



Tree Pest Alert



June 21, 2023

Volume 21, Number 18

In This Issue

Plant Development..... 1
Treatments to begin now..... 2
Timely topic..... 2
 Emerald ash borer update..... 2
 Dutch elm disease is still infected elms around the state..... 2
 Pine looper update..... 3
E-samples..... 3
 Pear sawfly..... 3
 Plum pockets..... 4
Samples received/site visits..... 4
 Lyman County (Cedars planted too deep)..... 4
 Oglala Lakota County (Chokecherry fruit gall midge)..... 4
 Minnehaha County (Not EAB, possibly herbicide)..... 4
 Pennington County (Chlorosis on silver maple)..... 5

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

The South Dakota Department of Agriculture and South Dakota State University are recipients of Federal funds. In accordance with Federal law and U.S. Department of Agriculture policy, this institution is prohibited from discriminating on the basis of race, color, national origin, sex, age, or disability (Not all prohibited bases apply to all programs.) To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 1400 Independence Avenue, SW Washington, DC 20250-9410, or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

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

Plant development for the growing season

We are seeing warm to hot days across much of the state. The Black Hills has been the cool spot in the state with days in the high 70s and low 80s and nights in the 50s. Sioux Falls has seen more of the 80s and 90s.

The cooler temperatures out West have resulted in Rapid City falling behind Aberdeen in accumulating growing degree days. Regardless, everywhere is ahead of last year. These are the current growing degree days (GDD-base 50) for communities across the state.

Aberdeen	970
Beresford	1,180
Chamberlain	1,120
Rapid City	830
Sioux Falls	1,140

Catalpas and Japanese tree lilacs are finishing blooming and are now being replaced by our mid-summer flowering shrubs. The false spirea (*Sorbaria sorbifolia*) are covered in their long white panicles. The cultivar Sem is an excellent choice for a small (about three feet tall) shrub but a reminder that it suckers profusely and will expand into the surrounding space.



Meade County and many of the counties that border it are classified as "None" on the US Drought Monitor. The drought intensity for the rest of the state is either Abnormally Dry or Moderate Drought. The southeastern quarter of the state is the exception. This area is under Severe or Extreme Drought.

Treatments to Begin Now

Apple maggot treatments should continue (see *Tree Pest Alert* June 14 issue). Fungicide injections to protect American elms from Dutch elm disease should be started or repeated (they are done every three years (also more information on Dutch elm disease is under Timely Topic in this issue of the *Tree Pest Alert*).

The second generation of pine needle scale will be hatching in another week or two. Treatments will be covered in the next *Tree Pest Alert*.

The one treatment most of our trees need right now is a surface application of H₂O; they need a drink – especially every tree in the southeast!

Timely Topics

Emerald ash borer update

The adult beetles are flying in increasing higher number. The emergence from our sample logs has reached its peak. Around 1,000 GDD, about the time lindens are in bloom, is the peak of emergence.



Eggs were beginning to be produced about a week ago by the first adults of the year. These should begin to hatch now. I expect to be able to find the first instar larvae by next week.

Dutch elm disease is still infecting elms around the state

The symptoms of a Dutch elm disease (*Ophiostoma*) infection are just beginning to appear on American elms in the state. We are one of a shrinking list of states where Dutch elm disease is still a widespread problem. Many states have already lost most of their mature American elms to the disease while we still have a few communities with the classic elm-lined street.

Infected American elms are beginning to present with flagging (yellowing, browning and wilting leaves) along branches on one side of the canopy. These are usually found on the tips of the canopy and are limited to a few branches. You can often trace the flagging from the shoot tips down along a branch and eventually progressing down along the limb.

These are infections caused by spores carried by elm bark beetles as they moved from infected to healthy trees. They burrow into the two- to four-year-old branches and the spores they carry germinate and cause a new infection. There are three carriers (vectors) of Dutch elm disease, the elm bark beetle (Native), the smaller elm bark beetle (Europe) and the banded elm bark beetle (Asia). These three bark beetles are all found in South Dakota.

These insects colonize different branch diameters in a tree. One-to-two-inch diameter branches are the preferred sites for the smaller elm bark beetle and the banded elm bark beetle. The larger diameter branches – 3-to-5-inch diameter – are home for the native elm bark beetle. This difference in preference means the flagging begins at different heights in the canopy depending on the vector. Regardless of which beetle is responsible for the infection, the disease usually spreads throughout the canopy by the end of the summer and the tree is dead by fall or the following spring. Some infected trees will live for several years as the disease moves from branch to branch.

The new fungal infection does not present symptoms, the flagging, until at least four weeks after infection so late spring/early summer is when we first start receiving calls about declining elms. The fungus infects the vascular system which results in staining and blocking of the tissue that carries water throughout the canopy, hence wilting foliage. The staining appears as brown streaking in the outer sapwood.



The disease can also spread from root graft from infected trees to a nearby (usually within 30 to 40 feet) healthy tree. These trees usually have symptoms that appear throughout the canopy at once.

Most communities with significant American elm populations require prompt removal of infected trees – usually within two weeks of symptoms. This is done to prevent the infected tree from later becoming a home for beetles to reproduce and carry the disease to other trees. It also can reduce the risk of a nearby elm from becoming infected via root grafts. Prompt removal does not eliminate risk as the disease carried to the canopy by a bark beetle can spread quickly down to the root system, even before canopy symptoms appear.

