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Relationship analysis of profile of Bt. cotton growers and knowledge of recommended cultivation practices

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Abstract

Study entitled “Knowledge and Adoption of recommended cultivation practices by Bt. cotton growers” was undertaken in Warora, Bhadrawti and Chimur talukas in Chandrapur district of Vidarbha region of Maharashtra state. Ex-post facto research design was used for the same. The farmers growing Bt. cotton since last five years consecutively were identified and from each selected village 10 Bt. cotton growers as respondents were selected randomly to constitute sample size of 120 respondents. The data from Bt. cotton growers were collected by personal interview method. Relatively higher proportion of Bt. cotton growers (57.50%) were in medium knowledge level followed by (27.50%) were in low level of knowledge of recommended package of practices whereas, 15.00 per cent Bt. cotton growers who were in high level of knowledge of recommended package of practices by Bt. cotton growers.

Keywords: Adoption, Bt. cotton, cultivation, knowledge and practices

Introduction

Cotton is one of the most important cash crops of our country. It is also called as ‘White Gold’. Cotton is cultivated in about 60 countries of the world. Amongst, India occupies largest area (9.3 m. ha.) under cotton. The economic loss in the cotton through pest is serious concern. The bollworm complex causes significant yield losses, further, the harmful effects of insecticides leads to environmental pollution and more specifically increases the cost of cultivation. In this context the application of biotechnology was seen as a solution and thus, the efforts were taken that resulted in developing Bt. Cotton.

Bt. Cotton is genetically engineered crop hence is referred as transgenic cotton. This Bt. Cotton contains a toxic protein-inducing gene from soil borne bacterium *Bacillus thuringiensis* (Bt.), thus enabling the crop to produce toxin resulting in decreased bollworm infestation, reduced application of insecticides, increased productivity and improved quality of ‘Kapas’ that’s provides peace to the farmers.

The Genetically Engineering Approved Committee (GEAC) permitted the release of Bt. Cotton for commercial cultivation during 2002-2003 crop season. Being the first and only crop that received environmental clearance as GMO (Genetically Modified Organisms) in India, it is receiving maximum attention from planners, scientists, social workers, media, farmers and general public.

Methodology

The present study was carried out in Chandrapur district of Maharashtra. From these districts three talukas were selected purposively i.e. Warora, Bhadrawati and Chimur as they cover highest area under Bt. cotton. Four villages were randomly selected from each tahsil. Total twelve villages were selected for the study. A list of Bt. cotton growers from the selected villages was prepared randomly by using simple random sampling method to constitute sample size of 120 respondents. An interview schedule was prepared in view of the objectives of the study and data were collected by personal interview of the selected respondents.

Results and Discussion

Level of knowledge

Knowledge is the information, understanding and skills that an individual acquire through learning or experiencing. Knowledge of an individual plays an important role in executing the plan of action for adopting new technologies on farm the data pertaining to table 1 depicts the knowledge of Bt. cotton growers about recommended Bt. cotton production technology.

Table 1: Distribution of Bt. cotton growers according to their overall knowledge of recommended cultivation practices of Bt. Cotton
N=120

SL No.	Category	Frequency	Percentage
1	Low (Up to 68)	33	27.50
2	Medium (from 69 to 94)	69	57.50
3	High (Above 94)	18	15.00
	Total	120	100.00

The data in table 1 represents that majority 57.50 per cent of Bt. cotton growers belonged to the medium category of knowledge, whereas 27.50 per cent and 15.00 per cent Bt. cotton growers belong to low and high level of knowledge,

respectively.

The results deduced that majority 72.50 per cent of the respondents belonged to medium to high category of knowledge about recommended cultivation practices of Bt. cotton. The potential reason for the above fact could be that the Bt. cotton growers had medium to high extension contact which results in medium to high participation in various training programme. Due to medium to high level of participation the knowledge about the improved cultivation practices of Bt. cotton was at medium to high level.

These findings are in line with the findings of Kumar (2012) [3], Manoj *et al.* (2013) [4], Dhepe (2014) [1], Kadu (2016) [2] and Sundresha *et al.* (2020) [5].

