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Research Article

COMBAT AGAINST ROLL MOTH IN APPLE ORCHARDS

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ABSTRACT

Before conducting field experiments, we tested dimilin against the gypsy moth in laboratory conditions. In this experiment, only the worms of the pest were taken.

In the version where Dimilin was used, when the drug was used at a concentration of 0.015% of the working liquid, the biological efficiency reached 70.2% by the 7th day of calculation, and when it was used at a concentration of 0.02% of the working liquid, the efficiency was 85.1% by the 7th day of calculation. When the drug Dimilin was used at a working liquid concentration of 0.03%, the biological efficiency reached 89.6% by the 7th day of calculation.

KEYWORDS

Dimilin, drug, eggs, larvicide, pest, worms, mature breed, biological efficiency, insecticide, moth moth.

INTRODUCTION

Horticulture is considered one of the important sectors in our republic, and great attention is paid to providing the population with high-quality and affordable food products. Development of this sector in Kashkadarya

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region, establishment of intensive gardens based on intensive technologies in farms specialized in horticulture, and important conditions for obtaining high and quality crops from existing gardens one is timely implementation of pest and disease control measures.

in Kashkadarya regionunder these conditions, apple trees are heavily damaged by various pests and diseases. The reason for this is the comfort of the natural climate and the sufficiency of the food source. Different groups of arthropods can be found feeding on the apple tree, including leaf, stem, fruit and root pests. In the Khorezm region, among such pests, the moth (Cemiostoma scitella Zell.) has a special place, and the damage caused by it is the majority of the crop. In addition to being found in all regions of Uzbekistan, this pest is also widespread in Central Asia and the CIS countries. Many scientists have developed some indicators for the study of this pest and appropriate control measures for their time [2, 3].in Kashkadarya regionthe development and damage of living organisms can vary significantly in soil and climatic conditions. The area of orchards in this region is 10,290 hectares, of which 8,125 hectares are apple orchards. In relation to other regions of Uzbekistanin Kashkadarya regionThe damage of the moth is much greater.

When Girdak writes the wings of a butterfly 8 -9 mm, silvery-white in color, shiny, with a dark streak on the wings. Eggs are oval white, worms5 mmin length the head is brown. Legs appear from the fourth year of worms. They become domes in a rhomboid cocoon [1].

Mature moths emerge in the spring when trees begin to bud and lay up to 80 eggs on the undersides of leaves. Worms emerge from the part of the embryonated eggs touching the leaf and enter the bark of the leaf. This feature of them makes it difficult to take control measures. The worms feed on the leaf parenchyma without touching the leaf epidermis for 15-30 days. The pore ("mine") created by worms is round in shape, with a diameter of 1-2 cmwill be up to When there are up to 10 pores in one leaf, the leaves drop prematurely [2, 3]. It reproduces by 3-4 generations in a year [1, 5]. They overwinter in the trunk of the tree, under the fallen leaves, under the dried bark of the tree. The main reason for winter diapause is the shortening of day length and lower air temperature [1].

According to the information of foreign scientists FSCharmillat and P.Jselin [5], when apple orchards were treated against fruitworms once with Dimilin in the amount of 0.2 l/ha, the number of pests decreased by 3-5 times, and by two times by up to 20 times. Due to the high ovicidal properties of this drug, 90.0-95.0% of the pest's eggs were killed [6]. Dimilin's effect on eggs is higher than larvicidal properties [6]. According to H. Velcheva, dimilin has a stronger effect on its eggs and mature breeds than on pest worms.

If we take into account that the moth and other moths penetrate into the epidermis of the leaf without leaving the eggs, the control of moths with the help of biologically active substances can give the expected high effect. That's why we conducted research on testing BFM against gyd moth in Khorezm conditions.

RESEARCH METHODS

Laboratory research and field experiments are being carried out in 2019-2021 based on the following methods: Methodology for Conducting Field Experiments (2007), Methodological Guidelines for Testing Insecticides, Acaricides, Biologically Active Substances and Fungicides [4]. Biological efficiency was calculated according to the formula (Abbott, 1925).

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THE OBTAINED RESULTS AND ITS ANALYSIS

In our research results. In 2019-2021, it was found that in the climatic conditions, the moth developed by giving 4 generations per season.

From the conducted observations and researches, it became known that apple worm, spider mite and other types of pests were spread in fruit orchards affected by the moth. Among these pests, the development of the caterpillar moth has increased, unlike other insects, and its damage is very large. During 2017-2021in Kashkadarya regionwas determined in the results of the monitoring carried out in orchards.

Due to the early development of the moth in the conditions of the mid-summer, as a result of severe damage to the leaves of the apple trees, the leaves fall off prematurely, as a result of which the life of the orchards is shortened, and it is observed that the apple trees in many orchards are withered because they cannot withstand the bitter cold of the region in the winter season.

