New Hope On The Horizon?

New insecticides and miticides are being developed to help in the battle against pesky greenhouse pests.

By Jim Bethke

For the last few years, the prospects for new chemistries were rather bleak, so it finally feels good to have some hope. In addition, most of the new chemistries are reduced-risk or organophosphate (OP) replacement products. IR-4 (www.ir4.rutgers.edu) has had a lot to do with the increased interest in pesticide development and label enhancements for minor crops like ornamentals, and it deserves some credit.

A Word About Generics

To be generic means that an active ingredient (AI) (molecule) sold or formulated under a trade name is no longer protected by patent or trademark. You will start seeing many more generic formulations of pyrethroids and the neonicotinoid imidacloprid. Imidacloprid was the first neonicotinoid developed for the ornamental market and is relatively old when compared to others. For example, Australia-based NuFarm Limited is developing a 2F formulation of the neonicotinoid imidacloprid (trade name Mallet) and a pyrethroid bifenthrin (trade name Menace) for the ornamental market.

One word of caution about generics: When we say generic, it is the AI that has lost patent, so companies developing the generics are reformulating the off-patent AIs. In some cases, a new formulation can really be an advantage, but in others, there may be a learning curve. The original developers know the product’s limitations and formulation and how it works in different situations. However, critical issues concerning phytotoxicity, odor and compatibility are largely unknown with generics.

Reregistration Decisions

The EPA, via amendments to the Federal Insecticide Fungicide and Rodenticide Act (FIFRA), is conducting a pesticide reregistration program. The goal of the program is to mitigate risks associated with older pesticides. In addition, all pesticides in food crop uses must meet the safety standard of section 408 of the Federal Food, Drug and Cosmetic Act (FDDCA), as amended by the Food Quality Protection Act of 1996 (FQPA). Also, the Pesticide Registration Improvement Act (PRIA) of 2003 became effective on March 23, 2004. Among other things, PRIA directs the EPA to complete Reregistration Eligibility Decisions (REDs) for all remaining non-food-use pesticides by Oct. 3, 2008.

These reviews affect many pesticides, resulting in manufacturers removing many AIs from the market. Pending completion of the OP cumulative assessment, the EPA has determined that the OP insecticide DDVP, or Dichlorvos, will be eligible for reregistration. The EPA has reviewed the remaining uses of DDVP and determined that risks do not exceed levels of concern; therefore, no additional risk mitigation measures are necessary at this time. However, the manufacturer is voluntarily deleting DDVP use in greenhouses, greenhouse handheld foggers, total release foggers, lawns, turf and ornamentals. For more information, go to www.epa.gov/pesticides/op/ddvp/ddvp_changes.htm.

Another product affected by REDs is the carbamate Carbofuran. Due to the high risk to the environment and workers, the EPA is recommending all uses of Carbofuran be cancelled.

The EPA has completed the review of the organophosphates and carbamates and is now beginning to implement REDs on pyrethroids. Permethrin is currently under review. The EPA has determined that the data to support reregistration of permethrin are substantially complete and products containing permethrin are eligible for reregistration. However, registrants are required to amend the product labels to reflect the mitigation measures outlined in the RED document, and they are extensive.

Finally, some products were scheduled to be summarily cancelled unless the manufacturer’s request for cancellation was withdrawn by Aug. 21, 2006. The list includes a large number of products, and most of them do not pertain to ornamentals. To see products on the voluntary cancellation list, go to www.epa.gov/fedrgstr/EPA-PEST/2006/February/Day-22/p2492.htm.

The reason I bring these issues up regarding the EPA reviews is that you have a say in the matter. The EPA actively requests comment by registrants. To see products on the voluntary cancellation list, go to www.epa.gov/fedrgstr/EPA-PEST/2006/February/Day-22/p2492.htm.

Insecticides

A change to the Marathon 60WP (imidacloprid) label by OHP allows the product to be applied as a foliar spray, in addition to the drench, chemigation and ebb-and-flood applications already on the label. This brings the Marathon 60WP label into harmony with the Marathon II label.

