



BUG BIZ

Pest Management and Insect Identification Series



Lygus lineolaris, Tarnished Plant Bug (Hemiptera: Miridae)

Saurav Ranabhat, Chris Carlton

Description

Tarnished plant bug (TPB), *Lygus lineolaris*, is one of the most important pests in the family Miridae, with nearly 400 known host plant species. They damage a variety of ornamentals, garden plants and field crops,

Adult TPBs average 6 mm in length, 2 mm in width and have a flat, brownish body with yellow and/or orange markings. The antennae and legs are relatively long and slender. Heads are small and possess a long proboscis that is tucked ventrally. A distinctive light-colored “V” marking on the dorsal side is typical of the species. The hind wings used for flight are covered by the partially hardened forewings (hemelytra) typical of this group of Hemiptera families. Adult males are slightly smaller than females. Color and pattern may vary based on seasons, host plants and geographical locations.

TPB's eggs are minute, white and curved. They are usually embedded into plant tissues near the reproductive parts of the plants such as buds, flowers or fruits. Nymphs are similar to adults in shape and behavior but lack wings. Newly hatched nymphs are about 1 mm in length and are light green to pale yellow in color, with red eyes and dark spots on the tips of the abdomens.

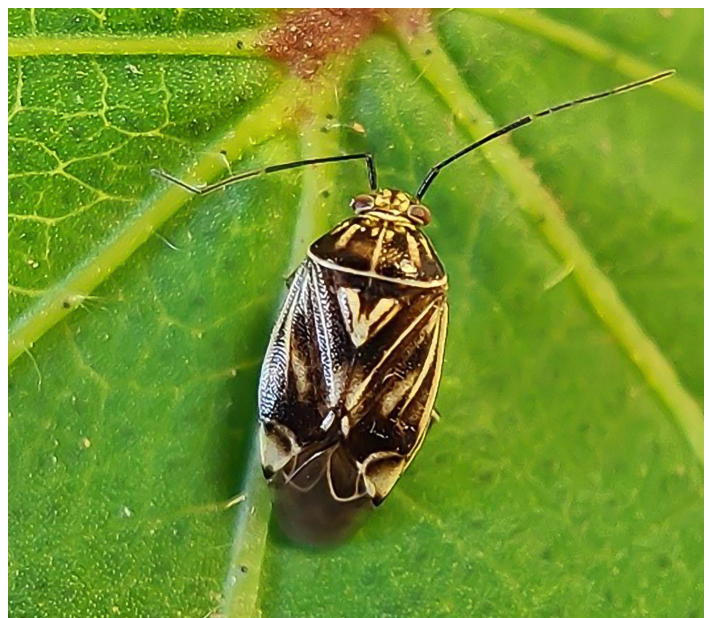
The genus *Lygus* includes over 30 species in the United States, among nearly 200 worldwide. Many species within the family Miridae are similar to TPB, and positive identification requires the services of an experienced diagnostician or insect taxonomist.

Life Cycle

The life cycle of the TPB may be completed within 30 to 40 days under optimum conditions. TPBs undergo three major life stages — eggs, nymphs and adults. Eggs are inserted into soft plant tissues. Depending on temperature, nymphs hatch after seven to 12 days. Hatchling nymphs (neonates) emerge from a top opening of the eggs.



Tarnished plant bug nymph on cotton square (Barry Freeman, Auburn University, Bugwood.org, Creative Commons 3.0).



Adult tarnished plant bug (James Villegas, Louisiana State University AgCenter).

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TPB nymphs go through five growth stages (instars). Nymphs molt every three to four days. Four black spots appear on the thorax and one on the abdomen by the fourth or fifth instar. The final, fifth, instar possesses wing buds and the final molt produces the adult. Females may live from 37 to 52 days, depending on the temperature and can lay an average of 96 eggs in optimum conditions. Overwintering takes place in leaf litter, debris, under bark or on dry grasses. Warm, dry conditions favor survival of TPBs.

Feeding by nymphs and adults is accomplished using piercing-sucking mouthparts, as typical for members of the order Hemiptera. After piercing the cuticle, salivary enzymes are injected into the plant cellular tissues, allowing the insect to suck the partially digested tissue slurry using powerful muscles in the front of the head.

Ecological Significance and Pest Status

TPB is a polyphagous herbivore with a broad host range that includes greenhouse and garden crops, nursery plants, row crops and various wild plants. They target areas such as terminals, seeds, buds, midribs and petioles. Extensive feeding results in flowering delays, bud drops, fruit damage, plant necrosis, seed deformities and transmission of disease.

