



Pests of Rodents and Walnut Suckers in the Conditions of Uzbekistan and Their Control

Ubaydullaev Khasan Tashpolat ogli, Shukurova Makhliyo Kobil kizi

Masters of the Institute of Agrobiotechnologies and Food Safety of Samarkand State University named after Sharof Rashidov

Umurzakov Elmurod Umurzakovich

Samarkand State University of Veterinary Medicine, Animal Husbandry and Biotechnology, Doctor of Agricultural Sciences, Professor

Pulatov Otamurod Aslamovich

Tashkent Davlat Agrar University and Samarqand branches Assistant

Abstract: *The article provides information on the distribution and development of pests in the mountain and foothills of Zarafshan valley in Uzbekistan.*

Keywords: *greens, pests, walnuts, small walnuts, bioecology.*

Introduction. To obtain a high-quality harvest from a walnut plant, it is better to study the distribution area, species composition, timing and degree of damage, the bioecology of various types of harmful insects common in the walnut biocenosis, and apply effective coordinated measures to combat them.

In recent years, due to the expansion of walnut fields, in particular, the creation of intensive walnut orchards, changes taking place in the structure of distribution of agricultural crops in our republic, a change in the species composition of organisms that have formed on the basis of the food chain over the years, the introduction of new species of entomophages, the preservation of fruit crops against walnut pests, increases the importance of countermeasures and requires a scientific approach to it. To do this, it is necessary to plant high-quality varieties that are resistant to pests and diseases, carry out agrotechnical measures in a timely manner, and take measures to combat harmful organisms. In this case, it is important to carry out coordinated measures against harmful insects.

Research methods. Entomological calculations and observations were carried out according to the methods of V. Yakhontov, G.Ya. Bei-Bienko, A.A. Zakhvatkina, S.A. Murodov and Sh.T. Khodzhaev on the density of pests [4.58]. The level of insect damage was determined by the method of V. I. Tansky.

Research results and their analysis. The natural and cultivated walnut groves of Uzbekistan are mainly inhabited by the walnut codling moth (*Sarothrypus muscutana Ersch*), apple codling moth (*Cydia pomonella L.*), large walnut weevil (*Panaphis juglandis Goeze*), small walnut weevil (*Chromaphis juglandicola Kalt.*), comma-shaped shield beetle (*Lepidosaphes uimi L.*), spider mite (*Tetranychus urticae Koch.*), urban mustache (*Aeolesthes sarta Solsk.*), crayfish (*Cicadatra ochreata Mel.*) and earth wasp (*Megachile maritima*).



Among the main pests of walnut trees are the walnut codling moth, apple codling moth, city whiskered moth, earth wasp, crayfish, walnut buffy moth, walnut aphid, walnut comma-shaped shield beetle, spider mite, which cause great economic damage to cultivated and wild-growing walnuts in our republic.

Walnut worm - *Sarothrypys musculana* Ersch belongs to the *Noctudae* family, order *Lepidoptera*, and is a biological form of the apple codling moth. Very common in Central Asia, Uzbekistan and Kazakhstan [3.271].

The nut worm is widely distributed in the countries of Central Asia, Ukraine, and European countries. This pest is endemic and occurs in all walnut growing areas.

Morphology. The wings of an adult nut worm butterfly when unfolded are 12-20 mm long, the body length is 8-9 mm, the front wings are lead-gray with wavy, brown and white stripes, the hind wings are gray-brown. The length of adult worms reaches 12-18 mm. The color is reddish or light greenish brown, the head, fore pectoral legs and anal shields are brown. The body is covered with brown warts. Chrysalis up to 11 mm, brown, white above, shiny below.

Bioecology. The nut beetle develops, giving two generations in one year. In some conditions, it was found that part of this pest gave birth 3 times a year.

The nut worm hibernates under the bark of trees and in cracks in the bark, wrapped in a chrysalis. In some cases, it was found that the pest overwintered in the form of a chrysalis.

