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Constraints in Bt cotton cultivation as perceived by the farmers and dealers

Sanjiv Kumar, CR Bharodia, Sarita Meena and Bhupendr Singh Tyagi

Abstract

A study was conducted in Beawer area of Ajmer district, Rajasthan during 2015-16 to know the constraints in Bt cotton cultivation perceived by farmers and dealers than recorded that the problems faced by Bt cotton farmers like insect pest and disease attack and high price of input secured first and second place with a mean score of 58.86 and 55.40 respectively, followed by high charges for labour work with a mean score of 50.58, low price of produce, lack of knowledge and low production were the minor constrains with the mean score of 48.95, 44.21 and 40.48 respectively. Problems faced by dealers in marketing of Bt cotton seeds were competition among dealers and lower credit facility is occupied first and second place with a mean score of 77.20 and 76.60, respectively, followed by field staff provided by company with a mean score of 60.70, provision of promotional scheme by the company with a mean score of 55.70. Advertisements, lack of storage facility, high transportation cost, non-availability of seeds, poor quality of Bt cotton seeds and higher price of Bt cotton seeds were the minor problems in their order.

Keywords: Farmers, dealers, constraints, Bt cotton cultivation

Introduction

Cotton is one of the major fibre crops of global significance. It is cultivated in tropical and sub tropical regions of more than eighty countries of world occupying nearly 33 m ha with an annual production of 19 to 20 million tonnes of bales. China, USA, India, Pakistan, Uzbekistan, Australia, Brazil, Greece, Argentina and Egypt are major cotton producing countries. These countries contribute nearly 85.00 per cent of the global cotton production. In India, cotton is being cultivated in 9 m ha and stands first in acreage. Nearly 60 million people are engaged in cotton production, marketing and processing. The textile industry which utilizes the cotton provides employment to about 16.00 per cent of the total workforce.

In cotton, the first transgenic plant was developed in 1987 in USA by Monsanto, Delta and Pine companies. Later on, the research work on development of transgenic was intensified all over the globe and several transgenic plants were developed. The introduction of Bt cotton has provided growers with a new tool for managing bollworms in cotton. Numerous benefits of this technology accrue to the grower, the global cotton industry, and society on many levels-economic, environmental and social. These benefits include direct benefits, such as reduced pesticide use, improved crop management effectiveness, reduced production costs, improved yield and profitability, reduction in farming risk and improvement opportunity to grow cotton in areas of severe pest infestation. Indirect significant benefits of the technology include improved populations of beneficial insects and wildlife in cotton field, reduced pesticides runoff, air pollution and waste from the use insecticides, improved farm worker and neighbour safety, reduction in labour costs and time, reduction in fossil fuel use and improved soil quality. The most significant benefit of biotech cotton to date has been the reduction in insecticidal usage for the control of certain bollworms.

The major advantages of Bt cotton are summarized below

1. The Bt cotton has inbuilt genetic resistance to bollworms and is very effective in controlling the yield losses caused by bollworms to a considerable extent. The resistance is governed by a single dominant gene.
2. Use of Bt cotton reduces use of pesticides resulting in reducing the cost of cultivation.
3. It results in improvement of yield levels and also improves margin of profit to the farmers.
4. It provides opportunities to grow cotton in areas of severe bollworm incidence.
5. It promotes eco-friendly cultivation of cotton and allows multiplication of beneficial insects i.e., parasites and predators of bollworms.

6. It also reduces environmental pollution and risk of health hazards associated with use of insecticides because in Bt cotton the insecticides are rarely used.

In spite of these some constraints are present in the farmers community as well as dealers so, the cultivation of cotton is not to be cultivated as usual. That's why this study was carried to know the major constraints in Bt cotton cultivation at farmers and dealers level.

Materials and Methods

The Garrett's ranking technique was used to study the problems faced by dealers and farmers in particular area regarding marketing and growing respectively, and this technique was taken in analysis of promotional strategy for selling of Bt cotton seed in particular area.

The ranking was calculated through the following formula

$$\text{Per cent position} = \frac{100 (R_{ij} - 0.5)}{N_j}$$

Where,

R_{ij} = Rank given to the i^{th} attribute by the j^{th} individual

N_j = Number of attributes ranked by the j^{th} individual

By referring to the Garrett's table, the per cent positions estimated will be converted into scores. Thus for each factor the scores of the various respondents were added and then mean value was estimated. The attributes with the highest value was considered as the most important one and the other followed in order.

Results and Discussion

Problems faced by farmers

The schedule contain statements under following heads viz.

