



**SOUTH DAKOTA STATE
UNIVERSITY EXTENSION**

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 listing 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

This past week's weather was warm with daytime temperatures in the mid to high 80s for much of the state. Communities along the Black Hills saw slightly cooler temperatures.

The growing degree days (GDD-base 50) accumulation was another 130 to 190 GDDs during the past week. Here are the total GDDs for communities across the state.

Aberdeen	2,356
Beresford	2,803
Chamberlain	2,848
Rapid City	2,570
Sioux Falls	2,790

The fall ripening of fruit and nuts has already started but much of the harvest is yet to come. Walnuts ripen at about 2,500 to 2,800 GDD so the large fruits are beginning to drop, much to the delight of squirrels.



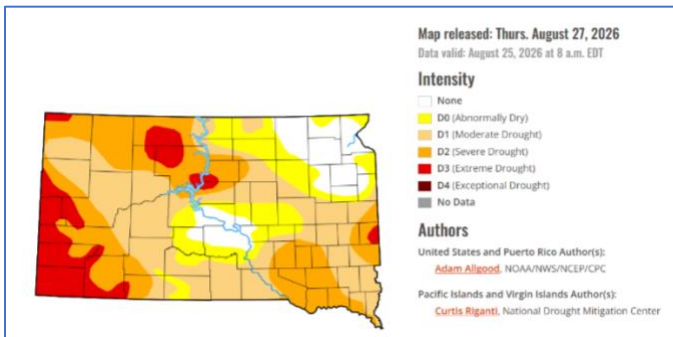
Drought monitor

This week is almost identical to last week. Only about 11% of the state is classified as drought free. The northeastern corner of the state - from Brown to Roberts counties - seems to have dodged the drought this year.

The center of the state, around Pierre, has escaped most of the drought.

About 12% of the state is under 'Extreme Drought.' The entire Black Hills - from Lawrence to Fall River counties - has been under this drought intensity for most of the year. Extreme drought intensity is dotting the rest of the state - from Harding to Corson to Moody counties.

Here is the current map from the National Drought Mitigation Center at the University of Nebraska-Lincoln. We need rain!



Treatments to Start Now

Locust borer

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

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 backs. 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 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 locusts 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 adult emerald ash borers have finished their flight periods. The bookends for their flight are Memorial Day and Labor Day. We start seeing the first adults emerge after or during Memorial Day. The last emergence is in late July or early August. Since adults live for three to six weeks that means they are gone or their numbers are few by Labor Day.

The larvae found during our sampling are all 3rd instars. The 3rd instar larvae are plowing through the inner bark and outer sapwood in their serpentine pattern. The tunnels are easily seen by the white powder that filled them. Emerald ash borer has two small pinchers at the end of their abdomen. They use them to pack their poop and woody debris (frass) behind them.



Heavily infested trees are declining quickly now due to the combined stress of the beetle and the drought. I am

seeing some infested ashes that are shedding small, yellow leaves.

Emerald ash borer confirmed in Bismarck, North Dakota

This past week emerald ash borer was confirmed in Bismarck, North Dakota. The larvae were discovered by the city's forestry staff after felling a declining ash tree. This was the first detection in central North Dakota. The insect had previously been confirmed in Cass and LaMoure counties.

This is a good reminder that this insect could appear anywhere in South Dakota. While the detections have been slowly expanding along the eastern border of the state, the insect can leapfrog counties by hitchhiking on infested ash logs and firewood.

How to grow a walnut from seed

At this time of year, I often receive requests on how to grow trees from seeds. One of most common requests is how to start walnuts from seed. This tree is simple to grow from seed; squirrels do this routinely with remarkable success considering the number of walnuts that germinate in gardens and other prepared soils!

The trick is to think like a squirrel. Harvest the seeds (the nut) as soon as they drop and plant them this autumn while the soil is still warm. The seed will not initiate growth this fall, but germination next spring improves if they are exposed to several weeks of warm temperatures before enduring the winter cold.

The planting site should be well-drained. A patch in the garden is probably the best spot and after planting cover the soil with a light mulch, straw or leaves that will not mat such as oak leaves (do not use maple or basswood leaves, nor grass clippings as these tend to mat). The only trick is removing the husk of the fruit to find the seed.