Larvae of the first generation pupate in cracks in tree trunks in late April - early May. Butterflies form cocoons at an air temperature of 20-25⁰C. Butterflies continue to fly until mid-May-June. Each fertilized female lays from 40-50 to 200 eggs on fruits and leaves. Lays 1-2 eggs per raw nut. She can also lay eggs on stems. After 5-10 days, worms come out of the eggs. The hatched worms penetrate the fruits and settle in the core of the fruit and in the base of the young branches. Worms feed on fruit pulp for 25-30 days; at this time, the worm passes from one fruit to another and manages to damage 2-3, and in some years up to 10 fruits. The worm gnaws through the pulp in the form of wide channels, which the worm fills with brown excrement. This sign is a sign that the nut is infested with worms. When the nut worm reaches maturity, it leaves the fruit or branch and penetrates into the crevices of the body and thick branches, where it envelops a white oval cocoon and inside turns into a chrysalis; it takes place in the second half of June. Butterflies fly out in 20-25 days, after 3-5 days they lay eggs of the second generation in cracks in branches and fruits.

The flight of summer butterflies lasts from the second half of June to mid-August. Worms of the second age feed on the shell of the fruit, sometimes on the pulp of the fruit. From the second half of August, these worms turn into pupae in the cracks in the lower part of the tree trunk and winter there.

The worm, which emerges from a damaged, crumbling nut, burrows into the grass and among the cuttings turns into a chrysalis. After cocooning, some worms enter diapause until the following spring.

Harm to the walnut. The pest damages up to 20% of nuts in years of high yields and up to 50 and even 80% in years of low yields. Fruits are damaged in two ways: on young, not hardened shells, the larva eats the center of the nucleus, and the fruits fall off. In hard-shelled fruits, the worm only feeds on the side of the fruit, where it eats all the flesh on the side of the fruit and leaves the outer shell.

Nut aphid (*Aphididae*) is found in almost all walnut groves of Samarkand and Kashkadarya regions. Large walnut aphids (*Panaphis juglandis* Goeze) and small walnut aphids (*Chromaphis juglandicola* Kalt.) are found on trees. They only damage walnut trees. Walnut aphids work on



tree leaves and feed on tissue fluid. It especially causes great harm to young walnut seedlings, causing their leaves to fall and dry. Nut large aphid (*Panaphis juglandis* Goeze.) is found in the form of elongated colonies in the form of stripes on the upper side of the leaves, around their central vein. For this reason, in most literature sources they are called leaf surface aphids [2.74]. The small nut aphid (*Chromaphis juglandicola* Kalt.) feeds on cell fluid on the underside of walnut leaves. These lice are also called bottom leaf lice. In most cases, walnut growers do not pay much attention to this pest. The large nut aphid is 3.5-4.0 mm long, lemon-colored, and the winged insect has a black head and breast. The small walnut aphid has a length of 1.5-2.0 mm, a pale yellow color, and is distinguished by the fact that its larvae are white [2.74].

The initial appearance and development of the walnut aphid is affected by the temperature and humidity in March and April. In the southern regions of our republic, a slightly lower air temperature in the mountainous and foothill regions (on average +3-+4 °C) somewhat delays the development of the walnut aphid compared to the plains. The average air temperature, favorable for the development and reproduction of aphids, is 18-25 °C, and the humidity is 60-75%. It has been established that the favorable temperature for the reproduction of aphids is 22-27 °C. It was noted that the appearance of larvae was sharply reduced when the temperature exceeded 35 °C.

