

Cotton Jassid: An Emerging Pest of Tennessee Cotton

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Introduction

The cotton jassid, or two-spot cotton leafhopper, *Amrasca biguttula* (Ishida) (Hemiptera: Cicadellidae), is an invasive pest that is considered a serious threat to cotton production in the United States. Cotton jassids were first detected in South Florida in December 2024 and rapidly spread through Southeastern and Mid-South cotton-producing regions during the 2025 growing season. Initial detection of this pest on cotton in Tennessee occurred on October 8, 2025, at the West Tennessee AgResearch and Education Center in Madison County. Accurate identification and timely scouting are critical for managing this emerging insect pest.

Identification

Eggs

Female cotton jassids lay small eggs on the underside of cotton leaves, often within veins, midribs and petioles. Eggs are not visible without magnification and require specialized tissue-clearing techniques or dissection to be seen under a microscope.

Nymphs

Cotton jassid nymphs are pale yellow-green in color, lack wings and are approximately 0.5-2 mm in length. Nymphs undergo five instars, with the fourth and fifth instars bearing wing pads that have black spots (Figure 1).

Adults

Cotton jassid adults are green and approximately 2-3 mm in length. They have yellow-green, transparent wings, with each forewing bearing a single black spot (Figure 2). These

Figure 3. Adult cotton jassid (Left) and adult potato leafhopper (Right). Photo credit: Issac L. Esquivel, UF (Left), Robert Wright, UNL (Right).

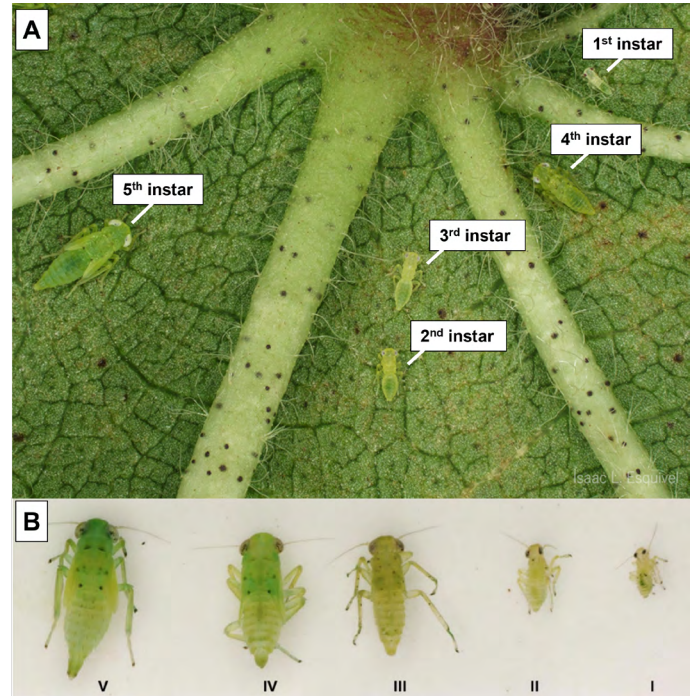
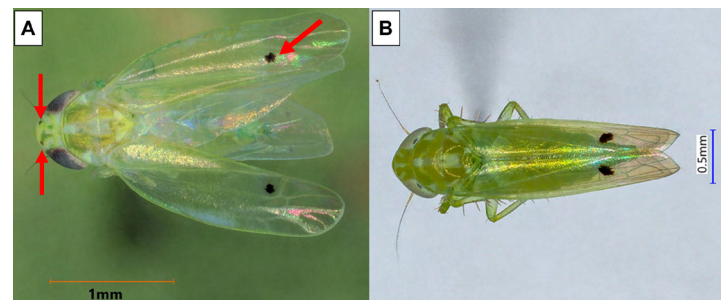


Figure 1. Cotton jassid nymphs on the underside of a cotton leaf (A). Cotton jassid nymphal instars (B). Photo credit: (A) Issac L. Esquivel, UF, (B) Alexandra M. Revynthi, UF.

Figure 2. Adult cotton jassid with small black spots on the crown of the head and the forewings, indicated by red arrows (A). Adult cotton jassid that lacks obvious black markings on the crown of the head (B). Photo credit: Issac L. Esquivel, UF.



prominent black spots on the wings are the most obvious identifying characteristic of the cotton jassid that distinguishes it from other native leafhoppers often found in cotton, such as the potato leafhopper (Figure 3). Cotton jassid adults typically have a pair of black dots on the crown of the head (Figure 2A). However, these head markings may be faint or completely absent and are not reliable identifying characteristics (Figure 2B). Dissection of the male genitalia or molecular verification is necessary for species confirmation.

