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Awareness Knowledge of IPM (Integrated Pest Management) Oriented Cotton Cultivators in an Rainfed Condition – An Analysis

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Abstract: ***This research will focus on rainfed areas and their inhabitants' familiarity with IPM (Integrated Pest Management) techniques. The area of Tamil Nadu known as Coimbatore was the site of the study. The Avinashi block in the Coimbatore district has been chosen for the research. Most people would be familiar with cultural practices that promote the use of high-yielding, pest-resistant types of seeds, as well as certified seeds. Most rainfed cotton farmers would be well-versed in mechanical pest control methods, including the identification and elimination of insect eggs, larvae, and pupae. Many cotton growers were familiar with biological techniques, such as Trichogramma eggcards, neem oil, and the thuricide Bt. Among chemical procedures, nearly all respondents were knowledgeable of the need of not using the same pesticides several times and which ones are safe to use.***

Keywords:- IPM, Cotton Cultivators, Rainfed condition .

1. Introduction

Over the course of the green revolution, there have been widespread outbreaks of insect pests, particularly on rice and cotton. These outbreaks have been caused by intercropping with other crops. In a similar manner, the excessive use of inorganic nitrogenous fertilisers generated an environment that was conducive to the rapid proliferation of a wide variety of insects and pests, which led to an outbreak of the situation. The cotton crops in India are infested by 162 different kinds of insects, and pest assaults are responsible for up to sixty percent of the yearly loss in fibre output (Anonymous, 1989). IPM, which stands for integrated pest management, has as its primary goal the maximisation of agricultural output while simultaneously minimising the costs of production, environmental pollution, and risks to animal and human health. This is accomplished by prohibiting the use of chemical pesticides in an excessive and inappropriate manner. The objective is to provide farmers with the ability to become managers and decision makers, enabling them to manage and control ways that maximise profits while simultaneously optimising production inputs and resources while doing so..

2. Review of Literature

Devi (2000) found that the majority of cotton farmers were aware of the integrated pest management (IPM) methods. These practices included the cultivation of pest and disease-resistant cotton varieties, the use of acid-treated seeds at the appropriate seed rate, the elimination of crop wastes, and the removal of cotton stalks from the field.

The findings of Venilla (1998) revealed that 58.00 percent of both small and large farmers possessed a medium level of awareness knowledge. This was followed by 20.00 percent of small farmers and 26.00 percent of big farmers who possessed low levels of awareness knowledge. Furthermore, 22.00 percent of small farmers and 16.00 percent of big farmers were found to possess high levels of awareness knowledge.

3. Specific Objective of the Study

The specific objective of this study could be awareness knowledge on Integrated Pest Management (IPM) practices by cotton growers under rainfed condition.

4. Research Methodology

The district of Coimbatore was chosen for the study because it was recognised as having the highest total number of Integrated Pest Management and Farmers Field School (IPM-FFS) training courses that were carried out for cotton in the state of Tamil Nadu during the course of its history. Out of all the blocks in the Coimbatore district, the Avinashi block, which is rainfed, was chosen because it had the maximum number of IPM-FFS training sessions that were done for rainfed cotton. From the Avinashi block, four villages were chosen because they had the biggest amount of cotton fields that were being fed by rain. For the purpose of the study, a sample size of one hundred farmers would be chosen. The awareness knowledge refers to the farmers' familiarity with the various implements of integrated pest management (IPM). Consultation with entomologists and extension scientists, as well as reference to the IPM-FFS manual, were utilised in the process of compiling the list of factors that contribute to the measurement of awareness and knowledge of suggested IPM methods. Through the use of cultural, mechanical, biological, and chemical methods, the materials were arranged into categories. 'Aware' and 'not aware' were the response categories that were followed, and a score of 2 and 1 was awarded to each of these categories, respectively.

5. Findings and Discussion

Awareness knowledge of IPM Practices under Rainfed Condition

A. Cultural Practices

Table 1 reveals that under rainfed conditions, one hundred percent of the respondents possessed awareness and knowledge regarding the following practices: cotton ratoon cropping practices, sowing quality and certified seeds, growing high yielding and pest resistant varieties, summer ploughing, growing intercropping such as greengram and blackgram, and growing the same variety throughout the village. This information can be observed. The responders who were chosen for training received instruction through the IPM-FFS training programme, which would lead to increased awareness and understanding of all procedures.

B. Mechanical Practices

Table 1 shows that under rainfed conditions, 100% of the participants were aware of the mechanical practices, such as collecting and destroying pest eggs, larvae, and pupae, as well as removing and destroying squares of cotton, flowers, and other materials that could be infected with pests or diseases. Next came the pheromone traps, which were fixed at 80%, the yellow sticky traps at 80%, and the terminal piece of the main stem was clipped at 75%. The responders mentioned that the State Department of Agriculture provided the necessary supplies, both during and after the training, at a subsidised rate, for placing pheromone traps.

