

THE DEGREE OF OCCURRENCE OF PESTS IN THE PISTACHIO TREE BIOGENOSIS*L.I.Bektursunova**Master's student of Tashkent State Agrarian University*

Abstract: The article provides information on the incidence of pests in the biocenosis of the pistachio tree. In 2024-2025, in the Tashkent region, in the Bustonlyk district, in the Burchimullo State Forestry, 17 species of pests belonging to 2 classes were identified, including spider mites, garden spider mites, pear scale insects, aphids, red blood aphids, peach or greenhouse green aphids, acacia aphids, apple aphids, false acacia scale insects, California scale insects, gray weevil, pistachio moth, uneven silkworm, harmful cockchafer, three-toothed cockchafer and March cockchafer.

Keywords: Pistachio, marginal gall aphid, nut gall aphid, pistachio cushion moth, nut-fruit plantations.

INTRODUCTION

Relevance and necessity of the topic: The growth of the world population leads to an increase in demand for food products and raw materials. In particular, there is an increase in demand for dried fruits and processed products. In this context, the creation and maintenance of pistachio plantations becomes relevant, especially using seedlings grown in containers, which helps to increase the efficiency of production of export-oriented products. The total area of pistachio cultivation in the world is about 1.2 million hectares, with approximately 1.1 million tons of products produced annually. Pistachio is mainly cultivated in countries such as Iran, the USA (California), Turkey, China, Syria, Afghanistan and others. Pistachio plantations often encounter pests such as aphids, spider mites, scale insects, weevils, fruit pests, moths and others, which affect both vegetative and generative organs of the plant. This leads to a decrease in yield by 20-25%, and in some cases to the complete death of the plants. Without carrying out measures to combat the above-mentioned pests, it is impossible to obtain a high-quality harvest.

Research purpose: To study the bioecological features of the development of pests found in pistachio plantations, their distribution area, the extent of damage caused, and to develop measures to protect them.

Research object: Natural communities of pests found in pistachio plantations grown in the conditions of the Tashkent region.

Research subject: Measures to combat pests found in pistachio plantations in the Tashkent region, as well as the biological effectiveness of various preparations belonging to different classes used against them.

LITERATURE REVIEW

The asymmetrical silkworm (*Lymantria dispar*) in Central Asia damages the leaves of fruit trees such as apple, pear, plum, apricot, cherry, almond, walnut, pistachio, as well as deciduous trees such as oak, poplar, mulberry, zarang and many other ornamental plants. It can also damage seeds. Trees on which

silkworm larvae have appeared often do not bear fruit in the same or even the following year. Since the morphological characteristics of males and females of this butterfly are very different, it is called the asymmetrical silkworm [3; P.212]. In recent years, there has been a wide spread of the asymmetrical silkworm in our country, which causes significant damage. In Uzbekistan in 2012-2013, it spread to 500 hectares in the Ugam-Chatkal Range, severely damaging various types of forest and fruit trees. There is also a threat of its spread in the Chirchik River basin and other foothill areas of the country. Despite the large-scale practical work carried out to combat this pest, its distribution area continues to expand [1; pp.33-35].

Scute insects (Coccinea) belong to the suborder, and cicadas (Cicadinea), leaf-sucking insects (Psyllinea), whiteflies (Aleurodinea) and aphids (Aphidinea) are part of the suborder of proboscis insects Homoptera [5; P.132]

Pests belonging to the order Homoptera, such as scute insects, aphids and others, develop in groups and cause significant damage. Below is an analysis of the literature on some of these pests and the degree of their study.

The damage caused by insects from the suborder Homoptera in orchards varies. These insects suck the cellular sap of trees, weakening them, which leads to a decrease in yield, and in some cases, to their drying out. They can also form cones (swellings), contaminate leaves and other parts of the plant with their sweet secretions, which contributes to the development of black fungi or the gluing of leaves and other parts of the plant. As a result of these processes, the plants die [4; P.315].

The density of the aphid population on trees weakens them, creating conditions for the emergence of secondary pests and diseases. This, in turn, can lead to a decrease in yield and deterioration in the quality of the fruit. The resistance of the tree to such pests depends partly on its species (or variety). For example, among stone fruit crops, the peach is the most sensitive to aphids. In the spring, when aphids get on the peach leaves, they cause them to curl, change color and develop spots, and also lead to their drying out and falling off [5; pp.206-207].

Plant aphids are sometimes also called sweet insects. Their body is thin (soft), often oval, sometimes spherical or even cylindrical. The body can be covered with sparse or dense hairs, as well as white powder or wax secretions that glands secrete. The color can be yellow, dark green, brown or black. The antennae consist of 3-6 segments, with the first two segments shorter and thicker. The proboscis is elongated and consists of three segments [2; pp.223-230].

