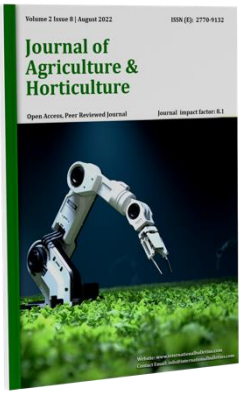

BIOECOLOGY OF MOTHS FOUND IN SEED GARDENS AND METHODS OF MODERN PREPARATIONS

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Abstract: The advantage of Crompton KS, 48% em.c. is that the preparation in the standard version, which has little effect on the number of natural entomophages in the biocenosis, is lost up to 100% of the natural entomofauna in the reference version. Our main goal is to control the number of pests without disturbing the natural balance. Therefore, we use chemicals that have little negative impact on humans and the environment.

Keywords: apple moth, habitat, biocenosis, entomophage, natural balance, environment, advantage, insecticide, efficiency, parasite.

In the second paragraph of the Strategy for the Development of Agriculture of the Republic of Uzbekistan for 2020-2030, the main task of safely providing the population with food is to increase not only the quantity, but also the quality of manufactured products. The result of technical and technological improvement of the republic's agriculture was the creation of new apple orchards on a total area of 35.2 thousand hectares and an increase in the volume of exported products by 17%. On the territory of the republic, orchards are created annually on an area of 25-30 thousand hectares, a significant part of which are apple trees and other representatives of pome fruits. Given the annual increase in the volume of agricultural exports at present, for the production of high-quality and environmentally friendly products, one of the pressing problems is to conduct the most important scientific research in the field of protection of fruit trees.

Currently, the development and application of new non-toxic plant protection products for humans and animals is of global importance. Priority is given to research aimed at creating plant protection products based on microorganisms and their metabolites, as well as searching for plant-based substances with potential pesticidal activity, but research remains in the development of pesticides based on chemical compounds that are highly effective, selective to objects of application, and rapidly decompose in the environment.

The distribution area of the apple moth coincides with the apple tree. It causes the greatest harm in the southern regions. It is found in Western Europe, Northern China, Japan, Central Asia and the Korean Peninsula.

Imago. A butterfly with a wingspan of 16-22 mm. The forewings are white with 12-16 black dots, which are located in three longitudinal irregular rows. On the top of the wings are small black specks, the hind wings are ash-gray. Like all representatives of the ermine moth family, the head of the insect is covered with hair-like scales, pressed on the forehead, directed forward on the crown and sticking out in the form of a pupa on the occipital part. The antennae are shorter than the forewings, the second segment of the labial palpi is shorter than the third, without a brush of scales. The forewings are lanceolate-oval.

Sexual dimorphism. As with all members of the ermine family, the genitalia of males and females are different. Male genitalia: valvae are elongated-oval, socii and saccus are well

defined, vesica with cornuti. Female genitalia: anal papillae are short, lobes of the vaginal plate are more or less convex, anterior apophysis is forked, ovipositor is almost not defined.

The egg is oval, flat-convex, yellowish. Oviposition is covered by a shield. The size of the shield is 4-5 mm. The shape of the shield is flat, slightly oval. The shield is initially yellow, then acquires a red color, after a month it becomes grayish-brown, similar in color to the bark of young shoots.

The larva (caterpillar) goes through three instars. The head is black, the body is light yellow. Adult caterpillars reach 15-18 mm, acquire a grayish-yellow color, and the dorsal side bears two longitudinal rows of black dots.

Pupa. Length - 10 mm. Develops in a dense white spindle-shaped cocoon. At first, the pupa is orange-yellow, as it develops it becomes greenish-yellow with a dark-brown head. Wing primordia are light brown, cremaster is dark brown with six bristles. Cocoons are glued together in compact packs. One pack contains from several dozen to several hundred cocoons.

Development of the Imago. The emergence of adult insects is observed 37-42 days after the apple tree blossoms, and lasts about one and a half months. During the day, the butterflies are motionless, sitting on the underside of the leaf blade and in other shaded places. Active flight of insects begins before dusk and continues until dark.

The mating period begins two weeks after the butterflies emerge from the pupae and occurs in the evening hours. After 5-6 days, the females begin to lay eggs. Clutching ends in the second half of July. The butterfly lays eggs in groups (15-60 pieces) on apple tree branches and covers them with a shield of frozen mucus, which gradually changes color from reddish to brown, matching the color of the bark. The female's fertility is from 20 to 100 eggs.