First, begin gathering the nuts as soon as the first few starts dropping from the tree. Once they begin to drop naturally, shaking branches with a long pole can encourage more to fall; however, do not pull the nuts off the branches. Also do not wait too until they have all fallen on the ground and dried. The walnuts should be harvested while they are still firm but green. Once they dry and harden, they are impossible to crack.



The next step, after gathering the walnuts, is to change into clothes you do not plan to keep as well as wear an old pair of gloves. Now find a solid surface to hammer open the husk. You might not want to use your sidewalk or driveway as the removing the husk will create a dark green, oily stain that does not easily wash off from most surfaces. Some people cover the surface with thick cardboard to reduce staining; others use the neighbor's driveway.

Once the husk has been hammered apart and the seeds extracted, let them dry for a day or two (and place them where the squirrels cannot find them) then plant. A good rule is to plant the walnut seed at a depth equal to three times its diameter. Finally, sit back and wait till spring, and if the squirrels have not found your seeds you will be rewarded with 50 to 80% germination.

E-samples

Shothole disease on chokecherry

This is a widespread problem of chokecherry (*Prunus virginiana*). Leaves are peppered with neat, round, holes. Most people wonder what insect could have caused these holes unseen. It is not an insect, but one or two pathogens.

The two pathogens that may play a role in the disease are a fungus, *Blumeriella jaapii*, and a bacterium, *Xanthomonas pruni*. The disease begins as small (1/8-inch) brown or purplish spots on the leaves. The spots drop out in mid-summer leaving tiny holes dotting the leaves. Heavily infested leaves may turn yellow and fall prematurely.



This is a frequent problem in late winter and spring but sometimes goes unnoticed until summer. The bark on some of the branches has been stripped off revealing the smooth, whitish sapwood.

There are many thoughts about why squirrels do this. They may feed on the sweet (but not as sweet as a snickers candy bar) inner bark. The inner bark may also serve as a “chew stick,” material to help sharpen the teeth.

While these all may be true, a recent explanation called the “Calcium Hypothesis” is that the inner bark also is extremely high in calcium, a mineral squirrel in the spring during pregnancy. This may be it but until someone can communicate with squirrels we may not know for sure.

Willow scab

The reason this willow is dropping leaves is willow scab (*Venturia saliciperda*). It is a common foliage disease that appears in late summer on willow trees across the state.



The disease is closely related to apple and pear scabs. The common symptoms are discolored and falling leaves as well as tip dieback. This disease has similar symptoms to black canker (*Glomerella miyabeana*), a willow twig disease that can also cause the leaves to wilt and the shoot tips to die back.

The two diseases are difficult to separate. They are closely related but the willow scab infected leaves will usually have “tufts” of spores on the underside of the leaf, along the midvein. These two diseases are often found in association with one another and when they occur together the disease is simply called willow blight.

Samples received/Site visits

Brookings County, Aphids causing maple leaves to brown

This sugar maple (*Acer saccharum*) is covered with browning leaves. The ground beneath the tree is littered

The disease rarely is a serious threat to the host. If treatments are needed, fungicides containing chlorothalonil as an active ingredient can be applied in the fall to protect the buds and repeated in the spring as the leaves begin to emerge. But fungicide will not work if the disease is due to bacterium.

Squirrel damage on elms



with recently fallen leaves. Drought alone can cause these symptoms but there was another stressor impacting this tree.



The first clue was the ladybeetle larvae on the twigs. These are one of the few beetle larvae that have long thoracic legs and can move quickly – they look like mini alligators and are as deadly.



They are a top predator of aphids – think of wolves and sheep. Aphids cannot fight a ladybeetle larva and win. The only defense is hide in a pack or escape. Ants will also protect aphids from ladybeetle larvae as they “milk” aphids for their sweet honeydew.

The undersides of the leaves were covered in aphids. The nymphs and adults live by sucking the sap from the foliage. They drain the tree of nitrogen and sugars as they suck the sap from the leaves. At the same time, the insects excrete copious quantities of honeydew. This sugary substance leaves a sticky film on the leaves.

A large population of aphids can remove enough resources so that the host tree’s growth is stunted. The ladybeetle population of larvae and adults was also large on this tree. Since a single ladybeetle can devour 50 to 100 aphids a day, they are munching through the problem. There is no need for pesticide treatments.



