



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: Carrie Moore and Dawnee Lebeau.

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Plant development for the growing season

We are in another stretch of extremely hot weather. Temperatures have been soaring to 100°F for several days. The humidity is not as high as the last episode of hot weather, but we are still under heat advisories.

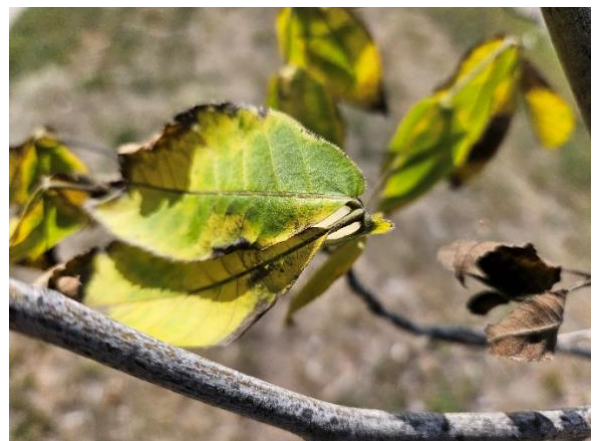
Here are the accumulated growing degree days (GDD-base 50) for communities across the state.

Aberdeen	2,490
Beresford	2,910
Chamberlain	2,950
Rapid City	2,376
Sioux Falls	2,930

The drought intensity map from the US Drought Monitor has not changed much for several weeks. The southeastern quarter of the state – south of Hwy 14 and east of the Missouri – is still classified as “Abnormally Dry,” “Moderate Drought” or “Severe Drought.” The counties along or east of I-29 to the North Dakota border are also included in the drought.

The only change to the intensity map is now there is a stretch of drought extending through the counties that border the White River from Lyman to Jackson County.

The hot, dry weather that most of the state is seeing is continuing to show in premature fall foliage color. Pockets of yellows and reds are appearing in tree canopies. Some trees just have their leaves turning crisp and brown. These are not good signs of fall but a reminder to water!



Treatments to Begin Now

Water

As mentioned in previous *Pest Alerts*, now is the time to water your trees and shrubs to improve winter survival.

The desiccation injury we saw on birches and maples last spring – dead tops – was due to these trees going into the 22-23 winter dry.

Timely Topics

Emerald ash borer updates

Emerald ash borer sampling continues in Sioux Falls and Canton. Most of the larvae are in their third instar, but there are a few fourth instars burrowing through the trees. The fourth instar is the last stage of larval development. These mature larvae are also more than one inch long.



We are slightly ahead in insect development this year compared to last year. The GDD is also above what it was last year at this time in Sioux Falls by about 150 GGD. GDD accumulation relates closely with insect development.

As the GDD accumulation slows with the cooler fall temperatures, the larvae will begin to burrow into the sapwood to spend the winter. This will start sometime in October. They still have at least a month to continue feeding and damaging their host.

Tree tube venting

Tree tubes are an effective way to protect seedlings, but they do come with challenges. The opaque tubes trap heat. A sunny summer afternoon can result in temperatures 5°F or higher inside the tube. The elevated temperature causes trunk injury to thin barked trees. The heat can also delay dormancy for some tree species, increasing the possibility of winter injury.

All tubes four feet tall or higher should be vented. The vents allow the warm air to flow upward and out. Some studies have not shown a significant difference in the air temperature within the tube between unvented and vented. A key factor is the size of the holes. The vent holes should be 1/4-inch diameter or larger. The vent should be on the upper half of the tube.

The top of the tube should be cuffed or have a foam liner foam (last issue) to prevent the trunk from being cut as it sways. Do not remove the tube too early. The tree canopy should be above the tube and the base of the trunk almost filling the tube before it is removed.



E-samples

Chicken-of-the-woods fungus

Pictures keep coming in of the fungus known as the sulfur shelf fungus or chicken-of-the-woods (since it has the texture of chicken). The colorful orange and yellow layers of fan-shaped shelves to this fungus stand out against the dark bark of their host. The shelves often extend out five to ten inches from the tree trunk. They also can extend up and down the trunk for a few feet.



As the fungus ages during the fall, the zoned upper surface fades from a golden yellow to a uniform pale yellow. The lower surface also fades. The shelves also lose their smooth edge. The edges will become more jagged as pieces break off or are eaten by wildlife.

The young spongy fans are edible and sought after by mushroom hunters each fall. The fungus lives in the heartwood of its host, slowly turning the interior of the tree to a brown crumpled mass. The host tree will eventually fall due to decay but until it does, the fungus will dependably appear each year.

