



Tree Pest Alert



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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 at about 2,640 growing degree days (GDD- base 50) in Sioux Falls now. This is still higher than average for this date and almost the total GDD we accumulate some years!

This means fruit harvest may be a little earlier this year. Harvesting of early-season apples has already started so it is a good time to review how to pick an apple. Only pick ripe apples (the ones in the picture are not quite ready), the fruit does not continue to ripen on the kitchen counter.



First, the apples at the edge of the canopy often ripen sooner than the apples in the interior. The exposure to direct sunlight quickens the ripening. Second, look for fruit without bruises and other damage such as bird pecks. Third, be sure the fruit has the color and firmness for that cultivar. While these are key indicators, the best test is taste. Try one and if the taste is right, it is time for harvest.

Now for the picking. Do not use your fingers to twist the apple off the tree. If you have to pull the apple off the spur, it is not ripe yet! Instead, lift it slightly with the palm of your hand and rotate – it should separate from the spur with only a little pressure.

And don't toss them in a bucket or bag. The fruit will bruise. Place the ripe apples in the bag and store the bag in a cool location. Root cellars are great but the refrigerator is more handy.

Treatments to Begin Now

Locust borer

Locust borers (*Megacyllene robiniae*) began emerging at about 2,300 GDD and continues to 2,800 GDD. I am starting to see the adult borers land on locust trunks.

The adults are hard to miss. They are about an inch long with long antennae. The body is almost black but with bright yellow stripes running across their back. Some of the stripes form a large W – that does not stand for wasp though they look like one!



You can also find these colorful adults on goldenrod flowers where they feed on pollen. But they are also laying eggs on the locust, as in the picture, and these will soon hatch to become larvae. The larvae tunnel through the inner bark and sapwood during their lives and become almost an inch long at maturity. The tunneling by the larvae weakens the trunk and may cause the infested branch or trunk to snap.

The locust borer only attacks locust (*Robinia*), not honeylocust (*Gleditsia*). Many black locust survive the attacks and continue to grow though there may be a few broken limbs and knotty swelling on the trunks as signs the insect has called the tree home. Once the tree is about 10 years old, it is rarely attacked.

But good luck keeping the Purple Robe locust (*R. pseudoacacia* 'Purple Robe') alive that long. While this cultivar has attractive chains of purple pea-like flowers, it is borer candy. I rarely find one that lives even five years before being killed by locust borer.

Treatment is usually a saw to remove the dead, infested (and often snapped) tree but the trunks can be sprayed now with an insecticide to kill the insect. These bark sprays contain Bifenthrin, Carbaryl, or Permethrin as the active ingredient and must be labelled for control of this insect. Most injectable products are ineffective against this insect.

Timely Topics

Emerald ash borer update

The adults are gone now having lived out their short (month or so) lives but their kids are doing just fine. Infested trees are filled with the larval worm-like stage happily feeding in the sugars found just beneath the bark.

The larvae found during our sampling are mostly 3rd instar, though there are still some 2nd instar around. Emerald ash borer larvae develop through four stages (instars) between mid-summer and fall. I expect to start seeing 4th instar within a couple of week. Most of the

damage done to the vascular system of the tree (disruption of the inner bark and outer sapwood) is being done now by the 3rd instar. The 3rd and 4th instars are the tree-killers.



There are a lot of them out there. Branch sampling in Sioux Falls seem to come up more often with the insects inside. A branch used for sampling is about 2-inches in diameter and 30 inches long. This 15 inch long section (easier to strip the bark off if you cut the sample branch into two pieces) had five larvae inside!



Still the infestation is widely scattered and many trees do not show any symptoms of attack nor are any detected in the sampling. There is a long way to go for the emerald ash borer epidemic in Minnehaha and Lincoln counties. However, trees killed by the borer are beginning to become more noticeable.



This dead ash tree shows the classic symptoms of the former infestation – blighting, woodpecker drills and

watersprouts along the lower third of the trunk. There are also the D-shaped holes made by adult emerald ash borer as it leaves its host. However, these holes are not as easily seen as many people believe and they are only visible on the lower trunk when the tree is dead. The presence of D-shaped holes along the lower 6 feet of trunk usually means the tree is dead or very near death.

