



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 from different groups 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

Watch Out for Sleeping Dogs – Whitefly and Aphid 2009

Peter B. Goodell, Larry D. Godfrey and Robert Hutmacher
UC Cooperative Extension

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 in high quality lint but constant vigilance is required every year. Our late season studies using defoliation and insecticides to manage sticky cotton have 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 period prior to defoliation.

PCAs and growers must still carefully watch the fields for the migration and buildup of whitefly and aphid. Managing whitefly is a numbers game, limiting buildup during critical phases of boll development. The period prior to first open boll is a critical detection period to prevent the high densities of aphid and whitefly from being present when the first boll opens until the last boll is picked. The weeks prior to crop termination are especially critical because adult whitefly and aphid populations can move rapidly into cotton fields from neighboring crops that are being harvested.

The Situation

The reports of whitefly populations in fields have been reported since 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 many or even most 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 itself occurs within a small window the amount of inter-field migration problems should be limited. Of

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course, Pima fields will follow after Acala fields and could experience late season migration of both pests.

Crop Conditions and Cultural Practice Impacts

Some possible exceptions to these generalizations include either: (a) more vigorous plants with potential for later-maturity in eastern SJV areas with higher soil fertility levels and fewer water availability problems; and at the other extreme (b) smaller, low vigor plants typically on the west side where extreme water limitations have resulted in small, early cut-out plants. Situation (a) will likely require a longer field monitoring period, particularly if a good top crop develops. Situation (b) can result in earlier boll opening and an earlier and shorter window of concern regarding aphid or whitefly buildup. As described as situation (a) above, 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.

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 – IRAC 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), Venom (Group 4A) and Oberon (Group 23).
- Situation 3. Pyrethroid (Group 3) combinations 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? Is it an early stage of infestation or an established population?
- 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: These 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, within days of defoliation, more than 10 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 right at defoliation when DEF is used. If aphids are present or other defoliants besides DEF are used, combining the pyrethroid with an

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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 (Group 4A, e.g. Assail, imidacloprid [Provado, etc] or Centric,) may facilitate resistance development. Flonicamid (Carbine Group 9C) is also effective against aphids and Lygus. Efficacy is important, since the threshold (5-10 aphids /5th leaf) near defoliation 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, aphid control products include Fulfill (Group 9B), 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.