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THE PURDUE LANDSCAPE REPORT

In This Issue

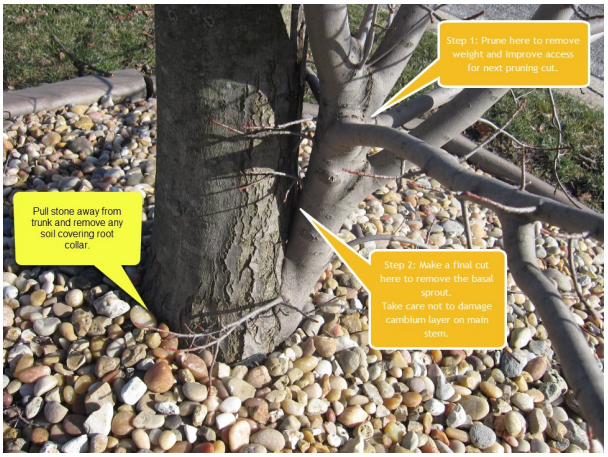
When To Remove Maple Tree Sucker

(Rosie Lerner, rosie@purdue.edu)

Maple tree with mature upright root sucker.
Photo Credit: J.M., Crown Point, Indiana

Q) I have a maple tree (it is either an 'October Glory' or 'Autumn Blaze') that has what I assume to be a rather large sucker at the bottom. The diameter of the sucker is about 2″ and the tree trunk itself is 7″ in diameter. I have attached pictures of it from different angles. I would like to know if it is ok to remove it? I've read quite a bit about these and that late winter/early spring is a good time to remove them. – J.M., Crown Point, IN

A) Some landscape plants produce vigorous, upright stems that become troublesome as they out compete better-formed branches and shade out the rest of the plant. These remarkably fast-growing, upright stems are called "suckers" if they come from the root system.



Remove top of sucker before making final cut at the base.
Photo Credit: J.M., Crown Point, Indiana

You are correct that late winter/early spring before the new growth begins is the best time to try and get that removed. You'll want to be careful to avoid injuring the main trunk when you cut. First remove the top of the root sucker (can be done in stages) to get the heavy weight off that stem. Then make closer cuts further down to just above where you see the "v". We also recommend that you pull the rock mulch away from the base of the tree and if needed, remove any soil that is covering the root collar (the flare of the trunk at the bottom.) You can see an illustration of these recommendations on the annotated photo, courtesy of Purdue Urban Forestry Specialist Lindsey Purcell. Additional information on pruning can be found in Purdue Extension Bulletin HO-4-W, Pruning Ornamental Trees and Shrubs

https://edustore.purdue.edu/item.asp?Item_Number=HO-4-W.

How Old Is My Tree?

(Lindsey Purcell, lapurcel@purdue.edu)

If you know when the tree was planted and the age of the tree at the time of planting, obviously, you can easily and accurately determine its age. Most trees are between 5 – 10 years when they come out of the nursery. The second most accurate way to estimate tree age is to count the annual rings of wood growth. However, we don't want to injure or cut the tree down just to figure out its birthday.

Annual rings can be counted using two different methods. You can extract a core from the live tree using an increment borer, which can leave wounds in the tree. Or, dead trees and trees which

have been removed enable ring counting on the stump. Although counting rings provides an accurate estimate of age, most people do not have access to an increment borer for live trees or the tree must be cut down.

By following these easy steps, you can get a rough estimate of a live, standing trees age, without knowing when the tree was planted and without injuring or cutting the tree down.

STEP 1. Measure the circumference (c) of the tree trunk using a measuring tape that measures in feet and inches. This should be done at 4.5 feet above the ground or slightly below shoulder height. This is known to arborist as the DBH or Diameter at Breast Height.

EXAMPLE:

Our white oak tree measures 5 feet, 10 inches in circumference.

c = 5 feet, 10 inches or, 70 inches

STEP 2. Calculate the diameter (d). Divide the circumference by 3.14, a constant known as "pi". Formula: c / 3.14 = d. For the white oak if the diameter is 70 inches/3.14 = 22 inches DBH.

STEP 3. Multiply the diameter of the tree by the *growth factor* as determined by species.

