

# Eriosoma Lanigerum Hausm Juice Damage Properties And Effects Of Entomophagy Against It

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**Annotation:** The article focuses on the biological control of fruit tree pests, which are currently a serious problem. This article examines the seasonal development of *E. Lanigerum* sap, life cycle, population density, effect on apple seedlings, yield reduction, *Aphelinus mali*, and Coccinellids, which are relatives of this pest, and their degree of exposure.

**Keywords:** Pests, *E. lanigerum*, **Eriosoma lanigerum Hausm sap**, *Eriosoma lanigerum* Hausm, Winged aphids.

**Introduction.** Special attention is paid to horticulture in the Fergana Valley of the Republic of Uzbekistan such as apple, pomegranate, and grape orchards were established. Because the sharp increase in population is increasing the demand for agricultural products. The main issue on the agenda is the development of a scientific basis for high yields of crops to meet the demand of the population for food products. In this regard, one of the main factors in obtaining high yields from apples (*Malus Domestica* L. *Domestica*ies) is to protect them from pests. Protection of agricultural crops and diseases, and control of them are important factors in the production of abundant and high-quality crops. Of course, the vitamins found in apple fruits from legumes help people to recover from various diseases and develop normally [12]. Therefore, it is important to grow quality apples in apple orchards. But the most serious pest of apples is *Eriosoma lanigerum* Hausm is having an impact on the production of quality apples, ie fruit exports, which will also have a significant impact on the country's economy. Based on the results of the analysis, the study of the life cycle, biology, ecological properties, damaging properties, and effects of entomophagous *Eriosoma lanigerum* Hausm juice not only enriched the information about this species but also developed effective methods of biological control of this pest. allows you to solve theoretical and practical problems that arise in the emergence and cultivation of quality fruit.

The degree of damage of sap to apple seedlings and the characteristics of their variability has been extensively studied by K. Ganiyev and A. Mirzaliyev in many years of research in *Aphis pomi* juice [13].

Therefore, the infestation of *Eriosoma lanigerum*, which causes damage to apples, was studied in young shoots, bark, injured parts of branches and stems, as well as in the formation of colonies at the root, the effect of entomophagous and their damaging properties.

A. Muhammadiev 's ( 1970 ) research, the juice of *Eriosoma lanigerum* Hausm feeds on the roots, trunk, and branches of apples weaken trees, and cause the formation of nodules, which later rupture. [2].

liquid leaking from the damaged areas of apple seedlings infested with *E. lanigerum* juice can impair the quality of the fruit and cause inconvenience to apple pickers. In addition, some scientific sources have suggested that the sticky liquid that falls on the leaves allows mold fungi to live. [12]

*E. lanigerum* juice's homeland is North America, where a full cycle develops. He came to Russia in 1862 and to Uzbekistan in 1905. Cover the body with white powder, the body shape of the wingless representatives is ovoid, about 2.1-2.6 mm in length. In the winged representatives, white powder is present on the posterior side of the abdomen and is 2.2 mm long, the head, chest, and legs are black, and the abdomen is dark brown [1.5]. Based on these sources, when *E. lanigerum* juice was studied in the laboratory, it was determined that the external phenotypic characteristics and body size corresponded to the data given in scientific sources.

E. lanigerum juice began to give effective fo y in apple orchards in the Criminnce 1931. He was the first in Central Asia, including Uzbekistan, and in 1932 NATelengoy achieved a significant practical result using the biological method [1]. Later, several scientists published articles in leading journals around the world, revealing the chemical and biological mechanisms of this type of control. [3,4]

**Materials and research methods.** The degree of damage to the sap morphological changes observed in the vegetative and generative organs of the apple tree (yield of gals, lea curling, discoloration, change in the shape of the branches, cracking or shedding, immaturity of the fruit ) take or spill, and so on ).

