

## THE EFFECTIVENESS OF *TRICHOGRAMMA DENDROLIMI* AGAINST THE *YPONOMEUTA MALINELLUS ZELL*

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**Abstract.** This article presents the results of the biological efficacy of *Trichogramma dendrolimi* when used against eggs of the apple moth-*Yponomeuta malinellus* Zell. The experiments were conducted in the "Aim-2" department of the Andijan Forestry.

**Keywords:** forest, lepidoptera, entomophagus, trichogramma dendrolimi, trichocarta, yponomeuta malinellus zell, biological efficacy.

Our scientific research has proven that a large number of representatives of the Lepidoptera family cause damage to the forest biocenosis of our country. Scientific research on the use of *Trichogramma dendrolimi* species against eggs of the studied pest species has continued.

Newly introduced, acclimatized and scientific protection of plants from representatives of the Lepidoptera family, such as the codling moth (*Yponomeuta malinellus* Zell.), fruit moth (*Erschoviella musculana* Ersch.), which are common in the forestry of Andijan and Tashkent regions. conducted scientific research on the use and biological effectiveness of *Trichogramma dendrolimi* species propagated in the biological laboratory of the DUK scientific center and in the central biological laboratories of the Andijan region.

The effectiveness of *Trichogramma dendrolimi*, a parasitic wasp species, against *Yponomeuta malinellus* Zell, a destructive moth pest, has been a subject of scientific investigation. *Yponomeuta malinellus* Zell, commonly known as the apple ermine moth, poses a significant threat to apple orchards worldwide due to its ability to defoliate trees and reduce fruit yields. *Trichogramma dendrolimi* is a natural enemy of *Yponomeuta malinellus*, known for its ability to parasitize the eggs of the moth, thereby disrupting its life cycle. This topic explores the research conducted to evaluate the effectiveness of *Trichogramma dendrolimi* as a biological control agent against *Yponomeuta malinellus*, considering factors such as parasitism rates, impact on pest populations, and potential implications for sustainable pest management strategies in apple orchards.

It is important to use *Trichogramma* species and determine their effectiveness based on scientifically based methods, studying the climatic conditions of the region and the biological characteristics of the species.

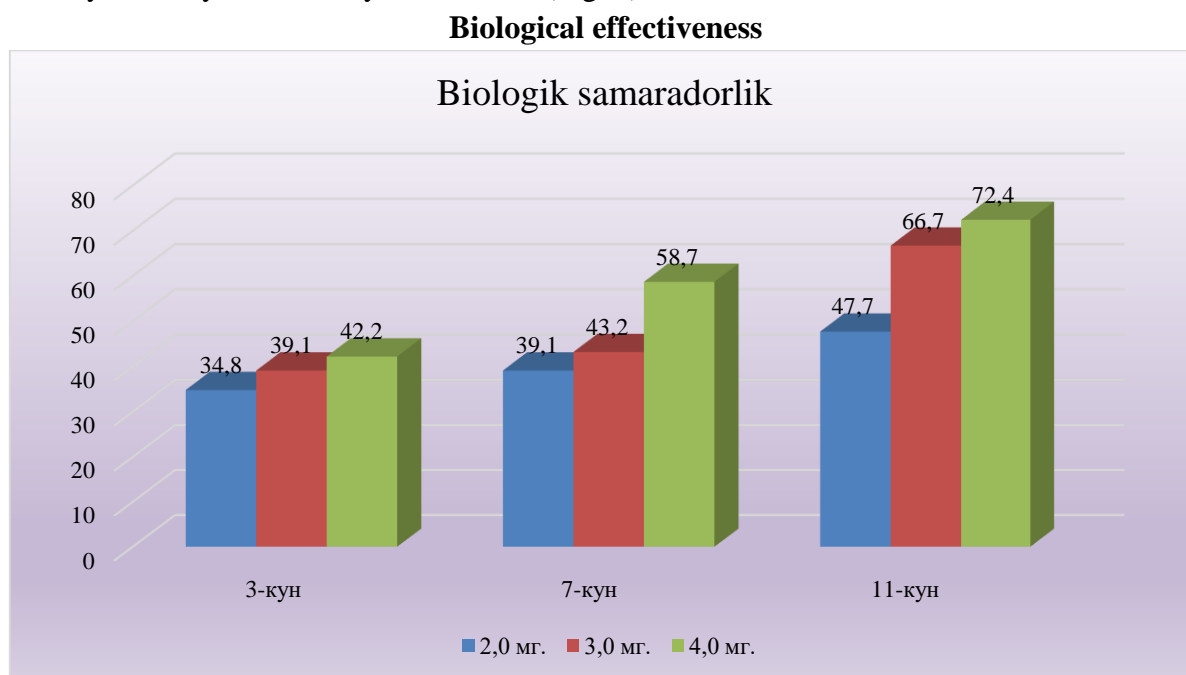
To ensure the accuracy of our research work, scientific studies were conducted in various regions.

We conducted initial research in 2019-2020 in the Oyim-2 forestry of the Andijan forestry enterprise.

Determination of areas of mass reproduction of the pest codling moth (*Yponomeuta malinellus* Zell.) depending on the oviposition period

We conducted the study in three ways. In the biocenosis of this forestry, in addition to ornamental trees, there are fruit trees; Apple trees, walnuts, quinces and cherries are common. The density of eggs of the pest apple codling moth (*Yponomeuta malinellus* Zell.) on an apple tree was determined. It has been established that the apple tree contains 240-250 bushes per 1 hectare.

We carried out each of our experiments in three versions. According to it, against the codling moth (*Yponomeuta malinellus* Zell.), the entomophagous parasite *Trichogramma dendrolimi*, in an amount of 2.0 mg/tree and 4.0 mg/tree in special trichocardi on model trees on the site. 1 hectare is applied. To determine the biological effectiveness, observations were carried out every four days, i.e. on days 3-7 and 11 (Fig. 1).



**Figure 1. Application of the entomophage *Trichogramma dendrolimi* against the codling moth (*Yponomeuta malinellus* Zell.) and determination of its biological effectiveness. Forestry "Oyim-2" 2019-2020**

The descendants of this *Trichogramma* were distributed on trichocardas in a mushroom shape. During the research period, the air temperature was 31+2, relative humidity 58+2.

In our first option, when using the entomophagous parasite *Trichogramma dendrolimi* against the apple codling moth pest (*Yponomeuta malinellus* Zell.) in an amount of 2.0 mg/tree, the infestation of eggs by the parasite was 34.8% on the 3rd day - 39.1. % on the 7th day and 39.1% on the 11th day and a biological effectiveness of 47.7% was achieved.

In our second option, the entomophagous parasite *Trichogramma dendrolim* was used against the codling moth pest three times over 10 days, from the first ten days to the third ten days of June. In the second option, when using 3.0 mg/tree, biological efficiency was achieved on the 3rd day of 39.1%, on the 7th day - 43.2%, on the 11th day - in terms of egg damage - 66.7%.

**Conclusion.** According to the results of our third option - 42.2% on the 3rd day of using the entomophagous parasite *Trichogramma dendrolimi* against the codling moth (*Yponomeuta malinellus* Zell.) in an amount of 4.0 mg/tree, 58.7% - after the 7th day and on the 11th day, the pest eggs were infected with *Trichogramma dendrolimi*, the highest biological efficiency was determined - 72.4%.

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