

Pest Update (March 14, 2018)

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

Available on the net at:

<http://sdda.sd.gov/conservation-forestry/forest-health/tree-pest-alerts/>

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 and the label is the final authority for a product's use on a particular 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.

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Plant Development

March is behaving like a typical March in South Dakota, cold snow one day, freezing rain the next followed by a warm, sunny day. Snow is on the ground in much of the eastern half of the state. The west looks a little dry still. If the drought does not end soon in some of the west, we may see more spring tree planting failures. Planting seedling trees in dry soils and not following up with watering is a recipe for failure.

Timely Topics

There are two 'traditional' articles in each year's *Pest Update*, a spring article on tapping maples and a winter article on picking out the perfect Christmas tree. I have been including both in the *Update* since the beginning of this series back in 2002. This year the maple article focuses not on make syrup, but just 'maple water' one of the newest drink trends.

I started tapping in South Dakota back in 1998 beginning with a large silver maple next to my barn. My interest was not making syrup, just collecting the sap for a drink. The process is similar to tapping for syrup, just saves a lot of work.

Sap really begins to run when the day temperatures are about 45°F, the nights between 15 to 25°F and moist soils (better still if snow covered). It looks like we will have these conditions for the entire state beginning this week. The sap flow will stop if the weather cools, as it often does with our seasonal fluctuations, but will start again with the return of warm days and cool nights.

The best candidates for tapping are sugar maples (*Acer saccharum*) but these trees are few and far between in South Dakota outside of the native stand in Sica Hollow State Park (note: some authorities consider the maples in Sica Hollow black maples, *Acer nigrum*, but others lump these two together). Sugar maple, as the name implies, produces the sweetest sap.



Silver maple (*Acer saccharinum*), a more common tree, also produces a sweet sap. These trees have platy bark (picture to the left) and small round reddish buds at this time of year. Even our native boxelder (*Acer negundo*) can be an acceptable sugar tree. The average sugar concentration in sugar maple is about 4.5% and ranges from about 3% to nearly 7% in some really sweet trees. Silver maple sugar content averages a little above 3% with a range between 2% and 4% so there are some silver maples that are sweeter than a sugar maple. Boxelder sap averages between 2% and 3% but once again there are some trees out there that can be closer to 5% so even boxelder can make a good syrup.

Regardless of species, the best trees to tap are large, healthy, open-grown ones. They need to be at least 10 inches in diameter (measured at 4.5 feet above the ground) and larger is even better. The tree should be in a sunny location so that it had the opportunity to make plenty of sugar the previous season. The tree must also be free of large dead limbs and trunk decay. Trees with large dead limbs attached to the trunk and other signs of rot such as cavities and hollow branch stubs should not be used as drilling holes in these trees may increase decay.

Commercial spouts, called spiles, can be purchased online or you can make your own. Copper and plastic are common homemade materials used for spiles but keep in mind that any material must be food-grade quality and copper can injure the tree if left in longer than the sap season. The homemade spouts can be made by cutting 5/16 to 7/16-inch tubing into a 3-inch length. However, recently some commercial operations have gone to smaller holes, 1/4-inch, to reduce the columns of stained wood that develop from drilling so smaller diameter tubing may be used as well. The 1/4-inch tubing will reduce the amount of sap, about a 10% reduction.



A ship auger bit on a carpenter brace is the best drill to use though an electric drill with a wood bit will work. Drill a hole of equal diameter to the tubing about 2 inches, or a little less, into the tree, slanted slightly upward as you drill in for better flow. The wood coming out of the hole should be cream or white color indicating it is in the sapwood, not dark which means the hole went too deep and entered discolored wood. The tubing is then tapped in about 1-1/2 inches.

The holes should be placed about 3 to 5 feet above the ground and the number of holes that can be placed into a tree is based upon the diameter. A 10-inch diameter tree can have a single spout; a 15-to 20-inch diameter tree 2 spouts. While commercial producers may put 3 into trees more than 20-inches, you probably do not need to produce that much.

Do not drill holes closer than about 8-10 inches from one another. Also do not drill within 6 inches to the side of where you drilled the previous year and never above or below a hole. Drilling holes too close to the previous year's or above or

below may lead to tree decay. Also if you are only doing one spout, place it on the sunny side of tree



Place a food-grade bucket (plastic or metal) beneath the spout. You'll probably have to hang the bucket from a nail and put a cover over most of the bucket to reduce debris from collecting in the sap (but be sure the sap can drip into the bucket). The sap flow may be over several hours during a day, usually the morning, and it should be removed daily or more frequently as sap can spoil if left in the warm sun. Once the sap begins to flow it may continue for anywhere from two to six weeks. The early season's sap is light and mild. As the season progresses the sap becomes darker and stronger flavored. The season ends when the buds are beginning to expand, the sap become cloudy and develops a "butterscotch" off-flavor. This seems to happen

sooner with silver maples and even some boxelders as they begin to leaf out before super maples. Once the season is finished, remove the spout from the tree. Do not place anything into the hole and do not use the same hole or drill one directly above or below it the following year.

