



TRICHOGRAMMA APPLYING METHOD AGAINST CODLING MOTH

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Abstract

In recent years, the horticultural area expansion, especially due to the intensive gardens establishment, changes in the agricultural placement structure in the country requires a scientific approach to changes in the species composition of organisms formed on the basis of the food chain over the years, the introduction of new entomophagous species, protection of fruit crops from pests in horticulture, increasing the control measures importance against them.

Keywords: orchard, pheromone, trichogramma chilonis, apple

Introduction

Worldwide, an average of 75.0 billion dollars is spent annually in agriculture to protect against pests and diseases. In relation to the yield grown it is observed that 13.8% of the average crop perish due to pests, 11.6% due to diseases, 9.5% due to weeds. However, as a result of modern plant protection methods application and other measures implementation, an average yield of an additional 15 c/ha is achieved from fruits, vegetables, melons and potatoes. This is far less than meeting the global population food needs for today.

Based on these decisions and resolutions, requires the important tasks solution such as the creation of varieties that are resistant to disease and need, easy to send and store in promising remote areas, organization of such gardens and vegetables and melons, especially to ensure that the product is of good quality, marketable, industrial, in general, the creation of high and quality harvesting technologies suitable for different soil climatic conditions and their introduction into production.





Proper organization of the fruits and vegetables and melons production recommended by farmers, radically improving the population demand for these products and the demand for raw materials in the processing industry will allow to reduce prices in our markets.

Codling moth (*Carpocapsa pomonella*) causes great damage to the orchards crops of our country. It is also a major pest of pears, walnuts, and plums fruit trees.

Research Material and Methods

The use of grain moths from entomophages plays a special role in the agricultural crops protection in the Republic of Uzbekistan and 60% area protected by the general biological method. *Trichogramma* is being mass-produced in more than 900 biofactory and biolaboratories in the country. According to observations on orchards, beneficial insect species and numbers were calculated. It studied predatory and parasitic entomophagous plants and their cells. It should be noted that codling moth develops in all regions of the republic by breeding 3 times (2 times in the foothills). One generation lives 4 years. In 2016-2018, we conducted research to determine the use effectiveness against codling moth (*Trihogramma chilois*) in gardens planted with varieties "Renet" Nafis "Semerenko" from From Andijan branch named after U. Mansurov of the Research center for horticulture, viticulture and enology named after Academician M. Mirzaev.

Research Results

Trihogramma chilonis is applied to 3 bushes of different sizes against 3 generations of codling moth at intervals of 3 days by 4 repetitions. Codling moth flight times are determined by pheromone traps. During the growing season, we found that there were 25-33 codling moth eggs in every 1 bush tree. We distributed the trichogrammas to 100 points per 1 hectare on trichocards (i.e. in the pupastate) in June at relative humidity 64-69% and +33°C air temperature.

In order to determine the trichogram effective consumption rate, we distributed (egg parasite) at the 1:10 1:15 1:20 ratio.





Application and effectiveness of *Trichogramma chilonis* type against codling moth (Andijan region, Andijan district, horticultural farming "Biokimyo Intensive LLC" (8.05 - 10.08. 2020).

№	Codling moth offspring	The amount of butterflies falling on the pheromone traps, average, pcs	Decrease in apple yield by generations, %	Yield per bush, average, pcs		Healthy results
				At the beginning of the season	Shedding throughout the season	
1	I	8,5	41,7		26,3	174,7
2	II	4,7	67,8	354,6	16,1	
3	III	5,4	63		18,4	
4	control	14,6	-		172,4	58,5

In 2018, the average number of first-generation butterflies falling on the traps was 9.1; 4.9 for the second generation and 6.6 for the third generation. The decrease in population by post-trichogramma parasite use was 45.5% for the first generation, 50.8% for the second generation, and 53.4% for the third generation.

At the beginning of the season, the number of fruits in one bush was 371.3, while during the season the fruits shed due to pests were 28.3 in the first generation, 14.7 in the second generation and 19.2 in the third generation. In our control variant, pest infestations averaged 211.6 units during the season.

If in our experimental variant it was 184.4 c/ha, in our control variant the yield was 54.7 c/ha. Compared to the control, the yield loss was found to be 130.2 c/ha.

Three days after the trichogramma was distributed, we conducted follow-up. In the experiment, we took into account the results observed on days 3-7-10. During our observations, the average temperature during the day is $37 \pm 1 - 29 \pm 1 \text{C}^\circ$, and the average humidity is 60-70%. On the 7th day of our experiment, the damage to the eggs showed different results. The results obtained when the trichogramma was distributed in 1:15, 1:20 ratio to the pest egg were almost indistinguishable from each other. Therefore, it is advisable to place the trichogramma in 1:15 ratio, thus applying (*Trichogramma chilonis*) against codling moth leads to a decrease in codling moth eggs. This allows you to grow a quality product without pesticide residues to preserve the crop in horticulture.



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