

## Five Considerations for Evaluating Plant Problems

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Determining what is causing plant problems is sometimes easy- but more frequently, a bit of detective work is in order. If the problem is insect damage and the insect is present in the sample, the detective's work is easy. If only the damage is present, the detective may be able to determine the culprit from previous experience, or may need to do some research.

When research comes into play, it's often minute details that enable the detective to crack the case. Did the leaves turn yellow, then brown, then fall off the plant over the course of several weeks, or did they dry and curl up overnight, and persist on the plant? Is the damage all on one side of a large tree, or is it distributed throughout the entire canopy? The more of these types of questions that can be answered, the better chance that the pest detective will succeed in helping the gardener solve their problem. Observant gardeners will not only be able to answer more of the detective's questions- they'll also catch garden problems faster, which usually enables them use more environmentally friendly control measures with success. Following are some areas of observation that will help lead to better diagnosis in the event of a plant problem. For clients of the Master Gardener plant clinic, these types of observations greatly increase the likelihood of reaching a correct diagnosis.

**Weather.** This writer's grandmother, a strong believer in garden journals, noted weather and temperature every day. One spring, after the trees had leafed out, there was a sudden and hard freeze. Her black walnut never bore nuts again: she always attributed the lack of fruit to that late season freeze. Over time, she was able to determine that the first week of January was the usually the coldest each winter- leading to increased frost protection that week compared to others (an example from an area with a longer growing season). Weather events can have significant impact on plants and insects, but the damage doesn't always show up right away, blurring the connection between the weather and the damage. Some plant diseases will be prevalent in cool, wets springs: a different palette of pathogens become dominant when weather is warm and wet.

**Progression of symptoms.** What happened first? How long between the first sign something was wrong, and plant death? Did the problem start at one part of the garden and spread, or hit all the plants at once? How long has the problem been going on?

**Distribution of symptoms.** Along with progression, distribution of symptoms help distinguish one problem from another. Consider downy and powdery mildew: downy mildew is associated with angular spots that are limited by leaf veins: powdery has circular spots that can cross leaf veins. Downy mildew occurs all over the plant, while powdery is usually restricted to the undersides of leaves. With downy mildew, leaves may yellow before spots are evident: with powdery mildew, leaves don't turn yellow until the spots have significantly progressed.

**Other signs.** Is there frass (insect feces) or sawdust present? Are nearby plants looking well? In a large tree, are there signs high in the canopy that can be seen, but not up close? Has the soil been tested? Peripheral information can also be helpful.

**Previous treatment actions.** Specifically, what products have already been applied to this problem in an attempt to address it? “That Ortho stuff” is not adequate: Ortho makes thousands of product formulations. Precise information about a pesticide treatment includes, at a minimum, the active ingredient, the dose, and the method of application. What was the result of the treatment? Did anything recently change in how you watered or cared for the plant? Some pesticide applications are notable for causing “mite flare”: mite populations increased because mite’s natural enemies were destroyed along with the pest species during pesticide application.

All of these seemingly small observations, grouped together, create a web of information that enables the pest detective to more quickly home down on the problem and start searching for solutions. In a Plant Clinic run by volunteers, these details are especially helpful, as most volunteers won’t have the same range of experience to draw from as a career horticulturist. In Klamath County, recent Plant Clinic trainings are focused on learning how to ask the right questions to reveal the most relevant tidbits of information. Previous users of the plant clinic might notice that Master Gardener volunteers are asking more questions than before – this is by design, so that we can more quickly get to the “root” of the problem! Such specific questions are reflective of their understanding that it’s the small details that differentiate one pest problem from another.