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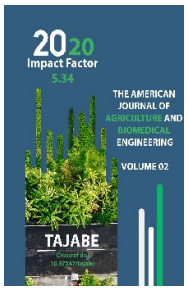

Biological Method Of Plant Protection In Uzbekistan

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ABSTRACT

There are two ways of practical use of a laboratory diluted lacewing. The first is the early (spring) enrichment of borders, roadsides, alfalfa and early crops, and the second is the local use of large rates of entomophage release on early spring sheltered vegetable crops and in greenhouses with the advantage of the release of predator larvae in a ratio of 1: 10-15 victims, as well as adults to enrich a specific agrobiocenosis.

KEYWORDS

Pest, bio-method, entomophage, harmfulness, number of cotton bollworm, economic efficiency, biological efficiency, high density, poaching, trichogramma, lacewing, bio-laboratory, biological method.

INTRODUCTION

As it's known, universally recognized and widely used in many countries of the world, including in Uzbekistan, the so-called integrated plant protection system (IPPC) provides for the implementation of such tactics of plant protection, in which the number (density) of the pest (s) is restrained for economic harmless level, practically reducing their number to the criterion of economic thresholds of harmful numbers (EPV). The control levers of such a system are all possible methods that, to one degree or another, are capable of reducing the number of harmful (s) organisms (organizational and

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economic, agro technical, mechanical, breeding, genetic, biological, chemical, etc.) to an economically insensitive level.

MATERIALS AND METHODS

Consequently, the biological method of plant protection, calculated for the effectiveness of not only artificially flooded bio agents (trichogramma, poaching, lacewing, etc.), but also for the natural self-regulation of arthropods, is one of the elements of ISZM. And since the significance of this method is great, the method of biological plant protection is one of the main and decisive ones in ISPS. Nevertheless, we must not forget that this is only one of the methods of protection, elements of the IPM and that it is not omnipotent. There are results of numerous experiments that indicate that, firstly, in natural conditions, entomophages rarely destroy their prey 100%. At least for this, two factors must coincide: high density and vital parameters of one or several target entomophages and unfavorable climatic conditions for the successful development of the pest.

In the Andijan region, after prolonged depressive years for the development of the cotton bollworm (Helicoverpa armigera Hb.), In 2018 and 201, a massive development of this pest was observed at the outbreak level. In 2018, a series of experiments were carried out on the farms of the Balikchi district to study the effectiveness of trichogramma (Trichogramma pintoi) and poached (Bracon hebetor), produced in local biological laboratories and brought from the biofactory of the Tashkent State Agrarian University (TashSAU). The table shows the diagrams of the experimental variants: the effectiveness of trichogramma (in terms of egg infestation), as well as poaching in terms of the infestation of cotton worm caterpillars.

RESULTS AND DISCUSSIONS

The determination of the optimal timing of the release of the trichogram was made according to the signals of pheromone traps provided by the Institute of Bio-organic Chemistry of the Academy of Sciences of the Republic of Uzbekistan. It follows from the results obtained that the use of laboratory diluted bio agents gave low results. With natural fertility (sterility) of eggs at the level of 35-41% and natural infection of eggs with trichogramma - 2.1-3.7% (control-I), the local population of the parasite showed only efficiency at the level of 13.2 -21.2%, and the one produced in Tash-GAU is better, but even that is only 24.3-44.3%.

Table 1. Dependence of the effectiveness of trichogramma and poaching against cotton bollworms on their quality (Production experience, Andijan region, 22.VII-9.VIII.2018)

№	Experience options	Infestation% by day:					
		Eggs			Caterpillar		
		3	6	9	3	6	9
1.	Trichogramma (local population) - 3-fold release	13,2	21,2	16,5	-	-	-
2.	Trichogramma (Tashkent State Agrarian University) -3-fold issue	24,3	37,2	44,3	-	-	-

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3.	Control-I (natural contamination of eggs with trichogramma)	2D	3,3	3,7	-	-	-
4.	Control-P (natural fertility of eggs)	41,5	36,1	35,0	-	-	-
5.	Bracon (local population) -2x cr. issue acc. 1: 15-20. The general rate is 5000 ind./ha	-	-	-	17,5	34,2	30,5
6.	Brakon (Tashkent State Agrarian University) -2x cr. issue acc. 1: 15-20. The total production rate is 5000 ind./ha	-	-	-	21,4	45,4	47,2
7.	Control (naturally)	-	-	-	3,4	11,2	7,3

The number of caterpillars of the cotton bollworm was so high that it was necessary to release an unusually large amount of poach - 5000 ind./ha. The results also showed that local populations of this parasite are less effective - 17.5-34.2% within 9 days after 2 releases, and from Tash-GAU, respectively - 21.4-47.2%.

Approximately the same results were obtained in our other experiment carried out in the previous (2017) year in the conditions of the Andijan region. Thus, it can be concluded that biological control of the cotton bollworm using trichogramma and poaching is justified in areas with a moderate number of pests in the range of up to 20-25 eggs and caterpillars per 100 plants on average. In cases of danger of occurrence of foci with a higher density of cotton bollworms, it is advisable to use insecticidal protection. At the same time, the effectiveness of the method will again depend on the correct selection of scientifically grounded processing times. Namely, it will be effective in overwhelming cases only when it coincides with the moment of mass egg-laying and hatching of the pest's caterpillars. These terms can be determined only by frequent qualified records of observers-accountants with the involvement of the pheromone control method.

Of particular interest in the biological method of plant protection is the breeding and use of predatory lacewing (family Chrysopidae). As is known, over 10 species of chrysopae live in the agrobiocenoses of the republic (O.Sh. Yuzbashyan, 1975). Among the species are dominated by: the common golden-eye - Chrysopa carnea Steph., Seven-spotted - Ch. septempunctata Wesm. and beautiful - Ch. formosa Br.

The lacewing is a polyphagous predator that destroys representatives of many species of arthropods in biotopes with crops of agricultural crops. It has a number of positive qualities that distinguish it from other entomophages. But at the same time, there are drawbacks that hinder its wider use than it is now. So, it is characterized by pronounced cannibalism at the stage of larval development. This significantly slows down the process of laboratory breeding of the species. And the mechanized process of reproduction, based on the individual development of individuals using IPS (artificial nutrients), is expensive and economically unprofitable (Kuznetsova, Beglyarov, 1984).

CONCLUSION

Meanwhile, in Uzbekistan, a technique has been established for laboratory breeding of

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lacewings on sitotroga eggs and the release of a predator into the fields in the phase of eggs and adults (Mirzalieva, 1986). How effective and cost-effective is this technique? Considering the results of numerous experiments, which have shown that the lacewing is effective in releasing its larvae in a ratio of 1: 10-15 to victims, it can be stated that the desired efficiency cannot be achieved by one lacewing. Firstly, a necessary number of larvae in laboratories can never be produced: secondly, eggs settled in the fields become easy prey for ants, as well as secondary parasites (the counts showed that in June, in cotton fields Fergana region can count up to 350 ants per m2). Third, it can be very expensive in financial terms.

There are two ways of practical use of the laboratory-divorced lacewing. The first is the early (spring) enrichment of borders, roadsides, alfalfa and early crops and the second is the local use of large rates of entomophage release on early spring sheltered vegetable crops and in greenhouses with the advantage of releasing predator larvae in a ratio of 1: 10 to 15 victims, as well as imago - to enrich a specific agrobiocenosis.

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