



Tree Pest Alert



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Samples

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Note: samples containing living tissue may only be accepted from South Dakota. Please do not send samples of plants or insects from other states. If you live outside of South Dakota and have a question, please send a digital picture of the pest or problem.

Any treatment recommendations, including those identifying specific pesticides, are for the convenience of the reader. Pesticides mentioned in this publication are generally those that are most commonly available to the public in South Dakota and the inclusion of a product shall not be taken as an endorsement or the exclusion a criticism regarding effectiveness. Please read and follow all label instructions as the label is the final authority for a product's use on a pest or plant. Products requiring a commercial pesticide license are occasionally mentioned if there are limited options available. These products will be identified as such, but it is the reader's responsibility to determine if they can legally apply any products identified in this publication.

Reviewed by Master Gardeners: Bess Pallares, Carrie Moore, and Dawnee Lebeau

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Plant development for the growing season

The growing degree days (GDD-base 50) have not moved in the last week in Sioux Falls. We are stuck at 3580 GDD and this is probably where we will end the year. This is about 100 GDD more than last year and 600 GDD more than 2019. It was a long growing season.

But it is over now. Plants and pests are preparing for their long winter nap. The trees have dropped their leaves. But not every tree. Many oaks still are still covered with foliage. The leaves are dry and hanging but they persist.



The clinging leaves are called marcescent leaves. These leaves persist because of an incomplete development of the abscission layer at the base of their petiole. They remain partially connected to the twig. However, they are like a loose tooth and eventually as the leaves twist in the winter winds they fall.

Many oaks will be retained these leaves until spring. They complete the abscission layer then and the leaves fall just as the buds begin to open. Falling oak leaves in March or April means that warm weather is coming.

Marcescence is more common with juvenile tissue. The lower trunk and canopy remain juvenile even as the tree matures. Therefore, the lower, interior canopy will often be filled with winter leaves while the tips are bare.

Treatments to Begin Now

Do we need to still water our trees and shrubs?

While much of the state received needed rains this fall, we are still in a deficit. The forecast is for warmer than average temperatures for the near future. This combination of dry soils and warm temperatures may

mean we may need to continue watering our trees and shrubs.

The purpose of late fall/early winter watering is to replace the soil moisture being absorbed by roots and lost back into the atmosphere through plant tissue such as shoots, buds and needles. If the water leaving the tree through transpiration cannot be replaced by water from the soil, plant tissue such as evergreen foliage and the buds on deciduous trees and shrubs can desiccate. Come spring as the temperatures warm and plants slip out of dormancy, the affected evergreen foliage turns reddish-brown. Deciduous plant buds become brittle and fail to open.



One key recommendation to reduce these problems is to water from August through October to help the plant better prepare for winter. The old recommendation was to withhold water in the fall to force the plant to dehydrate. This was a bad idea and has been discarded. Going dormant for the winter requires the plant to expend energy. The plant is not just reducing its water content, it is also producing its own antifreeze. If it is already suffering from water stress, the plant may not achieve as deep of dormancy as a healthy plant.

The recommendation for this past summer was to water. Now plants have gone dormant, but they can still transpire moisture on warm days. So, do we need to replace this moisture if the winter days are warm and dry and if so, how?

First, plants do not need as much water as they did in summer. Water loss is minimal during days with air temperatures less than 40°F and essentially stops when the temperatures dip much below 32°F, even for evergreens. Water movement up stems during winter days with air temperatures slightly above freezing does not occur with most woody plant species and is extremely slow in others. Finally, soil temperatures also influence root permeability and water uptake at 33°F may be only one-fifth of that at soil temperatures near 60° to 70°F.

Watering requirements for woody plants in winter are generally minimal. While watering will not harm them it may be detrimental to the lawn beneath the tree or shrub if the water does not infiltrate into the soil. You do not want to form a layer of ice over the turf.

Still winter watering may be a good practice in the Black Hills and western parts of the state where it is dry and warm winter days are common. Some trees are sensitive to desiccation injury – birches, hawthorns, lindens, and maples – and they benefit from late fall watering. Arborvitae and spruce are also prone to winter-burn and watering can help reduce this problem.

The location of the plant is also a part of the decision whether to water. Shrubs and small trees located along the south side of homes where the daytime air temperatures can reach into the 50°F and higher also benefit from watering if the soils are not frozen.

