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Pest Monitoring: A Best Practice

If you employ an integrated pest management program that includes biological control agents, one of the most critical aspects is knowing your enemies. Routine monitoring can give you the intelligence you need to defeat them.

By Julie Graesch

Many growers have increased their use of biological control agents (BCAs), no longer relying exclusively on conventional pesticides to control pests. As growers become more familiar with these pest management tools, they are discovering how well BCAs work and how to easily incorporate them into pest management programs.

Growers are also finding that certain management practices can make a significant difference in how much control they can get with BCAs. The growers who see the most success with BCA applications take the time to educate themselves about the tools they are using. Considerations include packaging, storage, temperature, moisture, compatibility; and the list goes on.

Aside from these considerations, there is also the need to understand how BCAs work, and what steps can be taken to increase their efficacy. Regular pest monitoring is critical in this process. Building your BCA program into an overall integrated pest management program (IPM) can also be helpful.

Development of pest management strategies that marry mechanical, biological and chemical control methods are foundations of IPM.



Inspect new plants and cuttings as they arrive to help prevent introduction of new pests.



Regular pest monitoring is essential for successful beneficial nematode programs.

Photos courtesy of Becker Underwood

The IPM basics

The six guiding principles of IPM include:

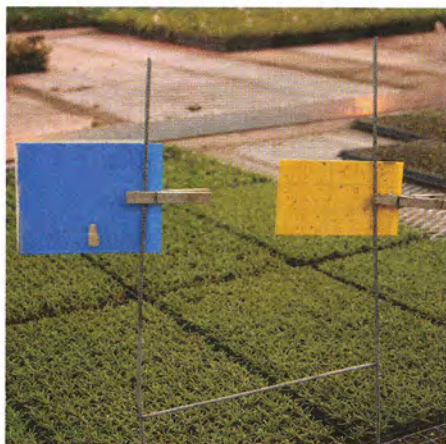
1. Establishment of action, or economic, thresholds aimed to control, but not to completely eradicate, pest populations.
2. Regular monitoring, scouting and record keeping to accurately identify and quantify pest populations over time.
3. Development of cultural practices to maintain healthy plants without excess water, fertilizer and pesticide inputs.
4. Utilization of mechanical barriers or methods that physically prevent or remove insects from a greenhouse or nursery.
5. Use of biological control agents to manage insect populations.
6. Application of conventional synthetic insecticides responsibly, by only treating when necessary and rotating modes of action to limit potential for targeted pests to develop resistance.

Why is monitoring so important?

A limitation of many biological control agents is that they cannot quickly control high insect pest populations. Regular monitoring and scouting early in a crop cycle is important to identify the presence of pests.

Studying previous pest monitoring and control records will identify what pests were present, at what time of year, what control measure(s) were used, and effectiveness of control measures in controlling the pest. With this knowledge, growers can develop biologically based IPM programs that minimize the potential of pests reaching economic thresholds.

If pests do reach thresholds, conventional insecticides that are compatible with biological control agents can quickly reduce pest populations to manageable levels. Economic thresholds vary depending on grower preference, crop species and stage, crop susceptibility and growing conditions.



Sticky cards are a great way to monitor infestation levels of flying insect pests.

Practice makes perfect— or nearly so

Several key practices are recommended for pest monitoring.

- Schedule time for monitoring and scouting. Scouting and monitoring are essential to a successful IPM program. Scouting should take place once or twice a week throughout the entire production season—no exceptions.

- Monitor early. Begin monitoring as soon as new plants and cuttings arrive to help identify pests before the populations rise. Quarantine incoming plant material in order to prevent introduction of pests to other areas of the facility. Continue to monitor pest populations throughout the season.

- Determine infestation levels. Use sticky card counts, potato slices, beating trays and other pest monitoring tools to determine population density and subsequent control measures.

Sticky cards are an inexpensive and effective tool for monitoring flying pests. They help determine when and where the insect appears.

Potato slices attract larval stages of many pests, especially fungus gnat larvae. Place potato slices on the soil surface and check every few days.

Randomly pick up plants while monitoring to look for flightless insects. Study the tops and undersides of leaves and flowers for signs or symptoms of insects.

Some insects will fall from a plant when disturbed. Place a white piece of paper or cloth and tap or gently shake a plant to dislodge insects. Quickly capture, identify and record the dislodged insects.

Look for signs of damage from insect pests. Some insects have chewing

mouthparts, while others have piercing-sucking mouth parts, and insects usually leave characteristic and diagnostic signs.

- Keep detailed records. Record the species and number of pests found while monitoring. Create a map or outline of areas that had higher infestations levels. Keeping these detailed records helps determine when certain insects become a problem and when to implement control measures.

- Treat preventively. Because biological control agents work best with low pest populations, it is important to prevent high infestations from occurring. Make regular applications of beneficial nematodes and other pest control methods that you choose. Pest-proof netting or other physical barriers often are the first line of defense.

When feasible, plants should be selected with resistance to common pests. Likewise, banker or buffer plants also can be effective.

Regular pest monitoring is essential to develop effective IPM programs, and to help guide management and application decisions. Being proactive in controlling insect pests with a combination of biological and chemical control agents will help keep your plants healthy and your customers happy.

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Beneficial nematodes have no REI, which means the area is safe to enter immediately after applications. levels of flying insect pests.



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