



Tree Pest Alert



October 4, 2023

Volume 21, Number 33

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

Plant development for the growing season

While we still see a few days in the 80s°F, the nights are cool to cold. The Growing Degree Days – base 50 (GDD) are slowing to a stop. Here is the GDD for communities across the state. We are about 100 to 300 GDD ahead of last year at this time.

Aberdeen	2,900
Beresford	3,405
Chamberlain	3,430
Rapid City	2,730
Sioux Falls	3,410

We are seeing fall foliage color as the nights dip to near freezing temperatures. It is not as colorful as some years as the drought causes many trees to begin to drop their leaves prematurely. Still there are some colors out there – it has probably peaked – and on plants we rarely see color.

This is an Autumn Blaze maple (*Acer x freemanii* 'Jeffersred'). This is one of the most overplanted trees because of its fast growth and brilliant fall foliage color. The fall color is hard to beat, a bright orange red that persists longer than other maples.



Gray dogwood (*Cornus racemosa*) is a shrub that is not known for its fall foliage color. Some years, however, the foliage can become an attractive dusky purplish red if we do not have an early frost.



But something triggered a rapid population expansion along the ridge near Pringle. The ponderosa pines were defoliated for two years and then the population collapsed. The reason for the collapse is the natural enemies – parasitic insects and pathogens.

Last year, September 2022, the ground was littered with black pupae. We could find six or more per square foot of ground. This year none were found in the area that had suffered two years of defoliation.

There were some areas outside of this ridge that suffered defoliation for the first time in 2023. There was some question whether these stands would also see a second year of defoliation. This is unlikely. While we were able to find numerous larvae feeding on the needles of these trees this summer, we could only find a few pupae last week and then only on three sample sites.

Timely Topics

Emerald ash borer update

Emerald ash borer sampling continues in Canton and Sioux Falls. The larvae are now 4th instar, the final larval instar. These will feed for another week or two before burrowing into the sapwood to spend the winter in their chamber.



Pine looper update

The pine looper outbreak appears to have ended as quickly as it started. Two years ago, August 2021, there was an explosion of caterpillars feeding on the needles of ponderosa pines along a ridge northeast of Pringle. Two years later, September 2023, they were gone.

There is little literature on the pine looper – two publications – and these discuss outbreaks that occurred decades ago. The outbreaks last a year or two. The insect is native to the Black Hills. Usually there are just small populations of caterpillars feeding on pines scattered across the Black Hills. The population and damage are so small that it goes without notice.



Red turpentine beetles (*Dendroctonus valens*) have attacked the severely defoliated pines this year. The larvae and pupae fill the bases of these trees. There are also sawyer beetle (*Monochamus*) larvae in the lower trunks. Red turpentine beetle and sawyers search out dying tree which are vulnerable to attack. Once attacked, sawyer beetles can quickly degrade the wood in a pine.



The pines that were moderately defoliated for two years are not being attacked by the turpentine or sawyer beetles. We also do not see engraver beetles (*Ips pini*) in these trees. The moderately defoliated trees have a good chance for recovery.

Emerald ash borer galleries found in firewood

I stopped by a convenience store to grab a cup of coffee. I noticed the stacks of firewood being sold out front. Since a common means of moving emerald ash borer is by firewood, I usually stop to look at the wood. Most of the time the wood is not even ash, but a mix of other hardwood - oaks and maples - among others.

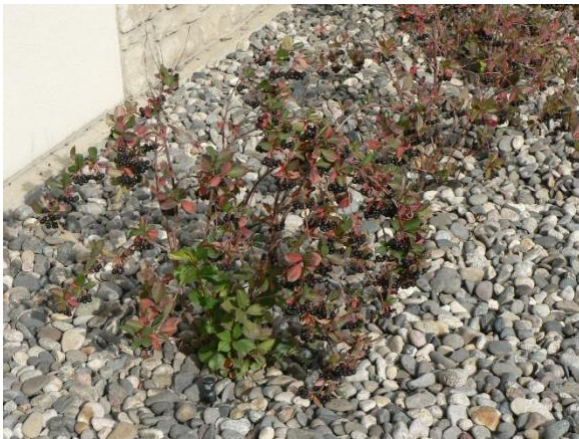
This time the wood was ash. The ash had also been infested with emerald ash borer. The distinctive galleries were easily seen on the wood when the bark was pulled away. There were also D-shaped emergence holes on the bark. This shipment of firewood was made of previously infested ash.



This is not a concern as the producer was treating the wood. Firewood can be treated to prevent transporting emerald ash borer. This involves heating the wood to 160°F for 75 minutes. This will kill any emerald ash borer within the wood.

