e-GRO Alert

Nora Catlin
nora.catlin@cornell.edu

Volume 13 Number 23 May 2024

Coleus Downy Mildew Is Out and About

This Alert reviews how to recognize coleus downy mildew and provides some tips on management.

To my knowledge coleus downy mildew hasn't been seen regularly in a few years, but we've had reports of outbreaks last season and again this season so it's a good time to become refamiliarized with its symptoms and signs.

Discolored angular lesions and necrotic spots caused by downy mildew

Symptoms include leaf spots, which can vary in appearance from small necrotic spots, often angular in appearance, to larger necrotic patches. On some cultivars the spots appear diffuse or faded, or like groups of speckles. Other symptoms can include stunt, leaf twisting or curling, and leaf drop in extreme cases. On leaf undersides you can see fuzzy sporulation, grayish in color. Sometimes the sporulation is easy to observe, but other times it can be difficult to see or may not be present – the lack of sporulation does not necessarily mean that downy mildew is not the culprit.

Necrotic patches and spots caused by downy mildew

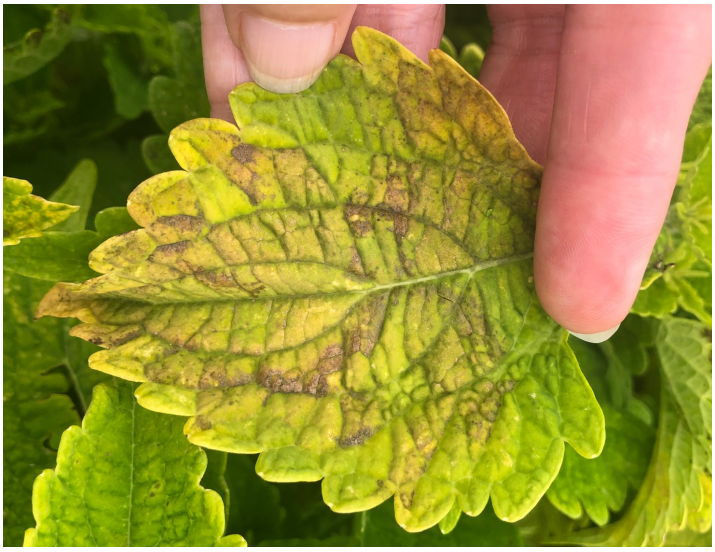
Some leaf lesions are small and can appear speckle-like.

Lately, I've seen coleus downy mildew on a number of lime green/light green/chartreuse cultivars. While it seems that many of the light green cultivars are rather susceptible, I would suspect there must other cultivars in this color family that are more resistant. If you have had particularly good luck with any light green cultivars, I'd be curious to know which ones (nora.catlin@cornell.edu, send me a note!).

Both seed and vegetative types are susceptible. There is a wide range of susceptibility and resistance among coleus cultivars – from varieties that show conspicuous leaf symptoms and leaf drop to cultivars that show minimal or no symptoms even under conditions with high disease pressure. Make note of the cultivars on which you see issues and those that you don't, and in the future avoid the ones you've had problems with. Research has documented susceptibility and resistance of many coleus cultivars – you can find the report here: https://endowment.org/wp-content/uploads/imported-files/136-ColeusDM-Cv-2014.pdf.

Cool conditions with high humidity are particularly troublesome when the downy mildew pathogen is present in the greenhouse. Infection and sporulation are promoted under cooler temperatures (~60-70°F) and are limited at warmer temperatures (above 75-80F). The disease can spread rapidly after time periods when high humidity are followed by low humidity; these conditions promote the dispersal and spread of sporangia. Do what you can to keep humidity low.


Photo: Margery Daughtrey



A number of light green cultivars seem to be highly affected by downy mildew, though this does not imply that all light green cultivars are highly susceptible. If you have had good luck with light green cultivars, send me a note on which ones perform best under downy mildew pressure.

Effective materials would include:

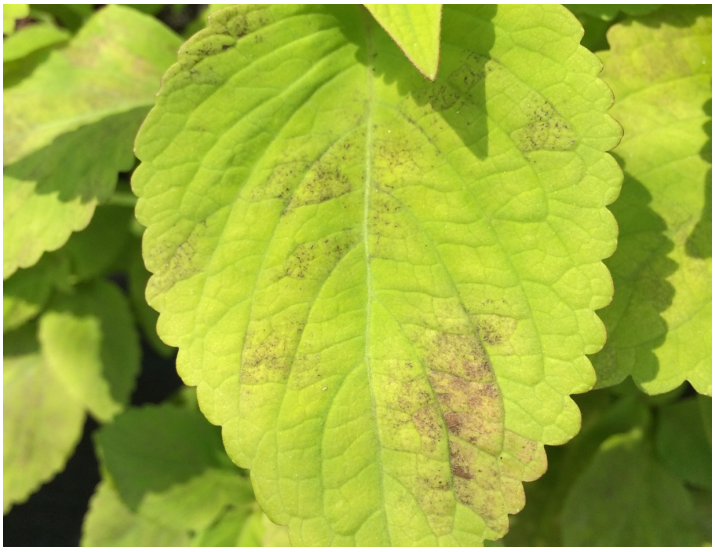
- FRAC Group 4: mefenoxam (Subdue MAXX, note that some resistance has been reported)
- Group 21: cyazofamid (e.g. Segway)
- Group 40: dimethomorph (Stature), mandipropamid (Micora), ametoctradin + dimethomorph (Group 45+40, Orvego)
- Group 49 (previously U15): oxathiapiprolin (Segovis)

