Pest Update (October 9-16, 2019)

Vol. 17, no. 35

John Ball, Forest Health Specialist SD Department of Agriculture,
Extension Forester SD Cooperative Extension

Email: john.ball@sdstate.edu
Phone: office 605-688-4737, cell 605-695-2503
Samples sent to: John Ball
Agronomy, Horticulture and Plant Science Department
rm 314, Berg Agricultural Hall, Box 2207A
South Dakota State University
Brookings, SD 57007-0996

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.

Plant development for the growing season

The growing season has ended, and frosts are a common, almost nightly occurrence across much of the state. Many tree owners are going through the

almost continual task of raking leaves, where one weekend's layer of fallen leaves is replaced by another the following week.

If you want an estimate of how many leaves are on a tree and the number of leaf bags you will fill after raking them, try out the tree leaf calculator at https://www.omnicalculator.com/other/tree-leaves

It's simple to follow. Measure a plate diameter and identify that on the form. Then the number of leaves you can lay on the plate without much overlap. Finally calculate the diameter of the canopy and add that to the form along with the species.

For an example, a sugar maple has a 25-foot crown spread and I can fit seven leaves on a 9-inch plate. This tree has about 51,000 leaves. Let's hope most blow into the neighbor's yard.

Timely Topics

It's the season when folks are buying firewood.

All firewood is not the same. Tree species differ in the heat value of their wood as well as the color of the flame, fragrance and amount of sparks. Crabapple and apple have one of the most colorful flames and maple one of the smokiest. Cottonwood goes to ash quickly. Pine and spruce produce a lot of sparks while bur oak produces relatively few. Apple is known for its fragrance and some woods, such as catalpa, for their odor when burned. The most important factor for many homeowners is not the color or fragrance but the heat so here is the ranking of fuelwoods in million BTUs per cord of seasoned wood.

Species	BTUs[1] (million per cord)	smoke	sparks
Bur oak	25	Low	Few
Mulberry	25	Moderate	Many
Honeylocust	24	Low	Few
Sugar maple	24	Heavy	None to few
Black walnut	22	Low	None
Apple and Crabapple	21	Low	Few
Birch	21	Moderate	Few
Redcedar/Rocky Mt Juniper	21	Moderate	Many
Green ash	20	Low	Few
Hackberry	20	Low	Few
American elm	19	Moderate	Few
Boxelder	17	Moderate	Few
Willow	17	Low	Few
Spruce	16	Low	Many
Ponderosa pine	15	Moderate	Moderate
Aspen	14	Moderate	None to few
Cottonwood	14	Moderate	Few
Basswood	13	Moderate	Few

[1] BTU stands for British thermal unit, the unit of energy required to increase the temperature of one pound of water from 60 to 61^{o}F. A gallon of propane is the equivalent of 100,000 BTU's so a cord of green ash has the heat equivalent of about 200 gallons of propane.

As you can see from the list, oak may generate almost twice the heat as basswood or cottonwood so you can expect to pay much more for oak. Sales of 'mixed hardwood' often contain mostly cottonwood with a little ash – it's mostly go'fer wood meaning you are always "going for" more as it burns quickly! Cottonwoods are best for kindling as they burn readily but to keep the fire going oaks and honeylocust are among the best.

You should always buy firewood by the cord or as a fraction of a cord. A cord is a stack of wood 4 feet wide, 4 feet high and 8 feet long, or similar dimensions, that containing 128 cubic feet of space. This will usually mean about 70 to 80 cubic feet of solid wood once the air space between pieces is subtracted.

If you buy firewood by the cord you are purchasing a known quantity of wood. If you buy by the pick-up load, you getting a range of possibilities. Most pick-ups with a 6-foot bed hold about a fourth of a cord while an 8-foot bed may hold a third of a cord. You can find pick-up loads of wood being advertised for around $75 to $100 this fall while a cord may cost $200 or more depending upon the species. A pick-up load may sound like the better bargain since it is cheaper but remember you are getting about three to four times the amount of wood in a cord.

There are firewood sellers in the Black Hills selling pine by the cord for about $120 (and have seen some 'pick-up' loads advertised for $100!). However, pine is not the best wood for burning while lower heat value than oak and maple. It also can produce a lot of sparks. However, it is abundant in the Black Hills so is the main species sold there.

Be sure to buy seasoned firewood. This is wood that has been split, stored off the ground and protected from the elements for at least nine months. Seasoned wood has a moisture content of less than 28 percent so it should burn long and hot rather than steam and smoke in the fireplace. A quick way to check if the wood is dry is to examine pieces and see if they have cracks and splits. As wood dries, it shrinks so cracks will appear in the end of the split logs.

Finally buy any firewood from local sources. The most likely potential source of emerald ash borer, an invasive insect already responsible for the loss of more ash trees across the Midwest, is from firewood. Purchasing firewood that has been harvested locally is one of the best means of preventing the introduction of this insect to our state's forests. Also, no ash firewood (or other hardwoods), regardless of whether its seasoned or not, may be moved out of the emerald ash borer quarantine area surrounding Sioux Falls – all of Minnehaha County, northern Lincoln County and northeastern Turner County.

"*It is raining worms from my ash tree*"

This year has produced a bumper crop of ash seeds and with that comes the **ash seed weevils** (*Lignyodes bischoffi*). I have had e-samples from people wondering about the small white legless worms "raining" down from their ash trees and filling the gutters.

