South Dakota State University Extension

Tree Pest Alert

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In This Issue

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 temperatures are not as warm as it has been during the past few weeks. We are seeing more 70s and 80s than 90s (and 100s!). The growing degree days (GDD-base 50) are still accumulating though we are behind from last year.

Aberdeen	1,981
Beresford	2,455
Chamberlain	2,471
Rapid City	2,122
Sioux Falls	2,337

While rains have been appearing across the state during the past week, we are still dry in many places. The U.S. Drought Monitor is showing about 70% of the state (all but much of the northeastern quarter) as abnormally dry or under moderate drought. The area west of Pierre and the extreme southeastern part of the state are in severe or extreme drought.

There is not much growth occurring on trees at this time. Fruit is continuing to develop on apples and crabapples but otherwise the shortening days are telling all trees that winter is coming and start to prepare for it.

Treatments to Begin Now

Water your trees so they are better prepared to tolerate the upcoming winter. As a reminder, fertilizing is not a replacement for watering. Fertilizing trees during drought is not beneficial and can even be harmful.

First, the trees are not putting out much growth this year, so their development and health are not limited by nutrient deficiencies. Second, absorbing nutrients requires the tree to expend energy and a drought stressed one has little energy to spare. Finally, for newly planted tree seedlings the fertilizer salts can cause injury in dry soils.

Timely Topics

Emerald ash borer update

We are continuing to monitor emerald ash borer (EAB) larval development for the season. They are still behind in development from last year, but we are also behind about 200 GDDs and insect development mirrors GDD.

Still, I am surprised by how many 2nd instar larvae we are finding. This time last year, the larger 3rd instars dominated. While there are a few of the larger larvae, most are still small and have not yet caused significant injury to the trees.

Pine looper defoliation in Custer

If you are driving east of Pringle on Hwy 385, you will see a sight that we have not seen for almost twenty years. There is a long ridge along Beaver Creek with every pine from seeding to mature tree completely defoliated. The overall appearance is a long ribbon of gray against the hills.

Walking among these trees it is easy to spot the culprits responsible for the needle loss. The ground, tree trunks, branches, and needles (the few that are left) are covered with inchworms looping their way through the landscape. If you stand still, a few may even drop on you from a long thread they used to rappel down to find foliage to munch on.

These are pine loopers (*Phaeoura mexicanaria* syn *Nacophora mexicanaria*). They are an insect native across the West, including the Black Hills, but are rarely noticed as they are usually few; defoliation is confined to a few trees scattering within the forest.

But occasionally the population explodes and the defoliation extends over tens to hundreds of acres. This defoliation is never widespread across the entire Black Hills and the last outbreak was in the early 2000s. That one also occurred in the Southern Black Hills - but against the backdrop of the mountain pine beetle epidemic was mostly ignored.

The caterpillars are inchworm which means their locomotion is by lopping - pulling the head and rear together and stretching out. There are five larval instars. The first two instars, the youngest ones, are smooth, light brown with light-yellow stripes. They are about 1/4- to 1/3-inch long and are feeding along the edge of the needles, like nipping corn-on-the-cob.

The larger three instars develop long tubercles along the total length of the body and turn tan to dark brown. These can become more than 1 1/2-inch long. They resemble a dead pine twig, but one that is munching entire needles down to a stub. They feed on the old as well as the new needles.

Healthy pines can withstand one year of defoliation but with the drought most pines are not healthy. This means that the defoliation, combined with the drought, may

increase the susceptibility of the trees to pine engraver beetles. Past defoliation episodes have experienced severe outbreaks of the engraver beetles in affected stands.

Fortunately, the populations collapse as rapidly as they expand and defoliation is usually limited to a single year. The feeding is almost done for this year, ending within another two weeks. Defoliation is only for one or two years.

E-samples

Bess bugs in rotted maple

The picture came in from Hunter, one of the SDDANR foresters. These insects were found in the rotten, powdery wood in a silver maple. The tree owner's concern was whether these were a harm to the tree.

No, there are bess beetles (Passalidae). These large, shiny black beetles spend their life in decaying wood in many hardwoods, including maple. The adults have long chewing mouth parts designed to grind their way through the weakened wood.

The larvae are large cream colored and slightly C-shaped. They also feed on the rotted wood. The adults and larvae are found together, as the adults care for the larvae, an unusual arrangement for insects.

Bess beetles are not the reason for the decay in the tree. They use this wood as a home and a food source. Feeding by these insects do accelerate the decay process – think of these beetles as doing a useful role in recycling.

Borers in ash

Tunnels in declining ash are more noticed by tree owners since the arrival of EAB in the state. The most common source for the tunnels is the ash bark beetle. These insect tunnel into dying tops and branches of ash trees.

The tunnels carved by these insects are very distinct and diagnostic. The adults carve a tunnel that is perpendicular to the grain of the wood. The female adult lays eggs along this tunnel. Once these hatch, the larvae burrow along the grain of the wood. The small white larvae seem to move at the same rate so the lines radiating from the egg galleries are the same length.

Ash bark beetles are not a concern to healthy trees. They attack dying parts of trees or dying trees. The continuing drought has left many ashes stressed and vulnerable to attack by these insects.

Honeysuckle aphid on Tatarian honeysuckle

These aphids were of major concern when it first appeared in the 1980s. Its primary host, the Tatarian honeysuckle, was considered a pest-free shrub up to then. Unfortunately, the honeysuckle aphid (*Hyadaphis tataricae*) arrived from eastern Europe into the Chicago area in the early 1980s and quickly spread out to wherever its native host, the Tatarian honeysuckle was planted.

