South Dakota State University Extension

Tree Pest Alert

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In This Issue

Samples

John Ball, Professor, SDSU Extension Forestry Specialist & South Dakota Department of Agriculture and Natural Resources Forest Health Specialist

Email: john.ball@sdstate.edu

Phone: 605-688-4737 (office), 605-695-2503 (cell)

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 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

The start of the new year resets the growing degree days (GDD-base 50) clock. We need temperatures above 50ºF for most plant (and pest) development to proceed. We have not experiences temperatures at or above 50ºF in South Dakota so far this year.

Here are the current GDDs for communities across the state. This number is not likely to change for a couple of months in most of these communities.

Aberdeen	0
Beresford	0
Chamberlain	0
Rapid City	0
Sioux Falls	0

We did see temperatures drop to -15 to -19ºF in late December. The bitter cold generated a few calls from people asking about what these subzero temperatures would do to their trees and shrubs. The short answer is not much. Trees and shrubs hardy to USDA Plant Hardiness zone 4, the zone that encompasses most of the state, can tolerate mid-winter temperatures down to -25 or -30ºF.

We are seeing some "winter" injury already, but it is from the sudden temperature drop in late fall – see the site visit for Minnehaha county at the end of this issue.

Treatments to Begin Now

Use caution when applying de-icing salts

After the heavy snows we had several days with temperatures in the 30s. Once the melted snow froze overnight, many of sidewalks and drives became ice rinks.

This brought out the de-icing salts. There are many sidewalks out there that are saltier than fast-food fries. While the de-icing salts can melt ice, the chemicals in the salt do not disappear. Instead, they can run off and enter our waterways and soils.

Many de-icing salts are still rock salt, sodium chloride. This chemical can injure plants through sodium toxicity, but the greater concern is the chloride. Chloride injures plants through two entry points: root uptake into plant tissue or absorption through buds, shoots, and needles.

Most of the injury will occur come spring. The soils are currently frozen so there is no root uptake. Also, chloride

is easily leached through the soil so watering in the spring can flush the chloride out of the root zone.

The problem will be from the salt that dried on the plant. The brine dries on the buds, shoots and needles and is absorbed into tissue in the spring. Washing the plants along sidewalks and driveways in early spring with a stream of water can remove the dried brine

For now, try to use just enough salt to loosen the ice so it can be shoveled. Also use sand to create a traction grid to reduce slips. And remember, it is the chloride that causes the most harm so substituting calcium for sodium - using calcium chloride instead - still means chloride is being added.

Timely Topics

Emerald ash borer update

The larvae spending the winter as J-shaped larvae within their chambers are set within the sapwood. This provides them a little more protection from the winter cold. Add a layer of thick bark over the sapwood and the larvae are well protected from the cold.

They also go through a process called supercooling; cooling a liquid below its normal freezing temperature without ice forming. The emerald ash borers do this by producing their own anti-freeze.

While we have had some nights dip into to -18ºF, the layer of bark and wood above the larval overwinter chamber adds about 5ºF of insulation. Most larvae can easily supercool to these -12 to -14ºF temperatures. We have lost some larvae already, mostly the ones that remained as larvae just beneath the bark where there is less insulation, especially in the smaller branches. But this will have little impact on the number of adults emerging next June. We need some very cold days during this winter, -35ºF for a whole night, to kill most of the emerald ash borers in a community.

How does cold affect trees and pests? Forest Health online workshop January 16, 1:00-2:00 pm (CST)

Tree winter survival will be addressed in our next online workshop in Forest Health series hosted by the South Dakota Department of Agriculture and Natural Resource. The one hour program will cover how trees prepare for our cold winters and strategies they used to survive the subfreezing temperatures. The program will also touch upon winter survival of our many pests.

This is part of a monthly (bimonthly during the winter) series of webinars through the South Dakota Department of Agriculture and Natural Resources. The registration link for the live online seminar is:

https://danr.sd.gov/Conservation/Forestry/docs/Workshops/Winter%20Temperature%20Workshop%20Flyer.pdf

Ordering tree seedlings for this spring

This is the time of year people start ordering woody plants from their conservation districts. The diversity in the offerings keeps increasing every year. We are learning our lessons from relying on too few trees, American elm (Dutch elm disease), ash (emerald ash borer and Scotch pine (pine wilt).

Now that everyone is interested in diversifying their offering, there is also frustration in finding these less common trees and shrubs. They are less common because fewer nurseries are growing them and the sudden change in popularity does not translate into an immediate availability of a plant. It takes time for nurseries to acquire seed sources adapted to their region, plant the seed, grow the crop and harvest it. This means it can easily be four to six years between the decision to grow a new plant and harvest the first crop.

