

# Sticky cotton: Aphids and whiteflies in California cotton

Ian Grettenberger and Bob Hutmacher

UCD Dept. of Entomology & Nematology; UCD Plant Science Dept, West Side REC  
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## The threat of sticky cotton

Sticky cotton from honeydew is an issue that must be managed in-season via management of aphids and whiteflies

Sticky cotton is NOT an individual problem but rather a threat to the collective industry and California's production of quality cotton. The proverbial "one bad apple" can threaten the reputation of gins, regions, or the entire state.



## Management starts with IPM principles

- Identifying the pest and problem (use this link <https://entomology.ca.uky.edu/ef456> or QR code to right for adult whitefly ID resource; greenhouse document, but applicable to CA cotton)
- Determining population through scouting, assessing if problem is on edge or throughout the field
- Evaluating risk using thresholds
- Choosing the best possible management approach
- Evaluating the results



## Choosing an insecticide: Efficacy + Selectivity

- Both of these factors are important when selecting insecticides to use or contemplating what to add to the tank.
- Selectivity:
  - Broad-spectrum insecticides will kill the pest, but also will kill any natural enemies present. Selective materials preserve natural enemies.
  - Selectivity is a spectrum, with some materials being "partially selective" (e.g., many neonicotinoids)
  - Selectivity provides benefits by preventing pest resurgence and providing enhanced control. With natural enemies still around after the pest has been controlled, the perceived residual efficacy will be longer. Aphids and whiteflies reproduce quickly, so they can expand their populations quickly even following a

“successful” treatment. Selective materials create a “bioresidual” effect where the natural enemies can target any pests that remain, enhancing the residual efficacy of the insecticide itself.

- Selective materials can also prevent secondary pest outbreaks.
- Selective materials are available for aphids and whiteflies, which includes insect growth regulators (IGRs) for whitefly
- *Tank mixtures*: Keep in mind the benefits of selectivity for a given material when choosing to tank mix a selective insecticide with a broad-spectrum material. While overall efficacy may be higher in the short term, the benefits of selectivity are largely nullified.
- Less selective materials are best for high pressure and late-season scenarios

### **Application parameters**

- With mid- to late-season aphids and whiteflies, coverage becomes an issue. If cotton is tall and bushy due to production practices/issues or lygus damage, obtaining decent coverage will be an issue and this will affect efficacy
- Do what you can to achieve as good of coverage as possible when making applications
- Ensure appropriate adjuvants are used
- Keep in mind: *The most expensive application is one that does not work*

### **The threat of insecticide resistance: what can we do?**

- Resistance is a real issue for all of the major cotton pests
- *Limit use of insecticides as much as possible*. Without selection pressure, insecticide resistance does not develop.
- *Diversify modes of action*. Make use of multiple modes of action via rotations. The focus is on modes of action (group number) vs. active ingredient because active ingredients in the same group act similarly and thus resistance.
- *Spread insecticide mode of actions across time and space*. Spreading use of a given mode of action across time is a way to ensure the same generation is not exposed to the same mode of action. Spreading modes of action across the space (fields) helps ensure the entire population is not exposed to the same mode of action.
- *Avoid “unnecessary” tank mixtures*. Tank mixtures make simultaneous use of multiple modes of action, making it more difficult to actually rotate among insecticides. Using multiple modes of action at once simultaneously selects for resistance to both modes of action (different than herbicides).

**Resource: UCIPM Pest Management Guidelines for Cotton**

<http://ipm.ucanr.edu/PMG/selectnewpest.cotton.html>

