

# Diagnosing plant problems



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**Q**uestion: Help! My shrubs are yellowing. I think they get enough water, but they are looking worse by the day. How do I figure out what could be wrong?

**A**nswer: Diagnosing plant problems can present a real challenge for both beginning and experienced gardeners. Plant health problems generally result from plant pathogens causing diseases, insects damaging the plant, or environmental factors.

Biotic plant problems are caused by living organisms, such as fungi, bacteria, viruses, nematodes, insects, mites, and animals. Since biotic diseases are caused by pathogens and can move within and spread between plants, they are often referred to as infectious diseases.

Plant pathogens are very similar to those that cause disease in humans and animals. Pathogens can infect all types of plant tissues including leaves, shoots, stems, crowns, roots, tubers, fruit, seeds and vascular tissue. The results of these infections can be a wide variety of disease types ranging from root rots and rusts to cankers, blights and wilts.

While most plants are immune to most pathogens, all are susceptible to attack by at least one pathogen.

A methodical approach to diagnosing your plant's problem might begin by deductively eliminating insect damage as a possible cause. Many insects, such as caterpillars and beetles, are fairly large and easy to spot, as is the damage they cause. Insect wounds are often conspicuous – holes in leaves or fruit, leaves with a ragged appearance from chewing, deformed leaves or sooty mold.

An abiotic plant problem is not caused by any disease organisms or insects. "Abiotic" literally means without life. Abiotic plant disorders are



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Pests are just one biotic plant problem. Damage seen here is caused by a corn rootworm beetle.

caused by conditions external to the plant, not living agents, usually environmental factors that affect the plants adversely. Environmental problems are more likely to affect most of the plants in an area uniformly.

Disease and insect problems tend to occur unevenly and in clumps, often targeting certain plants. Environmental factors include temperature, moisture, soil pH, air quality, light and nutrition.

Abiotic disorders may also be caused by human activities such as pesticide and fertilizer applications. Drought, stress, sun scald, freeze and wind injury, nutrient deficiency, or improper cultural practices such as overwatering or planting conditions are common abiotic disorders.

Wilting, yellowing, the development of smaller than normal leaves, slowing of growth, branch death, premature autumn leaf coloration, and heavier than normal seed production are some of the symptoms characteristic of abiotic problems.

Plants require sufficient moisture to grow but not so much that the roots drown. Roots die from a lack of oxygen. Soil compaction by heavy equipment or foot traffic reduces the pore space in the soil. Drought stress can predispose roots to root rots, cankers and branch diebacks. Soil pH plays a critical role in determining whether a given element is available to the plant – too high or too low may prove toxic.

The health of your plants is affected by both living and non-living conditions. If you are stumped, bring your plant questions, observations, and notes to the Plant Problem Detectives at the Master Gardener Plant Clinic where we will be glad to help you with a systematic approach to diagnosing your plant's problems.

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*Do you have a gardening question? Contact the Douglas County Master Gardeners via email at [douglasmg@oregonstate.edu](mailto:douglasmg@oregonstate.edu), by phone at 541-672-4461 or visit 1134 SE Douglas Ave., Roseburg.*



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Yellowing leaves are symptoms of an abiotic plant problem.