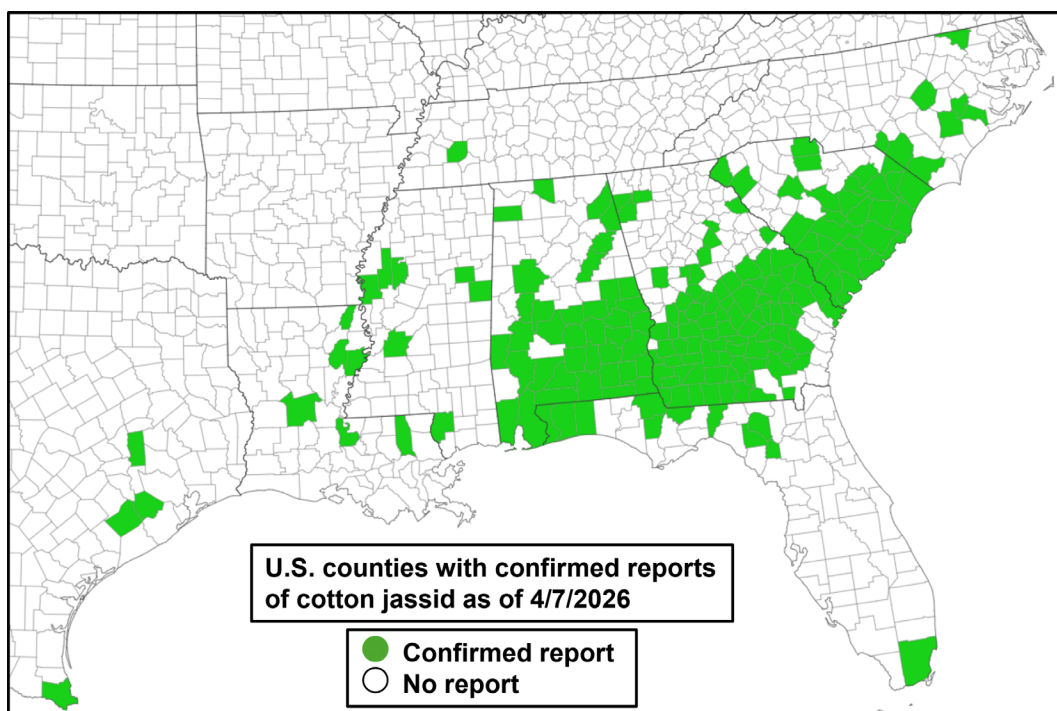


Figure 4. Cotton jassid distribution map in the United States. Initial detection of cotton jassid in the continental United States occurred in Miami-Dade County, Florida, in December 2024, followed by detections in Southeastern and Mid-South US states from July 2025 to October 2025. Current map: eddmaps.org/distribution/uscounty.cfm?sub=9266

Distribution

The cotton jassid is native to Asia and is widely distributed from Iran to Japan. It is a major economic pest of cotton in the Indian subcontinent. This pest was first detected in the Western Hemisphere on cotton and eggplant in Puerto Rico in 2023. Initial detection of cotton jassid in the United States occurred in Miami-Dade County, Florida, in December 2024 on okra. On July 4, 2025, cotton jassids were detected in commercial cotton fields in Florida. After this initial finding, cotton jassids were subsequently detected during 2025 in South Carolina (July 7), Georgia (July 9), Alabama (August 12), Mississippi (September 8), North Carolina (September 9), Texas (September 30), Louisiana (October 7) and Tennessee (October 8) (Figure 4). The only reported detection of cotton jassid in Tennessee during the 2025 growing season was in Madison County, although it was likely present in other cotton producing counties.

Biology and Host Plants

The developmental time of cotton jassids, from egg to adult, ranges from 15-46 days, depending on host plant suitability, temperature and relative humidity. A female cotton jassid is capable of laying 14-60 eggs during its adult lifespan. The egg incubation period lasts 3-4 days before nymphs emerge. Nymphs develop through five instars in 5-16 days, and adults survive for 12-37 days. Under optimal environmental conditions, cotton jassids can complete a generation in approximately two weeks once adults enter a cotton field. This rapid lifecycle allows for multiple overlapping generations within a cropping system. Cotton jassids are polyphagous pests capable of feeding on a diverse range of non-cultivated weeds, nursery crops and field crops. Documented host plants of economic importance present in the United States include cotton, okra, eggplant, sunflower and hibiscus.

Damage Symptomology

Nymphs and adults feed on the underside of leaves by extracting sap with their piercing-sucking mouthparts. While feeding, cotton jassids inject salivary toxins into leaf tissue which negatively impact the vascular system and inhibit nutrient transport, resulting in a condition known as “hopperburn.” Initial symptoms of hopperburn damage include yellowing (chlorosis) of leaf margins and curling (Figure 5, Rating 1), which can be mistaken for potassium deficiency without accurate scouting. As chlorosis progresses inward from the margins, leaves will turn red, then brown (Figure 5, Rating 2-5), reducing photosynthetic capacity and leading to irreversible necrotic death. Severely damaged plants (Figure 6) may experience premature defoliation, shedding of reproductive structures, and reduced boll filling capacity. Cotton jassids typically infest field edges first before moving inward. Plants along field edges can serve as indicator plants for initial cotton jassid infestation.

