

THE MAIN PESTS OF THE APPLE

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ABSTRACT: The paper describes how to recognize, biology and how to attack the main pests of the apple.

KEY WORDS: *Pests, apple, damage.*

1. INTRODUCTION

The main pests of the apple are: apple's honeylice, apple's green lice, woolly lice, Apple wasp, Apple leaf wasp, Apple flower ladybug, Apple leaf moth and Apple worm.

2. APPLE PESTS

2.1. Apple melifer louse (*Psylla mali*)

Description. It is a small insect with a length of 3 mm and a yellow- greenish color. The female has a red abdomen sometimes with pink shades. The male has orange longitudinal stripes on his back. The wings in both the male and female are transparent, laid out in the shape of an eaves and are longer than the abdomen (Fig. 1).

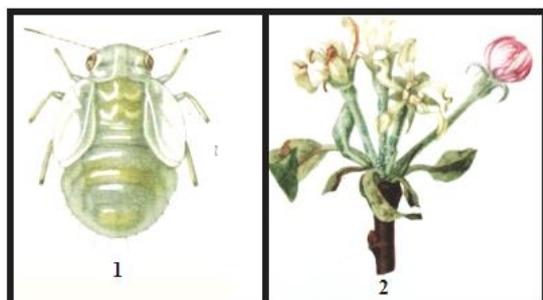


Fig. 1. Apple melifer louse (*Psylla mali*)
1. Nymph, 2. Inflorescence of apple attacked by
larvae and flowering

The larva is orange in colour, and from the second age, it becomes green. The larva has a flattened shape with short legs, no wings. Eyes are vivid red

The nymph has a larva-like shape that differs from in the beginnings of the wings. It's green.

Attack mode and damage. Young freshmen attacked, at first they are embarrassed in development, then completely dry out. Some of the buds bloom, but most of the flowers do not bind and shake. In the event of a strong invasion within a few years, this pest can completely compromise the production of trees.

2.2. Green apple louse (*Aphis trees*)

Description. The male is 1.25 mm long and the female 2 mm. The body is green – yellowish, the head brown, on the sides of the body there are small tubers of conical shape. The antennae, the thorax, the cornics are black, the tail is dark green. Antennas have 5 -6 items. The legs are yellow. The tips of the femurs, tibiae and tarsi – black. During the summer a number of forms appear: aptera females – fundrix, black-coloured clogged winged females and yellow-green sexuping females. (Fig. 2)

Biology. In the spring during the de-flowering, the larvae of the fundrix females

appear from the eggs, which begin to feed on the tops of the leaves that appear from the buds, then passing on the leaves and the flower buds. At the beginning of the flowering of the apple, the larvae mature and begin to give birth to live chicks.

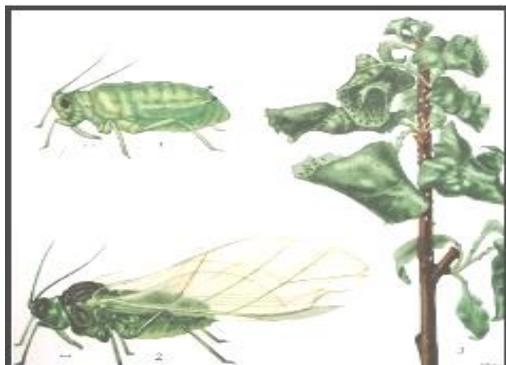


Fig. 2. Green apple louse (*Aphis trees*)
1. Female apt, 2. Female winged vivipara, 3. Shoots attacked by green lice to the apple

Towards the end of summer, around September, winged females appear, which are called sexupare.

Attack mode and damage. The green lice of the apple cause great damage, especially in nurseries and young orchards. The attacked leaves twist and the shoots bend. In the event of a strong attack, the leaves fall and the shoots dry out. This pest causes great damage in the first half of the summer. Besides the apple, they attack hair, quince and hawthorn.

2.3. Woolly lice (*Eriosoma lanigerum*)

Description. Parterogenic females are up to 2 mm long. They are apter, light brown. The body is oval covered with white wax threads up to 4 mm long. The antennae are made of six items (Fig. 3)

Biology. In the spring, with the beginning of the movement of the sap, lice that winter in the form of larvae in the cracks of the bark, hollows, etc., are fixed in the beginning to feed themselves with sap. After 20 to 30 days the larvae mature, turning into virginogenic females that give birth to up to 90 larvae. Some of the larvae migrate to the roots, where they form colonies.

Towards autumn, winged sex appears, giving birth to males and females.



Fig. 3 Woolly lice (*Eriosoma lanigerum*)
1. Adult (F), 2. Attacked apple shoots, 3. Effect of the attack on the branch of 1 year, 4. Attack on root product

Attack mode and damage. Colonies of lice can live on young shoots of one year, on thick branches, on stems and on roots. In place of the attack occurs a hypertrophy of the tissue in the form of swelling. These swellings crack and in their place appear cancerous ulcers. Root injuries have about the same character. These swellings and ulcers cause disturbances in the metabolism of the tree. Through the wounds and bumps produced penetrate various fungi or bacteria that destroy the wood. Because of this, the attacked trees perish before time.

2.4. Apple wasp (*Hoplocampa testudinea*)

Description. The adult is 6 -7 mm long, is yellow, and on the dorsal side is black – brown. The wings are transparent – hyaline. The eggs are elongated spherical white. The larva is white with a crescent-shaped stain on the last segment. It has 10 pairs of legs: 3 pairs of thoracic legs and 7 pairs of abdominal legs.

