



Greenhouse Pest Message, April 11, 2024

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With all the rainy and overcast weather this spring, growers have been fighting [botrytis blight](#). Another foliar disease that can be confused with botrytis blight is downy mildew. Because of the abundant sporulation, sometimes growers confuse downy mildew with *Botrytis* gray mold. However, Botrytis sporulates on weakened or dying plant tissue whereas downy mildew emerges from stomata in areas of the leaf that are not yet dead and brown.

Some of the more common symptoms of **downy mildew infection** include yellow, red or brown patches on the leaves that may be bounded by leaf veins. At first glance, these angular lesions may be confused with bacterial leaf spots or the injury caused by foliar nematodes. However, with downy mildew infections, a coating of sporulation (either white, gray or violet) develops on the leaf undersides, especially during humid conditions. Diseased plants or their new growth may be stunted with systemic infections.

Most of the downy mildews are host specific and infect only closely related plants.

Herbaceous perennials such as aster, agastache, butterfly bush, coreopsis, creeping phlox, hardy geranium or cranesbill, foxglove, poppy, rudbeckia, geum, lamium, veronica and viola are susceptible to different downy mildews.

Spring ornamentals prone to infection include snapdragons, salvia, alyssum, pansy, primula, osteopermum, garden impatiens, and coleus.

Downy mildews develop during cool (50-75° F), wet conditions with high relative humidity above 85% at the leaf surface. Prolonged periods of leaf wetness favor downy mildew sporulation, spread and infection.

Monitoring

Look on underside of leaves, early in the day. Scout routinely, at least once a week. Use a hand lens to look for blooms of sporangia (they may resemble branched trees with lemons.)



Figure 1: Downy mildew sporulation on *Phlox subulata* (creeping phlox). Photos by Felicia Millett, CT Agricultural Experiment Station

Downy mildew of coleus

Symptoms include brown, irregular lesions on coleus leaves, leaf drop, and stunting of seedlings. Because the lesions are irregular, infection can cause leaves to twist and distort. In cool, wet, humid conditions, sporangia may be visible as a downy gray to purplish growth on the underside of leaves. Constant temperatures of 59° F and 68° F promote this disease, with warmer temperatures of 77° F resulting in minimal infection and no disease occurs at 86° F.

Seed and vegetatively propagated types of coleus are susceptible, as well as agastache and perilla. Cultivars of coleus vary in their reactions to downy mildew, so choosing less susceptible varieties is an important management tool. See Special Research Report #136 from the American Floral Endowment (AFE): [Disease Management Coleus Cultivars and Downy Mildew](#) for more information on coleus varieties less susceptible to downy mildew.

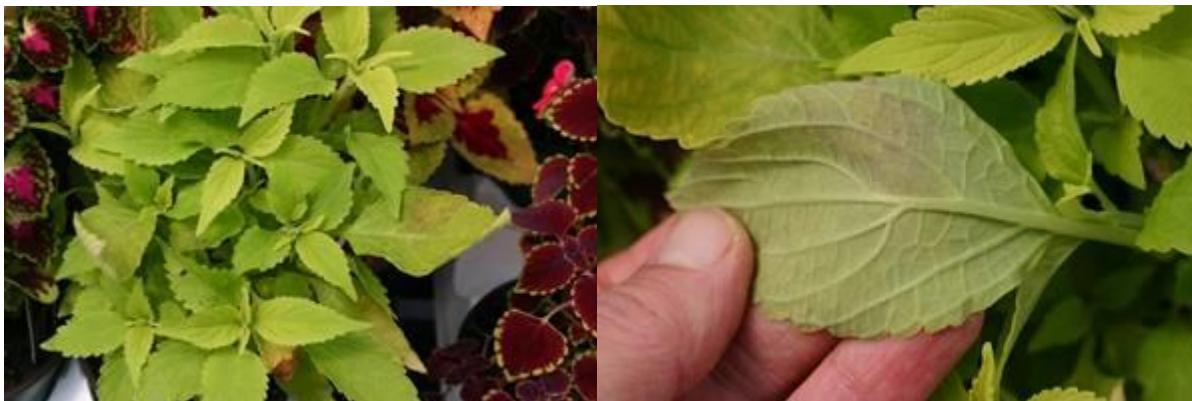


Figure 2: Look for brown, irregular lesions on leaves, and leaf drop. Gray sporulation on coleus leaf underside. Photos by L. Pundt

Management

- Inspect incoming plugs or plants carefully for signs of downy mildew upon arrival.
- Select less susceptible cultivars, if available.
- Monitor susceptible plants and or cultivars at least once a week.
- In the greenhouse, proper environmental management with the use of computerized controls, HAF fans, heating and venting to reduce humidity levels is necessary, just like with Botrytis Blight. For more, see [Reduce Greenhouse Humidity](#)

Chemical Controls

Plan on preventive programs for highly susceptible varieties of creeping phlox, coleus, foxglove, and rudbeckia or on plants that you have had a problem with in the past. Dr. Mary Hausbeck from Michigan State University Greenhouse Disease Management 2023 Guidelines for Downy Mildew

- “A+” Team. Subdue MAXX (mefenoxam) [4], Adorn (fluopicolide) [43], Segovis (oxathiapiprolin) [49] • “A-” Team. Stature SC (dimethomorph) [40], Micora (mandipropamid) [40], Orvego (ametoctradin + dimethomorph) [45/50], Segway SC (cyazofamid) [21], FenStop (fenamidone) [11]
 - “B” Team. Alude (phosphorous acid products) [33], Heritage 50WG (azoxystrobin) [11], Insignia (pyraclostrobin) [11], Pageant Intrinsic (pyraclostrobin + boscalid) [11/7], Protect DF (mancozeb) [M03], Compass (trifloxystrobin) [11]
- [Greenhouse Disease Management 2023* Michigan State University Dr. Mary Hausbeck](#)
More information is also available from the [New England Greenhouse Floriculture Guide](#).

For more on Botrytis Blight, See [Tips on Preventing Botrytis during Cool, Cloudy Weather Periods on Greenhouse Ornamentals](#)

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