A turf product, Mach 2 (halofenozide, 2SC), from Dow AgroSciences, is known for its activity against white grubs and lepideopterous larvae.
Plants are your livelihood and Fafard will treat you like the V.I.G. (Very Important Grower) that you truly are.

Fafard V.I.G.’s are privy to all the knowledge and resources we’ve gained in eight decades of hands-on horticulture. As insiders, they count on the partnering advantages and our traditions of:

• Consistent quality
• Exceptional value
• Testing in our in-house labs
• V.I.G. service and support (including custom mixes!)

Don’t worry, there’s no initiation rites or secret handshake to learn. But if you look closely, you can spot the Fafard V.I.G.’s. Their beautiful plants, happy customers and successful operations give them away every time.

Don’t you deserve some V.I.G. treatment?

Plants are your livelihood and Fafard will treat you like the V.I.G. (Very Important Grower) that you truly are.

Fafard V.I.G.’s are privy to all the knowledge and resources we’ve gained in eight decades of hands-on horticulture. As insiders, they count on the partnering advantages and our traditions of:

• Consistent quality
• Exceptional value
• Testing in our in-house labs
• V.I.G. service and support (including custom mixes!)

Don’t worry, there’s no initiation rites or secret handshake to learn. But if you look closely, you can spot the Fafard V.I.G.’s. Their beautiful plants, happy customers and successful operations give them away every time.

We understand your plants AND your business. Grow them better with Fafard.

Barney Bryant, Owner-Grower
B.B. Barns Garden Center
Arden, North Carolina
Mach 2 has a novel mode of action that mimics the action of natural insect hormones and induces the molting and metamorphosis process in insects. Dow AgroSciences is considering expanding its label to include container- and field-grown ornamental and nursery plants. This is one case where IR-4 can really be of help.

It never hurts to have another thrips product on the market, and Valent has been developing a good candidate — Overture (pyridalyl). The mode of action of Overture is not yet known, but it is suspected that it has a novel biochemical action different than the more common insecticides. Valent is expecting registration by the end of this year and is interested in expanding the label to include lepidopterous larvae and thrips species other than western flower thrips. According to Valent, this product is effective against pyrethroid-resistant insects and safe on beneficials.

Neonicotinoids

The newest neonicotinoid on the market is a clothianidin from Arysta LifeSciences, with product names Celero 16 WSG for the ornamental market and Arena 50 WDG for the landscape market. Celero is active as a systemic, primarily against homopterans — aphids, whiteflies, scale, mealybugs, psyllids, etc.

**Figure 1.** Shown here is a listing of the products mentioned in this article as well as their common names, companies, activities and modes of action.
homopteran insects like aphids, whiteflies and mealybugs. It is versatile in application, being effective in the form of seed treatments, root drench, planting hole application as well as foliar sprays. Celeron is registered for use on flowers, foliage plants, trees, shrubs, evergreens, ground covers and interior plantings. We’ve found that as a drench and spray Allectus works very well against sharpshooters, aphids and, more recently, leaf-feeding beetles.

Safari 20SG (dinitofuran) is the new name for Valent’s relatively new neonicotinoid. A label update has been submitted to the EPA that expands the label to include more “user-friendly” verbiage for field-grown and landscape plants and a section on trunk injections. The Safari label is also being updated with the scale and mealybug data generated through the IR-4 high priority projects. Safari can be used to control homopterous insects like scales, aphids, mealybugs and whiteflies but will also affect leafminers and lacebugs. We’ve used it as a spray and a drench and have experienced very good results on everything we’ve tested it against, including aphids, mealybugs, sharpshooters and Q biotype whiteflies.