During the sap run a single spout may produce anywhere from a pint to nearly gallon of sap per day, though on cool days none may run and on a sunny day you might get even more, even several gallons! A single tap may produce from five to twenty gallons of sap during the season. Most trees are not going to produce enough sap to make much maple syrup and boiling it down is not an easy task. It may take about 20 to 30 gallons of sap to make a single gallon of syrup.

The best use for the sap may be for your coffee or cooking. The raw sap can be kept for a day or two in the refrigerator. I like to use it for my coffee water in the morning. Leave a bucket of raw sap set out overnight in freezing temperatures. The next morning carefully break off the crust of ice on top (see picture above) – that is mostly water. Now run the raw sap through a cheesecloth and store in a glass container in the frig. Next morning use it for your coffee water (note: heat the water on the stove, not in an electric percolator). This water adds just enough sweetness for my taste and even gives a slight maple flavor to the coffee (and it's another excuse to drink a quart or more of coffee a day).

If you are not a coffee or tea drinker, just drink the sweet water right out of the container. Apparently this idea has caught on and now you can buy maple water as a bottled drink. "Sap on Tap" it's called and along with coconut water is becoming a trendy drink! The maple water sells for \$3 to \$5 a bottle retail for an

8-oz bottle. This is becoming a popular market in Minnesota as the producers get to skip the time and expense of boiling and essentially bottle it right from the tree. This is a new market and maybe a good opportunity for someone in South Dakota with a grove of silver maples.

E-samples



Is this emerald ash borer? The questions are beginning to come in as folks are venturing outside and noticing dying trees. Fortunately, this does not appear to be the issue with this ash. The pencil-size diameter exit holes and their appearance near the base of the tree rules out emerald ash borer. Instead this is the work of our native clearwing ash borer (*Podosesia syringae*). These are common insect in dying ash, particularly trees that are less than 8 to 10 inches in



diameter. The clearwing ash borer also makes meandering galleries (tunnels the larvae make as they burrow in the tree) that often bore deep into the wood. The emerald ash borer makes serpentine (zig-zag) galleries that remain just beneath the bark.



Another difference is trees infested by our clearwing ash borer generally just have dying branches and a few areas of the trunk where the bark has become detached as in the picture to the left.

Emerald ash borer infested trees (picture to the right of a tree in Rochester, MN) often have the bark shredded from the trunk, 'blonding', as the woodpeckers strip away the bark to feed on the larvae beneath it. Since emerald ash

borer larvae feeds just beneath the bark it is easy prey for the woodpeckers. Our native clearwing ash borer feed deeper within the tree so are usually beyond reach of the woodpecker.



Squirrels at work. Squirrels have been busy chewing away on tree trunks and branches during those relatively warm winter days between our deep freezes. The damage appears to be worse in eastern South Dakota and adjacent

Minnesota and the most likely culprit is the eastern gray squirrel. This small rodent can strip the bark completely around a small trunk or branches in a few days. Oftentimes these injured stems or branches will flag in the spring (yellow, wilting leaves) and then die back. Why squirrels feed on the tissue is not known for certain, but they do tend to feed most when the sugars are concentrated in the soft inner bark during the winter and spring. The one thing we do know is they seem to like maple and elms in the winter and spring and oaks and walnuts in the fall. There is not much that can be done to discourage them from feeding on a particular tree. They seem to prefer some to others, even of the same species. Some maples and elms are just tasty I guess.



If the tree is isolated so the squirrels cannot jump to it, a metal barrier, the cones often sold to keep squirrels from reaching bird feeders, can prevent squirrels from reaching the branches (but remove it come spring to keep from girdling the stem). There are also repellants on the market but effectiveness is spotty at best. A .32 caliber round ball works great in a long rifle and this is one of our few pests that can be made into great chowder! However, if anyone is considering shooting or trapping these rodents be sure to check the game laws in your state. Generally, these are considered small game and a small game license is required as well as observing a season. Also you are likely to attract the attention of your neighbors and local police department when firing into the canopy of the tree in your front yard so this is not the treatment of choice in urban areas.

Samples received/Site visits

Douglas County **What is wrong with these pines? They are about 40 years old and many in the windbreak are dying.**

The sample has only a cluster of browning needles and a twig. Browning needles may be due to many different stressors, including several needle diseases. However, there were no signs of a pathogen or insect on or in the twigs or needles. The pines may be declining due to the diplodia tip blight or possibly Zimmerman pine borer, or just old age (lots of those in your county). I'll be down in another week to look at these trees.

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