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Biological Effectiveness of Insecticides in Protecting Potatoes From Root Rodent Tunlams

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Annotation. In this article, we will talk about the autumn nightshade from root rodent tunlams in the potato field (Agrotis segetum Den. et Schiff) and exclamation points (Agrotis exclamationis Den. spread, harm and anti-Telecha 20% k of et Schiff).e. and Ampligo 150 m.k.shut up. in order to determine the effectiveness of their chemical preparations, research was carried out on the farm "Faradis khirmoni" in Upper Chirchik District of Tashkent region and conclusions and suggestions were made based on the results obtained.

Keywords. Root gnats, replanted potato field, root rot, sprouts, nodules, sex pheromone traps, options, biological efficiency.

Introduction. In order to control the number of pests in potato-growing countries of the world, a number of scientific studies have been conducted, and positive results have been put into practice. In particular, in the cultivation of potatoes in Russia, up to 60% of the crop is lost due to pests and diseases. However, according to the results of the research carried out by a number of research institutions, new methods and tools have been developed and productivity has been maintained up to 45%. According to world researchers, the most dangerous pest species in the potato crop are the species belonging to the families Elateridae, Noctuidae, Chrysomelidae, Gryllotalpidae, Meloidogynidae. Therefore, it is important to conduct a number of studies in this direction and develop a system of integrated control against potato pests [10; 11; 12;]. In the main regions of Uzbekistan, the temperature of the air is sufficient, which is a condition for abundant harvest, after the grain crops are planted. It is known from many years of experience that potatoes, cabbage, cauliflower, tomatoes, carrots, onions, cucumbers, beets, radishes, turnips, radishes, garlic, green vegetables, melons, watermelons, and fodder are used as repeated crops after grain on irrigated lands. it is possible to plant crops and get a good quality harvest.

It is important to choose the type of crop, variety and planting time. Because wrongly selected and late planted crops will die due to frost before ripening or their yield may decrease sharply.

According to the results of many years of scientific research, there is a negative correlation between the delay in the planting time of repeated vegetable crops and their yield. In order to obtain a high-quality harvest from repeated crops, it is important to choose the right variety along with the planting time. The most basic and complex agrotechnical measure is to sow repeated vegetable crops after the grain, to collect the sprouts in time and to ensure that the planted seedlings are fully preserved. In order to produce a high-quality harvest of potatoes and vegetables, it is important to choose varieties based on different soil-climatic conditions and alternative planting periods after grain crops [6].

15-20% yield is lost due to the harmful effects of underground pests of agricultural crops, especially grain and vegetable and potato crops planted after grain. Among these pests are autumn moth (Agrotis segetum Den. et Schiff), exclamation moth (Agrotis exclamationis Den. et Schiff), roundworms and false roundworms (Elateridae), bullhead beetles, March calfhead (Melonotha afflicta Ball), harmful bullhead (Polyphylla adspersa Motsch), May gnats (Melolontha melolontha, M. hypocastani) gnaw the roots, stems and leaves of the main and repeated agricultural crops, causing significant damage to productivity. The fact that most of these underground pests are firmly established in the soil due to the fact that the vegetation period lasts for several years, which is the main factor in the damage of 25-30% of seedlings of crops planted in rotation[3;p 82-83.].

Autumn sedge (Agrotis segetum Den. et Schiff) is one of the common pests in irrigated farming areas. The worms of this pest damage hundreds of crops belonging to 34 families. Cotton, alfalfa, sugar beet, corn, grain, oilseeds and vegetables, sugarcane and potato crops, as well as ivy, wild sedge, sorghum, and

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sedge are the most preferred food of the autumn night. Autumn cutworms damage young sprouting crops by damaging the root neck and piercing the seed pods. At the same time, it gnaws the roots or the stems near the root neck, and sometimes damages the above-ground part of lawns [6, 7, 8, 9;].

Agrotis exclamations Den. et Schiff (Agrotis exclamations Den. et Schiff). Cutworms infect 75 plant species, including cereal grains, tobacco, hemp, corn, cotton, sunflower, sugar beets, vegetables, and potatoes.