The best way to water woody plants during the winter is to only water when the soils are not frozen and the air temperatures are above 40°F. Restrict watering to mid-day so that the water will have an opportunity to soak into the soil before night. However, if the trunk is still frozen, even this water will not be absorbed.

Timely Topics

Emerald ash borer update

Our last check of the year has found almost all the emerald ash borer larvae deep into the sapwood in their overwintering chamber. These are the J-shaped larvae and will remain in this stage until next April.



However, this year we have also found some younger larvae just beneath the bark. This might mean we were sampling more vigorous hosts as they develop slower in healthy ash. The longer growing season may have also played a role in their life cycles not being synchronized. Regardless of the reason, younger larvae are more sensitive to winter cold and are vulnerable to parasitoids in the spring.

The Christmas tree shortage

Christmas tree lots are beginning to spring up around the state, but they are a little smaller this year. There is a shortage of Christmas trees this year, just like almost everything else. The reason for fewer artificial trees in stores is the supply chain problem that is affecting everything from computer chips to toys. There is probably a ship out there with artificial Christmas trees that will not be offloaded until May. Christmas in June, anyone?



But why the shortage of natural Christmas trees? Yes, there is a shortage in trucks and drivers to deliver them to stores but the big reasons started years ago. First fewer trees were planted in the 2010s. Since it can take seven to fifteen years from planting till the tree arrives at your house, we are only now seeing the results of this downturn.

Second, there was a drought the last two years. Christmas trees were impacted by the nationwide drought just like every other crop (though some Christmas tree farms in southeastern US had too much rain and the trees died). The lack of water during past summers slowed growth. This meant trees that would be sold in 2021 will not be ready until 2022.

Another reason is during the COVID shutdown last Christmas everyone decided to have a natural Christmas tree. This meant many Christmas tree growers ran short and overcut. They harvested trees that should have been sold this year.

People are getting use to shortages and the ways around them. However, they will not stock up on Christmas trees like they did for toilet paper last year. After all you probably only need one tree. But they will buy early to be sure they are not left with a 'Charlie Brown' tree.

Here are some tips if you are buying your Christmas tree early this year. First you want to buy a fresh tree. A fresh tree is a moist tree and these trees will last longer in the house. The best way to obtain the freshest tree is to harvest it yourself at a nearby choose-and-cut Christmas tree farm or obtaining a Christmas tree permit from the Black Hills National Forest.

If cutting your own tree is not possible, here are some tips for checking freshness of a tree at a Christmas tree sales lot. First, give the tree a light, but vigorous, shake. If it is fresh, only a few interior needles should fall out of the tree. If a pile of brown needles appears on the ground after shaking, it is not a fresh tree. Next, reach into a branch and pull the needles *gently* through your hand as you move out towards the tip.



The needles should bend, not break, as your fingers run across them; the branch should only slightly bend to the touch. If the needles break off completely this is another indicator that the tree has already dried out too much. Likewise, if the branch does not bend slightly but seem more like a wooden stick, the tree has already dried out and is not worth buying.



Once you get the tree home, leave it outside in the shade while you set up the stand indoors. The choice of a stand is probably the most critical factor in maintaining the freshness of the tree once in the home. The stand should be able to hold one-half to one gallon of water. A new tree may absorb this amount on the first day. A good rule-of-thumb is a tree will use one quart of water per day for every inch trunk diameter at the base. If you have a tree with a 3-inch base, it may use three quarts per day.

Also start out with a clean stand. Wash it with a solution of about a capful of bleach to a cup of water, rinse and let it dry before placing the tree in it. A clean stand does not increase the life of the tree but does eliminate the mushy odor from an old, dirty stand.

Just before you bring the tree in the house, cut the base between a half and one inch from the bottom. This will open the sap-filled pores that transport water through the tree. The base cut does not have to be slanted. The angle makes little difference in the amount of water absorbed, so cutting perpendicular to the trunk is fine. Do not drill holes into the trunk or whittle it smaller, neither will improve water uptake. Also brush off any debris or dirt on the base before placing it in the stand.



Once the tree is in the stand, add water and then *never* let the stand become empty. If the stand becomes empty for more than six to eight hours, the tree's pores plug up again. Water uptake will be significantly reduced, the tree will dry out sooner than expected and the needles will soon begin to fall. If the tree stand does dry up for half a day or more there is nothing that can be done other than pull the tree out of the stand and recut the base – not a pleasant task once the lights and ornaments are already up.

