

## Harm of the Comstock Worm to the Mulberry Tree and Measures to Combat it

*Olimjonov Saloxiddin Abdumalik o'g'li*

*magistrant.*

*Asronov Ergashali Karimberdiyevich*

*teacher*

*Andijan Institute of agricultural and agrotechnologies*

**Annotation:** Mulberry trees, considered the only food of silkworms, are also significantly damaged by the Comstock worm. The article describes the biology of the worm, the damage it causes to the mulberry tree, and measures to combat it.

**Keywords:** Comstock worm, waxy, pseudoficus, insecticide, cyperfos, karate, mospilan.

According to data, 35% of the crop of plants grown worldwide per year dies, while using 14% corresponds to the share of harmful insects. In addition, 20% of the crop dies during transportation and storage in warehouses. In our country, too, agricultural crops, including mulberry trees, can be damaged by various pests. The geographical position and soil-climatic conditions of our republic are very favorable for the development of all types of Agriculture. The lush nature of our republic has a wide range of opportunities for the development of especially irrigated agriculture.

On the second hand, these climatic conditions also facilitate the reproduction of various insects that harm agricultural crops. In the conditions of Central Asia, almost all pests develop rapidly, giving several multiple generations per year compared to the northern regions. This assumes the use of the most effective coping measures and means, having studied in depth the biology of pests to protect plants, its inextricable connection with plants and the environment. One such pest is the Comstock worm.

The Comstock worm is a species of equal-winged fly (Homoptera), in the waxworms family (Pseudococcidae), a dangerous internal quarantine insect. It can be found in almost all fruit and ornamental trees, medicinal plants and some grass-like plants (even near Mulberry rows, in Acorns). From fruit trees, pomegranate, apple, pear, peach, as well as mulberry trees are heavily damaged. They settle in large swarms on tree trunks, branches and leaves, sucking out tree sap and weakening its growth, penetrating into the soil 5-6 cm deep and absorbing the top of the roots as well. In some cases, 40 cm.gacha is found at depths of. In strongly damaged trees, tumors appear, young branches dry out and leaves shed, slow down plant growth, make branches of trees and shrubs Qing'ir-tilted, reduce the yield of fruit crops, ildysmevas and tuganak fruits, and reduce their quality. It is very difficult to fight it at the expense of the fact that the Comstock worm occurs on any tree, lives in a pan, spreads quickly in nature.

The homeland of the Comstock worm is Japan and the state of China, the entomologist S.Kuvan describes this worm in 1902 and gives it the name Comstock in honor of American Entomologist Comstock. The Komstok worm was discovered in Uzbekistan in 1939 in large-leaved Mulberry



seedlings brought from Japan in the Jarariq experimental farm of the Central Asian Silk Scientific Research Institute.

Although the Komstok worm is native to Japan, today it is also distributed in South Kazakhstan, Tajikistan, Central Georgia, China, Thailand, India, New Zealand, USA, Canada, England, Russia, Ukraine, Moldavia.

The Comstock worm is a rather small insect, and its female is oblong-oval in shape, with no wings, 5 mm long. The female worm has 17 pairs of growths around it, of which one pair is longer. the body of the males is much smaller than that of the female, 1-1.5 mm in size, and the color is brown or brown, with a pair of wings. Zarakunanda overwinters between the roots and bark of trees, during the spawning period in the hollow areas of the body.

The hatching of the worms occurs in late March, early April. The worms that hatch from the egg are in waxy sacs for 2-3 days, then crawl out and mulch will damage the lower, young branches and armpits of the branches of the leaves. Worms accumulate on the branches and begin to suck their juice. In the conditions of Uzbekistan, the komstok worm gives offspring three times. Females of the first generation lay up to 400-600 eggs after hatching, females of the second generation lay up to 250-340, and females of the third generation lay up to 220-260 eggs. The eggs laid by the third generation overwinter. 95-98% of overwintered eggs die as a result of winter cooling as well as the negative effects of various parasites. The butterfly of the Comstock worm becomes more abundant during the summer due to the serpusht. Most worms flow in a variety of ways, namely: in the waters, infecting them by spreading them through birds and insects to Mulberry seedlings, cuttings, twigs and branches.

The damaged mulberry leaves are contaminated with its droppings, worsening the quality of the leaves, leaving the inside of the silkworms that consumed the damaged leaves, causing great damage to the crop and quality of the cocoon. In addition, mulberry leaves turn yellow and dry out, resulting in a sharp decrease in leaf yield. The yield of a mulberry tree leaf damaged by a Comstock worm decreases by 35-36% (Sonina and head., 1968).

Measures of struggle. Several wrestling events have been developed to successfully fight the Comstock worm. Quarantine, it is possible to stop the harmful activity of the worm and prevent its further spread only under the conditions in which its activities are carried out. These include the following quarantine measures: inspection of seedlings and methods of agrotechnical, biological and chemical fight against the Komstok worm are used.

