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Assessment of practice-wise feedback of Bt. cotton and constraints faced by the Bt. cotton growers in involvement of feedback management

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Abstract

Study entitled “Involvement of Farmers in Feedback Management with Reference to Bt cotton” was undertaken in Umardhed Panchayat samiti in Yavatmal district of Vidarbha region of Maharashtra state. Ex-post facto research design was used for the present investigation. The farmers growing Bt cotton since last three years consecutively were identified and from each selected village 12 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 regarding all aspects of involvement of farmers in feedback management. In this study feedback means any problems, suggestions, benefits, questions or doubts regarding cultivation practices of Bt. Cotton.

It is evident from the findings of the study that, in case of land preparation, slightly more than half (50.83%) of the respondents were expressed their problems that ploughing charges by tractor is high. One seed is sufficient per hill as plant to plant spacing is less were reported by majority of the respondents (77.50%) followed by 57.50 per cent of the respondents were ssaid that, time for sowing of Bt cotton is best after onset of monsoon having sufficient moisture. With regards to inter-cultivation practices, more than half of the respondents (51.66%) were expressed feedback as difficulty in spraying when the height of plant is more. In case of nutrient management practices, most of the farmers (65.00%) suggested that Government should provide fertilizers at subsidized rate followed by 62.50 per cent of the respondents were in problem of non-availability of FYM in sufficient quantity. Most of the respondents (60.83%) who were in opinion that Government should make available the fertilizers in ample quantity well in advance. Majority of the respondents (80.83%) were identified as pink boll worm is most serious pest in their area, followed by 74.16 per cent of the respondents were reported that use of different techniques of Dr. PDKV, Akola gave good results to control pests.

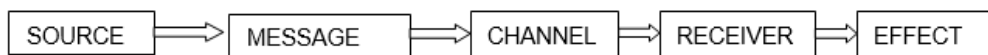
With regards to constraints, major constraints faced by the Bt cotton growers in involvement of feedback management, were untimely message from source, limitation of interpersonal communication with the source, hesitation, faith on fatalism, nature of in-articulation on the part of receivers to provide feedback were the various constraints faced by the Bt cotton growers as respondents.

Keywords: Bt. cotton, constraints faced, feedback management

Introduction

Maharashtra ranks first in Bt. Cotton cultivation over acreage with 4.2 million ha and second in production, yielding 8.5 million bales with average productivity of 343 kg/ha which is low as compared to the national average (505 kg/ha), low productivity is mainly due to maximum area 85-90 percent under rainfed condition. In Vidarbha region, Yavatmal, Amravati, Buldhana, Wardha, Washim, Nagpur and Akola area the prominent district of Cotton cultivation. In Yavatmal district area under Cotton is 4.20 lakh ha and productivity of Cotton 444 kg/ha and production 1.97 million tonnes. Improved technologies of agriculture are transferred to the farmers through various agencies like State Agricultural Universities, State Department of Agriculture Panchayat Raj Institutions, NGOs and So on. However, it is not enough merely to deliver the message or transfer the technology but it is of paramount importance to see the resultant effect of transference of the messages or technologies. It is possible only through management of feedback. Feedback helps the extension personnel to find out the effect of the message or technology. It is proved that effective transfer of technology mostly depends on the extent of feedback provided.

According to Berlo (1960) [2]. Action-reaction interdependence in communication is referred to as feedback. He has given a model of communication consisting of source, message, channel, receiver and effect. Berlo's model is as follows where effect is the feedback.



Leagans (1961) [4] has also given a communication model by showing the feedback where the last factor audience response

is meant as feedback. Leagans model is as follows:



He referred feedback as audience response when the communication is meant for changing the behavior of the people.

Feedback plays a very important role in communication system because it tells us how our message is being interpreted. It helps in improving the process of communication through increasing the accuracy of the information and removing the doubts of the receiver. It is an error correcting mechanism that can overcome noise, which ultimately helps to increase the fidelity of communication Benor and Harrison (1977) [1]. It is also observed that interpersonal communication with relevant feedback is most effective in transfer of technology (Ingle and Supe 1990) [3]. It may be true in several other developments also.

