



Cotton Field Check

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All Things in Moderation

Even with the pressure to produce high quality, non-sticky cotton, it is important to follow the basic tenets of IPM.

1. Visit and sample the fields regularly.
2. Treat only when the population exceeds the action threshold.
3. Be realistic about yield potential and strive for the shortest season possible. Delaying harvest makes your fields available for aphid and whitefly migration late in the season.
4. Manage the crop to a successful termination. Take care with late irrigations; avoid situations that lead to re-growth before and after defoliation
5. Use defoliant appropriate to your situation to minimize the length of time that lint is exposed to green leaves. If required, treat the fields to reduce adult whitefly or aphid populations.
6. Practice good insecticide resistance by rotating compounds with differing modes of action.
7. Visit the field between defoliation and harvest to ensure that aphid and whitefly are not present in damaging numbers.
8. Always read and follow labels

Suggested Final Insect Management Considerations for 2006

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San Joaquin Valley cotton growers and PCAs have done an exceptional job in maintaining quality lint by preventing sticky cotton caused by whitefly and aphid. Close monitoring is paying off with consistent high quality lint but constant vigilance is required every year. Our late season studies using defoliation and insecticides to manage sticky cotton has shown that rescue treatments at the time of defoliation do not prevent sticky cotton buildup during the period between defoliation and harvest. Fields at risk are those in which nymphs and adults are allowed to exceed threshold in the critical prior to defoliation.

PCAs and growers must still carefully watch the fields for the migration and buildup of whitefly and aphid during the critical period from first open boll to the last boll picked. The weeks prior to crop termination are especially critical because adult whitefly and aphid populations can rapidly move into cotton fields from neighboring crops that are being harvested.

The Situation

The reports of whitefly populations in fields first appeared in mid-July. Though present in widely scattered locations, to date only limited treatments for whitefly have been required. In general, most fields experience an adult population exceeding thresholds before nymphs trigger control measures.

Aphids have been present in cotton fields for most of the season but their populations in most cases have not required treatment. Populations continue to develop in more locations around the Valley.

The maturity of the cotton crop in the San Joaquin Valley is fairly uniform due to the tight planting window, in spite of some mid-season loss to high temperatures. This should make pest management somewhat easier since fields are similar in their development and insecticide treatments somewhat synchronized. If harvest preparation and the harvest occur within a small window the amount of inter-field migration problems should be limited. Of course, Pima fields will follow after Acala fields and could experience late season migration of both pests.

Crop Conditions and Cultural Practice Impacts

Fields with higher late season vigor may be more attractive to and support higher late season populations of aphids and whiteflies. This late season vigor could be due to higher water, more nitrogen, or later plantings. Such vigorous plants could result in regrowth of new leaves after the first defoliant application and support late, concentrated populations of aphids and whiteflies. Fields should be watched carefully until the day of harvest, to prevent honeydew deposition on lint.

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Making Whitefly Treatment Decisions

Making treatment decisions late in the season can be complicated. Sampling using the existing guidelines (see www.ipm.ucdavis.edu) is the first step. In most of the cases seen this year, the triggering factor tends to be adults but leaves should be inspected closely for immature insects. Take care to identify the whitefly as Silverleaf and not one of the other species that could be present (see www.uckac.edu/whitefly for identification tips). Decisions should be based on population demographics and crop development. If control is required, there are three main approaches:

- Situation 1. Insect Growth Regulators (Courier –Group 16 and Knack Group 7) and Oberon (Group 23) to prevent a population from developing.
- Situation 2. Non-pyrethroid chemistry to manage adults, limit population establishment and protect open cotton. Products include organophosphates (Group 1B), carbamates (Group 1A), organochlorines (Group 2A) as well as Assail (Group 4A) and Oberon.
- Situation 3. Pyrethroid (Group 3) combinations with Groups 1B, 1A and 2A to knockdown adult whiteflies and limit honeydew secretion just prior to defoliation.

Several steps are required to formulate a control strategy.

- First, what is the target, adults or immature whiteflies or both?
- Next, how long before defoliation?
- How well (and quickly) does the field defoliate?

These questions will direct you toward one of the approaches listed above. See UC Pest Management Guidelines for details (www.ipm.ucdavis.edu).

Pyrethroid combinations: Pyrethroid insecticides (Group 3) in combination with other insecticides are useful options when a large migrating adult population (Situation III) occurs, especially near defoliation. If several weeks from defoliation, 5 adults/5th leaf is treatable, but within days of defoliation, the action threshold can be raised to 10 or more adults/5th leaf is treatable. While knockdown is good, residual control is limited. When combined with an organophosphate (Group 1B), a synergism occurs that enhances control. This approach can be applied at defoliation when DEF (an organophosphate defoliant) is used. If aphids are present or other defoliants besides DEF are used, combining the pyrethroid with an organophosphate insecticide such as Lorsban or a cyclodiene such as endosulfan will provide synergy and limit the aphid buildup. *Always read and follow the pesticide label.*

Aphid Management:

The action threshold during late season after lint is exposed is between 5-10 aphids/5th leaf. Managing aphids late season can be challenging when trying to rotate different insecticide chemistries. Dependence on a single mode of action, such as chloronicotinyls, may facilitate resistance development. Efficacy is important, since the threshold (5-10 aphids /5th leaf) is so low. Aphid populations at this part of the season tend to be rather persistent and do not fluctuate rapidly up or down as they do during the mid-season. Populations on severely cut-out and/or plants stressed by defoliants may occur on regrowth or green patches (such as near mid-ribs) on leaves. In addition to the chloronicotinyls (Group 4A), aphid control products include Lorsban, Dibrom (Group 1B), and Thiodan/Thionex (Group 2A).

Aphids and Whitefly

Making decisions when both pests are present requires evaluation of the most threatening insect. Combination treatments will likely be needed. Keep in mind that the use of pyrethroid combinations for whitefly control will likely flare aphids, if present. If whitefly adults were of primary concern, Lorsban/Thiodan would also help reduce aphid.