

# What You Need To Know To Maintain An Effective IPM Program In The Greenhouse

**Growing Produce Magazine** Posted By: [Rosemary Gordon](#) | January 28, 2015

Karin Tifft, who works for Greenhouse Vegetable Consultants

in Tucson, AZ, has had an interest in controlled environ production since she took greenhouse expert Merle Jensen's course at the University of Arizona (UA) back in the 1990s. She spent time rearing insects for the University of Arizona as an employee and previously worked for tomato greenhouse giant Eurofresh Farms. She has a Master's degree in entomology from the University of Florida and a Bachelor's of Science in plant sciences from the University of Arizona.



Greenhouse expert Karin Tifft says to scout weekly to avoid outbreaks.

Tifft will present pointers on Integrated Pest Management (IPM) in the greenhouse at University of Arizona's spring 2015 Greenhouse Crop Production & Engineering Design Short Course, which will be held March 22 to 27 at the Controlled Environment Agriculture Center (CEAC) in Tucson, AZ. ([Click here](#) for more details on the short course.)

American Vegetable Grower caught up with Tifft to find out what growers need to remember when scouting, the role biocontrols play in greenhouse production, and more.

**1. Scouting is a main component of an IPM program. What are some of the most important things to remember when scouting?**

**Tift:** Do it weekly. If you wait until you happen upon an infestation, it will be hard to get it under control quickly.

Also, you have to spend time in the crop and know what is normal. Most disease outbreaks start as subtle changes in plant growth or color. With regular crop walks, you'll get familiar with how the different varieties look and grow, so that you can spot those initial plants that are not growing right and make thoughtful decisions, not reactive ones.

I have seen growers be reactive and use a chemical that is too strong for a particular situation, and they end up creating a problem for native natural enemies. Using a specific chemical may keep the pest, such as whiteflies, out for a while, but they eventually come back in.

**2. What do you suggest growers do to develop a consistent scouting program?**

**Tift:** Map out your greenhouse and be sure to walk representative rows of each crop and variety. I like to use sticky cards which I check weekly, and then study the plant under the card. I record this data weekly. Then I enter the data on an overview sheet so I can see the patterns week by week.

You want to have the “snap shot” so you can think about spot sprays or localized introduction of natural enemies. Then you also want to see trends over time so that next year you can plan on when you need to increase regular introductions of natural enemies, bees, or other changes to be proactive.

**3. What types of cultural practices should be used to prevent or reduce problems?**

**Tift:** Keep it clean and water appropriately. Keep doors closed. Cleaning is one of those things that in the rush of managing the day to day tasks, it often falls through the cracks. But keeping it clean is so much more than just aesthetics.

Allowing algae to build up creates opportunities for problems with shore flies and fungus gnats. Disease pressure also tends to increase with standing water or dripping water. When the doors are left open, microclimates develop, which often create ideal conditions for disease and allow for troublesome animals to enter.

The use of sticky cards for trapping whitefly and psyllids has proven to be a very effective cultural practice. One of my clients said they were worth their weight in gold because of whitefly control.

**4. Why is it so important to not only be able to identify pests but also know their life stages?**

Tift: Insects often look quite different in various stages of development. So if you don't know the stages you could misidentify, and then allow a pest to develop or vice-versa and knock down a good guy. Also, many pesticides, IGRs (insect growth regulators) specifically, only work on certain stages of the insect's life cycle. You need to watch the timing in order to use the product effectively.

**5. What role do biocontrols play in an IPM program and can they be used in tandem with chemical options?**

**Tift:** Absolutely they can be used in tandem with chemical options! Using trichogramma (Root Shield, BioWorks) for healthy roots is not affected by foliar sprays for insects. But even looking at just insect pest management, you can use IGRs at the correct time while natural enemies such as Encarsia are used.

**6. What role does a healthy plant play in mitigating pest problems, and what do you recommend growers do to produce plants that can withstand pest problems?**

**Tift:** Particularly with disease management, crop health plays a big role. However, stressed plants are also magnets for whiteflies and other pests. Keeping the growing conditions ideal for the crop is the main thing for plant health. Invest in sufficient heating and cooling. Make sure your irrigation can provide what your crop needs. Walk the crop and measure plant growth weekly.

**7. We all know that sanitation is critical, especially weed management. What should growers do to reduce weed issues?**

**Tift:** Herbicides cannot be used in the greenhouse, and any sprayer used to apply pesticides should never be used on a crop. This is because plants can have a phytotoxic reaction below the parts per trillion. No matter how many times you rinse out a spray tank, you won't eliminate the herbicide particles. The plant is more sensitive than any equipment we have if you have any drifting near it. A lot of things that are intuitive to growers are not to the people with boots on the ground.

Herbicide sprayers must remain herbicide-only sprayers. I have seen some growers apply concentrated Epsom salts to burn clover weeds in the greenhouse. This way if it drifts on to the tomato stem, it's not a big deal.

Another grower I work with, who is growing in soil in the greenhouse, flames the soil beds in between crops.

The grower with the best weed management, however, is a hydroponic grower who had employees assigned to specific areas for weeding each Friday. By having workers assigned to areas, there was accountability. Once the work was a regular, planned part of each employee's tasks, it was done quickly and accurately.

**8. What are a couple of highlights from your IPM presentation slated for the University of Arizona's 2015 Greenhouse Crop Production & Engineering Design Short Course that will be held in Arizona March 22-27?**

**Tiff:** I help growers with the practical information of how to read pesticide labels. It may not sound exciting, so people don't think about it, but (for example) pesticides allowed on cucumbers are not necessarily allowed on tomatoes, and vice versa, etc. Pesticides allowed on tomatoes may be limited to certain size of fruit. There are preharvest intervals to work with, etc. The labels can be 20 pages and daunting; I make it easy to understand.

I also help growers understand how to design their IPM plan based on their goals or marketing strategy. For example, what is organic versus pesticide (residue) free? I also provide annually updated information on disinfectants and cleaners through a USDA-funded project I am working on with the Ohio State University.