Is It Powdery or Downy Mildew?

By Susan Camp

Two years ago, in the middle of the COVID-19 pandemic, Jim and I didn't have much to do, so we ordered a large number of perennial plug packs from a favorite supplier. In fact, we ordered so many plug packs that I didn't have room to plant a batch of Monarda didyma, commonly called bee balm, bergamot, or Oswego tea. Bees and butterflies flock to Monarda, and I didn't want it to go to waste, so I planted the plugs in a half whiskey barrel with a plan to move half of them the next year. I didn't of course, and by this spring, the barrel was packed full of the tall plants, too closely, it turns out, because some of the plants now have powdery mildew on the leaves.

Powdery mildew is a fungal disease, caused by one of several organisms, and can affect a wide variety of plants besides Monarda, including oak, dogwood, azalea, rhododendron, zinnia, dahlia, and even squash and cucumber, among others.

The most common and easily recognizable symptom of powdery mildew is a layer of pale gray fuzzy-looking material on the upper sides of the leaves. The powdery layer begins as separate circular spots that gradually coalesce on the lower leaves and move upward. The stems and flowers can also be affected. Leaf color changes, curling, and distortion sometimes occur.

As spring daytime temperatures begin to rise above 60°F, the fungal spores disperse into the air. Humidity is likely the most significant factor related to the development of powdery mildew on plants, and powdery mildew tends to appear when we have cool days and humid nights. As summer temperatures rise, powdery mildew becomes less of a problem. The fungus survives the winter on plant parts and debris, and the disease cycle begins again as springtime temperatures rise.

Powdery mildew is aesthetically unattractive, but it is unlikely to kill affected plants; however, this fungal disease can contribute to overall weakening and eventual demise.

Downy mildew is a more serious disease with a similar sounding name. Unlike powdery mildew, downy mildew is caused by a pathogen that is more like an alga than a fungus. Downy mildew causes a powdery growth of lavender, white, or brownish-gray spores on the undersides of leaves. Yellow chlorotic spots that may eventually turn brown appear on the upper leaves as the plant dies.

The pathogens that cause downy mildew require humidity above 85% and temperatures between 45°F and 75°F. Unlike powdery mildew, downy mildew spores reproduce in the presence of free moisture.

Similar cultural controls apply for both powdery and downy mildews. Select healthy plants or seeds that have documented genetic resistance to either disease. Many plant catalogs and labels will note resistance by the initials PM (powdery mildew) or DM (downy mildew).

Space plants according to label information in an area that will provide appropriate sunlight, soil, and drainage. Water thoroughly when you first plant them and during periods of dry weather. Avoid overhead watering, if possible, or water early in the morning.

Check your plants frequently for evidence of disease. Remove any affected leaves and stems. Dispose of fallen leaves by bagging, and do not add them to the compost bin. Remove suckers on dogwood, crape myrtle, or other suckering plants.

Diagnosis can be difficult, as both powdery and downy mildew can appear on the same plant at the same time. If you are unsure of the disease diagnosis, contact a Gloucester Master Gardener through the Gloucester Extension Office at (804) 693-2602. A Master Gardener can work with you to solve your plant problem, or recommend that you submit a specimen and the Plant Disease Diagnostic Form (Publication 450-097) to Virginia Tech.

Helpful articles include Clemson Cooperative Extension Home & Garden Information Center Factsheet 2049 “Powdery Mildew” and LSU Plant Disease Facts entry “Don’t Confuse Downy Mildew with Powdery Mildew!” Virginia Cooperative Extension (VCE) Publication 426-714 “Diagnosing Plant Problems” provides a general overview for diagnosis.

June 8, 2023