



Tree Pest Alert



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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

We are at 3170 growing degree days (GDD-base 50) in Sioux Falls. The cooler temperatures during the past week slowed our degree-day accumulation. The temperatures are expected to be above average for the next week or two.

Along with the warmer weather comes dry weather. We are still a little (to a lot, depending on where you live in SD) on the dry side. Many areas of the state started recovering from the drought in late summer, but the forecast is for dry conditions again.

Many areas of the United States have been in a drought this summer. This is impacted the fall color season across the country with many regions finding the season has already started and, in some instances, ended.



Trees noted for their bright fall foliage colors such as birch (clear yellow) and maples (bright red), are already dropping their leaves due to water deficiencies. If the roots are not able to absorb enough water to keep the leaves functioning, the leaves begin to stop producing chlorophyll, shut down and are shed as a means of reducing further water loss.



This means trees noted for their bright yellow fall foliage – birch, black ash (bottom picture previous page), cottonwoods, and aspen – are having a shorter season. The yellows are always present in the leaves. They are masked by the green chlorophyll and do not show through until the leaves stop producing chlorophyll. These leaves will still turn yellow in fall if there are warm, dry conditions, it is just the color season may be short.

Trees noted for their bright reds and orange leaves – most maples, Ussurian pear, and northern red oak – must have enough surplus sugars to produce the red pigments. If the weather is warm and dry, fewer of these pigments may be produced. I have heard reports from out East that the maples are producing very poor color this fall and many are already dropping their leaves. We are not alone with the poor color season.

This is not universal, however. Spearfish Canyon is still worth a trip to see the yellow aspen and Camden State Park near Marshall, Minnesota and Sica Hollow State Park near Sisseton, South Dakota still are showing some red to the maples – but do not wait too long to visit as the leaves are already falling.



This picture of a sugar maple was taken in the fall of 2005 and submitted to the Pest Alert. It appeared in the October 24, 2005 issue. The photographer was Rick Mayko, a forester with the South Dakota Department of Agriculture and Natural Resource, who passed away recently. Rick enjoyed photography and submitted many excellent photos to this publication over the past two decades. He will be greatly missed

Treatments to Begin Now

Raking!

The most common treatment now is raking! The leaves are beginning to fall with the dry, windy weather. The growing season has ended, and frosts are beginning to

occur in a few areas of the state. Many tree owners are going through the almost continual task of raking leaves, where one weekend's layer of fallen leaves is replaced by another the following week.

If you want an estimate of how many leaves are on a tree and the number of leaf bags you will fill after raking them, try out the tree leaf calculator at <https://www.omnicalculator.com/other/tree-leaves>

It's simple to follow. Measure a plate diameter and type that number in the form on the website. Then place all the leaves you can lay on the plate without much overlap, count them and type in that number. Finally estimate the spread of the canopy and add that to the form along with the species.



For an example, if a sugar maple has a 25-foot crown spread and I can fit seven leaves on a 9-inch plate, this tree has about 51,000 leaves! Let's hope most blow into the neighbor's yard.

Timely Topics

Emerald ash borer update

As mentioned in last week's Pest Alert, we are no longer finding any 2nd instar larvae. Most of the larvae are in the 3rd instar but we are also beginning to see 4th instar larvae. The 4th instar is a common overwintering instar and by next month all the larvae may be in this stage.



The 4th instar often spends the winter curled in a cell formed in the sapwood. These are called J-shaped larvae. Last year (2020) we found mostly 4th instar J-shaped larvae in our October sampling. The previous two years we found younger larvae overwintering along with the J-shaped larvae.

When we have long growing seasons, we accumulated enough heat, (3,400 GDD) that most, if not all the overwinter larval stages are J-shaped. This is the most cold-hardy larval stage, so we increase winter survival. If the larvae are all J-shaped, we also reduce the effectiveness of some of the introduced parasitoids. If there are no younger larvae in the phloem in the spring, parasitoids such as *Tetrastichus planipennis* have a harder time establishing as there is no available food source for them (Gould et al. 2020. J. Econ. Entomol 113: 2641-2649).

The accumulation of GDD by the end of September was 2,800 in 2017 for Sioux Falls, 3,000 in 2018 and 2,900 in 2019 and we found 2nd and 3rd instar for each of the follow springs. Last year the GDD accumulation by the end of September was 3,200 hence the appearance of J-shaped as the dominant overwinter stage. Since we are already at 3,200 GDD with two weeks to go in September I expect that we will find only J-shaped larvae overwintering and that is not good news for winter mortality or the parasitoids that will be looking for larvae to feed on in the spring.

E-samples

Cedar bark beetles



This is a picture of some junipers (cedars) infested with cedar bark beetle. This pest was discussed in the August 11, Pest Alert. The dieback and discoloration on these trees is common with cedar bark beetle infestations. The tree was covered with BB-shaped holes from which the beetles emerged.

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 or winter so new adults do not emerge from them next year.