Of plants phonological development Beydeman methods based on instead increased. For this, marked regions do not be of the plant a, body size tiers ad other, Indicators season during every 10 days follow up went. [14]

From this except mmaterialsAKMordvilko [9 ], G. X. S h aposhnikov [ 10, 11 ], V.A.Mamontova - Solukha, collected and processed according to the methods proposed by IAC h erkasova [ 8 ]. During the study, more than 40 climates, as well as local apple trees were planted and 52 insect samples were taken. All samples were reexamined in the laboratory, and glycerin and sugar preparations of the poems were prepared and studied

were analyzed comparatively with the help of special aphidological literature [5,6,11] and determined the toe level of the species.

**Results section.** We conducted our research on horticultural farms in Uzbekithe stan district and Baghdad district of the FetheFerganaa region and around the city of Fergana (Kirgili). The object of research was the self-selection roof of the f Semerevarietyiety, based on the type of apple (MDomesticastica L) which is very harmful to E. lanigerum juice, and conducted experiments on this apple variety.

In our study, we observed that by the end of the fall, after shedding the leaves of the apple plant, the affected bodies were clearly visible, especially the buds on the young branches [Fig. 1].



**Figure 1.**

The results of scientific research have shown that, as reported in the literature in the field of entomology (VYakhntov. 1962), E. lanigerum juice is also called bloody aphids (lice) due to the release of a red (blood) colored liquid when crushed by hand. Larvae and mature forms have been observed to overwinter in the bark trunks, stem,s and, branches in winter or in open in the plant body, mostly around the roots and at depths up to 10 cm. Activated in late February or early March, colonies began to appear. Live births multiply. The larvae hatch four times. It takes 10-22 days for a joint to develop. It germinates by giving 16-18 joints a year. Winged aphids begin to appear close to April or June, and by August-September, their prevalence has been identified during our observations.

As a result of the study, we found that E. lanigerum significantly affects the yield and other vegetation periods of the apple plant, ie seedlings of the same age (7 years) were selected from seedlings infected with aphids in the apple orchard and given below. compared on a tabular basis (Table 1).

**The average condition of vegetative indicators of apple plants not affected and damaged by Eriosoma lanigerum Hausm sap is by region.**

Note : ( 10 undamaged and 10 undamaged apple seedlings were selected as the object and 3 of the 2-3 year 3-yearoliveve branches bearing fruit in the middle tier of each seedling were selected ).

Table 1.

INDICATORS	TERRITORIES		
	District of Uzbekistan	Baghdad District	Kigili
The average number of flowers on the marked branches (April 1-7, 2020)	Undamaged apple seedlings		
	12-14	16-18	12-13
	Damaged apple seedlings		
	7-9	9-11	6-7
The average number of fruits initially formed on the marked branches (April 20-25, 2020)	Undamaged apple seedlings		
	7-8	9-10	7-8
	Damaged apple seedlings		
	4-6	3-4	4-5
The average number of ripe fruits on the designated branches (September 20-25, 2020)	Undamaged apple seedlings		
	6-7	7-8	5-6
	Damaged apple seedlings		
	2-3	1-2	2-3
The average annual growth rate of a specified apple tree branch	Undamaged apple seedlings		
	69 cm	76 cm	68 cm
	Damaged apple seedlings		
	38 cm	35 cm	37 cm
Time to shed the leaves of the designated apple trees	Undamaged apple seedlings		
	2020 September 23-27	2020 October 6-10	2020 September 21-29
	Damaged apple seedlings		
	2020 September 7-11	2020 September 5-9	2020 September 6-11

During the study, 10 affected and 10 undamaged plants were selected from 7-year-old seedlings in apple orchards in the designated areas.

These plants were observed from spring to autumn. Three experimental two- and three-year-old fruiting branches of plants selected for the study were identified for the experiment, and the number of flowers measured at 60 cm in length was counted, along with the number of flowers in undamaged plants in apple seedlings in Uzbekistan. It was found to be 1-2 times more than in the territory of Fergana (Kigali). This figure was slightly higher in the seedlings of Baghdad district, ie 4-5, and when studying the number of flowers on the affected plants, apple seedlings in the territory of Uzbekistan compared to the territory of Fergana (Kigali) It was found that there are more than 1-2 seedlings, and 3-4 seedlings in Baghdad district. This situation hurts the early development of *E. lanigerum* juice and apple seedlings due to the climate of the region, the agro-ecological condition of the soil, and the high level of environmental pollution in the Uzbekistan district and Fergana city (Kigali). can be explained by

The average number of flowers in 10 undamaged apple seedlings in the 3 marked areas was 14, while the same number was 8 in damaged apples, which shows that *E. lanigerum* sap per apple plant. indicates that the secret is becoming stronger than other factors.