These weevils spend their larval stage feeding inside of ash seeds during late summer. Usually you cannot find anything distinguishing about infested seeds. The only clue the seed was infested is a small hole where the larvae emerged. The larvae emerge from the seed in the fall while it is still hanging on the tree hence the "raining" of insects. Once the larva is on the ground it overwinters either in the soil or the litter layer. Pupation occurs in the spring and the adult weevil emerges in mid-summer with the females laying eggs on the newly formed seeds. Once the larvae hatches, they hollow out the seeds as they feed. There is one generation per year and no management is recommended or needed.

E-samples

I continue to receive pictures of evergreens turning yellow. As mentioned in previous Updates, evergreen does not mean "forever green' and at this time of year pines are dropping their third-year needles. These are the interior needles and are turning a bright yellow before dropping, sometimes almost an attractive gold. Still this color change and the number of needles falling are resulting in some alarmed tree owners worried about their "dying" tree. Spruces usually drop their fifth to seventh year needles at this time and these often turn a yellow, red or brown before dropping. This year because of the cloudy weather the color change is subdued and not noticed by many.

I also received a great e-sample of a common problem with apples – fly speck. This is not fly poop or spit, nothing to even do with a fly. This is a fungus, *Zygophiala jamaicensis*, that causes superficial discoloration on the apple skin. The bright shiny dots appear in round groupings, 6-50 dots, on the surface of the ripe fruit. The dots are the sexual fruiting bodies of the fungus and do not affect the quality of the fruit. Just remove the dots by washing and peeling.

Samples received/site visits

Brookings County **What is killing the tops of my blue spruce?**

A drive through South Dakota will find many mature Colorado spruce, often called blue spruce, with dead tops. Last week I had the opportunity to fell a 70-foot tall spruce that was in decline and the top 15 feet was completely dead.

Once the tree was felled, I cut it into 10-foot lengths and a 4-inch thick "cookie" cylinder from each length. The top 15 feet of the tree was infested with an engraver beetle, *Ips borealis*. This is a native spruce bark beetle found across Canada as well as the northern tier of state in the US, including Minnesota and South Dakota. It is

not the spruce beetle (*Dendroctonus rufipennis*) that is more closely related to our mountain pine beetle and is killing thousands of acres of spruce in Colorado.

This engraver beetle, and there are several closely related species, are not as aggressive and tend to attack down trees and dying tops. The spruce was dying of old age, it was about 70 years old which is old for a spruce growing in eastern South Dakota. The beetles were just taking advantage of the situation.

However, if the loss of tree tops due to engraver beetles become common in a windbreak or on a property, there are effective insecticide treatments. These are carbaryl or permethrin products labelled for bark beetles. The spray must reach the top of the tree so on a 70-foot tree this will require a lot of pressure.

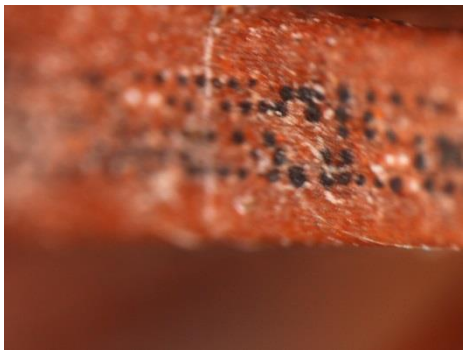
Hughes County **Is this saltcedar or eastern redcedar?**

This is saltcedar (*Tamarix*) also known as tamarisk (left side of picture). This is now considered a weed in South Dakota as well as throughout the western United States due to its invasive nature. It tends to out-compete and displace the native vegetation along streams and rivers.

It is often confused with eastern redcedar (*Juniperus virginiana*) – right side of picture - and the best way to tell a twig sample apart during the summer (winter is easy as the tamarix drops its small scale-like leaves) is the slender twig of tamarix is a glossy and dark green with very light buds alternating along it. Eastern redcedar will have a darker green twig and the scale-like leaves will not alternate but be 4-ranked with each pair opposite one another.

Turner County **What is wrong with these Colorado spruce? They are about 10-15 feet tall and are losing their needles.**

The sample that came in was a zoo – lots of possible problems. The first was that



the needles are infected with the needlecast fungi *Rhizosphaera*. This was the most common needlecast pathogen until about ten years ago when *Stigmina* appeared and almost completely displaced *Rhizosphaera*. Now we are seeing more of the *Rhizosphaera* on declining spruce. *Rhizosphaera*, mostly *R. kalkhoffi*, is produces pycnidia (small, black-colored fruiting bodies) that have a crisp, smooth edge while *Stigmina* are more spider-

like. *Stigmina* fruiting bodies can be found on green needles while *Rhizosphaera* fruiting bodies appear on discolored needles.

Needlecast can be managed with fungicide sprays with mancozeb or copper + mancozeb applied in the spring when the new shoots are about 1/2-inch long and repeated about three weeks later. Additional applications may be to be applied about three weeks apart into the summer if the weather continues to be wet.

The needles were also infested with spruce needleminer (*Endothenia albolineana*). This insect damages needles while in the larval stage by tunneling into and through them (hence the name miner) and after they become too large to fit in the needle, tying them in bundles and feeding within this shelter. We were able to find lots of evidence of mining and tying and even found a pupa.

Treatments are generally aimed at killing the adult moth before she lays eggs. Insecticides containing carbaryl or malathion and label for this use can be applied in late June.

The South Dakota Department of Agriculture and South Dakota State University are recipients of Federal funds. In accordance with Federal law and U.S. Department of Agriculture policy, this institution is prohibited from discriminating on the basis of race, color, national origin, sex, age, or disability (Not all prohibited bases apply to all programs.) To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 1400 Independence Avenue, SW Washington, DC 20250-9410 or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

This publication made possible through a grant from the USDA Forest Service.