

Constraints faced by Cotton Growers in Bt. Cotton Cultivation

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Introduction

Bt. Cotton is the most extensively studied cotton variety today. Scientific studies conducted in India and abroad demonstrate that Bt.Cotton and its products are safe for the environment, humans, animals and agriculture. "Bt" is the short form of *Bacillus thuringiensis*, a naturally occurring gram-positive soil bacterium. During 2005, India had the largest proportional increase in area under Bt.Cotton from 5 lakh hectares during 2004 to 13 lakh hectares in 2005. This has brought down the sale of non- Bt-Cotton seeds from 15 lakh packets last year to five lakh packets (Anonymous, 2006).

In India where the farmers cultivated biotech crop for the first time ever, the field results have enthused the supporters of this technology. According to the findings released by Mahyco-Monsanto, which introduced Bt. Cotton in the country the farmers earned an extra income of about Rs. 7,000/- per acre with Bt. Cotton, the pesticide use against bollworms dropped by 65-70 per cent on most farms, and the average yield is reported to have increased by 30 per cent. On the other hand, there is still some gap between the farmer's level of adoption and technologies given by the researchers.

Empirical evidence shows that the adoption of recommended farming technologies gives high production and income to the farmers, yet many of them are reluctant to accept those technologies due to some limitations. These limitations may be technical, economic, socio-psychological or infrastructural/administrative. Delineation of constraints under each category, in adopting the recommended technologies, would help the research and extension system to strengthen the efforts and bridge the gap between technology transfer and adoption. This might be overcome by providing user friendly technologies and providing solution to farmers constraints in the adoption of the said technologies. Keeping all this points in mind, the present study was carried out with the following objectives:

1. To identify the constraints faced by the cotton growers in cultivation of Bt.Cotton
2. To obtain suggestions to overcome the constraints faced by the cotton growers in cultivation of Bt cotton.

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Methodology

For the present investigation Mehsana Taluka of Mehsana district of Gujarat State was selected purposively, because various programmes on cotton cultivation are implemented by the State Government and KVK through Cotton Mini Mission-II from the last two-three years in the district. It is one of the potential Talukas of the state, where agriculture is well developed and a majority of the population of the district is dependent upon agriculture and animal husbandry. The farmers of the region are progressive in nature and adopt new technologies in their farming. Thus, many of the cotton growers of this taluka have adopted Bt-Cotton since the last 6-7-years.

It was felt necessary to know the problems of the cotton growers regarding cultivation of Bt-Cotton and to understand the present status of this technology. So far, there is no any work carried out to understand constraints of the cotton growers in cultivation of Bt-Cotton in this Taluka of the state. Ten villages were selected randomly from Mehsana taluka, and a random sample of 150 cotton growers was purposively selected from the selected villages for the study. The data were collected from the respondents by personal interview. Statistical methods like mean, percentage and rank were used to analyze the data. Data pertains to the year 2007.

Results and Discussion

1. Constraints faced by the Cotton Growers in Cultivation of Bt. Cotton

Some important constraints faced by the cotton growers in Bt. Cotton cultivation are presented here. The respondents were requested to express the constraints faced by them and from these constraints the most important ones were shortlisted and ranked according to their frequency and percentage and are presented in Table 1.

The presentation of the data in table 1 clearly indicates that among the most important constraints of the cotton growers in cultivation of Bt. Cotton, the first was the high price of seed mentioned by cent per cent of the cotton growers. It is a fact that price of the Bt. Cotton seed is always higher as compared to the other crops. Though the government has fixed the prices of Bt. Cotton, farmers may not get the seeds in sufficient quantity from government agencies and forced to obtain the seeds from private parties. Secondly farmers may not have cash at the time so they have to purchase the seeds from other sources. The second major problem of the farmers in cultivation of Bt. Cotton was the duplicate seed or unavailability of pure seed faced by nearly 70.00 per cent of the respondents. The possible reason for this constraint may be the presence of private parties and local breeders producing Bt. seeds. Due to unavailability of money at the

time of sowing or unawareness regarding government schemes, farmers are generally obtaining the seeds from these dealers and there may be chances of getting duplicate seeds. The government should made available sufficient quantity of seeds for farmers and efforts should be made to improve awareness among the farmers regarding this. Another constraint was heavy infestation of sucking pests observed by more than half (56.67 per cent) of the cotton growers. This is true because the variety is mainly resistant against boll worm complex of cotton. While the boll worm complex is effectively controlled, on the other hand infestation by sucking pests like aphids, jassids and white fly have increased.

