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# New insecticides for old pests

*by* Dr. Scott W. Ludwig

For the last few years, it seemed like there would be no end to the number of new insecticides being registered. This year, only two new active ingredients were registered for use on ornamental crops. At this time, only one of these products has a nursery registration.

Looking at the active ingredients in the pipeline, we will probably only see a low number of new insecticides registered throughout the next few years. Many of these will be selective insecticides active against a limited number of pests. As a result, it is more important than ever to develop proper resistant management programs for all pests to ensure that we do not lose efficacy of the products currently registered for use on ornamental crops.

Once mealybugs become established, they can be difficult to successfully control. Kontos 240 SC will be an additional tool to battle this troublesome pest.

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**New products.** Managing mealybugs, whiteflies and western flower thrips continues to be a problem for many ornamental growers. Fortunately, we have two new insecticides — Kontos 240 SC and Overture 35 WP Insecticide — that have received federal registration and should prove to be valuable tools for managing insect pests.

Kontos 240 SC is a truly systemic insecticide that contains the active ingredient spirotetramat. Kontos can be applied as a spray or drench, and it moves both up and down in the plant's vascular system. There are very few products that move both ways in a plant.

According to the Insecticide Resistance Action Committee, Kontos, along with Judo (spiromesifen), are in the Mode of Action Group 23. Products in this group are inhibitors of lipid synthesis. These products inhibit molting, cause treated insects and eggs to desiccate and inhibit oviposition in adult females.

Kontos is active against sucking insects, such as aphids, whiteflies and mealybugs. When plants are treated for spider mites, Kontos helps prevent the mites from establishing on the treated plants. Kontos will be distributed through OHP Inc., Mainland, PA.

I recently conducted a trial evaluating Kontos applied as spray (Figure 1, opposite) and drench against Madeira mealybugs. Both treatment methods significantly reduced or eliminated the mealybug population on the treated plants. It provided similar results to sprays or drenches with Safari and higher levels of control than TriStar or Marathon II.

Overture 35 WP Insecticide is a new class of insecticide — active against thrips and lepidopterous larvae (caterpillars) — that contains the active ingredient pyridalyl. This product has an unknown mode of action and is formulated as a 35 percent wettable powder. It is a contact insecticide that is applied as a foliar spray. Unfortunately, at this time, Overture is only registered as a greenhouse product.

This insecticide is available in most states and is distributed by Valent USA Corp., Richardson, TX. Hopefully, in the near future, Valent USA will be able to obtain a registration that will allow Overture to be used outdoors.

With the increased concern regarding western flower thrips developing resistance to spinosad (Conserve SC), Overture can be a valuable component of a rotation program. Overture has been shown to be most effective when used as a preventive treatment or as a rotation product. Control of thrips is often not seen for seven to 14 days after treatment. Overture is minimally harmful to beneficial insects and mites.

In trials I have conducted with Overture, the results varied slightly depending on the western flower thrips population I was evaluating. However, in all the trials, Overture resulted in a decrease in thrips population. When tested against a western flower thrips population that was resistant to Conserve, the Overture treatments resulted in thrips control after 14 days (Figure 2, opposite). Overture will be an excellent product to use in rotation with Conserve, Pylon and other thrips insecticides.

For growers in areas where chilli thrips are present, Overture has provided excellent control of these pests. It's also effective in controlling many lepidopterous larvae, including azalea caterpillar, cabbage looper, tobacco budworm and many more.

More efficacy information regarding Overture and other insecticides against

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chilli thrips, gladiolus thrips, weeping fig thrips and western flower thrips is available in a report recently published by the R-4 Ornamental Horticulture Program. This report can be found at http://ir4.rutgers.edu/ornamental/summaryreports/thripsdatasummary2008.pdf.

This report summarizes 26 experiments in which 38 different active ingredients were evaluated.

**Pesticide resistance.** Growers across the US recently experienced an eye-opener this summer when Dow AgroSciences LLC, Indianapolis, suspended the sale and use of products containing spinosad in Broward County, FL, and in a portion of Palm Beach County, FL. The action was in response to high levels of resistance recently found in vegetable fields in these two counties.