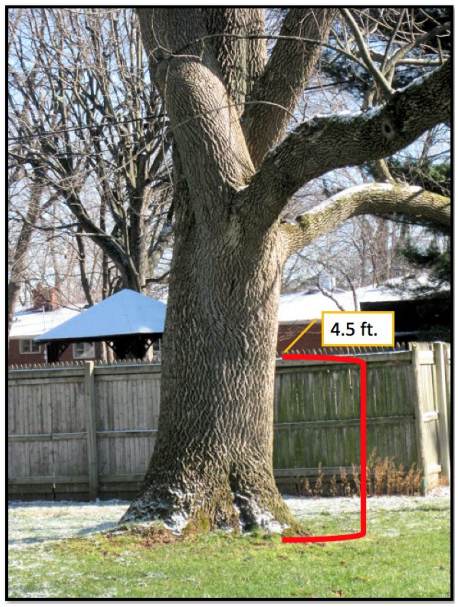


Figure 1. Measure trunk circumference at 4.5 feet above the ground

Figure 2. Use a tape measure to determine circumference or diameter.

This is where we have so many variables that affect the accuracy of our answer. Growth factor tables assume a consistent or linear relationship of diameter increment to years of growth. This assumes little variation in the many problems which can affect tree growth.

Woodland trees and urban trees grow quite differently. Trees in our neighborhoods, along streets and in the parks, are often under more stress and grow more slowly. Natural woodland trees are on undisturbed sites with less pressure. Tree growth rates are affected tremendously by conditions such as water availability, climate, soil conditions, root stress, competition for light, and overall plant vigor. Further, the growth rates of species within genera can vary significantly. A white oak growing in a moist, well drained site will grow faster and be younger than a similar white oak in a dry, stressed tree lawn. So, only use this formula as a very rough estimate of a tree's age.

Also, trees growing in a woodland environment typically have a restricted crown and therefore increase in circumference at about half of the rate of full, open-grown tree found in a park or residential landscape. History tells us there are very few trees much older than about 250 years in the Midwest due to the early settlers clearing our forests for farm fields.

Back to our white oak tree. We determined that the tree has a 22" DBH, so you would then multiply it by the growth factor of 5.0 (refer to table below), and our answer is 110 years old! This oak tree is considered as a youngster for white oaks. Under perfect conditions, a white oak tree can live to be 300 or more years old. However, under urban conditions, most white oak trees may only live to be around 150 years old. So, this may be a more accurate number if the tree were in perfect, natural growing conditions. However, if our tree is in a park or residential area where the tree may be more stressed or crowded, it is likely the calculation of age is a little high. Often, I will apply my "urban forest factor" of deducting 25% from the age calculation. This is an anecdotal deduction based on experience with aging trees in different environmental situations. If we apply this factor, the tree is aged at about 83 years old. So somewhere in that range would be a good guess. Again, it's all a fun estimation.

Formula for Aging Trees:
Diameter = Circumference divided by 3.14

Formula: DBH X Growth Factor

Tree Species	Growth Factor	Tree Species	Growth Factor
Red Maple	4.5	White Oak	5.0
Silver Maple	3.0	Red Oak	4.0
Sugar Maple	5.0	Pin Oak	3.0
River Birch	3.5	Linden or Basswood	3.0
White Birch	5.0	American Elm	4.0
Shagbark Hickory	7.5	Ironwood	7.0
Green Ash	4.0	Cottonwood	2.0
Black Walnut	4.5	Dogwood	7.0
Black Cherry	5.0	Redbud	7.0

PPDL Case Study #2: Sickly blue holly

(Tom Creswell, creswell@purdue.edu)

Figure 1

A group of samples of several varieties of blue holly (Ilex x meservae) arrived in the lab from a commercial nursery in late January with a common problem, yellowing and rapidly dropping leaves and general poor growth (Fig. 1).

After ruling out disease and insects on the foliage we next checked the root systems. After washing away most of the soil we started to see areas of black roots (Fig. 2, 3 and 4), especially at the root tips (Fig. 5). Microscopic examination of roots confirmed the suspicion that the plants had black root rot (BRR), caused by the fungus *Thielaviopsis basicola*. The distinctive black segmented spores (chlamydospores) make it easy to identify in the lab (Fig. 6 and 7)

Figure 2

Figure 3

Figure 4

The fungus usually begins by only rotting scattered roots throughout the root system. As it spreads it can cause significant root loss and stunting of susceptible host plants. The pathogen mainly causes stunting and yellowing in *Ilex x meservae* but could also reduce plant tolerance to other stress factors such as heat, cold or nutrient problems. In this case the amount root rot probably would not cause the extensive leaf drop the grower was seeing. After a phone call we came to the conclusion that while BRR was causing stunting and plant stress the major leaf drop was more likely a reaction to excessive heat buildup in the overwintering structure.

