



Tree Pest Alert



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In This Issue

Plant Development.....1
Treatments to begin now.....1
Timely topic.....1
ASH-AGEDDON.....2
The importance of NOT moving ash wood.....2
Emerald ash borer update.....2
Lingering ash in Detroit.....3
E-samples3
Frost injury on ash leaves.....3
Ash flower gall mite3
Samples received/site visits4
McCook County (Not EAB, it is the native ash-lilac borer)4
Minnehaha County (Not EAB, it is likely herbicide)4
Pennington County (Not EAB, there are other insects!).....5
Union County (Not EAB, it is ash plant bug).....6

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: Bess Pallares, Carrie Moore, and Dawnee Lebeau

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Plant development for the growing season



The spring-flowering vanhouttee spirea (*Spiraea x vanhouttei*) (pictured) and common lilac (*Syringa vulgaris*) are in bloom or past peak bloom in most of the state. Growing degree-days (base 50) are between 300 and 400 GDD.

Treatments to Begin Now Needlecast diseases on spruce

The new shoots are expanding on spruce, so it is time to apply a fungicide to protect against **rhizosphaera** or **stigmina needlecast**. These are the most common foliage diseases of Colorado blue spruce. They cause the older foliage to turn yellow by midsummer and then purplish brown by fall or the following spring. Small black fruiting bodies of the fungus can be found in the spring lining the stomata along the needles. These fruiting bodies produce the spores that disperse during cool, moist spring weather to infect the new foliage emerging this year.



Stigmina needlecast fruiting bodies have fuzzy edges (as pictured above) while rhizosphaera fruiting bodies are smooth (pictured next page). Both diseases result in

premature needle drop and a thin and discolored canopy.



Needlecast diseases can be managed by an application of Chlorothalonil now and a second application in about two weeks. If the needlecast is due to Stigmina, the applications may have to continue every 10-days till August if rains persist though that looks unlikely. It is also important to treat the entire canopy, not just the lower branches when treating for Stigmina.

Emerald ash borer treatments

If someone has an ash tree in Lincoln or Minnehaha Counties – and they want to keep it, now is the time to begin treatments for emerald ash borer. If the tree is larger than about 5- or 6-inches diameter (at 4.5 feet above the ground), the only effective treatments are those provided by commercial applicators.

The applicators are out now injecting ash trees to provide two-years of protection from the borer. If someone wants to protect their tree and they have not already scheduled an applicator to stop by, they should do so ASAP!

Timely Topics

ASH-AGEDDON

This double issue of the Pest Alert is devoted to emerald ash borer and ash trees. This May marks the third anniversary of the confirmation of emerald ash borer in Sioux Falls and the first anniversary of the confirmation of the borer in Canton. We are still at the beginning of a long, gradual loss of ash – one of the most common tree species in our communities and windbreaks – across the state so it is a good time to look at what is occurring in the state.

The importance of NOT moving ash wood

We are coming up to the period restricting the removal or pruning of ash trees in Sioux Falls. Between Memorial Day and Labor Day ash tree owners in Sioux Falls may not prune or remove their ash trees (without permission from the City Forestry Department). The reason for this restriction is emerald ash borer adults emerge in early June with some still flying as late as August. Moving recently cut ash wood (logs, branches, chips) can move

borers ready to emerge and spread them to new locations.

This Sioux Falls restriction is separate from the joint federal/state quarantine which regulates the movement of ash from Lincoln, Minnehaha, and Turner Counties – no ash (nursery stock, wood, raw lumber, chips, etc.) can be move out of these counties at any time of year (again, wood may be moved if a permit is granted – see the [South Dakota Department of Agriculture's website](#)).

What is the problem with moving ash wood? What could moving a tiny piece of wood do? Here is a good example. We placed small (3-inch diameter, 6 inch long) branch sticks in tubes for our survey of parasitoids, insects that feed on emerald ash borers.



These tubes were kept in a secured heated building for the last several months. This means the insect develop faster and emerge sooner since the wood is not subjected to the cold and fluctuating temperatures.

Last week the tubes were opened. A single branch segment, only 6 inches long, had three adult emerald ash borers emerge from it! This is a good remainder that it only takes a small branch to move a new population to another city or county.



Emerald ash borer update

The insect is now in its pupal stage tucked in a cell within the sapwood. The J-shaped larval stage has

ended and many of the pupae are showing eye spots with a few beginning to darken. This is the final step before becoming an adult. They will soon be chewing their way to the surface and emerging through the D-shaped hole. Emergence should begin in Sioux Falls around the first week of June, just as it has during the past three years.



Lingering ash in Detroit

I had an opportunity a week ago to inspect the lingering ash in the Detroit area. These are ash trees that either have germinated and grown since the emerald ash borer outbreak in the area (1997-2007) or a few mature trees that survived the outbreak.



The good news is that once the outbreak is over in Sioux Falls, sometimes during the 2020s, and most of the ash trees are dead and gone, the emerald ash borer population will also decline – it is simple mathematics less food, fewer insects.

