



Great Places

Volume 4/ Issue 1

Spring 2025

Green Spaces

Key topics: Checking Tree Fabric, The Boon of Watering Bags

Wet Diseases, Commonly Hybridized Tree Species/Families

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Give your trees some breathing room!

Now that the weather is becoming accommodating for a leisurely walk. This can lead to walking about your yard judging previous plantings and considering new ones. If you have planted trees or shrubs in the past, particularly within the last few years, you may wish to read the next few paragraphs carefully.

The use of tree fabric is great for dramatically lowering the maintenance requirements of a tree or shrub planting by negating the need for regular weeding. Fabric has a chance of becoming a serious hazard to the health of your plant if not managed properly.

This is because as the tree grows, the fabric does not. Eventually resulting in the tree becoming constricted within the fabric, often identifiable by the trees bark overlapping or “bulging” over the weave of the fabric.

When this happens, layers of tissue within the trunk responsible for transporting water and nutrients throughout the tree will become more and more compressed as the tree continues to grow. This will compound the stress of the tree, inhibiting growth as

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the pressure on the stem increases and reduces the amount of water and nutrients flowing through the tree. This series of events can lead to the untimely death or permanent damage to your tree via fabric girdling.

These fabrics are designed to break down from high temperatures and consistent exposure to the UV rays from the sun. When those conditions are present, the fabric does break down quickly enough to be safe for your plants! However, the testing was done primarily in the Southern US in States like Texas where the UV rays are stronger. Dirt and other organic matter also tend to fall on top of the fabric, further reducing exposure to UV rays, reducing breakdown of the fabric.

These conditions can exist within a yard due to multiple trees casting shade, applying mulch around your plants, fallen leaves or simply your house blocking the sun.

Therefore, the fabric is more likely to outlast any tree its allowed to encroach upon, requiring active fabric maintenance to keep the trees healthy.

Fortunately, this maintenance only involves cutting a few inches of fabric away from the trunk of the tree every 2-4 years to prevent girdling. Cutting away only a small length away each time ensures the effectiveness of the barrier isn't compromised till the tree is established enough to where the presence of weeds is negligible.

Trees that have already been girdled have a chance to recover if the girdling is discovered early enough, and the offending fabric/object is removed. Girdling can cause disruption of water and nutrients to the crown of the tree, which can cause permanent loss of canopy. The girdling effect can also eventually compromise the structure of tree.

“A tree trunk the size of a man grows from a blade as thin as a hair.” - Lao-Tzu



Passive (Cheap) Watering!

A cheap, amazing tool!

With Spring being the best time of the year to plant trees, it is worth remembering that consistent watering is one of the most crucial parts of a tree's success.

Unfortunately, this part of the planting process is often neglected due to near daily watering of several trees being generally difficult and tedious for municipalities and homeowners alike to keep up with.

However, the use of "tree bags" this process can be made more practical as they effectively double the time between watering sessions at a reasonable cost. Tree bags can be purchased by the dozen at less cost than other passive watering systems, and due to being collapsible, can be easily stored for future use or transported in bulk.

Tree bags form a ring around a tree fastened by a zipper or another locking mechanism. The bags can be upright in shape, or in a low lying donut shape, and built out of tarp like material. The bags hold 15-20 gallons of water and slowly drain over time to maintain soil moisture. They can even be partially refilled by the rain, though this should not be relied upon. These bags can reduce the number of times you need to manually water the tree.



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An additional benefit of watering bags is that they are less likely to be tampered with by people or animals due to having a low profile, and being secured against the trunk of the tree.

There are other cost effective passive watering systems, the most popular being a 5 gallon bucket with a few holes drilled into the bottom. We have seen this system work very effectively if kept up with. The downsides to this system is the lower water capacity, faster water drainage, if it is not fastened the wind can sweep it away, and we have observed higher rates of vandalism or theft with buckets.



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Finally, "tree diapers" can also be utilized to get more mileage out of waterings. Tree diapers are often significantly more expensive per unit and can be heavy, especially when filled. The major downside is the lack of visual reminder due to its low profile.

