Be a Plant Detective: Solve Plant Problems

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- **Identify the host**: Sounds simple, but make a mistake here and you’ll go down the wrong path. Plants have specific, key insect pests and diseases. Identify the plant correctly and you are closer to identifying the problem.

- **Look for signs and symptoms of disease**: Although, these are used interchangeably by novices, a plant detective knows that a sign of disease denotes that the pathogen is visible to the naked eye (example: white, powdery fungal growth > powdery mildew). A plant detective also knows that a symptom denotes damage to the plant (example: leaf spot). Signs and symptoms are very helpful clues to identifying plant problems.

- **Living (biotic) or non-living (abiotic) causes of problems**: Biotic pathogens include: fungi (the most prevalent), bacteria, viruses, nematodes; abiotic causes of plant problems include: moisture (excessive or drought), temperature (extremes of hot or cold), pesticide injury, soil pH extremes, nutrient deficiencies, etc.

- **Define normal**: What is normal? Normal is conforming to a standard; usual, typical or expected. A normal plant would be a healthy plant. Diseased plants fall outside this standard in the way they look. When examining a plant with signs or symptoms of disease, it’s important to visualize a normal plant of that species or cultivar. How do they differ?

- **It pays to compare**: At a nursery or garden center I like to look at plants side-by-side to compare symptomatic plants with those that are healthy. How do they differ? Is one smaller, have irregularly shaped leaves or abnormal variegation? A healthy plant gives you a standard to compare to a plant showing odd symptoms.

- **Document the damage**: Use a digital camera or phone to capture the damage, symptoms, or signs associated with an unhealthy plant. Take four or five images that “tell the story”. Suitable images would include: a comparison image of a healthy and unhealthy plant side by side; an image of the whole plant; an image of the roots, stem and leaves; a close up image of a leaf with spots, mildew or rust. These images can be forwarded to your Extension agent for a diagnosis or to be posted on the Distance Diagnostic System.

- **Collect a specimen**: If you decide you need an expert opinion to aid in plant problem diagnosis, collect a specimen. For most herbaceous plants, pull the whole plant; for
woody plants, collect the portion of the plant showing symptoms. Remember, a digital image of the problem can be very helpful to give a complete picture of the problem.

- **Helpful Resources.** First, start at your county Extension office. Extension agents see many plant problems throughout the year. Second, follow the Soil, Plant and Pest Center Facebook page. If you follow this page for a year, you will learn to recognize many diseases and insects that cause plant problems. Third, the webpage: www.ipmimages.org is an online library of images of various plant problems. This searchable web page is very helpful. Browse to learn more about identifying and solving plant problems. Be a plant detective!

- **Apps for your smart phone or tablet.** The Southern Nursery IPM (Integrated Pest Management) Group composed of horticulturalists, plant pathologists, entomologists and weed scientists from several land grant universities in the Southeast has released two apps for smart phones and tablets: IPM PRO and IPM LITE. IPM PRO is geared more for nursery and landscape professionals. IPM LITE is geared more for the home gardener. These apps feature: photos of insects and diseases, hosts, symptoms, life cycles, monitoring, management strategies and alerts when pests/diseases are active based on hardiness zone. IPM PRO also features pesticides labeled for each pest/disease; IPM LITE does not. Each is available through the APP Store on your mobile device. The Southern Nursery IPM Group has also released two books. The first book covers integrated pest management of trees; the second is the first of a three volume set on pests and diseases of shrubs. Information about the apps and books is available at: [http://wiki.bugwood.org/SNIPM](http://wiki.bugwood.org/SNIPM)

- **More apps for your mobile device:** Purdue University has a very nice series of apps for mobile devices include: Purdue Tree Doctor, Purdue Perennial Flower Doctor, Purdue Annual Flower Doctor and the Purdue Shrub Doctor. Each features images and information of diseases and insects that attack ornamental plants. For more information: [https://www.purdueplantdoctor.com/](https://www.purdueplantdoctor.com/)