C. Biological Practices

With regard to biological practices in rainfed conditions, it was summarised in Table 1 that approximately two-thirds of the respondents had awareness and knowledge of the activities with regard to the tying of Trichogramma eggcards (90%) and spraying neem oil (90%) respectively. This was followed by eighty-five percent of them being aware of the spraying thuricide: Bt, and eighty percent of them being aware of the spraying NPV. Among the responders, a greater proportion had awareness and knowledge regarding the tying of Trichogramma eggcards and the spraying of neem oil. According on the opinions of the trained farmers, the State Department of Agriculture provided eggcards and neem oil at a subsidised charge..

D. Chemical Practices

It can be shown from Table 1 that with regard to rainfed circumstances, the chemical practices were that one hundred percent of the respondents had awareness and knowledge on the avoidance of repeated use of the same insecticides, the application of granular insecticides such as carbofuran, and the identification of ETL for cotton pests. There is a possibility that this is related to the fact that cotton farmers claimed that they obtained information of the negative consequences of using the same pesticides throughout the IPM-FFS training programme. This might be the reason why they avoided using the same insecticides repeatedly. The taught farmers were of the opinion that they were

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convinced about the relevance of ETL for all pests during the training period. This might be attributed to the fact that they had the greatest awareness information on ETL (Economic Threshold Level) for using chemical pesticides.

6. Conclusion

Based on the findings of this study, it is possible to draw the conclusion that, in the case of rainfed conditions, one hundred percent of respondents possessed awareness and knowledge of all information and pest management measures. As far as mechanical procedures are concerned, more than eighty percent of those who responded had awareness and understanding on the bulk of the intensive pest management practices. Ninety percent of those who participated in the survey were aware of the biological practices that were concerned among the two practices. One hundred percent of those who participated in the survey had some level of awareness and understanding regarding three of the eight IPM activities that pertain to chemical procedures. Under conditions of rainfed agriculture, it is possible to draw the conclusion that practically all farmers possessed awareness and expertise regarding cultural, mechanical, biological, and chemical methods.

References

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Table 1.

Practice-wise Awareness knowledge of IPM Practices under Rainfed Condition

S.NO	PRACTICES	Aware	Not Aware
A	**CULTURAL**		
1	Avoiding cotton ratoon cropping practices	100.00	----
2	Sowing quality and certified seeds	100.00	----
3	Growing high yielding and pest resistant variety	100.00	----
4	Summer ploughing	100.00	----
5	Growing intercrops like blackgram and greengram	100.00	----
6	Growing same variety throughout the village	100.00	----
B	**MECHANICAL**		
1	Collecting and destroying egg, larvae and pupae of pests	100.00	----
2	Removing and destroying pest and disease infected cotton squares, flowers and other shed materials	100.00	----
3	Fixing sex pheromone traps @ 5 numbers/ac	80.00	20.00
4	Fixing yellow sticky traps@ 5 numbers/ac	80.00	20.00
5	Clipping the terminal portion of main stem	75.00	25.00
6	Fixing ‘T’ shaped poles @ 5 numbers/ac	75.00	25.00
C	**BIOLOGICAL**		
1	Tying *Trichogramma* egg cards 4cc (40 pieces) / ac	90.00	10.00
2	Spraying neem oil	90.00	10.00

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3	Spraying thuricide: Bt (*Bacillus thuringensis*) @ 300 gm / ac	85.00	15.00
4	Spraying 200 ml NPV(Nuclear PolyHedrosis Virus) / ac to control bollworms	80.00	20.00
5	Releasing the predator *Chrysopa* @ 5000 / ac	80.00	20.00
D	**CHEMICAL**		
1	Avoiding repeated use of the same insecticides	100.00	----
2	Applying granular insecticides like carbofuran 3 G 12 kg / ac	100.00	----
3	Identifying ETL (Economic Threshold Level) for cotton pests	100.00	----
4	Applying correct quantity of pesticides	90.00	10.00
5	Spraying chemicals in evening hours	88.00	12.00
6	Applying safe insecticides such as endosulfan @ 250 ml / ac and phosalone @ 100 ml / ac	80-.00	20.00
7	Spraying neem based insecticide: such as *Azadirachtin* 200 ml / ac	80-.00	20.00
8	Spraying herbicide such as fluchloralin @ 900 ml/ac and pendimethalin @ 1.3 lit / ac	80-.00	20.00

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