EduVision: Journal of Innovations in Pedagogy and Educational Advancements
Volume 2, Issue 4, April 2026
brightmindpublishing.com
ISSN (E): 3061-6972

BIOLOGICAL EFFECTIVENESS OF APPLICATION OF BIFSTAR 10% EM. K PREPARATION IN GROWING PEAR SEEDLINGS

G'apparov Otaboy Boltayevich
Head of the Department of Agrotechnology and Plant Protection,
Khorezm Scientific Experimental Station, Scientific Research Institute of Horticulture, Viticulture and Winemaking named after Academician M. Mirzayev.

Qurbonova Dilnura Bagandik qizi
Student at Urgench State University named after Abu Rayhon Beruni

Abstract
This article presents an analysis of the results of experiments conducted to determine the biological effectiveness of chemical preparations against root pests of pear seedlings - cockchafer (Scarabaeidae) beetles. Bifstar 10% em.k (bifenthrin) was selected as the chemical preparation, which was used at a consumption rate of 1 l/ha.

Keywords: pest, pear, root, drug, variant, return.

Introduction

Melonthine beetles – (Scarabaeidae). Three species of melonthine beetles damage forest ornamental trees: the harmful melonthine (Ro1uhrulla adspersa Motsch.), the three-toothed melonthine (Ro1uhrulla tridentata Reit), and the March melonthine (Meloontha aticta Val11.). The larvae of melonthine beetles gnaw at the roots of trees, depriving them of strength, and sometimes drying out young seedlings in nurseries. In addition to fruit trees, melonthine beetles damage vines, ornamental trees, and shrubs, and sometimes damage crops planted in place of damaged orchards.[1]

The harmful calf beetle is the most common beetle. The body of the harmful calf beetle is 2-3 cm long, brown, with small white scales on the surface. There are long white hairs on the lower part of the chest and on the soles of the legs. The male is smaller than the female. The eggs are white, elongated-ovoid in shape, initially 4-5 mm, before hatching the larvae are 6 mm. Before turning into a pupa, the larva reaches a length of 6.5 cm. The body is curved in an arc (the back is convex). The back of the body is thicker, white or light yellow. The head is light brown, the tips of the jaws are

EduVision: Journal of Innovations in Pedagogy and Educational Advancements
Volume 2, Issue 4, April 2026
brightmindpublishing.com
ISSN (E): 3061-6972

black. One pair of hind legs is longer than the front pair. On the front joint of the body, on the upper side of the side, there is a single narrow, yellow chitinous shield. The anal opening is transversely yellow, with two parallel rows of small spines on the last joint, the tips of which are directed inward. The dome is 4 cm long, yellowish-white. The three-toothed calf beetle is distinguished from the harmful calf beetle by the white scales on the wing shields, which are thickened and form a cluster of spots, and by the fact that the larvae have an angular protrusion in the middle of the front edge, which looks like three teeth when viewed from above. The sides of the thorax are covered with thick white scales. The eggs, larvae and dome are similar to those of the harmful calf beetle.

The stages of development of methods and means of chemical plant protection, taking into account the improvement of methodology and modern requirements, and the strategy of their use are shown. As a result of the research, an assortment consisting of 350 preparations was formed, which allows protecting 53 cultivated crops and pastures from individual or complex pests.[1,2]

It was found that pre-sowing treatment of seeds with an insecticidal preparation reduced the damage caused by beetles and grain fly larvae in winter wheat by 87.0% and 69.9%, respectively, and in barley by 91.5% and 80.9%. In addition, when sowing winter cereals, the insecticide-fungicide treatment eliminated 93.1% of pests and in oats by 91.4%. The results of experiments conducted on wheat and winter triticale crops showed the high efficiency of the King Kombi, KS preparation in reducing damage to plants by ground beetle larvae by 85.9–90.2%, by fall armyworms by 80.9–84.1%, and the number of phytophagous insects by 73.3 and 90.0%.[5,6]

This work presents an analysis of the results of experiments conducted to determine the biological effectiveness of chemical preparations against root pests of pear seedlings - cockchafers (Scarabaeidae). Bifstar 10% em.k (bifenthrin) was selected as the chemical preparation, and it was used at a consumption rate of 1 l/ha. [3,6]

Materials and Methods

The experiments were conducted in the 2024-2025 seasons in farms of the Urgench district of the Khorezm region. For the experiments, 3 plots of 10×200 m each were selected in 3 adjacent plots. The experiments were conducted in several stages. The initial stage was carried out in the first half of April 2024 by collecting pests of pear seedlings. The purpose of this stage was to determine the species composition of pests

EduVision: Journal of Innovations in Pedagogy and Educational Advancements
Volume 2, Issue 4, April 2026
brightmindpublishing.com
ISSN (E): 3061-6972

of the root system of pear seedlings. Analysis of the organisms collected by May 2024 showed that the roots of pear seedlings in the selected areas were mainly damaged by the larvae of the calf beetle, with the average number of pests being 5-6 per seedling.[2,7]

Subsequently, the collected statistics of the calf head worms were carried out until the beginning of June 2025. By this time, the average degree of damage to the roots of pear seedlings was 14.4%.

