FRA Research Meetings 2013

Rick Yates
GGSPro Technical Services Manager
Griffin Greenhouse Supplies
ggsprotech@griffinmail.com

Communicating Bee Safety

- Pesticide labels contain EPA language tied to reported LD50 data.
- Label language with specific intent—Partnered with the North American Pollinator Protection Campaign (NAPPC).

Introducing the GGSPro Bee Safety Codes

- Convey EPA’s bee caution statements
- Help growers select products appropriate to their use
- Provides quick indicator for need to review label
- Emphasize wise and effective use

Bee Icon Color = Toxicity

- Highly Toxic
  - EPA describes as highly toxic or very highly toxic to bees
- Toxic
  - EPA describes as toxic to bees
- Low Toxicity
  - EPA describes as having low toxicity to bees
- Special Case
  - Special use notes per label

Bee Icon Number = Exposure

1. Toxicity risk through direct exposure and residual exposure
   - avoid treatment when bees are visiting the treatment area
2. Toxicity risk through residual exposure only
   - avoid treatment when bees are visiting the treatment area
3. Toxicity risk through direct exposure only
   - avoid treatment when bees are actively visiting or actively foraging the treatment area
### Bee Safety Codes in Action

**What you see:**
- The red bee means this product is highly toxic to bees while the number 3 means the exposure risk comes from direct spray only.

**What you do:**
- If planning an outdoor application, review the label. Avoid using this chemical when bees are actively visiting the area. This can be achieved by applying the product in the evening.

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### Mainspring Insecticide from Syngenta

- **Expected availability** – March 2014
- **MOA 2** - Cyantraniliprole a new mode of action for the greenhouse and nursery markets. Ornamentals and vegetable transplants.
- Contact and systemic activity through foliage and roots

### Mainspring Insecticide

- Aphids, leaf feeding caterpillars, adult beetles and grubs, lacebugs, leafminers, scale, thrips, weevils, and whiteflies.
- Good safety with bees and BCA’s

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### Met52 EC from Novozymes

- Bioinsecticide *(Metarhizium anisopliae Strain F52)* with unclassified MOA
- Naturally occurring fungus in liquid or granular (G)
- Greenhouse ornamentals and vegetable transplants
- Field vegetables, small fruits, berries

### Met52 EC Activity

- Apply via drench, dip, spray, granular incorporation (G)
- Direct contact with targeted pest required
- Spores germinate on insect, fungus penetrates body, death follows in 3-7 days

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### Met52 EC

- Control of thrips, mites, whiteflies, vine weevils
- 4 hr REI (foliar), 0 hr REI (granular), 0 day PHI (both)
- Good safety for BCA’s including bees
- Poinsettia bracts should not be treated

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*Infected Thrips Pupae, Vineland Research and Innovation Centre, Ontario, Canada*
**Met52 EC Use Notes**

- Best applied preventatively or at the first sign of pest
- Repeat foliar apps at 5-10 days, or 2-5 days under high pressure
- CapSil use recommended
- Compatibility with pesticides is not well researched. Avoid tank mixes.

**Empress Intrinsic from BASF**

- Active ingredient, Pyraclostrobin (MOA 11).
- Controls: *Pythium*, *Phytophthora*, *Rhizoctonia*, and *Fusarium*.
  - * Need more trials to confirm efficacy
- Labeled for unrooted cuttings, liners, and plugs of greenhouse ornamentals, perennials, and annuals.

**Empress Intrinsic**

- Sup label for use on herbaceous & woody plants in greenhouse and nursery container production.
- Best used as a preventative drench.
- Research has shown valuable plant health benefits from a.i.
- 12 hour REI.

**Grandevo PTO**

- Bioinsecticide/ miticide, MOA UN
- Soil bacteria, *Chromobacterium subsugae* strain PRAA4-1 in powder form. Apply as foliar spray
- Control builds over time. Enhanced control from tank mixing with a contact insecticide. Best used as part of a program prior to high pest pressure.