There are treatments to protect a tree from beetle vectored disease. These treatments are injected into the root flare of healthy, isolated American elms. The injections can be done from now until September. Injections protect an American elm from Dutch elm disease symptoms for three years.

Pine looper update

The adults are flying and beginning to lay eggs in the area that was defoliated last year. We were able to find five adults flying during early afternoon – so much for the adults being nocturnal flyers. Louis, the summer intern for the SDDANR, was able to catch them by hand. The adults were collected over a brief period of only 20 minutes, so I expect there were a lot more out there.



I expect to see even more over the next couple of weeks. The soil beneath these trees still has numerous viable pupae in the litter. Adult emergence appears to occur over an extended period, weeks rather than days.



The small eggs are laid on the needles. Probably not to the density as seen in the picture as these were laid by adults in a cage. Most of the trees defoliated last year are producing a flush of new needles. If these new needles are devoured by the pine looper larvae next month, the trees will die.

E-samples

Pear sawfly

Pear sawfly (*Caliroa cerasi*), also known as pear slug because of the slimy appearance to the larvae. The olive-green larvae are about 1/4-inch long with the front of the insect just a little wider than the rear. They have another 1/8-inch to still grow and will lose their green slime and become an orangish yellow.



The larvae are the damaging stage and feed on the leaves of pears (hence the name) as well as cherries (as on this purpleleaf sand cherry) and even an occasional plum or apple. They feed on only one surface of the leaf: a type of damage known as a window-paning. The damage is usually not severe enough to warrant treatment.

There are two generation per year of this insect. The adults emerge in the spring from cocoons in the soil. The adults are a non-stinging wasp about 3/16-inch long. The adult female cuts slits in the edge of the leaves with her saw-like ovipositor with the eggs hatching within two weeks. The young larvae move out and feed on the upper surface of the leaves for about a month before dropping to the soil and forming a cocoon. The second-generation adults emerge in early July to start the life cycle over again. The second-generation larvae, the ones that will be out in another two weeks, are the most damaging to the plant.

While almost any insecticide will kill the larvae (but check label first to be sure they are including one it), treatments are rarely necessary. Usually, the damage is not noticed until it is too late and their natural enemies provide the best long-term control.

Plum pockets

The shriveled, black, mummified fruit from last year stands out against the developing fruit of this year. These shriveled fruits are caused by the fungal disease *Taphrina communis*.



The management of the disease is removal of these mummified fruit before now. These are the source of spores that infect this year's fruit. The infection has already occurred. We may even see more of the disease in West River native plum thickets as the persistent wet weather means more infection.

The infection will result in fruit becoming swollen, often becoming five times larger than normal. The swollen fruit will have a spongy texture. The infected fruit will also be missing the large stone (seed) and the interior will be hollow.

Fortunately, the dessert plums we plant rarely are affected by the disease. The disease is mostly found in the native thickets of plums.

Samples received/Site visits

Lyman County, Cedars planted too deep

The stop was to a four-year old cedar (juniper) windbreak. The producer lost about a third of the seedlings following planting. He has been hand-planting new trees as trees continue to die.



While there were some symptoms of juniper blight, *Phomopsis*, the primary stressor was below ground, not above it. The young trees that turned brown could be easily pushed over. The problem was the planting depth.

Planting trees seedlings too deep, so that part of the trunk is buried, is a frequent, but slow killer of trees. Gas exchange for the buried trunk is inhibited by the soil. The surrounding soil also keeps the trunk wetter than normal, and it takes longer to dry. These environmental conditions can lead to cankers and bark cracks. These disorders do not appear at once, often beginning several years after planting, so the decline and discoloration is not connected to the planting.

Bare-root tree seedlings should be planted so the highest root is just beneath the soil surface.

Oglala Lakota County, Chokecherry fruit gall midge

The chokecherry fruit was becoming swollen. When you cut open these swollen cherries, the stone was missing. This was not due to plum pockets (see discussion under e-samples in this *Tree Pest Alert*). The culprit was not a disease but an insect, the chokecherry fruit gall midge (*Contarinia virginiana*).



The adults are tiny flies. They overwinter in the soil litter, emerging in the spring to lay eggs on the flowers. Once hatched, the maggots feed on the developing fruit. This feeding causes the seed to abort and the fruit to become hollow and enlarged.

Right now, the hollow fruit still has very tiny yellowish-orange maggots inside. These will begin dropping out of the infested fruits within a few weeks to pupae in the soil. There is one generation per year.

Minnehaha County, Not EAB, possibly herbicide

This stop was to check on a suspected emerald ash borer infested tree in one of the smaller communities in the county. The trees did not have the blanding or drill holes of woodpeckers – a telltale sign of an infested tree.

Instead, the trees were covered with small clusters of sprouts with leaves presenting with strapping (narrow, elongated leaflets). These symptoms are associated with growth-related herbicide exposure. I have seen these symptoms on ash we assessed for dicamba.



Pennington County, Chlorosis on silver maple

This stop was to look at a large silver maple. The leaves were presenting with chlorosis – leaves with green veins but the rest of the blade turned yellow to yellow green.



The tree owners had added a chelated iron to the soil last fall but that only caused the leaves to become a little greener this year. Maples on alkaline soils suffer from iron and manganese deficiencies. Adding just a chelated iron often does not solve the problem. They are planning to add a chelated form of manganese.