

KPOV – *The Point*
Gardening: Get Good at It
“Spots and Rots: What’s Wrong With My Plant?”
April 17, 2018

Gardening keeps us humble. Despite our best intentions, we’re often challenged when a plant fails to thrive. Though frustrating, figuring out why it’s struggling is a rewarding part of successful gardening.

If you think your plant is sick and not damaged, it’s essential to understand what botanists call the Disease Triangle. Diseases result from simultaneous interactions between three components. These are, first, a plant which is a susceptible host; second, environmental components that stress the plant and thus present favorable conditions to the disease; and third, a pathogen.

We have some control over the first two triangle components. We can select healthy, disease-resistant cultivars and plant them in the right place. Eager pathogens are more problematic. Some, like fungal spores drift in the air. Bacteria are borne by wind-driven rain and water splash; and others, like viruses, are spread by insects which are often difficult to detect and contain.

A first step in diagnosing plant problems is determining whether they’re caused by a disease, a pest, or by environmental conditions -- often of our own making. It’s estimated only 20 percent of plant problems are caused by biotic factors or *living* organisms. These include a long list of pathogens – fungi, bacteria and viruses - and pests – insects, mites, mammals and birds.

The remaining 80 percent are caused by abiotic or *non-living* factors. Less-than-ideal growing conditions top the list. Others include mechanical damage, such as soil compaction or trunk wounds; herbicide or pesticide damage; poor pruning practices; or winter desiccation.

You have to know your plant to figure out what’s going on. Is it getting the light, moisture and nutrients it needs to stay healthy and resist disease? As our own doctors tell us, prevention is always the best medicine.

You also need to know the plant's general characteristics – which diseases and pests it's vulnerable to but also how it grows, how its leaves age, what its flowers should look like. You don't want to mistake your plant's normal growth patterns for symptoms of disease.

If you've determined that environmental factors alone don't explain your plant's condition, focus on the symptoms and signs of diseases. Symptoms are the visible effects the disease has on the plant, such as leaf wilt or necrotic lesions. What you're seeing isn't the actual pathogen but the symptom it causes. Signs, on the other hand, are the physical evidence of the pathogen. For example, when you look at powdery mildew on a leaf, you're actually looking at the parasitic fungal disease organism itself.

After you've studied the symptoms and signs, a few key hints can distinguish between biotic and abiotic problems. Biotic or living culprits typically cause *random damage patterns*; in other words, there is damage on only parts of a plant or on just some of the plants in a group. Further, there typically there isn't a sharp line between healthy and affected tissues. Also, the *timeline* of decline is *gradual* rather than sudden.

The next challenge is to determine what type of living organism is causing the disease. Is it fungal, bacterial or viral? Are nematodes present? Are insects playing a role? We will address how to identify and treat some common pathogens in subsequent programs.

For more information on this or any other gardening topic, call the Master Gardeners at 541-548-6088 or go to our website www.gocomga.com and click on the KPOV tab on the orange bar. This has been Gardening: Get Good at It on KPOV, The Point.

Resources:

Chase, A. R. "10 Ways to Keep Your Garden Healthy." *Fine Gardening*.
<http://www.finegardening.com/article/10-ways-to-keep-your-garden-healthy> (March 2018).

Deardorff, David and Wadsworth, Kathryn. *What's Wrong With My Plant?* Portland, OR: Timber Press, 2009. Print.

Green, James L., Maloy, Otis., and Capizzi, Joseph. "Diagnosing Plant Problems." *Sustainable Gardening: The Oregon-Washington Master Gardening Handbook*. EM 8742. Reprinted October 2008.

Pscheidt, Jay W. "Plant Disease." *Sustainable Gardening: The Oregon-Washington Master Gardening Handbook*. EM 8742. Reprinted October 2008.