E-samples

Guignardia leaf blotch on buckeye

This is a foliage disease I often see during wet spring and summer so only few samples during this hot, dry summer. But there are always some. It does not take much wet weather in the spring to get the disease started and the Ohio buckeye (*Aesculus glabra*) seems to be very susceptible to this fungal pathogen.



The most common symptoms on the leaflets are irregular lesions surrounded by a yellow halo. The lesions start out as reddish-brown spots but eventually expand to dark brown blotches that cover most of the leaflet. There is no effective control at this time of year. The tissue became infected back in the spring as the leaves were coming out.

While trees can be sprayed in the spring to reduce the severity of the disease, the best approach may be to plant buckeyes that are not susceptible. The Autumn Splendor buckeye (*A. x arnoldiana* 'Autumn Splendor') seems to be less susceptible to scorch and the leaf diseases that plague the Ohio buckeye. The foliage on this cultivar seems to stay blemish-free and even turns an attractive maroon red in the fall.

Old man's beard

This is a mockorange shrub with unusual late summer flowers. Except the "flowers" are not from the mockorange but a vine growing up through the mockorange. The "flowers" with the long silky threads are not flowers at all – those have come and gone – these are the seed heads to *Clematis virginiana*, commonly known as Old Man's Beard.

This is a native vine found throughout the state. It grows along the Big Sioux River and you can also find it all the way over to Spearfish. N.E. Hansen mentioned the vine in his classic 1931 text *The Shrubs and Climbing Vines of South Dakota* and thought it made an attractive addition to any landscape. It probably would be better

not upstaging the mockorange so perhaps separate the two by digging up the vine this spring and moving it.



Samples received/Site visits

Brookings County, Cottony maple scale on buckeye

This tree was already dropping yellow leaves. Only a fifth of the leaves are still on the tree. The reason for the premature defoliation? The tree has a severe infestation of the cottony maple scale (*Pulvanaria innumerabilis*).



These soft immobile scale insects are usually first noticed in late summer when the females produce the white, fluffy egg sac (called an ovisac). These sacs, which can line the underside of a branch, may contain up to 1,500 eggs (think of the poor student that had to count them!).

The crawlers started hatching from these sacs about 800 GDD, about the time Japanese tree lilacs are in bloom, and move out to the leaves to feed for the summer. There they suck sap from the leaf veins. In the fall the adult females crawl back to the twigs, settle down to resume sap sucking in the spring and lose their mobility (male adults are small flies that seem to have no

purpose, are not essential for reproduction, and live a short life).

Lots of other insects feed on cottony maple scale so usually it is best to let nature manage the problem. Insecticidal soap can be sprayed on the foliage in mid-July and August to kill the young crawlers. Oils, another common 'soft' insecticide are usually not applied on maples due to their sensitivity to these products.

Despite the name cottony maple scale, the insect is found on more than maples. It frequently infests buckeyes among other trees. Interestingly, maples and buckeyes are more closely related than we once thought and are now placed in their own family, *Sapindaceae*. We did not know they were related but apparently the bugs did! Must taste the same.

Codington County, A less than dapper Dappled willow

The Dappled willow (*Salix integra* 'Hakuro Nishiki') is an attractive shrub willow with hanging branches covered with foliage mottled with white, green and pink highlights.

It is not problem-free unfortunately. We are at the limit of its winter hardiness in central South Dakota, and it is best planted south of Highway 14. The shrub is also susceptible to stem borers which results in broken canes and dieback. Finally, the mottled foliage can revert to a uniform green.



This shrub was suffering from all three problems but only one treatment is needed: pruning. This will remove the winter-killed shoots and the borer infested wood. Also, the primary ornamental feature, the mottled foliage, is enhanced by frequent rejuvenation pruning. Cutting all the canes back to 2- to 4-inches tall in March about every three years or so. New canes quickly grow, often as much as 3 feet the first year, and the foliage will have the mottled leaves.

