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THE PURDUE LANDSCAPE REPORT

In This Issue

Black Root Rot

(Janna Beckerman, jbeckerm@purdue.edu)

Figure 1. Pansies get a bad a rap for falling down in hot weather. Thielaviopsis is often the real culprit. Photo by Janna Beckerman.

Black root rot (BRR), caused by the fungus *Thielaviopsis basicola*,has a host range of several hundred plants. In the landscape, the most common hosts include pansies (Fig. 1), and vinca, along with calibrachoa and petunia. In perennial hosts, it often infects lavender, phlox, milkweed and butterfly-weed (*Asclepius spp*.). Even woody plants, like holly and elderflower (*Sambucus spp*.) can succumb.

Symptoms of black root rot are often mistaken for nutrient deficiencies. Older leaves may develop symptoms that look like iron chlorosis, while young leaves become stunted. Infected plants grow more slowly compared to healthy plants. Shoot length is reduced compared to healthy plants, and scattered dead shoots may be apparent. In pansy, one of the key symptoms of BRR is when seemingly 'healthy' plants may suddenly collapse when a brief hot spell occurs (Fig. 1).

Keep in mind that diagnosing any root rot requires observing the affected plant for symptoms, and collecting the infected tissue at the right time to culture out the pathogen or pathogens causing the problem. Fortunately, the black root rot pathogen creates both symptoms and even signs that can be observed with a little patience and a good hand lens. Carefully excavate roots, and wash them. Roots will be intact, but have blackened areas that are easily observed(Fig. 2). Honking chlamydospores may even be visible with just a hand lens or dissecting scope (Fig. 3), but the beauty and power of this pathogen requires a microscope (Fig. 4) to appreciate the sheer number of conidia (little square spores) and those honking chlamydospores.

Figure 2. Clean roots showing the characteristic black root rot. Photo by Janna Beckerman.

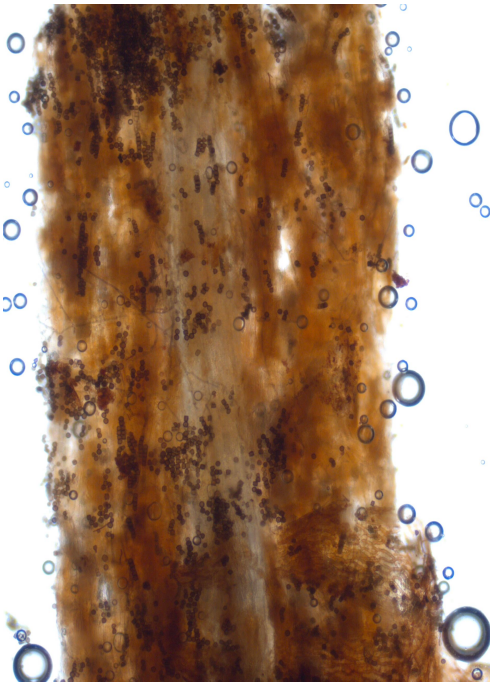

Figure 3. Looking at sectioned black root reveals numerous chlamydospores. Photo by Janna Beckerman.

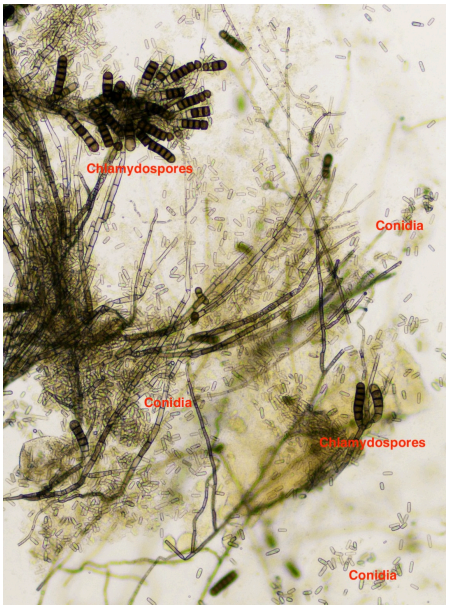

Figure 4. So many spores! A thin section at 400x magnification shows thousands of conidia (little rectangles) and a few dozen chlamydospores. Photo by Janna Beckerman

Managing BRR in the landscape can be a challenge, particularly in alkaline (high pH) soil. In beds with a history of this problem, the easiest thing to do is to rotate out from susceptible woody plants like holly or elderflower. Avoid annuals like pansy, calibrachoa, vinca and replace with more resistant annuals, like sweet alyssum, annual sage (*Salvia*), celosia, cosmos, dusty miller, portulaca and poppy. Resistant perennials include black-eyed Susan, coneflower, daylily, sea holly (*Eryngium amethystinum*), perennial Coreopsis, little bluestem (*Schizachyrium scoparium*), Russian sage, and yarrow.

Although there are fungicides labeled for production, their use in the landscape is to prevent infection from occurring, not 'curing' infected plants. In new plantings, any of the following products are labeled for treatment to protect new plants from becoming infected: Cleary's 3336, Medallion, and Orkestra. As always, follow label directions for best results, and remember that repeated applications may be necessary for continued protection.

Spotted Lanternfly: Another Reason Not to Move Firewood.

