

HARM AND SPREAD OF THE CALIFORNIAN SHIELD INSECT IN THE NORTH-EASTERN REGION OF UZBEKISTAN

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Article history:	Abstract:
<p>Received: April 1st 2021 Accepted: April 17th 2021 Published: April 30th 2021</p>	<p>Dangerous coccids are widespread in Uzbekistan. Of these, the californian shield insect is a quarantine pest. It damages many plants. It damages apple, pear, plum, quince, peach, almonds, hawthorn, elm, poplar and others. Diapausing larvae of the first age overwinter, covered with a dark gray or black shield. In spring, it feeds intensely, molts and forms a shield similar to that of an adult female. After the second molt, adult females are formed. After mating, the female spawns larvae of strollers, which spreads along branches and leaves, and can also settle on fruits. It gives rise to the next generation.</p>
<p>Keywords: Female, male, larva, phase, cycle, molting.</p>	

INTRODUCTION.

Today, the cultivation and supply of fruits and vegetables to the population is one of the most important priorities of agriculture in the world [1, 12]. At the same time, the fact that the negative impact of pests and diseases on crops increases to 35-40%, indicates the need to further improve the system of combating them. In particular, scales, which are serious pests of fruit and ornamental plants, cost the agricultural and horticultural sector \$ 5 billion a year [2, 16]. Accordingly, the identification of harmful diaspid species in fruit and ornamental trees, the development of measures to combat them is of great scientific and practical importance [2].

California shield insect (*Diaspidiotus perniciosus* Comst.) - One of the serious pests of fruit, greenhouse, ornamental crops, forests and parklands in Uzbekistan. In the republic, it is subject to internal quarantine. To date, biology, ecology, harmfulness, the spread of California shield insects, and measures to combat it in the republic are not well understood. The harmfulness of California shield insects is very high [3].



***Diaspidiotus perniciosus* (Comstock, 1881)**

EPPO code on the basis of the European and Mediterranean Plant Protection Organization of California scale, European and International Plant Protection Organization (EPPO/EOKZR): Registered under QUADPE, *Aonidiella perniciosus*, *Aspidiotus perniciosus*, *Diaspidiotus perniciosus*, *Quadraspidotus perniciosus*, and *Comstockaspis perniciosus* has been learned and studied by scientists [6-9].

MATERIALS AND METHODS.

The research was conducted in Tashkent province, Institute of Zoology of the Academy of Sciences of the Republic of Uzbekistan, Laboratory of Entomophagous Ecology and Theoretical Foundations of Biosteres, Department of Plant Protection of Tashkent State Agrarian University and the State Inspectorate for Plant Quarantine under the Cabinet of Ministers.

Samples from plants infested with scales were cut, labeled, and studied in the laboratory. Samples taken during the field observations were numbered and recorded in a notebook. During sampling from different ecological

zones, 10 control plants were selected from all four sides of the area, and 10 samples were taken from them. The trees under control were conditionally divided into three tiers, and the placement of scales along the tiers was determined. The control focused on the number of tufts, the age and composition of the populations. The length of the horns taken from the samples was 10 cm. Some of the samples (bark, twigs, leaves, and fruits) were cut and placed in a special box lined with cotton wool, and some were soaked in 70% alcohol and fixed in the laboratory to study the species composition. Morphological characteristics and morphometric dimensions of scales were monitored in the laboratory under a magnifying glass and MBS-9 binocular microscope. In the process of collecting material, the age of the offspring of scale individuals was also clarified. The research was conducted in an artificially organized environment as well as in natural conditions. In the laboratory, studies of the embryonic development of scales have been conducted on species that have been artificially adapted to live in individual plants. Permanent field observations on biological and ecological properties of scales were conducted in Tashkent province and Tashkent, and practical laboratory observations were conducted at the Institute of Zoology of the Academy of Sciences of Uzbekistan, Laboratory of Entomophagous Ecology and the Department of Plant Protection of Tashkent State Agrarian University.

RESULTS AND DISCUSSION.

During the observations in 2018-2020, the species of scales on fruit trees in Tashkent province were identified, including very dangerous species. These include the California scale (*Diaspidiotus perniciosus* Comst), the purple scale (*Parlatoria oleae* Colvee), the apple scale (*Lepidosaphes ulmi* Lin), the plum scale (*Tecaspis asiatica* Arch), and the rose scale (*Aulacaspis rosae* Bouche) were studied.

In apple orchards, purple scale and California scale have the highest level of damage to various shrubs, i.e. 34.4% purple scale, 30.2% California scale, 11.4% plum scale, 10.9% apple comma scale, 8.9% rose scale, while the remaining species accounted for 6.9% (Figure 1).