They do have the advantage of being able to be "recharged" by rain due to absorbing and releasing water through their membranes, which in turn makes them more durable than the bag options due to maintaining function even when lightly damaged, provided the pellets most utilized for their absorbency are not spilling out from the often plastic fiber bag. They are also higher capacity and take several days to completely dry out between "charges", be it rain or active hosing. Remember to remove once the tree is established to avoid girdling.



Wetter Not Always Better...

Trees love the rain, but so do pathogens!

Last summer here in South Dakota was a strong demonstration of the relationship between precipitation and diseases that attack trees/shrubs.

Early in the season it seemed that it was raining every day on the eastern side of the state, with showers and thunderstorms densely packing the weeks in June. While the rains were not unwelcome at the start, one of the largest beneficiaries of the thorough dowsing was plant pathogens, particularly fungal based diseases. These often come in the form of leaf spots and blights, which usually have the appearance of discolored leaves of brown/grey and a waterlogged look. The remaining moisture from the excess rain and flooding only caused further stress to trees and provided more moisture to the environment for fungus to thrive.

Trees and shrubs planted in denser settings, particularly those in a windbreak arrangement, showed more issues than those with more spacing. This is due to many fungal diseases benefiting from poor air circulation within packed plantings, especially if the species are innately dense in their foliage and branching.

Usually by the time you see any symptoms within the leaves/needles of trees pertaining to a fungal infection, it's too late to effectively treat besides managing the infected/dropped material. This would be performed to prevent further generations of the fungus within the same growing season, or to prevent the spores of the pathogen to overwinter in the leaves. This all depends on the context and species of the fungus. Sometimes removal hardly has an impact. This is especially true when next season is not likely to be as wet.

Fortunately, treatment/management of fungal foliar diseases can be unnecessary! That is for the trees that are well adapted to our climate. An example for our well adapted trees, when conditions dry out, the fungal issues can retreat. Contrary to Colorado blue spruce requires treatment as it is not suited for our more humid climate.



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While the eastern side of the state did not enter "drought" conditions until later in the season, the days of consistent rain were over around the onset of July. Meanwhile the western half of the state was in a drought to varying degrees, with most having at least "dry" conditions, while counties like Pennington were classified under "Extreme drought". While this may have ended the uptick in moisture-loving fungal disease cases eastward, the swing from flooded conditions from excess rain back to intense drought has its own issues. One of the largest issues of droughts late in the growing season is winter injury that becomes evident in the spring of the following year. This looks like dead tops in broadleaves and widespread bronzing on evergreens, particularly on the windward side.

The dry ending of last year's summer and the general lack of snow from winter makes for a favorable scenario for issues to occur, so remember to water your young trees and shrubs.



Trees that Mix' n' Match!

Trees that are better than the sum of their parts!

The topics of tree species and cultivars have been previously discussed in this newsletter, but not the topic of hybridization.

Hybridization in the terms of biology is the process of two different species (or sufficiently distinct) species generating new individuals that share a genetic base of both parent species.

While this does occur in nature, the cultivation of hybrids was and still is a common technique in arboriculture to produce many of the cultivars sold in nurseries today.

The most common reasons for the development of hybrids, at least in the context of South Dakota, is for enhanced survival in challenging conditions.

A great example is Heritage oak, or *Quercus x macdanielii*. It is a cross between English oak and the only South Dakota native oak, bur oak. The resulting tree has both robust cold and alkaline tolerances of the bur oak while maintaining the more complete leaf and fall color of the English oak. It also lost the generally "ridged" and "corky" look of bur oak some may find unappealing.

In addition to oaks, other commonly hybridizing families that have representatives in South Dakota are maples and poplars.

Unfortunately most maple hybridizations available were developed for other regions of the United States in mind, and can have several performance issues in South Dakota. The largest issues are the alkalinity of the soils leading to chlorosis and the tendency of their usually thin bark to crack in the states severe temperature swings during winter.

Hybrid poplars are also a very frequent planting in South Dakota due to their impressive growth rate. They also perform well in poor sites, allowing them to being a popular pick for windbreaks.

It is best noted that Eastern cottonwood, a parent of what is commonly known as "hybrid poplar" in South Dakota, can easily live to 80 years, even clocking over a hundred in many cases. However the hybridized variant will struggle to reach half that, with many beginning to show significant decline as early as 30 years old.

Therefore when looking around for a new tree to plant this year, remember to research species, cultivar, and any desired components you desire!

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