Constraints Faced by Cotton Farmers in Management of Cotton Cultivation in Madhya Pradesh, India

ABSTRACT

The study was conducted in ten purposively selected villages of Khandwa district of Madhya Pradesh on the basis of large area under cotton crop and a total of 200 farmers selected by the proportionate random sampling technique. An interview schedule was prepared for collection data relating to constraint faced by cotton growers. They faced in growing cotton to lack of knowledge about improved scientific practices in cotton crop (89.50%), insufficient training programs (88.00%), insufficient demonstration of improved technology (83.50%), lack of technical knowledge about pheromone and sticking trap (81.00%), high price & poor quality of Bt. cotton seeds (79.50%), lack of information regarding upcoming abnormal weather conditions (78.00%), lack of coordination between farmer and agriculture institution (76.50%), scarcity of labour at the plucking stage (73.50%), a decline in the yield of cotton due to insects (71.00%), lack of technical knowledge about the recommended insecticide, pesticide, fungicide and herbicide (68.00%), high costs of fertilizers (65.50%), uneven electricity supply (65.00%), lack of expertise in identifying the crop's pests, diseases, and weeds (63.50%). Farmer has not proper knowledge about improved cultivation practices of cotton crop. So famer should be provided the various training programmes be organized to provide practical knowledge and field demonstrations should be arranged on improved practices.

Keywords: Constraints; cotton; growers; knowledge; management.

1. INTRODUCTION

One of India's most important cash crops is cotton (*Gossypium spp.*). Cotton seeds have the potential to produce fibre, cake, and edible oil. It is also known by the names "White Gold" and "King of Fiber." One of the most basic needs of a person, along with food and housing, is clothing [15]. The total area planted with cotton in the world in 2020–2021 was 31.66 million hectares and production and productivity accounted for 113.11 million bales and 778 kg/hectare respectively. In India during 2020-21 production of Cotton were 352.48 lakh bales cultivated under an area of 132.85 lakh hectares with a productivity of 451 kg per hectare (Committee of Cotton Production and Consumption, COCPC 2022). Among the major Cotton exporting countries in the world, India occupied 3rd positions with 5.5 million bales (USA–16.25 million bales and Brazil –10.70 million bales) (USDA, 2020-21). Cotton grows on an area of around 5.63 lakh million hectares in Madhya Pradesh with a productivity of 404.75 kg/ha and a production of 20.00 lakh bales (2021-22) (cotcorp.gov.in). While the cotton crop gives farmers a high economic return, there are also numerous risks associated with its cultivation. Inputs for growing cotton were also expensive in terms of seeds, fertilizer, and insecticides. It turns out to be a financially risky enterprise if effective management is not exercised. It is a crop that is susceptible to numerous insects and diseases. It is regarded as a dangerous crop because of natural disasters, daily price fluctuations, and other factors. The systematic effort to avert or manage personal or organizational crises is known as crisis management. In order to prevent or manage crises, the practice of crisis management comprises making an effort to get rid of technological failure [1]. The ability to assess, comprehend, and deal with any critical issue, particularly from the time it arises until the start of the healing process, is what crisis management entails. Farmers can find appropriate strategies to survive through crisis conditions with the use of systematic information, preparation, and implementation of some of the key crisis management practices. Government of India implemented many programs and policies to overcome the problems of the farmers in general

and cotton crop in specific, but still many cotton growers committed suicides [2].Therefore, study was conducted to know what are the major constraints faced by cotton growers during cotton cultivation. Hence, constraints are the important bilateral indicators for growth and development of agriculture in general and cotton crop in specific. Keeping this in view, the present study was taken up to study the constraints of the cotton growers.

2. MATERIALS AND METHODS

The present study was conducted during the year 2020-22 in Pandhana and Khandwa blocks of Khandwa district (Madhya Pradesh). A descriptive ex-post-facto research design was used in the current investigation. The fact that the event had already occurred made this design suitable. Ex-post-facto research is the most logical empirical investigation in which conclusions about relationships between variables are drawn without direct intervention from a concurrent variation of independent and dependent variables because the independent variables' emergence has already occurred or because they are inherent and unmanageable [3]. Khandwa district comprises of 7 blocks out of these two blocks namely; Pandhana and Khandwa block were purposively selected, because of highest area under cotton crop. Out of which ten villages were selected on the basis of dominant area under cotton crop. Thus total 10 villages were selected on the basis of larger area under cotton crop from the 10 selected villages and 15% cotton growers were selected from the total cotton growers from each village, 200 cotton growers were selected from village by using proportionate random sampling method to make the total sampling size for the present study (Table 1). Keeping this in view, the present study was taken up to study the constraints of the cotton growers. The outcomes of such frequency have been converted into percentage value with the help of the following formula:

Percentage = Frequency×100 / Total number of respondents ……(i)

The percent position estimated is converted into rank. The constraints having highest percent is considered to be the most important constraint.