Fewer insects means that trees can survive the attacks. This means once the outbreak is over in a community, the treatment interval for the treated ash trees can lengthen from every two years to even every five years.

E-samples

Frost injury on ash leaves

We had a few cold snaps so far this spring including one back on May 11th when overnight temperatures dipped to 30°F. Many tree species can tolerate brief periods of temperatures even into the 20°F in April and even early

May. But some frost injury is possible if the tender leaves are beginning to expand during freezing temperatures.

The two species that seem to leaf out just as we had the May frost were green ash (*Fraxinus pennsylvanica*) and hackberry (*Celtis occidentalis*) and both are presenting injury symptoms now.



The common symptoms are shriveling and blackening of the damaged tissue. The affected leaves often hang limp, and the margins turn almost black. Usually, these leaves drop within a few weeks and the tree produces new leaves. The loss of foliage and the energy required to produce a new set is a stress to the tree, but ash (and hackberry) seem to tolerate it well and by mid-summer the injury should no longer be noticed.

Ash flower gall mites

The brown fuzzy balls dropping from the ash trees right now are not a problem but an annoyance. One more thing to sweep off the drive or walks. These are the flower clusters for the male flowers, and they were infested by the ash flower gall mite.



The ash flower gall mite only infests the male flowers of ash trees. Since no one wants ash seeds, almost all the ash tree cultivars sold were males. While this reduced the amount of ash seed coming down, it increased the

food for the ash flower gall mite (and sneezes from folks who are allergic to ash pollen).

The ash flower gall mite does not harm the tree. It just deforms the male flowers. The infested flowers form tumor-like greenish structures that are about 0.5- to 1.0-inch diameter. They are falling from the tree at this time and some walkways are almost covered with them.

Samples received/Site visits

McCook County, Not EAB, it is the native ash-lilac borer

This was a stop to look at a possible emerald ash borer infested tree in Montrose. The homeowner noticed the mature ash was declining with many of the large limbs having died back several feet or more. The tree owner also noticed many large, pencil-diameter size holes in the lower trunk and though this might be emerald ash borer.



The round pencil size holes are the emergence holes for the ash-lilac borer (aka clearwing ash borer, *Podosesia syringae*). This is a native borer and is common in old ash trees.

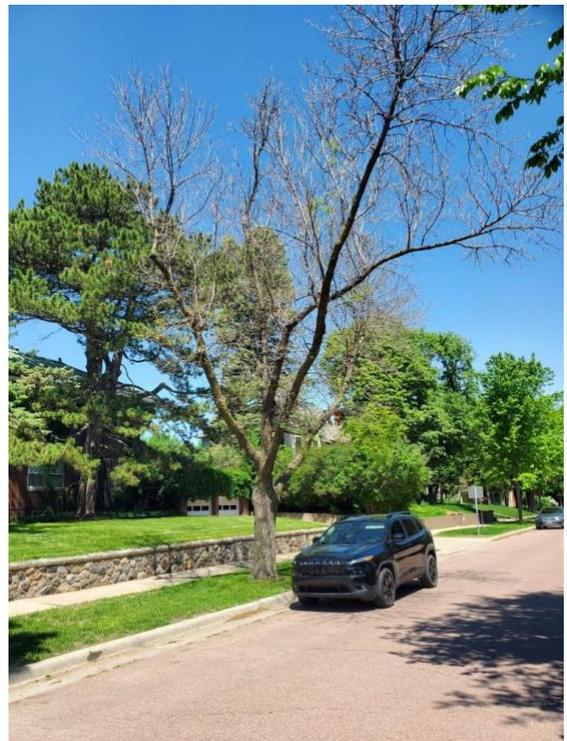


Another borer that makes a similar emergence hole is the carpenterworm (*Prionoxystus robiniae*). It is also a native borer but with a larger number of host trees than the ash-lilac borer which is generally found in ash and lilac. The carpenterworm is found in declining ash as well as boxelder, cottonwood, and elm in South Dakota.

These two insects are common in old, dying trees and are indicators the tree need to be removed rather than treated.

Minnehaha County, Not EAB, it is likely herbicide

This was a stop in Sioux Falls to determine if a treated ash was dying of emerald ash borer. The tree was tagged with a number identifying that it had been previously treated by a commercial applicator to protect it from emerald ash borer colonization. The tree now has almost completely died back with only a few branches in leaf.



The other two trees also treated ash, along the boulevard on the same property are also dying back yet the ashes on the adjacent properties are fine. This pattern is a common indication of an abiotic problem rather than a pest.

The other suspicious symptom is the foliage on the dying trees is deformed. The compound leaves are stunted with elongated leaflets and petioles. They are also sprouting in clusters along the branches and trunk.

This is a common symptom pattern for exposure to growth-regulator herbicides. I have seen these same symptoms in ash on lawns that were treated with dicamba or related herbicides. We will do a PGR (plant

growth regulator) herbicide scan and see what appears. A report will be a future *Pest Alert*.



