

Study of constraints faced by cotton growers in adoption of bio-control measures

S.P. GAIKWAD*, S.S. GODASE¹, B.N.TAMBE² AND A.S. DHANE³

Agricultural Extension Section, College of Agriculture, Baramati, PUNE (M.S.) INDIA

ABSTRACT

The study was undertaken of 150 cotton growers from 10 villages of Narkhed Tahsil in Nagpur District of Maharashtra state. The study indicated negatively significant relationship with adoption levels of bio-control measure in respect of age of cotton growers. However, the selected variables *viz.*, education, land holding, annual income, socio-economic status, extension contact, change proneness, economic motivation, scientific orientation and knowledge of cotton growers had significant relationship with adoption of bio-control measures. Major constraints expressed by cotton growers in adoption of bio-control measures were lack of knowledge about bio-agents, non-effective result of *Bacillus thuringiensis*, higher cost of bio-agents and extension workers did not provide detail information.

Gaikwad, S.P., Godase, S.S., Tambe, B.N. and Dhane, A.S. (2011). Study of constraints faced by cotton growers in adoption of bio-control measures. *Internat. J. agric. Sci.*, 7(2): 306-308.

Key words : Constraints, Adoption, Bio-control measures, Cotton growers

INTRODUCTION

Plant protection is an essential and vital aspect of successful crop production. In green revolution, chemical pesticides have played an important role in boosting up the production of crops since then, the use of chemical pesticides and insecticides in particular has become popular among Indian farmers for the control of insect pests. At present the insecticides account for 52 per cent of the total consumption of chemical pesticides, herbicides 33 per cent and fungicides 15 per cent (Singhal, 1999). Out of the total chemical insecticides consumption, cotton crop alone accounts for 54 per cent consumption. Indiscriminate use of chemical pesticides led to problems of pest resistance to chemical, risks to human, animal health and environmental pollution. The continued use of chemical insecticides also builds up high level of toxic residues in food, ground water and air. With a view to minimize these problems, the available alternative is biological control of insect and pests. Now a day's farmers are becoming aware about bio-control measures for crop production. But there are certain constraints due to which they are unable to fully adopt it. Hence, present study was undertaken with the objectives, to study the constraints faced by the cotton growers in adoption of bio-control measures and to study the relationship between selected independent variable and dependent variable.

MATERIALS AND METHODS

The study was undertaken in 10 villages of Narkhed Tahsil in Nagpur district of Maharashtra state. From each village farmers were selected by using the nth number method. For this list of cotton growers in each village was obtained from Gramsevak and every 4th farmer was selected as respondent depending on number of farmers in the village thus 150 farmers were selected for the study. Thus the selected respondents were personally interviewed with the help of specially designed interview schedule. The data were subjected to exploratory statistical analysis.

RESULTS AND DISCUSSION

The result presented in Table 1 showed negatively significant relationship with adoption levels of bio-control measure in respect of age. This indicates relatively better adoption about bio-control measure among young cotton growers. Similar findings were reported by Ankulwar *et al.*(2001). The selected variables *viz.*, education, land holding, annual income, socio-economic status, extension contact, change proneness, economic motivation, scientific orientation and knowledge of cotton growers had significant relationship with adoption of bio-control measures.

Data presented in Table 2, revealed that 90.00 per

* Author for correspondence.

¹Krishi Vigyan Kendra, Baramati, PUNE (M.S.) INDIA

²Department of Soil Science and Agricultural Chemistry, College of Agriculture, Baramati, PUNE (M.S.) INDIA

³Department of Agricultural Entomology, College of Agriculture, PUNE (M.S.) INDIA

Table 1 : Correlation between socio-economic, psychological and communication characteristics of cotton growers with adoption of bio-control practices

Independent variables	Dependent variable adoption
Socio-economic variables	
Age	-0.475**
Education	0.712**
Land holding	0.537**
Annual income	0.561**
Socio-economic status	0.64**
Psychological variables	
Change proneness	0.559**
Economic motivation	0.41**
Scientific orientation	0.21**
Knowledge	0.547**
Communication variable	
Extension contact	0.705**

