



**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 extremely hot with daytime temperatures exceeding 100°F in some communities. The highest temperature in the state was in Philip - 114°F on July 25th!

The growing degree days (GDD-base 50) accumulation was about another 160 to 200 GDDs during the past week. Here are the total GDDs for communities across the state. We are ahead in GDDs compared to recent years at the end of July.

Aberdeen	1792
Beresford	2202
Chamberlain	2191
Rapid City	1955
Sioux Falls	2160

What do trees do with the water they absorb?

Almost all the water absorbed by a tree on a summer day is lost out of the leaves through transpiration. This process moves water from the roots up through the trunk and branches and releases it as water vapor from small holes in the foliage. Less than five percent of the water is used for photosynthesis and other functions.

While water is "lost" through transpiration that does not mean it is wasted. The water vapor from the leaves cools the foliage surface, often as much as 10° to 15°F. This allows photosynthesis to occur at warm air temperatures.

The transpiration stream is also the mechanism that pulls water through the tree without it having to do any work. Each leaf may be transpiring about one-tenth of an ounce of water per day during the summer. A mature elm tree may have more than 150,000 leaves so the tree may transpire more than 100 gallons of water in a single hot summer day!

This means a small community in South Dakota with 2,000 shade trees can release 200,000 gallons a day into the atmosphere if there is sufficient soil moisture. Community trees through their shade and transpiration

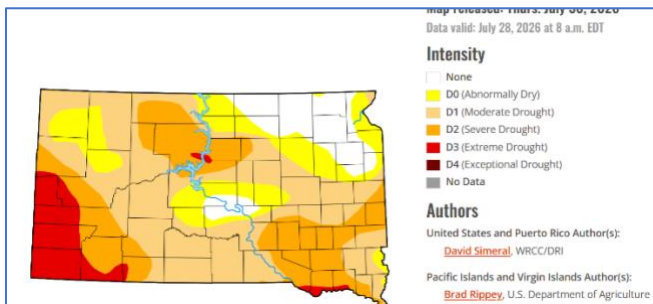
can create a cooler microclimate. The water vapor cools the air but does not raise the humidity.

We often forget about the benefits of all the water recycled back to the atmosphere. A recent study shows the Amazon rainforest transpiration creates a 'flying river' which moves more water than the Amazon River!

Drought monitor

While the temperatures went up, the rainfall did not. We need more rain to drive the transpiration cooling process! We now have only 10% of the state classified as drought free. About 40% of the state is classified as "Moderate Drought," another 25% "Severe Drought," 15% "Abnormally Dry," and 10% "Extreme Drought."

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



Treatments to Start Now

Water your trees!

Water your trees! 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 elements requires the tree to expend energy. A drought stressed one has little energy to spare. Finally, newly planted tree seedlings can be injured by fertilizer salts in dry soil.

Timely Topics

Emerald ash borer updates

We are continuing to monitor the larval development of emerald ash borer (EAB). The larvae are mostly 3rd instar larvae. This third stage is about 1/2- to 3/4-inch long, flat, white with distinct bell-shaped abdominal segments.

They are large enough to severely disrupt the movement of sugars from the leaves as they feed in the inner bark. But they are also thick enough to etch sapwood where the water is moving from the roots to the leaves.



Cicada killers are on the move!

I have been receiving calls from people that were suddenly swarmed by large (1 to 2 inch long) wasps as they walked along the sidewalk. They buzz by then hover near you like they are sizing you up for a big sting. Could these be the murder hornets?



Fortunately, these are not murder hornets. Well fortunate for you but unfortunate for any nearby cicada as these are cicada killers (*Sphecius speciosus*). They will sting a cicada but for the devious means of raising their young. The cicada killers sting the cicada which paralyze it. The cicada killer then carries the immobile cicada back to its nest where it will serve as food for its grub-like larvae – think of Kane in the movie *Alien*, not a pretty sight.