E-samples

Chokeberry identification



This is chokeberry, *Aronia melanocarpa*, a commonly planted shrub that is noted for its spring white flowers and deep red autumn foliage color. While the autumn color can be attractive, it also tends to color late so sometimes an early frost kills the leaves before the color changes.

The plant is also known for its very sour fruit – hence the name chokeberry – that remains hanging on the shrub late into the year as even the birds do not seem to like them much (at least until the fruit goes through several freezes and thaws). However, the fruit does make a nice jam and even juice.

Samples received/Site visit

Brookings County, Dogwood aphids

This is the year of the aphid. I have seen heavy infestations of aphids on many trees and shrubs this year. This was a call to a Tatarian dogwood (*Cornus alba*) with curling leaves.

When a leaf was uncurled, ants scurried out. They were protecting their “herd” of aphids. The aphids were sucking the sap from the leaves which caused the leaves to curl. The curling is also due to the aphids injecting a toxin into the leaf as they feed.



There were also lady beetle adults lurking about the foliage. These are predators of aphids if they can get through the ant defenses. A lady beetle adult can consume fifty aphids a day. No need for any pesticide treatments – the lady beetles will do the job.



Cass County, Nebraska, *Diplodia* canker on red oak

A red oak (*Quercus rubra*) branch was submitted to the lab. The branch presented with bark cracks and black, necrotic lesions. The sample was from a red oak within a pocket of oaks that had been declining for the past two or three years.



Connie in our diagnostic lab isolated two *Diplodia* fungi from the sample, *D. corticola* and *D. gallae*, which were then confirmed molecularly. These pathogens present symptoms that mimic other common diseases such as oak wilt.

While *Diplodia* on oak has been in the pathology news lately they are not new pests. *Diplodia corticola* has recently been identified in several Eastern and Midwestern states but was collected back in the 1990s in several locations including Wisconsin.

Diplodia gallae has been collected under several different names over the decades including *Botrydiploia gallae*. This pathogen has been responsible for small branch dieback on oaks even decades ago in Michigan.

These two *Diplodia* species are opportunistic pathogens, like other members of Botryosphaeriaceae. They may live in their host for years as endophytes, only to become pathogenic once the tree is stressed by drought or other disorders.

Currently treatments are limited to the basic ones – keep the tree healthy, avoid pruning trees during wet periods, and prune out infected branches.

Minnehaha County, Spruce spider mites

This summer was also a good one for mites. Spruce spider mites are blamed for far more spruce needle discoloration and premature drop than they cause. But not this year – there was a lot of damage due to mites.

While the bronzing and shedding is easy to spot now, the treatment window may be ending soon. Spruce spider mite is a cool-season mite and does most of its feeding in spring and fall. The fall feeding starts at about 2,500 to 2,800 GDD. The winter is spent as eggs.



While there are actively feeding mites out there, this will end as freezing temperatures begin. I am seeing eggs along with cast skins and other debris along the base of needles and twigs. Soon all that we will see are dead adults and eggs.

The most effective treatments for spruce spider mites contain bifenazate or spiromesifen as the active ingredient. These are available under several different produce names for commercial applicator use.

Pennington County, Possible heat injury on Japanese tree lilac

The sample was of a Japanese tree lilac (*Syringa reticulata*) that was planted this past spring. The foliage presented small light-colored flecks, blotches, and cracks.



We also received pictures of a sugar maple (*Acer saccharum*) from the Yankton presenting similar symptoms (next page). The leaves had small, bleached flecks and cracks.

There were no signs of any pathogens associated with the symptoms. These do not appear to be due to a disease, however, but a disorder. The most probable cause is heat injury due to exposure to extremely hot temperatures, low humidity, and sun.



Heat injury is separate from water stress though the two can occur together. Water deficits occur as elevated temperatures can increase transpiration. The plant may not be able to absorb and transport water as fast as it is being transpired. The leaves begin to dry out.

The leaves may also begin closing their stomata in response to the water deficit. Transpiration provides evaporative cooling to the leaf. Once transpiration slows or stops the leaf heats up.

Injury due to water stress usually presents as browning leaf margins with the tissue surrounding the major veins remaining green. Heat injury due to brief – a few hours - exposure to extremely hot temperatures presents as light-colored flecks and crisp zone that separates from the surrounding leaf tissue.

Rapid City had several brief episodes of temperatures slightly above 100°F during July, August, and September. Yankton saw similar extremes as well as many other communities in the state. Trees most susceptible to this injury are species with thin leaves such as sugar maple and recently planted trees.