The number and diameter of the pores on the leaf increases and expands as the insect passes from generation to generation. It was found that the number of pores in some leaves was up to 18-23. Such leaves dry up early, they are found to fall and the trees become leafless in the middle of summer. This affects the quality and quantity of the harvest, that is, the fruits fall to the ground, the harvest is crushed, and their quality decreases and the taste is delayed.

Thus, we set ourselves the goal of studying the effectiveness of using hormonal insecticides that affect the growth and development of the insect against the moth.

Before conducting field experiments, we tested dimilin against the gypsy moth in laboratory conditions. In this experiment, only the worms of the pest were taken.

In the version where Dimilin was used, when the drug was used at a concentration of 0.015% of the working liquid, the biological efficiency reached 70.2% by the 7th day of calculation, and when it was used at a concentration of 0.02% of the working liquid, the efficiency was 85.1% by the 7th day of calculation . When the drug Dimilin was used at a concentration of 0.03% of the working liquid, the biological efficiency reached 89.6% by the 7th day of calculation.

At this time, it was observed that the biological efficiency of the model variant was 87.1% compared to the control. Relatively low efficiency can be explained by the fact that experiments were conducted only on worms of the pest in laboratory conditions. Because this drug affects not only worms, but also eggs, mushrooms and adults.

Based on the results of the above studies, Dimilin drug was tested in the open field at the rate of consumption of 0.1-0.2-0.3 l/ha.

Drug per hectare 1000 liters sprinkled with an OPV-1200 sprayer while using water. Each variant of our experiment was repeated in 3 replicates. Nurell-D drug was used as a model.

Practical experienceKashkadarya regionwas carried out in orchards (Table 1). In apple orchards, trees are 10-12 years old R. Composed of Simirenko, Starkrimson varieties. Areas of not less than one hectare were selected for the experimental options. Counting work is done by selecting 5 model trees from each option and 4 sides of the selected model trees 1 meter leaves on the branches were considered and counted.

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The time of spraying Dimilin in the field was carried out at the time of the beginning of the new generation of the moth. This period was determined by observation of mature moths and eggs in laboratory and open field conditions. The experiment was carried out in the field with the first processing on May 17-18, the second on June 20-22, and the third on the second ten days of August. During the second and third treatments, the acaricide Omayt, 57% em.c. (0.15% vol.) was added to the BFM and sprayed as a tank mixture. Nurell-D insect acaricide (0.15% vol.) drug was taken as a template. Control orchards were not treated. In the calculation, the degree of damage to leaves and the reduction of damage in trees affected by the leaf moth were carried out at the end of each of their generations. The results of the experiment are presented in Table 1.

Leaf damage was observed to range from 4.0% to 17.2% in the experimental variants, while damage reduction was found to be 67.4% to 92.4% compared to the control. The obtained additional yield was 38.4-52.1%. At this time, the level of leaf damage in the model variant was 18.2-32.4%, and the reduction in damage was 52.6-58.4% compared to the control. The obtained additional yield reached 22.4 tons/ha. The additional yield obtained in all variants was higher in terms of quality and quantity compared to the control. The main reason for obtaining high biological efficiency when using hormonal insecticides is to use them in scientifically based periods, this period is the period of gross flight of mature breeds and the beginning of laying eggs.

Table 1
Biological efficiency of Dimilin against the spiny moth (treated 3 times per season)

Experience options	The viscosity of the working fluid, %	Consumption rate of the preparation, l/ha	Whirlwind moth						Additional yield obtained, ts/ha
			I generation		II generation		III generation		
			leaf damage rate, %	damage reduction, %	leaf damage rate, %	damage reduction, %	leaf damage rate, %	damage reduction, %	
Dimilin, 48% sus.k	0.01	0.1	24.7	41.4	11.7	52.4	9.2	61.4	12.1
Dimilin + Omayt, 57% em.k.	0.02 + 0.15	0.2 + 1.5	17.2	67.4	9.4	71.4	6.2	89.8	38.4
Dimilin + Omayt, 57% em.k.	0.03 + 0.15	0.3 + 1.5	16.0	71.2	7.2	76.2	5.9	91.6	46.9
Nurell-D, 55% em.k. (template)	0.15	1.5	32.4	52.6	24.3	56.6	18.2	58.4	22.4

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Control (processing not given)	-	-	61.4	-	68.4	-	74.2	-	-

Field experiments, 2019-2021.

Thus, the research conducted on hormonal preparations affecting the growth and development of insects allowed us to conclude as follows.

1. Hormonal preparation against the moth and other pests - the expected high effect was obtained when Dimilin was used at a concentration of 0.02-0.03%.
2. It is recommended to treat each generation of the moth with hormonal preparations once.
3. When other pests, including plant-eating mites, increase, it is possible to use some type of acaricides (Neoron, Omayt, Nissoran) in the form of a tank mixture with hormonal preparations. Thus, when hormonal preparations are used against the moth, it is possible to simultaneously keep other pests at a level below the criterion of economic damage.

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