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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.

## Pine

The clinic has had several inquiries about yellow needles occurring on white pines the last few weeks. This is normal at this time of year. Although pines are evergreen, they do not retain their needles indefinitely, but replace sections of them on a yearly basis. This normal needle drop follows a distinctive pattern with patches of yellow needles occurring all over the tree at the same point down a branch.



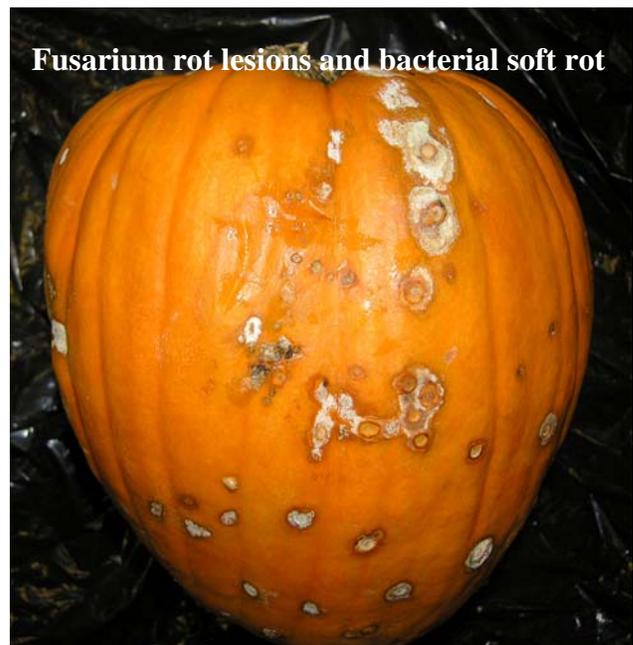
Jim Robbins University of Arkansas Cooperative Extension

## Pumpkin

Several post harvest diseases affect pumpkins. One of the most common diseases of cucurbits is Fusarium rot (Fusarium is a common soil fungus). This disease can occur both before and after harvest. Infection can occur anytime during the growing season. High temperatures and high humidity promote disease development after harvest. Symptoms vary depending on the species of Fusarium involved. Some species produce distinctive purplish lesions, while others produce a dry spongy rot with a white halo. The post harvest stage of the disease has been associated with chilling injury or extended storage. Fungicide treatments are not always effective due to the difficulty of achieving good coverage of the

fruit. Quadris, Maneb, and Bravo are all listed for pumpkin and are packaged for sale to commercial producers. The homeowner may use a product containing mancozeb or chlorothalonil, if available. Crop rotation and avoiding injury during harvest are good preventative measures.

Another rot affecting pumpkin is bacterial soft rot caused by *Erwinia carotovora*. Lesions start out as distinct water-soaked spots with an obvious softening of the surrounding tissue. The fruit tissue often collapses as the disease progresses. The entire seed cavity becomes a watery mass that spills out when the skin is ruptured. Injury to the fruit must occur before these bacteria can invade. Infections are common where the skin has already been injured by another pathogen such as Fusarium. Thus it is not uncommon to find both diseases on the same fruit. Avoiding bruising and injury to the fruit is vital to controlling bacterial soft rot. A bleach spray of 4 ounces of 5.25% household bleach per 100 gallons water applied after harvest has been shown to have some effectiveness, but you should always wear safety eye goggles and protective gloves when using bleach. Crop rotation is helpful.



Fusarium rot lesions and bacterial soft rot

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## Blue Spruce

The lovely form and soft blue color of the Colorado blue spruce makes this tree universally popular in the landscape. It typically achieves a height of 50-75ft and a spread of 20ft. Blue spruce grow best in fertile, well drained, moist soil. They dislike compacted soils. When stressed by drought or poor soil they are prone to spider mite damage and needle cast. Needle cast caused by *Rhizosphaera kalkhoffii* is the most common fungal disease of blue spruce. 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. Needles turn yellow, then purplish brown and fall from the tree. Small black fruiting bodies (pycnidia) of the fungus may be observed with a hand lens. They appear on the needles in linear rows. Good control of the disease may be achieved through the use of fungicides at the proper time. Protective sprays applied when new needles are half-emerged in May gives satisfactory control. Products containing chlorothalonil are very effective, if still registered and available. Mulching and proper watering help reduce stress, and can reduce the severity of outbreaks.