In agriculture, Feedback plays a vital role in the process of transfer of technology and helps the farmers in identifying and communicating their problems to the source. Of course, for an effective transfer of technology and its assured adoption by the farmers, effective linkage between farmers, extension workers and researchers is needed which is possible only through feedback. Thus, feedback helps in building the linkage between scientists, extension workers and farmers such to and fro mechanism is based on feedback provided by the farmers and feedback received by the extension worker. If the feedback provided by the farmers is effective, it may promote understanding, encourage acceptance and persuade the adoption of related to agriculture. An effective feedback management helps in timely rectification of farmer problems. However, unless farmers or extension worker identifies, significant and relevant constraints in adoption of technology, feedback has practically no value. Therefore, it is true that management of feedback on the part of all concerned is necessary as it determines the effectiveness of transfer of technology.

Methodology

The study was confined to the Umarched Panchayat Samiti in Yavatmal district in Vidarbha region of Maharashtra State.

For the present study, ex-post facto design of social research was used, as the study emphasized on ascertaining involvement of farmers in feedback management with reference to Bt. cotton.

Selection of tahsil and villages

Out of 16 tahsil of Yavatmal district, Umarched tahsil was purposively selected on the basis of maximum area under Bt cotton cultivation amongst all the tahsils.

As per discussion with Taluka Agriculture Officer, Umarched, about Bt. cotton cultivation in this tahsil, it was noticed that, mostly farmers were growing Bt cotton in Umarched tahsil followed by Soybean. On this basis, list of Bt. cotton growing villages in Umarched panchayat samiti was obtained from Taluka Agriculture Officer amongst which 10 villages were selected purposively on the basis of more area under Bt. cotton cultivation during the year 2017-18. The selected villages were Bhawani(J), Brahmangaon, Dhanki, Dhighdi, Kharus(B), Lohara (Kh), Pimpri-Devet, Soit (GH), Taroda and Unchwadad.

Selection of respondents

The list of farmers growing Bt. cotton since last three years consecutively in the selected villages was obtained from Taluka Agriculture officer, Umarched and from each selected village, 12 Bt. cotton growers as respondents were selected randomly by using simple random sampling method to constitute sample size of 120 respondents

Results and Discussion

Table 1: Distribution of Bt. cotton growers according to practice- wise feedback of Bt. Cotton cultivation practices

Sl. No	Problems/benefits/suggestions etc. (Feedback)	Respondents (n=120)	
		Frequency	%
A	Land Preparation		
1	Ploughing charges by Tractor is high	61	50.83
2	Non-availability of implements in time hence sowing was delayed	21	07.50
B	Sowing of seeds		
1	Sowing of Bt cotton is best after onset of monsoon having sufficient moisture	69	57.50
2	Non-availability of skilled labours in time for sowing	23	19.17
3	One seed is sufficient per hill as plant to plant spacing is less	93	77.50
4	Seed germination problem	23	19.17
C	Variety Selection		
1	Demanded Bt cotton variety should make available in time	23	19.17
2	Used Bt cotton variety yielded good	23	19.17
D	Seed Rate and Spacing		
1	Not maintaining the recommended seed rate and spacing by thinking of less plant population	54	45.00
E	Inter-cultivation Practices		
1	Continuous rains prohibited required number of harrowing	15	12.50
2	Required weeding could not done due to high labour charges	22	18.33
3	No effect of weedicides to control weeds	13	10.83

