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SELECTION OF EFFECTIVE CHEMICALS IN THE FIGHT AGAINST WIDESPREAD RODENTS IN INTENSIVE APPLE ORCHARDS IN THE CONDITIONS OF KHOREZM REGION

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Abstract
This article deals with protection against common rodent pests in intensive apple orchards in Khorezm region, the use of agrotechnical, biological and chemical methods harmful to the environment and human health, and the fight against rodent pests in apple orchards. is to study the effectiveness of using new chemical preparations.

Keywords: Apple worm, apple fruit eater, drug, method, fungus, pheromone trap.

Introduction

About 50 percent of pome fruit crops are damaged by the apple borer. Every season, apple, pear, and quince trees lose most of their fruit buds, flowers, and fruit due to damage by the apple borer. Often, pome fruit trees rot and become unsalvageable due to damage by the apple borer.

The apple maggot is found in almost all areas where apples grow. It is found in Europe (except the north), Crimea, the Caucasus, Central Asia, Kazakhstan, Western Siberia, Afghanistan, Iran, Turkey, North Africa, North America, Australia and New Zealand. The apple maggot overwinters in the larval stage, which is ready to pupate. It overwinters under the bark of the same tree under which it lived, and partly in the bark, in the cracks and crevices of nearby buildings, garden equipment, boxes, fruit warehouses, in the surface soil layer under trees or under soil grains [8].

The female lays eggs on the leaves and nodes of apple, quince and pear trees, usually in the upper part, when the air temperature is not lower than 16°C. According to observations around Tashkent, the damage to trees is 48% in the upper part, 32% in the middle part and 20% in the lower part. The butterfly lays several dozen (on average 50) eggs in its lifetime. The larvae that hatch from the eggs feed on the flesh and seeds inside the fruit. 60-80% of the larvae enter the fruit through the calyx, while the rest enter from the side and lower surface of the fruit. The larva penetrates under the fruit peel, opens a chamber in the flesh of the fruit and feeds in it for some time. Then the larva passes through the vascular node under the seed nest to the seed chamber. It opens a spiral channel to pass from the surface of the fruit to the vascular node [7].

The apple fruit borer overwinters as a last young caterpillar in a "swing" in various places (under the bark, false belt, box, bag, under special sticks, soil near the ground surface). In spring, when the average air temperature for 10 days exceeds 10°C, the caterpillars gradually begin to pupate.

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Since this process is prolonged, the emergence of the butterfly also takes 1.5-2 months. The apple fruit borer has a high ability to adapt to conditions, and even some hibernating (diapause) caterpillars can remain until the next year. The emergence of the butterflies can occur 2-3 weeks after the caterpillars pupate. In this case, the males appear first [8].

In order to reduce the number of pests, new chemical agents were selected and tested when the number of apple fruit borers, roundworms and other rodent pests sharply increased. The studies were conducted in the "Karimboy Rashid ota bog'i" f/x in the Khanka district and in the 4-hectare intensive apple orchards of the PSUITI Khorezm ITS in the Urgench district, planted with the "Goldon Delishes" variety, planted 5 years ago.

In this case, after determining the flight periods of apple fruit moths based on sex pheromone traps in the experimental fields, observations were made after an average of 8-9 butterflies landed on one pheromone. The experiment was carried out early in the morning on May 10, 2024, after the apple blossoms had shed an average of 78% of the flower petals. The second treatment was carried out on June 22, after the total flight period of the second generation of moths of the pest had ended. At the end of the season, the effectiveness of chemical preparations was determined in relation to a healthy harvest of fruits.

Accordingly, from the chemical preparations, the Bifstar 10% e.k. preparation with the active ingredient bifenthrin (at a rate of 1 l/ha) and the Alfagard 10% e.k. preparation with the effect of alphacypermethrin (at a rate of 1 l/ha), as well as the Karate kadam e.k. preparation with the effect of lymdacyclo-halothrin (at a rate of 1 l/ha) were selected.

Results and Discussion

According to the conducted studies, in our version of the chemical preparation Bifstar 10% e.k., in which the average number of fruits per apple tree was 520.5 pieces per hectare, of which 65.7 pieces were dropped during the season. Of these, 17.4 pieces were damaged by the apple fruit borer, 48.3 pieces were mechanically damaged (due to disease, external influences and wind). The number of fruits damaged by the apple worm on the tree was 22.8 pieces. The proportion of healthy fruits grown in relation to the total harvest during the season was 92.3%.

According to the results of the study, in our version of the chemical preparation Alfagard 10% e.k. used at a consumption rate of 1 l / ha, the average number of fruits per apple tree was 525.1 pieces, of which 71.6 pieces were dropped during the season. Of these, 20.8 pieces were damaged by the apple fruit borer, and 50.8 pieces were mechanically damaged (disease, external influences and wind). The number of fruits damaged by the apple worm on the tree was 23.7. The proportion of healthy fruits grown in relation to the total harvest during the season was 91.53%.

