

The UNIVERSITY OF ARIZONA  
COLLEGE OF AGRICULTURE AND LIFE SCIENCES

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**Insect Management in Melons**  
A Research Update



**Oberon®**

A new IGR like compound from Bayer Crop Sciences.

Inhibits lipid biosynthesis.

Foliar contact activity against whiteflies and mites.

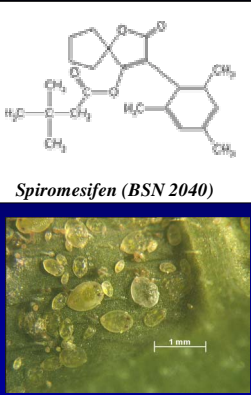
Highly effective on nymphs and pupal stage.

Harmless to pollinators.


Excellent IRM tool.

Reduced-risk status pending

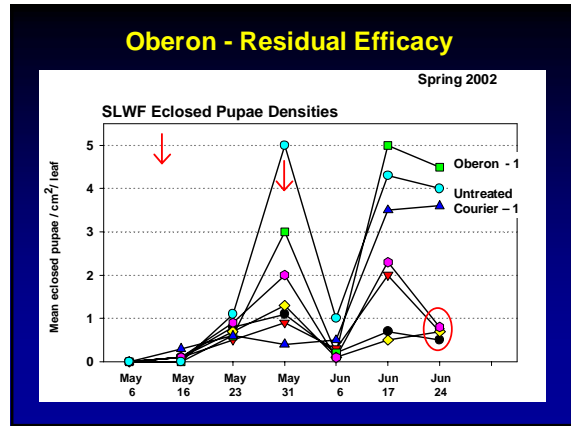
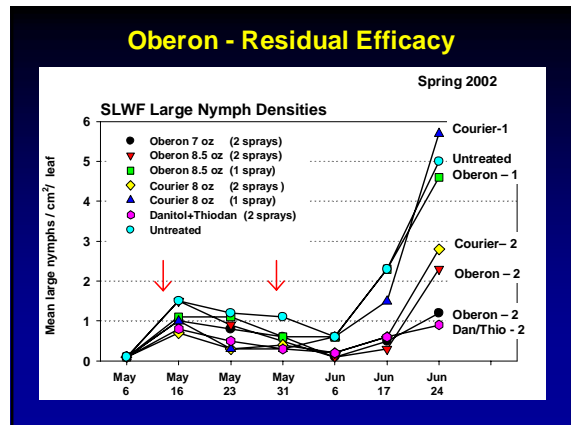
*Spiromesifen (BSN 2040)*



**Oberon - Residual Efficacy**



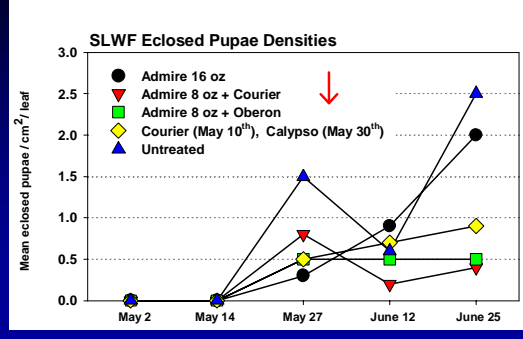
- Oberon (7.0 and 8.5 oz)
- Courier (Applaud)
- Danitol/Thiodan
- 2 sprays vs 1 spray



### Combination of IGRs and Admire



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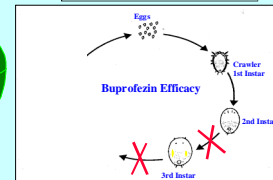
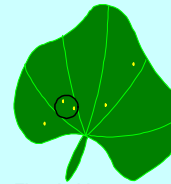


### Oberon Efficacy Against WF

- Oberon, a new novel IGR, provided good residual control of whiteflies – both alone and in combination with Admire – comparable to Courier (Applaud) in spring melons.
- New *Mode of Action* may provide growers with:
  - alternative to Admire
  - rotational partner for:
    - \* Courier
    - \* Capture or Danitol + endosulfan

### IGR - Courier® (Applaud®)

- Chitin synthesis inhibitor
- Vapor and Contact activity
- Only effective against nymphs
- Spray Timing is critical
- 21-28 day residual efficacy

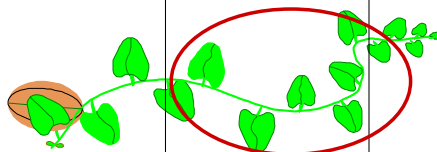


**Action Threshold:**  
1 visible nymph per leaf disc

### Sampling

- No Admire Applied:**
- Early season on crown
  - Pre-harvest near mid vine
- Post-Admire:**
- on mid vine/terminal

