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SELECTED PERSONAL AND SOCIO-ECONOMIC CHARACTERS OF BT COTTON GROWERS

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Abstract

Cotton is a major commercial crop in India, but has substantial problems particularly from extensive pest damage and poor yields. Bt cotton offers a promising solution to these serious problem. It may prove beneficial to know socio-economic characteristics of the bt cotton cultivators as well as their knowledge about bt cotton. Generally, it is found that all the farmers residing in the same community do not adopt improved agricultural technology to the same extent. This may be because of several reasons such as personal, socio-economic characters which are related to the adoption of improved agricultural practices. Factors which affect these phenomena are age, education, size of family, social participation, mass media exposure, extension participation, occupation, size of landholding, annual family income and irrigation potential. Most of the bt cotton growers were of middle age group, higher secondary educated having small family, members of any organization and three forth of them had medium mass media exposure, extension participation. Majority of the bt cotton grower had farming as main business and landholding above three hectare.

Key words : Bt cotton, agricultural technology, genetic resistance, annual family income.

Introduction

Many countries have reported positive experiences with bt cotton. This includes USA, China and Australia. Bt cotton has spread very rapidly in China. There is good demand for it from the farmers, since it reduces the cost of pesticide applications as well as the exposure to pesticides cotton is a major cash crop of India. It is grown under rainfed as well as irrigated conditions and the major cotton producing States include Maharashtra, Gujarat, Andhra Pradesh, Punjab, Karnataka and Madhya Pradesh. The productivity of cotton in India is, however, very low. The pest problem in cotton is one of the worst among all crops. The main pest is boll worms and the largest quantity of pesticides among all crops is applied to control pests in cotton – often with little success. In China the government has played a major role in providing GM technology to the farmers Since chemical control of insects and pests is one of the most costly aspects of crop production (estimated to be 53.5 billion annually worldwide) production of crop against insect damage through use of bt gene has proven to be quite effective (Jamer, 2000). The adoption of bt cotton would be closely related to its benefits to the farmers and therefore it is important to examine the impact of bt cotton on the economics of cotton cultivation (Pray *et al.*, 2002). What is seen as a significant milestone for Indian agriculture at the end of March, 2002 is that the Central Government allowed commercial cultivation of the country's first ever genetically engineered crop, the controversial bt cotton developed by the Maharastra hybrid seed company (Mahyco) in collaboration with the US based life science major Monsanto Bt cotton has several advantages over non-Bt cotton. Important advantages of bt cotton include increase in yield, protection from bollworms, reduction in pesticide use, reduction in cost of cultivation, reduction in environmental pollution, genetic resistance, eco-friendly, no adverse effect on parasites, predators and beneficial insects and no health hazards. It also induces earliness.

Methodology

Cotton cultivation in general and especially in Vadodara district is said to be beneficial enterprise. The present study was conducted in Vadodara district of Gujarat, where four taluka out of twelve taluka were selected for the study. After selection of talukas, a list of bt cotton growing villages was obtained from the office of Assistant Director of Agriculture, Vadodara. From the list of bt cotton growing villages of four talukas, five villages were randomly selected from each taluka. Thus,

the total number of selected villages was twenty. Cotton growers cultivating bt cotton for last one year for each selected village was obtained from the concerned Village Level Worker and with the random sampling method 8 bt cotton growers were selected from each village. Thus, 160 respondents formed a sample of study. The respondents were interviewed at their home or at the community place. Before conducting interview the respondents were explained about the purpose of the study.

Results and Discussion

Selected personal, socio-economic and psychological characteristics of the bt cotton growers

Age

Age of the respondents at the time of investigation was recorded and they were classified in to three groups.

Table 1 : Distribution of the bt cotton growers according to their age.

(N=160)

S. no.	Age group	Frequency	Per cent
1.	Up to 30 years (young)	18	11.25
2.	31 to 50 years (middle)	110	68.75
3.	Above 50 years (old)	32	20.00
	Total	**160**	**100.00**

From the table 1, it can be concluded that majority of the Bt. Cotton growers were in middle age group.

