



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 susceptible to aphid and whitefly migrations later in the season.
4. Manage the crop to achieve an early and 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

Late Season Insect Management for 2003 Bringing in a Clean Crop

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Preventing sticky cotton is the responsibility of each and every grower in the San Joaquin Valley. Whitefly and aphid populations have been widespread this year but at very manageable levels. The commitment to produce quality cotton is evident in the serious management approach that has taken place thus far.

However, the industry has just entered into the critical time period for the prevention of sticky cotton. From the first open boll to the last boll picked, the fields must be watched for whitefly and aphid migration and buildup.

The Situation

The reports of whitefly populations in fields have increased during late August and early September, as other crops are harvested and force the insects into neighboring cotton. In general, most fields experience an adult population exceeding thresholds before nymphs trigger control measures.

The maturity of the cotton crop in the San Joaquin Valley is widely spread through time due to the long planting season. Even with normal temperatures since June, there could be a 6-week difference in the first and last defoliations. This long, spread-out harvest period has implications to late season insect management:

- ✓ Insects will be moving from more mature fields to less mature fields
- ✓ The later the harvest date, the greater the possibility that more insects will concentrate into the field
- ✓ Calendar dates are not good indicators on which to base control decisions, but crop condition and maturity should indicate management approaches.

Making Whitefly Treatment Decisions

Making treatment decisions late in the season can be complicated, especially in a year with cotton development spread out. Sampling using the existing guidelines (see www.uckac.edu/whitefly) is the first step. In most of the cases I have seen this year, the triggering factor tends to be adults and I suspect this will not change. Decisions should be based on population demographics and crop

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development. If control is required, there are three main approaches:

1. Insect Growth Regulators (IGRs) to manage a population from increasing by stopping its development
2. Non-pyrethroid chemistry to manage adults, limit population establishment and protect open cotton. Products include chloronicotinylns, organophosphates and organochlorines.
3. Pyrethroid combinations to knockdown adults 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?
- Next, how long before defoliation?
- Is there open cotton (this might limit adulticide choices)
- Finally, how well (and quickly) does the field defoliate?

These questions will direct you toward one of the approaches listed.

Insect Growth Regulators (IGRs). These products are most useful in preventing whitefly populations from building within the field. They prevent development and emergence to adulthood and can sterilize eggs when females feed on leaves. With both Courier and Knack, time is required for the population to cycle out. Depending on the situation, some adulticide might be warranted. Residual action can be expected for at least 21 days. If there is less than 21 days until defoliation, other conventional products could be utilized.

Non-pyrethroids and combinations. Useful during Situation II when an adult invasion is not overwhelming but gradual. Both Centric and Assail have shown promise in reducing adult population prior to cutout. Currently when leaves have begun to “*harden off*”, there is concern about the efficacy of products that require translaminar action. In addition, these products may have already been used once or twice and good insecticide resistance management practices dictate rotation of insecticides with varying modes of action. Other choices include Lorsban combined with endosulfan (Phaser or Thiodan/Thionex). Phaser cannot be used in the presence of open cotton but Thiodan/Thionex can be used under 24(c) registration.

Pyrethroid combinations. These are useful options when a large migrating adult population (Situation III) occurs, especially near defoliation. While knockdown is good, residual control is limited. When combined with an organophosphate, a synergism occurs that enhances control. This approach can be applied right at defoliation using DEF or using other defoliant when products such as Orthene or other organophosphate insecticides are included. The effect of pyrethroid combinations on aphid population buildup is not very predictable at present.

Aphid Management

The action threshold during late season after lint is exposed is 10-15 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 chloronicotinylns, may lead to increased resistance. Efficacy is important, since the threshold (10-15/5th leaf) is so low. Aphid control products include Lorsban, Dibrom (do not apply after open boll), Curacron, Phaser (do not apply after open boll), Thiodan/Thionex and Furadan (Crisis Exemption, check with County Agricultural Commissioner).

Aphids and Whitefly

Making decisions when both pests are present requires evaluation of the most threatening insect. If whitefly adults were of primary concern, Lorsban/Thiodan or Phaser (unopened cotton only) would also help reduce aphid. If aphids were the major problem and this treatment would not reduce below threshold, Furadan might be in order but would have no effect on whitefly.