Reduced-Risk Insecticides

Dichloro Diphenyl Trichloroethane
Spinosad (Success®)

Both biological and conventional pesticides are eligible.
A Reduced-Risk pesticide is defined as one which may reasonably be expected to accomplish the following:
1. reduces pesticide risks to human health;
2. reduces pesticide risks to non-target organisms;
3. reduces the potential for contamination of valued, environmental resources, or
4. broadens adoption of IPM or makes it more effective.

Reduced-Risk Pesticides Initiative

Reduced Risk Insecticides Presently Registered on Desert Crops

<table>
<thead>
<tr>
<th>Trade name</th>
<th>Common name</th>
<th>Chemical class</th>
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<tbody>
<tr>
<td>Success</td>
<td>spinosad</td>
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<td>Avaunt</td>
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<td>oxadizine</td>
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<td>Confirm</td>
<td>tebufenozide</td>
<td>molting hormone agonists</td>
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<td>methoxyfenozide</td>
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<td>Courier</td>
<td>buprofezin</td>
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<td>Knack</td>
<td>pyriproxyfen</td>
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<td>Assail</td>
<td>acetamiprid</td>
<td>neonicotinoid</td>
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<tr>
<td>Fulfill</td>
<td>pymetrozine</td>
<td>pyridine azomethine</td>
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Economic Efficacy of Reduced Risk Products on Desert Pests

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<th>Worms</th>
<th>WF</th>
<th>LM</th>
<th>Beetrots</th>
<th>Aphids</th>
<th>Thrips</th>
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Neonicotinoid Compounds

1st Generation
- Imidacloprid
- Acetamiprid (RR)
- Nithiazine

2nd Generation
- Desmethyliamethoxam
- Nitenpyram
- Thiacyclopid (RR)
- Thiamethoxam
- Clothianidin

Pseudo-nicotinoids
- Dinofuran
- Flonicamid (RR)
Pymetrozine (Fulfill®)

- pyridine azomethine
- Antifeedant compound
- Translaminar / systemic
- Reduced-risk insecticide

Economic Efficacy of Reduced-Risk Products on Desert Pests

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10 Years of Admire in the Desert

Green Peach / Potato / A. lactucae Complex – Harvest Infestations

10 Years of Admire in the Desert

Total Aphid Complex – Harvest Infestations
Aphid Contamination on Head Lettuce

Harvest Evaluation - Mar 6, 2003

Comparison of Neonicotinoid Insecticides
For Aphid & Thrips Control in Head Lettuce

- Nov 14 wet date
- 3 Sprays (Jan 21, Feb 4, Feb 16)
- Threshold:
  - 1st colonization = 0.7 aphids/plant
  - 11% plant infested >1 aphid
- Mar 6 - Harvest
**Aphid Contamination on Head Lettuce**

Harvest Evaluation - Mar 6, 2003

- **Mean aphids/plant**
  - Admire 16 oz
  - Assail
  - Assail Capture
  - Actara Capture
  - Assail + endosulfan
  - Flonicamid + endosulfan
  - Fulfill + endosulfan

**Aphid Efficacy in Romaine**

- Spray # 1 (Mar 13)
  - Fulfill + Mustang Max
  - Assail + Mustang Max
  - Actara + Mustang Max
  - Flonicamid + Mustang Max
- Spray # 2 (Mar 21)
  - Fulfill + Capture
  - Assail + Capture
  - Actara + Capture
  - Flonicamid + Capture
- Spray # 3 (Mar 30)
  - Fulfill + endosulfan
  - Assail + endosulfan
  - Actara + endosulfan
  - Flonicamid + endosulfan

**Romaine Aphid Efficacy**

1st application (Mar 13)

- 33.5 aphids/plant
- 100% infestation

*Degree of efficacy varied by species*
**Aphid Efficacy in Romaine**

**YAC-2003**

**Foxglove Aphid**

- Pre-spray
- 7 DAT
- 7 DAT
- 5 DAT
- 10 DAT

**Potato Aphid / A. lactucae**

- Pre-spray
- 7 DAT
- 7 DAT
- 7 DAT
- 5 DAT
- 10 DAT

**Lettuce Aphid**

- Pre-spray
- 7 DAT
- 7 DAT
- 5 DAT
- 10 DAT

**Interactions between Aphid and Thrips Control in Head Lettuce**

**Threshold:**

1st colonization = 0.9 aphids/plant

7 % of plants infested > 1 aphid
Interactions between Aphid and Thrips Control in Head Lettuce

Arizona Crop Information Site
http://www.ag.arizona.edu/crops