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Volume 12 Number 4 January 2023

Rudbeckia: Sclerotinia (White Mold)

Rudbeckia plant collapse and leaves with a pronounced white, cottony growth (mycelium) were observed. Along with the discovery of small, irregular-shaped, black clumps (sclerotia) on the underside of leaves touching the substrate surface, these signs aid in the identification of a *Sclerotinia* infection.

A few scattered plants in a block of *Rudbeckia* pots were observed with leaf collapse (Fig. 1). Upon further investigation, noticeable areas with white, cottony growth could be seen (Fig. 2&3). This white growth was mycelium and a key observation for diagnosing the fungal disease *Sclerotinia*. Gently peeling back the leaves that had died and were in contact with the substrate surface, one could also find small, irregular-shaped, black clumps called sclerotia (Fig. 4). The white cottony mycelium and sclerotia are both signs of a *Sclerotinia* problem. [This is in contrast to *Botrytis* which is grayish or light brown in color and sclerotia are absent (Fig. 5).]



Figure 1. The collapse of random plants is a strong initial indication of a biotic (disease) problem. (Photo: Brian Whipker)

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In greenhouse production in North Carolina, we commonly observe peak *Sclerotinia* problems in late March. At that time, most plants in the greenhouse are full-sized and will be ready for sale in a few weeks. These robust plants have extensive plant canopies that cover the pot. If a few days of warm [60s F (~15-21C)] weather and high humidity occurs, it creates the perfect environment for aerial spore development and infection by *Sclerotinia*. A new infection, mycelium growth, plant collapse, and sclerotia

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development all can occur within a week under optimal environmental. If non-optimal growing conditions occur, only partial plant death or only plants on one side of the plant may die.

Our program at NC State University primarily focuses on greenhouse annuals, and we do limited work with perennials. This disease occurrence was surprising, for it happened in early January. The plants were being grown in an open-sided, gutter-connected greenhouse that allowed unrestricted air movement and the possibility of *Sclerotinia* spores floating into the greenhouse. At the time of the greenhouse visit, the temperatures were cool/cold, but the week prior, the temperatures were in the 60s F and it had rained. So the conditions were conducive for a *Sclerotinia* sporulation and infection event.

Previous e-GRO Alerts (#9.18 and #10.22) outline *Sclerotinia* symptoms and provide control measures. *Sclerotinia* is an opportunist with a suitable host range of over 600 cultivated and weed species.

The recommendations to this grower focused on practicality. Preventive fungicide treatments are impractical for them. The randomness of when to optimally spray and the cost of the treatment would be higher than accepting a few plants collapsing. Fungicide applications would be reconsidered if losses were more severe. The most practical approach is sanitation. Scouting the crop and timely removal of any infected plants would be the baseline control.

The small, irregular-shaped, black sclerotia are the long-term reservoir of the disease. If the collapsed plant canopy extends over the side of the pot, any sclerotia on those leaves or stems can



Figure 2. Close-up of Rudbeckia plant with partial leaf necrosis. (Photo: Brian Whipker)



Figure 3. White, cottony mycelium growth is visible along the leaf margin. (Photo: Brian Whipker)



Figure 4. Small, irregular-shaped, black sclerotia form on the underside of Rudbeckia leaves. (Photo: Brian Whipker)



Figure 5. *Botrytis* produces grayish-brown growth, as seen here on Heuchera (left), as compared to the white, cottony growth of *Sclerotinia* on lettuce (right). (Photos: Brian Whipker)

dislodge onto the growing surface and lead to future infections. This situation was observed in another greenhouse a few years ago in which infected lobelia plants grown in hanging baskets dropped sclerotia into the soil and during the following fall a few poinsettias grown at that same location developed *Sclerotinia*.

Therefore, any infected plants should be discarded in the trash and not composted. Sclerotia can survive for a number of years in the soil and by composting plants near the greenhouse could provide a source for future infections.

Sclerotinia infections are one of the easiest diseases to diagnose. Be sure to send in a plant sample to a diagnostic clinic for identification if you are unsure.

Additional Resources:

e-GRO Alert 9.18 by W. Garret Owen provides extensive details about *Sclerotinia* prevention.

e-GRO Alert 10.22 by W. Garret Owen, Nicole Gauthier, and Julie Beale highlights *Sclerotinia* in coleus.

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