4	Good effect of weedicides in pre-emergence stage of Bt cotton	07	05.83
5	Topping of apical bud is effective for proper branching of Bt cotton	30	25.00
6	Difficulty in spraying when the height of plant is more	62	51.66
7	Spraying DAP is effective during boll development stage	22	08.33
8	Application of NAA is effective to control boll drop	23	19.16
F	Water Management		
1	Non-availability of sufficient water for irrigation	49	40.83
G	Intercropping		
1	Pigeon pea is best intercrop in Bt cotton	81	67.50
H	Nutrient Management		
1	Soil testing gives ideas to apply proper dose of fertilizer	35	29.16
2	Non-availability of FYM in sufficient quantity	75	62.50
3	Yield of Bt cotton increased due to use of recommended FYM	27	22.50
4	Government should make available other means of organic manures	43	35.83
5	Applying more fertilizers than the recommended dose of fertilizers	61	50.83
6	Government should provide fertilizers at subsidized rate	78	65.00
7	Government should make available the fertilizers in ample quantity well in advance	73	60.83
8	By applying fertilizer to the Bt cotton plant in circular form around the plant there is optimum use of fertilizers	53	44.16
9	Spraying of Planofix is effective for proper growth of plant	31	25.83
10	Application of boron is effective to enhance boll set and development	45	37.50
11	Application of multi-K with boron effective for boll development and boll bursting	53	44.16
12	Spraying of Potassium chloride is effective during dry spell	25	20.83
I	Integrated Pest and Disease Management		
1	Pink bollworm is most serious pest in our area	97	80.83
2	Spraying Bt cotton with MgSo ₄ is effective to control reddening	62	51.66
3	Use of different techniques of Dr. PDKV, Akola helps to control pests	89	74.16
4	Spraying of Neem seed kernel extract is effective to control sucking pests	47	39.16
5	Planting Refugia is best for controlling pests	33	27.50
J	Picking		
1	Non-availability of labour for picking which results dehiscence of boll causes loss in yield	12	10.00

Important feedback about Bt. cotton cultivation practices, actually provided by the respondents were considered and the distribution of the respondents according to it has been presented in Table 1.

It is evident from Table 1 that in case of land preparation, slightly more than half (50.83%) of the respondents were expressed their problem that ploughing charges by tractor is high followed by due to non-availability of implements in time hence sowing was delayed were expressed by less than one fifth of the respondents (17.50%). In case of sowing of seeds, One seed is sufficient per hill as plant to plant spacing is less were experienced by majority of the respondents (77.50%) followed by 57.50 per cent of the respondents were in experience that time for sowing of Bt cotton is best after onset of monsoon having sufficient moisture. Equal proportion of the respondents (19.17%) were expressed feedback as problems of non-availability of skilled labours in time for sowing and seed germination problems respectively. Regarding variety selection equal proportion of the respondents i.e slightly less than one fifth (19.17%) expressed feedback as demanded Bt cotton variety should make available in time and used Bt cotton variety gave more yield respectively.

With respect to seed rate and spacing less than half of the respondents (45.00%) were in feedback that they were not maintaining the recommended seed rate and spacing by thinking of less number of plants.

With regards to inter-cultivation practices, more than half of the respondents (51.66%) were expressed feedback as difficulty in spraying when the height of plant is more followed by one fourth of the respondents (25.00%) who were in feedback that topping of apical bud is effective for proper branching of Bt cotton whereas, 19.16 per cent of the respondents were in experienced that application of NAA is

effective to minimize boll drop. Equal proportion of the respondents (18.33%) were expressed the feedback that required weeding could not done due to high labour charges and spraying of DAP is effective during boll development stage respectively. feedback as, continuous rains prohibited required number of harrowing, no effect of weedicides to control weeds, good effect of weedicides in pre-emergence stage of Bt cotton were expressed by the respondents (12.50%), (10.83%) and (05.83%) respectively.

Maximum number of the respondents' farmers (40.83%) expressed the problem of non-availability of irrigation facilities. In case of intercropping most of the respondents (67.50%) expressed feedback that pigeon pea is the best intercrop in Bt cotton.

With regards to nutrient management practices, most of the farmers (65.00%) suggested that Government should provide fertilizers at subsidized rate followed by 62.50 per cent of the respondents were in problem of non-availability of FYM in sufficient quantity. Most of the respondents (60.83%) who suggested that Government should make available the fertilizers in ample quantity well in advance and more than one fifth (22.50%) of the respondents were in feedback that yield of Bt cotton increased due to use of recommended dose of FYM. Whereas, slightly more than half of the respondents (50.83%), Proportion of the respondents (44.16%), 37.50 per cent, 35.83 per cent, 29.16 per cent, 25.83 per cent and 20.83 per cent of the respondents raised their problems, suggestion benefits, experiences etc. as application of multi-K with boron effective for boll development and boll bursting, by applying fertilizer to the Bt cotton plant in circular form around the plant there is optimum use of fertilizers, application of boron is effective to enhance boll set and development, Government should make available other means of organic manures, soil testing gives ideas to apply proper dose of fertilizer, spraying

of Planofix is effective for proper growth of plant and spraying of Potassium chloride is effective during dry spell respectively.