** indicates significance of value at P=0.01

cent farmers have expressed lack of knowledge about *Metarhizium anisopliae* as constraints in the adoption of bio-control measures of cotton. Financial problems as one of the constraints had been reported by 76.66 per cent farmers. Lack of knowledge about *Bacillus thuringiensis* (69.33%), non-effective result of *Bacillus thuringiensis* (64.66%), extension workers did not provide detail information (46.00%) and chrysopa insect fly on other field (44.66%) were reported by the respondents as their difficulties in adopting bio-control measures of cotton. Similarly 44.00 and 41.33 per cent farmers have reported that they could not spray chemical pesticides and use bio-control measures as they were not

available in market, respectively.

No effective use of chrysopa cards (41.33%), disturbed spraying due to unseasonal rainfall (34.00%), no effective result of HaNPV spraying (33.33%) and lack of knowledge about installing bird perchers (25.33%) were some of the constraints reported by the cotton growers in adopting bio-control measures of cotton. Katole *et al.*(1998) and Bodake *et al.*(2009), reported lack of knowledge about bio-agents, high cost, their non availability and absence of timely guidance from extension workers as the constraints in adoption of bio-control measure.

Conclusion:

The study revealed that the education, land holding, annual income, socio-economic status, extension contact, change proneness, economic motivation, scientific orientation and knowledge of cotton growers had significant relationship with adoption of bio-control measures. Age, however, had a negatively significant relationship indicating thereby, relatively better adoption about biological pest management measures among younger cotton growers. Major constraints expressed by cotton growers in adoption of bio-control measures were lack of knowledge about bio-agents, non-effective result of *Bacillus thuringiensis*, higher cost of bio-agents and extension workers did not provide detail information. Under this circumstance extension agency should make available the inputs for adoption of bio-control measures and at the same time also organize periodical training programmes to develop the knowledge and skill among them and also increase extension staff in the region to contact maximum farmers for adoption of bio-control measures.

Table 2 : Distribution of respondents according to constraints encountered by them in adoption of bio-control measures

Sr. No.	Constraints	Frequency (150)	Percentage
1.	<i>Bacillus thuringiensis</i> -non-effective result	97	64.66
2.	Lack of knowledge about <i>Bacillus thuringiensis</i>	104	69.33
3.	No effective result of HaNPV spraying	50	33.33
4.	Financial problems	115	76.66
5.	Chrysopa insect fly on others field	67	44.66
6.	No effective result of chrysopa cards	62	41.33
7.	Disturbed spraying due to unseasonal rainfall	51	34.00
8.	Extension workers did not provide detail information	69	46.00
9.	There could not spray chemical pesticides due to loss of other beneficial insect pest	66	44.00
10.	Bio-control measures not available in market eg. Trichocard not available in local market	62	41.33
11.	Lack of knowledge about installing bird percher	38	25.33
12.	Lack of knowledge about <i>Metarhizium anisopliae</i>	135	90.00

REFERENCES

- Ankulwar, B.N., Jondhale, S.G. and Rangari, P.V. (2001).** Extent of adoption of recommended package of practices of sunflower in farm. *Maharashtra J. of Extn. Edu.*, **20** : 63-65.
- Bodake, H.D., Gaikwad, S.P. and Kalantri, L.B. (2009).** Study of adoption level of bio-fertilizers by the farmers. *Agric. Update.*, **4**(1&2): 211-213.
- Godase, S.S. (2002).** Adoption of bio-control measures for cotton by the farmers. M.Sc., Thesis, P.G Institute. Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola, M.S. (India).
- Katole, R.T., Bhople, R.S. and Shinde, P.S. (1998).** Constraints in adoption of plant protection measures for hybrid cotton. *Maharashtra J. Extn. Edu.*, **17** : 349-351.
- Singhal, V. (1999).** *Indian Agriculture 1999*. New Delhi, published by Vikas Singhal : 35-37.

*Received : December, 2010; Revised : February, 2011;
Accepted : April, 2011*