

## Tree Selection: Matching the Species with the Soil

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For success in growing landscape plants, I always urge gardeners to match the plant species with their property's site conditions. Or, more simply: "right plant, right place."

I talked about understanding a tree's size requirements in this column two weeks ago, but there are other site factors to consider besides how much room is available. A major consideration is the soil. Since trees can't replant themselves if they don't like the soil they're in, we need to get it right the first time.

The level of a soil's acidity is measured by the pH. A soil test will provide this information. Most landscape plants aren't too picky, but they grow best when planted in a slightly acid soil (pH of between 6 and 7). There are a few, however, that have special needs; for example, pin oaks, rhododendrons, and dogwoods require moderately acidic soils, with a pH of 5.0 or lower. If your soil has a high pH (alkaline), you should choose other plants that will have a better chance at surviving.

Soil drainage is the next most important characteristic. Many landscapes in the tri-state have poorly drained soils: when they get wet, they stay wet. This causes a condition called "wet feet," where there is not enough oxygen in the soil to keep the roots alive. As a result, the plant declines and dies.

You can get a good idea of your soil's drainage by digging a hole one foot wide and one foot deep. Fill it with water and let it drain completely. Then, fill the hole with water again, and note the time. Measure the water level by laying a stick, pipe, or other straight edge across the top of the hole, then use a tape measure or yardstick to determine the water level. Continue to measure the water level every hour until the hole is empty, noting the number of inches the water level drops per hour. The ideal soil drainage is around 2 inches per hour, which is generally ok for plants that have average drainage needs. If the rate is less than 1 inch per hour, your soil drainage is poor.

Very few woody plants tolerate wet feet; some of the most tolerant include willows (tree and shrub), arborvitae, river birch, and red maple. Plants to avoid include most of the evergreens, especially spruce, white pine, yew, and eastern redcedar; fruiting plants, including crabapples and cherry; and dogwoods, holly, and sugar maple.

Improving soil drainage can be difficult. Before planting, amend the bed with large amounts of organic matter, and till it in deeply. You may also need to consider planting

on a berm (an artificial hill), or in raised beds. This will then require regular irrigation during dry spells.

For more information on the soil quality needs for landscape plants, contact the Purdue Extension Service at (812) 435-5287.