Table 1. Constraints faced by the Cotton Growers

N=150

No.	Constraints	No.	Per cent	Rank
1.	High price of seed	150	100.00	I
2.	Duplicate seed or unavailability of pure seed	104	69.33	II
3.	Heavy infestation of sucking pests	85	56.67	III
4.	Cheating by companies and local breeders in seeds	79	52.67	IV
5.	Improper vegetative growth	59	39.33	V
6.	Not suitable for monsoon because branches break down due to rain	45	30.00	VI
7.	Difficulty in weed control	39	13.33	VII
8.	Lack of technical knowledge	70	46.67	VIII

For this farmers may have to be trained for effective control measures of sucking pest in Bt. Cotton. Cheating by companies and local breeders in seeds was the constraint faced by 52.67 per cent of the cotton growers. As discussed earlier, due to paucity of capital and lack of awareness of government schemes or lack of advanced planning, farmers may be cheated by the local breeders or by the companies either through faulty seeds or high price of the seeds. Farmers should be aware for proper planning and purchase the seeds well in advance from government agencies. A little less than half (46.33 per cent) of the cotton growers indicated lack of technical knowledge of cultivation of Bt. Cotton. The farmers need to be trained on these aspects. While 39.33 per cent of the cotton growers mentioned that vegetative growth of the plant is improper in Bt. Cotton, one fifth of them (30.00 per cent) pointed out that the variety was not suitable for the monsoon because branches broke down due to rain. Difficulty in weed control was the constraint faced by 13.33 per cent of the cotton growers.

2. Suggestions to Overcome the Constraints

Information was also collected from cotton growers regarding suggestions to overcome the constraints faced by them. Important suggestions are presented in Table 2. It is evident from the data presented in table 2 that of the major suggestions given by the cotton growers, development of sucking pest resistant variety suggested by 98.67 per cent of the respondents ranked first, while 96.67 per cent suggested timely availability of pure seeds and at low cost. Though heavy infestation by sucking pest was mentioned as a constraint by only 56.67 per cent of the respondents, there were a greater number suggesting development of sucking pest resistant variety in view of the future.

The suggestion that there should be ample production of seeds by Government Institutions was given by 86.67 per cent of the cotton growers and was ranked third. Over half of the respondents (59.33 per cent) gave suggestions regarding development of a variety suitable to all types of soils, 56.67 per cent of them suggested provision of training to farmers regarding cultivation of Bt. Cotton and only 26.00 per cent suggested incorporation of Bt. gene with the local variety.

Table 2. Suggestions by the Respondents

N=150

No.	Suggestion	No.	Percent	Rank
1.	Sucking pest resistant variety should be developed.	148	98.67	I
2.	Pure seed should be available in time and at low cost.	145	96.67	II
3.	there should be ample production of seeds by Govt. Institutions	130	86.67	III
4.	Variety suitable to all types of soil should be developed	89	59.33	IV
5.	Govt. should provide training to farmers.	85	56.67	V
6.	Bt. gene should be incorporated with local variety.	39	26.00	VI

Conclusion

It is concluded from the study that the major constraints faced by the cotton growers in cultivation of Bt. Cotton were high price of seed, duplicate seed or unavailability of pure seed, heavy infestation of sucking pests, cheating by companies and local breeders in seeds, improper vegetative growth, unsuitable for monsoon because branches break down due to rain, difficulty in weed control, and lack of technical knowledge.

Important suggestions offered by the respondents to overcome the constraints were development of sucking pest resistant variety, availability of pure seed in time and at low cost, provision of training to the farmers by Government, development of variety which is suitable to all types of soils, followed by incorporation of Bt. Gene with local variety and production of ample seeds by Government institutions.

References

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