3. RESULT AND DISCUSSION

3.1 Constraints Experienced by the Cotton Growers in Adoption of the Recommended Cotton Production Technology

The goal of the current study was to identify the barriers to the respondents' adoption of the suggested cotton producing technology. The information has been presented in Table 2 and Fig. 1. It is observed from Table 2 that among the various constraints, 89.50 % of the respondents reported lack of knowledge about improved scientific practices in cotton crop ranked first followed by insufficient training programmes with 88.00 % and was second rank, followed by insufficient demonstration of improved technology with 83.50 % and was third rank followed by lack of technical knowledge about pheromone and sticking trap with 81.00 % and was fourth rank followed by high price & poor quality of Bt. cotton seeds with 79.50 % and was fifth rank followed by non-availability of information about future aberrant weather conditions with 78.00 % and was six rank followed by lack of co-ordination between farmer and agriculture institution with 76.50 % and was seven rank followed by scarcity of labour at plucking stage with 73.50 % and was eight rank followed by reduction in the yield of cotton due to insects with 71.00 % and was nine rank followed by lack of technical knowledge about the recommended insecticide, pesticide, fungicide and herbicide with 68.00 % and was ten rank followed by high price of fertilizers with 65.50 % and was eleven rank followed by irregular supply of electricity with 65.00 % and was twelve rank followed by lack of knowledge to diagnose the pests , diseases and weeds in the crop with 63.50 % and was thirteen rank. Similar findings were reported by Raghavendra [4], Rai et al. [5], Mahendrakar et al. [6], Goud et al. [7], Kumar et al. [8], Sardhara et al. [9], Ahmad et al. [10] and Shwetha et al. [11].

As seen from the Fig. 1, I is denoted lack of knowledge about improved scientific practices in cotton crop (89.50%), II is insufficient training programmes (88.00%), III is insufficient demonstration of improved technology (83.50%), IV is lack of technical knowledge about pheromone and sticking trap (81.00%), V is high price & poor quality of Bt. cotton seeds (79.50%), VI is non availability of information about future aberrant weather conditions (78.00%), VII is lack of co-ordination between farmer and agriculture institution (76.50%), VIII is scarcity of labour at plucking stage (73.50%), IX is reduction in the yield of cotton due to insects (71.00%), X is lack of technical knowledge about the recommended insecticide, pesticide, fungicide and herbicide (68.00%), XI is high price of fertilizers (65.50%), XII is irregular supply of electricity (65.00%), Lack of knowledge to diagnose the pests, diseases and weeds in the crop (63.50%).

Table 1. Name of selected villages, number of cotton growers and selected of respondents (cotton growers)

S. No.	Name of selected villages	Number of cotton growers	Number of Selected cotton growers
	Block: - Pandhana		
1	Takli	145	22
2	Piperhtti	89	13
3	Kumthi	138	21
4	Borgaon	165	25
5	Pabhai	96	14
	Block: - Khandwa		
1	KhediKitta	113	17
2	Pipliyafool	192	29
3	Jawar	156	23
4	Bamangaon	92	14
5	Dhorani	148	22
	Total		200

Source: - Office of the DDA Khandwa, MP (2020)

Table 2. Constraints experienced by the cotton growers in adoption of the recommended cotton production technology

(n = 200)

