

EFFICACY OF CHEMICAL PREPARATIONS IN THE CONTROL OF THE LESSER MULBERRY MOTH

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ABSTRACT

Analysis of experiences on testing chemical preparations as “Binsegard”, “Alphamiline”, “Remon Star” in protection of mulberry nurseries from the dangerous pest \square mulberry pyralid has been presented. It has been shown that double processing these insecticides in summer period with an interval 30-35 days allows us in duration 15 days destroy pests up to 100% and up to the processed season end there are no signs of damage to the leaves of mulberry nurseries.

Keywords: chemical preparations, mulberry nurseries, mulberry pyralid

INTRODUCTION

In connection with the development of the concept of integrated pest management in the 70s of the last century, the requirement [1] of safety for the useful components of agrobiocenoses arose. Attention to environmental problems in general has increased. As a result, the assortment of 80s and 90s included preparations from the chemical classes of pyrethroids, benzoylureas, phenylpyrazoles and neonicotinoids, moderately dangerous for warm-blooded animals and entomophages, used at low standards and degraded in environmental objects for one season. Much attention was paid to the search for environmentally unsafe forms of these drugs.

In the paper [2], the tactics of using chemical and biological preparations for the control of fall armyworm on soybeans grown in the Stavropol Territory were proposed, in which it was proposed to use bacterial biological preparations such as Bicol, Bitoxibacillin and their analogues.

Specialists from neighboring Tajikistan in control of tobacco thrips on melon crops has been tested [3] the new insecticide Datrin, 200 eq., which turned out to be more toxic than the reference preparation Danitol, 100 eq. (reference): the biological efficacy of Datrin at the same concentrations was on day 3 \square 98.4% on day 7 \square 96.8% and on day 14 \square 92,9 %; whereas with reference Danitol, these results were 89.5%, 84.2%, and 81.7%, respectively. The results of the insectoacaricide test showed that the specific acaricide Omaite, 570 eq. In the fight against spider mites, it turned out to be the most effective, for which the biological efficacy was on the 3rd day \square 99.2%, on day 7 \square 99.6% and on day 14 \square 94.3%, respectively.

The paper [4] presented the results of the assessment of the biological efficacy of the insecticide Vaiego, KS for the protection of cabbage plantings against lepidopteran pests. It was found that the studied preparation at the consumption rates of 0.15 and 0.25 l/ha can contribute to reducing the number of caterpillars of cabbage moth (*Plutella xylostella* L.) and cabbage moth (*Mamestra brassicae* L.) up to 100%. The insecticide Voliam Targo, SC (0.8 l/ha) made it

possible to limit the number of caterpillars of the cabbage moth by 96.9%, and the number of cabbage moths by 100%. Biological efficacy of Coragen, CS against phytophages reached 100%. Recently, specialists from Russia presented [5] an analysis of the results of research work carried out on the study of plant protection products against harmful insects and mites, the development of regulations for their effective and safe use and the modernization of the range of insecticides and acaricides in the 21st century. The stages of development of the chemical method of plant protection and the improvement of means, methodology and strategies for their use, taking into account modern requirements, were shown. By As a result of the research, an assortment consisting of 350 preparations was formed and allows protecting 53 crops and pastures from individual and/or complex pests.

It should also be noted that there is a study [6] in which it is noted that it is inexpedient to use chemicals in the control of forest pests due to the infliction of greater damage compared to the case of not taking any measures to control the number of harmful insects.

The paper [7] presented the results of assessing the effectiveness of insecticides containing acetamiprid as an active ingredient and its combination with compounds from other chemical groups in protecting grain crops from dominant pests. It was found that pre-sowing seed treatment with an insecticidal preparation helps to reduce damage by larvae of click beetles and cereal flies to winter wheat plants up to 87.0 % and up to 69.9 %. spring barley – up to 91.5% and up to 80.9%, respectively; insecticide-fungicidal action in winter grain crops – up to 93.1%, spring crops – up to 91.4%. The results of production experiments on wheat and triticale of winter crops demonstrated the high efficiency of King Combi, KS in reducing plant damage by ground beetle larvae (by 85.9–90.2%) and winter armyworm caterpillars (by 80.9–84.1%) and the number of phytophages by 73.3% and 90.0%, respectively.

