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Watch out for Southern blight in nursery crops

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I was recently contacted by an Oklahoma nursery operator about the sudden wilting of young, container-grown apple trees (Fig. 1). He noted that for the past several weeks he was removing a handful of trees from his operation on a daily basis. Having some experience with root and crown rotting pathogens in the past, he suspected that the disease was southern blight. Upon further examination of several symptomatic specimens, I confirmed the presence of the fungus *Sclerotium rolfsii*, the causal agent of southern blight. Mycelium (white fungal growth) and sclerotia (BB-sized survival structures) were visible at the crown just above the roots (Fig. 2). Several infected plants also exhibited a severe canker at the crown (Fig. 3). All signs and symptoms noted are consistent with southern blight disease on woody plants.



Fig. 1. Wilting symptoms (tree on the left) of a young container-grown apple tree, caused by *Sclerotium rolfsii* infection compared to an apparently healthy plant (tree on the right).

Southern blight can be a devastating problem on many species of nursery and ornamental plants. The fungus can infect both woody and herbaceous plants. Weather conditions for the last several weeks have been favorable for disease development. Frequent rainfall, high humidity, daytime temperatures that exceed 86°F, and nighttime temperatures that do not fall below 70°F are conducive for fungal growth and infection. The fungus can survive on old, decaying plant material (saprobic activity) in potting media. When heavy rains are followed by hot, dry conditions, sclerotia often germinate and the fungus infects plant parts below, or at the soil surface. Early symptoms include wilting or flagging of shoots. Cankers at the crown or damage to the roots may also be present. Fungal growth or mats may also be noted at the soil surface. As an infected plant begins to die, the fungus will begin to produce sclerotial survival structures in and on the plant or debris.



Fig. 2. Fungal growth and sclerotia (orange-bronze survival structures; see white arrow) on the crown and roots of a young container-grown apple tree.



Fig. 3. Fungal growth and canker present on the crown of a young container-grown apple tree.

Cultural practices and sanitation are critical in managing southern blight in the nursery. Pots should be carefully cleaned and disinfested. Potting media should never be recycled. When repotting always use new potting mix that was stored preferably on a concrete pad, not on bare ground. Soil to be mixed with potting media should be disinfested, preferably with steam. Container production beds should be raised and have good drainage. Do not over irrigate the crop and fertilize only as needed. Increasing air movement in a block to minimize the relative humidity above the surface of the containers can also be helpful. Maintaining a soil pH that is only slightly acidic is preferred. Highly acidic media (pH 3-6) can favor growth of the fungus. Plants diagnosed with southern blight should be removed from the site and destroyed. If the area is a hard surface for growing container plants the surface should be blown or swept free of plant and soil debris.

Chemical controls should be used preventatively. Several fungicides are available and vary depending on the crop. Drenches in nursery operations with a history of southern blight should begin just prior to the onset of hot, humid weather. Treatments should continue at regular intervals until the prevailing weather patterns become cool and dryer. As with any pesticide, read the entire fungicide label prior to application.

LITERATURE CITED

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