is need of the day to develop new easy low cost eco-friendly technology, which reach to small farmers. The use of *Rhizobium* bio-fertilizer for groundnut is best answer to all above.

Material and Methods

The present study was carried out in the twelve villages KalwanTahsil during the crop season of 2006 and 2007. Eight farmers from each village likewise from twelve (total-96) were selected and grouped into four classes, in which forty eight were experimental and forty eight in control group.

The experimental farmers were again sub grouped in to two categories having twenty four farmers in each. The farmers of I[st] group of twenty four farmers were provided 250 gms. of*Rhizobium* bio-fertilizer. The II[nd] group of twenty four farmers was advised to use *Rhizobium* bio-fertilizer along with chemical fertilizer. The III[rd]group of sample farmers of control group i.e. twenty four farmers were allowed to use only chemical fertilizer and IV[th] group of twenty four farmers was allowed to followed traditional method of Groundnut cultivation[1].

Investigators made field demonstrations of seed dressing of *Rhizobium* bio-fertilizer to Groundnut at the farmer's field. The communication to the farmers made by printed matter, pamphlets of use of *Rhizobium* bio-fertilizer technology, Message oriented booklets etc[2].

Results and Discussion

The role of effective communication modes in dissemination of information, use of effective communication modes changes the attitude of farmers and their Adoption behavior were studied[2, 3]. The field demonstrations of improved agro-technology were directly affects the adoption behavior of farmers[4, 5]. Table-1, table-2, figure-1, table-3, table-4.

Table-1
Attitudinal behavior analysis on dissemination of technology towards society

Category of farmers	Number of sample farmers	%
Positive with Active participation	51	53.12
Followers	21	21.87
Traditional	24	25.00
Total	96	100

Table-2
Attitudinal analysis of sample farmers on adoption of technology

Sr. No.	Innovation adoption category of Farmers	No. of farmers	%
1	InnovatorFarmers	11	11.45
2	Early adopter Farmers	13	13.54
3	Early majority Farmers	27	28.12
4	Late majority Farmers	21	21.87
5	Traditional minded Farmers	24	25.00
	Total	96	100

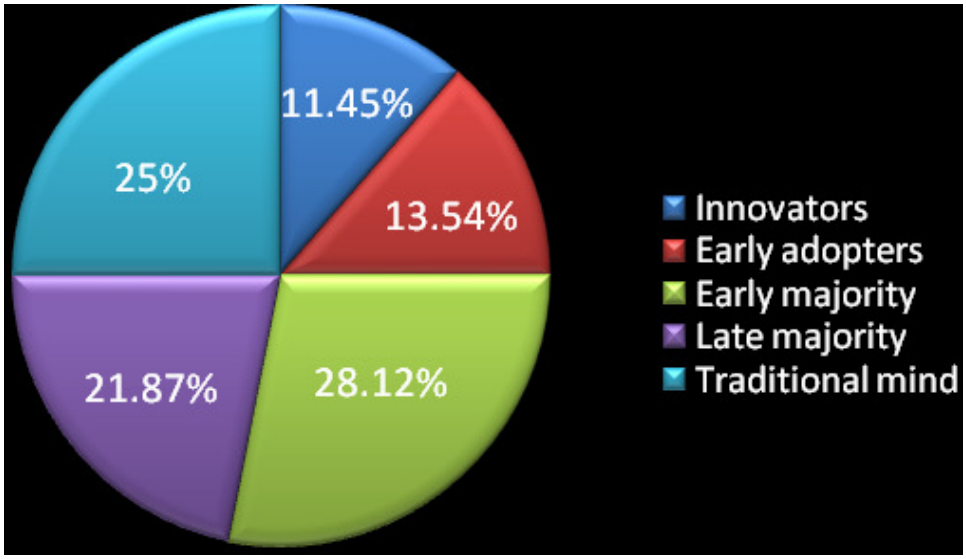

Figure-1
Graph showing attitudinal analysis of sample farmers on adoption of technology

Table-3
The grouping of sample farmers

Sr.No.	Groups of Sample farmers	Class	Demonstration purpose
1	IstandIInd	I	Use of ***Rhizobium*** bio-fertilizer
2	IIIrdandIVth	II	Use of ***Rhizobium*** bio-fertilizer and chemical fertilizer
3	VthandVIth	III	Use of chemical fertilizer only
4	VIIthandVIIIth	IV	Traditional method of Groundnut cultivation

Table-4
Groundnut production data of sample farmers of two crops seasons 2006 and 2007

Sample group	No. of sample farmers	Average yield of Groundnut/year quin./acre			Yield increases or decreases quin./acre		% of yield quin./acre	
		2005*	2006**	2007**	2006**	2007**	2006**	2007**
A	24	2.27	2.64	2.70	0.37	0.43	16.11	20.06
B	24	2.34	2.73	2.82	0.39	0.48	16.52	20.04
C	24	2.20	2.31	2.42	0.11	0.22	5.73	4.11
D	24	2.19	2.20	2.21	0.01	0.02	0.5	1.06

* -Before communication ** -After communication

Conclusion

Table1 shows that 51 farmers (53.12%) showed positive attitude and active participation to adopt and spread the technology to other farmers in future. 21 farmers (21.87%) assured to adopt the technology if found economical to them. 24 farmers (25%) did not express positive or negative approach on dissemination of *Rhizobium* bio-fertilizer technology to the society.

Table 2 reveals that out of ninety six farmers 51 farmers (53.12%) showed positive attitude of adoption and were eager to know detail information about *Rhizobium* bio-fertilizer technology, those were categorized in three groups i.e. 11 farmers (11.45%) innovators, 13 farmers (13.54%) were adopters and 27 farmers (28.12%) were early majority. The 21 farmers (21.87%) showed positive attitude, but did assured to adopt the technology in the first year. They decided to observe the field trials, results of neighbors and then undertook field trials in their fields in the next year. The 24 farmers (25%) were traditional minded and did not expressed either positive or negative attitude[6].

Table 4 reveals results related to the yield of Groundnut recorded by investigators before communication (in year 2005) and after communication (in year 2006 and 2007). The experimental groups A and B of sample farmers who used *Rhizobium* bio-fertilizer showed increase in yield 16.11% and 20.06% in 2006 and 16.52% and 20.04% in 2007. The control group of sample farmers C and D has very less increase in yield[7].

From above data it can concluded that the groundnut yield increased significantly due to the application of *Rhizobium* bio-fertilizer and effective communication of improved technology to the farmers increases awareness among Groundnut cultivars[8].

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