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Impact of farmers' training on adoption of polythene mulch in Rabi summer groundnut

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ABSTRACT

The impact of farmers' trainings conducted by the Krishi Vigyan Kendra (KVK) on use of polythene mulch in Rabi summer groundnut was studied in Raigad district of Maharashtra in 2010–11. The proportion of trained farmers was higher than the proportion of untrained farmers appearing in high level of adoption of polythene mulch in groundnut. The 'Z' value of difference between the mean of two samples was also found to be significant at 1 per cent level of probability and the trained farmers were well informed and had higher desire to learn the new technologies. The study thus shows that the KVK trainings had a strong impact on the adoption level of the use of polythene mulch in Rabi summer groundnut in the district.

Keywords: Training; polythene mulch; groundnut; farmers

INTRODUCTION

The Krishi Vigyan Kendras have four important mandates viz i) conducting on-farm testing for identifying technologies in terms of location specific sustainable land use systems ii) organizing trainings to update the extension personnel with emerging advances in agricultural research on regular basis iii) organizing short and long term training courses in agriculture and allied vocations for the farmers and rural youths with emphasis on 'learning by doing' for higher production on farms and generating self-employment and iv) organizing frontline demonstrations on various crops to generate production data and feedback information. Among these four mandates the organization of training courses to the farmers and rural youths has high importance (Prasad1990).

The Krishi Vigyan Kendra, Killa–Roha has Raigad district as its area of jurisdiction. All programmes of the Kendra are conducted throughout the district. Rabi summer groundnut is one of the major crops of Maharashtra. The KVK has been training the farmers of the district on the use of plastic mulch for the crop by conducting institutional and location specific trainings and demonstrations.

Mulching is the process or practice of covering the soil/ground to make more favourable conditions for plant growth, development and efficient crop production. Mulch as technical term means 'covering of soil'. While natural mulches such as leaf, straw, dead leaves and compost have been used for centuries during the last 60 years the advent of synthetic materials has altered the methods and benefits of mulching. When compared to other mulches plastic mulch is completely impermeable to water; it therefore prevents direct evaporation of moisture from the soil and thus limits the water loss and soil erosion over the surface. In this manner it plays a positive role in water conservation. The suppression of evaporation also has a supplementary effect; it prevents the rise of water containing salt which is important in countries with high salt content water resources. A wide range of plastic films based on different types of polymers have all been evaluated for mulching at various periods in the 1960s. LDPE, HDPE and flexible PVC have all been used and although there were some technical performance differences between them they were of minor nature. Owing to its greater permeability to long wave radiation which can increase the temperature around plants during the night times polyethylene is preferred. Today the vast majority of plastic mulch is based on LLDPE because it is more economic in use.

Muskmelons, tomatoes, peppers, cucumbers, squash, eggplant, watermelons and okra are vegetable crops that have shown significant increases in earliness, yield and fruit quality when grown on plastic mulch. Some less valuable crops such as sweet corn, snap beans, southern peas and pumpkins have shown similar responses.

A group of farmers in Gujarat have adopted Chinese-born mulching technology to increase their groundnut production. The mulching technology is said to be useful in increasing the groundnut production by as much as three times than the usual output generated from the conventional Indian techniques. The farmers in Gujarat began with using the technique on a pilot basis on 50 acres of land to experience the benefit of this technology. The initial growth in roots, stems and leaves was satisfactory and thus the farmers believed that the method will lead to higher yield (Anon 2011).

Developed by Chinese agricultural scientists mulching technology requires groundnut plants to be covered with special mulching plastic sheets for moisture protection and maintaining plant growth for maximum yield. Agriculture with mulch in the tropics promotes plant health and vigor; and improves nutrient and water retention in the soil, encourages soil microbial activity and worms, and suppresses weed growth. When properly executed mulching can significantly improve the well-being of plants and reduce maintenance as compared to bare soil culture. Mulched plants have better vigor and consequently have improved

resistance to pests and diseases. This technology has the capacity to yield 2-3 times higher output than the conventional techniques of groundnut farming. Grown mainly through age-old farming techniques groundnut yield in India currently at 700-900 kg per hectare is less than one-third of the world's average of 2,200 kg per ha. Comparatively average groundnut yield in China today stands at 2,300-2,400 kg per ha while the same in the US and Argentina is 3,000 kg per ha and 2,800 kg per ha respectively (Anon 2011).

