



Early-Season Insects in Cotton

KEY POINTS

- Insects can slow early-season cotton growth, delay fruit set, and lead to loss of yield potential.
- Intensive scouting is necessary to locate and identify early-season insects that can damage cotton.
- Growers can use integrated pest management practices and insecticides to help control early-season insects.
- Insecticide applications should be based on scouting observations and economic thresholds.

Causes

Early-season insects are a pest of cotton in all environmental conditions, but can be more prevalent in weedy fields with a history of insect damage. Minimal tillage, uncontrolled borders, and a stressed cotton crop can contribute to higher insect populations. Symptoms include curled leaves, chlorosis, leaning or wilting seedlings, and damage to the terminal bud. It is imperative for cotton to be scouted often and comprehensively. Inadequate scouting can lead to increased insect populations and decreased yield potential.

Management

Weed control. Existing vegetation, crop residue, and weedy borders, should be removed three to four weeks prior to planting. This helps limit available plant material to harbor insects.

Tillage. Conventionally-tilled soils reduce plant residue and disturb potential egg-laying sites.

Seed treatments. Insecticide seed treatments can help reduce damage to young seedlings by early-season insects, including thrips and aphids.

Insecticide applications. Insecticides can be applied in-furrow at planting or as a foliar spray in-season. Insect pressure can vary by year and by field; therefore, insecticide application should be based on scouting observations, and not by a pre-determined schedule. Apply during the most susceptible stage of insect development and be mindful of preventing resistance.

Scouting. Effective cotton insect control relies on frequent and thorough scouting. Fields should be scouted every 4 to 5 days with enough time spent in the field to accurately assess insect populations and stages. The objective is to avoid unnecessary insecticide applications and time applications correctly. Allot time for additional field checks to account for possible increased insect pressure.

Beneficial agents. Lady beetles, spiders, minute spider bugs, parasitic wasps, and insect fungal diseases help control insect pests. It is important to identify these beneficials correctly in the field and what they help control to help prevent unnecessary insecticide application.

Economic thresholds. Economic thresholds are the point at which insect density requires action to prevent economic loss. It is important to apply insecticides based on scouting and threshold levels to reduce costs and loss of beneficial insects. Thresholds can vary for several reasons including insect species, crop development stage, yield potential, treatment cost, market price, secondary pests, and other considerations. Use local thresholds recommended by state extension specialists along with on-farm considerations.

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Table 1. Identification and damage symptoms of early-season cotton insects.

	<p>Thrips Watch: Emergence to 4 leaf</p> <p>Figure 1. Crinkled leaves from thrips damage.</p>	<p>Yellow to brown, gray or black, tiny (~1/8-inch long), narrow wings.</p> <ul style="list-style-type: none"> • Feed on underside of cotyledons first, then terminal bud. Cotton terminal bud slow to develop, extending damage time and slowing growth. • Curled, gnarled leaves (Figure 1). • Presence of immatures may indicate at-plant insecticide not active.
	<p>Cutworm Watch: Emergence to 4 leaf</p> <p>Figure 2. Black cutworm.</p>	<p>Black cutworm: gray to brown, greasy (Figure 2); Variegated cutworm: mottled yellow and brown, smooth; Granulate cutworm: gray, dull.</p> <ul style="list-style-type: none"> • Seedlings cut at or below soil surface. • May be leaning or wilting, with several plants in a row affected. • Maintain a minimum stand of one plant per row foot to maintain yield potential.
	<p>Grasshopper Watch: Cotyledon to 4 leaf</p> <p>Figure 3. Adult grasshopper.</p>	<p>Brown to green, roughly 1 3/4-inches long (Figure 3).</p> <ul style="list-style-type: none"> • Large numbers can completely destroy stands. • More likely after dry, hot summers and autumns. • More common in strip-tilled fields with crop residue or weeds.
	<p>Aphid Watch: Seedling to open boll</p> <p>Figure 4. Aphid infestation.</p>	<p>Light yellow to dark green, two cornicles on abdomen, winged or wingless.</p> <ul style="list-style-type: none"> • Found on undersides of leaves (Figure 4), stems, terminals, sometimes fruit. • Produce sticky “honeydew”, can cause leaves to curl, turn yellow and shed. • Beneficial fungus can help control. Affected aphids appear grey and downy.
	<p>Tarnished Plant Bug Watch: Seedling to open boll</p> <p>Figure 5. Tarnished plant bug adult.</p>	<p>Brownish with a light-colored triangle between wings, 1/4-inch long (Figure 5).</p> <ul style="list-style-type: none"> • Feed on seedling terminal bud, leaves, stems. • Can be a major economic pest during early square formation when adults feed on flower buds.
	<p>Cotton Fleahopper Watch: Squaring</p> <p>Figure 6. Cotton fleahopper. Ronald Smith, Auburn University, Bugwood.org. UGA1410010</p>	<p>Pale green, 1/8-inch long (Figure 6).</p> <ul style="list-style-type: none"> • More often a pest of Texas and Oklahoma, but periodically a problem in New Mexico and the Midsouth. • Pinhead squares are most susceptible.
	<p>Spider Mite Watch: Squaring to harvest</p> <p>Figure 7. Spider mite damage.</p>	<p>Small, light yellow to dark green, two cornicles on abdomen, winged or wingless.</p> <ul style="list-style-type: none"> • Feed on undersides of leaves and plant sap, causing discoloration (Figure 7). • More common during periods of dry weather. • Severe infestations can cause defoliation and boll shed.

Sources: ¹ Whitaker, J., Culpepper, S., Freeman, M., Harris, G., Kemerait, B., Perry, C., Porter, W., Roberts, P., Shurley, D., and Smith, A. 2017. 2018 Cotton production guide. The University of Georgia Cooperative Extension Service. <http://www.caes.uga.edu/>. ² Layton, B. and Reed, J.T. 2002. Biology and control of thrips on seedling cotton. Mississippi State University Extension Service. 2302. <https://extension.msstate.edu/>. ³ Stewart, S. Cotton insects: cotton aphid. The University of Tennessee Agricultural Extension Service. W028. <https://ag.tennessee.edu/>. ⁴ Burris, E., Pankey, J.H., Leonard, B.R., and Graves, J.B. 1991. Tarnished plant bugs, *Lygus lineolaris* (Palisot de Beauvois), in cotton. Louisiana State University. Research Information Sheet 101. <https://www.lsuagcenter.com/>. ⁵ Parker, R.D., Jungman, M.J., Biles, S.P., and Kerns, D.L. 2008. Managing cotton insects in the Southern, Eastern and Blackland areas of Texas 2008. E-5 5-08. <https://www.researchgate.net/>. ⁶ 2018 Insect control guide for agronomic crops. 2018. Mississippi State University Extension Service. Publication 2471. <http://extension.msstate.edu/>. ⁷ Bagwell, R.D., Baldwin, J.L., and Leonard, B.R. 2005. Cutworms in cotton. LSU AgCenter. Pub. 2554. <https://www.lsuagcenter.com/>. ⁸ Patrick, C.D. and Davis, S.G. 2004. Grasshoppers and their control. Texas A&M AgrLife Extension. E-209. <https://extentopubs.tamu.edu/>. Web sources verified 03/19/18. 140409012717

Performance may vary from location to location and from year to year, as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible and should consider the impacts of these conditions on the grower's fields. **ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS.** 140409012717 031918MEC