South Dakota State University Extension

Tree Pest Alert

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In This Issue

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

The temperatures were pleasant during the past week – warm days and cool nights. There were light frosts in the morning in the Northern Black Hills.

The mild temperatures nudged the accumulated GDD (base-50) by about 100 DD during the past week. Here is the current GDD accumulation for communities across the state.

Aberdeen	2245
Beresford	2690
Chamberlain	2700
Rapid City	2200
Sioux Falls	2670

Fruit is maturing on many different trees and shrubs as we end August. One with an abundant crop is the gray dogwood (*Cornus racemosa*). This is a native shrub found in small populations in the eastern part of our state It is also a popular ornamental and windbreak shrub.

The shrub is a favorite plant for deer to browse. This feeding does not kill the shrub as it suckers to form thickets. Pheasants like to feed on the buds and seeds. Many birds feed on the fruit.

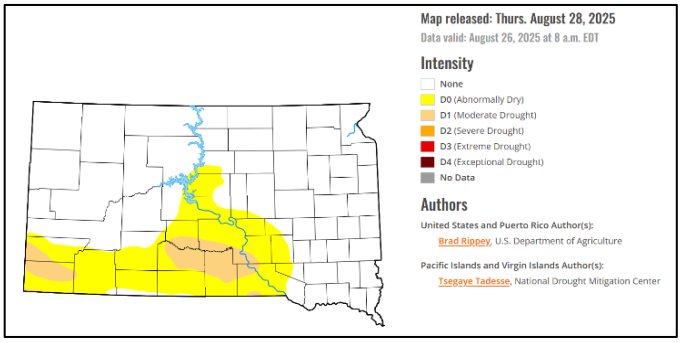
But the fruit is not for people. It is not toxic but extremely bitter. A good rule-of-thumb (or tummy) is to not eat any fruit that is white.

Drought monitoring

The rains were scattered across the state last week. Some areas missed the precipitation; others had a

shower or two. But it was enough, along with the mild temperatures, to shrink the area of the state impacted by drought. Almost 75 percent of the state is drought free. Another 20 percent of the state is classified as 'Abnormally Dry.' About five percent of South Dakota is classified as 'Moderate Drought'.

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



Treatments to Begin Now

Picking apples

Harvesting early-season apples has already started so it is a good time to review how to pick an apple. Only pick ripe apples, the fruit does not continue to ripen on the kitchen counter or in the refrigerator.

What apples to pick? 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.

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.

And 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 update

We continue to monitor larval development of emerald ash borer (EAB) from Dakota Dunes to Milbank. Most larvae are now in their 3rd instar. They are about one inch long and are found just beneath the bark. These will continue to feed in the inner bark for another week or so before becoming 4th instars, the larval stage that overwinters.

Watertown begins removal of ash trees in the boulevard

Now that we are beyond the flight period of EAB, Watertown is beginning to remove ash trees along the boulevard. They are starting in Ward D, the area where EAB was confirmed last summer. Delaying removals till now prevent beetles from emerging from the wood during transport. All the EAB are now larvae living inside the tree. The wood still needs to be destroyed by end of May to prevent adults from flying out of any infested wood.

Homeowners that are treating the ash tree in the boulevard by their house will be able to keep their tree. Homeowners in Ward D have been given a one-year exemption from having their boulevard ash removed if they contact a commercial pesticide applicator to treat the tree next spring.

Do not eat this fruit!

I have been receiving pictures of this fruit accompanied by the question "Can we eat this?" or "Will this make a good jam?" The short answer is NO! This plant is the common buckthorn (*Rhamnus cathartica*) easily identified by the single thorn at the tip of each twig. The dark purple to black berries found on this tall shrub in late summer and fall should not be eaten or used in jams or jellies. Eating this fruit may result in sudden and persistent diarrhea.

E-samples

Bittersweet nightshade taking over trees

This is bittersweet nightshade (*Solanum dulcamara*). Another name is climbing nightshade. Both names are very descriptive. The fruit (which can be poisonous) has a bitter taste (that is the warning!) with a sweet aftertaste (which you notice as you are vomiting). It also is a climbing vine so can invade windbreaks and hang from the young trees and shrubs.

The vine is native to Europe, North Africa to central Asia. It was brought to North America in the 1700s and is now found across the United States (except some southern states) and southern Canada.

The plant is a woody perennial vine that can become ten feet long. It is often confused with eastern black nightshade (*Solanum ptycanthum*), but this plant is an annual plant. Bittersweet nightshade has bright red berries while eastern black nightshade has black fruit.

Since bittersweet nightshade is a perennial with deep and rhizomatous roots, it is hard to kill. Cut the vine stems near the ground then spraying Glyphosate immediately on the fresh cut is an effective means of killing the vines.

Wear gloves when pulling the vines out of the trees. Contact with the foliage may cause dermatitis for some folks with sensitive skin.

Cedar-apple rust on crabapple leaves

The symptoms are very noticeable at this time of year. Infected leaves have bright orange-red spots with red borders on the upper side. If you flip these leaves over, there are fuzzy orange spots on the underside. Some of the infected leaves are becoming yellow and falling.

