Issue: 20-04
March 17, 2020

THE PURDUE LANDSCAPE REPORT

In This Issue

The Chill-Out is over for our landscapes

(Lindsey Purcell, lapurcel@purdue.edu)

Figure 1. These oak tree buds may look dormant but have completed their chilling requirement and are ready to break.

We all have heard about dormancy and the restful time of woody plants in our landscapes. That “chill-out” time is nearing the end and it’s time to think about tree maintenance. Trees and shrubs have actually been growing for quite some time, we just can’t see it… yet. Woody plants begin growth after the chilling requirements have been filled. These requirements are different for every plant. Chilling units are hours of time spent above freezing. The number of hours required for chilling varies for different plants from less than 500 to 1,500 hours or more. Many people think the plant is tracking hours below freezing, but in actuality, hours below freezing has no effect on chilling but does increase cold hardiness. Our mild winter and early spring arrival is playing a role in this process.

An important maintenance task is supplemental fertilization during early spring weather, especially if there wasn’t any type of fall fertilization. Let’s take a look at how a tree uses and gains energy during the year to understand why and when trees need good nutrition. After the leaves have fallen there is no way to generate food because without leaves, there is no photosynthesis. There are huge demands on the carbohydrate reserves due to increased metabolic functions to support new leaves, flowers and fruit. Supplemental nutrition can help if storage levels are low or depleted until the new photosynthates are available. That’s a huge demand on its reserves! The tree must rely on stored carbohydrate reserves in its woody parts such as stems and branches to grow. Hopefully, the tree was healthy and developing those reserves going into fall or supplemental nutrition was offered with fall fertilization. If not, then the tree exhausts much of its energy and is in need of new resources. In some situations, it may be considered safer for the tree to apply fertilizer in the spring. Fall applications, if applied too early in the fall season, can create the risk of forcing the plant into becoming metabolically active right when cold weather hits, creating growth susceptible to freeze damage.

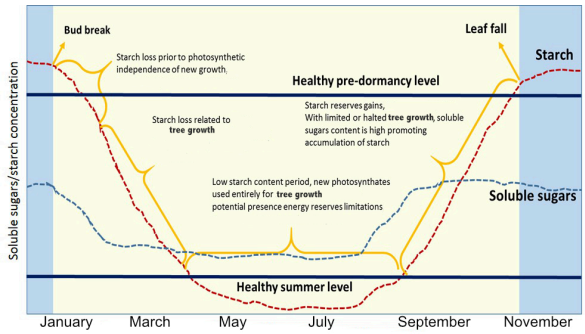

Figure 2. The graph shows the starch loss or energy used during various growing stages for the tree during the year. Most energy is depleted after leaf emergence and then regained as leaves begin photosynthesizing new resources.

Many woody plants begin the new year’s growth with stored food from the year before. An application of fertilizer in the spring gives an additional boost to this new growth. It is important to note that not all trees and shrubs need fertilization, however, most can benefit from this application, especially the younger actively growing trees. In forests, soils have an abundance of nutrients, but in our landscapes and urban forest areas, that’s not often the case. As we sweep away leaves, twigs and fallen bark, we’re removing potential recycling of nutrients for the soil. Additionally, the grass around our trees is unnatural and often outcompetes trees for available nutrients and water. That’s why we need to fertilize our trees, spring or fall. Look for signs that your tree is lacking nutrients in the soil. If you see these signs, fertilization may be necessary.

- Shorter than normal annual twig growth
- Undersized leaves that are fewer in number
- Dead branches and branch tips
- Leaf veins darker than leaf margins
- Leaves any other color than dark green, such as yellow or red

However, never fertilize without getting a soil test. If your trees are experiencing any of the above symptoms, have your local arborist inspect the tree to determine the best treatment. Also, Review https://www.extension.purdue.edu/extmedia/HO/HO-140-W.pdf for more details on fertilizer application techniques and rates.

Now for just a little about tree pruning. All of that new tree growth is going to prompt the pruning activities... be patient! Once trees start budding and blooming in the spring hold off until after the flush. Pruning in the spring can limit bloom potential and remove newly expanding leaves that will be needed to produce new food products for energy.

Generally, the best time to prune is several weeks after the spring flush or during the summer months. Early spring pruning should focus primarily on pruning for safety to remove any dead, dying or decayed branches. Aesthetic or structural pruning can be completed much later and when the tree is better prepared to seal those pruning wounds with energy reserves. For more information refer to the publication Tree Pruning Essentials from the Education Store on pruning topics.

