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### A Softer Approach

Natural Pest Controls are gaining ground in the nursery market.

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Field Editor

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While conventional chemical pesticides play a paramount role in the production of ornamental plants, biopesticides and other eco-sensitive materials are becoming increasingly popular. The EPA defines biopesticides as pesticides derived from natural materials, such as animals, plants, bacteria, and certain minerals. Industry experts estimate the biopesticide sector is growing 10% to 20% per year, although it only accounts for 1% to 2% of the overall global pesticide market.



A papaya banker plant in an English ivy house is aimed at managing whiteflies.

More stringent chemical pesticide regulations, along with rising demand for products with positive environmental and safety profiles, is boosting interest in natural materials. Let's take a look at some of the softer pest controls growers are successfully using.

#### Organic Oil

New to the market this May and now listed by the Organic Materials Review Institute is SuffOil-X from BioWorks ([www.bioworksinc.com](http://www.bioworksinc.com)), a spray oil emulsion that suffocates and kills soft-bodied insects in all life stages. It controls a broad range of insects, mites, and foliar fungi (including powdery mildew) in field crops and greenhouse ornamentals.

"SuffOil-X is highly emulsified, so it stays in suspension better than other oils," says ornamental entomologist Suzanne Wainwright-Evans of Buglady Consulting. "Smaller particles mean less chance for phytotoxicity, and the chance of resistance is very unlikely. It's excellent for controlling scale insects (the No. 1 use), aphids, and spider mites. And because it basically has no residual, beneficials can come right back in to get to work, so it can be used hand-in-hand with biocontrols."

#### New Nematicide

If you've had a history of nematode problems, a new product called Pasteuria usgae may offer relief. Pasteuria Bioscience ([www.pasteuriabio.com](http://www.pasteuriabio.com)) recently received EPA registration for *P. usgae*, a natural bacterium found in soil that can be used as a biological control agent for plant-parasitic nematodes.

"Pasteuria usgae is a safe, effective, and an environmentally friendly agent for sting nematode control," says David Duncan, chief executive officer for Pasteuria Bioscience. His company has developed new technology that allows the rapid and cost-effective growth of multiple strains of Pasteuria manufactured through fermentation methods.

#### Mighty Mite

University of Florida research showed that on bell pepper plants in greenhouses, the predatory mite *Amblyseius swirskii* consumed enough chili thrips to keep the population to less than one per leaf, compared with 70 per leaf on control plants. Since the mite is already approved for use in Florida to manage whiteflies and broad mites, growers can try it against chili thrips, suggests UF/IFAS professor Lance Osborne.

"*A. swirskii* shows very good results for controlling chili thrips in the greenhouse setting, but not in the landscape. It's also used for whitefly and western flower thrips control," says Wainwright-Evans. "The mite is commercially available from Koppert, Biobest, and Syngenta Bioline."



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Osborne cautions that the mite is not a cure-all and is not likely to be successful on every crop chili thrips attack. Researchers hope to develop a pesticide-resistant strain of the mite, he says.

### Banking Beneficials

When working with biological controls, Osborne points out that there's a learning curve.

"You need to start out slow and learn what natural enemies can and can't do," he advises. Osborne recommends growers use a banker plant system — host plants placed within the crop that have a population of reproducing natural enemies on them.

"By providing an alternative food source, banker plants will establish populations of beneficials in the area to reduce the number of releases necessary," says Wainwright-Evans.

According to Osborne, banker plant systems available are:

- 1) Sorghum for aphids — used in commercial greenhouse facilities around the country
- 2) Papaya for whiteflies — used only in Florida; proven very effective in poinsettia crops
- 3) Corn for broad mites and spider mites — very economical method of control.

Osborne stresses an important benefit of banker plants: "If you have to spray pesticides for other pests in the crop, you can easily move or cover up the banker plants."

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