One product that has made quite a hit here in California is Discus Nursery Insecticide (imidacloprid 294 percent/cyfluthrin 0.7 percent, flowable) from OHP. We’ve seen very good results against glassy-winged sharpshooters (leafhoppers), mealybugs and aphids on roses, and mealybugs on azaleas. OHP has modified the Discus label to allow application via chemigation.

Bayer Environmental Science and FMC Corp. formed an alliance to commercialize Allenlux, a new insecticide that combines FMC’s Talstar (bifenthrin) and Bayer’s Merit (imidacloprid). Allenlux is available in granular and suspended concentrate formulations and is active against various white grub beetle larvae in turf and mole crickets, cutworms, leafhoppers, aphids and ants. Allenlux SC is registered for use in lawn, landscape and sports turf.

Flagship 25 WDG (thiamethoxam) from Syngenta has been on the market for a while now, but the landscape product is new. It will be called Meridian and, hopefully, will be available in early 2007.

Cleary introduced TriStar 30 SG (acetamiprid), a soluble granule formulation that can be measured and used in quantities down to backpack size. Cleary expanded both the TriStar 70 WSP and TriStar 30 SG labels to include new pest groups and additional pests. TriStar remains effective as a foliar spray against the A, B and Q biotype whiteflies. It’s always good to look to something new, and Cleary is currently doing research on two insecticides, including an IGR and a miticide.

**New Active Ingredients**

In the “products on the possible horizon” category, there are two active ingredients that are relatively new to ornamentals — tebufenpyrad and tolpfenpyrad — both from Nichimo America. Both AIs are from a new chemical class, the Pyrazoles, and they have recently been released on the market. Along those lines, FMC has sold its R&D pipeline to BASF, and BASF is now searching for effective compounds to develop.

Finally

There seems to be a great potential for the new classes of chemicals that are on the horizon. Figure 1, left, shows a listing of the products mentioned in this article. The use of chemical trade, common or corporation names does not constitute an official endorsement, nor does the unintended exclusion of chemical trade, common or corporation names imply that they are not suitable for their intended purpose.

**The Role Of Adjuvants In Bonzi Formulation**

Bonzi is one of the premier chemicals used in the greenhouse industry. It is critical to the production of high quality plants for many crops. Growers have become comfortable with Bonzi over the past 20 years and trust the response they will see from treatments.

Producing a high quality formulation that consistently results in good plant uptake without damage is a challenging task. When tank mixing products for the first time, especially of different formulations, doing a jar test is good practice, mixing a small amount to check for compatibility, and testing the mixture by spraying a small number of plants to check for potential phytotoxicity.

Formulation components are critical, especially for PGRs, since they are applied at very low concentrations and any mistake or reduction in formulation quality can cause plant damage. Growers have learned that an important feature of Bonzi is that it is very safe to the plants and there is very little risk of injury to or burning of crops when used as directed. This is because it is a water-based formulation utilizing high quality adjuvants and ingredients. Many hydrophobic chemicals are formulated in petroleum-based solvents and applied as emulsions, which carry a much greater risk of phytotoxicity problems.

When using Bonzi and other plant growth regulators, uniformity of the application is important. All plants receive the same amount of active ingredient. Suspensions by nature will separate over time, and that is why a Bonzi container should be shaken if it has been sitting for some time. Due to the characteristics of the adjuvants used in the Bonzi formulation, the active ingredient goes into suspension easily and is uniformly distributed. The result of suspension is a more uniform amount of active ingredient each time Bonzi is measured out. If it were not for these high-quality adjuvants, the formulation would separate more quickly, and the concentration of active ingredient would be too variable.

Bonzi users trust it to work as expected each time, and a major reason for this trust is the performance standards Syngenta utilizes for all of the components in the Bonzi formulation.

**LearnMore**

For more information related to this article, go to www.gpmag.com/link/cmp/110803

**Jim Bethke**

A research associate in the Department of Entomology at the University of California Riverside and acting Floriculture Farm Advisor for San Diego County, Calif. He can be reached at bethke@ucr.edu or (951) 627-4723.