- Insect pest and disease attack
- High price of inputs
- High charges for labour work
- Low production
- Lack of knowledge
- Low price of produce

The farmers were asked to rank the statements given under each head according in their order of merit. Garrett's ranking technique was adopted to analyze the views of the farmers. The order of merit thus given by the farmers for each statement under each head was converted into ranks by using the following formula.

$$\text{Per cent position} = \frac{100(R_{ij} - 0.5)}{N_j}$$

Where

R_{ij} = Rank given for the i^{th} statement by j^{th} farmers

N_j = Number of statements ranked by j^{th} farmers

The per cent position of each rank thus obtained was converted into scores by referring to the table given by Garrett. Then for each statement, the scores of individual farmers were added together and divided by the total number of farmers. The mean scores for all the statements were arranged in an ascending order, ranks were assigned and the important statements identified.

Table 1: The problems faced by Bt cotton farmers in Beawer area of Ajmer district

Sr. No.	Problems	Mean score	Rank
1	Insect pest and disease attack	5886/100=58.86	I
2	High price of inputs	5540/100=55.40	II
3	High charges for labour work	5058/100=50.58	III
4	Low production	4048/100=40.48	VI
5	Lack of knowledge	4421/100=44.21	V
6	Low price of produce	4895/100=48.95	IV

As per data depicted in table 1 and fig. 1 the problems faced by Bt cotton farmers in Beawer area like insect pest and disease attack and high price of input secured first and second place with a mean score of 58.86 and 55.40 respectively, followed by high charges for labour work with a mean score of 50.58, low price of produce, lack of knowledge and low production were the minor constrains with the mean score of 48.95, 44.21 and 40.48 respectively. Several endvours also made by Yadav *et al.* (2002) and Yadav *et al.* (2007) [6].

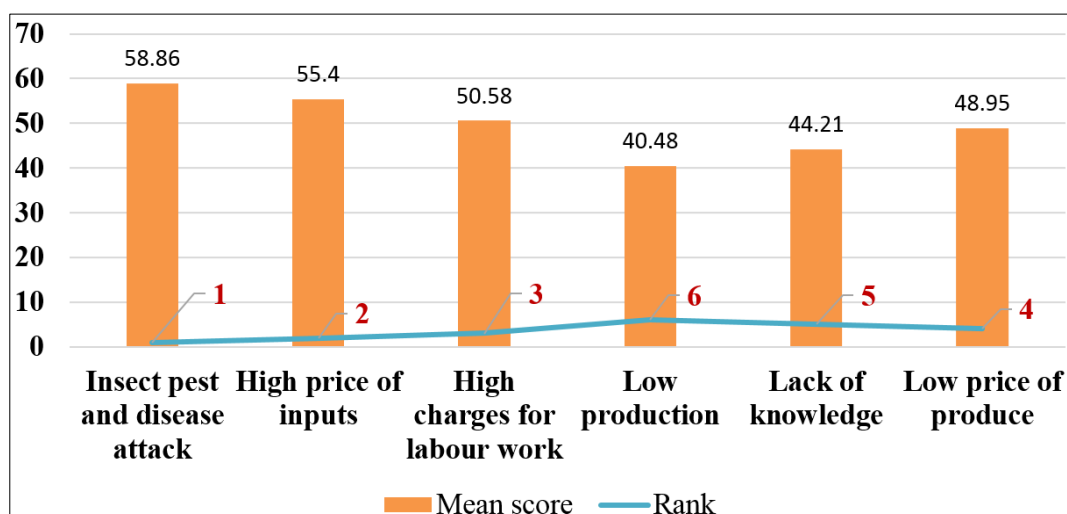


Fig 1: Mean score and ranking of problems faced by farmers

Problems faced by dealers

In order to analyze the preference type of problems for Bt cotton seeds dealers, personal interview method was

employed with the help of structured questionnaire schedule. The schedule contain statements under following heads viz.

- Competition among dealers

- b. Poor quality of Bt cotton seeds
- c. Non-availability of Bt cotton seeds
- d. High transportation cost
- e. Lack of storage facility
- f. Lower Credit facility
- g. Field staff
- h. Promotional scheme
- i. Advertisement

The dealers were asked to rank the statements given under each head according in their order of merit. Garrett's ranking technique was adopted to analyze the views of the dealers. The order of merit thus given by the dealers for each statement under each head was converted into ranks by using the following formula.

$$\text{Per cent position} = \frac{100(R_{ij} - 0.5)}{N_j}$$

Where

R_{ij} = Rank given for the i^{th} statement by j^{th} dealers

N_j = Number of statements ranked by j^{th} dealers

The per cent position of each rank thus obtained was converted into scores by referring to the table given by Garrett. Then for each statement, the scores of individual dealers were added together and divided by the total number of dealers. The mean scores for all the statements were arranged in an ascending order, ranks were assigned and the important statements identified.

