Diagnosing Plant Diseases

By Kathleen Olson

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A step-by-step approach is best when determining what ails your plants.

Did you know that more than 50,000 plant diseases exist in the United States? No wonder it's a challenge to identify the illness affecting your favorite plant! But with a sleuthing attitude and a systematic approach, you can do much better than telling that camellia, rose, or tomato plant to "take two aspirin and call me in the morning." This may take a bit of time, so prepare to cultivate your inner Sherlock. Get yourself a pen and paper so you can make notes on what you find. Successful plant disease detectives collect lots of clues and consult a variety of resources. Diseases are caused by living organisms, such as bacteria, fungi or viruses, which cause plants to develop and function abnormally. But how do you tell whether your plant's yellow leaves, black spots or wilting is disease induced and not caused by an insect or even something as simple and natural as fall leaf-drop?

Step One: Identify your plant

Use your favorite gardening reference books to correctly identify your plant. Sunset's *Western Garden Book* is a good one for our region. Take a look at pictures of a healthy specimen during different seasons and stages of growth. Review the growing conditions your plant needs to thrive. Have you planted a shade plant in bright sunlight or a moisture-lover in dry sand? These environmental problems can make a plant look sick, but they aren't diseases and can be corrected by simply moving the plant.

Step Two: Build a case history

Before you take an in-depth look at your ailing plant, step back and look around. How healthy are its neighbors? Does the problem occur on a single plant or several? Is only one species of plant affected, or are several species suffering? Diseases are plant-specific so this can be an important clue. Drought or accidental herbicide exposure, on the other hand, would affect an entire area. Now look at the pattern of damage. Is it random or regular? Are there blotchy areas of dead leaves, or is there a half-inch of dead tissue on every tip? Your clue here: diseases tend to be more random. Regular damage is more typical of a single environmental event, such as a late hard frost. Historical clues include what has happened over time. Think back: How long has this been going on? Did the damage happen overnight or has the plant become ill gradually? The course of illness may indicate a certain disease.

Step Three: Thoroughly examine your ailing plant

I like to start this step by referring back to my plant reference guides and reading about the problems that commonly affect this plant. Since diseases are plant-specific, this narrows the

field of likely illnesses. Now you can check your plant for clues that match up with these diseases. Examine the entire plant, including some roots. Root damage can show up as leaf symptoms. Some experts advise focusing your examination downward from where you see the problem. Make notes on exactly what you see in the way of symptoms: oddly colored tissues, shrunken plant parts, swelling or galls, whatever you notice. Now consider for a moment some key differences between the symptoms, above, that you see with disease damage, versus those associated with insect damage. There's still a possibility that what you have is caused by a living organism that chews, rasps, sucks, bores holes or ties leaves up in rolls to make housing. If you see those, start suspecting insect damage. *Rodale's Complete Guide to Organic Gardening* has a pictorial key that helps you sort through various symptoms and their likely causes, whether disease, insect or environment.

Above: Here is a good example of black spot on a rose. **Right:** This rhododendron is obviously ailing. A series of investigative steps will help you determine if the cause of the malady is a disease, or an environmental or insect-caused issue. **Photos by Kathleen Olson**.

Turn over a leaf and look for some more clues. I like to think like a CSI detective at this point. Think of the symptoms, such as odd-colored leaves and dead tissue, as indirect evidence. You can see what the culprit did, but you haven't actually seen him. With the leaf turned over, get out your handy Sherlock magnifying glass (yes, really) and become an eye witness. You're looking for a sign only the culprit could leave, or to see it in person. If you saw any of the insect symptoms like chewed leaves or boreholes, see if you can spot an insect or its eggs. Looking for disease signs is a little harder, but two common signs are the tiny spores formed by fungi and the oozing slime of bacteria.

Step Four: Confirm your diagnosis—or seek help from the experts

About now you probably have a fairly good idea regarding what you're dealing with. But if you still aren't sure, don't despair. Fortunately there are experts who can help. Whether you are confirming your plant's disease or feeling confused, it is now time for you to access my favorite online site for diagnosing plant disease. Oregon State University's *Online Guide to Plant Disease* is at http://plant-disease.ippc.orst.edu/intro.cfm . On this user-friendly site you can type

in the name of your plant, click on "search" and see a pictorial list of likely diseases. Click on the disease that looks like yours and you will get a detailed review of the disease, its causes and your treatment options. WSU's *Hortsense* online site is another excellent resource: http://pep.wsu.edu/hortsense/ . I find this site particularly valuable for its "use chemicals last" treatment recommendations.

Still don't see anything that looks like your problem? Real-life experts are waiting to help you: Bring a sample of your plant, and details of your clues, to a Washington State University Master Gardener Plant Clinic, in Anacortes, Burlington, or Mount Vernon, and the master gardeners will diagnose the problem and recommend treatment options just for you. For more information on the Plant Clinics, go to http://skagit.wsu.edu/MG/clinics.htm or call 360.428.4270.

Plant disease resources

Want to increase your knowledge of plant diseases? Clip and save this handy list of helpful references:

- Plant Identification: *Sunset Western Garden Book*
- Pictorial key to symptoms and causes: *Rodale's Complete Guide to Organic Gardening*
- User-friendly site for plant-specific disease identification: Oregon State University's *Online Guide to Plant Disease*, at http://plant-disease.ippc.orst.edu/intro.cfm
- Treatment options: WSU's *Hortsense*: http://pep.wsu.edu/hortsense/
- When you're stumped, visit a free WSU Master Gardener Plant Clinic: http://skagit.wsu.edu/MG/clinics.htm or call 360.428.4270.

Plant Clinics: Free and Easy

Looking for a place to solve your gardening problems for free? Here is all the information you need to know, in a clip-and-save format. Enjoy.

Anacortes Plant Clinic:
Hours: Thursdays from 10:00 a.m. to 12:00 noon, April through September
Location: Anacortes Senior Center, 1701 – 22nd Street, Anacortes

Burlington Plant Clinic:
Hours: Wednesdays from 10:00 a.m. to 2:00 p.m., April through October
Location: WSU Skagit County Extension**,** 11768 Westar Lane, Suite A, Burlington
Directions: I-5 to Exit 230 (Hwy 20). West on Hwy 20 to Garrett Rd. Right onto Garrett. Left onto Peterson Rd. Follow Peterson into the Port of Skagit County. Turn right onto Westar. WSU Skagit County Extension is on the left just before the bend in the road.
More info: Call 428.4270. Dial "0" on clinic days; dial "228" to leave a message.

Mount Vernon Saturday Clinic:
Hours: 9:00 a.m. to 11:00 a.m., August 8 & 22, September 5 & 19
New Location: Mount Vernon Farmer's Market

CLINIC CANCELLATION: The clinics at WSU NWREC (Memorial Hwy) on the last Saturday of the month have been **cancelled** for July 25th, August 29th, and September 26th