

# What's new in bug control?

By Raymond A. Cloyd

Discover the newest controls available for insect and mite pests.

Just as ornamental growers want to know what new plant varieties breeders are working on, they are also interested in learning about new controls to prevent or minimize crop losses from insect and mite pests. Within the past two years, several new

insecticides and miticides have been registered for use in greenhouses. And there are still more to come. Some products have new modes of action, which is very important when implementing rotation programs to avoid resistance.

## WHAT'S NEW

### Celero

**Use:** Systemic insecticide.

**Active ingredient:** Clothianidan.

**Formulation:** A 16 percent water-soluble granule.

**REI:** 12 hours.

**Labeled for:** Control of aphids, whiteflies and mealybugs.

**Manufacturer:** Arysta LifeScience, (800) 358-7643; www.arystalifescience.com.

**Specifics:** It has the same mode of action as imidacloprid (Marathon), thiamethoxam (Flagship), acetamiprid (TriStar), and dinotefuran (Safari). All the neonicotinoid-based insecticides act on the central nervous system, causing irreversible blockage of the post-synaptic nicotinic acetylcholine receptors.

As with most of the neonicotinoid-based insecticides, Celero provides long residual activity. The insecticide works by contact and ingestion and has translaminar properties. Although target insects may still be alive initially following a Celero application, they will stop feeding and females will not lay eggs.

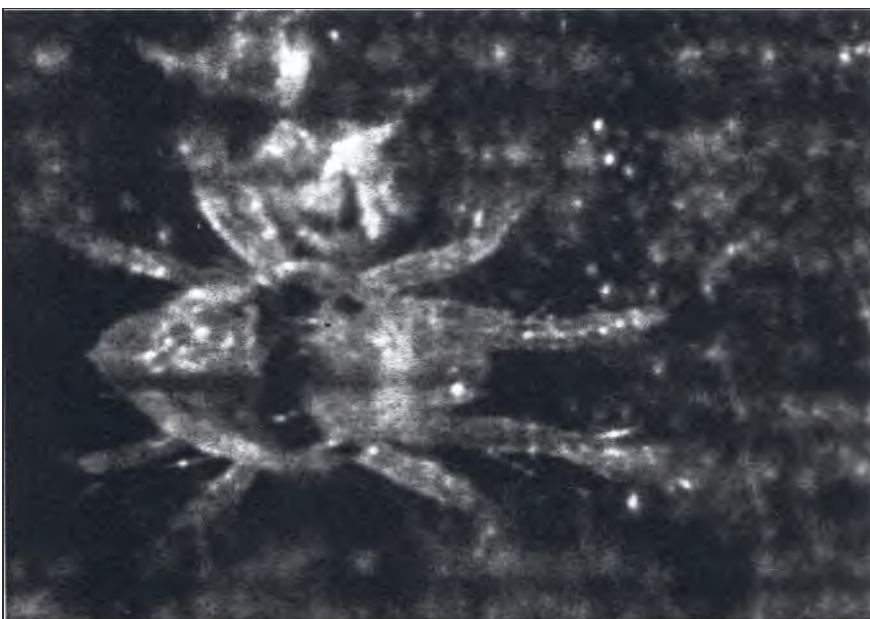
**Trial results:** Celero was effective in controlling both citrus mealybug (*Planococcus citri*) and fungus gnat (*Bradysia* spp.) larvae based on research conducted at the University of Illinois.

### Shuttle

**Use:** Miticide.

**Active ingredient:** Acequinocyl.

**Formulation:** A 15 percent soluble



Some of the new insecticides are effective in controlling the adult stage (pictured) of twospotted spider mites as well as immature stages.

concentrate.

**Labeled for:** Primarily active on twospotted spider mite (*Tetranychus urticae*). The miticide works strictly by contact activity controlling all spider mite life stages, including eggs. It kills spider mites quickly and provides long-residual control.

**Manufacturer:** Arysta LifeScience, (800) 358-7643; www.arystalifescience.com.

**Specifics:** The mode of action of Shuttle is similar to fenpyroximate (Akari) and pyridaben (Sanmite). All three are mitochondria-electron transport inhibitors.

Both Akari and Sanmite work in blocking electron transfer at Complex I in the mitochondria. Shuttle binds to the Qo center of Complex III causing inhibition of electron transfer. Because of their similar mode of action, it is important to avoid using any one of these three insecticides/miticides in succession in a rotation program.

**Trial results:** Research at the University of Illinois has demonstrated that Shuttle is extremely effective in controlling twospotted spider mite 28 days after a single application.



Research at the University of Illinois has shown that Celero and Aria are effective in controlling the citrus mealybug (*Planococcus citri*).

