



Principle Knowledge of Integrated Pest Management (IPM) Oriented Cotton Farmers in an Rainfed Condition

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Abstract: The purpose of this study is to investigate the awareness and understanding of IPM (Integrated Pest Management) methods in rainfed conditions. During the course of the study, the Coimbatore area in Tamil Nadu was visited. It was decided to conduct research in the Avinashi block located in the Coimbatore district. When it came to the cultural practices, the majority of the respondents possessed a fundamental understanding of high-yielding and pest-resistant types, as well as seeds of high quality and certification. A significant proportion of the respondents possessed fundamental information about the collection and destruction of pest eggs, larvae, and pupae. This was in reference to the mechanical techniques. When it came to biological methods, the majority of the people who responded had a fundamental understanding of Trichogramma eggcards, neem oil, and thuricide: Bt. Among the chemical practices that were taken into consideration, the majority of the respondents possessed fundamental information regarding the avoidance of repeated application of the same insecticides and the use of safe pesticides.

Key words: Integrated Pest Management, Cotton Farmers, Trichogramma eggcards.

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 public and animal health hazards. This is accomplished by prohibiting the use of chemical pesticides in an excessive and indiscriminate manner. In order for farmers to be able to handle and control methods that maximise profit while optimising production input and resources, it strives to empower farmers to become managers and decision makers.

2. Review of Literature

According to Dharmalingam and Annamalai (1992), awareness knowledge is the most important factor that contributes to the improvement of the small farmers' fundamental knowledge about the application of weedicide solutions. A person is unable to acquire knowledge of the principles of an invention unless they are aware of the innovation itself; hence, awareness knowledge is an essential variable for principle knowledge.

Venilla (1998) discovered that around fourteen percent of the respondents had a high level of principle knowledge, while the remaining forty-three percent of respondents held both low and medium levels of principle knowledge that were equal in proportion.

3. Specific Objective of the Study

The specific objective of this study was principle knowledge of Integrated Pest Management (IPM) practices by cotton growers under rainfed condition.

4. Research Methodology

Based on the data collected from all of the integrated pest management and field crop surveillance (IPM-FFS) training sessions in Tamil Nadu State, the Coimbatore district was chosen as the site for the study. The Avinashi block was chosen in rainfed conditions. Four villages were chosen in the Avinashi block. One hundred farmers were chosen



at random for the research. Data pertaining to the concepts of operation that underpin the innovation's operation constitute the core body of knowledge (Rogers, 1983). In order to compile the elements that would serve as indicators of the basic understanding of the suggested IPM technologies, we spoke with entomologists, extension specialists, and reviewed the IPM-FFS manual. Cultural, mechanical, biological, and chemical procedures were used to classify the artefacts. A score of 2 was given for the "correct" response category and a score of 1 for the "in-correct" category.

5. Findings and Discussion

Principle knowledge of IPM Practices under Rainfed Condition

A. Cultural Practices

According to Table -1, when it comes to rainfed conditions, a percentage of the respondents knew how to avoid cotton ratoon cropping practices, how to find quality and certified seeds, which varieties are pest resistant and have high yields, how to plough in the summer, how to intercrop with crops like blackgram and greengram, and how to grow the same variety throughout the village. According to the participants, the most of the technology's cultural practices were covered in the IPM-FFS training programme.

B. Mechanical Practices

It was observed in Table 1 that under rainfed conditions, one hundred percent of the respondents had a fundamental understanding of the mechanical practices, which included the collection and destruction of the eggs, larvae, and pupae of pests, as well as the removal and destruction of cotton squares, flowers, and other shed materials that were infected with pests and diseases. Following this, pheromone traps (80%) and yellow sticky traps (80%) were used, and then the terminal piece of the main stem was cut off (75%) to complete the process.

C. Biological Practices

According to the data shown in Table 1, approximately two-thirds of the respondents had a fundamental understanding of the biological practices that were utilised in rainfed conditions. These activities included the utilisation of *Trichogramma* eggcards (88%) and neem oil (86%). This was then followed with a thuricide rate of 85 percent, also known as Bt and NPV. *Trichogramma* eggcards and neem oil were both topics that a greater number of respondents had elementary knowledge of. According to the farmers, the State Department of Agriculture provided eggcards and neem oil at a subsidised rate, which will lead to the acquisition of a more comprehensive understanding of the fundamental principles.

D. Chemical Practices

It can be seen from Table 1 that with regard to rainfed conditions, as far as chemical practices were concerned, one hundred percent of the respondents had a fundamental understanding of the importance of avoiding the repeated use of the same insecticides. This was followed by granular insecticides such as carbofuran (90 percent) and ETL for cotton pests (90 percent). Rainfed cotton farmers claimed that they obtained knowledge on the worst consequences of using the same pesticides during IPM-FFS training sessions. This is because a higher proportion of respondents avoid using the same insecticides more than once. The rationale for the larger proportion of respondents who possessed principle knowledge on ETL (Economic Threshold Level) was due to the fact that the training provided them with the opportunity to acquire principle knowledge.

6. Conclusion

Based on the findings of this study, it can be concluded that among the cultural practices for rainfed conditions, one hundred percent of the respondents possessed fundamental knowledge on the majority of the IPM techniques utilised. When it came to mechanical procedures, more than eighty percent of those who participated in the survey possessed a fundamental understanding of the majority of the IPM activities. In terms of biological practices, more than eighty percent of those who participated in the survey had demonstrated a fundamental understanding of all of the activities. When it came to chemical practices, ninety percent of respondents possessed a fundamental



understanding of three practices out of eight IPM practices. It is possible to draw the conclusion that the majority of cotton farmers who had received training in integrated pest management possessed fundamental information on cultural, mechanical, biological, and chemical procedures related to rainfed circumstances.

References

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Table 1.

Practice-wise Principle knowledge of IPM Practices under Rainfed Condition

S.NO	PRACTICES	Correct	Incorrect
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	90.00	20.00
6	Growing same variety throughout the village	84.00	26.00
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 <i>Trichogramma</i> egg cards 4cc (40 pieces) / ac	88.00	12.00
2	Spraying neem oil	86.00	14.00
3	Spraying thuricide: Bt (<i>Bacillus thuringensis</i>) @ 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 <i>Chrysopa</i> @ 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	90.00	10.00
3	Identifying ETL (Economic Threshold Level) for cotton pests	90.00	10.00



4	Applying correct quantity of pesticides	88.00	12.00
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 <i>Azadirachtin</i> 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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