Other products useful in rotations would include

- Group 43: fluopicolide (Adorn)
- Group 11: azoxystrobin (Heritage), fenamidone (Fenstop), trifloxystrobin (Compass), pyraclostrobin (Insignia), fluoxastrobin (Fame)
- Other products containing Group 11 materials, the products with materials in Group 7+11: pyraclostrobin + boscalid (Pageant), fluxapyroxad+pyraclostrobin (Orkestra), azoxystrobin + benzovindiflupyr (Mural), fluopyram+trifloxystrobin (Broadform)
- Contact materials in Group M3: mancozeb (e.g., Protect)

Many others products are labeled for downy mildew but haven't been shown to be particularly useful against this disease.

Necrotic spots and lesions due to downy mildew



Symptoms of downy mildew on coleus

Fungicides will be most effective if used preventatively or as soon as possible after downy mildew is identified. Recovering the crop from a heavy infection is not likely, but fungicides will be useful in protecting plants from disease and further spread. As always, make sure to follow all label recommendations and restrictions. State or local restrictions may apply; some of these materials are not registered for use on coleus for downy mildew in all states.

Some links with additional information and pictures:

- Understanding Coleus Downy Mildew
- Coleus Cultivars and Downy Mildew
- e-Gro Alert Coleus and Basil Downy Mildew (2013)
- e-Gro Alert Coleus Downy Mildew Update (2016)
- e-Gro Alert Coleus Nutritional Disorder Guide
- e-Gro Alert Coleus Pest Disorder Guide
- e-Gro Alert Coleus Disease Disorder Guide
- e-Gro Alert Coleus Physiological Disorder Guide

e-GRO Alert

www.e-gro.org

CONTRIBUTORS

Dr. Nora Catlin
Floriculture Specialist
Cornell Cooperative Extension
Suffolk County
nora.catlin@cornell.edu

Dr. Chris Currey
Assistant Professor of Floriculture
Iowa State University
ccurrey@iastate.edu

Dr. Ryan Dickson
Greenhouse Horticulture and
Controlled-Environment Agriculture
University of Arkansas
ryand@uark.edu

Dan Gilrein
Entomology Specialist
Cornell Cooperative Extension
Suffolk County
dog1@cornell.edu

Dr. Chieri Kubota
Controlled Environments Agriculture
The Ohio State University
kubota.10@osu.edu

Heidi Lindberg
Floriculture Extension Educator
Michigan State University
wolleage@anr.msu.edu

Dr. Roberto Lopez
Floriculture Extension & Research
Michigan State University
rglopez@msu.edu

Dr. Neil Mattson
Greenhouse Research & Extension
Cornell University
neil.mattson@cornell.edu

Dr. W. Garrett Owen
Sustainable Greenhouse & Nursery
Systems Extension & Research
The Ohio State University
owen.367@osu.edu

Dr. Rosa E. Raudales
Greenhouse Extension Specialist
University of Connecticut
rosa.raudales@uconn.edu

Dr. Alicia Rihn
Agricultural & Resource Economics
University of Tennessee-Knoxville
arihn@utk.edu

Dr. Debalina Saha
Horticulture Weed Science
Michigan State University
sahadeb2@msu.edu

Dr. Beth Scheckelhoff
Extension Educator - Greenhouse Systems
The Ohio State University
scheckelhoff.11@osu.edu

Dr. Ariana Torres-Bravo
Horticulture/ Ag. Economics
Purdue University
torres2@purdue.edu

Dr. Brian Whipker
Floriculture Extension & Research
NC State University
bwhipker@ncsu.edu

Dr. Jean Williams-Woodward
Ornamental Extension Plant Pathologist
University of Georgia
jwoodwar@uga.edu

Cooperating Universities

Cornell CALS College of Agriculture and Life Sciences

Cornell Cooperative Extension Suffolk County

UTIA Institute of Agriculture, The University of Tennessee

Iowa State University

College of Agricultural & Environmental Sciences, University of Georgia

UConn

UofA Division of Agriculture, Research & Extension, University of Arkansas System

Michigan State University

NC State University

Purdue University

The Ohio State University

In cooperation with our local and state greenhouse organizations

Maumee Valley Growers — Choose the Very Best.

Metropolitan Detroit Flower Growers Association — Metro Detroit Flower Growers Association

NC Flower Power

Western Michigan Greenhouse Association

Connecticut Greenhouse Growers Association

Indiana Flower Growers Association

LIFGA

Cincinnati Flower Growers Association

Michigan Greenhouse Growers Council

NYSFI — New York State Flower Industries, Inc.