After that, in June, we treated the selected areas with the drug Bifstar 10% em.k (bifenthrin) in the 1st variant. The time of treatment was determined by the time of the peak of the calf head beetle worms. In order to compare the results obtained, the biological effectiveness of the drugs was compared in the 2nd variant, as a standard, the drug Karate, 5% em.k. was used at a consumption rate of 0.5 l / ha. Finally, in the 3rd variant, no treatment was carried out, that is, it remained under control.

In the first 2 variants, treatment was carried out 2 times during the season with an interval of 35 days. The first treatment was carried out on June 17, and the second treatment was carried out on July 20. The number of surviving worms was recorded 3 times, namely 4, 9 and 15 days after each treatment with the preparations.

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

Table 1 Biological effectiveness of the use of the drug Bifstar against calf tapeworms (2024-2025)

variant	**Name of drugs and dosage**	**Number of worms, pcs/plant**				**Biological efficiency (BE) and standard deviation (ε) of experiments, days after treatment, %**					
		Before processing	**After processing, after a day**			**4**		**9**		**15**	
			4	**9**	**15**	**BS**	**ε**	**BS**	**ε**	**BS**	**ε**
In the early stages – 17.06.2025.											
1	Bifstar 10% em.k (bifentrin) 1 **l/ga**	6	4	2	1	33.3	2.7	66.7	0.9	80.0	0.8
2	Karate kadam. em.k (lyamdasiklo-galotrin) ***andoza***	6	4	1	1	33.3	2.7	80.0	0.9	80.0	0.8
3	**Control**	6	6	7	7	-	-	-	-	-	-
In the evening hours – 20.07.2025.											
1	Bifstar 10% em.k (bifentrin) 1 **l/ga**	5	2	1	0	40.0	4.6	20.0	2.7	100	0
2	Karate kadam. em.k (lyamdasiklo-galotrin) ***andoza***	5	2	1	0	40.0	4.6	20.0	2.7	100.0	0
3	**Control**	5	4	3	3	-	-	-	-	-	-

EduVision: Journal of Innovations in Pedagogy and Educational Advancements
Volume 2, Issue 4, April 2026
brightmindpublishing.com
ISSN (E): 3061-6972

As can be seen from the table, 4 days after treatment, 50% of the worms died in the first variant, while in the second variant this figure was 70%. After 9 days, 70% and 80% of the pests were eliminated in the 1st and 2nd variants, respectively. 15 days after the first and second treatments, the biological efficiency was 97% and 100%, respectively. The slow increase in the number of pests in the first treatment and the slow decrease in the control variant can be explained by the transition of the larvae of the calf beetles to the pupal stage. This indicates that the use of the drug, like the standard drug, is an effective tool against the root pests of pear seedlings - calf worms.

Conclusion

Based on the analysis of the results of experiments conducted in the Khorezm region on the use of the drug Bifstar 10% em.k (bifenthrin) against the root pests of pear seedlings, the following conclusions can be drawn:

-firstly, the drug Bifstar 10% em.k (bifenthrin) is a good tool for use against the pest even during its outbreak;

-secondly, it is recommended to treat pear seedlings twice during the season with an interval of 30 days. In this case, the highest biological efficiency is achieved and until the end of the season, damage from the beetles will not be observed;

-thirdly, although the number of the pest worms did not increase in the control option, this option is dangerous in that it creates good conditions for the next stage of development of the beetles - pupation and subsequent reproduction.

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.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.

4. Dospexov, B.A. Metodika polevogo opыta. M.: Agropromizdat, 1985. – 307 s.

EduVision: Journal of Innovations in Pedagogy and Educational Advancements
Volume 2, Issue 4, April 2026
brightmindpublishing.com
ISSN (E): 3061-6972

5.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).

6.Sulaymonov B., Xamdamov K., Raxmonova M. Mevali bog‘larda uchraydigan ɜntomofaglarning sistematik tahlili. // O‘zbekiston qishloq xo‘jalik jurnali. – Toshkent, 2018. – № 10. – B. 40-41. (06.00.00№4).

7.Otabek, B., Ma’mura, J., & Maxmuda, S. (2024). Periods of Transition of Vegetation Phases of Khoraki Varieties of Grapes in Khorezm Region Conditions. American Journal of Language, Literacy and Learning in STEM Education (2993-2769), 2(1), 202-204.