

# FINDING ALTERNATIVE WAYS TO CONTROL ALIEN PESTS

## PART 2: New Insecticides Introduced to Fight Old Pests

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Part I of this series discussed conventional insecticides and miticides under close scrutiny by the Environmental Protection Agency's (EPA) Food Quality and Protection Act. In the future, many conventional pesticides will be replaced by newer biorational or "low risk" insecticides and biological insecticides.

Biorational or "reduced risk" insecticides are synthetic or natural products that effectively control insect pests with low toxicity to non-target organisms (humans, animals and beneficial organisms), and are non-polluting to the environment. These new insecticides developed by chemical manufacturers will be of new chemistry and not insecticides belonging to the carbamate, organophosphate or pyrethroid chemical class.

Some of these biorational insecticides will be effective only during certain specific life stages (e.g. immature stage) of the target insect. Applicators must follow specific instructions for effective use of biorational insecticides and follow resistance management strategies as recommended on the label.

### New Products

Azadirachtin (AZATIN) is a limonoid insect growth regulator derived from the neem tree. For optimal effectiveness, azadirachtin (Aza) must be applied when eggs begin to hatch or at early immature stages. Aza does not kill

insect eggs or adults. Spraying directly on at immature stages and longer duration of leaf wetting will increase effectiveness. Applying in the early morning or late afternoon will also optimize results. Apply two to three times in succession at a seven-day interval. Under high insect spray pressure, apply every three to five days.

Aza is recommended for control of whiteflies, thrips, mealybugs, leafminers, caterpillars and aphids. Aza typically requires three to 15 days (or longer) for insect death. Aza also shows antifeedant and repellent properties, which has been demonstrated with the Chinese rose beetle by researchers at the University of Hawaii at Hilo, College of Agriculture, Forestry & Natural Resource Management.

Bifenazate or FLORAMITE (Uniroyal Chemical) is a selective miticide that provides control of various plant-feeding mites on greenhouse, shadehouse, nursery, landscape and interior grown ornamentals. Floramite belongs to a new class of miticides, carbazate, that acts as an antagonist to the nervous system.

As a result of its safe profile to predacious mites, beneficial insects, animals and the environment, Floramite was fast-tracked for registration as a reduced risk pesticide by EPA. Tests conducted by the University of Hawaii College of Tropical Agriculture and Human Resources (CTAHR) demonstrated that

Floramite is effective against is effective against the citrus red mite on anthuriums for up to 21 days, confirming residual control.

### **Synthetic Cinnamon**

Cinnamaldehyde or CINNAMITE (Mycotech Corp.) is synthetic cinnamon oil that controls or repels a variety of pests including mites and powdery mildew aphids. Crops listed on the label range from herbs and spices to shade trees.

Recent tests conducted by CTAHR indicate that the citrus red mite population on anthurium was significantly reduced seven days after one application of Cinnamite; citrus red mite populations returned to higher levels at 14 days after one application. Preventing the Cinnamite spray from drying too fast will increase effectiveness. Therefore, spray in the late afternoon or evening.

Although the label does not recommend use on orchids, CTAHR's phytotoxicity tests at 2X the label use rate indicate that Cinnamite may be safe to use on dendrobium and cymbidium orchids. For resistance management, Cinnamite should not be used for more than two consecutive applications.

Pyriproxyfen or DISTANCE is a new insect growth regulator (IGR) from Valent that is effective against armored scales, whiteflies, fungus gnats and shore flies. Research data supporting control of armored scales and whiteflies make Distance look very promising. CTAHR is presently testing Distance against the avocado scale on protea. Distance is an IGR that suppresses egg development and inhibits metamorphosis and adult emergence. Distance is not as effective against mealybug and aphids.

Distance exhibits movement into leaves (translaminar). Combining Distance with a lightweight oil may have an additive effect. Distance will be also formulated as a fire ant bait insecticide (similar to Amdro) that will be effective against the bigheaded and other pestiferous ant species in Hawaii.

## **PRODUCT INFORMATION**

### **PRECAUTIONARY STATEMENT**

Use pesticides safely. Follow the pesticide label. Consult with the Cooperative Extension Service or the Hawai'i State Department of Agriculture for authorized special local need registrations or additional information. The user is responsible for the proper use, application, storage, and disposal of pesticides.

### **DISCLAIMER**

Reference to a company or product name does not imply approval or recommendation of the product by the College of Tropical Agriculture and Human Resources, Cooperative Extension Service University of Hawaii, or the United State Department of Agriculture and does not imply its approval to the exclusion of other products that may be suitable. All materials should be used in accordance with label instructions or manufacturer's directions.

Product Name: Azatin  
Manufacturer's Name: ThermoTrilogy Corporation  
Address: 9145 Guilford Road Suite 175  
Columbia, MD 21046  
Composition: 3% azadirachtin

Product Name: Floramite (Bifenazate)  
Manufacturer's Name: UniRoyal Chemical Company, Inc.  
Address: World Headquarters Middlesbury, CT 06749  
Composition: 50% hydrazine carboxylic acid, 2-(4-methoxy-[1,1-biphenyl]-3-yl)-1 methylethyl ester (CA)

Product Name: Cinnamite  
Manufacturer's Name: Mycotech Corporation  
Address: P.O. Box 4109 Butte, MT 59702-4109  
Composition: 30% cinnamaldehyde

Product Name: Distance  
Manufacturer's Name: Valent USA Corporation  
Address: P.O. Box 8025 Walnut Creek, CA 94596-8025  
Composition: 11.23% pyriproxyfen

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More... PART 3: Biological Insecticides Kill Pests Naturally