METHODS AND MATERIALS

The research was conducted in 2024-2025 on small field experimental plots in the Tashkent region. Laboratory work was carried out at the Department of Plant Protection and Quarantine of the Tashkent State Agrarian University.

In order to study the composition, distribution and harmfulness of pests found in the agrobiocenosis of the pistachio plant, monitoring was carried out in 2024-2025 in the Tashkent region, in the Bostanlyk district, on the pistachio sowing areas of the Burchimullo State Forestry.

During the research, the main attention was paid to pistachio pests such as aphids, scale insects, spider mites and pistachio moth, as well as the development of new means and methods for combating them.

Accounting of pests and entomophages in pistachio plantations was carried out on the basis of the methodological recommendations of G.M. Yaroslavtsev (1930), B.P. Bryantsev (1966), B.P. Adashkevich and other scientists (1983).

During the season, a census of pests found in pistachio plantations was conducted. For this purpose, 20 points on the plot were selected, 10 plants in each of the three parallel directions of the field. Based on the data collected during the census, a conclusion was made about the need or absence of pest control measures.

The yield from plants damaged to varying degrees and control (not damaged) plants was determined by comparative analysis using the method of G.M. Yaroslavtsev (1930).

The study of natural enemies of pests found in pistachio plantations was carried out based on the methodological recommendations of B.P. Adashkevich, E. Shiyko (1983).

The study of the biological effectiveness of chemical preparations against pests was carried out in accordance with the “Methodological guidelines for testing insecticides, acaricides, biologically active substances and fungicides” (Khodjaev, 2004). To determine the biological effectiveness of preparations against harmful organisms, the Abbott formula (1925) was used.

Ab-Ba

Bc= ----- x100,

Ab

In this case:

- Bc — biological efficiency, %
- A — number of pests before treatment in the experiment, pcs.
- b — number of pests after treatment in the control group, pcs.
- B — number of pests after treatment in the experimental group, pcs.
- a — number of pests before treatment in the control group, pcs.

RESULTS AND DISCUSSION

Our forestry is multi-themed, and among its most important tasks are forest restoration, their study, accounting, use of various forest resources, protection, restoration, as well as protection from pests and

diseases. An important feature of forestry is that forest restoration is a long-term process. The total area of forests and shrubs in our country is 3.2 million hectares, which is 7.2% of the total area.

Table 1

The incidence of harmful insects in the pistachio biocenosis (Tashkent region, Bostanlyk district, Burchimullo state forestry, 2024-2025).

№	Types of pests	Occurrence rate
1.	Spider mite	+++
2.	Garden spider mite	++
3.	Pear scale	+
4.	Oak mite	+
5.	Red grape aphid	++
6.	Peach or greenhouse green aphid	++
7.	Acacia aphid	+++
8.	Apple aphid	+++
9.	Acacia false scale	+
10.	California scale	++
11.	Long-bodied silkworm	+++
12.	Pistachio codling moth	+++
13.	Uneven silkworm	+++
14.	Harmful large beetle	+
15.	Three-toothed large beetle	+
17.	March large beetle	++

Occurrence rate: + — rare occurrence, ++ — occurs in moderate quantities, +++ — occurs frequently

In the Bostanlyk district of the Tashkent region, in the state forestry of Burchimullo, observations were carried out to study the composition of species, distribution, area, occurrence and level of damage by pests in the agrobiocenosis of the pistachio plant. According to the results of the observations, in 2024-2025, in the state forestry of Burchimullo, Bostanlyk district of Tashkent region, 17 species of pests belonging to 2 classes were identified on the pistachio tree: spider mite, garden spider mite, pear scale insect, oak mite, red grape gall midge, peach or greenhouse green aphid, acacia aphid, apple aphid, acacia false scale insect, California scale insect, long-bodied silkworm, pistachio codling moth, uneven silkworm, harmful large cockchafer, three-toothed cockchafer and March cockchafer (Table 1). Of these pests observed, the dominant species such as spider mite, acacia aphid, apple aphid, long-bodied silkworm, pistachio moth and irregular silkworm were the most common and damaging. It was also found that garden spider mite, red grape aphid, peach or greenhouse green aphid, California scale and March large beetle were found in moderate numbers, while pear scale, oak mite, acacia false scale, harmful large beetle, three-spined large beetle and March large beetle were found in low numbers, which was found during scientific research.

CONCLUSION

In 2024-2025, 17 species of pests belonging to 2 classes were identified in Tashkent region, Bustonlyk district, Burchimullo State Forestry, including spider mite, garden spider mite, pear scale insect, aphid, red blood aphid, peach or greenhouse green aphid, acacia aphid, apple aphid, false acacia scale insects, California scale insect, gray weevil, pistachio moth, uneven silkworm, harmful cockchafer, three-toothed cockchafer and March cockchafer.

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