At first age the head is black, and at the other, brown. (Fig. 4)

Biology. The adult appears in spring at the beginning of the apple flowering and lasts until the end of flowering. The eggs are deposited in the flower calyx, as is the plum wasp. The laying of eggs coincides with the beginning of flowering and lasts until the flowers shake.

Attack mode and damage. The egg-free larva penetrates the fruit by destroying the seed chamber. The attacked fruit has a

large circular hole from which the liquid excrement comes out. After these characters, the wasp attack is different from that of the apple leaf wasp. The egg-free larva is fed in the first fruit 1 – 2 days, digging a gallery under the skin of the fruit. This fruit develops further, with a scar passing through the fruit in the shape of a stripe. After this passes into the second fruit and so on to the fourth. After being left by the larva, the attacked fruit falls.

The mature larva falls with the fruit and retreats into the ground where it makes a dense cocoon in which it winters. The transformation into a stern takes place in the spring.

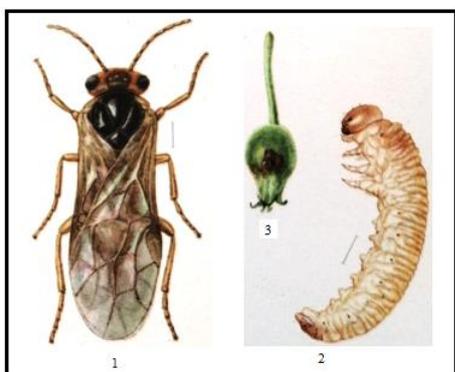


Fig. 4. Apple wasp (*Hoplocampa testudinea*).
1. Adult (female), 2. Larva, 3 . Attacked apple

2.5. Apple leaf wasp (*Croesus* sp.)

Description. Wasps are brown – closed with yellowish legs and brown antennae – yellowish. The basal half of the foot cox is brown – blackish, and the wings hyaline. Body length is 10 – 12 mm. (Fig. 5)

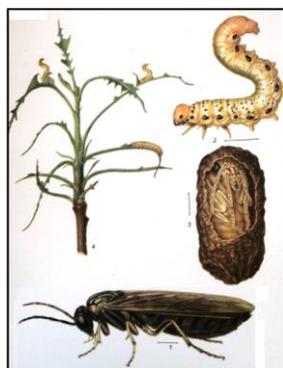


Fig. 5. Apple leaf wasp (*Croesus* sp.)
1. Adult, 2. Larva, 3. Cocoon with nymph,
4. Apple shoots attacked by larvae.

The larvae are yellow – orange with black dots on the body segments and with the eyes and area around the black stigmas. Body length is 12 – 15 mm.

The nymphs are yellowish with black eyes, and the cocoons are brown – blackish. The length of the nymph body is 9 – 12 mm, and the cocoon 14 – 16 mm.

The attacked shoots have leaves with the tongue completely eaten, leaving only the petiole and the main ribs.

Biology. It has only one generation per year. Spring in March the larvae turn into nymphs, and in the second half of April in adults. After a period of 4 – 5 days of feeding with the nectar of the flowers, the wasps mate and lay eggs. The eggs are laid under the epidermis of the leaves, in some bags that the females cut with the help of the terebra. At the end of April the larvae appear.

Attack mode and damage. The wasp larvae attack the apple leaves causing the branches to defoliate. Because of the attack, the leafy branches no longer form fruit buds, the shoots remaining unripe and thus exposed to frost in winter, and the fruits remain raw, shrivel and fall.

2.6. The ladybug of the apple blossoms (*Anthonomus pomorum*)

Description. The adult is 5 – 6 mm long. The head is fitted with a long, narrow rostrum. The antennae are geniculate. The color of the body is brown – gray, the back of the elytra having a light gray transverse stripe, hemmed from both sides with stripes of more accentuated color. (Fig. 6)

The egg is clear dirty white. Larvae are apodes, yellowish with wrinkles and tuberosities. The head is small dark brown, glossy, up to 5 – 6 mm long.

The pupa is yellow, free, with all adult organs visible.

Biology. Spring at 6°C cockroaches come out of the wintering places. Their mass appearance occurs at temperatures above 8°C.

At first they move slowly and climb on the trees near which they have wintered. Cockroaches, after hibernation needing food for sexual maturation, feed by stinging the buds. Drops of the same mess appear on the

attacked buds. As the temperature rises the beetles become more active and fly from tree to tree. When the fruit buds are open and the individualization of the flower buds is barely noticeable, the ladybugs lay eggs. To this end, they break the rostrum in the still green bud, a hole in which they lay an egg and then close it with a stopper of the excrement.



Fig. 12. Apple blossom weevil (*Anthonomus pomorum*)

After laying eggs, beetles die. The larvae that hatch from the eggs bear the stamens and the pistil of the flower, sticking with excrement towards the lower part the petals of the injured bud. Such flower buds do not fall off, turn brown and dry. It has only one generation per year.

Attack mode and damage. The flower buds in which the eggs were laid turn brown and do not fall apart, they can be seen from a distance. The damage caused by the ladybug depends not only on their number, but also on the passage of time. Beetles lay their eggs in flower buds when they are still green, uncolored. When the springs are cool, the bud opening period is greatly extended, which allows the ladybugs to lay all the eggs in the buds without hindrance. In this case the damage can be very great, up to the total compromise of the harvest. During a warm and short spring, the flowers unfold in a short time, the females fail to lay all the eggs in the buds and most of the eggs or larvae fall to the ground and die.

CONCLUSION

The main measures to combat: during winter rest, separation of buds and during bottling, specific chemical treatments are applied.

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