

KPOV – *The Point*  
Gardening: Get Good at It  
“Plant Diseases: Bacteria, Viruses and Nematodes”  
June 19, 2018

Today’s topic, plant diseases caused by bacteria, viruses and nematodes, is the third in a series of programs on plant disease. The first, “What’s Wrong With My Plant?”, provided a general overview; the second, “Is There a Fungus Among Us?”, addressed fungal pathogens which account for nearly 85 percent of plant disease.

While not as prevalent, bacteria, viruses and nematodes pack a powerful punch. Fortunately, many of the good gardening practices that help us prevent fungal diseases also keep bacterial infections, viruses and problematic nematodes at bay.

Bacteria are found in every environment on the planet and it’s estimated there are 40 million bacteria in a teaspoon of soil. Many help our gardens by decomposing waste, managing destructive insects and fungal diseases, and making nitrogen more available to plants. But there are about 200 bacterial plant pathogens that can cause serious and often fatal plant diseases, such as blights, cankers and rots. These pathogens can reproduce at an astounding rate, quickly overwhelming their hosts’ defenses. Some are soil-borne; others are transported by wind-driven rain or transmitted by insects. Since there are no cures for bacterial infections, preventive measures are extremely important.

There are more than 2,000 known viruses. While beneficial fungi and bacteria play several important roles in the garden, viruses are mostly bad actors. These pathogenic parasites cause disease in their unwilling hosts, entering through wounds or with help from insects and nematodes. Once transmitted, the infection spreads rapidly, moving from the original entry site to the phloem, thus rapidly impacting the entire plant. Viral infections mimic other conditions and are therefore difficult to diagnose. They are often confused with herbicide injury and nutrient and other environmental stress. As with bacterial infections, there is no cure. Examples of viral diseases include rose mosaic and spotted wilt.

Nematodes, worm-like microscopic creatures, are important players in the soil ecosystem. As they feed, they break down their food and release nutrients into the soil. A few hundred of the 20,000 known species cause plant disease. Their needle-like stylets pierce plant cells and inject

toxic saliva that causes plant tissue to swell, distort and eventually die. Disease symptoms include stunting, yellowish leaves, few flowers and fruits of poor quality.

Preventive measures are essential to minimize disease threats – whether fungal, bacterial, viral or nematode-caused. Start by choosing resistant cultivars and disease-free seeds, plants and bulbs. Manage your soil, making sure your plants are getting the nutrients they need. Water wisely. A mantra in the control of bacterial disease is “If it dries, it dies.” Whenever possible use irrigation systems that water the root zone, not the leaves and stems. And always let your soil dry out between waterings. Rotate your vegetable and annual plants and mix it up: use a variety of plants so a disease can’t as readily sweep through your garden. Be careful not to wound plant stems, trunks and roots and address undesirable insect populations promptly.

To control diseases once they’re evident, remove all diseased plant material and dispose of it correctly. Sanitize your garden tools: shovels, pruners and saws, and clean up garden debris at the end of the season.

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](http://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:

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.

Pataky, Nancy. “Viral Diseases of Plants.” University of Illinois Extension <http://hyq.ipm.illinois.edu/pastpest/200807b.html> (June 2018).

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