Scouting Methods

The recommended scouting protocol relies on visual counts of cotton jassids present on the underside of leaves. Examine the fourth mainstem leaf below the terminal and count the number of cotton jassids present. Adults will often rapidly disperse when leaves are disturbed, so prioritize counting nymphs. A minimum of 25 leaves should be inspected per field.

Treatment Thresholds

Treatment is recommended when an average of one cotton jassid per leaf is present. Treatment is also recommended if cotton jassids are present in addition to early hopperburn damage symptoms in the field (Figure 5, Rating 1). These treatment thresholds are preliminary and are subject to change as research on this newly discovered invasive pest continues to evolve. Timely scouting and treatment are essential for this pest, as populations and damage symptoms can rapidly progress.

Management

Cultural Control

Information on biological parameters and the timing of cotton jassid infestations in Tennessee cotton is currently limited. Preliminary data suggest that early planting dates and managing for timeliness can promote cotton growth and development before environmental conditions become favorable for cotton jassid infestation and population growth. Preliminary observations suggest that cotton jassids are attracted to plants with excess nitrogen, and potassium-deficient plants are more susceptible to damage.

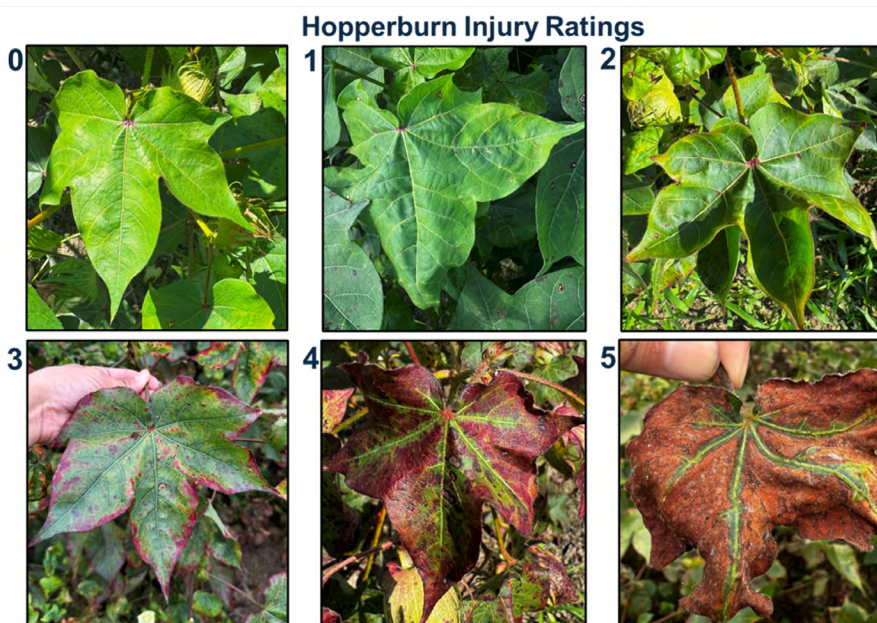


Figure 5. Hopperburn injury rating scale on cotton leaves from cotton jassid feeding. The scale ranges from no damage (0) to severe (5). Photo credit: Phillip Roberts, UGA and Scott Graham, AU.



Figure 6. Examples of severe hopperburn injury that include necrosis and premature defoliation. Photo credit: Scott Graham, AU.

Chemical Control

Preliminary insecticide efficacy field trials were conducted in 2025 by the Southeast Row Crop Entomology Working Group (Table 1). Foliar applications of Venom (dinotefuran), Vertento (isocycloseram), Carbine (flonicamid), Sivanto (flupyradifurone) and Courier (buprofezin) resulted in the highest percent control of cotton jassid. Cotton jassids have developed resistance to several insecticide classes in their native range of Asia. Rotation of insecticide modes of action will be critical to mitigate the development of insecticide resistance in the United States.

Table 1. Preliminary cotton jassid insecticide efficacy results.

Percent Control	Insecticide Trade Name	Active Ingredient	Insecticide Class (IRAC Mode of Action Classification Group)
≥80%	Venom	Dinotefuran	Neonicotinoids (4A)
	Vertento	Isocycloseram	Isoxazolines (30)
	Carbine 50WG	Flonicamid	Flonicamids (29)
	Sivanto	Flupyradifurone	Butenolides (4D)
	Courier	Buprofezin	Buprofezin (16)
70-79%	Sefina	Afidopyropen	Pyropenes (9D)
	Bidrin 8	Dicrotophos	Organophosphates (1B)
	Argyle	Bifenthrin, Acetamiprid	Pyrethroids (3A), Neonicotinoids (4A)
50-69%	Orthene 97	Acephate	Organophosphates (1B)
	Transform WG	Sulfoxaflor	Sulfoximines (4C)
	Assail	Acetamiprid	Neonicotinoids (4A)
	Centric 40WG	Thiamethoxam	Neonicotinoids (4A)
<50%	Admire Pro	Imidacloprid	Neonicotinoids (4A)
	Brigade, Fanfare	Bifenthrin	Pyrethroids (3A)
	Knack	Pyriproxyfen	Pyriproxyfen (7C)

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