

Farmers Training Needs on BT Cotton Technology

H. D. Rajput¹, S. V. Supe², U. R. Chinchmalatpure³

1. Ph. D Scholar, Yashwantrao Chavhan Maharashtra Open University, Nasik
2. Ex. Head & 3. Sr.Res. Asstt., Deptt. of Ext. Edu., Dr. PDKV, Akola (Maharashtra).

ABSTRACT

Training is the systematic development of knowledge, skills and attitudes required by an individual to perform adequately for a particular task. With a view to measure the farmers training needs of BT cotton technology and to understand the relationship between selected characteristics of Bt cotton farmers. The study was conducted in Yavatmal district of Maharashtra state. Finding revealed that majority of the Bt cotton farmers have high (57.50 per cent) training needs. The farmers were expressed their training needs on features of Bt cotton technology followed by insect scouting, manures and fertilizer, Bt cotton varieties, harvesting and marketing of Bt cotton. Relational analysis revealed that age, education, land holding, area under Bt cotton, annual income, farming experience, socio-economic status, social participation, scientific orientation were found positively and significantly correlated with training needs.

Key Words: Training Needs; BT Cotton; Genetically engineered crop

Cotton, the 'White gold' occupies an enviable place amongst commercial crop of our country. The economic loss in the cotton through pests is serious concern. The bollworm complex cause significant yield losses, further, the harmful effects of insecticides leading to environmental pollution and more specifically increase the cost of cultivation. In this context the application of biotechnology was seen as a solution and thus the efforts have resulted in developing of Bt cotton.

Bt is a genetically engineered crop hence is referred transgenic cotton. This Bt cotton contains a toxic protein – inducing gene from soil bore bacterium *bacillus thuringiensis*, thus enabling the crop to produce toxin resulting in decrease bollworms infestation reduced application of insecticides, increase the productivity, quality of 'kapas' and provide peace to the framers (Rummel *et.al.* 1994, Flint *et.al.* 1995, Bachelier and Mott, 1996). Adoption of Bt cotton is increasing since its introduction in India and Maharashtra. It indicates that, farmers are perceived the advantages of Bt cotton technology however, the performance of this technology is not uniform. Given the scale of the cotton industry in India and the current global debates over advantages/ disadvantages of GM technology, it is not surprising that there has been considerable and vigorous debate regarding the agronomic and economic performance of Bt cotton in India with various reports claiming both successes and failures. The reason of poor performance

of the Bt cotton could be lack of knowledge and skill about the technology. Looking to these facts, the present study was carried out with the following objectives,

1. To ascertain the farmers' training needs on Bt cotton technology
2. To find out the relationship of selected characteristics of Bt cotton farmers with their level of training needs.

METHODOLOGY

The present study was conducted in Yavatmal district of Maharashtra state. This district consists of sixteen talukas from which Ghatanji, Yavatmal, Ralegaon and Kelapur were selected purposively, as it covers more area under Bt cotton crop. List of Bt cotton farmers from the selected villages was prepared and out of which the 120 Bt cotton farmers were selected by simple random method of sampling. An interview schedule was prepared in view of the objectives of the study and data were collected by personal interview from the selected Bt cotton farmers.

RESULTS AND DISCUSSION

A) *Training Needs* Data regarding distribution of respondents according to their training needs were collected and classified in three groups. The data in this

regards is presented in Table 1.

The study on training needs (Table 1) revealed that 57.50 per cent of the respondents were under high training needs category, 24.17 per cent had medium training need were as rest of 18.33 per cent has low training need.

Table: 1 Distribution of the Bt cotton respondents according to their training needs.

Sr. No.	Training level	f	%
1.	Low	22	18.33
2.	Medium	29	24.17
3.	High	69	57.50
	Total	120	100.00

Mean: 36.64 SD: 6.69

It can be concluded that the majority of the Bt cotton farmers have high training needs. The inference in the study is in line with the findings of Ahire (2005) and Raja Shekhar (2005). Data regarding distribution of respondents according to their training needs in different subject matters are presented in Table 2

Table: 2 Training needs of Bt cotton farmers in different subject matter areas.

