



Monitor traps regularly to stay on top of pest populations before they become a problem.

# Scouting: The tip of the IPM spear

By Matt Smith

**Editor's note:** This article grants one continuing education unit (CEU) in the Core category toward the renewal of a Florida Department of Agriculture and Consumer Services restricted-use pesticide license when the accompanying test is submitted and approved.

**W**hy would you scout? Despite what we were all promised by Tomorrowland and the World's Fairs of yore, technology has yet to give us more time for leisure or add more hours to the day. Time is a resource that seems more and more limited to growers. It may seem more important to focus on problems you know you have than to divert your attention elsewhere, especially if elsewhere looks healthy from a distance.

While it would be nice to be able to trust that Plot A or Row B3 is doing just fine, the reality is that problems in the field start small and, depending on the source of the problem, can spread rapidly. Early detection and accurate pest identification are key to preventing

a small, easily treatable problem from growing into a massive, expensive undertaking. Early detection only happens when you're looking in an area that wasn't showing any obvious problems. A scheduled scouting program is a must-have tool for your farm calendar.

## TOOLS OF THE TRADE

If you're just taking a nice walk through the grove, giving a casual glance left and right, that's called a stroll and it's very well and good for relieving stress during tax season. Throw in the right mindset and the right tools? Now you're scouting. Scouting requires both the frame of mind to be attentive to changes in the landscape and the right equipment to inspect problems, collect samples

and record helpful information. Some equipment examples are:

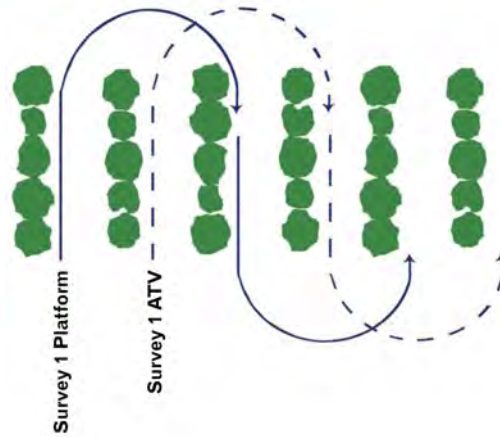
- Hand lens with 10-20X magnification – to examine leaf spots, insects, etc.
- Digital camera – Let's be honest. This is probably your phone, and that's OK! Take closeup photos of the problem as well as photos of the surrounding area. You can submit photos along with a sample to a lab. Be sure to give whoever is analyzing the sample enough photos so they have a good understanding of how the whole plant looks as well as the plants surrounding it.
- Clipboard and pen or pencil – for recording data. If you have a smart phone, a note-writing application also works well for this purpose.
- White paper – not just for writing! Pests can be difficult to spot on the plant. Placing white paper under a branch or flowers and giving a good shake or tap can dislodge those pests. When they land on the paper, they're much easier to see.
- Sweep net – for collecting flying insects from foliage
- Hand trowel – Leaves and flowers aren't the only places that can show symptoms of a problem. A careful examination of the roots is always a good idea, especially when plants show signs of dieback or stunting. Save your fingernails and have a trowel handy.
- Soil probe – useful for taking soil core samples, especially when nematodes are suspected. The presence of nematodes at damaging levels can only be confirmed by a trained eye using a microscope.
- Soil pH test kit – for when you suspect nutrient deficiencies are the source of your problem. However, a lack of fertilizer may not be the problem. At a certain pH, many nutrients become unavailable to your plants. Simple pH test kits are inexpensive and, while not as accurate as a lab test, provide a solid foundation for determining the source of a problem.
- Pocketknife or pruning shears – for taking samples
- Rubbing alcohol, bleach solution

or other sanitizing solution – for sanitizing your knife or pruning shears between cuts, especially if sampling from multiple plants. Remember, you're sampling precisely because you think there's a problem. Sanitizing your tools reduces the chance of spreading the problem around the farm.

- Plastic bags and markers – for storing samples and labeling them

## SETTING A SCHEDULE

Scouting takes time. So, the first thing you're going to want to do is schedule scouting over a period of time. A small farm may only need to be scouted once a week depending on the pest pressure of the season, whereas a large farm may require splitting the job into several pieces. Scout a bit of a large farm every day, ensuring that the whole field gets a good once-over each week. In large farms it may be impractical to closely inspect every single plant, but you can get around this by breaking up the farm into several sections and closely inspecting a sample of plants from each section.



A diagram depicts how to use two methods to thoroughly scout a grove. Alternating rows are scouted either from a platform or ATV. The method used to scout each row will alternate during each subsequent scouting to ensure trees are viewed from several angles.

For tree crops like citrus, try checking the canopy and understory on alternating rows and repeating the process the next day so that by the end of the week the entire tree has been inspected. Scheduling scouting incorporates it into your weekly routine, prioritizes the activity and helps ensure that you don't skip it for another activity.

## WHAT TO WATCH FOR

When you're out in the field, you're looking for a few things. Obviously,

you're looking for things that are out of the ordinary like leaf spots, stunting, leaf deformations and unusual colors, but you're also looking for patterns. Patterns can be useful in determining if a problem is caused by a pest like a fungus or an insect, or if the problem is the result of human error.