Clay County, Eastern redcedars in lawn

Southern Clay County has been dry this summer. Lawns that are not being irrigated have turned brown or gray as they go dormant during the hot, dry weather. Any green spots in these lawns stand out.

The question here was what plant was causing the green spots. They were small eastern redcedar (*Juniperus virginiana*) that had adapted to being mowed. The plants, coming from the adjacent cedar windbreak, were only three inches tall!



The best solution for removing these bonsai trees is to pull or clip at ground level. Junipers cannot sprout like our deciduous trees so once they are cut to ground level the roots will die. They will continue to seed in from the nearby windbreak, so it is best to look at this as an annual or at least every couple of years maintenance task.

Lincoln County, Blotch mines on bur oak leaves

Many calls have been coming in about the spots appearing on the native bur oaks (*Quercus macrocarpa*) in southeastern South Dakota. There are many distinct reasons for blotches of discolored tissue in bur oak leaves. Diseases such as bur oak blight (*Tubakia*

iowensis) can cause these symptoms. But the most common reason for the blotches in these trees is not a disease but an insect, the solitary oak leaf miner (*Cameraria hamadryadella*).

This insect makes its living as a larva by feeding between the upper and lower leaf surface. Each larva tunnels its own mines, hence the name solitary leaf miner. The mines are not visible from the underside of the leaf, but the topside will be covered with tan blotches. If you use a knife, you can easily separate the thin layer of leaf tissue from the top of the mines and find the larva or pupa.



The adult is a small moth. The female lays eggs in the spring as the leaves fully expand with the larvae burrowing in the leaf when they hatch. They feed for several weeks before pupating in the mine before emerging as second-generation adults.

We are seeing the second generation of larvae now. These will overwinter in the fallen leaves, then pupate in the spring to emerge as adult moths as the oak leaves open in May.

While the damage may look alarming, the trees can withstand this level of defoliation.

Marshall County, Tar spot on silver maple

This is a common disease of silver maple (*Acer saccharinum*) but the only place this year is in northeastern South Dakota. It is the only area of the state that has dodged this year's drought for the entire growing season.

The infected silver maple leaves have raised hard and black spots with a light halo around them. This is tar spot (*Rhytisma acerinum*), a foliage fungal disease most common to red (*Acer rubrum*) and silver maples.

We are not seeing much of the disease this year. The infection period occurs in the spring as the leaves are opening. If we have cool, moist weather, the leaves stay moist long enough – a few hours – that the spore

germinate and infect the tissue. If its dry, germination does not occur and the disease does not develop.



The spots become large and black on silver maple, so the disease is noticeable. The same disease in other maple species results in smaller black spots. These are not as noticeable so rarely do people call about the disease.

The disease on silver and red maple can be treated with fungicides – copper – in the spring as the leaves are opening and repeated two more times about three weeks apart. Treatments are rarely applied as the disease does not seriously harm the tree.

Minnehaha County, Stem girdling roots on littleleaf linden

This was a stop to look at a littleleaf linden (*Tilia cordata*) that the owner thought had verticillium wilt (*Verticillium dahlia*). Verticillium is a serious and often lethal disease of ash, catalpa, elms, and maples, rarely affects lindens.

The tree had been planted about six years ago. It was stunted with leaves about half the normal size. The top had already died back and was pruned out.



The clue to the problem was the trunk was going straight into the ground without showing a flare. This usually

means the tree was planted deeper than it should have been. The upper most root should be positioned just beneath the soil line at planting.

The second clue was the trunk near the base was flat on one side. Flat means the trunk is begin constricted which interrupts the movement of water and sugars through the tree. This blockage will result in stunted leaves and branch dieback.



The constriction was due to a stem girdling root. Container-grown lindens are susceptible to this problem. It can be corrected at planting by removing the circling roots at the end of the pot. This is done by using a sharp spade to slit in about an inch from the edge of the ball all the way around the soil.

Equally important is planting the tree at the proper depth. A straightforward way to avoid most stem girdling roots is planting so the stem is not in the soil, but above it. The combination of leaving the circling roots at the end of the soil ball and planting too deep are the cause of stem girdling roots.

Unfortunately, there was nothing that could be done to correct the problem on the tree now. The solution is to remove the tree and plant another correctly.