**The most important thing we can do to avoid pesticide resistance is to properly rotate pesticides based on their mode of action.**

This drastic and unprecedented action taken by Dow AgroSciences in Florida is yet another "red flag" indicating the importance of understanding the possible consequences of insects developing resistance to insecticides. Growers in this area have lost their most valuable tool for managing western flower thrips. It's important for growers to act now so this action does not occur in other regions of the country.

We should all view this as an opportunity to take a closer look at our pest-control toolbox and make sure it includes sound management practices for insecticide resistance. The good news is, so far, most growers have thrips populations that are still susceptible to spinosad (Conserve).

Earlier this year, the East Texas Nursery and Greenhouse IPM program monitored western flower thrips for their tolerance to spinosad. Most of the greenhouse locations sampled did not have large thrips populations. Because these growers primarily use Conserve, the low populations suggest good efficacy in most cases. However, we did detect very high tolerance levels (immunity) to Conserve at one Texas location. Since then, this particular grower has agreed to completely stop using Conserve for at least six months.

The most important thing we can do to avoid pesticide resistance is to properly rotate pesticides based on their mode of action. Rotation is essential for all pesticide groups, such as herbicides, fungicides, bactericides and insecticides.

The first evidence of resistance is usually reduced efficacy against the target pest even when the pesticide was properly applied at the recommended rate. If you suspect a pest population is developing tolerance to a particular chemical, continued use or increasing the rate of the product will only accelerate the rate of resistance selection, eventually leading to complete control failure.

To avoid resistance to spinosad, do not make more than two consecutive applications of Conserve. If additional treatments are needed, rotate products with different modes of action for at least two subsequent applications.

There are a number of effective products available for controlling thrips. The list includes (but is not limited to) those products containing abamectin, *Beauveria bassiana*, chlorfenapyr, chlorpyrifos, dimethoate, fenoxycarb, methiocarb, novaluron, pyridalyl and tau-fluvalinate.

If you suspect insecticide resistance or need further information, please do not hesitate to contact your pesticide sales representative or local extension agent.

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**Figure 1**

Mean number of Madeira mealybugs per five coleus leaves after foliar insecticide applications at 0 and 14 days. Insecticides were applied at the following rates: Kontos 240 SC (1.7 ounces per 100 gallons), Marathon II (1.7 ounces per 100 gallons), Safari 20SG (8 ounces per 100 gallons) and TriStar 70WSP (2.3 ounces per 100 gallons).

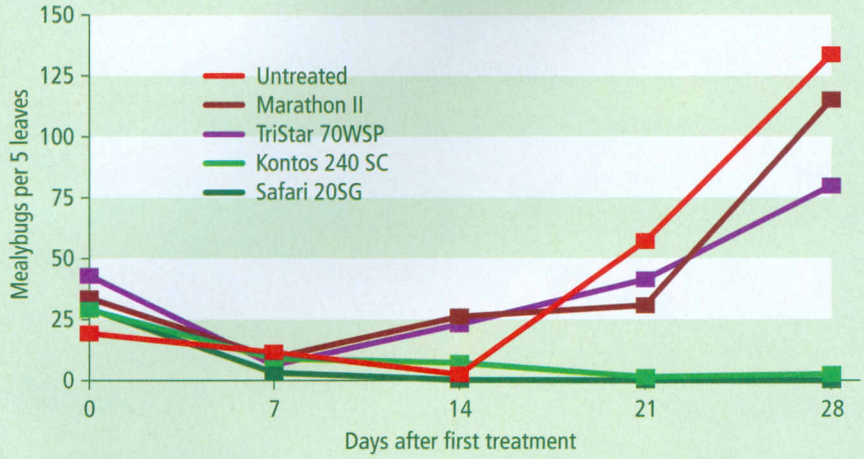


**Figure 2**

Mean number of immature western flower thrips per five *Portulaca grandiflorum* (moss rose) plants after insecticide applications at 0 and 14 days. Insecticides were applied at the following rates: Pylon (5 ounces per 100 gallons), Conserve SC (11 ounces per 100 gallons) and Overture 35 WP (8 ounces per 100 gallons).