TREE FRUIT CROPS

CORNELL COOPERATIVE EXTENSION

IPM Integrated Pest Management

Insect Identification
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Tarnished Plant Bug

Lygus lineolaris (Palisot de Beauvois)

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The tarnished plant bug is found throughout North America, but it is primarily a pest in temperate nondesert areas. It feeds on more than fifty economically important plants, including alfalfa, cotton, strawberries, brambles, and most tree fruits grown in the United States. It has two to five generations per year, depending on the location. The tarnished plant bug is a true bug (order Hemiptera), with piercing-sucking mouthparts.

Adults

Adults are 6 to 6.5 mm (0.25 in.) long, oval, and somewhat flattened. They are greenish brown in color, with reddish brown markings on the wings. A distinguishing characteristic is a small but distinct yellow-tipped triangle in the center of the back, behind the head (fig. 1).

Tarnished plant bugs overwinter as adults under leaf litter, stones, and tree bark and in other protected places. At the end of April, the adults become active and begin laying eggs in crop and weed hosts. The overwintering adult population peaks at about the pink stage of apple (early May in New York State). Two to four indistinct generations can occur annually, with development from egg to adult taking 25 to 40 days. Adults feed throughout the summer, but are found on apple trees from the silver tip stage until 2 to 3 weeks after petal fall.

Eggs

Eggs are about 1 mm (0.04 in.) long, cream colored, and flask shaped. They are laid in plant tissue so only the small anterior end is visible. Eggs can be laid on fruit crops (fig. 2), but are generally deposited on weeds and grasses. On apple trees, although some early oviposition may take place in the buds, most eggs are laid in the developing fruit starting at bloom.

Nymphs

Eggs hatch into nymphs about 7 days after being laid. Young nymphs are pale green and resemble aphids (fig. 3), except that their legs are more robust, their movements are more rapid, and they have no abdominal cornicles (backward-pointing structures that resemble short stems). Because the tarnished plant bug has incomplete metamorphosis, the nymphs resemble adults without wings. Newly hatched nymphs are about 1 mm (0.04 in.) long and remain greenish throughout their five stages, or instars. Nymphs in later instars turn brown and develop wing pads. They have two black dots on their thorax, two between their developing wing pads, and one in the middle of their abdomen (fig. 4).

Fig. 1. Adult

Fig. 2. Egg on a fruit bud

Fig. 3. Young nymph

Fig. 4. Older nymph

Fig. 5. Dimple on an apple caused by feeding

Fig. 6. "Catfacing" damage to a peach

Fig. 7. Dimple on an apple caused by oviposition

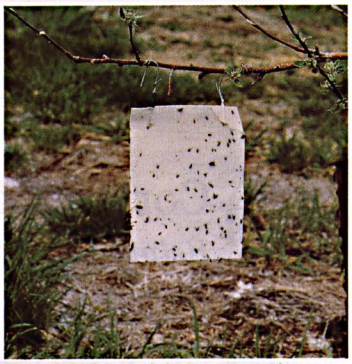


Fig. 8. White sticky trap used for monitoring

Damage

The tarnished plant bug causes injury to tree fruits when it feeds and lays eggs. Damage occurs primarily in the spring on flower buds, blossoms, and young fruit, although bleeding of sap may result from twig and shoot injury.

The insect feeds first on buds and later on developing fruit. Small droplets of exudate may be present on the surface of injured buds. Within 1 or 2 weeks, the flower clusters may appear dried and the leaves distorted, with a distinct hole where the insect fed.

Generally, later damage to developing fruit is more important than earlier feeding on flower buds. In apples, feeding can cause punctures or deep dimples to form as the fruit develops (fig. 5), and in peaches various deformities known as "catfacing" occur (fig. 6).

The damage to apples caused by egg laying is usually deeper, resulting in more distorted fruit often with blemishes or "scabs" (fig. 7). Damage early in the season tends to be near the calyx end of the fruit, and later injuries tend to be elsewhere. Cultivars differ in their susceptibility to damage, with depressions or scabs in some being less pronounced.

Damage to mature trees is slight after June, but much damage can occur to nursery stock throughout the summer. In peach trees, the tarnished plant bug punctures the tips of tender growing shoots, causing the leaves to wilt beyond the point of damage and resulting in trees with a dwarfed and bushy appearance. Damage to peach fruit can occur throughout the summer. Nursery apple trees damaged by the tarnished plant bug have curled leaves and stunted growth.

Monitoring and Control

From mid-April to early May, look for adults on flowers and foliage or for bleeding wounds on shoots. Adults fly when disturbed and are difficult to observe in the field. Therefore, the use of unbaited, nonreflective, white sticky boards hung low in the trees is an effective monitoring method (fig. 8). The best places to set the traps are in lower areas such as ditch banks and in hedge rows, which are favorable overwintering sites of the adults. White sticky traps are available commercially.

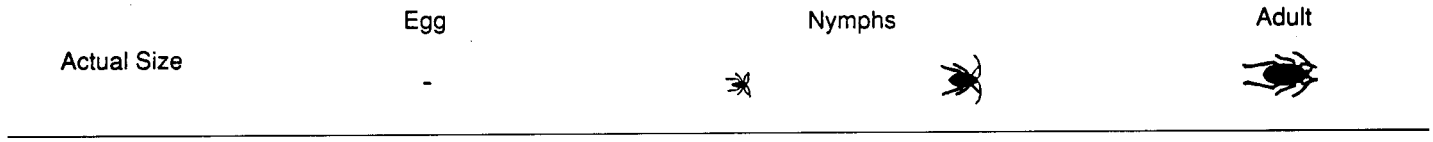
The tarnished plant bug has a number of natural enemies, such as other true bugs (nabids, geocorids), ladybird beetles, spiders, and parasitic wasps, but they are not able to control the pest effectively. Satisfactory chemical control is difficult on tree fruits because the frequently long bloom period, when no pesticides can be applied, prevents optimum timing of control sprays. Also, prebloom pesticide treatments may dissipate during the prolonged period of bloom. The mobility of the tarnished plant bug also makes control difficult.

Despite control efforts, a small amount of fruit injury is often inevitable. Most damage is shallow and undetectable, however, and generally not noticed in normal grading procedures.

Consult your local Cooperative Extension association for recommendations about the proper procedures and materials to use in your area.

Guide to Stages

Stage	Timing	Where to Look
Adult	Overwintering generation—dormant to fruit set of apple	On tree fruit flower buds (look for damage), in alfalfa fields. Use white sticky traps.
	Summer generations—summer to fall	Nursery stock, peach fruit, other hosts (legumes such as alfalfa, clovers)
Egg	Tight cluster to fruit set	Inserted in buds, fruit, or similar soft plant parts
	Summer generations—summer to fall	Other hosts (legumes such as alfalfa, clovers)
Nymph	May through fall	Flower buds, fruit, alfalfa, weedy areas



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