



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: Carrie Moore, and Dawnee Lebeau

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Plant development for the growing season

We are at 19 growing degree days (GDD base 50) in Sioux Falls. Silver maples will begin blooming around 45 GDD and their flower buds are already expanding in southern South Dakota. Signs of spring are beginning to appear!



Treatments to Begin Now

Fruit tree pruning season will begin soon now that the extremely cold weather is mostly behind us. We had about -10°F in Sioux Falls and about -23°F in Aberdeen on February 22 and 23. While temperatures in the single digits are still possible in March, the likelihood is less and with that the possibility of winter injury on sensitive trees.

Waiting another few weeks to begin pruning is probably best but eager orchardists are already beginning this annual chore. Fruit trees need training to maintain a strong scaffold to support the fruit, yet open enough to allow sunlight penetration through the canopy to the fruit.



Stone fruits - apricots, cherries, peaches, and plums – need a very open canopy to maximize fruit quality and size. These trees are often pruned to a vase-shaped form so light can beam down through the center. The lateral limbs are spaced to about a foot apart to improve air movement and light.

This open form is easier to create and maintain if a little wood (less than 15% of the canopy) is removed each spring until the tree matures. Light pruning will also reduce watersprout formation; those vigorous, upright shoots that provide interior shade but few flowers or fruit. These shoots appear in reaction to excessive canopy loss.

Timely Topics

Emerald ash borer update

Emerald ash borer larvae are still tucked deep in the sapwood of their hosts. This provides protection from the winter cold, what little we have had this season. While we did see temperature fall to -10°F in Minnehaha County, that wasn't low enough to cause mortality of the J-shaped larvae in their deep winter chambers.

A recent check found live larvae snug and alive in their winter chambers. There were also a few larvae found that had not transformed to the J-shaped late instar before the cold temperatures last fall brought development to a close. These were 4th instars that remained just beneath the bark and despite this more vulnerable location and exposed to below zero temperatures, they are still alive. We are quickly ending the time we can hope for extreme cold to reduce the population. I expect there will be a lot of emerald ash borers flying this summer.



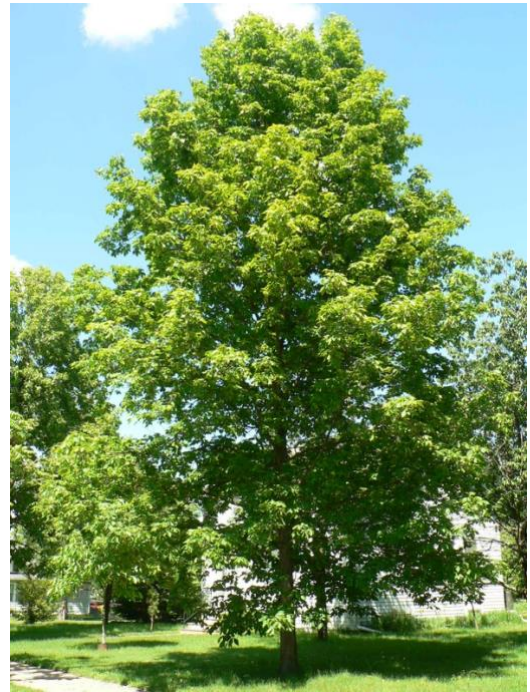
Shagbark hickory – another windbreak possibility

I got an email from the Brookings Conservation District about planting shagbark hickory (*Carya ovata*) – made my day! One question that continually comes up from producers is, “If I cannot plant ash, what else can I plant?”

Hackberry has become a common ash substitute, but we need to diversify our future windbreaks to more tree

species. Reliance on a limited number of species leaves us vulnerable to future threats. No one knows what non-native insects or diseases may appear in the future so expanding our list of suitable trees is important.

Shagbark hickory is one of those trees. It is native to eastern North America, with a range expanding into Iowa. The tree is hardy to USDA Plant Hardiness zone 4 so is adapted to the cold winter weather in much of South Dakota. We have numerous trees in Brookings, such as the one pictured below, that have withstood our cold winters for decades.



Shagbark hickory is tolerant of alkaline soils. Trees have performed well on soils with a pH of 7.5. While the tree is known for its drought-tolerant out East, this means it tolerates their droughts, not ours. Twenty inches of precipitation during the growing season is best and that will be a limitation in central and western South Dakota.

Shagbark hickory has strong wood and develops a good form. We rarely see storm-damage. Probably one of its major drawbacks is the slower growth rate. Hickory grows slower than ash, more like oak, but seems to grow faster once established. Saplings can grow a foot or more a year during good years.

This is not a perfect tree – there are none – but it is great option for much of southeastern South Dakota.

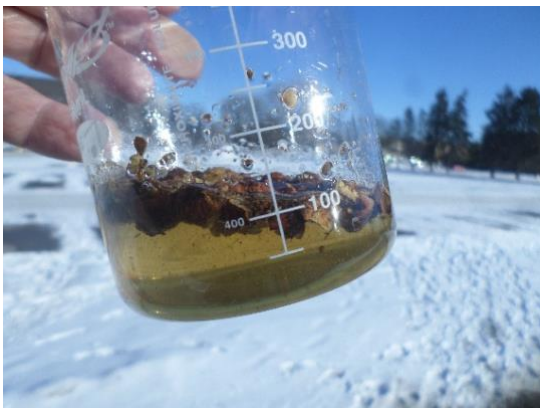
Oak gall ink

If you are bored during a late winter day, you might try your hand at making ink. The basic ingredient is probably in your neighborhood – horned oak galls. While these bullet-like woody galls on bur oaks may seem an unlikely source of ink, they were the most common source prior to the printing press. Our Declaration of Independence was written in oak gall ink.