Rhizosphaera needle cast

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Rhizosphaera needle cast

<http://www.extension.iastate.edu/Pages/plantpath/clinic/Rhizosphaera%20Needle%20Cast.htm>

## Wood rot

Dry rot of wood in buildings can be a serious problem. A sample of wood from beneath a house came into the clinic last week with damage caused by dry rot fungi. A number of fungi cause wood rots. Two species closely associated with structural damage to buildings are *Serpula lacrymans* and *Merulius lacrymans*. All fungi require moisture and a food source to survive and reproduce. Dry rot fungi attack the cellulose and hemicellulose of the wood to break it back down into its basic sugar components. It could be said that the fungi eat the house. Wood affected by dry rot fungi shrinks, darkens and cracks in a cube-like manner. These symptoms are often mistaken for termite damage. A grey to mushroom color sometimes tinged with patches of lilac and yellow can develop under dry conditions. This forms a thin skin that can be rubbed off the wood. White, fluffy mycelium develops when conditions are humid. Brown teardrop shaped growths may develop on the mycelium. Fruiting bodies with wide pores are formed that resemble a soft, fleshy pancake or bracket with an orange-ochre surface. Rust red spore dust is frequently seen around fruiting bodies. Often a damp musty odor can be noticed if the decay is active. Control can be difficult as this type of fungus can grow across concrete or brick to infect new wood when conditions are favorable. The first line of defense is to dry the area. Dry rot cannot exist in the absence of moisture. Therefore, it is very important to keep water



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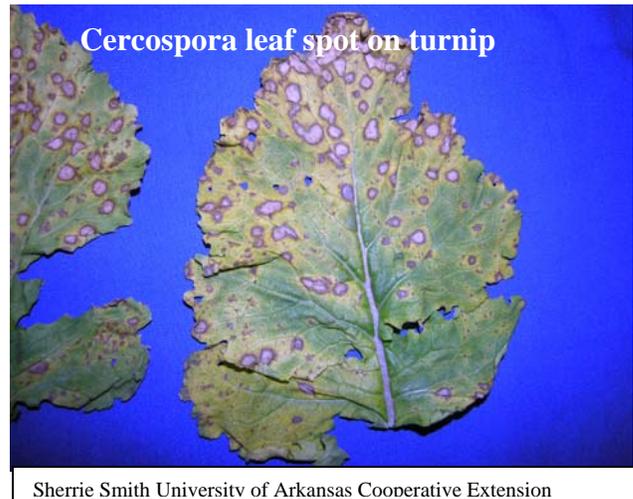
*Rick Cartwright*

away from the wood. Additional ventilation is usually needed to help dry crawl space areas. Wood should never touch the ground. The fungi become inactive when the moisture levels in the wood fall below 20%. Infected wood should be removed and replaced with chemically treated wood. A wood rot specialist is usually the best choice for a homeowner faced with this problem.



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in quantities larger than homeowners could reasonably afford. For home gardeners, this leaves cultural practices like 3 year crop rotation, along with elimination of all nearby wild crucifer (mustard type) weeds and volunteer turnip and mustard plants. This helps get rid of the fungi in the area that cause the spots. Overhead irrigation should also be avoided where possible. These recommendations were discussed in a previous newsletter for control of bacterial leaf spot of turnip and mustard.



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## Turnip

Turnip samples have been arriving at the clinic with fungal diseases caused by *Cercospora brassicicola* and *Pseudocercospora capsellae*. *Cercospora* leaf spot lesions are pale green to gray or white and often have a brown border. Lesions are angular or circular in shape. This disease is sometimes called frog-eye leaf spot. Plants can be defoliated where infections are severe. *Pseudocercospora capsellae* causes a disease commonly called White Spot. Circular spots with gray, brown, or nearly white centers appear on cotyledons, leaves, and petioles. Edges of the lesions are slightly darkened. Leaves turn yellow and drop prematurely with this disease also. Mustard and collards, and other related crops are also susceptible. Unfortunately, Arkansas does not at present have fungicide recommendations for commercial or home garden production of turnip or mustard greens. We are working on correcting the problem and hope to have some recommendations in time for next year's crop. For commercial turnip growers, Cabrio fungicide is labeled for many leaf spotting diseases but is packaged for sale