LEVELS OF ADOPTION OF INTEGRATED PEST MANAGEMENT TECHNOLOGY IN COTTON IN PARBHANI DISTRICT OF MAHARASHTRA STATE

Abstract

The present investigation pertinent to this study entiled "IPM in cotton in Parbhani district of Maharashtra state: An economic analysis" was conducted in Manwat and Parbhani tahasil of Parbhani district. For the present study 70 cotton growers who follows IPM technology were selected in consultation with KVK subject matter specialists, Officials of State Agriculture department and Extension Agronomists. Further the sample of 70 farmers were divided into three categories viz., Low adopters, medium adopters, high adopters, based on their levels of adoption. To assess extent of adoption of various IPM technology of cotton the concept of TAI was used

According to the study, only 17.14 per cent respondents were high level of IPM technology adopters, 14.28 per cent have adopted IPM at low level while highest i.e. 68.57 per cent farmers had adopted IPM technology at medium level.

Keywords: Adoption level**,** IPM**,** TAI**,** Cotton

Introduction

Cotton (*Gossypium sp.*) is a fibre crop of family Malvacae. Cotton is a major cash crop of India as well as Maharashtra. Cotton plays a key role in the national economy in terms of employment generation and income generation in the agricultural and industrial sectors.

The area under cotton in India is 130.61 Lakh ha with production in India of 343 Lakh Bales and productivity of 510 kg/ ha. In Maharashtra area, production and productivity of cotton is 42.29 Lakh Hectares, 84.09 Lakh bales and 306 kg/ ha, respectively. In the region of Marathwada, area, production and productivity are 8889 Thousand ha, 12.9 MT and 256.48 Kg/ha, respectively. Parbhani district have area, production, productivity is 1811 Thousand ha, 3.7 MT and 227 Kg/ha, respectively. (Source: www.krushimaharashtra.gov.in).

Chemical pesticides were used carelessly to control major pests on cotton, which led to the development of pesticide resistance in the targeted insects and adverse effects on their

natural enemies and non-targeted pests, as well as disturbances in the natural order, the resurgence of minor pests, crop ecosystem pollution, risks to human health, and economic hazards (Pawar and Kadam, 1995). All of the mentioned issues call for a fresh approach to indigenous traditional plant preservation techniques that are non-toxic, affordable, and biological, mechanical, and cultural in nature. The term "Integrated Pest Management" (IPM) refers to a novel method of controlling insect pests. These procedures are simple to use and non-harmful, friendly to useful insects, maintain ecosystem and environment friendly.

Methodology

For the present study 70 cotton growers who follows IPM technology were selected in consultation with KVK subject matter specialists, Officials of State Agriculture department and Extension Agronomists. Further the sample of 70 farmers were divided into three categories viz., Low adopters, medium adopters, high adopters, based on their levels of adoption. Survey method was adopted for the collection of data. A pre-tested schedule was prepared to obtain data from the selected farmers through, personal interview method.

Technology Adoption Index (TAI)

The first objective i.e., to find out different levels of adoption is achieved by using Technology Adoption Index of each and every farmer using the following formula.

$$TAI = \frac{1}{k}\left[\frac{AX1}{RX1} + \frac{AX2}{RX2} + \cdots + \frac{AXK}{RXK}\right] X\ 100$$

Whare,

TAI = Technology Adoption Index

k = No. of Technology

AX_k = Actual use of selected technology

RX_k = Recommended use of selected technology

Categorizing the sample farmers

Taking into account the TAI, the sample farmers were grouped into low, medium and high adopters, by using the mean and standard deviation (SD) of the TAI obtained, which determines the level of adoption of the sample farmers.

Low adopters = Mean - SD

Medium adopters = Mean – SD to Mean + SD

High adopters = Mean + SD

Result and discussion

Table 1: Distribution of sample cultivators

Particulars	Technology level	No. of cultivators	percent
Mean(Technology Adoption Index)	84.27		
Standard deviation(SD)	11.22		
Low technology adopters (Mean-SD)	≤73.05	10	14.28
Medium Technology Adopters (Mean-SD) to (Mean+SD)	≥73.05 to ≤95.49	48	68.57
High technology adopters (Mean+SD)	≥95.49	12	17.14
Total		70	100

The selected cotton growers were grouped as low, medium and high IPM adopters on the basis of estimated mean and standard deviation of Technology Adoption Index, as prescribed in methodology and the results are shown in Table 1. It is observed from table that out of total 70 sample farmers, only 17.14 per cent were found to be adopting IPM technology at high level of adoption of IPM technology with Technology Adoption Index (TAI) ≥ 95.49. About 14.28 per cent sample farmers adopted IPM at low level with TAI ≤ 73.05 while highest i.e. 68.57 per cent farmers had adopted IPM technology at medium level of adoption with TAI ranged between 73.05 to 95.49. The Mean TAI and Standard deviation of TAI was 84.27 and 11.22 respectively.

Conclusion

1. In study area, 14.28 per cent, 68.57 per cent and 17.14 per cent farmers were found to be low, medium and high IPM technology adopters.
2. Maximum i.e. 68.57 per cent farmers from the sample were categorized under medium IPM technology adopters.

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