Egg. The embryonic period lasts 8-15 days. The larva (caterpillar) emerges from the egg, but remains to overwinter under a waterproof shield. Until winter, it feeds on eggshells and tree bark, and when frost sets in, it falls into torpor (diapause).

The emergence of caterpillars from under the shields is observed in the second half of April when the average daily temperature goes beyond +12°C. In the first instar, the caterpillars mine the leaves, eating out the pulp and leaving the lower and upper skin intact. The emergence from mines varies from April 30 to May 25 in the forest-steppe zone of Uzbekistan to April 25 to May 7 in the steppe zone and, as a rule, coincides with the phenophase of apple blossom.

After leaving the mines, the caterpillars begin to weave web nests. The leaves are fastened in pairs, the caterpillars feed and gnaw them. The damaged leaf turns brown, curls up and falls off. Often the leaves are completely eaten down to the main veins, after which the caterpillars move to neighboring branches and form colonies of web nests. The caterpillars move from the top to the base of the branch, completely destroying the foliage. The entire colony moves to neighboring branches. Dry and hot weather is most favorable for the development of caterpillars. The feeding period of the caterpillars lasts 35-42 days, then they pupate in a web nest. Each caterpillar weaves its own cocoon.

Pupa. The appearance of pupae is observed in the first ten days of June. They are in white dense cocoons, glued into compact packs. The pupa develops for 7-14 or 15-20 days.

Imagoes hatch 37-42 days after the apple tree blossoms. The flight is extended and lasts from the end of July to the end of August.

To regulate the apple moth, Crompton KS insecticide was used, 48% em.k. were tested in the apple orchard of the O‘ktamboy Nortoy bog‘i farm, Bostanlik district, Tashkent region.

The treatment was carried out using a TAS 600 tractor sprayer with an estimated working fluid consumption rate of 600-800 l/ha. The experiments were carried out in the morning hours, when the air temperature did not exceed 28℃ and the wind speed was 1 m/sec. In the production experiment, the preparation Crompton KS, 48% em.c. concentration. As a control, a 5.0 ha plot of the garden was selected, where chemical treatments were carried out.

The first stage of the study was carried out against moth on an apple tree. After treatment against moth with the preparation Crompton KS, 48% em.c. at a consumption rate of 0.25 l / ha, on the 3rd day the efficiency was 74.2%, and on the 7th day 91.2%, on the 14th day it increased to levels of 85.2%, respectively, on the 21st day the efficiency was 78.8%, respectively.

Which was higher than the reference (90.7%) option. In the control, the number of pests steadily increased. The results of this experiment show the high efficiency of the application of the preparation Crompton KS, 48% em.c. against moth on an apple tree (Table 1).

Table 1.

Biological efficiency of the preparation Crompton KS, 48% em.c. against codling moth on apple tree Field experiment, Tashkent region, Buzlanli district, "O'ktamboy Nortoy bog'i" farm, 5.0 ha. TAS 600, 600-800 l/ha, 2013-2024.

№	Experience options	Active ingredient	Consumption rate of preparations, kg, l/ha	Average number of aphids per tree, specimens.					Efficiency, % per days			
				Before processing	After processing for days							
					3	7	14	21	3	7	14	21
On the apple tree												
1.	**Crompton KS, 48% em.k.**	*Spinosad*	0,25	352,4	91,6	31,4	53,7	78,3	74,2	91,2	85,2	78,8
2.	**MAKS, 55% s.d.g.**	*Emamectin benzoate + lufenuron*	0,15	357,1	113,1	33,8	64,3	96,4	68,6	90,7	82,5	74,2
3.	Control (without processing)			368,7	371,8	375,2	379,6	386,4	-	-	-	-

Conclusions

Based on the production tests conducted in 2024, the following can be concluded:

Insecticide Crompton KS, 48% em.k. showed high efficiency against moth on apple tree at the rate of 0.25 l/ha.

We have no comments on the formulation.

We recommend the preparation Crompton KS, 48% em.k. for use against moth at the rate of 0.25 l/ha by spraying during the growing season. Another advantage of this preparation is that it is less effective in terms of the number of natural entomophages in the biocenosis, and the preparation in the reference version loses up to 100% of the natural entomofauna. Our main goal is to control the number of pests without disturbing the natural balance. Therefore, we recommend using chemicals that have a minimal adverse effect on humans and the environmen

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