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# MULBERRY MOTH PEST AND ITS CONTROL COMBAT MEASURES

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**Abstract**
This article provides information on methods of combating and preventing the mulberry moth, a pest of the mulberry tree that feeds on the mulberry silkworm.

**Keywords:** Mulberry tree, mulberry, pest, eggs, worms, preparation, agricultural machinery.

## INTRODUCTION

Mulberry trees are of great importance in the field of sericulture, and today there are 295.0 million tall mulberry trees in our Republic and an area of 54.0 thousand hectares of mulberry plantations. However, in recent years, the impact of the mulberry moth pest has affected 15-20% of the cocoon crop produced in our republic. More than 100 diseases and pests of the mulberry tree have been identified by the scientists of the Silk Industry Research Institute. We will provide information about the mulberry moth pest, which has been causing significant damage to mulberry trees in recent years, and measures to combat it.

**Mulberry propeller** (Gluphodes pyloalis Walher) is a dangerous insect and is a serious pest of mulberry leaves. The pest is spread in the countries of Japan, China, India, Tajikistan, and Turkmenistan that are engaged in silk production. This insect is currently widespread in the Surkhandarya, Kashkadarya, Samarkand, Jizzakh, Syrdarya, Tashkent, and Fergana Valley regions of our republic, causing significant damage to mulberry cultivation. It gnaws the mulberry leaf, which is the silkworm's only food, and turns it completely into a "skeleton".

**Biological feature.** The mulberry moth is a fully developed pest that goes through butterfly, egg, larva, and pupa stages, mainly emerging as an adult larva in the third decade of October and early November for wintering. After wintering, the larvae hibernate in the tops of mulberry trees, among dry barks, and in fallen leaves.

It has been found that the mulberry moth reproduces 6-7 generations in the Surkhandarya, Kashkadarya, Tashkent, and Fergana Valley regions of our republic, and up to 5-6 generations in the Syrdarya, Jizzakh, and Samarkand regions. Each female butterfly lays an average of 50-60 eggs.

**Mulberry propeller damage.** Naturally, the damage of the mulberry moth is manifested in the development processes of the mulberry plant. As the days get warmer, the pest's development accelerates, damaging emerging leaves and seriously affecting the growth and development of mulberry shoots, causing damage to leaf yield.

Mulberry moth damage to a mulberry tree is divided into 3 different levels:

Grade I – 10-30% of mulberry leaves are partially damaged;

Grade II – 50% of mulberry leaves are moderately damaged;

Grade III – 100% of mulberry leaves are severely damaged.

Agrotechnical, biological, chemical and mechanical methods are used to combat the mulberry moth. It is advisable to control the development of the insect in time in order to make the control methods correct and highly effective in their time. Regional and district organizations should draw up a plan of work to be carried out throughout the year, determine the number of trees affected by the mulberry moth, determine the amount of biomaterials and chemicals needed to protect them, and prepare sprayers and other equipment to be used by April.

**Agrotechnical control method.** Plowing between rows of mulberry trees, watering, watering in the fall, timely feeding and agrotechnical measures increase the resistance of the mulberry tree against the mulberry moth and prevent the development of the pest.

**Biological control method.** Since the mulberry moth is a new insect in our republic, its specialized natural predator has not been identified. However, it is known from the observations that omnivorous carnivores are golden eye, nabis kandala, bees, ants, spiders and birds.

In addition, the use of the mature breed of the beneficial insect Brakon from the second generation of the mulberry moth to the worms of the mulberry moth in the ratio of 1:4 and 1:6 gives effective results.

It is advisable to apply the insecticide **"Brakon"** to mulberry trees infested with mulberry moths early in the morning and late in the evening, near sunset.

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**Mechanical fighting method.** Mulberry trees infested with the mulberry moth can be saved by tying belts made of various fabrics around the trunks of the trees. These cloths are best used after soaking them in hot water every 5-6 days.
In addition, it is necessary to cut off all the branches and branches of mulberry trees during the silkworm feeding period. Otherwise, the uncut mulberry tree and its branches create conditions for the next generation of the pest and its reproduction. Collecting and disposing of fallen mulberry leaves, twigs, and dead mulberry trees in fall and winter will result in the death of overwintering mulberry moth offspring and a reduction in the number of overwintering offspring.

**Chemical method of combat.** In the fight against the mulberry moth, the insecticides listed in this table are used.

**List of recommended insecticides for use against "mulberry moth".**

| Insecticides | Spending amount: | |
|---|---|---|
| | l\ he | Concentration, % |
| Against worms of 1-3 years (at the beginning of damage) | | |
| Buldok, 2,5% e.k.. | 0,8 | 0,08 |
| Danitol, 10% e.k. | 2,0 | 0,2 |
| Detsis, 2,5% e.k. | 0,3 | 0,03 |
| Kalipso, 48% e.k. | 0,1 | 0,01 |
| Karate, 5% e.k. | 0,5 | 0,05 |
| Sumi-alfa, 5% e.k. | 0,5-0,6 | 0,05-0,06 |
| Fyuri, 10% e.k. | 0,12 | 0,012 |
| Sipermetrin, 25% e.k. | 0,2-0,3 | 0,02-0,03 |
| Against worms 1-5 years old (at the beginning of damage) | | |
| Nurel-D (siperfos), 0,55% e.k. | 2,0 | 0,2 |
| Karbofos, 50% e.k. | 2,0 | 0,2 |
| Metafos, 40% e.k. | 1,0 | 0,1 |
| BI-58 (fosfamid), 40% e.k. | 2,0 | 0,2 |
| Dursban, 48% e.k. | 1,5 | 0,15 |
| Mospilan, 20% e.k. | 0,15 | 0,015 |

Due to the fact that the fences are located in different schemes, in most cases it will be possible to process them only on one side. This causes a sharp decrease in the effectiveness of the drugs used. In order to correctly determine the amount of drugs for each 1 hectare of land, it is necessary to make a calculation based on the conditions of one-sided and two-sided treatment of mulberry trees and individual mulberry trees. The use of the drug "Mospilan-20%" is highly effective in the treatment of individual mulberriesIn this case, 150 grams of the drug "Mospilan-20%" is mixed with 1,000

liters of water per 1 hectare of area and sprayed on the affected areas with special equipment.

In addition, when using the drug "Fury-10%", it is recommended to prepare a working solution of 120 grams of "Fury-10%" per 1000 liters of water and treat the affected mulberry trees.

It is advisable to carry out spraying on mulberry trees infested with mulberry moth in the morning or evening when the sun is setting and there is no wind. Smoking, eating and drinking are prohibited during the preparation and application of chemicals. Representatives of plant protection organizations and agronomists must be present during pesticide spraying..

**Summary**

Thus, it can be said that by treating tall mulberry trees and mulberry groves infected with the mulberry moth pest and other mulberry diseases, the ground will be created for high yields in the cocoon farming sector in our Republic. The "cocooning cluster" and farm managers in the regions are responsible for the implementation of these activities.

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