

# Managing Bandedwinged Whiteflies On Cotton

**T**he bandedwinged whitefly is a native pest which attacks more than 100 different plant species. In recent years, economically damaging infestations have been reported in Alabama, and damaging populations of this pest have been increasing. Bandedwinged whiteflies are damaging to cotton because:

- They have become resistant to many conventional insecticides.
- Beneficial insects, which naturally control this pest, are often destroyed by the insecticides used to control other cotton pests.

To complicate matters, a different species of whitefly, the silverleaf (sweet potato) whitefly, has been discovered on cotton in some areas of southern Alabama. This species of whitefly has more than 500 host plants and has the potential to be even more damaging than the bandedwinged whitefly because of insecticide resistance and reproductive potential. In addition, California researchers have discovered two

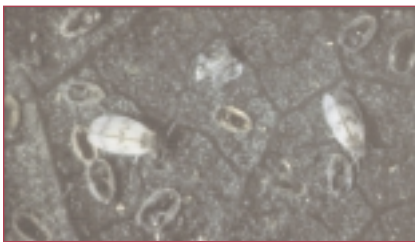


Figure 2. Bandedwinged whitefly adults. Note gray bands on wings.



Figure 1. Adult whiteflies clustered on lower surface of leaf.

strains of the silverleaf whitefly, which further complicates control. If the silverleaf whitefly becomes more common on cotton in Alabama, additional information will be provided through the Alabama Cooperative Extension Service.

## Description

Adult bandedwinged whiteflies are small insects which resemble tiny moths (Figure 1). However, they are neither moths nor flies but are relatives of aphids. They are about  $\frac{1}{16}$  of an inch long and have two pairs of broad, white wings. The front wings are intersected by three wavy, gray bands (Figure 2). These bands help distinguish them from the silverleaf whiteflies that are totally white. The wings are held rooflike over their bodies when at rest. However, the adults are very active and fly readily when disturbed from their resting places underneath leaves.

The immature stages are oval, flat, and scalelike (Figure 3). They are covered with a waxy secretion and can be found attached to the undersides of leaves. The pupae have a black stripe down their backs. The eggs are yellowish-white and are laid in small, circular groups on the lower leaf surfaces.

## Life Cycle

Whiteflies go through four distinct stages of development. The eggs are laid on the undersides of leaves. They hatch in 4 to 6 days into the first instar nymphs or crawlers. This crawler stage lasts 2 to 3 days. The crawlers then locate a suitable feeding site on the lower leaf surface, attach themselves to the leaf, and begin feeding. The second through fourth nymphal instars are immobile feeding stages that last 7 to 9 days. The fourth instar develops into the pupal stage. After approximately 2 days, the adult emerges from the pupa



Figure 3. Immature whiteflies (pupal stage) clustered on lower surface of cotton leaf.

and is ready to reproduce within 24 hours. Adults live up to 10 days. Each female can lay from 60 to 150 eggs. Theoretically, a single female can multiply into one million insects in only a few generations.

The duration of the life cycle varies, depending on the host and temperature. Populations of whiteflies increase rapidly in warm weather, each generation taking as little as 12 to 14 days. In cool weather, development from egg to adult may take 2 months.

### Damage

Populations usually begin building around field edges and spread gradually over the field. Both adult and immature whiteflies damage cotton by sucking out plant sap with their piercing-sucking mouthparts. Infested leaves lack vigor, wilt, and may turn yellow. Further damage is caused by the sugary honeydew the whiteflies secrete when feeding. Black sooty mold develops on the

honeydew, staining the lint, reducing crop quality, and interfering with photosynthesis. Lint contaminated with honeydew can cause sticky cotton, which creates problems with ginning and spinning cotton.

### Management And Control

Bandedwinged whiteflies have great potential for damaging cotton because of their tremendous reproductive potential. Although naturally occurring fungi, parasites, and predators aid in controlling these pests, whitefly populations often build up so rapidly that they can overwhelm beneficial insects. Also, populations of beneficial insects are often reduced by the insecticides used to control other insect pests in cotton. As a result, the bandedwinged whitefly is commonly a late season pest, especially in years when numerous insecticide applications have been required for other pest insects.

Whitefly control presents several difficulties. Specialized insecticides are required and excellent coverage is necessary to penetrate the plant canopy. Orthene and Monitor are effective, but not all stages can be controlled. As a result, two or three applications at 5- to 7-day intervals are required to achieve lasting control of bandedwinged whiteflies.

Scouting for whiteflies is easy. You can readily observe the clustering adults while surveying for other insects. In making treatment decisions for whiteflies, use two general thresholds. These thresholds are based on the age and condition of the crop. For actively growing cotton, apply control measures when 50 percent of the plant terminals have adult whiteflies clustering on them. For mature or stressed cotton, apply controls when honeydew or sooty mold appears on foliage. Two or three applications are often required to bring infestations under control.



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Use pesticides **only** according to the directions on the label. Follow all directions, precautions, and restrictions that are listed. Do not use pesticides on plants that are not listed on the label.

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The pesticide rates in this publication are recommended **only** if they are registered with the Environmental Protection Agency and the Alabama Department of Agriculture and Industries. If a registration is changed or cancelled, the rate listed here is no longer recommended. Before you apply any pesticide, check with your county Extension agent for the latest information.

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**For more information**, call your county Extension office. Look in your telephone directory under your county's name to find the number.

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