They also need a market at the time of sale. No one wants to throw out seedlings they have grown for two or more year, nor can you leave them in the ground as the space is needed for another crop. But this happens if the initial interest frizzles and the anticipated sales fail to materialize. This is a reason nurseries can be conservative in their choices of what to grow – they want to be sure they can sell the plants.

This does not mean that new tree and shrub species are not going to be coming down the pipeline, just that there is going to be a lag in new interest and seedling availability.

Ironwood – a possibility for a small tree in windbreaks

One tree that is moving down the pipeline is ironwood *(Ostrya virginiana)*. This is a small tree with a mature height between 20 and 25 feet (some reach 40 feet). It is also a native tree, found in forests along the eastern edge of the state and in the Black Hills. Ironwood is found as an understory species, usually growing within the shade of taller trees. It has possibilities as the small tree row in a windbreak.

The tree has a slow growth rate, less than a foot a year, but it does not have far to go. It is extremely hardy and adapted to slightly alkaline soils. Ironwood will tolerate

dry soils better than wet, but will languish on hot, dry sites. It will live but will clearly look like it is unhappy. Ironwood is for windbreak suitability groups 1, 3, 4, and 4c.

The name ironwood comes from the hardness of the wood – it will dull a saw. The tree is also known as hophornbeam in reference to the hop-like fruit (but they are not used for beer!).

E-samples

Woody gall Christmas tree

A community out in the Black Hills has a drop off spot for disposing of Christmas trees. An alert worker noticed a gall on one of the branches and emailed a picture. They were wondering if this was a concern.

The answer is no. The gall is most likely the 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 we occasionally find it in windbreaks. It can even occur on Austrian, Scotch and 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 summer – until the branch beyond to the cankers is killed.

Once the branch with the gall is cut off, the gall dies. It has to be alive to produce spores. This means the gall on a cut Christmas tree poses no risk to living trees this spring. The infected Christmas tree can still be chipped for mulch.

Samples received/Site visits

Custer County, Witches-broom on serviceberry

Serviceberry (*Amelanchier)* is a common tall shrub/small tree in the Black Hills Forest. The plant has several common names but is mostly known as serviceberry or juneberry (or wipazutkan in Lakota) and refers to the summer fruit. The small bluish fruits, which resemble a blueberry, are delicious but the birds usually get to them first.

We rarely see problems with this plant but one landowner noticed “growths” on some serviceberries growing beneath the mature pines. These are the black witches’ broom caused by the fungal pathogen *Apiosporina collinsii*. Several serviceberry plants were covered with the clusters of stunted shoots with blacken leaves still attached.

The term witches broom describes the symptoms, not the causal agent. There are witches broom causes by fungi, mites, and phytoplasmas, among others. They usually do not kill their hosts but dieback can occur on branches that are heavily infested.

They also tend to be found on groups of serviceberries, rather than all the plants. There were several patches of serviceberries that were infected while nearby plants either were not infected or at least not presenting symptoms.

Minnehaha County, Winter injury on smokebush

The recent freezing weather was not deep enough to injure plants. The rapid temperatures change last November are responsible for some of the injury people are noticing now. Smokebush (*Cotinus*) is an ornamental shrub used in the southern half of the state. It is considered a dieback shrub in neighboring Minnesota as the tops frequently die back during the winter.

But it's not the mid-winter temperatures that are responsible for this injury. It is usually a rapid temperature drop in the fall. Smokebush does not go dormant very quickly and is easily fooled into continuing to grow if the fall temperatures remain mild.

That is what happened to this smokebush and many others. The shrub is still in full leaf as if it was surprised by the sudden cold weather in late November. The tender, succulent tips were killed and have now curled.

Come spring, most of these shoots are not going to recover and the shrub will need to be pruned. Sometimes just pruning the entire shrub to within 3 inches of ground is best and let it sprout back. The good news is smokebush blooms off new wood, not old wood, so it can still bloom this summer after being severely cut back in the spring.

Yankton County, Browning boxwood

The extreme drought in the Yankton area last year resulted in many ornamentals plants going into winter a little on the dry side. This means they did not prepare for winter as well as they normally do. This may sound odd. Afterall, woody plants cannot have free water in their tissue once freezing temperatures begin. This water can become ice and ice is a cell burster.

We were once taught that you should withhold water in the fall to help plants dry out. But this advice ignores that acclimating for winter is an active process; one that requires the plant be healthy and not stressed by water deficits.

Winterburn is already appearing on boxwoods in the southeastern part of the state. These are Korean boxwoods (*Buxus microphylla*) which are less susceptible to this injury than other boxwood species. If they go into the winter stressed, however, they can still burn in sunny, windy locations.