Nootka falsecypress Dieback Problems

(Tom Creswell, creswell@purdue.edu)

This Nootka falsecypress (*Chamaecyparis nootkatensis*) is showing severe dieback throughout much of the tree (fig. 1 and 2). The primary pathogen present is a fungus in the genus Diplodia. Small twigs are infected first, which eventually leads to dieback of larger branches (fig. 3). Note the spherical black spore bearing structures (pycnidia) at the base of needles shown in fig. 4. The dark spores (fig. 5) are spread by wind and splashing rain to other areas where they start new infections. Little research has been done on the diseases of falsecypress in the mid-West but the fungus appears to causing damage similar to problems it causes on other conifers, such as Austrian pine (https://www.purduelandscapereport.org/resource/diplodia-tip-blight-of-two-needle-pines/).

Figure 1

Figure 2

Figure 3

Figure 4

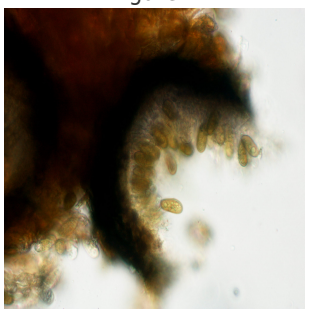

Figure 5

Nootka falsecypress is native to coastal areas of the Pacific Northwest where they get abundant rainfall and have moderate summer temperatures. This specimen was growing between a sidewalk and a parking lot and had been through several cycles of heat and drought over the years. Trees under stress from growing outside their natural range will be more susceptible to fungal infections. As with Diplodia tip blight on pine the disease will likely be very difficult to control and spraying a tree this large may be impractical. Dead twigs can be trimmed off but the existing fungus inside the needles and branches will continue to grow and new dead stems will show up. Adequate mulch and watering during dry periods will help reduce moisture stress but it may be too late to save a tree in this condition. Replacing the tree with a species better adapted to the site will be the best long-term solution to this problem.

Spotlight on Weeds: Wild Garlic (Allium vineale)

(Aaron Patton), (Leslie Beck) & *(Kyle Daniel, daniel38@purdue.edu)*

Figure 1. Wild garlic's grass-like growth in dormant turf.

Biology: Wild Garlic (*Allium vineale*) is a monocotyledonous cool-season perennial that can be found throughout most of the eastern and southern United States. Despite having linear leaves and parallel veins, wild garlic is neither a grass nor a sedge; it is a member of the lily family. Wild garlic is more noticeable in the winter and early spring months when the turf is not actively growing or being mown. Plants reproduce from seeds and aerial bulbets from early spring and throughout the summer months. Its ability to tolerate a wide range of soil types, and to survive mowing height typical of lawns make wild garlic a difficult-to-control weed.

Identification: Wild garlic is a bulbous perennial with grass-like leaves that emerges in the early spring. Leaves are slender, rounded, and hollow. Wild garlic is often mistaken for wild onion; however, wild onion leaves are more flattened and are not hollow. Wild garlic leaves have a distinct garlic-like odor when crushed or mown. Leaves emerge from an underground white bulb with a papery outer coating, which also gives rise to multiple bulbets that are flattened on one side and also covered by a papery-like membrane. Greenish-white 'flowers' can be observed atop short flowering stems in late spring through early summer. In the place of flowers, small globe-shaped aerial bulbets are produced that are greenish-white and have long tail-like green leaves. Wild garlic plants may die back in the summer, but leafless stalks bearing viable seed capsules may remain.

Figure 2. Hollow stems.

Figure 3. Aerial bulbet.

Cultural control: Hand-pulling wild garlic is generally not an effective method of weed control since hollow stems are easily broken leaving the bulb below the soil to generate new leaves and new bulbets. As a result, bulbs need to be dug-up in order to achieve an adequate level of control. The most common infestation in a landscape is when new soil is brought in to the site that contains the bulbets. Inspect soil brought from off-site to ensure it is free of wild garlic and nutsedge.

Biological control: None known for specific use in wild garlic.

Figure 4. At times, wild garlic leaves can appear curved or curled.

Chemical control: There are not any effective preemergence herbicides labelled for wild garlic, so postemergence herbicides will be the only chemical control strategy. In landscapes and nurseries there are four labelled postemergence herbicides, which include bentazon, sulfosulfuron, sulfentrazone, and imazaquin. These products will control wild garlic, as well as other difficult to control weeds. Directed sprays in landscapes are recommended to prevent phytotoxic effects on ornamentals. In cool-season turf, wild garlic is difficult to control. There are no preemergence herbicide options for wild garlic in cool-season turf; however, there are a few postemergence herbicide options. Applications of 2,4-D alone or in multiple combinations with MCPP and dicamba (Trimec, Triplet, etc.) may achieve fair levels of control. The ester formulations of 2,4-D are more effective against wild garlic than the amine formulations (consult the Purdue Turfgrass Weed Control for Professionals extension publication (link below) for more information regarding the differences between amine and ester 2,4-D formulations). Additionally, mowing the weeded area prior to application may improve herbicide uptake and overall control of wild garlic in cool-season turf.

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