

## Sweetpotato Whitefly (Silverleaf Whitefly)

*Bemisia tabaci* (Biotype B)

Whiteflies are sucking insects and their feeding removes nutrients from the plant. Feeding by high populations may result in stunting, poor growth, defoliation, boll shed, and reduced yields. As they feed, whiteflies produce large quantities of honeydew which, if deposited on fibers, will reduce cotton quality and may interfere with picking, ginning, and spinning. Honeydew also supports the growth of black sooty molds that stain lint, lowering its quality.

Whiteflies are difficult to manage once their populations have reached high levels. Repeated exposure to insecticide treatments is very likely to lead to development of resistant strains, as has occurred in the recent past. In general, the best approach is an integrated pest management strategy that relies first on cultural and biological control methods and uses chemical controls only when needed.

The economic risk to cotton growers posed by “sticky cotton” is extreme. If a region is associated with this problem by spinning mills, future sales can be eliminated or discounts applied. Preserving the integrity of the cotton quality is paramount to cotton production.

**Role of Chlorpyrifos:** Chlorpyrifos is an important IPM component later in the season when lint is exposed. It is used in tank mixes with pyrethroids to knock down sudden influx of adults. Tank mixes are used to control multiple stages of whitefly (adults, immatures, and eggs). Sometimes three chemicals are tank mixed to attack different life stages. Loss of older chemicals (organophosphates, carbamates, organochlorines) drives chlorpyrifos use. Limited numbers of AIs are available for quick knock-down of migrating adult populations.

### Pest Status

Attribute	Status
New or Established Pest	Established
Potential for Severity/ Economic Loss	Severe, if bolls open
Damage	Feeding from phloem, secretion of honeydew is deposited on open lint; loss of quality; loss of reputation and marketability
Frequent or Occasional Pest	Frequent
Regionality	Southern Deserts Valleys (key pest); Southern SJV (frequent pest), northern SJV (occasional)
Timing of Outbreaks	Early and mid-season to harvest

### Alternative Active Ingredients (AI)

Early to Mid- Season: Insect growth regulators are the first line of defense (Stage I), followed by selective insecticides (Stage 2). Tank mixes of pyrethroids and organophosphates/carbamates should be avoided until late in season (Stage III) in order to preserve natural enemies and avoid secondary outbreaks of other pests. The goal is to hold down pests before chlorpyrifos and broad-spectrum materials are used. For details, see Cotton PMG.

## Late Season

Active Ingredient	Trade Name(s)	IRAC Mode of Action Group	Cost Comparison Relative to Lorsban	Comments
Bifenthrin	Capture	3A	0.62	Can be alone or tank mixed
Fenpropathrin	Danitol	3A	NA	Use in combination with the following
Oxamyl	Vydate	1A	2.13	
Acephate	Orthene	1B	0.55	
Chlorpyrifos	Lorsban	1B	1.00	

Danitol is used as a tank mix partner for Vydate, Orthene and chlorpyrifos, no direct comparison necessary.

## Alternative Management Practices

Practice	Comments
Cultivar selection	<p>Pima cultivars appear to be more susceptible to whitefly infestations and associated damage. Within the Acala cotton cultivars, hairy-leaf varieties, which comprise the majority of the market, are more susceptible to aphids than are smooth-leaf varieties.</p> <p>Not known what the pest pressure is when selecting cultivar so selection more about other factors rather than pest management</p>
Conserve natural enemies	Avoid the use of broad spectrum materials during early and mid-season
Good field sanitation of alternate crop hosts and weeds in winter and spring	Remove potential sources of whiteflies, e.g., melons; requires cooperation with neighboring farmers
Early crop termination and defoliation	Dependent on seasonal weather conditions
Regional pest management	<p>Plant cotton at least one-half mile upwind from other key whitefly hosts;</p> <p>Prompt residue sanitation after harvest for adjacent host crops; requires neighborhood cooperation.</p>

## Other Considerations and Knowledge Gaps

Research	Policy	Education
Monitoring and decision-making protocols to San Joaquin Valley conditions	Removal of registrations for older chemical AIs (organophosphates, carbamates, organochlorines) is driving chlorpyrifos use.	<p>Renew awareness of sticky cotton</p> <p>Improved networking to provide current situational updates of whitefly distribution</p> <p>Reinforce critical importance of early season scouting.</p> <p>Encourage cooperation in removing key crop hosts that serve as sources of whiteflies</p>