

DROUGHT AND WATERING OF WOODY ORNAMENTALS by Dr. Laura Jull, Assistant Professor, Woody Ornamental Extension Specialist, UW-Extension, Madison

If you live in a part of the state where drought was severe this past summer, now is a good time to help your trees and woody ornamental plants recover from the lack of rain and go into the winter season in good health.

“Most of our established woody ornamentals can survive periods of prolonged drought, said Laura Jull, Woody Ornamental UW-Extension Specialist at the University of Wisconsin-Madison Horticulture Department. “At this time of year, most trees and shrubs are slowing down their growth or have stopped growing altogether. They are in the normal process of adjusting to colder temperatures, particularly at night and shorter days.”

But now, she said, those plants need water – about one inch a week -- to get through the coming winter.

Jull said many woody ornamentals, both native and exotic, have started dropping their leaves a bit early this year because of the drought. Other, including linden, birch, dogwood (red twig, yellow twig, pagoda, and Corneliancherry dogwoods), and spirea are showing signs of stress, with leaves turning brown and curling on the edges and dropping in mass quantities.

Woody plants, particularly evergreens (needle-leaved and broad-leaved), need adequate hydration to get through winter. Deciduous plants will usually survive through winter, but if the roots have not received sufficient water in the fall, the plants may die over winter, Jull explained. Evergreens need water, even in early and late winter, because the tops of the plants are still transpiring (loosing water) through their leaves even when the ground is frozen.

“When the ground is frozen, replenishing water from the roots to the leaves is almost impossible. Therefore, watering all plants, especially evergreens, in the fall, up until the ground is frozen, is critical,” Jull said. The water will help hydrate the plant and increase the chances it will survive through winter.

“You can easily tell which evergreens went into winter with a severe water deficit; these evergreens shrubs and trees will have severe winterburn injury, even on plants that normally do not suffer from winterburn such as junipers. We saw a lot of this injury this past spring in Wisconsin,” she said.

For recently planted trees and shrubs (within this growing season or last year's season), watering is crucial. Since these plants do not have an established root system or adequate water storage potential, they rely heavily on what is provided to them either from rain or from supplemental watering. If these plants do not receive water, they may suffer severe branch dieback or the whole plant may die. Mulching plants properly can help retain the moisture in the root system and reduce evaporation from the soil. Sandy soils will need more than one inch of water a week (or 1.5-1.75” of water a week in severe droughts) since those soils dry out faster than loam or clay-based soils, which require one inch of water a week.

Jull recommends water at a slow rate or using a soaker hose to make sure the water soaks into the soil rather than running off into a ditch or sewer. If you apply mulch, place soaker hoses under the mulch to make sure water gets into the soil and not just in the mulch.

Trees should be watered out to the drip line, if possible. Arborists can use in-ground, tree root feeders for watering without the addition of fertilizers, if needed, to help plants in drought situations.

According to the book “Growing Great Vegetables in the Heartland” by Andrea Ray Chandler, it

takes 3,000 gallons of water to a depth of one inch to cover 5,000 square feet. On a smaller scale, it takes 300 gallons of water to a depth of one inch to cover 500 square feet or 60 gallons of water to cover 100 square feet. To figure out how much and how long you will need to water:

- 1) Figure out the square footage you have under a tree or in a shrub planting
- 2) Calculate the number of gallons needed. Multiply the number of square feet you need to water by 3000 (gallons) then divide the result by 5000 (square feet). For example, if you want to water a 100 square foot area: $100 \times 3,000 = 300,000 / 5,000 = 60$ gallons of water.
- 3) Estimate how long it will take to add the appropriate number of gallons of water to your square foot area: Fill a one-gallon bucket with water directly from your hose or other water source you plan on using. Fill the bucket very slowly -- you don't want the water pressure too high as it may all runoff an area if applied too quickly. Adjust the water pressure so that it takes 25-30 seconds to fill that bucket. Record the time it takes to fill the one-gallon bucket. If it takes 30 seconds to fill a one-gallon bucket at a slow rate of application, and if you need to supply 60 gallons of water (based on the calculation above), you will need 1,800 seconds or 30 minutes (1,800 seconds divided by 60 seconds/minute) to thoroughly water the area.

Repeat watering as necessary, especially through a severe drought. You can adjust the rate of application, but don't be in a hurry to apply too much water all at once as it will not penetrate the soil or get to the roots of the plants. Continue during the season and into fall and winter until the ground is frozen. If rain occurs, supplemental watering may not be needed. Woody plants will have a better chance of surviving a severe drought or transplanting if well hydrated.

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