



Tree Pest Alert



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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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Plant development for the growing season

The hot humid weather continues with only an occasional day or two of rains to wash the stickiness out of the air. Remember these days when its -30°F this winter.

The growing degree days (GDD-base 50) continue to accumulate across the state.

Aberdeen	1237
Beresford	1600
Chamberlain	1526
Rapid City	1181
Sioux Falls	1530

Our summer flowering shrubs are in full bloom now. The smooth and panicle hydrangeas are showing their best floral displays right now. The hypericums are also in full bloom with their bright yellow to orange flowers.



The drought is lessening across the state. Most of East River except for the counties bordering the Missouri River are no longer in a drought. Most of West River is Cystospore still in drought but classified as abnormally dry or moderate drought.

Treatments to Begin Now

The white, oyster-shell-shaped spots on the needles of pines and spruce are the adult pine needle scales. These are immobile so are often overlooked as insects. They, and their mobile young called crawlers, feed by sucking the sap from the twigs and foliage.

The second generation of pine needle scale crawlers are hatching now. They are moving about the needles to find a place to settle and begin sucking sap. This is the stage most susceptible to treatments.

There are also many natural enemies of these crawlers preying on them now as well. Many insecticides can kill them which reduces the effectiveness of the treatments. The best option may be to ignore this second generation and focus on treating the large first-generation next spring.

If treatments are necessary, hire a commercial applicator that can use insect growth regulator; one containing pyriproxyfen as the active ingredient. This will have less impact on natural enemies is the best option.

Timely Topics

Emerald ash borer update

We are past peak emergence of the adult emerald ash borer (EAB). This means most of the eggs that will be laid on trees this year are already beneath bark flakes, and many are hatching. We are starting to see larvae appearing in trees. They are still small, less than 1/4 inch long, so are the 1st and 2nd instars.



These tiny larvae are threading their way through the inner bark cutting tight serpentine galleries. They are too small to be causing much injury to their hosts but that will soon change. By the end of the summer these tiny larvae will be more than an inch long and so large they disrupt the movement of food through the inner bark and water through the sapwood.

Emerald ash borer confirmed in Brandon SD

While driving through Brandon I noticed a few ash trees with the symptoms of being infested by the emerald ash borer. The trees had portions of their canopies with stunted light green leaves and branches that had dieback. The base of the canopies were thick with long watersprouts covered in large, deep green leaves.

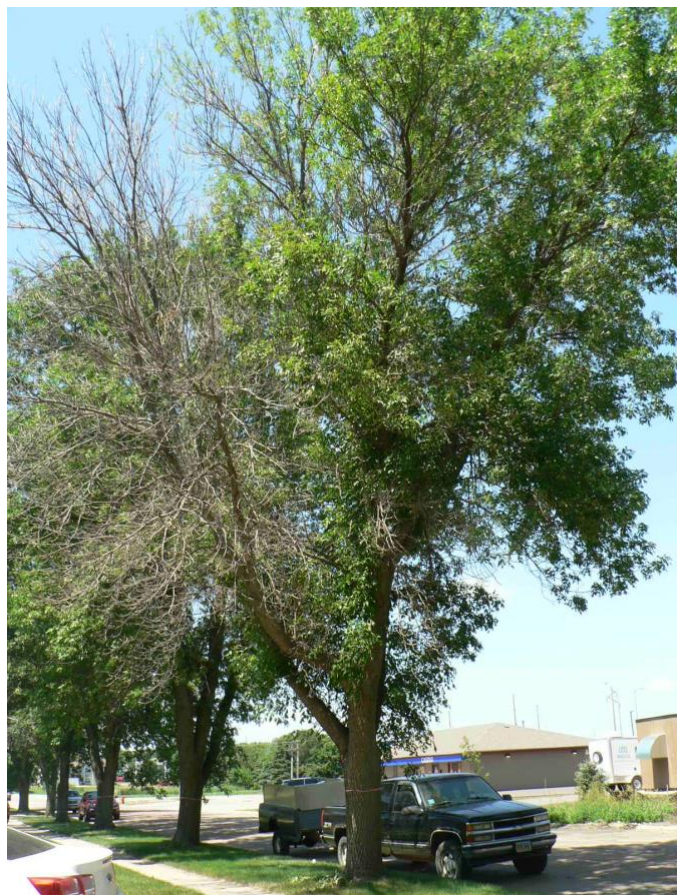
I stopped to look at the trees a little closer and the declining branches had specks of blanding and within these patches were drill holes from woodpeckers. I called Donovan, public works in Brandon, and asked if he could bring a tall ladder to look closer.

