

Ask Dr. Vege – The Fungus Among Us

The Plant Pathology of Fungal, Bacterial and Viral Illnesses in the Garden

There are *libraries* of books on plant pathology, the study of plant diseases. Simplifying this topic for the everyday gardener (including myself) was not an easy task, but here goes!

- Infectious plant diseases are caused by pathogens better known as fungi, bacteria and viruses (there are many more).
- The infectious agent reproduces *in* or *on* the host and spreads to other host plants.
- About 85% of all plant issues are caused by a fungal organism.
- They are most often carried by aphids, thrips and leafhoppers.
- There are signs and symptoms of the disease.
 - A sign is actual physical evidence of the pathogen. The fruiting bodies of powdery mildew are one of the most recognizable signs.
 - A symptom is the plant's response to the infection. It presents as a change in color, shape or function of the plant itself. Leaf wilting, stunted growth, mosaic leaf patterns or deformed leaves are but a few commonly seen symptoms.

Let's take a closer look at a few of the most common garden irritants.

- Powdery Mildew
 - Caused by a fungus, powdery mildew presents as a white coating on the leaves, stems and flowers.
 - Preventative measures include: removal of infected leaves, and providing good drainage and air flow between plants. Avoiding overhead watering. Water in the early morning so plants have time to dry before evening.
 - Commercial fungicides are available (always follow label instructions) or spray plants with a homemade solution of one teaspoon baking soda in one quart of water during the morning hours.



Powdery Mildew



Downy Mildew

- Downy Mildew
 - Also caused by a fungus, downy mildew occurs most often during wet weather. It causes the upper sides of the leaves to become discolored while the undersides present with white or grey mold.
 - There is no cure. Remove and destroy infected foliage or entire plants if the infestation is great.
 - Prevention centers around planting resistant cultivars, correct plant spacing to allow ample air flow, watering in the morning and yearly crop rotation.
- Black Spot
 - Another fungal favorite, black spot doesn't kill plants but it does make them more susceptible to other problems.
 - Black spot presents as small black spots (go figure) on the foliage during cool, wet weather. The leaves yellow and then fall off.
 - Fungicides to prevent black spot are available (always follow label instructions).
 - Prevent infestations by mulching plants to keep foliage clean and dry. Water roots not foliage. Prevent future infestations by a thorough fall cleanup of leaf debris.



Black Spot



Mosaic Virus

- Mosaic Virus
 - There are many mosaic viruses but the two that we are most likely to see are the tomato mosaic virus that infects tomatoes (no kidding), peppers, apples, pears and cherries, and the tobacco mosaic virus that infects tomatoes, peppers, cucumbers, lettuces, beets and of course, tobacco.
 - Mosaic virus presents as mottled yellow leaves that can be curled or distorted. Plants can exhibit stunted growth and fruits may be malformed. Mosaic virus is more common in hot weather. As I research for this article on June 23, 2025, it is 95 degrees outside with a 'real feel' of 103.
 - There are no chemical controls. The virus can live in dry soil for years! Plant resistant varieties. Remove and destroy infected plants including their roots. Practice thorough fall cleanup of garden debris and crop rotation.
 - Because tobacco is a carrier, smokers should wash hands religiously and wear gloves when handling plants.

- Damping-Off Disease
 - Caused by several soil-borne fungi, it is most prevalent in wet humid weather.
 - Damping-off disease most often infects seedlings causing them to collapse and die.
 - There is no treatment available. Use new pots or disinfect used ones with a 10% bleach solution and use new clean potting mix when starting seeds. Avoid overcrowding to allow good air flow.



Damping-Off disease

- Fusarium Wilt
 - Another soil-borne fungal disease, fusarium wilt presents as wilted leaves and stunted growth along with stem and root rot. It most often affects beans, tomatoes, peas and asparagus and especially loves hot summer weather!
 - There are no chemical controls. Remove and destroy infected plants and their roots. Do not replant the same species in that location for *five* years.



Fusarium Wilt



Verticillium Wilt

- Verticillium Wilt
 - This fungal disease affects just about everything from trees and shrubs to vegetable plants and ornamentals.
 - Its pathogens can live in the soil for years and enter the plants through the root system, clogging the vascular system leading to sudden wilt and plant collapse.
 - There is no cure. Immaculate sanitation practices can reduce subsequent infestations. Prune diseased branches from trees and shrubs using a %10 bleach solution to clean pruning tools between cuts.

- Sooty Mold

- Sooty mold is a fungal growth that occurs on honeydew, the sticky stuff left by plant-sucking insects. It blocks photosynthesis killing the leaves and stunting the plant's growth.
- Sooty mold does not have a cure but rather the gardener must rid the plants of those little plant-suckers like aphids, leafhoppers and mealy bugs. Spray with insecticidal soap or use neem oil (always follow label instructions).



Sooty Mold



Snow Mold

- Snow mold

- Snow mold is another fungal disease that likes cold, moist conditions (especially under the snow).
- Symptoms present as light tan, thready molded areas of matted grass or matted ground cover.
- To treat rake up the matted areas to improve air flow, allowing new growth to occur. To prevent, mow the lawn or ground cover area shorter for the last mowing of fall. This prevents tall foliage from falling over, adding to the matting.

- Rust

- Yet another fungus among us, rust presents as reddish-orange areas on leaves and stems. The spots eventually turn black.
- Fungicides are available (always follow label instructions). Remove infected debris and destroy. Thorough fall cleanup is the best prevention to control the spores from overwintering.



Rust