



**SOUTH DAKOTA STATE
UNIVERSITY EXTENSION**

Tree Pest Alert



August 12, 2026

Volume 24, Number 26

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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 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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This publication made possible through a grant from the USDA Forest Service.

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. A few western counties saw temperatures climb into the 90s but triple digits were rare. While the weather was not extremely hot, it was still humid. South Dakota is experiencing a Florida summer.

The growing degree days (GDD-base 50) accumulation was another 120 to 160 GDDs during the past week. Here are the total GDDs for communities across the state.

Aberdeen	2,081
Beresford	2,500
Chamberlain	2,519
Rapid City	2,260
Sioux Falls	2,475

The fruit is beginning to ripen on the Dolgo crabapples in McCrory Gardens. It is olive shaped, about one to 1.5 inches long, crimson red with a slight bloom.



The ripe fruit is very tart with a tangy kick to it. It enhances the flavor of any cider and jams. Dolgo crabapple adds a rose color to any juice or jam but limit it to about 10% of the blend. Its acidity can be overpowering.

Dolgo crabapple is an old South Dakota State College introduction. Professor N.E. Hansen collected it near St. Petersburg, Russia in 1897. The variety was released in 1917 for its fruit. As Hansen described it, "makes a rich, ruby-red jelly of beautiful color and excellent flavor."

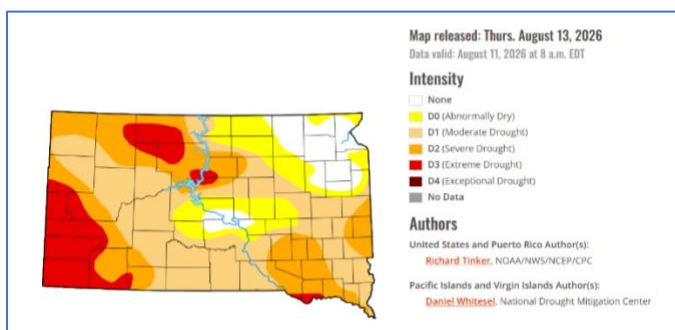
While most folks now buy cider rather than press their own, Dolgo crabapple has continued to be popular as an ornamental crabapple and for wildlife plantings.

Drought monitor

We continue to slip in drought intensity. Only about 10% of the state is classified as drought free. The northeastern corner of the state from Brown to Roberts County has seems to dodge the drought this year. Last year at this time about 75% of the state was drought free.

About 14% of the state is under 'Extreme Drought.' The entire Black Hills from Lawrence to Fall River County has been under this drought intensity for most of the year.

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



Treatments to Start Now

Picking apples

Harvesting early-season apples starts during the latter part of August. The first to ripen are First Kiss[®], Zestar! and SweeTango. These are far superior to many other early season apples – they are sweet and crisp, not mushy.



What apples to pick first? Apples at the edge of the canopy often ripen sooner than the apples in the interior. The exposure to direct sunlight quickens the ripening. Next, 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. Only pick ripe apples, the fruit does not continue to ripen on the kitchen counter or in the refrigerator.

Now for the picking. Do not use your fingers to twist the apple off the tree. If you 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.

Do not 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 handier.

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. There still are a few 2nd instar which are a little shorter but otherwise appear the same.



We are reaching the point where it may be best to wait to treat an ash for EAB until next May. The chemical can take 30 days to be carried through the entire canopy of the tree. This means it may not be killing the larvae until late September when most of the feeding damage is done for the year.

Pine wilt disease in North Dakota

A group of North Dakota forest health professionals came to South Dakota State University last week to

learn about sampling for pine wilt disease. This lethal disease of exotic pines has been present in our state for the past 40 years. They had not yet confirmed it in North Dakota.

This disease has gradually been moving north since its discovery in Missouri in the late 1970s. It was first isolated in Lake Andes in the 1980s. We found it in Sioux Falls (and Hot Springs) in the late 1990s. It was confirmed in Aberdeen and Lemmon in the early 2020s. Our warmer summers have gradually extended the disease further north.



