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: Bess Pallares, Carrie Moore, and Dawnee Lebeau

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Plant development for the growing season

We are still gaining growing degree days (GDD base 50) and are now at 2,340. We average about 2,900 for the total year (1921-2020) and we still have most of August to go so there is still some hot weather ahead of us. The weather has also been extremely dry with the entire state experiencing some level of drought. This year will go down as one of our hottest and driest years.

Treatments to Begin Now - WATER

The chemical of choice is still H_2O – just plain water. As mentioned in last week's *Pest Alert*, now is the critical time to be watering your evergreens to reduce winter injury. Evergreens that are suffering water stress during late summer and early fall are more susceptible to winter burn.

It's relatively easy to water trees in a yard but windbreaks are another matter. Hauling water out to the trees is time consuming and installing a drip irrigation system is expense. But it is worth the effort.

I visited a young, established windbreak up in northcentral South Dakota last week. This area has been under extreme drought all summer with only an occasional storm dancing around them. Not the best place to be a tree.

But this windbreak has a drip irrigation system. When you walk through the belts you barely know the area is in a drought – the trees have lush growth and green leaves. The only evidence is the parched, brown grass between the fabric strips.

Each tree (and most are junipers, Colorado spruce and cottonwoods between 5 and 10 feet tall) has an emitter that delivers 2 gallons per minute. The trees are watered

for about 12 hours a week, so they are receiving about 24 gallons a week.

Timely Topics

Emerald ash borer update

Emerald ash borer development is progressing. The most common instar (development stage of the larvae) is the 2nd instar though there are a few 3rd instars appearing on the south sides of thin barked trees. The insect has four instars and goes into winter in the 4th instar as a J-shaped larvae in a chamber tucked into the outer sapwood.

The combination of vascular disruption caused by the tunnelling larvae and the drought has left many emerald ash borer infested trees with thinning and wilting leaves. One of the first functional changes in an infested tree is the loss of roots. The network of tunnels beneath the bark severs the tissue that moves the sugars produced by the leaves to the roots that depend on this nourishment to gather water and elements.

Planting trees to replace ash – the wrong way

Many communities are planning for the eventual loss of their ash. Some, such as Sioux Falls and Yankton, are actively removing ash so that this operation can be done on their schedule, not the beetle's. Communities that wait to start removing trees after they become infested are often overwhelmed by the rapidly expanding number of dead and dying trees.

A pre-emptive move - removing ash in a coordinated manner - is the best for managing budgets and reducing the risk of dead, falling trees. This operation also opens space to begin planting new trees, so the community forest is not impacted at one time. Imagine removing a third of the trees in town over five years and starting to plant then. It would be a very barren sight – and one some communities that don't plan for the inevitable are going to experience.

But, as some are doing, planting new trees between established ash trees is not a good practice. The small trees are competing with the larger trees for light, so they often become misshapen. They really become misshapen when the surrounding larger trees are removed and accidentally fall on them!

Apple trees to consider planting

I was asked for some of the best apple trees to plant in eastern South Dakota. Any list is going to reflect the taste buds of the writer (I like juicy apples with a little tart but still sweet) but I also considered disease susceptibility in this list. Apple scab and fireblight are two major disease challenges so I included the resistance or susceptibility to these disease in my list as well as when they generally ripen.

Here are some of my favorites:

Chestnut apple – mid-September, moderate resistance to apple scab and fireblight.

Frostbite – late September, moderate resistance to apple scab and fireblight.

Haralson – early October, good resistance to fireblight but moderately susceptible to apple scab.

Honeycrisp – late September, good resistance to apple scab and fireblight.

SnowSweet – early October, good resistance to apple scab and fireblight.

E-samples

Alcohol flux in hybrid elms

This picture shows some frothy, white liquid oozing out of tiny crack in a hybrid elm. Wetwood slime flux, the foul-smelling dark slime oozing from cracks, was discussed in the last issue of the *Pest Alert*. Slime flux is due to a bacterial infection in the heartwood and older sapwood that ferments, and the liquid is forced out of cracks by the pressure.

Alcohol flux is caused by bacteria in the bark and cambial tissue that ferments and is forced out through cracks. The alcohol flux has a fruity alcohol smell and is almost looks like dish soap foam – not the gross appearance and odor of slime flux.

Alcohol flux occurs on elms, poplars, and maples. We usually see it during dry summers, and it disappears by fall. The flux does not harm the tree so no worries. And despite the name alcohol it is not drinkable so no licking the tree!

Grafted tree – swelling at the base

This picture is of a Morris Blue Korean pine (*Pinus koraiensis* 'Morris Blue'). This cultivar has soft silvery blue green needles and a broadly pyramidal form. The tree is slow growing but does not have far to go as the mature height is about 12 feet.

Most tree cultivars are propagated by grafting or budding, so the roots (stock) are not the same plant as the trunk and canopy (scion). This cultivar is grafted on an eastern white pine (*P. strobus*) rootstock. Sometimes the stock grows slightly faster than the scion, so a swelling appears. This does not harm the plant or increase the odds of the graft failing.

Notched and cut leaves – leaf cutter bees and root weevils

I have been receiving pictures of leaf margins with notches and half-circles cut into them. The question is what is doing this damage?

Two different insects for starters. The half circles are cut by the leafcutter bee (several genera in Megachilidae). These bees, about the size of a honeybee), neatly cut 1/4- to 1/2-inch circular pieces of leaf tissue from the margins – almost looks like someone took a hole-puncher and started cutting leaves!