Education

Formal education of an individual influences his attitude as well as enhances comprehensive ability and skill. These in turn lead to increasing problem solving ability of individual. With this consideration the education of the bt cotton growers was studied.

Table 2 : Distribution of the bt cotton growers education.

(N=160)

S. no.	Level of education	Frequency	Per cent
1.	Illiterate	00	00.00
2.	Primary (1st to 7th std.)	13	08.12
3.	Secondary (8th to 10th std)	47	29.37
4.	Higher secondary (11th to 12th std)	53	33.14
5.	College and above (Above 12th std)	47	29.37
	Total	**160**	**100.00**

The data presented in table 2 indicate that 33.14 per cent of the respondents had education up to higher secondary followed by 29.37 per cent and of them who had college and above and secondary level of education respectively. It can be concluded that majority of the respondents had education up to higher secondary level and above. The probable reason for this might be that the good education facilities were available in vadodara district from very ancient time.

Size of family

Size of family refers to the number of persons present in their family. The respondents were classified according to their size of family in following two groups.

Table 3 : Distribution of the bt cotton growers according to their size of family.

(N=160)

S. no.	Category	Frequency	Per cent
1.	Small (upto 5 members)	103	64.38
2.	Large (more than 5 members)	57	35.62
	Total	**160**	**100.00**

The data presented in table 3 make, it clear that majority (64.38 per cent) of the respondents were found with small size of family whereas only 35.62 per cent of them were found with large size of family. It is in conformity with the finding of Patel (1998).

Social participation

Social participation brings an individual in close contact with other members of social organizations. This provides an opportunity to exchange their ideas, information's and helps them in getting information about farm innovations.

Table 4 : Distribution of the bt cotton growers according to their social participation.

(N=160)

S. no.	Category	Frequency	Per cent
1.	No membership	56	35.00
2.	Membership in one organization	39	24.37
3.	Membership in more than one organization	35	21.88
4.	Holding position	30	18.75
	Total	**160**	**100.00**

It is seen from the table 4 that 35.00 per cent of the respondents had no membership in any organization followed by 24.37 per cent and 21.88 per cent who had membership in one organization and membership in more than one organization respectively. Only 18.75 per cent of the respondents were position holders.

Mass media exposure

The data depicted in table 5 indicate that majority of the respondents (77.50 per cent) had medium exposure to mass media followed by 15.62 per cent of the respondents, who had low exposure to mass media. Only 06.88 per cent of the respondents had high exposure to mass media.

Table 5 : Distribution of the bt cotton growers according to their mass media exposure.

(N = 160)

S. no.	Category	Frequency	Per cent
1.	Low exposure (Below 4 score)	25	15.62
2.	Medium exposure (4 to 10 score)	124	77.50
3.	High exposure (Above 10 score)	11	06.88
	Total	**160**	**100.00**

The probable reason might be better economic condition and education level of cotton growers.

Extension participation

Extension participation referred to the extent of involvement of the respondents in various extension educational activities.

Table 6 : Distribution of the bt cotton growers according to their extension participation.

(N = 160)

S. no.	Category	Frequency	Per cent
1.	Low (less than 1 score)	22	13.75
2.	Medium (1 to 9 score)	118	73.75
3.	High (above 9 score)	20	12.50
	Total	**160**	**100.00**

The data presented in table 6 indicate that majority of the respondents (73.75 per cent) had medium extension participation followed by 13.75 per cent of them who had low and 12.50 per cent had high extension participation, respectively. It can be concluded from the table 8 that majority of the respondent (73.75 per cent) had medium extension participation.

Occupation

The data presented in table 7 reveal that majority of the bt cotton growers (88.12 per cent) had only farming as their main occupation, while 07.50 per cent of them had farming + business as their occupation and only 04.38 per cent of bt cotton growers had farming + service as their occupation. None of the bt cotton growers had farming + business + service as occupation. It is inferred that majority of bt cotton growers (88.12 per cent) were doing farming as their main occupation. The probable reason might be that they had large land holding and continuing parent's occupation.

Table 7 : Distribution of the bt cotton growers according to their occupation.