The biggest advantage of this technology is that the crop does not have to depend on monsoon. The irrigation is done through mechanical means. Hence the crop can be grown in off-monsoon season as well.

Taking into consideration the above facts study was conducted to find out the impact of farmers' training on adoption of polythene mulch in Rabi summer groundnut in Raigad district.

METHODOLOGY

The Krishi Vigyan Kendra has been in operation since 1992 in Raigad district of Maharashtra which was the area of the study. Four villages viz Nilaj (Dharnachi Wadi), Phalkewadi (Mahad), Indapur and Asanpoi in which the farmers had already been trained were taken for the collection of data in 2010- 11. The information pertaining to objectives was collected from 40 trained and 40 untrained randomly selected farmers with the help of pre-tested interview schedule. Statistical test viz frequency, percentage, mean deviation, 'z' test and correlation coefficient were used for analysing and interpreting the data.

RESULTS AND DISCUSSION

It can be seen from the Table 1 that almost equal number of farmers fell under medium level of adoption (57.50 and 60.00% trained and untrained farmers respectively). But only 7.50 per cent trained farmers fell under low level of adoption compared 35.00 per cent untrained farmers. Similarly higher (35.00%) number of trained farmers fell under high level of adoption compared of 5.00 per cent of untrained farmers. This clearly shows that the training enhanced the adoption level of the farmers wrt plastic mulching.

The analysis given in Table 2 shows that mean adoption score of the trained farmers was higher (28.50) as compared to untrained farmers (23.41). The 'Z' value of difference between the mean of two samples (3.97) was also found to be significant at 1 per cent level of probability. Hence there was significant difference between the scores of both the categories of respondents. Similar observations were made by Jondhale et al (2000).

Table 1. Distribution of trained and untrained farmers according to their adoption levels

Category	Trained farmers (n=40)		Untrained farmers (n=40)	
	Number	%	Number	%
Low	3	7.50	14	35.00
Medium	23	57.50	24	60.00
High	14	35.00	2	5.00

Table 2. Difference in mean adoption scores of trained and untrained farmers

	Trained farmers (n=40)	Untrained farmers (n=40)
Mean adoption score	28.50	23.41
Standard deviation	7.52	6.84
'Z' value	3.97	

Table 3. Relationship of selected characteristics of farmers with adoption

Characteristic	Correlation coefficient (r)	
	Trained farmers	Untrained farmers
Age	- 0.53	-0.42
Education	- 0.68	0.71
Land holding	0.50	0.46
Annual income	0.36	0.38
Socio-economic status	0.47	0.49
Risk orientation	0.39	0.42
Information seeking	0.44	0.40
Extension contact	-0.14	-0.28
Mass media exposure	0.32	0.28

The correlation coefficient of trained and untrained farmers wrt their age, education, land holding, annual income, socio-economic status, risk orientation, information seeking, extension contact and mass media exposure was also studied and the data are given in Table 3. The data show that the 'r' value was higher for the three traits viz information seeking, extension contact and mass media exposure among

the trained farmers (0.44, -0.14 and 0.32 respectively) as compared to untrained farmers (0.40, -0.28 and 0.28 respectively). This shows that the trained farmers were well informed and had higher desire to learn the new technologies.

CONCLUSION

It is concluded from the findings that the proportion of trained farmers was higher than the proportion of untrained farmers appearing in high level of adoption of polythene mulch in groundnut. The 'Z' value of difference between the mean of two samples was also found to be significant at 1 per cent level of probability and the trained farmers were well informed and had higher desire to learn the new technologies.

The study thus shows that the KVK trainings had a strong impact on the adoption level of the use of polythene mulch in Rabi summer groundnut in the district.

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