On the base of the forewings there is a well-known exclamation mark, and its name is based on the same symbol. Unlike the autumn moth, this pest spawns twice a year. Morphological symptoms and lifestyle are very similar to those of the autumn nightshade. [4; p. 122-132, 9; 10; 11; 12; 13; 14;].

Research object and methods. The average number of root gnats in the fall and last season of 1 m2 of the repeatedly planted potato field (calculated separately in and around the field) was calculated, and their density in this field was determined. The biological effectiveness of the study Sh.T. It was determined based on the method of Khojaev (2004) and using Abbot's (1925) equation [5; p. 18-20].

Results of research. In order to determine the effectiveness of insecticides against root gnawing autumn (Agrotis segetum Den. et Schiff) and exclamations tunlam (Agrotis exclamations Den. et Schiff), it was carried out on a 2.5-hectare replanted potato field of the farm "Faradis threshing" of Urochi Chirchik district, Tashkent region. Phenological observations were made on the tunlams, and their egg-laying, emergence of a new generation, and migration periods were studied.

Sex pheromone traps were used to control the flight of autumn and exclamation butterflies [p 2;22-25.].

"Santa" potato variety was selected and planted in the experimental area. In a fully germinated potato field, in order to determine the appearance and prevalence of autumn and early fall worms, as well as the effectiveness of new chemical preparations, Telecha 20% k.e. of the Uzbekistan firm OOO"Agrobiznes" drug was taken. As a benchmark for this drug, Ampligo 150 m.k.sus. received. From the day of administration of the preparations taken for the experiment, the control observations were analyzed from 3 days. The results are presented in Table 1 below. According to the results of the conducted research, Telecha 20% k.e. in the version where the drug was used, it was 2.8 units in the control, the biological efficiency was 70.1% 3 days after the drug was used, and it was the highest by the 7th day, i.e. 85.6%. The efficiency reached 81.2% by 14 days after the use of the drug. By day 21 of our observations, the efficiency was 75.1%, respectively.

Ampligo 150 m.k.sus, taken as a benchmark in the test field. and in the used option, the drug was 1.8 units before use, and from 3 days after the use of the drug, the biological efficiency was 68.5%, and in this option, by the 7th day, the efficiency was the highest, 82.4% was 77.5% by 14 days. By 21 days after the use of the drug, the efficiency decreased slightly, that is, it was 76.5%.

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Table 1.

Biological effectiveness of chemical preparations against fall and nightworms.

(2.5-hectare replanted potato field of the "Faradis threshing" farm, Upper Chirchik district, Tashkent region. August 2020-2021)

№	Experience options.	The active substance of the drug.	Consumption rate, l/ha.	The number of worms in 1 m2 of the area before applying the drug, pcs.	The number of worms, pieces, days after the use of the drug.				Biological efficiency, days, %.			
					3	7	14	21	3	7	14	21
1	**Telecha 20% к.э.**	Esfenvalerate 200 g/l.	0,7	2,8	1,1	0,6	1,2	1,6	70,1	85,6	81,2	75,1
2	**Ampligo 150 m.k.sus. (benchmark)**	Lyamdatcyhalothrin 50 g/l + chloratranilirol 100 g/l.	0,4	1,8	0,8	0,6	1,0	1,2	68,5	82,4	77,5	76,5
3	Control (unprocessed)	-	-	2,5	3,3	4,5	5,7	6,3	-	-	-	-

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Conclusions and suggestions. The results of the conducted research show that timely and effective use of pheromone traps is an important factor in controlling the number of autumn and late nightworms in the main and repeated potato field from the time of potato germination.

Ampligo 150 m.k.sus. High biological efficiency can be achieved by timely application of the drug at the rate of 0.4 l/ha per hectare.

In the fields planted with winter wheat, and with late vegetables and potatoes as a previous crop, root rot beetles overwinter and cause serious damage to the next year's vegetable and potato crops.

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