Figure 5

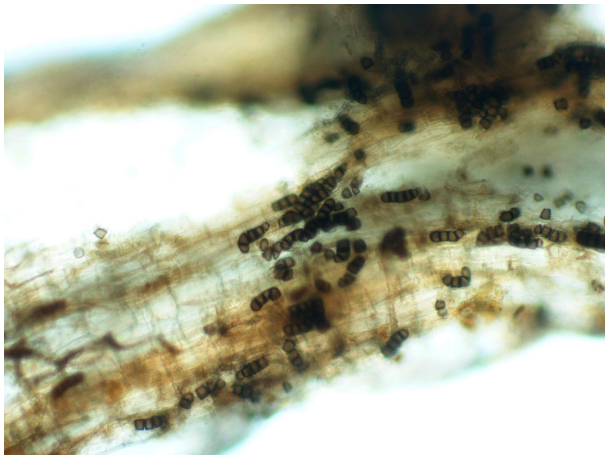


Figure 6

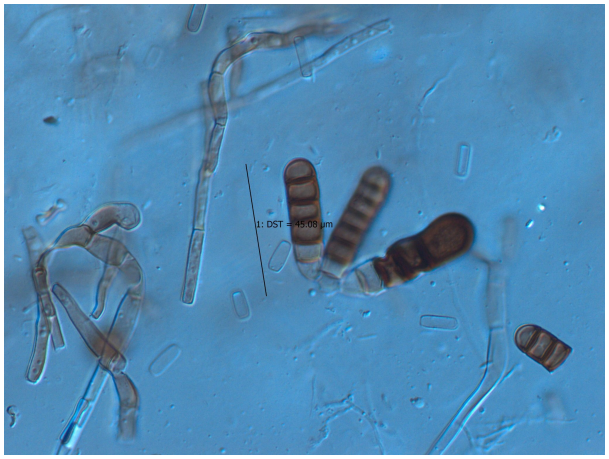


Figure 7

Thielaviopsis chlamydospores (Fig. 6 and 7) are resistant to drying and cold and make it difficult to eliminate the pathogen from production systems. It can be spread by infested pots, water, media, movement of infected plants, or vectored by soil-inhabiting insects such as fungus gnats and shore flies. Fungicide drenches can slow development but will not cure infected plants so diligent sanitation to remove infected plants and debris is important for management. Infected plants that appear normal may go undetected and result in spreading Thielaviopsis to garden centers and landscapes. Once landscape beds are infested the fungus remains in the soil for years. Fungicides drenches containing Thiophanate methyl can be used in nursery and greenhouse crops to prevent infection and Orkestra has been found to be suppressive. Fungicide drenches are impractical and generally ineffective in landscape beds and the main recommendation is to avoid using highly susceptible plants in infested beds. It's also impractical and ineffective to try to get rid of the fungus by digging out and replacing infested soil. Stick with resistant plants.

Highly susceptible plants include:

Woody plants: Blue hollies, Boxwood, Barberry, Euonymus

Herbaceous plants: Astilbe, Catharanthus (annual vinca), Calibrachoa (Million bells), Begonia, Dianthus, Dicentra sp., Fuchsia, Geranium, Heuchera, *Hibiscus sp*., *Hypericum spp*. (St. Johnswort), Lavender, Columbine, Impatiens, Pansy/Viola, Petunia, Phlox, Rosemary, Scabiosa sp. (Pincushion Flower), Tomato, *Tiarella sp.* (Foamflower), Zinnia.

Vegetables: Carrot, Cucurbits, Okra, Eggplant, Ornamental tobacco

So what plants are resistant to Thielaviopsis? That's a tougher question to answer. We don't have documented studies on this but observational data suggests the following plants are likely resistant or tolerant of the fungus:

Woody plants: American holly is tolerant and English and Chinese hollies are generally considered resistant and can be used where they are winter hardy.

Herbaceous plants: *Thielaviopsis is not reported on these plants so they are likely resistant*: Black-eyed Susan, Coneflower, Daylily, *Eryngium amethystinum* (Sea Holly), perennial Coreopsis, Little bluestem, Russian Sage, Veronica spp., Yarrow.

Thielaviopsis is known to occur on these plants but is reported infrequently so they are probably tolerant: Campanula (Bellflower), *Lobularia maritima* (Sweet alyssum), Pachysandra, Peony, Poppy, Salvia, Verbena.

Keep in mind that even tolerant plants can succumb to disease if the growing conditions are poor. Avoid excess fertilizer and try to make sure landscape beds have good drainage.

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