Concerns for Whitefly Management in Multi-crop Communities

Draft Guidelines for Cross-Commodity Management of Whiteflies in Arizona

- Expanded registrations of IGR and neonicotinoids:
  - **Applaud/Courier**: cucurbits, cotton, lettuce
  - **Actara/Platinum**: cotton, melons, leafy vegetables
  - **Assail**: cotton, leafy vegetables

2) Multiple applications allowed by labels.

3) Risk of increased selection pressure on whiteflies

4) The necessity to sustain the efficacies of these valuable chemistries for whitefly control.
Arizona Cross Commodity Working Group

- Arizona Cotton Growers Association
- Arizona Cotton Res & Prot Council
- Western Growers Association
- Arizona Veg Growers Association
- Yuma Veg Shippers Association
- Cotton Incorporated
- Arizona Department of Agriculture
- University of Arizona
- PCA’s

Objective:
Harmonize and Sustain Effectiveness of Shared Chemistries While Managing Whiteflies Across Commodities.
  1) Regional cropping systems
  2) WF population dynamics
Multi-crop Community
more than one host-crop
is grown in significant acreage within the same community.

- Yuma Co.
- Maricopa Co. (e.g. Aguila)
- Pinal Co. (e.g., MAC)
Cotton-intensive Community

cotton is the dominant WF host crop grown in a crop community.

- Maricopa Co. (e.g. Buckeye)
- Pinal Co. (e.g. Casa Grande)
- Pima Co. (e.g. Marana)
Principal Treated
WF Hosts by Community

- Cotton
- Vegetables
- Melons

Yuma
Principal Treated WF Hosts by Community

- Cotton
- Vegetables
- Melons

Yuma
Buckeye
General Whitefly Management Guidelines

• Avoidance
• Sampling
• Effective Chemical Use (1 IGR use / crop season)
Cross-commodity Guidelines for Applaud/Courier

- Limit use to 1 application per crop season.

2) Restrict use to no more than 3 applications per year in a *multi-crop community*.

3) Do not expose multiple, sequential generations of whitefly to Applaud/Courier (or any WF chemistry).

4) Coordinate treatments of adjacent fields such that, when thresholds indicate the need for Applaud applications:
   - they are made within 1 week (within the same whitefly generation),
   - *OR*
   - the interval between Applaud sprays is more than 4 weeks, or at least 2 whitefly generations.
Applaud® in Yuma – Recommended Use

If WF control is required, use an alternative insecticide (i.e., KNACK in cotton)
Central Arizona - Multi crop (Potential Label Max)

Spring Melons

F1
F2
F3
F4
F5
F6
F7
F8
F9

Cotton

Fall Melons

Apr  May  June  July  Aug  Sep  Oct  Nov
Central Arizona - Multi crop (Recommended Use)

If WF control is required, use an alternative insecticide (i.e., KNACK in cotton)
Cross-commodity Guidelines for Neonicotinoids

1) Multi-crop Communities

**Cotton:** Do not apply neonicotinoids. (Centric/Actara, Provado/Leverage, Assail).

**Melons /Vegetables :**
- A single neonicotinoid use (soil or foliar) per crop
- Do not apply a foliar neonicotinoid spray following the use of a soil application of Admire or Platinum.
- Soil or foliar neonicotinoids should not be applied during the following periods:
  - **Yuma:** After April 1 or before Aug 1
  - **Aguila:** Before May 1 or After Sept 1
- Consider foliar alternatives for vegetables that are planted after WF movement subsides and harvested before aphids typically become abundant. (eg, Oct 7th ~ Nov 7th in Yuma Valley)

Draft Proposal
Resistance Risks Associated with Shared Neonicotinoid Uses in a Multi-Crop Community (eg., Yuma – current usage)
Resistance Risks Associated with Shared Neonicotinoid Uses in a Multi-Crop Community (eg., Yuma – current usage)
Resistance Risks Associated with Shared Neonicotinoid Uses in a Multi-Crop Community (e.g., Yuma – potential usage)

Not Sustainable

Relative Whitefly Population Abundance

Melons
Vegetables
Cotton
Preserve a *Neonicotinoid-free Period* in Multi-Crop Communities
(e.g., Yuma-Recommended)
Cross-commodity Guidelines for Neonicotinoids

- **Cotton–intensive community**
  - No more than 2 neonicotinoid uses per cotton crop (soil, foliar or seed treatment)
  - Sprays should only be used following an initial IGR applications (Stage II of Whitefly IPM Program)
  - Sprays should not to be applied consecutively, but rotated with conventional chemistries (Stage II or III)
Resistance Risks Associated with Neonicotinoid Uses in a Cotton-intensive Community (e.g., Buckeye-label max)
Resistance Risks Associated with Neonicotinoid Uses in a Cotton-intensive Community

(e.g., Buckeye-recommended use)
Resistance Risks Associated with Neonicotinoid Uses in a Cotton-Melon System
*(central Arizona- potential use)*
Resistance Risks Associated with Neonicotinoid Uses in a Cotton-Melon System
*(central Arizona-recommended use)*

Melons

Cotton

Relative Whitefly Population Abundance

IGRs

Neo

Pyr

I

II

III

J  F  M  A  M  J  Ju  A  S  O  N  D

F1  F2  F3  F4  F5  F6  F7  F8  F9  F10
<table>
<thead>
<tr>
<th>Label</th>
<th>Proposed CC Guidelines</th>
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</thead>
<tbody>
<tr>
<td><strong>Applaud/Courier</strong></td>
<td>2 uses per crop</td>
</tr>
<tr>
<td></td>
<td>1 use / crop, narrowed use window</td>
</tr>
<tr>
<td><strong>Assail, Actara, Adage, Provado, Leverage</strong></td>
<td>2-4 uses per crop</td>
</tr>
<tr>
<td></td>
<td>No use on Cotton in MCC</td>
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<tr>
<td></td>
<td>Limit use in Veg / Melon</td>
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<tr>
<td></td>
<td>No more than 2 non-consecutive uses in cotton intensive communities, and only after Stage I - IGR</td>
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