We expected it to appear in North Dakota by now. The summers there have also become favorable for the development of this disease. North Dakota also has lots of Scotch pines, but all the samples sent to our lab from this state have been negative. No pinewood nematodes were detected.

When the North Dakotans came down to SDSU, we went out to show what were the best candidates for sampling. We also covered how to collect good samples with an increment borer. The core must contain blue stain from the bluestain fungus which the nematode feeds on.



This apparently was the trick. They sent down some new samples last week. We were able to extract pinewood nematodes from these cores.



The disease is now confirmed in Ransom and Sargent Counties, North Dakota, in Scotch pine.

Powdery mildew on purple-leaf ninebark

Powdery mildew is showing up this summer in the purple-leaf ninebark. This is an unusual disease as mildew does not require wet weather to drive infection. What it needs is warm, humid weather and we have had plenty of that.

I have received several pictures of powdery mildew on purple leafed ninebarks such as Diabolo® (*Physocarpus opulifolius* 'Monlo'). The disease is characterized by a powdery, almost cloudy, appearance to the leaf surface. Sometimes you can find small black dots in this powder, and these are the cleistothecium, fruiting structures, to the fungi.



There are many different species of powdery mildew fungi, almost 100, and they cover several different genera. These fungi are very specialized and usually a powdery mildew species is limited to a specific plant genus. The one that infects lilacs is not the same as the one that infects ninebarks which is *Podosphaera physocarpi*.

The simplest management of powdery mildew is to alter the growing environment, making it less favorable for the development of the disease. This requires pruning to open planting beds to decrease night humidity and improve air flow. Fungicides may be used to manage the disease but are best applied before the problem appears.

The picture shows all the leaves at the tip completely white; this usually means the infection grew out of the bud. However, fungicide treatments during the summer can protect the remaining foliage, though expect to see some development even with treatments.

E-samples

Crown gall on Hansen hedge rose

This is a nearly dead hedge rose covered with woody galls. These dark, woody galls are likely due to a bacterium (*Agrobacterium tumefaciens*) responsible for the disease known as crown gall though will have to do a site visit to be sure (might be galls from a gall wasp).



The disease often infects the crown – the base of the shrub - or the roots but branches can also be affected. The galls begin as light tan growths but become corky and darken as they age. The galls can range from the size of a pea to a baseball. They are often clustered together.

The bacterium is a weak pathogen so can remain present in the soil without causing infection. It also requires a wound to enter the host. Management is removing any dead or declining plants, the entire plant, including as many roots as practical. This action can slow the spread of the disease but keeping plants healthy by watering and not damaging the lower trunks is the key.

Lilac leaf spot

Most of the state has been too dry for this disease to get started. Last year – when we were not under drought –

the disease had defoliated lilacs across the state. This year the problem seems to be confined to the northeastern corner of South Dakota. The one spot that has not been affected by drought.



This appears to be pseudocercospora leaf spot (*Pseudocercospora*). This fungal disease causes leaf spots on many lilac species 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°Fs) and high humidity to develop. Once infection occurs it usually takes about a week for symptoms to appear. While the entire state had humidity this year, moderate summer temperatures were restricted to the northeastern corner of the state.

There is no effective treatment that can be applied once the disease symptoms appear, the damage is already done. Fungicides can be applied next year. Another common recommendation is to rake up and destroy any fallen leafy debris.

Mulberry identification

Mulberry (*Morus alba*) is the one tree you can count on people asking to identify. Birds plant the seeds everywhere so mulberry seedlings show up near posts

and under other trees. Anywhere birds roost or land – bird feeders – expect to find a mulberry.



The reason the mulberries are hard to identify is because they have three different leaf shapes. They can be a simple leaf with large teeth but no lobes, or a single lobe so they look like a mitten or several lobes. All these leaf shapes can occur on the same tree or even branch.

Samples received/Site visits

Custer County, Flatheaded borers on pines

A landowner was finding large beetles walking on the fallen trees from last winter's windstorms. The concern was if these insects would attack the standing pines.

