

GROWERTALKS

Growers Talk Production

11/1/2017

Orius insidiosus: A Natural Thrips Killer

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Recently at Pioneer Gardens, we had the pleasure of hosting a large group of perennial growers from all parts of the country. It was a great opportunity to demonstrate how effective our biological control program has become. They toured our bare root production fields and our perennial young plant production greenhouses. During the field walk, I explained how we use beds of lobularia as a habitat to attract natural Orius with the goal of assisting with thrips control. The question was asked: "What is Orius?"



Well, *Orius insidiosus*—also called the minute pirate bug—is an aggressive thrips predator. All mobile stages are targeted and one Orius can kill up to 80 thrips per day. As it's also a generalist predator—attacking other pest species such as aphids, mites and moth eggs—it's a very welcome addition to any biological pest control program. Here's how we incorporate it into our BCA program ...



Figure 1. By September, the greenhouse banker plants in the baskets are very large, producing an ample supply of pollen to support the greenhouse Orius population.

Figure 2. Lobularia planted at the edge of our astilbe field in mid-April produced very large, healthy plants ready to attract natural Orius from the local landscape.

Figure 3. Natural Orius crawling on Roger's hand.

Orius needs warm, long days to become effective. Inside the greenhouse, it's important to start early in the year to establish a reproductive population so that the program can hit the ground running when warm, longer length days appear in March. This year, we started rearing our population in January on Purple Flash Peppers and lobularia young plants growing under LED lights. The Orius starter material is provided by our BCA supplier. As an aid to a healthy population, we also provide a weekly diet of Ephestia eggs on Nutrimite cards. This is a substitute for pollen and research shows that female Orius fed on a diet of this material lay more eggs and live longer.

By mid-March, when the temperatures are warm enough, we move the population on banker plants to a designated drip water line in our growing house. Fast forward to September, the baskets are very large and producing an ample

supply of pollen to support the greenhouse Orius population (Figure 1). This population successfully augments our weekly nematode applications aimed at satisfactory thrips control.

As with any BCA control program, there may be hiccups with the level of control obtained, so regular scouting is vital. Extra BCAs can be added to assist with maintaining a tolerable pest population. My biological control mentor, Ronald Valentine, visited about a month ago and was very pleased to find an Orius nymph on the lower surface of a centaurea leaf where there were some signs of thrips damage. His comment was that the only way the young Orius got there was that its mother laid an egg on the cutting. Young Orius don't fly, so the population was very healthy and reproducing in the crop, as well as on the banker plants. This is huge!



Figure 4

This year, as we've done for the past two years, we incorporated lobularia banker plants in our main 15-acre daylily field. We didn't use pepper plants this year, as they don't tolerate the pre-emergent herbicide program that we use for weed control.

We've been surprised in the past how resistant to damage the lobularia plants are. Also, peppers can't be planted outside in our cool conditions until mid-June at the earliest, which is much too late to establish an effective, thrips-attacking Orius population. Conversely, lobularia will tolerate cold and some trial 50-cell plugs planted at the edge of our astilbe field in mid-April (Figure 2) produced very large, healthy plants ready to attract natural Orius from the local landscape. It's really neat to have them crawl over your hand on a scouting trip (Figure 3).

Why are we successful in attracting natural insects? This is because we have a policy in place that we won't spray nasty chemicals. Achieving satisfactory pest control early in the season is always a challenge.

Sometimes a biologically compatible chemical needs to be applied to lower the pest population to an acceptable level while giving the predators a chance to get the upper hand. Towards that end, we applied some Mainspring GNL in early June to our daylily crop. Figure 4 shows the level of thrips population in a flower at that time of the season. Not good!

Patience with any BCA control program is a virtue and Figure 5 shows a natural Orius found in a cleaner flower in mid-August. On a scouting walk one evening, I found an Orius in seven out of 10 flowers that I checked. What a way to finish off your day.

Figure 4. In early June, the daylily flowers were covered in thrips.

Figure 5. A natural Orius found in a cleaner flower in mid-August.

Figure 6. As an aid to increase the population of Orius, more insects were introduced in other perennial fields.

Figure 7. A clean daylily with a healthy white root system ready for shipping.



Figure 6



Figure 7

We also found Orius in another bare root field containing a variety of flowering perennial varieties. These were either from a natural population or from plugs that were grown in our

greenhouses. However, as an aid to increase the population, we introduced more insects that we purchased from our main biological supplier. Figure 6 shows this field, where even in Week 33 we really weren't experiencing a thrips problem. Extra prevention is much better than discovering potential pest problems in the future.

In the greenhouse after lunch, I asked the group how many were using BCAs in their crop production. About 25% said that they were and some others said they were preparing to start trialing in some of their production areas. We offered to further share our experiences with them and help them be successful as they embark on their new biological journey using BCAs in their crops in either inside or outside locations.

Figure 7 shows a clean daylily crop with a healthy white root system ready for lifting and shipping to some of our grower customers.

The ultimate winner in this whole game is the end consumer and anything we can do to make our world a cleaner place is rewarding and satisfying for all concerned. **GT**

Roger McGaughey, head grower at Pioneer Gardens in Deerfield, Massachusetts, was educated in Northern Ireland and England and has 44 years experience as a grower.