In [8], standard pheromone traps Atracoon and Atracoon A were used to study the species composition and dynamics of apple pest abundance, and when developing methods of synchronous regulation, dispensers with pheromones of the studied species of apple (*Cydia pomonella* L.), plum (*Grapholitha funebrana* Tr.) and oriental (*Grapholitha molesta* Tr.) codling moths, as well as pomegranate moths (*Euzophera bigella* Zell.). The pheromone of the plum codling moth stimulated the capture of the eastern codling moth, which is apparently explained by the similar pheromone molecules. This allows pheromones to be shared in the development of synchronous protection methods.

Lysenko A.A. [9] The drug was used Carpovirusin, which contains codling moth granulosa virus 1x10¹³ granules/l. The mechanism of action of the drug consists in the vertical transmission of the virus when granules are absorbed by newborn larvae. Further, the drug is hydrolyzed in the gastrointestinal tract and virions penetrate into the internal environment of the larva, which leads to the cessation of feeding and death of the larva from septicemia as a result of their transformation into liquid. When treated with the preparation with a consumption rate of 0.1 l/ha by six treatments for generations of codling moths, the harmfulness of the eastern codling moth decreased by an average of 88-90%.

Studies are available [10], which note that the cocoons of the cultivated consumer of mulberry leaves, the silkworm (*Bombyx mori*) are used for the production, in addition to natural fiber, also of some valuable medicines, in connection with which the expansion of the area for the cultivation of mulberry nurseries today is considered a very promising direction.

This paper presents an analysis of the results of experiments carried out to identify the biological effectiveness of chemical preparations in the fight against the most dangerous pest of mulberry nurseries – the mulberry moth (*Glyphodes pyloalis* W.Binsegard was selected as chemicals, 25% of the n.p. (phenoxy carb) (produced by YeroTeam, Uzbekistan), with a consumption rate of 0.5 kg/ha; Alphamilin, 17.6% w.c. (alpha-cypermethrin + diflubenzuron, Belgium □), with a flow rate of 0.5 l/ha and Rimon Star, 6.5% e.c. (novaluron + bifenthrin, country of origin □ is the Netherlands), with a discharge rate of 0.15 l/ha.

The above drugs have proven to be completely safe for warm-blooded animals and humans. Therefore, these preparations can be used in the complex protection of crops from various pests. These preparations were tested in our previous studies [11] in the protection of mulberries from mulberry moths, where high biological efficacy was obtained and it was proposed to include them in the list of permitted preparations in Uzbekistan in the control of pests of agricultural crops.

MATERIALS AND METHODS

The experiments were carried out in farms in the Pakhtaabad district of the Andijan region during the 2021-2023 seasons. For the experiments, sequentially arranged fields were selected in five variants with dimensions of 10200 m for three repetitions in each of the variants. The experiments were carried out in several stages. The first stage of research was carried out in the first half of April 2021 by hanging pheromone traps to collect pests of mulberry nurseries. The purpose of this stage of research was to identify varieties of pests in mulberry nurseries. At the same time, the primary butterflies in traps appeared in May. As the analysis of the identified organisms showed in May 2021, in the selected areas of mulberry nurseries, the mulberry moth and the common spider mite (*Tetranychus urticae*) were mainly damaged. The average infestation of pests was equal: mulberry moth – 37 larvae/nursery and common spider mite – 4.2 individuals/leaf.

Further, the statistics of mulberry moths caught were kept until the beginning of June 2022, by which time the degree of damage to the leaves of mulberry nurseries reached, on average, 21.4%.

Then, in June, three variants of the selected sites were treated with the drugs listed above. The dates of treatments were chosen at the peak of the number of mulberry moth larvae according to the data obtained by pheromone traps and field controls.

In order to compare the data obtained on the effectiveness of the use of drugs in the fourth variant of the experiments, the drug Karate 5% em.c. was also used as a reference., produced by Syngenta Crop Protex AG, Switzerland, with a consumption rate of 0.5 l/ha.