Cotoneaster identification

The most common leaves being sent in right now are from the hedge cotoneaster (*Cotoneaster lucida*). This is probably one of the most common hedge shrubs in the

region (hence the name hedge cotoneaster), but it can also be a nice specimen plant in the landscape.



While it can be sheared to a rectangle 3 feet wide and 4 feet tall, if you let it grow out a hedge cotoneaster can become almost 10 feet tall with an equal width. I sometimes get asked for identification of a small 'tree' in a landscape that turns out to be a hedge cotoneaster.

There are two common questions with the identification request; 1) can you eat the fruit and 2) why are the stems dying back? The fruit, a black, round, berry-like pome is found along the stems in the fall. While they look edible, and are not on common poisonous plant lists, the recommendation is do NOT eat them. Buy a Snickers bar instead.

The most common disease in cotoneaster that results in dieback of the canes is fireblight. The most common treatment is pruning the affected canes down to 2 inches tall in March and then destroy the infected canes debris.

Tar spot on maple

This is a picture of Tar Spot (*Rhytisma*), a maple disease mentioned a few times in the *Pest Alert* this year. We have not seen much of the disease as the dry spring prevented infection (one good point to a drought – fewer leaf diseases). The black tar-like spots stand out on maples as the leaves begin to turn color in the fall. The disease can also result in premature leaf drop.



Regardless, there is no need for treatments at this time of year. The fungus has already done its damage to the leaves. It is not a disease we generally treat for anyway

as most maples are not harmed by the disease even if every leaf has spots.

A common treatments recommendation is to rake up and destroy the fallen, infected leaves. This can reduce the severity of the disease next year but as mentioned in September 1 *Pest Alert*, raking to remove the overwintering pathogen is not practical unless you are raking an entire neighborhood (or community!).

Willow sawfly

This is a great picture of willow sawfly (*Nematus ventralis*). This is a common sawfly of willows and has two generations per year. The first occurs in the spring and the second in late summer with the larvae feeding during August and September. These large (about ½ inch) black with yellow spot larvae feed in clusters along the edges of the leaves and will all curl in unison if disturbed. They can defoliate a tree in a few weeks though willows can usually recover from this injury quickly.



Samples received/Site visits **Brookings and Brown Counties,** **Botryosphaeria canker**

I stopped at two locations, one in Brookings County and the other in Brown County that had declining junipers. One serious pest was the cedar bark beetle (see e-samples) but the other was a fungal disease called Botryosphaeria canker (*Botryosphaeria stevensii*).



This canker disease causes sunken, flattened, lesions on the bark of infected branches. If you pull the bark away the wood has a dark brown color, almost like a

bruise. The canker can restrict water and nutrient movement into the branch which can result in dieback and decline. This is a different pattern than seen with Kabatina or Phomopsis tip blight which only affects the shoot tips.

The treatment for Botryosphaeria canker is to prune out the infected branches during late winter to slow the spread throughout the juniper. Do not prune in May or June as the fresh pruning wounds are infection sites for the spores that are released at that time of year.

Minnehaha County, girdled sugar maple

This was a sad stop. I spend a lot of time looking at pest problems but the one that has no effective treatment walks on two legs. Nope, not a kangaroo but people.

This was a people-problem call. The large sugar maple had some great fall foliage color last year, but this year dropped all its leaves a few weeks ago. Even during a drought that is a little early to drop all the leaves.

The tree was in a raised bed that must have been installed after the tree was mature. This was the first mistake. Mature trees do not tolerant soil being placed on the trunk. Even 6 inches can be enough to stress the tree and a foot or two can kill some tree species.

The second mistake is someone placed plastic edging around the tree trunk to separate it from flower bed in the raised planter. The plastic edging was forgotten and eventually the trunk overgrew the plastic. However, the plastic girdled the trunk and the constriction prevented the sugars from moving to the roots.



The root decline resulted in less water uptake and the tree died. Girdling often is a slow decline but a quick death. The roots slow decline as they can survive for a while on their reserves but once exhausted the tree dies quickly.

Turner County, Zimmerman pine moth

This Scotch pine presented the classic symptoms of Zimmerman pine moth (*Dioroctria zimmermanii*) infestation. The tree had numerous limbs broken off at the junction with the trunk and there were popcorn-like masses of sap at the whorls.

I dug into the fresh oozing sap and was able to pull out the pupal skins from the moths that emerged a month or two ago. Zimmerman pine moth has a one year life cycle. The adult moths are out in August and lay their eggs on the bark, often near old pitch masses.



The insect is now a very small caterpillar that is already hiding in a silken cocoon called a hibernaculum. In the spring, the caterpillars will come out of the cocoon and burrow into the tree. The tunnelling by the larvae weakens the limb attachment and causes the limbs to break.

There are two times to treat. The first is early August to kill the young larvae after they hatch and are vulnerable as they crawl along the bark. The second time is early April after the caterpillars come out of their cocoon and are crawling on the bark before burrowing into the wood. The treatment is an application of an insecticide containing Bifenthrin or Permethrin and labelled for this insect. The application must be made to the bark, not the foliage, so the sprayer needs sufficient pressure to reach the trunk through the canopy.