(Elizabeth Barnes, barne175@purdue.edu)


Spotted lanternfly egg masses easily blend into bark and are hard to spot. This egg mass is freshly laid and is at its most visible point. Over the winter, it will fade to a dull brown and be nearly indistinguishable from the bark. Image by Elizabeth Barnes, Purdue University.

Now that fall has arrived many people have begun collecting next year's firewood and clearing their yards of brush and downed trees. This can be a great way to both tidy up your property and save some money but there are a few pitfalls to avoid. Already dead trees or dropped limbs can make easy pickings for firewood but often have pests or pathogens hidden inside. There 140+ pests and pathogens like spotted lanternfly, Asian longhorned beetle, and thousand cankers disease that can be spread in dead wood. Even trees that seem healthy may be in the early stages of infestation or infection. Bringing this wood back to your home, cabin, or favorite campground risks exposing healthy trees to deadly threats. However, there are easy ways to collect your own wood without these risks.

Where to Collect

Collect your firewood within 30 miles of where you plan to use it. Generally trees inside of this radius are exposed to the same types of pests and pathogens so there is a lower risk of spreading something new. If you move this wood too far (more than 30 miles) you risk moving a pest or pathogen to a new area where they can attack and kill new trees. By not moving wood far from where it is collected you can prevent the spread of these pests to new, un-infested areas.

What to do with it

Have more brush or cut wood than you know what to do with? Here are few ideas!

- Leave it for wildlife. Many animals use fallen limbs and brush for shelter and food. Leaving your wood on the ground or in sturdy piles can give them places to hide over the cold winter.
- Burn it in fire pits, bonfires, or fireplaces. Be sure to follow local regulations and burn carefully.
- Chip it for mulch and use for landscaping.
- Use it for posts or garden stakes.
- Give it to nearby neighbors.
- Compost it. Some landfills and composting sites allow for wood disposal. Be sure that wherever you bring the wood is within 30 miles of where you collect it.

The image shows a pile of short cut logs in a field. The logs take up most of the foreground. There is a red tractor and the edge of a fall forest in the background. Image taken by Shawn Harquail.

What NOT to do:

- Move more than 30 miles for any purpose.
- Leave for free on the side of the road. You can't be sure who will pick it up and how far they'll move it!

Where to Store it

Store your firewood away from your home, outdoors, off the ground, and covered. Piles of firewood may attract animals and insects looking for food and shelter. Most of these animals and insects are no more than mild nuisances in homes but can still be unpleasant to deal with. Storing firewood away from your home reduces the chance that you'll have to deal with these unwelcome guests. To learn more about firewood storage check out this helpful guide.

Developing a Weed Management Plan for Your Properties

(Kyle Daniel, daniel38@purdue.edu)

How did your weed control program perform this year? Could you be 10% more efficient? Could you make your clients 10% more satisfied with the level of weed control? In today's labor market, improving efficiency is the single best way to reallocate labor to other, more profitable, jobs. One aspect of improving efficiency in your operation is reducing the amount of visits. By improving your weed control efficiency, you may be able to reduce the number of visits, even if by one time per season.

Figure 1. High end properties or properties that have high weed pressure could benefit from a comprehensive weed management plan.

Each property you maintain might not need an individual weed management plan, but consider developing a plan for large properties or properties with a significant weed problem. Taking some time this winter to begin thinking about your previous weed management protocols and potential plans for the following year will improve your efficiency next season.

Some suggestions on what to include in weed management plan:

- Ornamental species in bed
- Major weed present
- History of weed control in area
- Potential cultural, mechanical, and chemical controls
- Potential preemergence and postemergence options

Some suggestions on what to include in the year-end evaluation of your weed control plan:

- Cultural, mechanical, and/or chemical controls implemented
- Efficacy of cultural, mechanical, and/or chemical controls
- Efficacy of preemergence and postemergence herbicides implemented

These are merely suggestions for you to consider for your weed management plan, as every company will need to tailor a weed management plan and evaluation based on their specific operations and needs.

I've included an example weed management plan and weed management evaluation to get you started. As always, feel free to contact me if you have any questions or issues.

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Landscape Weed Management Plan

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Property Name				
Area Name	(i.e. front bed, side bed, etc.)			
Date				
Ornamental species in beds				
Types of weeds present	Grass	Broadleaf	Sedge	
Weeds present				
Life cycle of weeds present	Summer annual	Winter annual	Biennial	Perennial
History of past weed control				
Bed irrigated	Yes	no		
Potential cultural controls				
Potential mechanical controls				
Preemergence herbicides				
Postemergence herbicides				
When to apply herbicides				

Figure 2. Developing a weed management plan could help with efficiency next season.

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Landscape Weed Management Evaluation

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Property Name				
Area Name	(i.e. front bed, side bed, etc.)			
Date				
Types of weeds present	Grass	Broadleaf	Sedge	
Weeds present				
Cultural control implemented				
Mechanical control implemented				
Preemergence control implemented				
Postemergence control implemented				
Efficacy of mechanical				
Efficacy of cultural				
Efficacy of preemergence				
Efficacy of postemergence				

Figure 3. It's important to develop a way to evaluate your weed managment plan.

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