

CONSTRAINTS AND SUITABLE EXTENSION STRATEGIES FOR EFFECTIVE ADOPTION OF IPM TECHNOLOGY IN COTTON

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ABSTRACT

The study was conducted in Vadodara district of Gujarat State on total sample size of 240 respondents including 120 trained and 120 untrained cotton growers were selected from sixteen villages of the district. The major constraints with regard to technological, economical, service and supply and marketing and transfer of technology were : Lack of desired knowledge and skill for determining Economic Threshold Level (ETL), High cost of pesticides, bio-pesticides, bio-agents and equipments, Irregular supply of electricity and Lack of dedicated and competent extension personnel respectively

INTRODUCTION

Cotton is one of the Principal commercial crops and has been one of the main sources of India's economic growth and foreign exchange earner. Among cotton growing states of India, Gujarat is one of the main cotton producing states. In Gujarat, Vadodara is one of the districts having the major area under cotton crop. Excessive and indiscriminate use of chemical pesticides has lead to several complications such as resistance development, resurgence, secondary pest out break, toxicity to beneficial organism, residue in food, feed, fodder etc and above all environmental pollution. The approach to overcome these ill effects as pesticides to a certain extent is Integrated Pest Management practices. The Integrated Pest Management(IPM) approach is gaining importance and is being increasing by adopted in the country. There are number of problems encountered by cotton growers in adoption of recommendation of IPM practices. Keeping the above point in mind the present study aim to identify some of the constraints affecting the rate of adoption of IPM recommendations and to develop suitable extension strategies for effective adoption of IPM technology in cotton crop in Vadodara district of Gujarat state.

METHODOLOGY

The study was conducted in Vadodara district of Gujarat state.. Out of twelve blocks, four block namely Karjan, Dabhoi, Shinor and Sankheda were selected on the basis of maximum coverage of hybrid cotton area in the district. Two villages of each block were selected purposively from IPM trained villages by district extension functionary. Hence, all eight villages from four blocks were selected for the study. Similarly from the same blocks the neighboring village of selected villages was also selected as the control villages for the study. Thus, total sixteen villages eight IPM trained and eight IPM untrained villages were selected for the study. There were 15 trained cotton growers selected from IPM trained villages purposively. Thus, total 120 respondents were selected as trained cotton growers. Similarly, from the neighboring villages a list of cotton growers was obtained from the concern village level workers and 15 cotton growers were selected from each of the neighboring village random. Thus, the total 120 respondents were selected as untrained cotton growers. Thus, making together 240 respondents (120 trained and 120 untrained) was covered from the total research operational area.

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The data was collected with the help of pre-tested well structured schedule by using interview with the cotton growers. The data were statistically analyzed with the help of frequencies, percentage and rank.

FINDING AND DISCUSSION

Constraints mean the impediments faced by the cotton growers in adoption of IPM technology in

cotton crop. Four dimensions of constraints were identified viz 1) Technological 2) Economic 3) Service, supply and marketing and 4) Transfer of technology. Cotton growers are asked to express constraints faced by them in adoption of IPM technology in cotton crop. The frequencies against each constraint were counted and converted into percentage. The each constraint was assigned aspect wise rank as well as overall rank.

Table 1 : Constraints faced by the cotton growers in adoption of IPM technology

n=240

Sr. No.	Constraints	Trained cotton growers $n_1 = 120$		Untrained cotton growers $n_2 = 120$	
		Percent	Aspect wise rank	Percent	Aspect wise rank
I	Technological constraints				
1	Lack of desired knowledge and skill for determining Economic Threshold Level (ETL)	30.00	I	78.33	II
2	Lack of knowledge about recommended dose of pesticides, bio-pesticides and fertilizers	18.33	III	74.16	III
3	Lack of knowledge regarding using trichogramma, traps and raising trap crops for the control of pests.	15.00	VII	68.33	IV
4	Lack of knowledge about identifying the harmful and beneficial insects and to conserve natural predators	22.50	II	86.66	I
5	Lack of knowledge about time of application of spray.	17.50	IV	65.00	IV
6	Lack of knowledge about seed treatment	15.83	VI	71.66	V
7	Lack of knowledge about improved spraying equipment	16.66	V	62.50	VI
II	Economic constraints				
8	High cost of pesticides, bio-pesticides, bio-agents and equipments	80.83	I	75.00	III
9	High cost of skill labour charges	54.16	III	57.50	III
10	Lack of finance for purchase of pesticides, bio-pesticides and bio-agents	74.16	II	76.66	I
III	Service, supply and marketing constraints				
11	Pesticides are adulterated and substandard quality	76.66	IV	80.83	III