S.No. Items	Mean score	Rank
1 Features of Bt cotton technology	2.000	I
2 Preparatory tillage	0.508	VIII
3 Bt cotton varieties/hybrids	1.300	V
4 Seeds and sowing	1.047	VII
5 Manures and fertilizers	1.553	III
6 Insects scouting	1.955	II
7 Plant protection	1.443	IV
8 Irrigation	0.340	X
9 Intercultural operation	0.448	IX
10 Harvesting and Marketing	1.265	VI

The data in Table 2 revealed that majority of the respondents had expressed their needs for training about features of Bt cotton technology (2.000), insects scouting (1.955), manures and fertilizers (1.553), plant protection (1.443), Bt cotton varieties (1.300) and harvesting and marketing (1.265). This means that the Bt cotton farmers gave highest emphasis these subject matters, as these information can help them to a grate extent while adopting Bt cotton in their fields. The reasons for ranking these items on top by the respondents may probably be Bt cotton is first genetically modified technology have recently introduced for farmers cultivation and farmers are more curious about features of Bt cotton technology and its cultivation practices. Retention of more number of bolls in Bt cotton and soil fertility gets depleted by continuous cropping pattern which ultimately effects the crop growth resulting in poor yield and Hence they need the adequate knowledge of manures and fertilizer management in Bt cotton. Insect scouting is one of the

most important method to ascertain the population of the insect pests and their economic threshold level (ETL) that facilitate the farmers to take the spray decision on Bt cotton and able to reduce the pesticides sprays. Further, the respondents perceived the training needs in plant protection measures due to significant damage reported by the attack of pests like sucking pets, bollworm, sopdoptera and mealy bugs and disease like grey mildew, reddening of leaves, wilting and bacterial blight. The farmers were not able to identify the symptoms in the plants caused by pest and diseases. They were also generally not aware of the control measures. These factors might have motivated them to assign the top rank to above items. Bt cotton farmers expressed their training needs about various Bt cotton hybrids available in the market, product features, management practices, environment compatibility are the important training areas expressed by the farmers. Most of the farmers found lack of knowledge about harvesting and marketing of the cotton. Hence, they require training about this subject matter. They are also require a training in descending order on Bt cotton varieties, harvesting and marketing, seed and sowing, preparatory tillage, intercultural operation and irrigation.

B) Correlation between personal traits and their training needs : Personal, socio-economical, communication, and psychological characteristics play an important role in training needs on Bt cotton technology. With this in view, efforts were made to study the correlation, if any, between personal characteristics of the Bt cotton farmers and their training needs. To examine this relationship correlation coefficient (r) was computed, the results of which are presented in Table 3.

Table: 3 Correlation between selected characteristics of Bt cotton farmers with their training needs.

S.No. Variables	Correlation coefficient 'r' values
1. Age	0.213**
2. Education	0.234**
3. Land holding	0.383**
4. Area under Bt cotton	0.186*
5. Annual income	0.173*
6. Farming experience	0.486**
7. Socio-economic status	0.189*
8. Extension contact	0.141
9. Social participation	0.269**
10. Scientific orientation	0.584**

* - Significant at 0.05 probability level ** - Significant at 0.01 probability level

The data depicted in Table 2 shows that among ten characteristic studied six characteristics namely, scientific orientation, farming experience, land holding, social participation, education and age found to have positively and significantly correlation with training needs at 0.01 level of probability. Where as, under socio-economic status, area under Bt cotton and annual income

were correlated positively and significantly at 0.05 level of probability. Further, it was noticed that extension contact did not show any relationship with training needs.

CONCLUSION

It can be concluded from the investigation that majority of the Bt cotton farmers had expressed their need for training on Bt cotton technology. The analysis of correlation of selected characteristics like age, education, land holding, area under Bt cotton, annual income, farming experience, socio-economic status, social participation, scientific orientation were found positively and significantly towards their training needs. It is also concluded that majority of Bt cotton farmers gave highest emphasis of training needs on features of Bt cotton technology, as this information can help them to a great extent while adopting in their fields. They are

also require a training on insect scouting, detection of ETL of different pests, application of manures and fertilizer management, various Bt cotton varieties available in the market, hybrids features and its cultivation practices, harvesting and marketing of Bt cotton. So while preparing farmers training programmes for the area of training required by the Bt cotton farmers should be given due importance to support them to take decision regarding adoption of Bt cotton technology.

The transfer of technology agents shall keep the results of this study in view while talking decisions as regards to what contents of the technological information regarding Bt cotton technology should be taken to which type of the farmers. Further, they should concentrate on major areas, identified by this study for deciding the content of the message to be prepared for the Bt cotton farmers.

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