

Pest Update (July 22, 2020)

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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, 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 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.

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Plant development for the growing season



The summer continues to be hot with spotty rains. When rain does come, it seems to pour with some storms producing a couple of inches of rain in a few hours.

The smooth hydrangeas are in full bloom in Brookings. These are some of our most dependable and spectacular summer-flowering shrubs. But they are real 'water pigs' and are among the first to wilt if the soil dries.

Timely Topics

Emerald ash borer update



We are now finding larvae in our Sioux Falls and Canton branch sampling. The head capsules are slightly less than 0.5 mm (about 1/50-inch) so they are the second instar larvae. The period from adult emergence to egg laying, egg hatch, and development to the second instar can be anywhere from 5 to 9 weeks depending on temperature. Since emerald ash borer emergence began about 7 weeks ago, finding second instar larvae is just about on target.

The first year we confirmed emerald ash borer, 2018, we were able to find larvae at almost any month of the year which was an indicator that some may be requiring two years to complete their life cycle from egg to adults. Now we rarely find larvae during June as this is the time that most are adults with a few still as pupae.

More EAB imposters



A picture of a Japanese beetle was sent into the South Dakota emerald ash borer website at, www.emeraldashborerinsouthdakota.sd.gov under "Report a Sighting. I have had a few of these pictures show up in my emails. They are also shiny beetles from Asia, but that is all they have in common with emerald ash borer.

Japanese beetle adults are about 1/2 inch-long, about the same length of emerald ash borer but much stouter, almost as wide as long. The

adults are metallic green with coppery wing covers. There is a row of five white spots along each side of the abdomen and two large white spots at the back end of abdomen.



Japanese beetles feed on the sunlit leaves of lindens, hydrangeas, roses, and willow (among about 200 other plants). The leaves are skeletonized, feeding on the tissue between the veins, which give the affected leaf a lace-like appearance. Rose flowers are left with a ragged petal margin as well as numerous holes.

If they are on roses, hand picking (in the evening when they move slower) is good means of reducing the population and is an excuse to get outside. Neem oil (from the seeds of the neem tree) can be sprayed on the plants. Neem oil works as a repellent and disrupts the insect's development. Neem oil remains effective for several days so expect frequent applications but is low risk to bees and other insects.

Dutch elm disease: the forgotten problem



Emerald ash borer has kicked Dutch elm disease to the curb. This Asian disease (the Dutch just identified it so we blame them) entered this country sometime in the late 1920s in Ohio and spread to South Dakota by the late 1960s.

The fungal disease kills cells in the sapwood and also causes tyloses formation which reduces water flow from the roots to the canopy. This blockage causes the most common symptom associated with the disease, yellowing and wilting leaves, to appear by mid-summer. As the infection continues to move through the tree eventually most of the canopy is bare and the tree dies. This progression can occur over a few weeks to more than a year.

The disease is spread from tree-to-tree by bark beetles that carry fungal spores from an infected tree to a healthy one. A common means of managing the disease at the community level is to remove and destroy all infected trees within a few weeks of the symptoms appearing. This reduces the number of beetles that can carry the disease to other healthy trees in the community. Many South Dakota communities had a requirement of prompt removal of infected trees as one of their ordinances but lack of enforcement (and marking infected trees) mean the

too many infected trees stood until they were dead and had release new spore-carrying beetles into the community.

Elms can root graft, and this is a common means for the disease to move from tree to tree. The root grafts are most common with elms that are standing within 35 to 50 feet of one another. If the disease is spread by root grafts the symptom pattern is often the entire tree flagging (branches with yellow, wilting leaves) almost at once, whereas beetle carried infections start with a branch or two near the top of the canopy flagging and the disease spreads out from there, often taking a month or more before the entire tree flags.



Row of American elms kill by root-graft infection of Dutch elm disease.

Fruittree leaf roller in birchleaf spirea



Birchleaf spirea (*Spiraea betulifolia*) was one of my favorite shrubs. It has attractive white flowers in late spring followed by autumn foliage of gold, red, and purple. However, it now has a serious pest problem which detracts from its otherwise near perfect appearance – **the fruittree leaf roller** (*Archips argyospila*). Almost every planting I see has leaves near the shoot tips curled around them.

The fruittree leaf roller infests a wide range of hosts from ash to willow but seems to really like birchleaf spirea. The insect gets its name from the habit of the larvae to feed inside a protective shelter of rolled up leaves that



are webbed together. If you peel the webbing open now you can find this small, about 1/2-inch greenish larva with a brown head. While the fruittree leaf roller causes much of this damage in South Dakota, a similar appearing insect, the obliquebanded leaf roller (*Chorisonura roseaceana*), can also roll the leaves of spirea.

Treating this insect on spirea is difficult as the larvae are protected by the webbed foliage. Systemic insecticides may be used as a soil drench, but these chemicals are also taking up by the flowers and can kill pollinators. The simplest is to spray

the plant with an insecticide containing Spinosad (commonly sold as Captain Jack's Dead Bug Brew, no kidding) just as you start seeing the larvae, early July. It is too late for control now.

E-samples

Earwigs in cottonwood



The question was, of course, were these insects killing their tree. They were coming out of a cavity in the trunk so it is natural to connect the two. And they are in a way. The earwigs did not create the cavity, but it does make a nice home. Since they feed on dead and living organisms, from decaying plant tissue to other small insects, there is ample food in a tree cavity. They also like cool, moist

conditions and that describes tree cavities (and many basements) as well.