While there are no close look-a-likes, it is still best to harvest them with an experienced mushroom hunter for the first time.

Woodbine climbing on trees

People are noticing vines that have crawled up their trees and shrubs during the summer. One that is very noticeable at this time of year is the woodbine (*Parthenocissus vitacea*). This woody vine climbs woody stems through their twining tendrils.



The black to dark blue globose fruit (about 1/3-inch diameter) hangs in clusters of five or more “berries.” The birds will take the grape-like fruit, but it is not edible for humans.

This image came from the Black Hills where woodbine is a common vine. A closely related species, Virginia creeper (*P. quinquefolia*) is native to the eastern part of South Dakota and farther east. The vines look similar, but Virginia creeper tendrils end in small suction-cup like disks that will adhere to any surface so will climb buildings as well as trees.

Samples received/Site visits

Fall River County, Leaf spot on boxelder

The boxelder (*Acer negundo*) sample presented with discolored leaflets. This discoloration appeared along the margins. These symptoms can be due to numerous abiotic to biotic agents.

While other agents may also play a role, Connie in the diagnostic lab was able to force some spores from small pepper-like fruiting structures (a key to identification of many pathogens). This is the fungi *Phyllosticta minima*, a leaf spot disease of boxelder.



This is typically a minor disease of boxelder but the above-average precipitation in the region provided ideal conditions for the disease to develop. Fungicide treatments are rarely recommended. With the probable return to drier weather next year, the severity of the disease will decline.

Minnehaha County, Desiccation injury on maple

This is another stop to look at a maple tree that had the top half of the canopy die last spring. This dieback can be blamed on the combination of a dry autumn and a long winter. Many trees were drought-stressed last autumn and entered dormancy with a water deficit. During winter days when the temperature reached into the 30°Fs, the trees lose water through their twigs and buds. This desiccation injury presents as dieback on maples and birches, the two trees most sensitive to this damage.



Moody County, Deer browsed hackberry in tubes

This was a stop to look at hackberries in a belt that “were not growing.” The problem? Deer browsing the tops. Each of the eight-year-old trees had multiple terminals peeking out of the tops of the tube. Each tip had a shredded appearance as deer are messy eaters, tearing the tips rather than cleanly cutting them.



Walworth County, Follow on seedling mortality in a windbreak

This was a July visit to a windbreak that was planted this past spring. Most of the rows were lined with vigorously growing seedlings. But there were a few rows that were lined with bare sticks. The common theme was these rows were plum and Russian-olive and they were sources from one nursery. Other new belts in the county had the same pattern – seedlings growing fine except for these tree species from this same nursery.

Dead and dying seedlings of plum and Russian-olive were brought back to our lab. We have not been able to find any pathogens in the roots or stem, just some saprophytic fungi colonizing the dead tissues.

The nursery was contacted about the excessive mortality of only their trees in the new windbreaks. The response was environmental conditions caused the decline – the hot spring temperatures caused the top to bud out before the roots started threading out. Trees that leaf out before the roots can start transporting water will desiccate. This can happen.

But the other deciduous species, sourced from another nursery, were fine. There is nothing specific to plum and Russian-olive that would make them more susceptible to heat injury. The origin of the problem may be in the winter storage or spring transport of the seedlings based on the pattern of decline.

Deer are selective herbivories and have their preferred tree species. Hackberry, along with bur oak, seem to be deer candy. Tree tubes are often needed to give these species a chance to grow.

But the tube must be at least five feet tall. Four-foot tubes are too short. Deer can easily browse the shoots that extend out of these tubes. Five-foot tubes are not deer-proof. Deer can reach the tops of these tubes, especially in the winter when packed snow provides a boost. Still, five feet works most of the time.

Moody County, Spruce seedlings planted too deep last spring

This stop was to look at seedling Black Hills spruce that were planted last spring in a new windbreak. While mortality of some of the seedlings is expected – especially in a drought year – the losses were more than 50 percent.

As usual, the question from the landowner was what should be sprayed? The problem was not something that can be treated with an insecticide or fungicide. The problem was the planting depth. The dead seedlings were planted too deep. They were planted so deep that I was able to pull branches with needles out of the ground on each of these seedlings.

This surprised the landowner. The trees lived until a few weeks ago. The decline and death started then as needle turned brown and shoots became brittle. Planting too deep is not instant death. When planted too deep, the roots and lower stem of seedling trees slowly decline over the growing season.