The female cicada killers make their nests in soil burrows. They prefer sunny locations near trees with cicadas. I often see their soil mounds along sidewalks hence the common interactions between the adult cicada killers and walkers. They also like to build nests between the blocks of retaining walls.

The female cicada killers do have a stinger, a modified ovipositor. A sting from one can be painful but no worries about becoming paralyzed. But unless you bother them, they will ignore you and focus on finding cicadas. They

are solitary insects that do not even defend their nest (unless you are a puppy that sticks its nose in a nest).

The male cicada killers lack a stinger but are more territorial. These are usually the ones that confront trespassers such as people walking along sidewalks or edging their driveway. Ignore them, they are more buzz than bite.

Patch of yellow (not blue) on hackberry

Hackberry trees with patches of yellow leaves are appearing across eastern South Dakota. The branches with bright yellow leaves are randomly scattered through the tree's canopy. Not every hackberry is affected nor every branch on a hackberry.



If you trace one of these affected branches back to its base, you will notice the bark has been removed. The injury has been ongoing for years in affected trees as the injured branches show repeated callusing around the chewed patches.

The cause of this girdling is the eastern fox squirrel. These rodents seem to feed on anything in a tree – bird eggs and young, tree buds, insect galls and, a favorite, the sweet inner bark of specific tree species – most commonly hackberry, along with elm and maples.

There is not much that can be done about this rodent, or its damage, in urban areas. They have their preferred trees and return to feed on them every summer. You can find past girdling in these trees.

They do not completely cut around a branch, so it often survives. The flagging branches – the yellow leaves - are the ones completely girdled and these die from this injury.

E-samples

Basswood leaf miner in bur oak

This insect continues to cause minor defoliation of bur oaks. The leaves present with brown blotches which are

the result of an insect tunneling between the upper and lower tissue of the leaves.



This foliage injury is from feeding by the basswood leaf miner (*Baliosus nervosus*). While basswood (*Tilia americana*) is the favorite host, this same insect frequently attacks white oaks including bur oaks. We do not have native basswood trees west of the Missouri River but there are extensive oak stands lining the many creeks and rivers in western South Dakota and these are suitable hosts.

The larvae have completed their feeding but now we have the second-generation adults that are adding to the injury. While the defoliation is unsightly, trees can survive the leaf loss.

Heat injury on seedling spruce in windbreaks

Last week I mentioned the concern with heat injury on spruce (July 22, 2026, *Pest Alert*). A common symptom is yellowing and browning foliage. While the needles are presenting symptoms, the pencil size stems are also affected by the heat. Inner bark is killed so food does not move to the roots. The roots starve and absorb less water.



Heat injury occurs on seedling spruce at temperatures around 120°F. The smaller the seedlings, the greater susceptible to high temperatures as they are not large enough for much interior shading. A small tree can reach these temperatures in the woven black fabric.

Since we cannot control the summer thermostat, our best options are drip irrigation which will increase transpiration cooling and keep the fabric at least several inches from the base of the tree. Never allow the cut fabric to rest on the seedling. Some producers are placing small cards on the south side of the young trees. The entire seedling does not need to be shaded, but the lower third should be protected from the sun.

What about tree tube for young deciduous trees? The temperatures in tube, even vented ones, can become higher than the air temperature. But the tubes also are small humidity chambers due to the transpiration cooling so less stress. Trees in tubes still grow faster than those that are not tubed.

Samples received/Site visits

Custer County, Aspen leaf miner

The silvery trails in these aspen leaves are the work of the aspen leaf miner (aka Aspen serpentine miner) (*Phyllocnistis populiella*). The tiny, flat larvae tunnel through the leaf blade feeding along the veins. When they finish – late summer – they form an equally tiny cocoon at the end of a miner and near the margins.



The adult emerges in the fall and overwinter. They are tiny with pale wings spanning less than 1/2-inch. They spend the winter in leaf litter, emerging from their winter home to lay eggs in the new leaves.