With the help of organizational and economic, agrotechnical, biological and chemical methods, it is necessary to reduce the density of komstok worms in damaged trees, create unfavorable conditions for its further development and carry out direct tree and fruit protection measures.

As a biological fight, the pseudaficus parasite imported from abroad is being used against the Comstock worm. This parasite remained the main one in the complex of measures for the loss of the komstok worm in the method of biological struggle. Pseudaficus is a parasite that eats only the same food, laying eggs inside the larvae and adult females of the Comstock worm. Its single female lays about 140 eggs inside up to 20 worms. On day 5-7 of the development of the parasite after laying eggs, the worm dies, the growths and tail threads next to the body disappear, the worm body hardens from the bulging face, the yellow oblong becomes a mummy, then penetrates into the gray color. Pseudaficus gives 7-8 offspring in the Republic of Uzbekistan and 11 in the south, laying 100-150 eggs. Pseudaficus is bred in natural conditions in places or laboratories where the komstok worm lives and is used in the fight against them.

The experiments of our entomologist scientists show that up to 80-90% of Comstock worms died in places where 100 Pseudoficus eggs were laid on each tree. In addition, in order to catch the



males of the pest and to eliminate them, pheromone substances emanating from the genital organs of the females can be synthesized and fight them with ways to attract male pests.

Among the measures of agrotechnical struggle against the insect, it is possible to include activities such as mainly the loss of weeds from the beginning of the growing season to the end, the removal of bunches around the root neck of trees suspected of autumn-winter peacetime of Mulberry. The tree trunks from which the Comstock worm fell are cleaned of dried bark tangles with a scraper and a stiff brush in the early Moss, and the waste is immediately burned. It is forbidden to carry Mulberry seedlings and cuttings from places where the pest has spread, and Mulberry seeds to other places, planting and grafting.

As a chemical fight, trees and plants distributed by the komstok worm are recommended to be treated with the following insecticides: siperfos 0.1 percent, dursban 0.1 percent, karate, talstar 0.05 percent, benzophosphate 0.3 percent, mospilan 0.02 percent, Confidor 0.03 percent, sipermethrin 0.03 percent solution.

To find Comstock worm kilns, set the distribution limit, and determine the scale of the fight against it, experts annually inspect mulberry trees and nurseries and other tree and field crops, weeds.

In the quarantined area, the heads of farms are responsible for the timely and full implementation of these pest control measures, and it is advisable to follow the following quarantine rules.

1). Grafted Mulberry and other Martingale-trees should be prepared only on those plots that are not damaged by Comstock worm;

2). Mulberry leaf is not allowed to be carried to districts that are not damaged by the Comstock worm;

3). Other farms, districts, cities, regions and republics from the affected zone are sent seedlings and other products from plants based on quarantine certificates issued by the plant quarantine authorities, subject to quarantine rules.

In areas where the Comstock worm is quarantined, new nurseries, Groves, Gardens, Vines, pomegranate fields are obliged to be erected only if the permission of the state service for Plant Quarantine is known.

#### Literature used:

1. CH.I.Bekkamov, U.T.Daniyarov, N.K.Abdiqayumova, N.O.Rajabov. Ipakchilik va tutchilik. Darslik, 216-bet.
2. U.Abdullaev. Tutchilik. Darslik, Toshkent, 1991-yil. 378-bet.
3. E.K.Asrnov, M.T.Zaynobiddinov Razmnojeniyе tutovnika na otkrytoy mestnosti drevesnymi cherenkami. "Bioraznoobraziye i ratsionalnoye ispolzovaniye prirodnykh resursov" Materialy II Vserossiyskoy nauchno-prakticheskoy konferentsii s mejdunarodnym uchastiyem 21.06.2014g
4. Asrnov E., Tutchiyev J., Ermakova J.M., Xurmatov E. Vliyaniye srokov poseva tutovnykh semyan na kachestvo seyantsev . Sovremennyye tendentsii razvitiya nauki i tekhnologii sbornik nauchnykh trudov po materialam IV Mejdunarodnoy nauchno-prakticheskoy konferentsii 31.06 2015 g. Belgorod.
5. E.K.Asrnov, M.B.Soliyeva, S.A.Saliyev, X.R Davlatov Xraneniye plodoovoshnoy produktsii. Severnyy morskoy put, vodnyye i suxoputnyye transportnyye koridorы kak osnova razvitiya sibiri i arktiki v XXI veke Sbornik dokladov XX yejdunarodnoy nauchno-prakticheskoy konferentsii 23 marta 2018g. Tom I Tyumen.



6. E.K.Astronov, M.B.Solliyeva, S.SHaripova, J.Alijonov. Lechebnye svoystva tutovnika. AETERNA nauchnyy elektronnyy jurnal Akademicheskaya Publitsistika № 05.2019 yil
7. Olimjonov C.O., Astronov E.K.Tut daraxtinging bakterial kasalligi va uning oldini olish choralar  
Miasto Przyszłości, Vol. 30 (2022), 344–345.ISSN 2544-980X  
<https://miastoprzyszlosci.com.pl/index.php/mp/article/view/938>