With the formation of the first leaves on the walnut tree, aphids hatch. The aphid larvae first appear on the sunlit branches of the tree and begin to feed in and around the veins of the leaves. They change the place of food. This allows you to protect them from entomophages. When aphids breed, their females fly to other trees and begin to suck out young leaves in the form of colonies. Since the consistency of large leaves is hard, aphids are rarely located. It is commonly observed that the color of winged female aphids is yellow before hatching and orange after hatching. In September and October, the color of aphids was orange and reddish-yellow. Female aphids live longer than males. In the mountainous and foothill areas of the Urgut district of the Samarkand region, it was found that aphids produce from 10 to 15 swarms.

Walnut pest control begins with the collection of fallen fruits, agrotechnical processing under the tree. Tying semolina belts to a tree trunk, for this a 15-20 cm belt is made from different fabrics, a pyrethroid solution is soaked in water and tied to a tree (this should be done in May). In early August, trapping tapes wrap around the lower part of tree trunks. These belts are removed in October-November and worms and larvae are removed from them.

Chemical treatment against walnut aphids during the formation of fruit nodes. Treated with Arrivo preparations, 25% em.c. 0.3 l/ha; Sumi-alpha, 5% em.c. 1.0 l/ha; Danitol, 10% em.c. 1.5 l/ha. Against walnut aphids: When trees are heavily infested with aphid eggs, early budding is applied to them. Use drugs Confidor 20%. em.c. 0.20 l/ha, fufanon 57% em.c. 0.6 l/ha, Danitol, 10% em.c. 1.5 l/ha. To kill aphids that move from fruit trees to other plants for growth, weeds are destroyed around the nursery and young gardens.

Conclusions. Walnut beetle (*Sarothrypsmusclea* Ersch), large walnut aphid (*Panaphis juglandis* Goeze) and small walnut aphid (*Chromaphis juglandicola* Kalt.) are widespread in the walnut groves of the mountainous and foothill regions of the Samarkand region. Chemical treatment against the nut beetle during the formation of fruit nodes. Treated with Arrivo preparations, 25% em.c. 0.3 l/ha; Sumi-alpha, 5% em.c. 1.0 l/ha; Danitol, 10% em.c. 1.5 l/ha. Against walnut aphids: When trees are heavily infested with aphid eggs, early budding is applied to them. Use drugs Confidor 20%. em.c. 0.20 l/ha, fufanon 57% em.c. 0.6 l/ha, Danitol, 10% em.c. 1.5 l/ha.



References

1. Yuldasheva Sh. Influence of soil and climatic conditions on the biology and distribution of walnut aphids // Actual problems of entomology: Materials of the scientific and practical conference. - Fergana. - 2010. - 74-75 p.
2. Yusupov A.Kh., Nafasov Z.N. Walnut pests and measures to combat them // AgroScience.- 2017.- No. 4.- 62-63 p.
3. Khodzhaev Sh.T. Fundamentals of entomology, crop protection and agrotoxicology // -Tashkent.- Science.- 2010.- 356 p.
4. Guidelines for testing insecticides, acaricides, biologically active substances and fungicides (under the editorship of Prof. Sh.T. Khodjaev).// -Tashkent. - 2004. - 103 p.
5. Umurzakov E.U., Pulatov O.A. Bioecology and ways to control the number of insects on walnut plantations in Uzbekistan Zh. : Actual problems of modern science, - Moscow, 2019, No. 6, p. 183 - 185.
6. Umurzakov E.U., Pulatov O.A. The main pests of nut crops in Uzbekistan. Sat. Proceedings of the International Scientific and Practical Conference, All-Russian RITTP, Russia, Krasnodar, 2019. p. 458-462.
7. Polatov O., Umurzakov E. Nut aphid Agrochemical protection and plant quarantine, - 2020. No. 1 - p. 26-28.
8. Shukurova M.K., Umurzakov E. U Efficacy of Chemicals against Large Nut Lice (*Panaphis Juglandis* Goeze) and Small Lice (*Chromaphis Juglandicola* Kalt.).//International Journal of Biological Engineering and Agriculture Volume 1 | No 5 | Oct-2022Published by inter-publishing.com | All rights reserved. © 2022