They do not remove enough leaf tissue to be a concern. The damage is more curiosity.

Lincoln County, Fungal fruiting bodies near base of tree

There were a few conks (fruiting bodies) of the sulfur yellow fungus (*Laetiporus*) that appeared near the base of a declining ash tree. This is a common decay fungus that colonizes a wide range of tree species. Infections can result in extensive decay and tree mortality.



The spores are carried by the wind and scattered across the state. Mechanical injury to the base of the trunk or surface roots from mowers or weed whips are common entry points for the spores.

Since the fungus is a weak pathogen, keeping trees healthy is the way to reduce infection. Trees that have many dead branches and conks at the tree's base or surface roots should be assessed for their risk of failure.

Meade County, Western tent caterpillar egg masses

Tent caterpillars, the insects that create nests at the tips of the branches in the spring, are presently in egg masses along the shoots of their favorite hosts. The egg masses appear as molten, dark brown to pale gray, shiny masses about 1/2-inch long.



The eggs are laid during July and August by the adult moths. An unusual characteristic of tent caterpillars is that the larvae have already hatched within the shiny

spumaline, the protective covering of the eggs. They will remain within this protective cover until spring when they move out and begin forming a nest, the webbing we see around the branches.

If these masses are pruned off and destroyed before spring, it will eliminate the problem from the tree (assuming all the masses can be found). This is a task that can be easily accomplished in small apples, crabapple, and chokecherry trees. These three trees are among the favorites for tent caterpillars.

Minnehaha County, Follow up on Dutch elm disease sample

The elm discussed in the July 15 issue of the *Pest Alert* also tested positive for Dutch elm disease (DED) (*Ophiostoma novo-ulmi*). The owner believes the tree to be the American elm cultivar Princeton (*Ulmus americana* 'Princeton'). Princeton elm is one of American elms available that is tolerant to the disease. This means the tree can survive an infection, but it still can become infected.

Pennington County, Root weevil notches on lilac leaves

The irregular notching on the lilac leaves is from feeding by root weevil (*Otiorhynchus*) the lilac root weevil (*O. meridionalis*). The adults cut angular notches along the edge of leaves. They feed at night, so they are rarely seen on the lilac, but they like homes to sleep in during the day so do not be surprised by a few sitting 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*), another root weevil, feeds on yews (*Taxus*) and their larval feeding on the roots can kill their host.

Sully County, Winter desiccation injury on maple

This was a sample submitted. The leaves are smaller than normal and the terminals never produced leaves from the buds. The maple tree that had the top half of the canopy die – never produced leaves this year.



This dieback can be blamed on the unusually warm weather last winter. Last February, the daily high temperature reached into the 60s seven days. It reached into the upper 70s several times in March.

Maples can lose water through their twigs and buds during this warm winter weather. This desiccation injury presents as dieback on maples and birches, the two trees most sensitive to this damage.

Sully County, Pear scab

These yellowing pear leaves are presenting the common symptoms of an infection of pear scab. This disease is caused by the pathogen *Venturia pyrina* and is related to a similar disease that occurs in apples known as apple scab.



Pear scab infection results in the lesions along the leaf margin and spots within the leaf which may expand to cover most of the leaf by midseason. The yellow blotches on infected leaves darken during the season. These leaves will hang for a brief time then fall prematurely.

The disease can also infect the ripening fruit. The same blotches and lesions appear on infected pears. Fully ripened pears are not susceptible.

The disease can be managed by fungicide applications as the buds expand in the spring. The treatment should be repeated two weeks later. One of the products most commonly available for home orchardists is Bonide Fruit Tree & Plant Guard which contains two fungicides, pyraclostrobin and boscalid. The product also contains insecticide so should not be used during bloom.

The symptoms of pear scab differ from fireblight in that the blackened leaves will still be moist to the touch while the leaves on fire blighted branches will often be curled, shriveled and dry.