Sr. No.	Constraints	Trained cotton growers n ₁ = 120		Untrained cotton growers n ₂ = 120	
		Percent	Aspect wise rank	Percent	Aspect wise rank
12	Exploitation of farmers by shopkeepers	90.00	II	91.66	II
13	Non-availability of bio-pesticides, bio-agents and traps	71.66	IV	66.66	IV
14	Timely unavailability of labourers	53.33	VI	60.83	VI
15	Non-availability of Irrigation in time	40.00	VII	45.00	VII
16	Irregular supply of electricity	93.33	I	95.00	I
17	Timely unavailability of seeds of pest and diseases resistant variety	68.33	V	67.50	V
IV	Transfer of technology constraints				
18	Lack of timely and appropriate transfer of technology measures by extension organization	6.66	V	75.83	II
19	Lack of supply of farm literature on IPM practices in cotton crop.	14.16	IV	72.50	IV
20	Lack of regularity/dependability/credibility of extension personnel visits	20.00	III	77.50	I
21	IPM recommendation not communicated in an understandable form	28.53	II	64.16	VI
22	Lack of dedicated and competent extension personnel	37.50	I	73.33	III

1 Technological constraints

The data in Table-1 revealed that lack of desired knowledge and skill for determining economic threshold level ranked first and lack of knowledge about identifying the harmful and beneficial insects ranked second by the trained cotton growers, respectively.

Whereas, in case of untrained cotton growers were perceived lack of knowledge about identifying the harmful and beneficial insects and to conserve natural predators and lack of desired knowledge and skill for determining economic threshold level first, second and third constraints, respectively.

2 Economic Constraints

It is evident from the Table-1 that high cost of pesticides, bio-pesticides, bio-agents and

equipments ranked first followed by lack of finance for purchase of pesticides, bio-pesticides and bio-agents and high cost of skill labour charges perceived as second and third constraints by cotton growers, respectively. Whereas, in case of untrained cotton growers, lack of finance for purchase of pesticides, bio-pesticides and bio-agents ranked first followed by high cost of pesticides and bio-pesticides, bio-agents and equipments and high cost of skill labour charges perceived as second and third constraints, respectively.

3 Service, supply and marketing constraints

Table-1 highlights that irregular supply of electricity ranked first. Exploitation of farmers by shopkeepers ranked second and pesticides are adulterated and substandard quality ranked third

by trained cotton growers in adoption of IPM technology. Whereas, in case of untrained cotton growers irregular supply of electricity ranked first followed by exploitation of farmers by shopkeepers and pesticides are adulterated and substandard quality, perceived as second and third constraints, respectively.

4 Transfer of technology constraints

The data continued in Table-1 explain that lack of dedicated and competent extension personnel ranked first followed by IPM recommendation not communicated in an understandable form and lack of regularity/dependability/credibility of extension personnel visits perceived second and third constraints by trained cotton growers. Whereas, in case of untrained cotton growers, lack of regularity/dependability/credibility of extension personnel visit ranked first. While, lack of timely appropriate transfer of technology measures by extension organization and lack of dedicated and competent extension personnel ranked second and third respectively. Other constraints were mentioned in table with their rank for both the categories of cotton growers.

The data presented in Table-1 also indicated that irregular supply of electricity, exploitation of farmers by shopkeepers, High cost of pesticides, bio-pesticides, bio-agents and equipments, pesticides are adulterated and substandard quality and lack of finance for purchase of pesticides, bio-pesticides and bio-agents were major constraints faced by the trained cotton growers in order to first five overall ranks, respectively.

While, in case of untrained cotton growers irregular supply of electricity, exploitation of farmers by shopkeepers, lack of knowledge about identifying harmful and beneficial insects to conserve, natural predators, pesticides are adulterated and substandard quality and lack of desired knowledge and skill for determining Economic threshold Level (ETL) were the first five important

constraints based on overall rank, respectively. Other constraints were mentioned in the table with their magnitude of rank.

CONCLUSIONS

The investigator had developed suitable extension strategy based on observation, discussion held with cotton growers, extension personnel, and researchers for effective adoption of IPM technology in cotton crop. In order to sustain momentum in IPM implementation there is a need to create greater awareness among the farming community on large scale. Majority farmers of cotton growing area once trained of got information about IPM before on set of monsoon through training programme which helps in increasing adoption of IPM technology from first to last operation. Use various extension materials like pamphlet, calendar, poster, hoardings and folder of parasite and predators in farming communities which helps in identification of friends and enemies and also help in identification of various stages of pest. All this materials should be pasted on panchayat and community houses of each village. Preparation of Bio-control agent video cassette for practical information of their functioning. Easily and cheaply availability of IPM inputs like Nuclear Polyhydrous Virus, Crysoperla, Trichocard etc by establishing new bio-control laboratories at Transfer of Technology centers in respective areas at nominal price. Along with frontline demonstration more fund should sanctioned for varied extension activities like khedut shibir, gram sabha, field day, farmer's day, and exhibition for extensive coverage under IPM programme. Effective quality control measures are needed to check sale of adulterated and substandard quality of pesticides by establishing pesticides analysis laboratory at district level. Most of the plant protection techniques used in IPM are not very attractive to provide entrepreneurs.