The aphids feed in large colonies sucking the sap from the plant while injecting the tissue with a growth regulator. This results in the formation of witches'-brooms. These are clusters of stunted shoots and leaves that form at the tips.

The aphids overwinter as eggs in the witches'-brooms and there are multiple generations per year. The feeding rarely kills the host but does reduce growth and makes the plant unsightly. While there are some insecticide controls, these must be applied as systemics; contact insecticides will not reach the aphids inside the folded leaves.

There are cultivars of Tatarian honeysuckle that are resistant to the aphid. The resistance is not perfect so

some damage should still be expected. The three cultivars most used are Arnold Red, Freedom, and Honey Rose. Freedom has the best leaf quality while Arnold Red is the hardiest, adapted to even USDA Plant Hardiness zone 2. All are adapted to South Dakota.

Samples received/Site visits

Faulk County, Wet soil and spruce

This stop was to look at some rows of stunted and declining spruce. The spruces were mostly Colorado spruce but a few Norway spruce were mixed in. What was noticeable about these trees was those in the low ground next to the slough were the ones declining - not the ones farther along the rows on higher ground.

The declining trees presented with stunted shoots and a large cone crop. Most people view cones on a small tree as a sign of healthy. It is not. The appearance of cones on young trees is an indicator of stress and decline.

The owner wanted to know what could be done for the trees. Do the trees need fertilizer? No, the trees need to be removed. Planting trees in a site which they are not adapted cannot be corrected with fertilizer.

Colorado spruce performs best on well-drain soils. They cannot survive on poorly drained soils. It does not make sense to continue a row – for the sake of continuing a row – into a low area. Either the site must be modified by berming the rows or changing to a different tree species. Arborvitae (*Thuja occidentalis*) cultivar such as Rushmore might be a better choice.

Lawrence County, Not emerald ash borer

This was a stop to the Walmart in Spearfish in response to the call about dying ash in the parking lot that might be infested by emerald ash borer. Dying trees and parking lots are not an unusual combination. Parking lots are where trees go when they did something bad in a previous life.

The ashes were declining in their parking islands, but the reason was not EAB. The trees were dying due to the stress of surviving in the confining, dry and hot islands in a parking lot. These declining trees are susceptible to attack by several opportunistic borers.

These trees were being attacked by two of these borers, the clearwing ash borer, and the banded ash borer. The clearwing ash borer makes a round holes, about the size of a #2 pencil, as the adults exit the tree. These are not easily confused with the smaller, 1/8-inch, D-shaped holes made by EAB.

The banded ash borer adults make a 1/3-inch diameter hole that is round to oval. The oval holes can appear almost D-shaped in some fissured bark. This was the case here. Some of the exit holes were oval and could be considered almost D-shaped. But EAB make a very distinct and crisp D-shaped hole, not one that appears almost oval. My general comment is if you must think about whether it is D-shaped, it is not.

Perkins County, Deer browsing in windbreak

Maddy, the Northwest Area Natural Resource specialist, and I made a stop to look at a windbreak that has been in the ground for five years. The four-row belt was one of the nicest I have seen. The design of the belt was well thought out and planted properly by the district. It was being well maintained by the landowner.

There was only one problem, and it weighs a couple of hundred pounds – those darn deer. The white spruce row had trees that were more rounded than pyramidal and the two hardwood rows – bur oak and hackberry – had small tufts of foliage coming out of the top of the tubes.

These are all signs of deer browsing. Deer will nip the tips of white spruce (and Meyer spruce), shearing them into nice small shrubs. Deer will also nip the tips of tender hardwood shoot.

Some of the white spruces are getting out of the shrub forms and turning into trees. Once they reach a height of 7 or 8 feet, they are less tasty to the deer and seem to be left alone, or at least suffer less browsing.

There was an interesting development in the bur oak and hackberry rows. About half the trees in each row were in tree tubes. The five-year-old trees were just out of the top of the 4-foot tube, but at the tops of each tube there was a tuft of shoots. The trees that had not been tubed were only six inches tall. They had been browsed into a ground cover.

The trees that were doing the best were the bur oaks and hackberry which were in 5-foot tubes. These tubes are high enough to reduce browsing. The trees in these tubes were now a foot or more taller than the tube and the shoots had their normal expansion – not sheared.

This Perkins County site showed several important points. First, if the windbreak is designed and installed with care by the district and maintained by the landowner they can succeed, even in the harsh environment of the windswept prairies of Perkins County.

Second, tree tubes work! The idea tube height when there is deer pressure – the entire state – is five feet. Leave the tubes on until the trees are far above the tube but remove before the trunks push against the wall of the tubes.

The landowner is going to tube the bur oak and hackberry “shrubs.” The tubes can be placed over the center of each shrub but before pushing down firmly to the ground, each shrub is pruned to a single stem. As for the white spruce – the district carries the deer repellent Plantskydd, and the landowner is planning to spray the spruce with this material this fall and spring.

Perkins County, Phomopsis in Russianolive

I rarely get calls on Russianolive anymore. The species has fallen into disfavor due to its invasive nature. Harding and Perkins Counties are the only places I see the plant used much and in this arid environment it seems to thrive.

The tree is not only a pest, but it also has many pests, mostly fungal pathogens. These are usually more prevalent in the more humid eastern states (and eastern South Dakota). The most common disease is phomopsis twig blight.

This disease causes the dieback and decline of Russianolive branches and stems. The disease causes infected shoots to show reddish-brown sunken cankers on larger branches and trunks. Some of the cankers may have bleeding or gum exuding from the infected tissue.

The treatment is to prune out infected shoots and branches during dry weather. This material must be burned or removed from the site as it can release spores next spring to reinfect the trees. The other recommendation is to space the trees wide enough that they are not crowding one another and restricting air movement.