The leaf pieces are used to line their nests. The leaf pieces are rolled like a cigar; each piece has an egg and a little stored pollen (for a snack when they hatch). The cigar-like nests are formed in tree cavities and the soil.

The most common leaves used are from trees and shrubs with thin foliage, so ash, redbud and roses are among their favorites. Leafcutter bees are important pollinators so better to tolerate some notching rather than kill off pollinators.

The notching on the lilac leaves that can be seen at this time is due to a root weevil (*Otiorhynchus*) most likely the lilac root weevil (*O. meridionalis*). The adults of these

insects cut angular notches along the edge of leaves. The adults feed at night so are rarely seen on the plant but they seem to like homes to sleep during the day so don't be surprised by a few on the kitchen counter in the morning looking for coffee.

The larvae feed on the roots, hence the name root weevil. They rarely feed on enough roots to bother a lilac and the notches are unsightly but also not a problem. The black vine weevil (*O. sulcatus*) feeds on yew and rhododendrons and their larval feeding can result in the death of these shrubs.

Samples received/Site visits

Brown County, Dying cedar

This was a visit to a windbreak with a few dying cedars (juniper). The pattern was like another belt that I visited in Brookings County. A belt of cedars, the trees being 4 to 6 feet tall, with scattered plants having branches that had their needles turn brown and die within a few weeks. The producer at the Brown County windbreak had even pruned out the brown branches on one tree only to have others turn brown a few days later.

This dieback was not due to a disease but a borer. This is the work of the cedar bark beetle (*Phloeosinus*). The adult is a small (less than 1/8-inch) reddish brown insect and is out now (July through September). They are burrowing into the base of branches to carve an egg gallery and will begin laying eggs along the wall of this tunnel.

The larvae are already hatching and will continue to do so over the next several weeks. The small, cream-colored, legless larvae burrow at right angles to the egg gallery. The galleries created by the adults and larvae girdle the base of infested branches and the needles turn brown then red.

This insect can only attack stressed cedars and this year just about every cedar is stressed from the drought. If the drought continues, we will start seeing entire trees infested as the beetles start moving to the trunks.

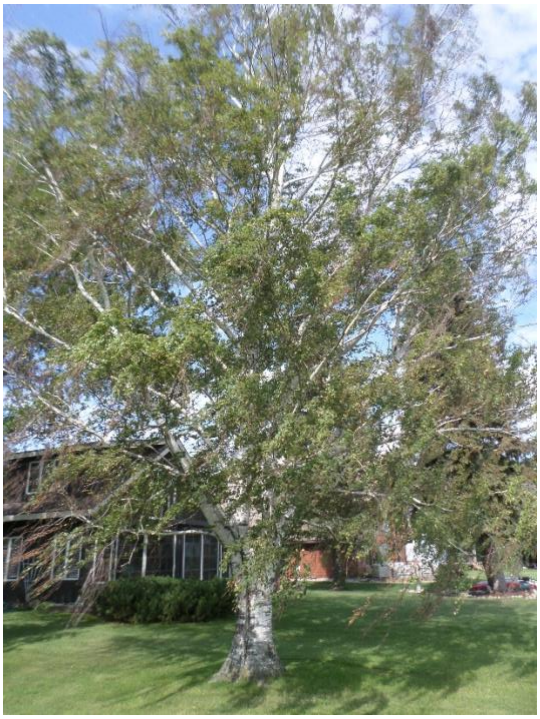
The best management is to remove and dispose of infested branches and trunks this fall so new adults do not emerge from them next year.

Codington County, Bronze birch borer

While emerald ash borer is the new Agrilus on the block, we have always been dealing with its cousin, the bronze birch borer (*Agrilus anxius*). The adults and larvae of the two insects look closely alike. They also have the same life cycle and their injury to the host is identical – the network of larval galleries severs the connection between the leaves and the roots.

The difference, and it's a big one, is the emerald ash borer is native to East Asia, so our native ash trees have few defenses and are easily killed, healthy or not. The bronze birch borer in native to North America so our native birch such as paper birch have some resistance and are only successfully attacked when they are stressed.

However, Asian and European birches are easily killed by the bronze birch borer as they lack defenses. This tree is a cutleaf European white birch (*Betula pendula* 'Dalecarlica'). It is very susceptible to bronze birch borer attacks and I rarely see one more than ten years old.



This one was planted about 35 years ago in rural Codington County and has survived due to its isolation.

There were no other nearby birches to attract or support the borer. But the area is now a small development and more birches have been planted and unfortunately the borer is now present. The telltale bumps on the branches are indicators that the tree is infested.

The management is identical to that for the emerald ash borer, trunk injections in the early spring.

Minnehaha County, Lecanium scale in ash

Not every ash in Sioux Falls is dying from emerald ash borer. We have a few other pests that have always made ash trees their home.

This is one, the lecanium scale (*Parthenolecanium*) is a collection of similar insects rather than a single species. One likes ash so I frequently find them lining the new shoots of these species. The adult scale is about 1/8- to 1/4-inch long, brown and helmet shaped. It also does not move but has inserted its mouth part into the inner bark and is sucking up sap.

The feeding results in honeydew being produced by the adult scale and that is the drop of amber liquid over the scale in the picture. The honeydew is sticky and is annoying when it covers outdoor patio furniture and cars beneath infested trees.

The young hatch from eggs beneath the adult female (all the scales you see are female) and these nymphs, called crawlers, move out to the new shoots to settle down and feed.

Heavy infestations can result in yellowing leaves that drop prematurely. This will not kill a tree, but it is another stress. The scales can be managed with soil application of an insecticide containing Imidacloprid, applied in the fall, or Dinotefuran, applied in the spring.