Earwig are easy to identify from the pair of large appendages at the end of the abdomen that resemble forceps. The name earwig is from an old myth that they could burrow into your head at night through your ears – think of that when your head is on the pillow this evening! No, they do not. However, you might remember the old TV show the *Night Gallery* and the episode “The Caterpillar” where the earwig burrowing in one ear, and days later, emerged from the other. The victim thought he had survived until the doctor (or maybe the entomologist) said the insect was a female and it had laid eggs...I think I slept with earmuffs on that night.

Grape phylloxera



I received this picture of bumps on grape leaves. These are caused by the **grape phylloxera** (*Daktulosphaira vitifoliae*) a small aphid-like insect that has a very complex life cycle. It overwinters as an egg attached to the woody cane of the grape plant *and* as aphids in galls that form on the roots. The aphids feed on the leaves in late spring and their feeding causes the leaf to form this gall around them. The aphids in the gall gives birth to live young and the kids move out of the “house” and form new galls to start their own family.

This insect almost destroyed the European grape industry but our North America roots are resistant so the plant will not die (the insect is native to North

America). The leaf damage occurs late enough in the season that the grape crop will not be significantly reduced – the greatest impact is just bumpy leaves.

Hackberry decline



This year I am receiving reports of declining hackberry. The usual symptoms are ragged-looking leaves that have turned brown and are falling. The small green, new shoots also fall soon after the leaves. I have seen pictures of trees that were almost completely defoliated by the beginning of July. I have also stopped by some of these trees and many are beginning to send out new shoots and leaves.

Some trees are adjacent to affected hackberry that look just fine. Other instances an entire row is affected. I see the problem throughout the state from Summit to Hot Springs, North Sioux City to Spearfish.

The problem is also been noted in some of the surrounding states.

The most likely cause for this the May cold snap where temperature either hover near freezing or dip much lower. This caused the tender tissue to die, either quickly or slowly. This is not the first time this has happened. We experienced a similar weather-related hackberry decline about five years ago and all recovered by that fall.

Round bullet gall



Rounded bullet gall is caused by the cynipid wasp *Disholcaspis quercusglubulus*. It is one of many gall species found on oak and this one is on a white oak in Minnesota. The identification in this instance is based entirely on the picture of the gall rather identification of the insect. The size, shape, and location (leaf or shoot) are very specific to a gall wasp and are usually in identification.

It is closely related to the rough bullet gall caused by the cynipid wasp *Disholcaspis quercusmamma*. This is a common gall wasp in the eastern side of the state and is found in bur oaks in community plantings, windbreaks, and native forests. Surveys in communities have found about half the bur oaks have no galls, about another quarter of the trees only a few galls and about a tenth with extreme number of galls (more than 15 per shoot). There are no physical characteristics of the tree, i.e. corky bark, that are correlated to gall production.

Samples received/Site visit

Beadle County

Dutch elm disease



This was a stop in the Beadle County side of Wessington and the trees are almost completely dead. The trees were probably infected for several year and probably last year were presenting severe flagging (yellowing and wilting leaves. The sapwood showed browning streaking, a common indicator of the disease. The trees should be removed and destroyed to kill the beetles that may yet emerge to carry the spores to nearly healthy elms.

Brown County

Stem girdling roots



Aaron, the Aberdeen city forester, and I were stopped by a homeowner and asked to look at her 15-year-old Autumn Blaze maple. It has been slowly dying for several years and this year some of the leaves were already showing fall color.

When Aaron and I looked at the base of the tree, flat along one side, we suspected a stem-girdling root. We dug along one side and, unfortunately, found a root imbedded in the trunk that cut off about half the tree!



The problem started 15 years ago when a pot-bound tree with roots circling around the pot was planted too deep, so the stem was in the soil rather than above. If the root is small and just beginning to touch the trunk it can be carefully cut and pulled away from the trunk. But once its embedded and extending more than a third the way around, the tree is a goner.

Hand County

Leaf spot



The plum trees were shedding leaves that were filled with tiny holes. The holes were almost circular, almost as if the leaf was shot with bbs, a shot hole appearance. There were also some reddish brown and purple spot (with a yellow margin) on the foliage in the tree and the fallen leaves.

These are the symptoms for cherry leaf spot, due to a fungus (*Blumeriella jaapii*), though authorities separating the fungi into one that

infects cherry and another than infects plums. Regardless, the symptoms are similar.



The disease overwinters on the fallen leaves so one management tactic is to closely mow in the fall to shred the leaves into small pieces that will decompose by spring. If the plums are growing in bare soil, tilling in late fall to incorporate the fallen leaves into the soil is another option.

The spores must land on wet foliage for germination to occur so we see less infection in years with dry spring weather – not the conditions we have seen the past three years. To protect the spring foliage from infection, a fungicide labelled for treating this disease can be applied about two weeks after bloom as the leaves unfold and then continued on a two-week interval until new leaf production stops (usually end of June or early July). Captan is a commonly used fungicide, through ones containing copper can also be effective.

Walworth County

Dutch elm disease



Selby is one of the few communities in South Dakota that still conducts annual inspection of their American elms for Dutch elm disease. Trees that are presenting symptoms of Dutch elm disease receive the 'X' of death and are slated for removal. Generally the symptoms are sufficient to give an 'X' but often a shoot is pruned off and examined for the brown streaking in the sapwood.

The community still has about 130 mature elms scattered across the community and they have been losing about 5 to 8 trees to the disease each year. Removing infected trees helps slow the spread and maintain elms as part of the community tree canopy.

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