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RESEARCH ARTICLE

ASSESSING THE HOW TO DO KNOWLEDGE OF IPM (INTEGRATED PEST MANAGEMENT) ADOPTING COTTON CULTIVATORS IN AN IRRIGATED SYSTEMS – AN INCISIVE ANALYSIS

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ABSTRACT

The present part of the study deals with how to knowledge of IPM (Integrated Pest Management) adopting cotton cultivators in an irrigated systems. Under irrigated condition, among cultural practices, more than 70 per cent of respondents had how to do knowledge about majority of IPM practices. Regarding mechanical practices majority (82%) of respondents had how to do knowledge of fixing light traps and 73 per cent and 65 per cent of the respondents had how to do knowledge of fixing sex pheromone and fixing yellow sticky traps. With regard to biological practices, 75 per cent of respondents had how to do knowledge of tying *Trichogramma* eggcards, followed by 65 per cent respondents of spraying neem oil. Among chemical practices, more than 60 per cent of respondents had how to do knowledge about spraying safe insecticides and spraying herbicide.

INTRODUCTION

Cotton is a major cash crop grown in India. Cotton accounts for around 70 per cent of the total fibre consumption in India. Further, export of cotton bales earns a sizable foreign exchange for the country. The use of pesticides had become indispensable for modern strategy of crop production in India particularly under an Intensive Agricultural District Programme. The projected food, fuel wood and fodder requirements in 2025 AD will be 240 m tones, 325 m. cum and 850 m. tones respectively to meet the requirement of about one billion human population and 392 million livestock population. To meet these challenges, it is of utmost importance that in future the insect problems would have to be tackled through Integrated Pest Management (IPM). IPM has been defined by Pretty et al (1992) as the integrated use of some or all the pest control strategies in a way that not only reduce pest population to economically acceptable levels but it is sustainable and non-polluting. The IPM programme aims at educating the farmers and extension agencies through Farmers Field Schools (FFS). Under FFS programme, farmers are made experts in identifying natural enemies of pests, monitoring regular pests and taking suitable management measures. In the year 1999-2000 under ICDP (Intensive Cotton Development Programme) totally 1500 FFS were organized and 45000 cotton growers were trained throughout India (Ananymous,2001).

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SPECIFIC OBJECTIVE OF THE STUDY

The specific objective of this study was how to do knowledge of Integrated Pest Management (IPM) adopting cotton growers under irrigated agro-ecosystem in Coimbatore district of Tamil Nadu, India.

REVIEW OF LITERATURE

Sophia (1991) stated that among the dryland farmers more than 60 per cent of the farmers possessed good how to do knowledge in dryland practices of summer ploughing, seed rate, seed treatment, intercropping with cotton and cluster bean system, fertilizer application and chemical control of bollworms. Vennila (1998) found that 50 per cent of the respondents had medium level, followed by low (29 %) and high (21%) levels of how to do knowledge.

RESEARCH METHODOLOGY

Coimbatore district stands first in total number of IPM-FFS training programmes conducted for cotton throuout the Tamil Nadu State over the years and hence, it was selected for the study. The highest area under cotton and maximum number of IPM -FFS training programmes conducted were considered as the criteria to select the Taluk representing irrigation condition. The same criteria were used for selection of Block where Madukarai block under irrigated condition were selected. In Madukarai block, four villages were selected. A sample of 100 farmers was selected for study. This part deals with the specific objective was to study the how to knowledge of IPM oriented cotton growers under irrigated condition.

How to do knowledge consists of information that is necessary to use an innovation properly. The adopted must understand what quantity of an innovation to secure, how to use it correctly and so on (Rogers 1983). The list of items that would help to measure the how to do knowledge on recommended IPM technologies were prepared in consultation with Entomologist, Extension Scientists and by referring to the IPM-FFS Guide. The items were categorized into cultural, mechanical, biological and chemical practices. The respondents were collected on a two-point continuum of 'correct' and 'incorrect'. Percentage analysis was worked out to study the practice-wise how to do knowledge of respondents on IPM practices.

RESULTS AND DISCUSSION

Practice-wise how to do knowledge of IPM practices under Irrigated condition

The distribution of cotton growers according to practice-wise how to do knowledge under irrigated condition is presented in Table – 1.

A. Cultural Practices

It is seen from the Table -1 that under irrigated condition, with respect to cultural practices, nearly or above three-fourth of respondents had been correct in how to do knowledge practices viz., applying FYM(Farm Yard Manure)/compost (79%), summer ploughing (78%), treating seed with *Azospirillum* biofertilizer (76%) and applying neem cake (73%). The remaining practices were answered incorrectly by majority of the respondents like treating seed with mixture of *Trichoderma* and *Pseudomonas* biofungicide (86%) and seed hardening with pungam leaf extract (85%).