In addition, when studying the number of first fruits in apple seedlings, the level of fruit production in undamaged apples was 2-3 times higher than in the district of Uzbekistan and Fergana (Kigali) in Baghdad district. Primary fruit yield in high but damaged apple seedlings was 1-2 times lower in Baghdad district than in Uzbekistan and Qrguli districts. This is because by the end of April, the population dynamics developed

rapidly and it was found that apple seedlings had a significant impact on fruit yield, as *E.lanigerum* sap was an ecologically clean area in Baghdad district compared to the above 2 areas.

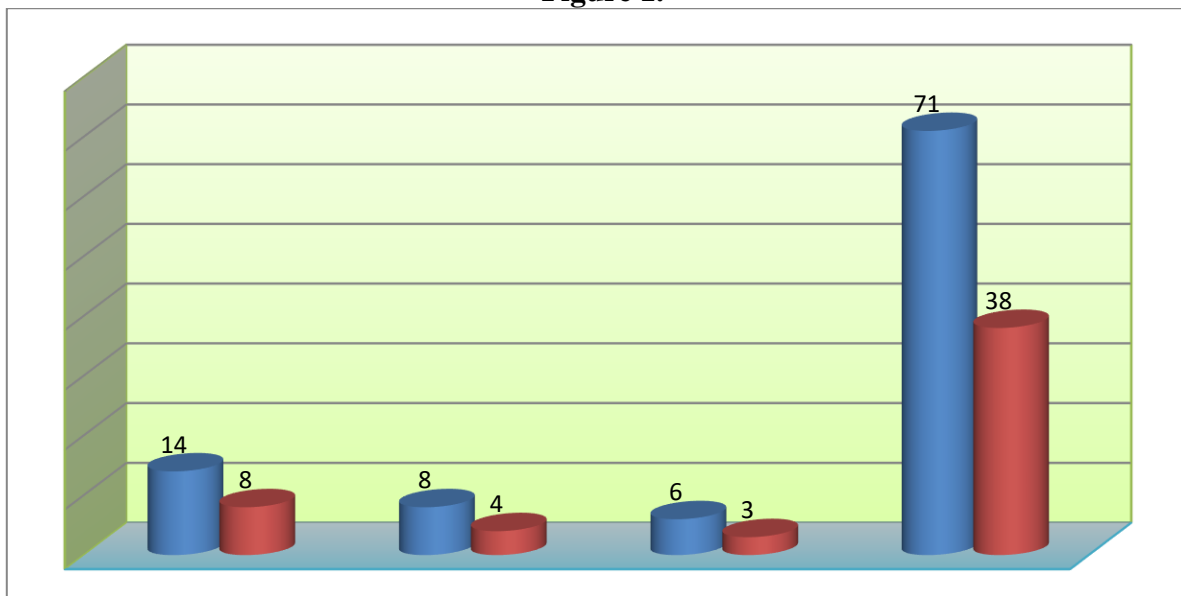
When analyzing the indicators of fruit ripening in undamaged and damaged plants by regions, the average number of ripe fruits on the branches of 10 undamaged apple seedlings in the territory of Uzbekistan was 6-7. , In apple seedlings infested with *E.lanigerum* juice amounted to 2–3. When studied in the conditions of Fergana (Kirguli), the level of ripening of fruit in undamaged and damaged apple seedlings gave almost the same results as apple seedlings in the territory of Uzbekistan district. In the Baghdad district, the yield of undamaged apples was slightly higher, 7-8, but in apples infested with *E. lanigerum* juice, the ripening rate was significantly lower, 1-2 . In this case, we can see that in the territory of The Baghdad district, the growth rate of sap is high and has a high impact on the yield of the apple plant.