Nothing needs to be added to the water in the stand to improve needle retention. The commercial “tree fresher” products do not significantly increase the life of the tree. The home remedies such as aspirin, sugar, soft drinks, and vodka do not work and may be harmful to pets (or partiers) that may drink from the stand.

Place the tree in a spot that receives only indirect light from the windows and not near any heat duct, fireplace, or your attempt to deep fry the turkey. Also keep the house at 40% humidity or higher, as lower will dry out the tree faster. And use lights that emit less heat, such as the LED (light-emitting diode) Christmas lights. This will reduce water loss from the tree and prolong its freshness.

Which is the best Christmas tree?

Each species has its good points, but the Fraser fir is probably one of the top favorites. The tree has a very pleasant fragrance, excellent needle retention - they will last the entire holiday season - and the branches are stiff enough to hold most ornaments (however, if heavy ornaments are to be placed on the tree go with a spruce). The bright green needles are white on the underside and this makes a very attractive display.



Balsam fir is another good choice though the needles do not last quite as long, and the branches are not as stiff. Canaan fir is like Fraser fir, and it is another popular Christmas tree.

Pines are very popular as trees with Scotch pine, pictured to the left, probably the most popular Christmas tree in the country. It has a pleasant fragrance; excellent needle retention and the branches are stiff enough to hold heavy ornaments.

Eastern white pine is another pine commonly sold at Christmas tree lots. The needle retention is not quite as good as Scotch pine, and the branches are very flexible, meaning heavy ornaments may fall off. White pines do have very soft needles. If you are going to run into the Christmas tree in the middle of the night, this is the softest one!

Spruces are not as popular of Christmas trees due to their relatively poor needle retention. If you want to have a Colorado blue spruce as your Christmas tree, you probably should wait until a couple of weeks before Christmas cutting one and setting it up. The needles may only last that long. Once the needles begin to fall, blue spruce are about the worst tree in the house as the fallen needles are sharp and seem to find their way into socks and slippers. The branches are very stiff, however, and can support the heaviest ornaments. On a positive note – cats do not seem to like to climb blue spruce trees!

White spruce, or Black Hills spruce is not a commonly available Christmas tree at lots though it can be cut from the National Forest (with a permit). It does make a nice tree, particularly when cut fresh, though needle retention is poor. The tree also does not have much of a fragrance and occasionally Black Hills spruce trees can produce a slight musky odor when the foliage is bruised.

E-samples

Sapsucker damage

The increase in pine wilt disease killing Austrian and Scotch pines means more people are paying attention to anything wrong with their trees. If they find parallel lines of holes around the trunk, they immediately wonder what borer is attacking their tree.



The culprit in this instance is not a bug, but a bird, a sapsucker which is a species of woodpecker known as a

sapsucker. They create holes about ¼ inch in diameter that are drilled horizontally or vertically in rows. However, unlike other woodpeckers, sapsuckers are drilling for sap, not insects. They usually do not drill enough holes, nor deep enough, to harm a mature tree.

The most common way to discourage further damage is to wrap burlap around the affected area. This will usually keep the sapsuckers from returning and continuing to drill holes in the tree.

Samples received/Site visits

Union County, tree identification

We do not receive many samples or do site visits around the holiday season. There are not a lot of problems at this time of year. But while I was down working on tree inventories and was asked about a tree that still had its leaves.

The tree, which was growing in the park at the tip of Dakota Dunes, was the tree-of-heaven (*Ailanthus altissima*). The tree looks like our black walnut except it produces winged seeds rather than a nut. The underside of tree-of-heaven leaves will also show two small glands at the base of each leaflet.

The tree-of-heaven is native to eastern China and was planted in urban areas of eastern US due to its toughness. It will grow anywhere; soil is almost optional. Fortunately, the toughness does not extend to winter cold and it is not hardy in much of South Dakota.

It does fine in the milder climate of southern South Dakota. Large trees can be found along the Missouri River as far north as Pierre. You can find trees more than 60 feet tall in Yankton.



This is not a good thing. The tree is a host to the spotted lanternfly (*Lycorma delicatula*). This is another invasive insect that we do not want to see in our state. It requires

tree-of-heaven to complete its life cycle so Aberdeen, Brookings and most South Dakota cities will not have to deal with these new pests. Unfortunately, it may find a home along the Missouri River where tree-of-heaven has naturalized.