

Distribution of the leaf-eater (*Galerucella luteola* Müll) in Khorezm region

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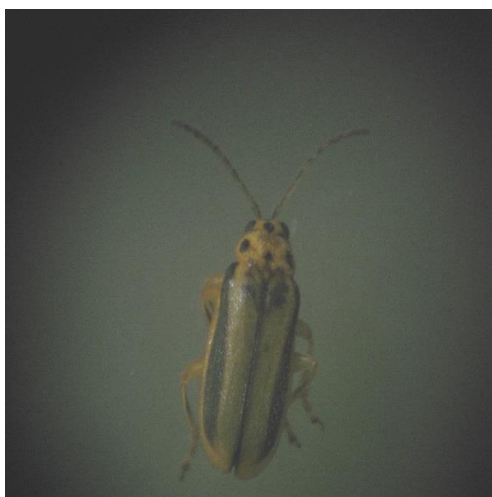
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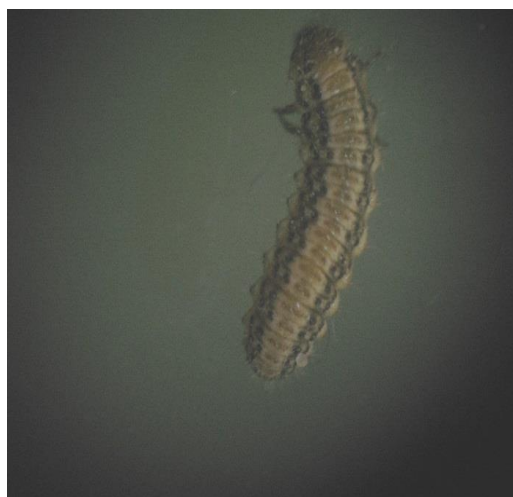
Annotation: this article describes the biology, larvae, mushroom, egg, adult beetle (*Galerucella luteola* Müll) and its development during the season, necessary conditions for their development.

Keywords: egg, larva, sponge, pine tree, leaf, rodent, spreading.

Galerucella luteola Müll is a pest that is widespread in the region where the tree grows in Uzbekistan. Widespread in the northern regions of Uzbekistan.



(A) Leaf-eating beetle



(B) Beetle larva



(C) Egg



(D) Sponge

Picture 1. Developmental stages of the pine leaf-eating beetle (*Galerucella luteola* Müll).

It is more damaging to alder plants that grow in residential areas and within the city. The pest undergoes a full transformational development. (See Figure 1) The stage that causes damage to the plant is the larval stage [1].

Larvae eat the soft part of the leaf and leave the lower epidermis and veins. In the years when the elm leaf-eater is overgrown, the elms in the city turn white. As a result, larch becomes more susceptible to secondary pests. In 2012, pine trees growing in and around the city were heavily damaged by leaf-eaters. For this reason, we conducted research on the development of the beetle. In 2012, pine leaf-eating beetles began to fly from the second ten days of April. On the third ten days of April, they began to lay eggs. From the first ten days of May, their number of eggs decreased due to the large number of larvae and the number of newly laid eggs. Beetle eggs were found on trees until the second decade of June.

Larvae began to appear on pine leaves from the first ten days of May. The number of larvae exceeded 100 and reached the maximum level in the second ten days of May. In the third ten days of May, their number decreased dramatically. The decrease process continued until the first ten days of June. From the second ten days of June, the number of larvae increased again. The number of larvae began to decrease from the first ten days of June. In the third ten days of June, larvae were not found on tree leaves.

It is necessary to study the reasons why the number of leaf-eating beetles (*Galerucella luteola* Müll) does not change on the leaves of pine trees from the third ten days of June. In our opinion, this phenomenon is related to the physiological state of the tree and the change in the number of entomophages in the tree.

As a result of phenological observations, the development of pine leaf-eating beetles was studied. From the second ten days of April, beetles began to leave the village. The activity of the beetles continued until the third ten days of May. From the third ten days of April, beetle eggs began to appear. The egg-laying period of beetles lasted until the second ten days of June. Larvae started appearing in the first ten days of May. Larvae have damaged pine trees by feeding on leaves from the first ten days of June. From the first ten days of June, mushrooms began to appear. From the third ten days of June, beetles started flying out of the mushrooms. Eggs of the second generation of beetles began to appear from the first ten days of June. The larvae of the second generation appear from the first ten days of June. Mushrooms of the second generation began to appear from the third ten days of June. From July, the beetles began to fly out. This event continued until the third ten days of July. From the second ten days of July, beetles began to lay eggs. The beetles' egg-laying period lasted until the first of August. From the third ten days of July, mushrooms prepared for the summer began to appear. In the conditions of the Khorezm region, the beetles gave 3 generations. In the conditions of Khorezm region, the pine leaf-eating beetle can cause great damage to pine trees in years when the climate is favorable. Although this pest is less likely to completely dry out pine trees, it creates favorable conditions for damage by secondary pests.

Mainly, the second generation causes severe damage to pine trees. The level of damage by leaf-eating pests differs greatly from the level of damage to trees planted in open areas and in front of tall buildings. In 2019, we studied the differences between the damage rates of trees planted under 50 buildings and trees planted in open areas.