In our dosage variant, when the chemical preparation Karate Kadam e.k. was applied at a rate of 1 l/ha, the average number of fruits per tree at the beginning of the season was 515.3 pieces, of which 72.8 pieces were dropped during the season. Of these, 24.9 pieces were damaged by the apple fruit borer, and 47.9 pieces were mechanically damaged (due to disease, external influences, and wind). The number of fruits damaged by the apple worm on the tree was 28.5. The proportion of healthy fruits grown in relation to the total harvest during the season was 89.6%.

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1-Table Economic effectiveness of preparations used against rodent pests of the Golden Delicious variety in intensive apple orchards (Khonka and Urgench districts of Khorezm region, 2024, using the Fomenko method).

Variants	Consumption rates in l/ha	Preserved crop (grains)	Damaged fruits, %	Yield saved compared to control, t/ha
Control	-	253,9	35,8	
Bifstar 10% em.k (bifentrin)	1	432	7,72	47.1
Alfagard 10% em.k (alfasipermetrin)	1	429.8	8,47	46,2
Karate kadam. em.k (lyamdasiklo-galotrin) ***template***	1	414	10,4	41.4

In our control variant, at the beginning of the season, there were an average of 522.4 apple fruits per bush, of which 185.6 fruits were dropped during the season. Of these, 122.4 were dropped due to apple fruit borer damage, and 63.2 were mechanically damaged (disease, external influences, and wind). The number of fruits damaged by the apple worm on the tree was 68.3. Table 1 shows that healthy fruits produced in relation to the total harvest during the season accounted for 35.8%. In the control variant, the yield per 1 hectare of orchard was 47.1 c/ha when treated with Bifstar 10% e.c., 46.2 c/ha when treated with Alfagard 10% e.c., and 41.4 c/ha when treated with Karate kadam e.c., compared to the control.

Conclusions

1. Research work carried out in 2023-2024 was carried out on the “Golden Delishes” variety in intensive apple orchards of the Khanka and Urgench districts. According to the results of the study, the economic efficiency of the chemical preparations used for testing against rodent pests was 46.2 t/ha when treated with the Bifstar 10% e.k. preparation, 47.1 t/ha when treated with the Alfagard 10% e.k. preparation, and 41.4 t/ha when treated with the Karate kadam e.k. preparation.
2. It was studied that when treated with the Bifstar 10% e.k. preparation, 0.9 t/ha was saved compared to the Alfagard 10% e.k. preparation, and 6.7 t/ha was saved compared to the Karate kadam e.k. preparation.

References

1. Яхонтов В.В. Ўрта Осиё қишлоқ хўжалиги зараркунандалари. – Тошкент: “Ўрта ва олий мактаб”, 1962. – Б. 368-382.
2. Хўжаев Ш.Т. ва б. Инсектицид, акарицид, биологик фаол моддалар ва фунгицидларни синаш бўйича услубий кўрсатмалар (II-нчи нашр). – Тошкент, 2004. – 104б.
3. Бондаренко Н.В. Биологическая защ ита растений. 278-с.
4. Doljenko, V.I. Primenenie sinteticheskogo polovogo feromona ShIN-ETSU MD STT, D / V.I. Doljenko, L.A. Burkova, T.V. Doljenko // Zaщita i karantin rasteniy. – 2018, № 5. – S. 23–25.
5. Dospexov, B.A. Metodika polevogo opыta. M.: Agropromizdat, 1985. – 307 s.

Volume 3, Issue 4, April - 2025
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6. Sulaymonov B., Xamdamov K., Raxmonova M. Mevali daraxtlarni zararkunandalardan ximoya qilishni biologik usuli. // O‘zbekiston agrar fani habarnomasi. – Tashkent, 2017. – № .4 (70). – B. 102-103. (06.00.00.№7).
7. Sulaymonov B., Xamdamov K., Raxmonova M. Mevali bog‘larda uchraydigan ɔntomofaglarning sistematik tahlili. // O‘zbekiston qishloq xo‘jalik jurnali. – Toshkent, 2018. – № 10. – B. 40-41. (06.00.00№4).
8. Sulaymonov B., Xamdamov K., Raxmonova M. Olma mevaxo‘ri (*sorpocapsa pomonela* L) sonini boshqarishda tirixogramma chilonisni ko‘llashning biologik samaradorligi. // Agro kimë himoya va o‘simliklar karantini jurnali – Toshkent, 2018. – № 3(7). – B. 32-33. (06.00.00.№11).

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