GROWERTALKS

Growers Talk Production

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The Benefits of Beneficials

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The 2018 poinsettia crops are now history, but 2019 planning starts immediately in the new year. However, I'm not writing about 2019 planning; I'm writing to discuss the use of beneficial insects in poinsettia production and the positive experience we had with it in 2018.

Using beneficial insects in modern agriculture has been around since the 1940s, when the University of California's Department of Biological Control in Riverside (UCR) conducted the first experiments. Testing included the use of predator or parasitic insects to manage pest insects like whitefly. In the 1950s, post-war chemical companies used their large marketing budgets to convince growers and farmers that pest problems are best eradicated using chemical solutions and this became the predominant method of pest management. As time went on, an unfortunate side effect of chemical controls proved to be an increase in secondary pests and the eventual resistance of target pest populations. Insects with short lifecycles developed resistance within a few generations, creating the need for more spray rotations and the development of new chemistries.

To break the chemical cycle, renewed interest in beneficial insect use proved that chemicals combined with beneficials can be a successful partnership. As a result, several companies now engage in the production, marketing, education and sales of beneficials. This form of pest management has gained traction in parts of North America where controlled greenhouse environments are more common. The West Coast has been slower to adopt the benefits of a biological control system due to perceived costs and the lack of controls in our often open-sided greenhouses. Our main problem was thought to be how to keep the beneficial insects from roaming away.

One of our growers, Terry Leppo, decided to test these assumptions and contacted Koppert Biological Systems to set up a trial. For the test area, he chose the semi-controlled environment of our poinsettia crop where we grow many of the finicky colored varieties like Orange Spice, Polly's Pink, Gold Rush … it's a long and varied list.

Poinsettias' long rooting and grow season make it a great trial crop selection since pests can develop a chemical resistance, as multiple generations are born during the long growing period. In the case of poinsettias, whitefly generations are notorious for developing chemical resistances during a crop's production cycle. We can end up with chemical-resistant great-great-grandchildren mid-way through the poinsettias' crop cycle.

To mitigate crop risk, Terry decided the best approach was to use a biological control system from transplant to the midpoint of the poinsettia crop, Weeks 28 through 38. After Week 38, the crop was finished using conventional chemical applications. The beneficial program was put together based on our concerns focusing on common poinsettia pests pressures of whitefly, fungus gnats, Lewis mite and the dupo moth. The goal was to overwhelm pest development in the crops with parasitic wasps and predatory mites.

A budgetary analysis showed that beneficials aren't more costly than a chemical regime and also have the additional benefit of breeding to produce "free" bugs (more bugs for your buck?). In addition, less chemical use creates an environment more attractive to native beneficials, building a balanced ecosystem with the goal to keep the pest populations contained to less than 5% of the crop.

The main drawback? The labor to scout the crops, which is key to implementing a biological control system. Using beneficials requires trained eyes identifying pest "hot spots" and releasing the beneficial in time to correct the imbalance.

At the end of the Week 38 trial period, the poinsettia crops was infestation-free. We did have the multiple whitefly lifecycles, but they remained under the 5% acceptability rate. During the first half of the poinsettia crop, we cut out 90% of the chemicals that would have traditionally been used (a Citation application was used once seven weeks into the experiment after noticing fungus gnats had established in small areas under the canopy).

The main benefit of using a biological control system is the overall lessening of chemical use, which is safer for the plants and the people who work around the plants. Plus, fewer spray applications means there's much less chance of spray conflicts.

Using a biological control system allowed us to grow a complicated crop for 11 weeks without using an adulticide pest spray and avoiding neonic use. With consumer interest in what goes into our crops, decreasing chemical use and moving more crops into a beneficial program allows growers to meet the demand for transparent growing practices, safety and sustainability. **GT**

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