B. Mechanical Practices

Table 1 also reveals that with respect to mechanical practices, under irrigated condition, majority of the respondents were correct in how to do knowledge on fixing light traps (82%), followed by fixing sex pheromone traps (73%), fixing yellow sticky traps (65%), clipping the terminal portion of main stem (63%) and fixing 'T' shaped poles (34%). Above eighty per cent (85%) of the respondents answered incorrectly by covering dark blue cloths in the field. This might be due to this complex, time and money consuming practice most of the farmers not willing to accept.

C. Biological Practices

The Table 1 indicates that under irrigated condition, with respect to biological practices, three-fourth (75%) of the respondents had been correct in how to do knowledge about tying *Trichogramma* egg cards, followed by nearly two-third (65%) of the respondents about spraying neem oil and 36 per cent about spraying NPV (Nuclear Poly Hedrosis) virus. The reason for higher proportion of respondents under irrigated condition having how to do knowledge of tying *Trichogramma* eggcards and spraying neem oil might be due to that these practices do not require skill other than deciding the quantity and numbers. The remaining practices were answered incorrectly by majority of the respondents like releasing the egg, larval parasitoid: *Chelonus blackburni* (94%) and spraying pungam oil ((90%).

Table 1. Practice-wise how to do knowledge of IPM practices under irrigated condition

(N =100)

S.NO	PRACTICES	Correct	Incorrect
A	**CULTURAL**		
1	Applying FYM(Farm Yard manure)/Compost	79.00	21.00
2	Summer ploughing	78.00	22.00
3	Treating seed with *azospirillum* bio-fertilizer	76.00	24.00
4	Applying neem cake	73.00	27.00
5	Acid delinting of cotton seeds	37.00	63.00
6	Treating seed with fungal bioagent : *Trichoderma*	35.00	65.00
7	Seed hardening with pungam leaf extract	15.00	85.00
8	Treating seed with mixture of *Trichoderma* and *Pseudomonas* fungal bioagents	14.00	86.00
B	**MECHANICAL**		
1	Fixing light traps	82.00	18.00
2	Fixing sex pheromone traps	73.00	27.00
3	Fixing yellow sticky traps	65.00	35.00
4	Clipping the terminal portion of main stem	63.00	37.00
5	Fixing 'T' shaped poles in the cotton field	34.00	66.00
6	Covering dark blue cloths in the field	15.00	85.00
C	**BIOLOGICAL**		
1	Tying *Trichogramma* egg cards	75.00	25.00
2	Spraying neem oil	65.00	35.00
3	Spraying viral bio-control agent: NPV(Nuclear Poly- Hedrosis Virus)	36.00	64.00
4	Releasing the predatory Reduvid bug	31.00	69.00
5	Spraying bacterial biocontrol agent thuricide : Bt *Bacillus thuringensis*)	26.00	74.00
6	Releasing the predator *Chrysopa*	12.00	88.00
7	Spraying pungam oil	10.00	90.00
8	Releasing the egg, larval parasitoid: *Chelonus blackburni*	6.00	94.00
D	**CHEMICAL**		
1	Spraying safe insecticides	67.00	33.00
2	Spraying herbicide	66.00	34.00
3	Applying granular insecticides	56.00	44.00
4	Spraying neem based insecticide: *Azadractin*	46.00	54.00

D. Chemical Practices

The Table 1 indicates that under irrigated condition, with respect to chemical practices, majority of the respondents had been correct in how to do knowledge of the practices: spraying safe insecticides (67%), spraying herbicide (66%) and applying granular insecticides (56%). This was followed by 46 per cent having knowledge on spraying neem based insecticides: *Azadractin*. The reason for higher proportion of respondents under irrigated condition having how to do knowledge about spraying herbicide might be due to the fact that there was a heavy weed menace in the cotton fields of the respondents which indirectly forced them to gain knowledge on spraying herbicides.

CONCLUSION

From this study, it is concluded that under irrigated condition, among cultural practices, more than 70 per cent of respondents had how to do knowledge about majority of IPM practices. Regarding mechanical practices majority of respondents had how to do knowledge of fixing light traps. With regard to biological practices, 75 per cent of the respondents had how to do knowledge of trying *Trichgramma* egg cards. Among chemical practices, about 67 and 66 per cent of the respondents had how to do knowledge of spraying safe insecticides and spraying herbicide respectively.

RECOMMENDATIONS

Both central and state Government conduct more number of IPM-FFS training programmes in all the districts in order to increase the how to knowledge of cotton growers by the way

to increase the adoption of IPM practices and reduce the pest menace, finally increase their productive and income of the farmers.

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