### Aria

Use: Insecticide.

Active ingredient: Flonicamid (50 percent).

Formulation: Soluble granule.

RE1: 12 hours.

Labeled for: Aphids, whiteflies, thrips and mealybugs. It has systemic and translaminar properties.

Manufacturer: FMC Corp., (215) 299-6000; www.fmc.com.

Specifics: Application methods include foliar sprays and drenches applied to the growing medium. The label rate is 20 to 120 grams of product (10 to 60 grams active ingredient) per 100 gallons of water. The rate used is dependent on the target insect to be controlled. Certain pansy cultivars may be sensitive to applications of Aria.

Trial results: At the University of Illinois, Aria was marginally effective against both the citrus and longtailed mealybug (*Pseudococcus longispinus*).

### Judo

Use: Insecticide/miticide.

Active ingredient: Spiromesifen (45.2 percent).

Formulation: Soluble concentrate containing 4 pounds of active ingredient per gallon (480 grams active ingredient per liter).

RE1: 12 hours.

Labeled for: Judo is similar to pyridaben (Sanmite) in terms of target pests, with activity on both spider mites (twospotted spider mite) and whitefly. It is active on all life stages, including eggs of spider mites, and the nymphs and pupae stages of

whiteflies. Judo is also labeled for control of broad and cyclamen mites.

**Distributed by:** OHP Inc., (800) 659-6745; www.ohp.com.

**Specifics:** Judo has a unique mode of action compared to the other insecticides/miticides. The active ingredient works as a lipid biosynthesis inhibitor. Lipids are a group of compounds made up of carbon and hydrogen. They include fatty acids, oils and waxes. Lipid molecules are responsible for a number of functions such as cell structure in membranes and sources of energy. No other commercially available product has this mode of action. The label rate is 2 to 4 ounces per 100 gallons.

Judo has translaminar properties providing up to 30 days of residual activity, which is similar to other miticides including hexythiazox (Hexygon), bifentazate (Flo-ramite) and abamectin (Avid).

**Trial results:** Research at the University of Illinois has shown that one application of Judo provides the same level of control for twospotted spider mite as chlorfenapyr (Pylon).

### Safari

Use: Insecticide.

**Active ingredient:** Dinotefuran.

**Formulation:** A 20 percent soluble granule.

RE1: 12 hours.

**Labeled for:** Both foliar and growing medium drench applications. Target pests include aphids, fungus gnats, leaf miners, whiteflies, mealybugs, scales (both soft and hard) and thrips.

Manufacturer: Valent USA Corp., (800) 898-2536; www.valentpro.com.

Specifics: Safari is another neonicotinoid-based insecticide with the same mode of action as imidacloprid (Marathon), thiamethoxam (Flagship), acetamiprid (TriStar), and clothianidin (Celero).



In trials at the University of Illinois, Safari was effective against citrus mealybug and fungus gnat larvae (pictured).

The active ingredient is very water-soluble (37,000 parts per million) and is rapidly taken up by plants when applied as a drench to the growing medium. Safari also has translaminar activity when applied to the foliage, killing insects by contact and ingestion.

The label rates are 4 to 8 ounces per 100 gallons for foliar applications and 12 to 24 ounces per 100 gallons for drench applications.

**Trial results:** At the University of Illinois, Safari was effective against citrus mealybug and fungus gnat larvae.

### TriCon

Use: Insecticide and fungicide.

**Active ingredient:** Sodium tetraborohydrate decahydrate (0.99 percent).

RE1: 12 hours.

**Labeled for:** Many greenhouse plants including carnation, fuchsia, gardenia and hibiscus. It can control aphids, mealybugs, mites, scales and whiteflies.

Manufacturer: Bioworks Inc., (800) 877-9443; www.bioworksinc.com.

**Specifics:** The product should not be used on roses.

Rates are 50 and 100 fluid ounces per 100 gallons.

### Overture\*

\*Not available yet!

Use: Contact insecticide.

**Active ingredient:** Pyridalyl.

**Formulation:** A 35 percent wettable powder.

RE1: 12 hours.

**Will be labeled for:** Target pests include thrips and caterpillars.

**Distributed by:** Valent USA Corp., (800) 898-2536; www.valentpro.com.

**Specifics:** Insects are typically killed within two to three hours following an application. Overture is a contact insecticide, with translaminar properties, that is applied as a foliar spray. The label rate will be 8 ounces per 100 gallons of water.

**Trial results:** In trials at the University of Illinois, Overture was effective against western flower thrips six days after treatment.

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In addition to the above-mentioned insecticides and miticides, several new materials (numbered compounds) are in the development process and are being tested.

All trade names in this article are provided for reference and do not constitute a recommendation of one product over another.