Once I got up in the canopy, I found galleries and old overwinter chambers of emerald ash borer beneath the blanded wood. We even found some D-shaped emergence holes near the base of the trunk on one of the trees.



The appearance of emerald ash borer in Brandon is not too surprising. The site is about eight miles due east of the first confirmation of EAB in the state back in 2018. These Brandon trees have been infested for at least two years, so I am sure there are infested trees through the community.

The good news for Brandon is the community was preparing for the arrival of EAB. They were in the process of gradually removing ash street trees as part of their plan to spread the cost of removals over an extended period rather than waiting till the trees were dead. Ironically, the trees found to be infested were already marked with ribbon for removal.



What happens if a community does nothing about EAB?

The Associated Press had a recent article about emerald ash borer in Connecticut. It was confirmed in that state about ten years ago. They are now experiencing the impact of this insect.

The article discussed the experience of one town, Goshen (population 3,150) which now has standing dead ash. The removals of these dead trees are costing them about \$8,000 to \$12,000 a week. Many of the surrounding communities are exhausting their snow removal budgets to pay for the removal of these dead trees before they fall on their own. The report mentions two people were killed by the falling trees.

The article ends by noting researchers are bringing in insects from China that feed on emerald ash borer. This will help but is not going to stop the spread.

Release of EAB natural enemies in South Dakota

A means of slowing ash mortality is the introduction of natural enemies, insects that feed on emerald ash borer. While the introduction of these insects will not eliminate the threat, nor are they a substitute for removing or treating ash trees, they can help to slow the spread of tree mortality in a community.

These insects, known as parasitoid wasps, are from Asia where they feed on emerald ash borer in the native forests. These insects were brought to the United States and are being reared at a special USDA facility in Michigan. They are provided through the Animal and Plant Health Inspection Service (APHIS) to state cooperators at no charge.

These parasitoid wasps are also known as non-stinging wasps and pose no threat to humans, other animals, and even insects other than the emerald ash borer and other *Agrilus* insects. They are so tiny, about 1/8-inch, that they are difficult to see and are not noticed by people. They have been released in Canton and Sioux Falls.

One of these insects (pictured below), *Oobius agrili*, inserts an egg into an emerald ash borer egg. The wasp develops in the egg and then emerges as an adult. Each *O. agrili* can parasitize up to about 60 emerald ash borer eggs. Since an emerald ash borer adult typically lays about 80 eggs, this wasp can provide significant control and help slow the spread of an infestation.



The other two parasitoids being released, *Tetrastichus planipennis* (logs pictured below) and *Spathius galinae*, attack emerald ash borer larvae. The wasps search for EAB larvae as they feed beneath the bark. Once a wasp locates a larva, they thread their ovipositor down into the emerald ash borer and deposit their eggs inside this host insect. After the eggs hatch, the wasp larvae devour their host then emerge as adults.



So far, we have few measures of success of these releases in South Dakota. The traps set out to capture adult wasps have come up negative. We have had little success finding parasitized eggs or larvae. This may be due to our cold winters – they are cold enough to kill many of the parasitoids but not cold enough to kill EAB.

We cannot depend on these releases, or future ones, to solve the problem. They can be a help, so the releases are valuable to our efforts to slow the spread. However, there may be some unintended consequences of these releases.

Emerald ash borer is not the only host for these insects. A closely related borer, the native bronze birch borer, which attacks birch, can serve a host for these parasitoids. This may not be a major issue. After all, we do not want to lose birch either so another insect that feeds on bronze birch borer might be welcomed. This unintended consequence, however, and is something we want to avoid – what if the parasitoids instead had affected a beneficial insect? A quote from the book “Dune” sums it up best; “The highest function of ecology is understanding consequences.”