Pennington County, Dying cottonwood

The canopy of this tree is filled with crisp, brown leaves. If you look closely, the dead leaves are attached to individual limbs, yet there are still a few limbs that have green leaves.

This is cytospora canker caused by one of species of *Cytospora* fungi. Cytospora canker is frequently discussed in the *Pest Alert* but the species that infects spruce, not hardwoods. There are other fungal species that infest aspen, cottonwood, and willow among other tree species.



Infections are common in stressed trees and every tree in South Dakota has been stressed for the past two years. The infection begins during warm fall or spring weather and the disease quickly invades the tissue. Infected trees may have elongated, sunken cankers but the disease can spread and kill so quickly that cankers do not form.

The wood around the cankers may be brown to black, watery and have an odor. There may be small dark pimples, which are the fruiting bodies for the fungus, on the sunken bark. These bodies can produce small orange threads during wet weather.

The only control is to keep the tree healthy which means watering during this drought. Pruning out the infected limbs usually is not practical as the disease can spread so quickly in a susceptible tree. Not all cottonwoods are equally susceptible to this disease and that was apparent in the row of these cottonwood as the only most affected was a different cultivar than the rest.

Siouxland cottonwood, an introduction from South Dakota State University, was selected for leaf rust resistance (and it does not produce seed, so it is a cotton-less cottonwood). It also is not very susceptible to cytospora canker. Unfortunately, this is one canker disease of many that affect cottonwoods and Siouxland is susceptible to some of the others – no perfect trees!

Union County, Leaf spot on lilac

I have been to several properties with lilacs presenting with leaves covered with blotches and spots. Not that there are many leaves. The affected shrubs are almost completely defoliated. The landowners say the shrubs looked fine until midsummer.



This appears to be pseudocercospora leaf spot (*Pseudocercospora*). This fungal disease causes leaf spots on many different species of lilac including common lilac and Japanese tree lilac. The disease is sometimes confused with bacterial blight (*Pseudomonas*) but the leaf spot disease does not cause the tips of the shoot to blacken and curl like the blight.

Leaf spot disease requires moderate temperatures (upper 70's°F) and high humidity to develop. Once infection occurs it usually takes about a week for symptoms to appear. I do not usually see the disease until August and then it seems to appear everywhere in eastern South Dakota.

While everyone in eastern South Dakota is aware of the high humidity this year, it is hard to remember any moderate temperatures. It seems like it has been in the 90s all summer. However, we have had (brief) periods of daytime highs between 75 and 82°F in late July and August.

There is no effective treatment at this time, the damage is already done. Fungicides can be applied year. Another common recommendation is to rake up and destroy any fallen leafy debris. This may be practical in a yard, but not a windbreak. The buds on the affected shrubs are healthy, large and light green, so I expect the shrubs to recover next year.

Union County, Oak twig girdler

I covered the problem with squirrels pruning oak twigs in an earlier *Pest Alert*. But they are not alone in this activity. We also are seeing damage from the oak twig girdler (*Oncideres cingulata*) in the native bur oak stands of southeastern South Dakota.



The canopies of these trees are showing random shoots covered with browning and crisp leaves. The damage is limited to individual shoots but all the leaves on these shoots are brown, not just a few. The overall appearance of the tree is mottled with green and yellow leaves.

These shoots break easily and many are already falling to the ground. If you look closely at the base of these fallen shoots, they have a smooth edge but with a ragged center (squirrels make a diagonal ragged cut through the entire twig).

The adult beetles are out now. They are a longhorn beetle so have an antennae almost as long as their 1/2-inch long body. The adults are gray brown with yellow spots. The female beetle cuts a neat groove around the shoot but leaves the core so shoot remains attached. An egg is deposited in the bark of the shot near the base. The shoot breaks off with a little wind.

Larvae hatch in the fallen shoots to feed in the fall. They remain inside for the winter and resume feeding in the drier shoot the following spring and summer. Emergence begins in August. There is one generation per year. The damage to the host tree is minimal.