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Wet, overcast conditions leads to disease problems

It has been cold, wet, and overcast throughout the southeastern states this winter, which has created some issues for early spring production of annual flowering plants.

One main problem is that peat- and coir-based rooting media are not drying out between irrigation cycles. Algal growth on the surface of the medium is an indicator that the substrate is staying too wet (Images 1 and 2). This not only slows plant rooting due to low oxygen levels within the medium, but it also favors *Pythium* root rot and *Botrytis* blight.

Pythium root rot thrives in wet, humid conditions. *Pythium* is a “water-mold” that infects the slowly growing root tips causing softening and discoloration of



Image 1. Saturated media and *Pythium* root rot causes poor growth and death of foliage of new transplants. (J. Williams-Woodward)

the roots (Image 3). The outer surface of infected roots often sloughs-off when gently tugged or pulled from the media. Infected roots cannot translocate water and nutrients, so foliage often yellows, wilts, or scorches due to drying out after transplanting (Image 1). It is important to properly identify the pathogen causing root disease because the chemical control options are different for Oomycetes (“water-molds” like *Pythium* and *Phytophthora*) and fungi such *Rhizoctonia* and *Thielaviopsis* (renamed *Berkeleyomyces*).

To reduce *Pythium* root rot problems, avoid overwatering; pay attention to current and forecasted weather patterns and irrigate accordingly as much as possible. Using well-

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draining growing media, avoiding planting plugs and liners too deeply, transplanting only good quality plant material, and avoiding over-fertilizing the crop can reduce *Pythium* infection and spread. In a previous e-GRO Alert, “*Pythium Problems*” (https://e-gro.org/pdf/2017_608.pdf), an experiment was described in which *Pythium* root rot disease severity was compared at low and high fertility rates. *Pythium* infection and plant death were more pronounced at the higher fertility rate (350 ppm N) than at 200 ppm N.

Fungicides containing etridiazole and mefenoxam are very good at reducing *Pythium* infection; although some resistance to mefenoxam is known. Other fungicides labeled for *Pythium*, and that provide fair to good control, contain azoxystrobin, cyazofamid, fenamidone, fluopicolide, propamocarb, pyraclostrobin, and tris aluminum (fosetyl-Al) and other phosphonate products provide fair to good control (products are listed alphabetically and not ranked).

The other issue that is very prevalent under wet, humid, overcast conditions is *Botrytis* blight. Leaves, flowers, and stems of plants weakened or killed by root diseases are often infected by *Botrytis*. The spores of *Botrytis* are easily seen as fuzzy, gray masses on the infected tissues (Image 4). There have been some excellent e-GRO alerts on *Botrytis* including “Scouting and Treatment of Gray Mold in Greenhouse Crops” (<https://e-gro.org/pdf/2021-10-21.pdf>). This alert provides information on what to look for and how to control *Botrytis* including what Dr. Mary Hausbeck at Michigan State University refers to as the *Botrytis* A-Team. Growers should always rotate among fungicides with different modes of action (numerical FRAC codes) to prevent the development of fungicide resistance in all disease management programs.



Image 2. Greenish algal growth on the surface of rooting medium indicates the medium is staying too wet, which can lead to poor rooting and *Pythium* infection. Foliage on infected plants may wilt and die and become infected by *Botrytis*. (Image by J. Williams-Woodward)



Image 3. *Pythium* thrives in wet rooting media. Infected roots discolor, soften, and may appear hard to see against the rooting medium. The outer surface of the root may slough away when the roots are gently tugged. (Image by J. Williams-Woodward)



Image 4. Damaged and weakened leaves and stems are often infected by *Botrytis*. The fuzzy gray spores can then spread to surrounding plants resulting in leaf and flower blighting and stem death. (Image by J. Williams-Woodward)

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