



Efficacy of Chemicals against Large Nut Lice (*Panaphis Juglandis* Goeze) and Small Lice (*Chromaphis Juglandicola* Kalt.)

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Annotation: In the conditions of the Samarkand region of the Republic of Uzbekistan, in the fight against large walnut louse (*Panaphis juglandis* Goeze) and small walnut louse (*Chromaphis juglandicola* Kalt.) with insecticides Cypermethrin 25% em.c., Killer 5% em.c., Endjeo 24.7% c.c. biological effectiveness is determined.

Keywords: Walnut, lice, pests, aphidophages, Cypermethrin 25% em.c., Killer 5% em.c., Endjeo 24.7% c.c.

Introduction. Walnut cultivation is one of the most profitable areas of agricultural production. In the next 10 years, walnut production increased by 39%, and its sales in 2016 reached 33.2 billion US dollars [2,11, 12]. On Earth, 4-7% of arable land is suitable for growing walnuts, and countries with such areas can make the most of their natural resources. In the conditions of the Zeravshan Valley, the issues of breeding and productive varieties, agricultural technology, as well as the fight against diseases and pests are relevant.

The infestation of walnuts with lice has been studied in different regions of the world and methods have been developed to combat them [1,4,5, 6, 7, 9].

Protecting walnut plantations from diseases and pests, especially lice, is critical to increasing its productivity, and scientific research is relevant in this regard.

Materials and 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, pest density Sh.T. Khodjaev [3]. The level of insect damage was determined by the method of V.I. Tansky.

In 2022, insecticides approved for use in the control of lice during the growing season of trees were tested in newly created intensively cultivated walnut groves in the Dzhambay district of Samarkand region based on the methodological manual of the Research Institute of Plant Protection of Uzbekistan (2). Of the insecticides for the experiments, Cypermethrin 25% em.c. was added at the rate. 0.6 l/ha, Killer, 5% em.c. 1.0 l/ha, Endjeo, 24.7% c.c. 0.4 kg/ha. The preparations were sprayed with motor sprayers at the rate of 200 l of the working mixture per hectare.

Research results. Nut lice (*Aphididae*) are found in almost all walnut groves of the republic. Large walnut lice (*Panaphis juglandis* Goeze) and small walnut lice (*Chromaphis juglandicola* Kalt.) are found on trees. They only damage walnut trees. Lice work on tree leaves and feed on tissue fluid.

Walnut large lice (*Panaphis juglandis* Goeze.) appear on the upper side of the leaves, in the form of elongated colonies in a line around their midrib. For this reason, in most literary sources they are called leaf lice. Large walnut louse 3.5-4.0 mm long, lemon-colored, winged insect has a black head and chest.

Nut lice (*Chromaphis juglandicola* Kalt.) feed on cell fluid on the underside of walnut leaves.
table

Biological effectiveness of chemical preparations (working liquid consumption 200 l/ha) against large nut lice (*Panaphis juglandis* Goeze) and small nut lice (*Chromaphis juglandicola* Kalt.)

Options	Consumption of the preparation, l, kg/ha	The average number of lice in 1 sheet, pieces.				Biological efficiency, % by day		
		before processing	after treatment, in days			3	7	14
			3	7	14			
Cypermethrin 25% em.c.	0,6	28,9	4,3	3,2	1,3	85,1	88,9	95,5
Killer, 5% em.c.	1,0	32,5	5,6	4,2	2,2	82,7	87,1	93,2
Endgeo, 24.7% c.c.	0,4	34,4	6,3	4,6	2,8	81,6	86,6	91,9
Control (no treatment)	-	36,3	38,5	44,8	49,2	-	-	-

These lice are also called bottom leaf lice. The length of small walnut lice is 1.5-2.0 mm; they differ in that the lice are pale yellow in color, and its larvae are white [1, 8, 10, 13].

The initial appearance and development of walnut lice is influenced by temperature and humidity in March and April. The average air temperature favorable for the development and reproduction of lice is 18-25⁰C, humidity 60-75%. When the temperature exceeded 35⁰C, a sharp decrease in larval output was noted. In this case, the upper leaf lice are very affected. In the walnut groves of the Samarkand region, there is a sharp decrease in the number of walnut lice during periods of a sharp increase in air temperature (end of May, June, July, August). At the same time, lice enter the summer dormant period. Morpho-physiological changes occur in their organism, adaptation to specific unfavorable conditions is observed in their bioecology. They begin to act in the cooler parts of the walnut tree.

With the formation of the first leaves on the walnut tree, lice hatch. Lice larvae first appear on the branches of a tree where the sun shines well and become active and begin to stick and feed on the veins of the leaf and around it. They change the place of food. This allows you to protect them from entomophages. When the lice 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, lice are rarely located. It is commonly observed that the color of winged female lice is yellow before larval laying and orange after laying. It was observed that in September and October the color of the lice was orange and reddish yellow. Female lice live longer than males. It has been established that in the conditions of the Samarkand region, lice give from 10 to 15 pairs.

According to the results of our research, the drug cypermethrin, 25% em.c. showed the expected biological effectiveness against large nut lice (*Panaphis juglandis* Goeze) and small nut lice (*Chromaphis juglandicola* Calt.) at an application rate of 0.6 l/ha. The biological effectiveness against lice reached 85.1% on the 3rd day of registration, 88.9% on the 7th day and 95.5% on the 14th day. Similarly, in the second variant, where the Killer preparation was used, 5% em.c. at a consumption rate of 1.0 l / ha, the biological effectiveness against walnut lice was 82.7% on the 3rd day of calculation, and on the 7th day this the figure was 87.1%, and the 14th day reached 93.2%. In the variant of our experience with the use of the drug Endgeo 24.7%, this figure was 81.6%, 86.6% and 91.9%. It was noted that the number of populations of other pests found in walnuts decreased in the experimental plots.

Conclusion. In agrobiocenoses of natural and cultivated walnut groves, lice occupy an important place in terms of distribution, abundance and harmfulness. In walnut groves in the mountainous and foothill regions of Samarkand and Kashkadarya regions, specialized pests of fruit-eating nuts

(*Sarothrypys muskulana* Ersch) are widespread, large walnut lice (*Panaphis juglandis* Goeze) and small walnut lice (*Chromaphis juglandicola* Kalt.) are widespread. From insecticides it is recommended to use at the rate of Cypermethrin, 25% em.c. 0.6 l/ha, Killer, 5% em.c. 1.0 l/ha, Endgeo, 24.7% c.c. 0.4 kg/ha.

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