

Pest Update (March 20, 2019)

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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 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

Finally, it appears winter may be over. The forecast is temperatures in the 50°F this week. While the warmer temperatures are welcomed, the melting is not. The rain last week has left roads washed out and flooded basements in the eastern part of the state.

Timely Topics

Sap on tap

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 like 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 snow-covered soils. It looks like we will have all 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 generally found in our eastern communities and one 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 in towns and windbreaks, 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 very 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 or taps, called spiles, can be purchased on-line 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 injury 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 though, about a 10% reduction.



A homemade spile from copper tubing.



A ship auger bit will remove wood chips better than a wood drill bit.

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 spiles. While commercial producers may put 3 into trees more than 20-inches, you probably do not need to produce that much sap.

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 tap, place it on the sunny side of tree



The ice that collects in the bucket is mostly water and should be removed.

Place a food-grade bucket (plastic or metal) beneath the spile. 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). You can use a metal or plastic cover but even saran wrap will work.

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 spile 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 spile 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 30 to 40 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 – 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



A glass of fresh sap. It is usually clear from the tree but may become cloudy during storage.

flavor to the coffee (and it's another excuse to drink a quart or more of coffee a day). Don't store it for more than a couple of days or it will become cloudy.

If you are not a coffee or tea drinker, just drink the sweet water right out of the container. However, it is best to pasteurize it first. While it comes out of the tree sterile, the sap picks up bacteria (*Pseudomonas* and *Rahnella* have been found) from the tapping and bottling process.

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 (though it is pasteurized to limit bacteria growth). This is a new market and maybe a good opportunity for someone in South Dakota with a grove of silver maples.

Evergreens turning yellow

As the temperatures warm there will be the panicked calls from people with yellowing evergreens. This is a spruce with some yellow-green foliage begin to appear. The tree was green for most of the winter but now with warmer days but frozen soils the foliage is becoming discolored. This is a seasonal phenomenon not a concern as the trees usually green up once the ground thaws. However, sometimes the injury is more serious, and the needles go from yellow to brown to dead. It's hard to tell yet how serious the problem may be on a tree so delay any pruning until later in the season to give a chance for the color change to fade.



E-samples



I received a picture from a homeowner that found this beetle crawling in the basement near the floor beams at the foundation. The concern was whether it was the powerpost beetle, an insect that can be very destructive on unfinished wood. This is the confused flour beetle (*Tribolium confusum*), a native of Africa that has found a home in the northern US. This insect, both the adult and larva, feed on stored grains and other food products such as cereal, pasta, nuts and even dry dog food. The best treatment is to clean

up any spilled stored food in the basement as well as checking that every box and bag is tightly sealed.

Samples received/Site visits

Not a sample but a question. Down in Sanborn County they found dead deer that had feed on yews (*Taxus*). The question was; *are yews poisonous to deer?*

No, not generally. In fact, deer are one of the few animals that can eat yew foliage without being poisoned. Yew foliage extracts were used for murder for thousand of years. Catuvolcus, an early king chose death from drinking an extract of yew rather than be taken prisoner.

The foliage, sap and the seed (which is housed inside a bright red aril) contain toxins which can act as intestinal irritant to heart depressants. Livestock have died from eating the foliage, especially dried foliage on broken branches. Deer can and do browse on yews but only as a small part of their diet. There are reports of deer



dying from browsing yews in late winter during years without much other browse being available.

We do not have any native yews in South Dakota, but it is an evergreen shrub (usually less than 4 feet tall) found almost throughout the state. The needles are arranged in paired flat rows along the twigs. The needles are about 1-inch long, dark green needle and on a very short stalk (petiole).

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