

Managing Tarnished Plant Bugs in Cotton

KEY POINTS

- Tarnished plant bugs, *Lygus lineolaris*, are becoming an increasing problem across the cotton growing region.
- Early square and small boll damage by plant bugs can lead to loss of yield potential.
- Scouting can help determine if plant bugs or other factors are causing reduced square retention.
- Insecticide selection is critical to achieve plant bug control without stimulating problems with other insects.

Identification and Impact

A persistent pest in midsouth cotton, tarnished plant bugs are of increasing concern in southeastern cotton fields. These insects use piercing-sucking mouthparts to feed on cotton terminals, squares, and small bolls. Adults are 1/4-inch long, varying shades of brown with a light-colored “V” in the middle of the back, and winged (Figure 1). Nymphs are green with red-tipped antennae and have five dark spots on their back (Figure 2). Although their wings are not yet developed, nymphs can move rapidly and are difficult to find in cotton foliage. Small nymphs may be confused with aphids, cotton fleahoppers, and leaf hopper nymphs.

Feeding damage may result in shedding of squares and small bolls, stunted growth, and boll deformation. Damaged blooms have black anthers and puckered petals. Any loss of early fruit may encourage vegetative growth, and result in reduced yield potential. Occasionally, plant bugs may feed on the plant terminal causing extreme physiological changes to the plant resulting in “crazy cotton” or tall, spindly, relatively fruitless plants.^{1,2}

Scouting Recommendations

If small squares (1/8 to 3/16 inches long, including bracts) begin to shed, growers should consider scouting for plant bugs. Scouting should take place at 4- to 5-day intervals throughout the cotton fruiting period.³

Sweep Nets. Prior to peak bloom, a sweep net may be used in conjunction with monitoring square retention. If retention of small, upper, and other first- or second position squares falls below 80%, growers should use a sweep net to sample for adults and nymphs.

- In pre-bloom cotton, take 25 sweeps at 8 to 10 locations per field (not less than 50 feet from the field edge).
- Spraying is justified if 8 to 10 plant bugs are found per 100 sweeps, and square retention is below 80%.

Cotton specialists caution that environmental conditions can also cause early square shed, so be sure to consider not only square shedding, but also the presence of plant bugs.

Dirty Blooms and Drop Cloths. Once cotton begins to bloom, growers should look for “dirty blooms” or small bolls with signs of internal bug damage (Figure 3). One or more brown pollen anthers indicates recent feeding on large squares. If dirty blooms exceed 6%, farmers should use black drop cloths or beat sheets to sample for plant bugs.

A shake cloth is considered the best way to determine plant bug populations. Use of a sweep net may underestimate infestation levels, especially after insecticide application which can incorrectly assess product performance.⁴



Figure 1. Tarnished plant bug (*Lygus lineolaris*). Photo courtesy: Russ Ottens, University of Georgia, Bugwood.org

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Figure 2. Tarnished plant bug nymph (*Lygus lineolaris*). Photo courtesy: Ronald Smith, Auburn University, Bugwood.org.

- Spread a 2.5-foot long drop cloth between the rows and thoroughly shake plants on both sides of the row onto the cloth.
- If 2 to 3 adults plus immature plant bugs are found per sample site, growers should consider spraying.

Insecticide Selection

Insecticides are the main tool used to control plant bugs and several applications are often required to maintain populations below economic injury levels. Monitoring both insect populations and plant damage is crucial to effectively schedule insecticide applications.⁴ In areas where caterpillar pests are a threat, conservation of beneficial pests is critical. Sometimes it is more economical to tolerate some plant bug injury in order to conserve beneficial insects and prevent the flare up of secondary pests. This tends to occur in regions that have a longer growing season which may allow the plant time to compensate for plant bug damage.¹

If an insecticide application is warranted early in the season, a full-labeled rate of neonicotinoid insecticide should be used such as clothianidin, imidacloprid, or thiamethoxam.⁵ Always read and follow the label for the active ingredient and use rate. While neonicotinoids are recommended for application early in the season, they are not recommended for later season application. Use of neonicotinoid products early in the season allows the use of pyrethroids later in the season. Switching modes of action of the insecticides may help prevent insecticide



Figure 3. Damaged “dirty bloom”. Photo courtesy: Ronald Smith, Auburn University, Bugwood.org.

resistance.⁵ Additionally, use of pyrethroid or acephate insecticides prior to bloom is strongly discouraged because it is not effective and may flare spider mites and/or aphids.⁶

While thiamethoxam or imidacloprid are preferred prior to bloom, Transform[®] WG may also be used; however, it may be better to wait to use this product until near or at early bloom when nymphs are more likely to be present. Diamond[®] insect growth regulator is also an option just prior to or at early bloom for control of nymphs, but it is not active against adults and needs to be tank mixed with something that will control adults.⁶

If plant bugs are causing damage later in the season, or a second spray is required, and aphids are common in the field, Dominic Reisig, North Carolina State University Extension Entomologist, recommends switching to a product like Carbine[®] 50WG, Transform[®] WG, or one of the more effective pyrethroids. (D. Reisig, personal communication, May 18, 2015)

“If aphids are not a concern, you should still not use a stand-alone neonicotinoid product for a second spray, but should switch to one of the pre-mixed products (like Endigo[®], Swagger[®], etc.), or an organophosphate/carbamate-only product (like Bidrin[®], Orthene[®], Vydate[®], etc.). Many of these products are also effective against stink bugs. Eliminating stink bugs can be beneficial during boll formation. The downside to these products is that they kill beneficial insects and put you at risk for bollworm and spider mites,” Reisig says.

Sources: ¹Freeman, B.L. 2011. Tarnished Plant Bugs in Cotton. ANR-0180. Alabama Cooperative Extension System. ²Stewart, S. Cotton insects: Tarnished plant bug. W025. University of Tennessee Extension Service. www.utcropl.com. ³Lygus bugs. Texas A&M. <https://cottonbugs.tamu.edu>. ⁴Fontenot, K.A., Hardke, J., Temple, J.H., and Leonard, B.R. 2009. Tarnished plant bugs in cotton: Where are they and where do they go? Louisiana State University. www.lsuagcenter.com. ⁵Reisig, D. 2017. Check cotton at first square for plant bugs. NC State Extension. <https://cotton.ces.ncsu.edu>. ⁶Thinking about plant bug control in cotton? 2017. University of Tennessee Extension Service. <http://news.utcropl.com>. Edmisten, K., Yelverton, F., Koenning, S., Crozier, C., Meijer, A., York, A., and Hardy, D. 2015 NC Cotton information. <http://cotton.ces.ncsu.edu>. 2015 Insect control guide for agronomic crops. <http://www.msucare.com>. Web sources verified 03/26/2018. 140701011020

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