An example of human error would be something like herbicide damage. One of the biggest clues that a problem is human in origin is the presence of straight lines. Nature hates straight lines. Biological threats occur more in a

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sort of blob shape that starts small and slowly expands outward as the pathogen or insect spreads.

### PROPER PEST IDENTIFICATION

So you've found a problem in the field. It's not caused by human error, and you want to take care of it. First, congratulations on catching the problem early! But what problem exactly did you catch? The philosophy of integrated pest management (IPM) came about in reaction to the old "spray and pray" methods. In keeping with IPM methods, proper identification of pests is necessary. Proper identification is important for several reasons, but the ones you will probably be most concerned with are environmental sustainability and economic factors.

Pesticides work by exploiting the weaknesses of their targets, and not all targets in a grove share the same weaknesses. Simply applying a fungicide because you notice leaf spots may not suppress the problem if the cause is bacterial. Applying an insecticide because you see holes in the leaves is a waste of money if, not understanding your enemy, you applied a pesticide that is effective at the wrong growth stage.

Proper pest identification is rule number one in IPM. Using the right tools can help. First, closely inspect the plant. Use a magnifying glass to look for insects or spores around leaf spots. Use a digital camera to take pictures of the damage. If the plant is stunted or is showing signs of nutrient deficiency even though you've been fertilizing, use a hand trowel to check the roots. Use a pocketknife or shears to take samples and collect them in labeled bags.

Take notes on the date, the extent of the problem, the variety of plant, the location and the weather. Go back to pesticide application records and note what pesticides have been applied within the past 45 days. You may not be able to identify the source of an issue in the field yourself, but the samples and information you collect can be critical for specialists in a plant pathology lab to provide a positive identification.

### PREPARING FOR THE FUTURE

By keeping good records and understanding what issues affect your

farm, you can predict when problems will arise in the future and take proactive steps to reduce damage in years to come. If during scouting you found a certain insect causing damage, you can use the knowledge gained from studying that insect's life cycle to predict when it will show up again and know to scout for it.

Insects, particularly flying insects, present a particularly challenging issue. Their enhanced mobility makes them difficult to spot on an affected plant. Setting up traps will make scouting for these pests easier.

### IN CONCLUSION

Scouting is a foundational component of a properly designed integrated pest management strategy. When applied properly, it allows a grower to catch problems early, potentially saving money and reducing the amount of pesticides that need to be deployed in the environment. Sometimes, the best thing to do really is to stop and smell the flowers. Just make sure you look for thrips while you're at it. 🍊

**Sources:** Applying Pesticides Correctly by F. Fishel; Scouting for Citrus Greening by J. Burrow, S. Futch and T. Spann; Integrated Pest Management Scouting in Field Crops (E3294) by J. DeDecker; and How to Scout by C. White

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## ‘Scouting: The tip of the IPM spear’ test

To receive one Core continuing education unit (CEU), read “Scouting: The tip of the IPM spear” in this issue of Citrus Industry magazine. Answer the 20 questions on the magazine’s website ([www.CitrusIndustry.net](http://www.CitrusIndustry.net)) or mail the answers and application information to the address at the end of the article. You must answer 70 percent of the questions correctly to receive one Core CEU. The article and test set are valid for up to one year from the publication date. After one year, this test will no longer grant a CEU.

True or False:

- |   |     |
|---|-----|
| 1. Scouting and a leisurely stroll through the farm are basically the same thing.   | T F |
| 2. A scouting hand lens must be at least 100x magnification.  | T F |
| 3. White paper is useful in making pests easier to see.   | T F |
| 4. If a plant has leaf spots, it isn’t necessary to check the roots.  | T F |
| 5. Nutrient deficiency can be a result of improper pH.  | T F |
| 6. Nematodes can be seen with the naked eye.  | T F |
| 7. Traps are an effective way to identify flying pests.   | T F |
| 8. Scouting frequency depends on the size of the farm.  | T F |
| 9. One of the biggest clues that a problem is human in origin is the presence of straight lines.  | T F |
| 10. The first rule of integrated pest management is proper pest identification.   | T F |
| 11. When submitting a sample to a plant clinic, you need to have all pesticide records for the past 90 days.                                      | T F |
| 12. With tree crops, it’s a good idea to break up scouting of the canopy and understory into different days.                                      | T F |
| 13. To sanitize tools, soap and water is sufficient.  | T F |
| 14. The keys to preventing small problems from growing into massive, expensive undertakings are early detection and accurate pest identification. | T F |
| 15. Even on large farms, it is necessary to closely scout every single plant.   | T F |
| 16. It is impossible to predict problems that arise in the field.   | T F |
| 17. When taking photos of an injured plant, it is important to take several photos of the plant as well as the surrounding area.                  | T F |
| 18. Proper pest identification is important for both environmental and economic reasons.  | T F |
| 19. Scouting is important but something that can be put off if you get too busy.  | T F |
| 20. Sanitizing your tools reduces the chance of spreading diseases.   | T F |

**Please circle the number below to rate this article and test:**

<b>Not very useful</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>Very useful</b>
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### Pesticide Applicator CEU Form

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