Table 2: Practice wise distribution of respondent according to their knowledge of recommended cultivation practices of Bt. Cotton. N=120

SL. No.	Items/practice	Knowledge	
		Frequency	Per cent
A Sowing			
1	Sowing time of Bt. cotton	66	55.00%
2	Spacing of Bt. cotton	56	46.66%
3	Dibbling method of sowing	60	50.00%
4	Variety of Bt. cotton	65	54.16%
5	Sowing of non-Bt. cotton around Bt. cotton as a trap crop	58	48.33%
6	Seed rate of Bt. cotton	57	47.50%
B Seed treatment			
1	Seed treatment of thiram and azatobactor	49	40.83%
C Fertilizer dose			
1	Doses of fertilizer and micronutrient	98	81.66%
D Plant protection measures			
1	Types of weedicides to control different weeds	103	85.83%
2	Critical growth stages of Bt. cotton for irrigation	109	90.83%
3	Spraying growth regulator to control square dropping	108	90.00%
4	Different insect pest and their control measures	106	88.33%
5	Reddening is Mg. deficiency in Bt. cotton	109	90.83%
E Harvesting period			
1	Time of picking of Bt. cotton	118	98.33%

Knowledge is an important variable which determines the use and application of recommended Bt. cotton production technology. Regarding sowing time of Bt. cotton it was noticed that most 55.00 per cent of the respondents had knowledge about sowing time of Bt. cotton, 46.66 per cent of respondents were having knowledge about spacing, while 50.00 per cent respondents had knowledge regarding dibbling method of sowing.

It was also observed that 54.16 per cent of respondents know about recommended variety. 48.33 per cent of respondents had knowledge about sowing of non-Bt. cotton around Bt. cotton as a trap crop. It was delighted to know from table no. 4.11 that 47.50 per cent respondents had knowledge about seed rate of Bt. cotton, 40.83 per cent of respondents had knowledge about seed treatment of thiram and azatobactor.

About 81.66 per cent of respondents had knowledge about doses of fertilizer and micronutrient, 85.83 per cent of the respondents had knowledge about different types of weedicides to control different weeds in Bt. cotton and 90.83 per cent of the respondents having knowledge about critical growth stages of Bt. cotton for irrigation.

Further it was observed that 90.00 per cent of the respondent had knowledge about spraying growth regulators to control square dropping. It was also notice that 88.33 per cent of the respondents were aware about different insect pest and their control measure in Bt. cotton.

It was noticed that 90.83 per cent of the respondent had knowledge about reddening is Mg. deficiency in Bt. cotton. It

was found that 98.33 per cent of the respondents had knowledge about time of picking of Bt. cotton.

Coefficient of correlation between profile and knowledge of recommended cultivation practices of Bt. Cotton by Bt. Cotton growers

Table 3: Distribution of respondents according to their relationship of personal characteristic of Bt. cotton growers with the knowledge

SL. no.	Independent variable	Correlation coefficient (r)
1	Farming experience	0.413**
2	Education	0.228*
3	Annual income	0.306**
4	Land holding	0.372**
5	Area under Bt. cotton	0.318**
6	Extension contact	0.303**
7	Source of information	0.371**
8	Irrigation facilities	0.219*
9	Risk orientation	0.241*

Note: **=Significant at 0.01 per cent level of probability.

*=Significant at 0.05 per cent level of probability.

NS= Non-significant

It is conspicuous from table 3 that the result of correlation (r) showed that the independent variables namely farming experience, annual income, land holding, area under Bt. cotton, extension contact, use of sources of information are positively highly significant with the knowledge and education, irrigation facility, risk orientation are positively

significant related with the knowledge of recommended Bt. cotton cultivation practices by the farmers.

Regarding the relationship between the personality trait selected and the knowledge of Bt. cotton growers, it is found that farming experience, annual income, land holding, area under Bt. cotton, extension contact, source of information had positive and highly significant relationship with knowledge while annual income, irrigation facilities and risk orientation had positive and significant relationship with knowledge of recommended cultivation practices of Bt. cotton.

Conclusion

It was found that the majority of Bt. cotton growers had a medium level of farming experience, a medium yearly income, a medium to large amount of land under cultivation, and a medium to high Bt. cotton coverage rate. Nearly half of Bt. cotton growers used bore wells and wells as a source of irrigation. The majority of Bt. cotton farmers reported moderate to high extension contact, information sources, and risk orientation. It was also plainly shown that two thirds of Bt. cotton growers use the suggested methods for growing the crop. It is discovered that annual income and extension contact have a positive and significant link with knowledge with regard to the relationship between the personality trait chosen and the knowledge of recommended cultivation practices by Bt. cotton growers.

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