



Arkansas Plant Health Clinic Newsletter

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Lettuce

Cool, wet weather favors the development of Lettuce Drop. This is a serious fungal disease of lettuce, caused by either *Sclerotinia sclerotiorum* or *Sclerotinia minor*. Initial symptoms are yellowing of lower leaves, followed by wilting. A soft rot at the soil line occurs covered with a white downy fungal growth. The black survival structures (sclerotia) of the fungus can be found embedded in the destroyed tissue. *Sclerotinia minor* may be differentiated from *S. sclerotiorum* by the size of the sclerotia. *S. minor* has sclerotia measuring 1/16-1/8 inch in diameter with the sclerotia of *S. sclerotiorum* measuring up to 1/2 inch in diameter. *S. sclerotiorum* is more difficult to manage, as the ascospores produced by the germinating sclerotia may be windblown considerable distances and survive for up to two weeks without a host. *S. minor* directly infects a plant that contacts its sclerotia. Control of Lettuce Drop is not easy. The sclerotia are thought to survive for two or more years in the soil. Rotating to non-host crops is therefore essential but can be difficult as *Sclerotinia* has a huge host range including 21 families, 66

genera, and 94 species. Deep plowing to bury sclerotia helps prevent them from contacting the crop and aids in their decay. The application of Rovral 50WP or Switch 62.5 after thinning helps control Lettuce Drop caused by *Sclerotinia minor*. The same controls apply for Lettuce Drop caused by *Sclerotinia sclerotiorum*, but fungicides should be started at the rosette stage.

Lettuce Drop-*Sclerotinia minor*



Photo by Sherrie Smith, University of Arkansas
Cooperative Extension



Lettuce Drop-*Sclerotinia minor*



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Spruce

It is nearly time to spray spruces for Needle Cast disease caused by *Rhizosphaera kalkhoffii*. Protective sprays applied when new needles are half-emerged from the candles provide satisfactory control. Needle cast is the most common problem of blue spruce in the landscape. The disease usually starts at the bottom (inside near the trunk) of the tree and progresses outward and upward. The needles will take on a brown or purplish color and then fall to the ground. The first visible signs of infection occur one year after infection in the late

fall or spring. Last year's needles turn yellow, then purplish brown and fall from the tree, while the new needles remain green. These new green needles become infected the spring they emerge and fall to the ground the following season. Small black fruiting bodies (pycnidia) of the fungus may be observed with a hand lens. They appear on the needles in linear rows. Watch your trees for new growth, (candles), emerging at the tips of branches. Products containing chlorothalonil such as Bravo or Daconil, and manganese/zinc such as Cleary's Protect DF T&O Fungicide are labeled for control of *Rhizosphaera* needle cast. Follow label directions for rate and frequency of application. Blue spruces grow best in fertile, well-drained, moist soil. They dislike compacted soils. When stressed by drought or poor soil they are prone to needle cast.

Spruce *Rhizosphaera* Needle Cast - *Rhizosphaera kalkhoffii*



Photo by Sherrie Smith, University of Arkansas
Cooperative Extension



Spruce Rhizosphaera Needle Cast - *Rhizosphaera kalkhoffii*



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Onion

Most people have their onion starts out by the end of February. The cool, humid weather this spring has been favorable for Downy Mildew, caused by *Peronospora destructor*. This disease affects all Allium crops: onions, garlic, chives, and shallots. Beginning symptoms are elongated, slightly paler patches on the leaves. The lesions turn light brown to tan with a grayish-violet fuzzy growth during wet weather. These diseased sections of the leaf eventually turn yellow/brown collapses and folds over. Seed stem lesions are often on only one side of a stem, and circular or elongate in shape. The one-sided lesions cause the stem to break over from the weight of the seed head, resulting in the withering of the seeds. Systemically infected plants produce bulbs that are soft and shriveled, with the outer fleshy scale becoming

amber colored, wrinkled and watery. Sometimes infected bulbs remain firm but sprout prematurely. The foliage of such bulbs is an abnormal light green color. Downy mildew overwinters on volunteer onion plants and persists on stored bulbs and seeds. Spores are blown or splashed up onto new plants in the spring. For infection to occur, relative humidity must be greater than 95%. New spores are produced at night. Typically, the infection cycle is characterized by latent periods of 9-16 days and 1-2 days of sporulation. Foliage in the field may be destroyed during/after four infection cycles. Cultural controls are critical in controlling Downy mildew. All crop debris, volunteer plants, and unthrifty bulbs should be removed and destroyed. A strict crop rotation schedule should be followed, with 3-4 years between Allium crops. Good drainage in the field is essential. It is recommended that rows face the same direction as prevailing winds to help avoid prolonged leaf wetness. For the same reason, overhead irrigation must be avoided. Fungicides such as Pristine, or Cabrio, or Revus are available to commercial growers. Fungicide applications must be frequent as new foliage is constantly being produced that is vulnerable to infection. Homeowners must depend on practicing good sanitation and crop rotation.



Onion Downy Mildew- *Peronospora destructor*



**Photo by Sherrie Smith, University of Arkansas
Cooperative Extension**

This bulletin from the Cooperative Extension Plant Health Clinic (Plant Disease Clinic) is an electronic update about diseases and other problems observed in our lab each month. Input from everybody interested in plants is welcome and appreciated.

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