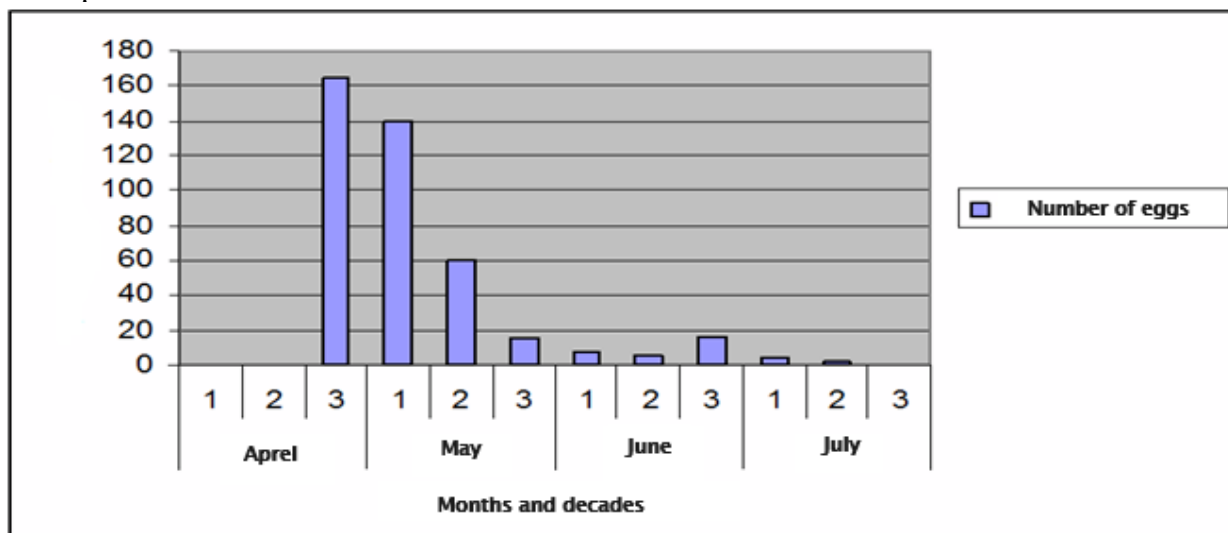


Figure 2. The density of the average number of eggs in one tree of the pine leaf-eating beetle (*Galerucella luteola* Müll) in 2013.

In this case, the number of larvae per leaf in trees planted in open areas is 0.2, while in trees planted in front of tall buildings, the number of larvae per leaf can reach up to 5.

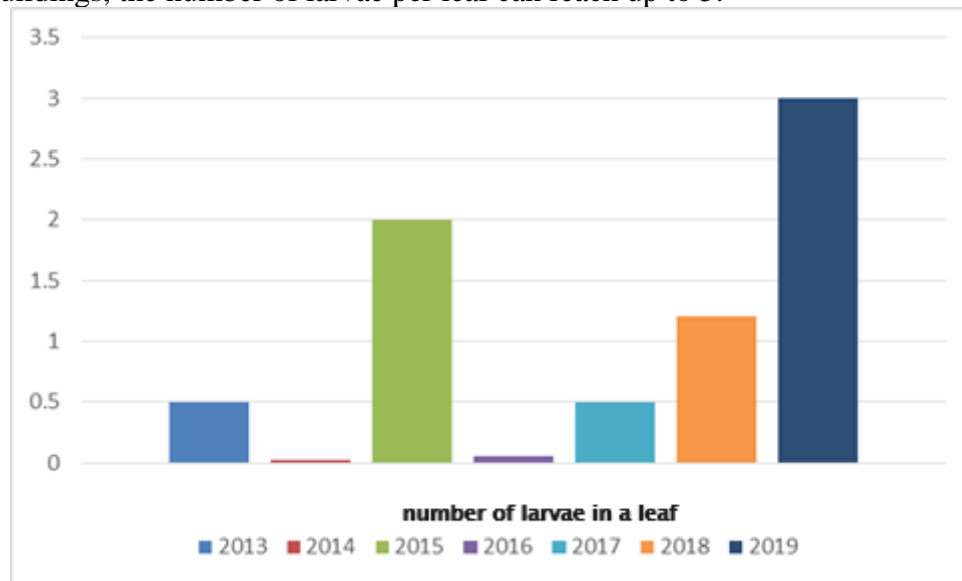


Figure 3. Average number density of pine leaf beetle (*Galerucella luteola* Müll) larvae per tree.

Leaf-eating beetles (*Galerucella luteola* Müll) were less in 2014 and 2016, but their number was higher in other years (see pictures 2-3). In 2019, the number of this pest was observed to be higher than in other years. These pest foci were formed in 2013 and their number is increasing.

The lack of timely treatment of these pest foci can cause their number to increase from year to year. The phenological calendar of their development in regional conditions was studied. Warming of atmospheric air up to 40 degrees has a positive effect on the reproduction of this pest. It is desirable to determine the location of trees from the leaf beetle and carry out control measures against areas that tend to become hotspots with increasing temperatures. After this pest infects all the trees in the city, it takes a lot of money to control it. In order to reduce these costs, it is necessary to form and implement a database based on GIS technology.

References.

1. Khodzhev Sh.T. Khudaiberganov M. Population of Karagachevs (*Ulmaceae*) by pests in the Khorezm region and the search for means to combat them // Tr. SANIZR "Protection of agricultural crop yields using environmentally friendly methods in the fight against pests and diseases" Tashkent: RCSTI "Uzinformagroprom", 1991 18 p.
2. Khudaiberganov M. Khodzhaev Sh.T. Against elm pests // Plant protection. - 1992. - No. 5 p. 39.
3. Migulin A.A. Agricultural entomology (2nd ed.), revised and expanded. - M: "Kolos", 1983. - P. 41-42
4. Esanboev Sh.E. Urban longhorned beetle is a pest of forests / Tr TashSKhI Vol. 3.- 1985. – pp. 19-23.