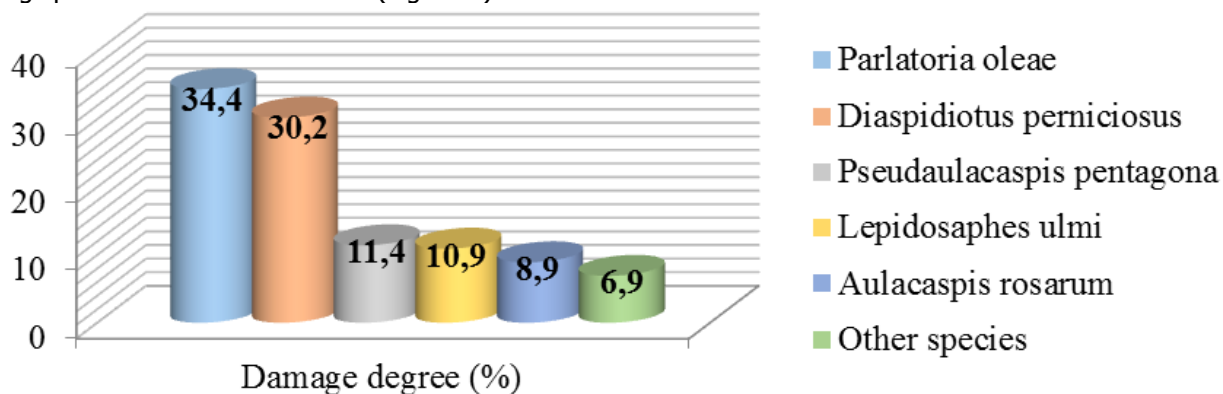


Fig. 1. Level of damage of apple trees in apple orchards (Tashkent province, 2018-2020)

Infestation of fruit trees with California scale (*Diaspidiotus perniciosus* Comst) affected pears and apples by 12.8%, plums and apricots by 10.1%, cherries and quinces by 10.9%, peaches by 9.7%, and cherries by a minimum of 8.6% (Figure 2).

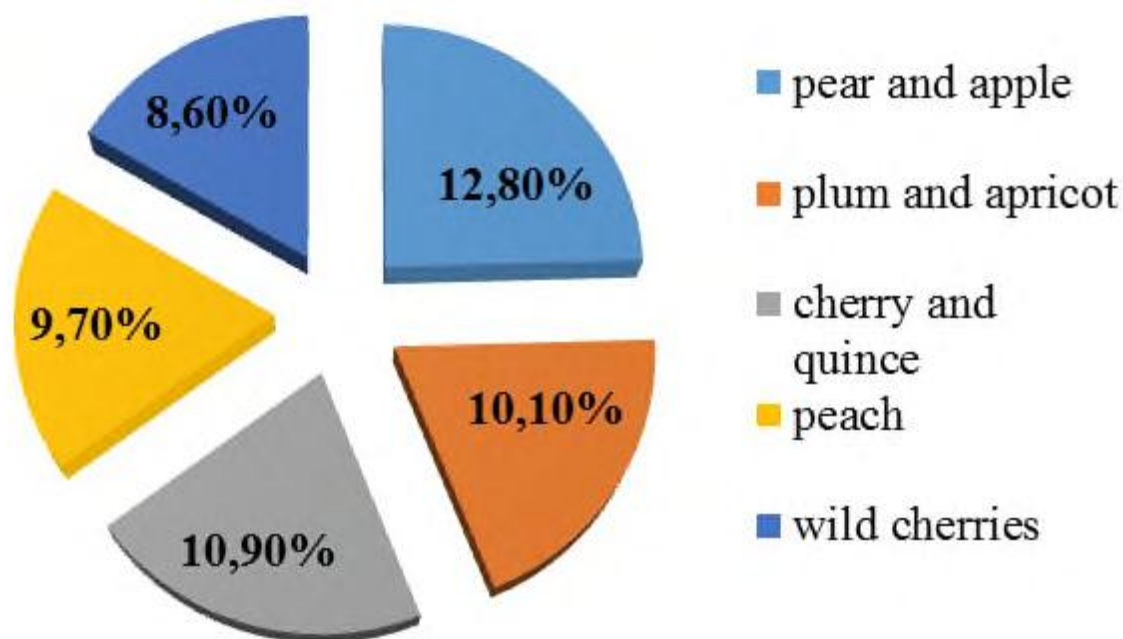


Fig. 2. Infestation of fruit trees with California scale (Tashkent province, 2018-2020).

CONCLUSION.

In apple orchards, the purple scale and California scale accounted for 34.4% of the total scale damage rate. California scale infestation of fruit trees affected 12.8% of pears and apples, 10.1% of plums and apricots, 10.9% of cherries and quinces, 9.7% of peaches, and at least 8.6% of cherries.

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