Defoliator webinar July 20 1 to 2 pm CDT

This month our forest health webinar will focus on what has been feeding on (and in) tree leaves. Please join us this Wednesday for the one-hour session. To register for the webinar:

https://state-sd.zoom.us/webinar/register/WN_pO-BpJqnR2q_bGT9uo4LTw

Hope to see everyone on Wednesday!

E-samples

Basswood and linden “leaves” falling

I have been receiving calls about falling tree leaves. Some concerned callers mention that the ground beneath their tree is covered in leaves! Fortunately, this is not due to disease or drought but is normal for these species.



The species are basswood and lindens (*Tilia*). They are shedding their leafy bracts that supported the flowers and nutlets. These oblong bracts are yellow-green and about two to four inches long. Once the nutlets begin to fall, these bracts are shed and now litter the ground beneath the tree. Control is just getting out a rake.

Blister beetles are out

The ash-gray blister beetle (*Epicauta fabricii*) is out now throughout the state. They are about one-half inch long and completely gray. The bodies and wing covers are soft, and they have long legs. You can find them on legumes, including peashrub and honeylocust trees.



While the adults are slow moving, they can quickly defoliate a tree as they feed in large clusters. Usually, they feed only on the leaflets and leave the petioles, so a defoliated tree is easily identified by the fine stalks that remain after the leaflet blades are gone.

The name blister beetle comes from the oily, caustic cantharidin the adults release when disturbed. Picking up a beetle can result in large blisters that can become painful if they become infected.

Galls on poplar petioles

The large, flash-like galls on the Lombardy poplars are due to the lettuce root aphid (*Pemphigus bursarius*). This European insect forms galls on the petioles of Lombardy poplars and other hybrid poplars. They also infest the roots of lettuce crops including lambsquarter.



The galls are not a threat to the host tree's health. Heavily infested trees will shed many leaves during the summer so there will be some raking. The infestations can cause enough defoliation that the stressed can provide opportunities for decay and cankers.

Samples received/Site visits

Hamlin County, Stem girdling roots

The canopy of these sugar maple was sparse and there were many branches that had died back. A look at the base of the tree revealed the cause. The base of the tree was flat, not showing the typical flare of a normal tree. This is usually an indicator of a stem girdling root, a root that winds around a portion of the trunk. The tree is strangling itself.



The maple was planted many years ago from a nursery pot. While pots are good means of storing and displaying nursery stock in the garden center, they are not the best means of developing a sound root system. When a root reaches the edge of the pot, it is deflected and starts curving around the edge.

If this is not corrected (by removal) when the tree is planted, it can continue to grow large and eventually the root and trunk meet. Roots will graft with other roots, but a root will not graft to the trunk as they are squeezed together this disrupts the movement of sugars to the roots. The roots begin to starve so less water moves up to the canopy and the leaves begin to die.



Unfortunately, the roots are not imbedded into the trunk so there is no way to correct the damage. The tree will need to be removed.

Hutchinson County, Declining maples

These were two young freeman maples that were declining. The reason? A combination of two stresses, the drought last fall that resulted in the trees entering winter moisture-stressed and the extreme temperature fluctuation last April which killed the stressed buds and twigs.



This was not an unusual problem this year. There are many young maples presenting similar dieback throughout eastern South Dakota. The only treatment is patience. Some of the maples are now setting new buds and leaves so may recover (though leaves opening during the heat of summer are already stressed). These trees should have extra attention paid to weekly watering this summer.

Other maples may just continue to die back. These trees may still be worth keeping if the dead branches can be pruned out. If less than a third of the tree is dead, and if this dieback is limited to one of two central leaders, the tree can be pruned and restored.

Minnehaha County, Meyer spruce and herbicide drift

This was a stop to look at some drift injury on Meyer spruce. The drift from the adjacent corn field was light so there was only some minor spotting on the needles and there is little harm to the trees.



Not true with another belt of Meyer spruce in Hutchinson County where the young trees have severe needle loss and shoot tips are curled and brittle. These trees were also producing cones which is unusual in a young tree and is an indicator of stress.

We could not find or isolate any pathogen from the shoots. There were no signs of an insect or mite. This is not usual as we rarely find pest problems (other than deer browsing) on meyer spruce as appose to its North American cousin, the Colorado spruce. We will be following up on these trees to identify the abiotic agents.

