ask us

About Diseases

By Colleen Warfield
Diseases
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Q **We had downy mildew in our coleus crop this past spring. Is there a risk in carrying over stock plants this fall even though they are not showing any signs or symptoms of disease?**

A As tempting as it may be to hold onto these coleus plants, there is definitely a risk that they could be infected with the downy mildew pathogen. Spores produced by this fungus are easily dispersed in a greenhouse by air movement and splashing water. When the spores land on a leaf, they may germinate and enter the leaf tissue through the stomates. Once the fungus enters the leaf, it will begin to invade the leaf tissue. The plant may show no visible symptoms during this time. Cuttings removed from these seemingly healthy plants during this latent period are likely to be infected with the fungus.

Once the environmental conditions become favorable again, the fungus will resume production of its spore-bearing structures, which will emerge out of the stomates (this is the downy-like growth visible on the underside of the leaf). It is not uncommon for infected plants to appear as if they've outgrown the disease during the hot summer months only to have the downy growth show up again in late fall or early spring.

Q **It often takes too long to get an answer back from my diagnostic lab before I have to make a management decision. Is there anything I can do "in-house" to diagnose a root problem more quickly?**

A A change in the appearance of the above-ground parts of the plant is typically the first indication of a root problem. The leaves, in particular the lower leaves, of an infected plant may turn yellow or appear to have a nutritional deficiency. Infected plants are often slow-growing and delayed in development. Plants may wilt during the heat of the day despite adequate moisture. The three most common root and crown pathogens of container-grown flowering plants are Pythium, Phytophthora and Rhizoctonia.

Inspect the stem of the affected plant at the soil line. Rhizoctonia will typically attack right at the soil line. A dry canker, often with a shredded appearance, will develop at the stem base. While Rhizoctonia can move up the stem or down into the roots, root rot is not common with this pathogen. In contrast, Pythium and Phytophthora infect the plant roots but generally do not form stem cankers. Both Pythium and Phytophthora can cause the roots to turn soft and brown. When pulled through your thumb and forefinger, the outer cortex of the root is easily sloughed off, leaving threadlike root strands. Phytophthora is more aggressive than Pythium, moving up from the roots to the crown, stem and leaf petioles. Infected stem tissue is typically darkened in color, becoming soft with age.

A quick and dirty test for Rhizoctonia is to place the affected plant stem onto a slightly damp paper towel, then seal the stem/towel in either a plastic self-closing bag or container with lid. After 24 to 36 hours, carefully (without disturbing the stem) examine the paper towel directly next to the cankered area of the stem. Rhizoctonia will produce web-like strands of fungal mycelium stretching from the stem downward onto the paper towel.

Plant symptoms alone rarely provide the level of confidence necessary to make a final diagnosis. However, when you use diagnostic test kits to corroborate symptoms, you can make an in-house diagnosis within minutes.

Diagnostic test kits are commercially available for rapid, on-site detection of Pythium, Phytophthora and Rhizoctonia. ADGEN Phytodiagnostics (plant.neogeneurope.com) offers ALERT-LF diagnostic test kits that contain all the materials necessary to perform a simple in-house test, with results in about two minutes. Hydros, Inc. Environmental Diagnostics (www.hydros.cc) also sells diagnostic test kits for each of these three fungal pathogens. Hydros' Agricheck kits require a few more steps, with results in about 20 minutes. The cost of running an in-house diagnostic test is about $14 per sample. GPN

Do you have a question for our panel of experts? Send your disease, pest or growth-control questions to the appropriate person, and look for the answer in an upcoming issue of GPN.

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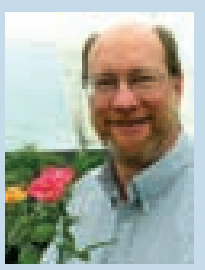

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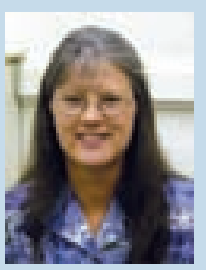

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