The process is simple. First go out and collect about three dozen woody galls from a bur oak. The galls to collect are the ones closest to the shoot tips.



Crush these with a hammer so they are in pieces but not powder. Place them in a container and add a pint of water, stir a few times, and let set overnight. You can also boil the mixture to speed up the process but why the rush?



The next day the clear water will have turned almost black. Filter out the woody gall debris with a coffee filter then add an ounce of iron sulfate (if you add too much, it will damage the writing paper) and stir. Add a half a teaspoon of gum Arabic to thicken the solution and you are done!



You are ready to write. You just need to find an old dip pen. NOTE: This can be messy to make!

Winter watering

I have been receiving calls about watering trees. About half the state is still under moderate drought with only the northeastern counties and the counties along the eastern border drought-free.

Watering last summer and fall would have been helpful but less so now. Winter watering has limited benefits as the movement of water through the cold or frozen soil is minimal. Water will also move slowly, if at all, in cold stems and the loss of water through hardwood buds or softwood needles is also slow on cold, cloudy days.

Watering is only recommended if the air temperatures are above 40° to 45°F and the soil has thawed. Water in the morning and don't water more than what drains into the ground by afternoon. The water should not pool and be left to freeze overnight. Water infrequently, perhaps once every two weeks, and probably best to limit this to seedling and sapling trees

Winter watering has not been extensively studied so most recommendations are based upon educated guesses. One of the few studies that was done found that significant water uptake did not occur until buds began to swell in the spring. This means that watering now may do little other than give the waterer a good feeling that they did something to help the tree.

Watering in mid-March may be helpful as buds of many trees are beginning to swell by that time, at least in the communities on the edge of the Black Hills and the southern half of the state. Tree owners in northern South Dakota might need to wait a little longer.

E-samples

Elytroderma needle cast

I received this picture from up in the northwestern part of the state. The photographer noticed this broom in a pine and wondered caused it. The broom is most likely the result of a fungal infection of *Elytroderma deformans*, which causes elytroderma needle cast. This needle cast disease is occasionally seen on ponderosa pines in the western part of the state. The disease causes the loss of the second- and third-year foliage in the spring (normal needle drop occurs in autumn). The infected foliage will turn red in the spring before falling.



The infected trees may also have compact and globose witches' brooms in the crown; these are the most common signs of infection. This disease is usually not a tree killer, but the loss of foliage can weaken the tree.

Galls on pines

This picture shows many knobs on the branches of a pine out in the Black Hills. Josh, one of the SD Department of Agriculture & Natural Resources, sent it along. The woody knobs are mature galls from western gall rust (*Endocronartium hacknessii*). This is a fungal disease that affects 2- and 3-needled pines. The disease is most common on ponderosa pines in the Black Hills, but I can find it occasionally in windbreaks across the state. It can even occur on mugo pines in an ornamental landscape.



The disease is not extremely common, and it is rarely a tree killer. The galls form on the lower branches where moisture from rains will remain the longest and allow the disease to develop. The cankers continue to enlarge over the years – releasing their orange spores each May and June – until the branch distal to the cankers is killed.



The disease can also invade the lower trunk and form a hip canker. This is not a bulge but a sunken area of concentric ridges on the sapwood. These can expand over the years and eventually cause the weakened trunk to snap and fall.

The best management is to remove the infected branches or better, remove the infected tree. Many pines are resistant to the disease and the ones that are not will continue to become infected regardless of pruning.

Voiles on evergreens

Now that the snow is melting around some plantings you may see tiny chew marks on young evergreen trees and shrubs. This is often the work of voles, small mouse-like rodents (hence the other name meadow mice) that are common in much of the state. As the snow melts away, you may see surface runways throughout your shelterbelt. Not a good sign, and if you do see the runways, check for chewing around the base of young trees.



I often find the injury mostly on evergreens, it seems junipers and pines are a favorite. The gnawing is irregular, with individual tooth marks less than 1/16-inch wide and not much longer. They will be different from rabbits which make a wider tooth mark, about 1/8-inch wide, and more regular. Unfortunately, once the tree is girdled there is nothing that can be done to save it. Trees that have lost more than 1/3 of the bark around a stem should be removed as they are not likely to survive the injury.

Samples received/Site visits

Moody County, Dying spruce

No surprise that we start our season with a stop to see a windbreak of declining spruce. The trees started discoloring last year and the owner was concerned it was herbicide injury.

The problem was drought injury. This often does not show up until a year or more after the drought begins. The common symptoms begin as bronze or purple discoloration on the foliage at the shoot tips. The affected needles usually turn brown and fall if the drought conditions continue. Another clue that it is drought, not needlecast or herbicide, is the most recent growth is much reduced in length and the needles are also shorter than average.



The treatment for these trees is watering this spring and summer if the dry conditions continue.