S.No.	Constraints	Frequency	Percentage	Rank
1.	Lack of knowledge about improved scientific practices in cotton crop	179	89.50	I
2.	Insufficient training programmes	176	88.00	II
3.	Insufficient demonstration of improved technology	167	83.50	III
4.	Lack of technical knowledge about pheromone and sticking trap	162	81.00	IV
5.	High price & poor quality of Bt. cotton seeds	159	79.50	V
6.	Non availability of information about future aberrant weather conditions	156	78.00	VI
7.	Lack of co-ordination between farmer and agriculture institution	153	76.50	VII
8.	Scarcity of labour at plucking stage	147	73.50	VIII
9.	Reduction in the yield of cotton due to insects	142	71.00	IX
10.	Lack of technical knowledge about the recommended insecticide, pesticide, fungicide and herbicide	136	68.00	X
11.	High price of fertilizers	131	65.50	XI
12.	Irregular supply of electricity	130	65.00	XII
13.	Lack of knowledge to diagnose the pests , diseases and weeds in the crop	127	63.50	XIII

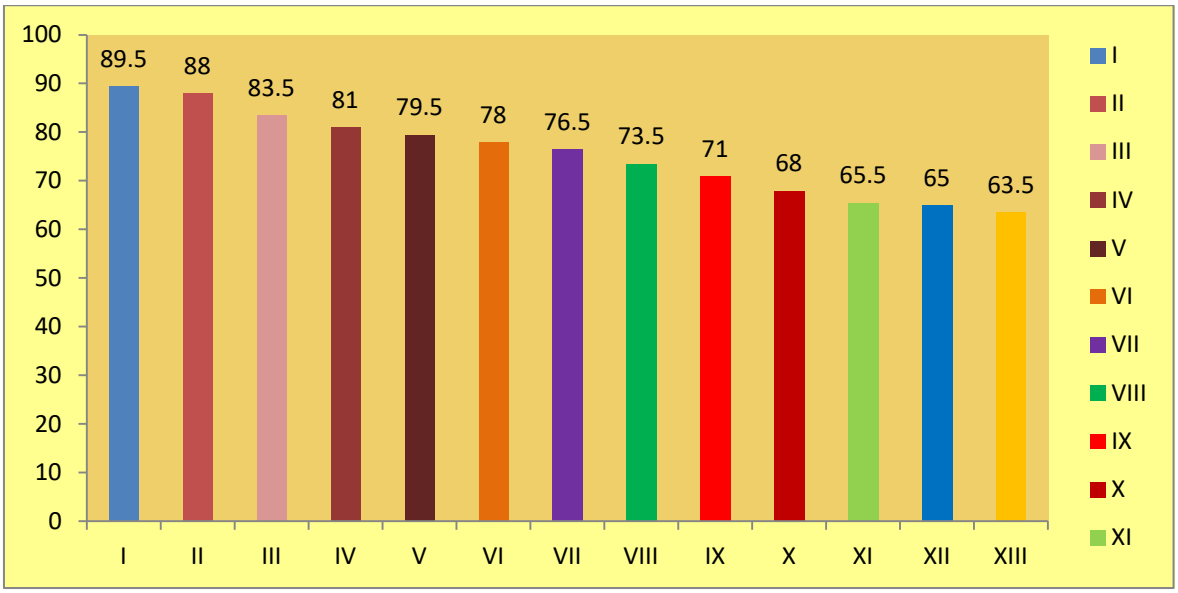

Fig. 1. Constraints experienced by the cotton growers in adoption of the recommended cotton production technology

3.2 Suggestions as Expressed by Cotton Growers to Overcome the Constraints Related to Adoption of Improved Technology of Cotton Crop

Table 3 and Fig. 2 shows that many suggestions as perceived by cotton growers about improved technology of cotton crop. The majority of cotton growers were perceived the suggestions, i.e. Crop related information should be available from time to time (63.50%) ranked I, followed by Good quality of seed should be available (61.00%) ranked II, correct information given about use of (59.50%) ranked III, the necessary information regarding treatment of pink boll worm should be provided (51.50%) ranked IV, low cast seed should be available (44.50%) ranked V, irrigation facility should be available (41.50%) ranked VI, the seed should be availability at right time (39.00%) ranked VII, necessary information should be given by RAEO on time (34.50%) ranked VIII and marketing facilities should be available at village level (26.50%) ranked IX. The findings are similar to the findings of Shelke et al. [12,13], Adejini [14], Gohil et al. [16] and Sardhara et al. [9].

As seen from the Fig. 2, I is denoted crop related information should be available from time to time (63.50%), II is good quality of seed should be available (61.00%), III is correct information given about use of insecticide (59.50%), IV is the necessary information regarding treatment of pink boll worm should be provided (51.50%), V is low cast seed should be available (44.50%), VI is irrigation facility should be available (41.50%), VII is the seed should be availability at right time (39.00%), VIII is necessary information should be given by RAEO on time (34.50%) and IX is marketing facilities should be available at village level (26.50%).