This is the flatheaded pine borer (*Chalcophora virginiensis*). It is common in the Black Hills and is one of our many metallic wood borers. These are large, 1- to 2- inches long, iridescent, or metallic insects. The good news is they infest dying or dead trees, not healthy trees.



The bad news is there are pines in the southern Black Hills that are stress due to the persisting drought. While these insects are not a threat, there are others such as the pine engraver beetle (*Ips pini*) that are attracted to stressed trees.

Day County, Cottonwood gall aphid

Not one I typically see but people rarely have questions about it. This visit was to see if the strange growth on their cottonwood was herbicide drift. This long, narrow growth at the margins of the leaves is caused by the gall aphid *Thecabius*. The feeding by the developing aphid forms the ovoid, bead-like pseudogalls on the leaf margins. The galls are reddish green.



If you pull one apart at this time of year you might find a very tiny aphid covered with white filament. The aphid is sucking sap from the foliage while injecting a substance that causes the leaf to become distorted. This deformation does not harm the tree.

Lincoln County, Leafcutter bees

Leafcutter bees are actively creating nests and that means lots of leaves look like someone took a cookie cutter to them. The leafcutter beetle cuts the edges of leaves in a very distinctive style, making a mostly smooth semicircle cut along the edges of the leaves.



The missing leaf tissue was not eaten by the bee but carried back to create nest cells. The nests are filled with all the materials a young bee needs - nectar and pollen -

then a female bee lays an egg inside the nest and seals it.

While they will make a nest out of any leaf, their favorites are roses, ash (picture previous page) and lilac. Leafcutter bees are the timid cousins of the honeybee, they do not usually sting people and when they do, the sting is less painful. The bee is also solitary, so you don't have to worry about a swarm of bees.

These bees are also beneficial as they serve as pollinators for many different plants. The damage they do to plants by cutting the tissue is minimal. The only exception to this policy of "live and let live" is for roses.

The leafcutter beetle will make nests in the soft pith of rose canes. When pruning rose canes seal off the exposed pith with candle wax to discourage entry by the bee. The leafcutter bee does not generally tunnel into rose canes unless there is a wound that exposes the pith.

Minnehaha County, Chlorotic apple leaves

This apple, along with many other apple and crabapple trees, has the newest foliage turning a yellow green. The veins in these leaves are still green. This symptom pattern – yellow leaf blades with green veins – is called chlorosis.



There are many reasons for chlorotic leaves but the most common is a deficiency of either iron or manganese in the foliage. The deficiency is not due to a lack of these microelements in the soil but in the leaves. The reason is our alkaline soils render these microelements unavailable to the trees, or at least in quantities sufficient to support green foliage.

Most tree species can absorb sufficient iron and manganese to meet their needs even in alkaline soils. But there are trees such as freeman maples, river birches and red oaks that will often have chlorotic leaves by early summer.

There are others, such as apples and crabapples, that can generally absorb sufficient iron and manganese. During drought years, however, the reduced root growth can limit absorption. This is what we see on the apples and crabapples this year.

The high demands for elements to produce leaves, flowers and fruit can sometimes leave these trees with a deficiency by mid to late summer. Iron and manganese are not mobile in a tree. The tree cannot move these microelements from the old leaves to the new ones.

This is the reason only the newest foliage, the leaves at the tips, are chlorotic rather than the entire tree. The only treatment needed at this time of year is watering to increase the capacity of the roots to absorb elements.

Sanborn County, Cedar-hawthorn rust

Crabapples and apples are not the only trees to share a rust disease with junipers. There is also cedar-hawthorn rust (*Gymnosporangium globosum*). We start to see the symptoms appearing on the hawthorns (*Crataegus*) at this time of year.



The disease is like cedar-apple, in that the pathogen moved back and forth between the two hosts. The spots seen in the picture are related to the fruiting structures that are producing the spores that will now infect the "cedars" (junipers).

The disease cannot be controlled on the hawthorns at this time of year, nor the crabapples in the case of cedar-apple rust. Managing the disease on the hawthorn or crabapple requires fungicide applications beginning in the spring to protect the expanding foliage from the disease. Once the disease enters the leaf there is nothing that can be used by homeowners to prevent the infection from continuing.