GROWERTALKS

Paul's Pointers

4/1/2019

Something Bugging You? Then Get Bugs!

Paul Pilon

List of Beneficial Insects

Aphids	
Predatory Midge *(Aphidoletes aphidimyza)*	*Aphidoletes* looks like a tiny mosquito and feeds on over 60 aphid species (except melon aphids). It's very effective against the green peach aphid. *Aphidoletes* thrives under humid conditions. The larvae are fast moving and consume up to 50 aphids per day.
Parasitic Wasp *(Aphidius colemani)*	Great for controlling small-bodied aphids, such as melon and green peach aphids. It doesn't parasitize larger aphids. Use supplemental lighting to keep them active in the short days of fall and winter (especially in the northern states).
Parasitic Wasp *(Aphidius ervi)*	Preferred choice for controlling large aphids, such as foxglove and potato aphids. It's not as effective at controlling the smaller aphids. These and other *Aphidius* species are known for leaving behind gray to brown aphid mummies.
Green Lacewing (Predator; *Chrysoperla* spp.)	The larvae provides most of the control as they seek aphids and other prey (whitefly, thrips, spider mites) to feed on. Great for applications to hot spots.
Fungus Gnats	
Beneficial Nematodes *(Steinernema feltiae)*	A very reliable method of controlling fungus gnats—particularly in propagation. The nematodes enter the larvae, excrete bacteria from their digestive tracts and multiply inside while consuming the host. I find weekly applications are best, but other growers successfully apply nematodes every two weeks.
Predatory Mite *(Hypoaspis miles [Stratiolaelaps scimitus])*	This predatory mite feeds on fungus gnat eggs, larvae and pupae in the growing mix. *Hypoaspis* don't provide quick knockdown of populations use before outbreaks occur. Best when the soil temperatures are above 60F (15C).
Predatory (Rove) Beetle *(Atheta coriaria)*	*Atheta* are predatory throughout all of their life stages. Very effective at controlling soil insects, such as fungus gnats, shoreflies and Western flower thrips pupae. They're fast-moving and able to fly. One or two releases are sufficient.
Two-Spotted Spider Mites	
Predatory Mite *(Phytoseilus persimilis)*	This is a fast-moving predatory mite that runs down and eats the slower mites. Broadcast over the crop every two weeks or as needed. It prefers moderate temperatures and humid conditions (60% to 90% relative humidity). Best used early in the season before it gets hot and dry.
Predatory Mite *(Neosuiulus [Amblyseius] californicus)*	This predatory mite works better than *P. persimilis* in hot/dry weather. Also works well with lower humidity levels. Add to *Phytoseiulus persimilis* controls when conditions permit.
Western Flower Thrips	
Predatory Mite *(Ambleyseius swirskii)* Predatory Mite *(Neoseiulus cucumeris)*	Great choices for controlling hatching eggs *(Neoseiulus)* and young thrips larvae. Broadcast over the crop canopy by hand or using a modified leaf blower or other dispersal device. Also available in sachets, which release the predators over several weeks. Frequent distribution is crucial for its success.
Predatory Mite *(Hypoaspis miles [Stratiolaelaps scimitus])*	Feeds on thrips pupae in the soil as well as eggs and larvae of fungus gnats. Sprinkle over the soil surface. Usually takes one or two releases for them to become established. Also, see fungus gnat comments above.
Minute Pirate Bug *(Orius insidiosus)*	Orius feed on a wide variety of insects and mites. Considered voracious predators that consume any mobile stage of thrips they encounter. Great for broadcasting over thrips hot spots or broadcasting over the crop every two weeks or as needed. Banker plants such as alyssum, lobularia and ornamental peppers are often used to keep their populations going.
Beneficial Nematodes *(Steinernema feltiae)*	Weekly sprays can be used to control thrips pupae in the canopy, however, once the sprays dry, the nematodes that haven't entered a host or found their way into the growing mix will quickly perish. Nematodes will control thrips larvae and fungus gnat larvae (see above) in the growing mix. Repeat applications are necessary.
Whiteflies	
Parasitic Wasp *(Encarsia formosa)*	Controls greenhouse whiteflies. They lay their eggs inside whitefly larvae, which young wasps later consume and kill. Parasitized larvae turn black. Works best when the daytime temperatures are above 72F (22C) and the nights are above 60F (15C).
Parasitic Wasp *(Eretmocerus eremicus)*	This is a good choice for controlling both greenhouse and sweet potato whiteflies. They work well in warmer temperatures. Likely to observe dead whitefly nymphs and tan parasitized whitefly pupae when effective.

Each year, I help numerous growers with their insect and mite management programs. Admittedly, most of these growers are looking to using insecticides and/or miticides to keep their pest problems at bay. However, I wanted to remind you how effective beneficial insects can be.

Many growers are effectively managing their pests using beneficial insects. Like anything in life, there's a learning curve, but it's not as steep today as it once was. Thanks in part to the increased interest in biologicals, a better understanding of how to utilize beneficial insects and more growers finding success with them, using beneficial insects can be an effective approach to managing the bad guys.

I can't begin to cover all of the ins and outs of using beneficial insects, but I thought I'd take this opportunity to share some of the shining stars or top performers. Before I provide specific examples, please allow me to review some basic beneficial insect terminology.

Parasitoids are insects that deposit eggs on or in a pest. The parasitoid develops inside the pest, consumes its innards and eventually kills its host. Once the parasitoid matures, the adult emerges from the pest and the life cycle continues. Parasitoids are very host specific. In greenhouses and nurseries, parasitoids are used to control aphids and whiteflies.

Predators are insects and mites that feed on various pests, but they do not reproduce inside them. Predators are good at finding their next meal and going in for the kill. Unlike parasitoids, predators (like many of us) have favorite foods, but are somewhat less picky about what they eat.

There are pros and cons to using beneficial insects to control pests:

Pros

• Decreases dependency on insecticides and miticides

• Safer for the environment

• It's completely safe for employees and the releases can be made when workers are present

• Can lead to marketing opportunities

Cons

• Can have a learning curve and require growers to adjust their pest management programs

• Must understand how any insecticide, miticide or fungicide application will impact the beneficials

• Increases the need or reliance on scouting (this isn't a bad thing—maybe I should say, it requires additional scouting)

• Often requires more spot sprays to control just the hot spots

As you think about putting together your pest management programs for the upcoming growing season, I encourage you to consider the potential and power of controlling bugs with bugs. **GT**

Paul Pilon is a Perennial Production Consultant and editor-at-large of the Perennial Pulse *e-newsletter. Feel free to contact him with article topics or to address your perennial production challenges. He can be reached at paul@perennialsolutions.com.*