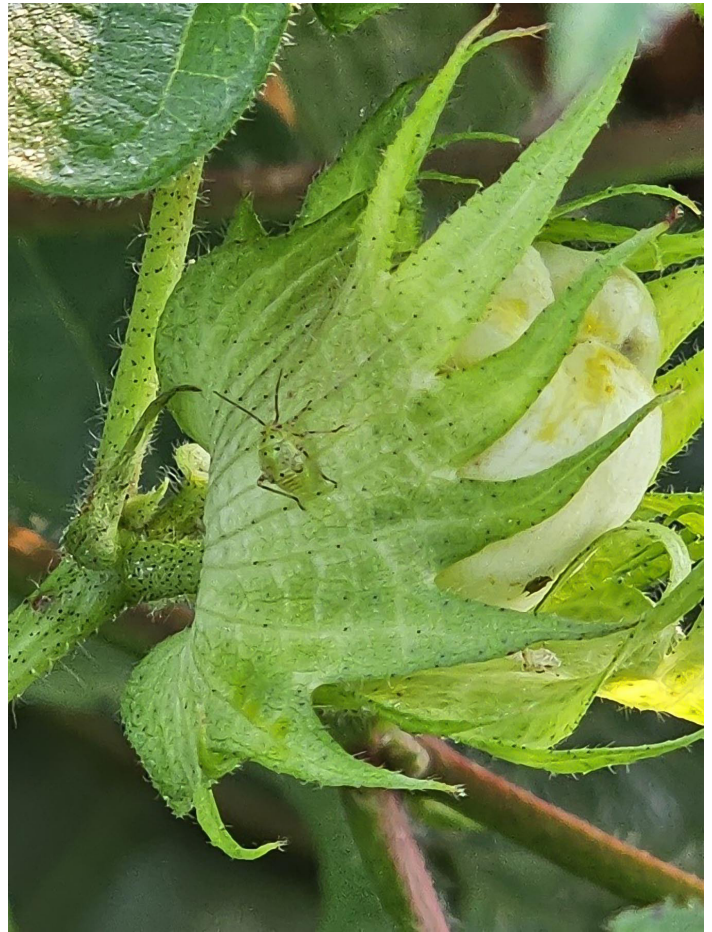
TPB is a serious pest of cotton in Louisiana and other cotton growing regions of the U.S. TPB can attack both prebloom and postbloom stages of a cotton plant. Both adult and immature TPBs can feed on the plant parts. Most economic damage occurs during the third to fourth week of bloom, mainly on the fruiting parts. Infestations may result in damage such as blasted squares (abscission or abortion of young flowers) and dirty blooms (damaged squares and fruits).

Control

Effective control measures are critical to minimize quality and yield loss, along with strategies that maintain overall agricultural health. The following integrated pest management practices can be used to control infestations of TPB in field crops.

Cultural and mechanical control. Implementing basic cultural practices can disrupt the TPB life cycle. Field sanitation, which involves cleaning debris and weeds from border areas, can help reduce overwintering sites. Planting trap crops such as alfalfa or clover along borders can trap and eliminate TPB and other pests. Other effective practices include crop rotation and removal of weedy host plants (e.g., fleabane, ragweed and many others).

Biological control. Conservation of natural enemies, such as predators and parasitoids, can significantly reduce TPB infestations. Predators of TPB include lady beetles



Feeding damage on cotton boll (Barry Freeman, Auburn University, Bugwood.org, Creative Commons 3.0).

(Coccinellidae), lacewings (Chrysopidae), big-eyed bugs (Geocoridae) and minute plant bugs (Anthocoridae). Parasitoid wasps such as *Anaphes iole* (Braconidae), which parasitizes TPB eggs, can help with the infestations by preventing nymphal hatch.

Chemical control. The most effective control strategy for TPB is the use of insecticides. Before application, several factors should be considered, such as the correct insecticide for the pest, their effectiveness, the timing of application, the level of infestation and the possible environmental impacts. The LSU AgCenter recommends using insecticides such as Carbine, Centric, Admire Pro, Imidacloprid, Belay or Diamond for infestations in prebloom cotton, and Orthene, Bidrin, Transform or Vydate for postbloom cotton. Treatment can be done when the pest population exceeds 10 per 100 sweeps. For detailed recommendations, consult the latest LSU AgCenter Pest Management Guide.

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