Table 2: The problems faced by dealers in marketing of Bt cotton seeds in Beawar area of Ajmer district.

Sr. No.	Problems	Mean score	Rank
1	Competition among dealers	772/10=77.20	I
2	Poor quality of Bt cotton seeds	328/10=32.80	IX
3	Non-availability of Bt cotton seeds	409/10=40.90	VIII
4	High transportation cost	460/10=46.00	VII
5	Lack of storage facility	494/10=49.40	VI
6	Lower Credit facility	766/10=76.60	II
7	Field staff	607/10=60.70	III
8	Promotional scheme	557/10=55.70	IV
9	Advertisement	525/10=52.50	V
10	Higher Price of Bt cotton seeds	180/10=18.00	X

The data in table 2 and fig. 2 showed the problems faced by dealers in marketing of Bt cotton in Beawar area were competition among dealers and lower credit facility is occupied first and second place with a mean score of 77.20 and 76.60, respectively, followed by field staff provided by company with a mean score of 60.70, provision of promotional scheme by the company with a mean score of 55.70.

Advertisements, lack of storage facility, high transportation cost, non-availability of seeds, poor quality of Bt cotton seeds

and higher price of Bt cotton seeds were the minor problems in their order. These results are accordance with the findings of other scientists i.e. Krishna and Sireesha (2007) [4], Anitha *et al.* (2008) [2], Achoja *et al.* (2010) [1] and Kumar *et al.* (2010) [5] who reported that the main constraints faced by the cotton grower were non availability of improved variety seeds, manure and fertilizers at time lack of knowledge regarding weed control and back of regulated market for sale.

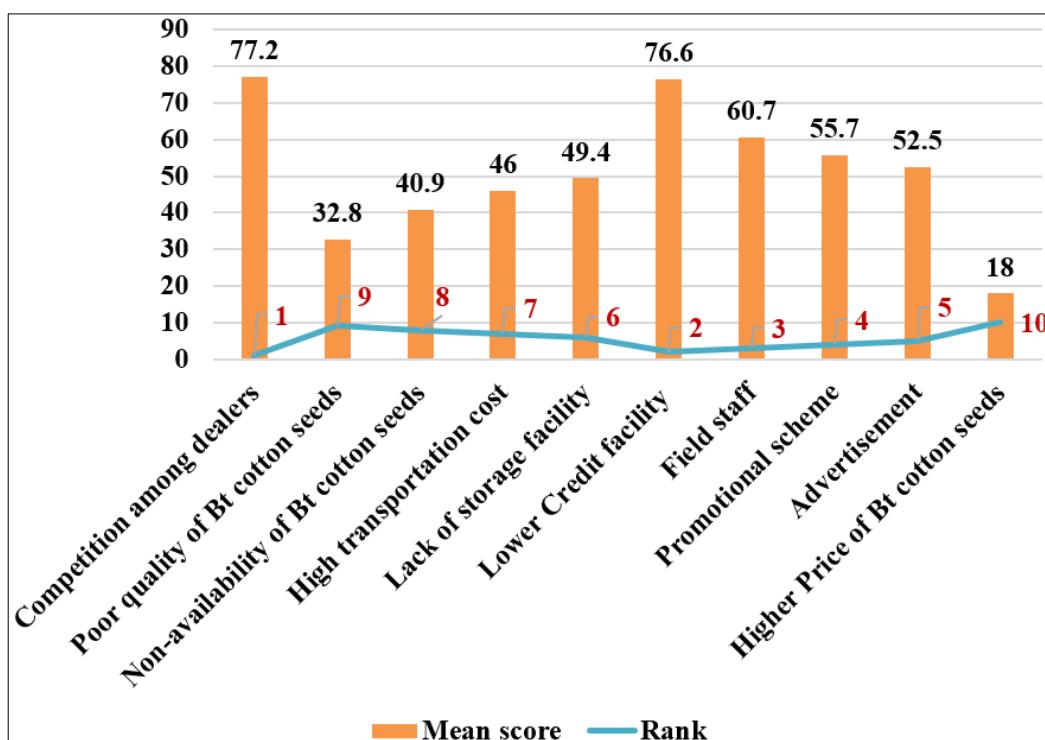


Fig 2: Mean score and ranking of problems faced by dealers in marketing of Bt cotton seeds.

Conclusion

Based on the results of the findings, the following conclusions were made: Insect pest and disease attack and high price of inputs for farmers and competition among the dealers and lower credit facility for dealers are the major constraints for cultivation of Bt cotton in Beawer area of Ajmer district. The finding of present study provides the empirical feedback to agricultural departments, state agriculture universities and various non-governmental organizations working in agricultural and allied departments to strengthen the research extension- farmer linkage by providing credible and timely information to the farming community.

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