Table 3. Suggestions as communicated by cotton growers to overcome the constraints related to adoption of improved technology of cotton crop

(n = 200)

S.No.	Suggestions	Frequency	Percentage	Rank
1.	Crop related information should be available from time to time	127	63.50	I
2.	Good quality of seed should be available	122	61.00	II
3.	Correct information given about use of insecticide	119	59.50	III
4.	The necessary information regarding treatment of pink boll worm should be provided	103	51.50	IV
5.	Low cost seed should be available	89	44.50	V

6.	Irrigation facility should be available	83	41.50	VI
7.	The seed should be availability at right time	78	39.00	VII
8.	Necessary information should be given by RAEO on time	69	34.50	VIII
9.	Marketing facilities should be available at village level	53	26.50	IX

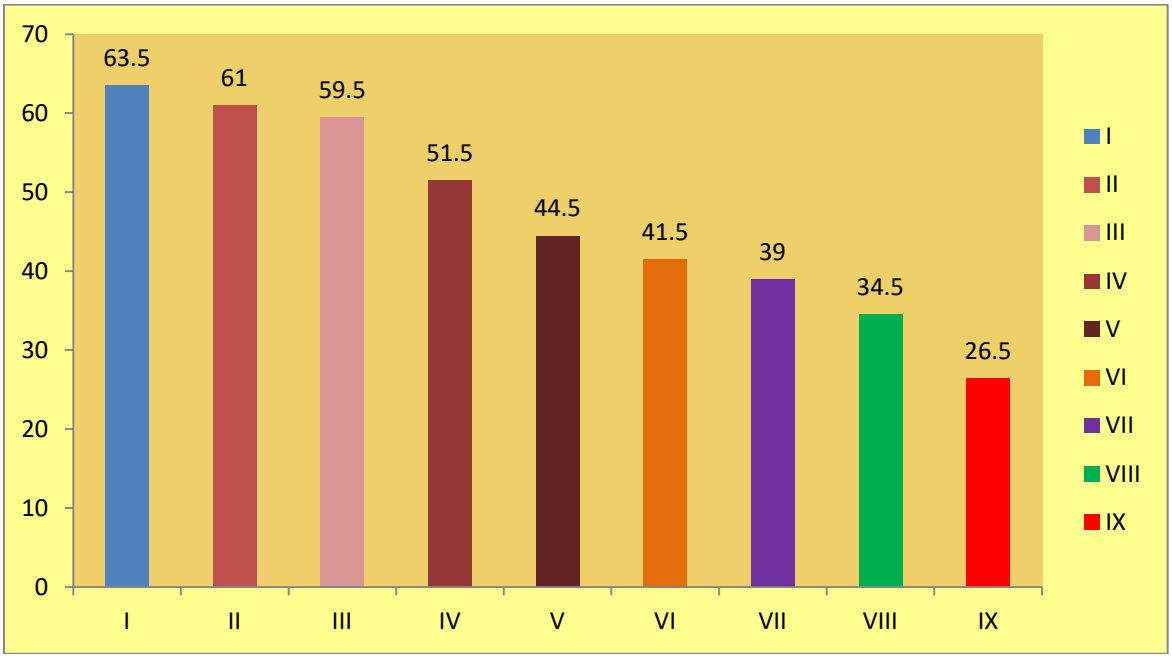

Fig. 2. Suggestions as communicated by cotton growers to overcome the constraints related to adoption of improved technology of cotton crop

4. CONCLUSION

Major constraints faced by cotton growers were Lack of knowledge about improved scientific practices in cotton crop, Insufficient training programmes, Insufficient demonstration of improved technology, Lack of technical knowledge about pheromone and sticking trap, High price & poor quality of Bt. cotton seeds, Non availability of information about future aberrant weather conditions, Lack of co-ordination between farmer and agriculture institution it is suggested that for increasing adoption level of the cotton growers the technical information regarding cotton production should be provided to the cotton growers, provide timely technical advice, good and healthy seed should be provided at proper time, the various training programmes be organized to provide practical knowledge and field demonstrations should be arranged on improved practices.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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