Pennington County, Not EAB, it is the native ash-lilac borer

This is a young, dying ash tree near Rapid City. The concern was emerald ash borer but there were two other problems with this tree. One was the native ash-lilac borer. This native insect attacks stressed ash and it has been attacking this tree for several years. The tree was covered with pencil size hole from previous emergence.



There were also newer holes from this year that still had the pupal skins of the emerging adults extruding from the bark. Since this insect attacks stressed trees, what might have been the stress? No, not emerald ash borer, but oystershell scale (*Lepidosaphes ulmi*).



Oystershell scale is an armored scale (meaning the adult female forms a hard shell) that commonly infests ash and lilac along with maples and willows among other species. The name oystershell comes from the adult's brown to gray shells that are about 1/10-inch long and resembles oyster shells.

The adult females move about as fast as oysters – meaning they do not move at all. The eggs hatch from beneath these shells in late May or early June, about the time Miss Kim lilacs are in bloom, and the young, mobile crawlers scurry out to the expanding shoots to find a spot to insert their piecing-sucking mouth parts and begin sucking out the content of cells just beneath the bark. Eventually the crawlers lose their legs, remain stationary, and form a hard, waxy shell which covers and protects the adults.

The fluid lost is usually not enough to affect the host tree but large scale populations, ones where the individual scales are almost touching one another, can weaken the tree and make it vulnerable to attack from other insects, such as the ash-lilac borer.

Treatment of this scale is focused on killing the crawlers – the young, mobile stage - either as they move out to the new shoots or after they begin to settle. The settled crawlers are harder to kill than the mobile ones so earlier crawler treatments are more effective than later ones. We are at the mobile crawler stage in Sioux Falls (GDD 390) and will probably be at it in Rapid City within another two weeks.

The crawlers are susceptible to many contact insecticides but most of these will also kill their natural enemies which provide most of the control. A softer option is a summer (horticultural) oil spray. The oil will smother the settled crawlers as they have not yet developed a thick waxy covering. Oil can be used alone or combined with other treatments.

Another option is Pyriproxyfen, an insect growth regulator (IGR). These are also effective against mobile and settled crawlers. The IGRs also have minimal impact against the natural enemies of the scale. Pyriproxyfen is available under the trade name Distance and may be applied by commercial applicators.

Most systemic insecticides have very limited effectiveness against armored scales as they do not concentrate in the tissue where these insects feed. However, one does work, Dinotefuran. It is available under the trade names Safari and Zylam. These can be applied as a soil drench or as a lower (the first 8 feet) trunk spray as it is readily absorbed through the bark. These are available to commercial applicators.

The ash-lilac borers will also require treatment. The recommendation for treatment were in the May 5 issue of the *Pest Alert*.

Union County, Not EAB, it is the native ash plant bug.

We received a call from a concerned ash tree owner in Elk Point about emerald ash borer. The caller thought the tree had the common symptoms associated with emerald ash borer attacks – thinning crown, woodpecker drills and sprouting – so it was worth the stop. Considering the location of Elk Point, 60 miles south of Sioux Falls and 120 miles north of Omaha, it is sandwiched between two large cities with emerald ash borer and is located along the highway, I-29, that serves both communities.

I looked at two trees. There was minimal blanding – where the outer layer of bark is shredded off exposing the lighter colored bark beneath – and no woodpecker drills. Most likely the squirrels had broken off some of the bark in their scampering along the branches. The canopy was thinning but the problem was not emerald ash borer but the ash plant bug (*Tropidosteptes amoenus*).



The foliage shows stippling, tiny yellow dots on the upper side of the leaves. This injury is from the plant bug piercing the leaf tissue and sucking out the fluid. Usually, the damage is limited to stippling, but in severe incidents the leaves will turn brown and curl.



The adult ash plant bug is about 1/4-inch long, oval-shaped and range from pale yellow to green in color. The adults have a distinctive yellow triangular spot on the back. The nymphs are smaller and are light green to

black. There were a few adults and lots of nymphs feeding on the leaves. The major difference between the two being the adults have wings (but nymphs like all kids move very quickly).

This is the first generation of nymphs feeding now. There will be a second generation feeding again in August, but the later season damage is less noticeable. It is this first generation that causes most of the aesthetic injury. Fortunately, the ash plant bug is not a tree-killer. An otherwise healthy ash can withstand this defoliation. However, this can stress the tree and make it more vulnerable to attacks by borer, including the emerald ash borer.

It is too late for any effective treatment against the first-generation nymphs as they are already out feeding. There are many insecticides that will manage this insect including those that have Carbaryl and Permethrin as an active ingredient. These are applied about a week after bud break to control the newly hatched nymphs before they cause significant damage. Insecticides containing Dinotefuran can be applied as a soil drench. This application needs to be applied at least one month before the insect is feeding so may be done in the fall for control the following spring.