In case of pests and disease management respondents were expressed that more than half of the respondents (51.66%) were in experience that spraying Bt cotton with MgSO₄ is effective to control reddening.

Majority of the respondents (80.83%) were identified as pink boll worm is most serious pest in their area, followed by 74.16 per cent of the respondents were in experience that use of different techniques of Dr. PDKV, Akola gave good results to control pests. Whereas, 39.16 per cent and more than one fourth per cent of the respondents (27.50%) were in feedback

that spraying of neem seed kernel extract is effective to control of sucking pests and planting Refugia is best for controlling pests respectively.

In case of picking operation one tenth (10.00%) of the respondents were expressed the problem of labour availability because of which results dehiscence of bolls causes loss in yield.

Distribution of the respondents on the basis of practice-wise feedback furnished in Table 1 revealed that 51.43 per cent of the feedback was negative. Whereas, 48.57 per cent feedback was positive about various cultivation practices of Bt cotton crop.

Table 2: Distribution of Bt. cotton growers according to constraints faced by them in involvement of feedback management

Sl. No.	Constraints	Respondents (n=120)	
		Frequency	Percentage
1	Lack of communicators empathy with the recipients	28	23.33
2	Limitation of interpersonal communication with the source	37	30.83
3	Untimely message from the source and receiver	59	49.16
4	Discouragement by the communicator	15	12.50
5	Hesitation on the part of receivers to provide feedback	31	25.83
6	Faith on fatalism	16	13.33
7	Nature of in-articulation	17	14.16

It was observed from the Table 2 that little less than half of the respondents (49.16%) faced constraints such as untimely message from the source followed by 30.83 per cent of the respondents who faced constraints as limitation of interpersonal communication with the sources. The proportion of the respondents, 25.83 per cent and 23.33 per cent were faced constraints such as hesitation on the part of receivers to provide feedback and lack of communicator empathy with the

recipients. 14.16 per cent respondents were faced constraint as nature of in-articulation where as 13.33 per cent respondents were facing constraints of faith on fatalism and more than one tenth (12.50%) of the respondents faced constraints such as discouragement by the communicators in providing feedback. These findings are in consistent with the findings of Shambharkar (2009) ^[6].

Table 3: Distribution of Bt. Cotton growers according to their opinion about the necessity of feedback

Sl. No.	Opinion about the need of feedback	Respondents (n=120)	
		Frequency	Percentage
1	No response	22	18.33
2	Help in solving problems	91	75.83
3	Help in understanding need based research	21	17.50
4	Quick guidance	39	32.50
5	Help in getting answers	35	29.67
6	Helps in judging the adaptability of innovation	19	15.83

Most of the Bt. cotton growers did not know about the concept of feedback but when they were aware the concept during discussion, most of the respondents understood the meaning and concept of feedback

It is seen from the Table 3 that, majority of the respondents (75.83%) were expressed that feedback is necessary in solving the problems followed by 32.50 per cent of them were in opinion that feedback helps for quick guidance. 29.27 per cent of the respondents were said that feedback help in getting answers to the problems whereas less than one fifth of them (18.33%) did not given any response. 17.50 per cent and 15.83 per cent of the respondents were in opinion that feedback helps in understanding the need based research and also helps in judging the adaptability of innovation respectively.

From the above table it is concluded that majority of the farmers were in opinion that feedback helps in solving problems.

These results are in accordance with the findings of Shambharkar (1997) ^[5].

Conclusion

It is concluded from the findings of the study that, slightly more than half (51.43%) of the Bt.cotton growers provided negative feedback whereas, less than half of them (48.57%) provided positive feedback about various cultivation practices of Bt cotton crop. Hence, it is implied that most of the Bt. cotton farmers perceived the concept of feedback during discussion with them and said that feedback is important to solve the problems related to agriculture in general and Bt. cotton in specific.

With regards to constraints, major constraints faced by the Bt cotton growers in involvement of feedback management, were untimely message from source, limitation of interpersonal communication with the source, hesitation, faith on fatalism, nature of in -articulation on the part of receivers to provide feedback were the various constraints faced by the Bt cotton growers as respondents. Therefore, it is concluded that extension functionaries should rectify these constraints for effective management of feedback for the better adoption of the Bt. Cotton technologies.

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