Treatment of nurseries in four variants was carried out twice during the season with an interval of 38 days. Of these, the first treatment was carried out on June 17, the second on July 25, 2022.

RESULTS AND DISCUSSION

The results obtained in both treatments are presented in Table 1.

As can be seen from the table, after 4 days after treatment, if in the first treatment about 50% of the larvae died, then in the second - this figure was about 70%. After 9 days, about 70% and 80% died out in the first and second treatments, respectively. After 15 days after the first and

second treatments, the biological efficacy reached 97% and 100%, respectively. This means that the used preparations, along with the reference preparation, are effective means in the fight against the most dangerous pest of mulberry nurseries - the mulberry moth.

FINDINGS

So, based on the analysis of experiments conducted in 2021-2023 in the Andijan region to test chemicals such as Binsegard, Alfamilin, and Rimon Star in the fight against the most dangerous pest of mulberry nurseries - the mulberry moth, the following conclusions can be drawn:

Firstly, all these means are good means in the control of the mulberry moth even in the case of a pest outbreak;

Secondly, unlike mulberries, mulberry nurseries are recommended to be treated twice a season with an interval of 30-35 days (and not 5-7 days as in the work [11]), in which the highest biological efficiency was achieved and until the end of the season no signs of damage to the nurseries from fire attacks were observed.

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Table 1 Biological Efficacy of Chemical Preparations in the Control of the Lesser Mulberry Moth Field experiments, Andijan region, Pakhtaabad district, manual processing, 2022

variant	Name and rate of expenditure Drugs	Number of mulberry moth larvae, pcs/nursery				Biological efficacy (BE) and standard deviation (ε) of experiments after days after treatment, %					
		Before Processin g	After processing at the end of the days			4		9		15	
			4	9	15	BE	E	BEE	E	BEE	E
Early – 17.06.22.											
1	Binsegard, 25% n.p.r. (phenoxy carb) "EroTeam", Uzbekistan, 0.5 kg/ha	38	20	4	1	47.4	2.7	89.5	0.9	97.4	1.4
2	Alphamilin, 17.6% w.c. (alpha-cypermethrin + diflubenzuron) Belgium, 0.5 g/ha	41	24	14	2	31.7	4.5	65.8	3.1	95.1	2.1
3	Rimon Star, 6.5% bcm. (novaluron+bifenthrin) Netherlands, 0.15 l/ha	34	17	8	1	50.0	4.3	76.5	2.6	97.1	0.7
4	Karate 5% em., 0.5 l/ha Syngenta Crop Protect AG, Switzerland (standard)	37	18	7	1	51.4	4.4	81.1	2.5	97.3	0.8
5	Control	39	46	57	61	-	-	-	-	-	-
Late – 25.07.22.											
1	Binsegard, 25% n.p.r. (phenoxy carb) "EroTeam", Uzbekistan, 0.5 kg/ha	17	4	2	0	76.5	4.6	88.2	2.7	100	0
2	Alphamilin, 17.6% w.c. (alpha-cypermethrin + diflubenzuron) Belgium, 0.5 g/ha	27	9	6	0	66.7	3.3	77.8	4.1	100	0
3	Rimon Star, 6.5% bcm. (novaluron+bifenthrin) Netherlands, 0.15 l/ha	34	17	2	1	50.0	5.2	94.1	1.1	97.1	0.8
4	Karate 5% em., 0.5 l/ha Syngenta Crop Protect AG, Switzerland (standard)	39	11	7	1	71.8	5.1	82.1	1.1	97.4	0.6
5	Control	38	41	43	44	-	-	-	-	-	-

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8	Topic:	Efficacy of Chemical Preparations in the Control of the Lesser Mulberry Moth
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	- Section: (specify)	Entomology
9	Title of the article in the collection:	Efficacy of Chemical Preparations in the Control of the Lesser Mulberry Moth
	Section:	Entomology
10	Display of posters and exhibition materials (specify industry)	No
11	Form of participation in the conference (check as necessary)	- Offline (face-to-face)
12	Need to book a hotel (check as appropriate)	- Yes
13	Date of arrival	13.12.2023
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