(N = 160)

S. no.	Category	Frequency	Per cent
1.	Farming only	141	88.12
2.	Farming + Service	007	04.38
3.	Farming + Business	012	07.50
4.	Farming + Service + Business	000	00.00
	Total	**160**	**100.00**

8. Land holding

The bt cotton growers, on the basis of their actual size of land holding were classified into four groups.

Table 8 : Distribution of the bt cotton growers according to their size of land holding.

(N = 160)

S. no.	Category	Frequency	Per cent
1.	Marginal (Up-to 1.00 ha)	02	01.25
2.	Small (1.01 to 2.00 ha)	14	08.75
3.	Medium (2.01 to 3.00 ha)	17	10.63
4.	Large (Above 3.00 ha)	127	79.37
	Total	**160**	**100.00**

The data presented in table 8 clearly indicate that majority of the respondents (79.37 per cent) had land holding above 3.00 hectares followed by 10.63 per cent and 08.75 per cent, of them who had land holding between 2.01 to 3.00 hectares and 1.01 to 2.00 hectares, respectively. Only 1.25 per cent of respondents had land holding up-to 1 hectare. From the above facts, it can be concluded that majority of the bt cotton growers were big farmers.

Annual family income

It refers to the total annual earning of family through

all sources. The respondents were categorized in three groups as follows.

Table 9 : Distribution of the bt cotton growers according to their annual income.

(N = 160)

S. no.	Category	Frequency	Per cent
1.	Low (Upto Rs.50,000/-)	36	22.50
2.	Medium (Rs.50,001 to Rs.1,00,000/-)	53	33.12
3.	High (Above Rs.1,00,000/-)	71	44.38
	Total	**160**	**100.00**

The data depicted in table 9 reveal that 44.38 per cent of the bt cotton growers had annual income above Rs. 1,00,000/- followed by one third *i.e.* 33.12 per cent of bt cotton growers, who had annual income between Rs. 50,001/- to 1,00,000/- and only 22.50 per cent of the bt cotton growers had annual income upto Rs. 50,000/-. it can be concluded that majority of the bt cotton growers (77.50 per cent) had medium to high level of annual income. The reason might be that most of the bt cotton growers were big farmers. The finding is in line with finding of Christian (2001).

Irrigation potentiality

Irrigation is indeed the breath of agriculture. Quite often, it plays a decisive role in the selection of crop varieties, cropping pattern, intensity of cropping, crop combination and time of sowing the crop. Assured irrigation affect the adoption of certain agricultural innovation like chemical fertilizer, new variety etc. The respondents classified on the basis of irrigation potential were as follows.

Data presented in table 10 indicate that all the bt cotton growers had more than 100 per cent irrigation potential. The reason might be that bt cotton growers had more than one source of irrigation. Some farmers had an open well with horizontal bore and canal irrigation facility while some farmers had an open well with horizontal bore and pond for irrigation. Therefore, they might have a high irrigation potential.

Table 10 : Distribution of the bt cotton growers according to their irrigation potentiality.

(N = 160)

S. no.	Category	Frequency	Per cent
1.	Upto 25 per cent	00	00
2.	26 to 50 per cent	00	00
3.	51 to 100 per cent	00	00
4.	More than 100 per cent	160	100.00
	Total	**160**	**100.00**

Conclusion

Majority of the bt cotton growers (68.75 per cent) belonged to middle age group about one third of them had education up to higher secondary level. Majority of bt cotton growers (64.38 per cent) were found with small size of family. Nearly one fourth of the bt cotton growers (24.37 per cent) had membership in one organization. Slightly more than three fourth of the bt cotton growers (77.50 per cent) had medium level of mass media exposure. Slightly less than three fourth of the bt cotton growers (73.75 per cent) had medium level of extension participation. A great majority of the bt cotton growers (88.12 per cent) had only farming as their main occupation. Majority of the bt cotton growers (79.39 per cent) had land holding above 3.00 hectares. More than two fifth (44.38 per cent) of the bt cotton growers were found in high income group. All bt cotton growers had more than hundred percent irrigation potential. It is hoped that this study will be much useful to different categories of personnel concerned with development of agriculture.

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