In addition, when analyzing the growth rate of annual branches and leaf rot in apple seedlings in the designated areas, the average annual growth rate of undamaged apple seedlings was 71 cm, and the time of leaf shedding was in late September, early October. was correct. During our research, we observed that the growth rate of apple seedlings infected with *E. lanigerum* sap was significantly lower, i.e., 36.7 cm, and the onset of leaf shedding coincided with the beginning of September.

Based on the table above, the overall average of the 3 regions identified was calculated based on the diagram (Diagram 1).

Diagrammatic representation of vegetative indicators of undamaged and infested apple plants with *Eriosoma lanigerum* Hausm juice.

Figure 1.



From the above analysis, it can be seen that *E. Lanigerum* juice causes significant damage to apple seedlings and sharply reduces the yield of seedlings. Given the fact that this pest has become more widespread in Uzbekistan in recent years than in previous years, the harmful effects of *E. Lanigerum* cause economic damage to the fruit growing industry [Figure 2].



Figure 2

E. Lanigerum juice, its biology must first be in-depth, and the selection of the most effective entomophagous insects in the use of entomophagous in the process of control gives a useful result.

orchards in the selected areas were inspected Because the effects of Aphelinus mali on Haldeman algae vary throughout the season, the population of E. maligerum is relatively low at the beginning of the season, ie the population of E. lanigerum juice develops rapidly, but in the second half of the season, their damage is strong. we observed

A. mali pardanakotli bebelongso the feline family of the main family. The mature insect is black, and e beginning of the ventricle is yellow. Females have a short ovary, the ventricles of which are narrowed towards the tip. The tip of the male's ventricle is not narrowed. The size of mature parasites is 0.8 -1.3 mm. Adulfelineses overwinter inside the body of larval larvae. In spring, when the temperature rises above +5 C, the larvae turn into mushrooms. 80-90% of adult parasites are female. The aphids lay one egg inside each aphid Eggs are laid when the temperature is 15 - 17 C ° and above and last for the entire life span of the female (10–30 days). A female feline lays 60-100 eggs. [1]

The larvae of the parasites hatch from the eggs and eat the inner presence of the sap. Damaged juices stop eating after a few days, swell, darken, and eventually die. The larvae of these insects turn into a sponge inside the body of the aphids after they have finished feeding. The sponge then develops into a mature form, gnawing at the master's skin, forming a hole, and flying out of it. During the summer, when the temperature is 15-20 C the development of the larva in the sap lasts 25-26 days. Under unfavorable conditions, this period is further increased. The mature offspring again infect the saplings. Thus, during the season, the parasite reproduces several times, i.e., produces several (9-10) joints. By autumn, when the temperature is around 13 C ° and below, the larvae enter a diapause state and overwinter within the generalized juices.

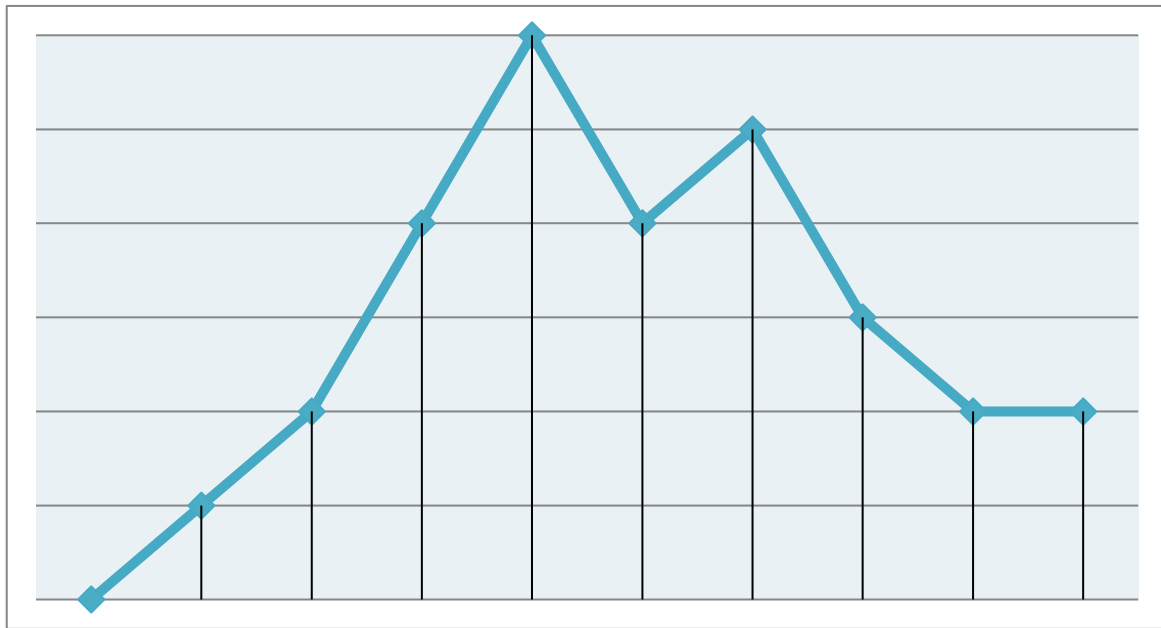
A. financial activity depends on climatic conditions. The benefits of parasites are high at normal temperatures and good sunlight. This parasite can be found wherever there are aphids.