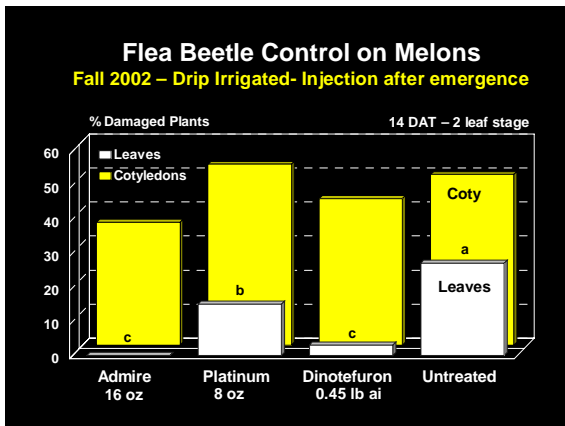
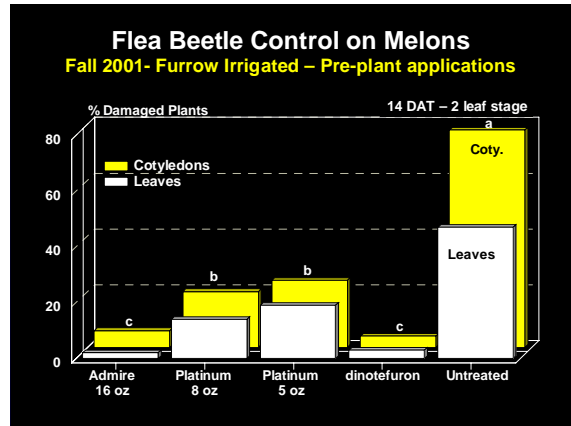
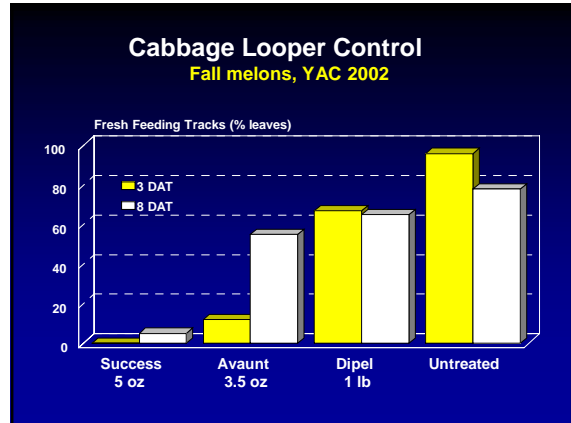
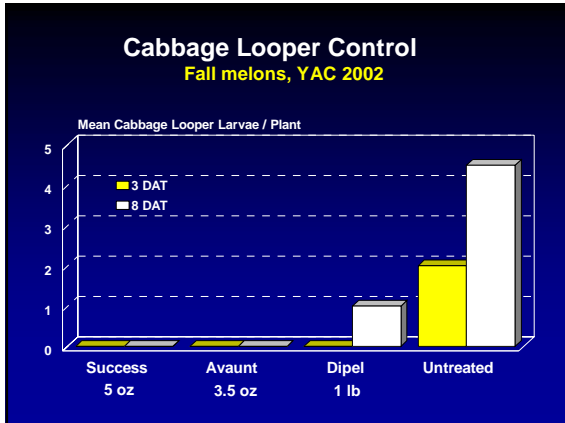
Early-mid season	Pre-Harvest	
Crown	Mid-vine	Terminal



### Cabbage Looper Control

- A single application on Sep 11
- Whole plant samples 10 plants / Rep - 3 and 8 DAT

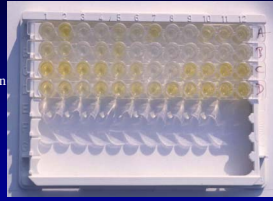




- ### Direct Measurement of Admire and Platinum in Melons
- No guesswork involved in determining whether the compound was applied properly.
  - Assay permits extremely sensitive detection of either compound—as low as 0.2 ppb.
  - Increased confidence in evaluating efficacy of treatments by relating whitefly densities to concentration of material in leaves.
  - Early warning system for resistance—high whitefly densities in leaves with normally lethal concentration of compound could spell trouble.

## ELISA—Enzyme-Linked Immuno-Sorbent Assay

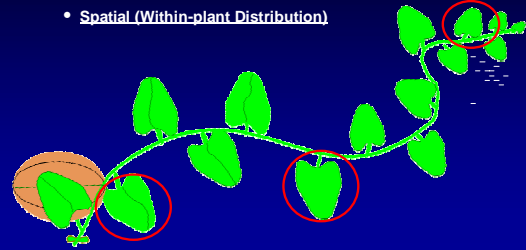
- Microtiter plate assay
  - 12-well strips
  - 8 strips per plate (96 samples)
- 3-step procedure (with wash steps in between)
  - Add samples to pre-coated wells
  - Add conjugated antibody into wells with sample; incubate 1 h
  - Add substrate; incubate ½ h
- Quantifiable based on color intensity of enzyme/substrate reaction (read with spectrophotometer)



Completed reaction for 48 samples  
(4 strips x 12 wells)

## Measurement of Admire and Platinum in Melons

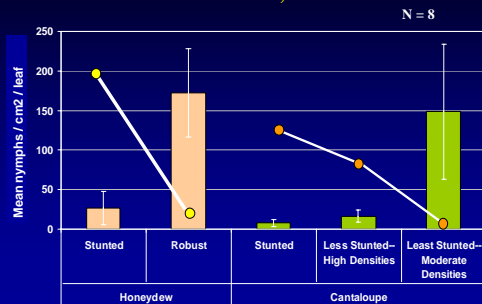
- **Temporal (Residual)** - 15 d intervals following planting and side dress applications
- **Spatial (Within-plant Distribution)**



Treatment	At plant (rate/acre)	Side-dress (rate/acre)
Admire	16 oz	--
Admire	8 oz	--
Admire	8 oz	8 oz
Admire	--	8 oz
Admire	--	16 oz
Platinum	8 oz	--
Platinum	4 oz	--
Platinum	4 oz	4 oz
Platinum	--	4 oz
Platinum	--	8 oz



## Mean Titers of Admire in Melon Leaves October 15, 2002



Acknowledgements

- **California Melon Research Board**
- Gowan Seed Company
- Bayer Crop Protection
- Syngenta Crop Protection
- Dow AgriSciences
- DuPont Agricultural Products
- Valent USA Corporation
- FMC Corporation
- Nichino America Inc

**Arizona Crop Information Site**



<http://ag.arizona.edu/crops>