**Grandevo PTO**

- Most effective against young larvae and nymphs.
- Control of aphids, budworms, caterpillars, leafhoppers, mealybugs, plant bugs, mites, thrips, whiteflies, woolly adelgid and more.
- Greenhouse and field ornamentals. Edible crop label expansion coming.
Grandevo PTO

Species dependent action-
- Acts as a repellent, reduces fecundity for non-chewing pests.
- Acts as a stomach poison upon ingestion followed by death in 2-5 days for chewing/sucking pests.
- No systemic action.

Regalia PTO

- Biofungicide/bactericide (MOA P5) “P” = Host Plant Defense Induction
- Plant extract (Reynoutria sachalinensis - Giant Knotweed) micro-emulsion.
- Labeled for ornamentals in: greenhouses, nurseries, field and landscapes. Edible crop label expansion coming.

Regalia PTO Activity

- For preventative use only
- Induced Systemic Resistance (ISR) boosts natural defense system within 1-2 days
- Some translaminar protection
- Powdery mildew and downy mildew control similar to industry standard treatments in trials

Regalia PTO Use Notes

- Expect good compatibility with pesticides, fertilizers, adjuvants, surfactants (jar test tank mixes)
- Repeat application at 7-14 day intervals
- Rainfast in one hour
- 4 hr REI, OMRI listed

Grandevo PTO

- 4 hr REI (foliar), OMRI listed
- Good plant safety
- BCA compatibility under study.
- Temporarily repels honey bees, for up to 4 to 6 days after spraying.
- CapSil recommended

Foliar sprays:
- Foliar fungal diseases incl:
  - Anthracnose, downy mildew, powdery mildew, Botrytis, leaf spots, rust
- Foliar bacterial diseases: (Erwinia, Pseudomonas)

Soil drenches:
- Fungal root rots: (Fusarium, Pythium, Rhizoctonia, Phytophthora, Verticillium)
### Botrytis Cost in Use List Prices

<table>
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<th>Product</th>
<th>Low rate</th>
<th>High Rate</th>
<th>Cost/100 gal</th>
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<tbody>
<tr>
<td>Palladium</td>
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### Hachi-Hachi from Sepro

Back from the dead??

- SC (soluble concentrate) formulation is being trialed at several locations.
- Initial reports indicate damage to impatiens and salvia but safe on others. Stay tuned.....

### Marengo Herbicide

- Brand new pre-emergent herbicide. Post-emergence activity on annual bluegrass, crabgrass and oxalis.
- New mode of action group (MOA 29)
- Active at very low dosage rates
- Capable of long term weed (8 mo) control
- Unique site uses, including **hoop houses**

### Marengo

**Non-crop/ Hardscapes included:**
- Shade house, *hoop house*,
  roadways, ground blocks covered with rock, gravel, weed cloth etc.
- Small Dose rates: 1 tsp per gal, 1 gal covers 500 sq ft.
- Mixing order critical: Marengo first

* EPA defines “Hoop house” as a free standing ground to ground structure. “Greenhouses” have ridges and gutters, solid structures.

### Affirm WDG From NuFarm

- Biopesticide by EPA - Synthesized from the *Streptomyces* group of bacteria- MOA 19
- Translaminar systemic movement from a foliar spray.
- Curative and protectant activity.
- Can be applied as a spray or drench.

### Affirm WDG

- Soil diseases - *Rhizoctonia*, *Thielaviopsis*
- Subject to breakdown with high alkalinity spray water
- Label expanded to include many vegetables. 0 day PHI . 4 hr REI
Affirm vs Thielaviopsis

- Dr. Ann Chase reports very good results at 8 oz/100 gallon. Plant quality equal to industry standard of Cleary's 3336 at 20 oz/100 gallon.

- Early plug stage 4 oz/100 gallon is sufficient.