A. The short-term development, reproduction, belonging of females, and their ability to reproduce by parthenogenetic methods further increase its value.

A. mali also partially infects other species of insects. Most importantly, the time of development of the felines corresponds to the time of development of the Eriosoma lanigerum sap. Frost resistance of larvae (-30 and more) allows for climate A.mali. But it should also be noted that the increased use of strong insecticides in gardens does not go unnoticed by the negative impact on felines.

A.mali destroys 70-80% of apple juice, but the effect of entomophagous is insignificant, as E.lanigerum juice accelerates reproduction in late April and early May. Eggs laid on the body of the aphids in the fall were found to have pierced the body of the aphids when they overwintered during the mushroom period and the days began to heat up.

### **Seasonal developmental dynamics of Aphelinus mali Haldeman entomophagy 2-diagram**



By this table, our observations examined a 2-year-old 6 mm diameter branch in the middle tier of an apple infested with *E. Lanigerum* sap and found a low number of damaged sap in the colonies in March when the number of damaged and undamaged sap in the 9 cm section was continuously counted. This figure can be seen to increase sharply from June to July, i.e., 235 damaged saplings were detected in 9 cm of the 6 mm branch, while 137 live undamaged saplings were counted in the same colony. This situation was also observed in September [Diagram 2].

Colonial branches infested with *A.mali* are prepared in the fall for biological control of *E. lanigerum* sap. In the garden where *A.mali* is spread, annual and biennial branches infested with blackened, mummified *E. lanigerum* sap are cut to a length of 10-25 cm. *Afelinus E.lanigerum* juice overwinters in the larval stage inside the carcasses. The cuttings are stored until spring when they are not exposed to cold, rain, or snow. In early spring, these cuttings are tied to the trees in the gardens where *E.lanigerum* sap falls. It is considered good if each cutting contains 100-200 aphids infected with felines. [1]

*E.lanigerum* sap is abundant, cuttings should be tied to the third tree in three rows.

In addition, when the degree of exposure of natural enemies to Coccinellids aphids was studied, The fact that the increase in population dynamics is the same as that of *E. lanigerum* is reflected in the studies of several scientists [3].

In conclusion, *Adalia decempunctata* Linne, *Adalia bipunctata* Linne, and *Adalia fasciatopunctata* Foldermann species were encountered when apple trees infected with *E.Lanigerum* sap were routinely monitored in the areas we studied. The increase in the population dynamics of this entomophagy was also found in our study to be related to the increase in the number of aphids, i.e. in late May, and early June this entomophagy was more common but during our study, it was found that the effect of Coccinellidlar *e. Lanigerum* juice did not have a strong effect on the colonies, which was explained by the fact that *E. Lanigerum* juice was covered with a thick powder.

In addition, the fruit tree - to prevent the spread of pests and diseases on the seedlings, or to eliminate the emerging pests and diseases, to take good care of the seedlings, ie to fertilize the seedlings in moderation, timely watering, the need to loosen the soil, apply mud to tree trunks and wounds after pruning branches and twigs, remove root buds, twigs, various weeds, which allows getting high yields from orchards.

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