The leaves are already infected, so fungicides are not effective. They prevent infection, but do not stop or kill an infection. Fungicide applications begin at bloom and continue every ten days until mid-June. This is about the time the cedar-apple gall telial horns (which release the spores that infect the apple leaves).

Immunox® is the most commonly available fungicide that contains Myclobutanil, the active ingredient effective against this disease. Another treatment is removing the alternative host to the disease – eastern redcedar and Rocky Mountain juniper. Since all these evergreens within a mile of the apples need to be removed, it is usually impractical.

Crown gall on rose

These large corky galls on the rose roots are caused by the bacterium *Agrobacterium*. There are several species in this genus that cause diseases with *Agrobacterium tumefaciens* the most common one.

The soil bacteria enter the plant tissue – the roots or cane base – through a wound causes by insects or mechanical injury. Wounds provide an entry way into the plant and produce a chemical that attracts bacteria.

Once inside the plant, the bacteria causes plant cells to continuously divide to form woody galls. Secondary galls form around the galls giving a large, lumpy appearance.

The management focuses on preventing crown galls, not planting any woody plant with galls on their roots or stems. Roses, willows, poplars, and fruit trees are the most common carriers of the disease. Burning bush (*Euonymus alata)* is also a host.

Once the plant is infected, removing the infected plant – and soil – is the common recommendation. Digging up the plant with all its roots is difficult. Removing all the soil can be impractical.

Established - overwise healthy - plants can tolerate the infection so keeping the plant healthy may be the best approach. If it is declining, remove the plant and do not plant roses, willows, poplars, or fruit trees back into the soil.

Juniper hairstreak

This was a sample dropped off in Rapid City. Patrick, an extension entomologist, took a picture of a chrysalis among the juniper awl-like foliage. He wondered if I knew what it was.

A chrysalis is the pupal stage of a butterfly. This is the chrysalis of the juniper hairstreak (*Callophrys gryneus*). This is a defoliator of junipers. Rocky Mountain juniper (*Juniperus scopulorum*) and common juniper (*Juniperus communis*), the two junipers native to the Black Hills, are among their favorites.

The larvae feed during the summer on the foliage. They are hard to see as they are camouflaged by disguising themselves as juniper foliage. The mess they leave - cut foliage, webbing, and poop – usually gives them away.

The insect does not cause significant defoliation. They are best known for their colorful adult stage as a bronze to brown butterfly.

Oak flake gall

This is something we do not see every year in the *Tree Pest Alert,* but we certainly are seeing it this year! This is the oak flake gall created by a tiny wasp (*Neuroterus quercusverrucarum*). The small, white, fuzzy galls form on the underside of the leaves during the spring. Each is a home to a single wasp larva.

The galls turn brown in late summer. Light green blister-like bumps also appear on the upper surface of the leaves, opposite the white galls. Infestations can result in distorted leaves by September, but this is the extent of the injury. They do not harm the tree. No treatment is necessary.

Samples received/Site visits

Aurora County, Mildew on buckeyes

The warm, humid weather has been the perfect recipe for mildew. We see this foliage disease on the lilacs (*Syringa*) and ninebarks (*Physocarpus*), but they are infected every year. Many other plants are also showing infection this year.

While these are all powdery mildew fungi, they are distinct species and do not mix. The mildew fungus that infects buckeyes is different from the one that attacks lilacs.

One tree we do not see mildew every year is buckeye (*Aesculus*). Powdery mildew is a fungal disease that leaves a white to gray film on the leaves and buds of the tree. It is not a serious threat to the host's health; it just makes it look unsightly.

Management is creating better airflow so the foliage dried quicker. This prevents spore germination and fungal development. Light pruning is usually all that is needed.

Bon Homme County, Zimmerman pine moth

This was a stop to look at a few Scotch pines (*Pinus sylvestris*) with broken branches. Closer examination showed the large granular pitch masses near the branch whorls. Broken branches and pitch masses mean Zimmerman pine moth (*Dioryctria zimmermani*) is at work.

The adult moths were flying a few weeks ago (1,700 GDD) and already laid eggs. The larvae have now hatched. These small larvae do not harm the tree during late summer as they are just crawling along the bark looking for a spot to pass the winter. This fall, they will become enclosed in protective webbing beneath bark flakes to spend the winter.

Next spring is when they begin to harm their host. The larvae burrow into the wood near where the branches connect to the trunk. Pitch masses identify where they burrow into the tree. This tunneling in the inner bark is where the damage occurs, either killing the branch or weakening the connection causing the branch to break.

Treatment is a bark application of an insecticide containing either Bifenthrin or Permethrin (and labeled for control of this moth). The application can be made now to kill the young larvae as they are crawling on the bark or next spring before they burrow into the wood.

Brookings County, Leaf blotch on buckeye

There are some buckeyes that are already dropping their leaves. This is not a sign of fall but a reminder of our wet spring. The leaves are covered with brick-red to brown lesions. Some infected leaves are curling and appear hit with a blowtorch.

These are symptoms of a foliage disease caused by the fungal pathogen *Guignardia*. The infection begins in the spring as spores land on wet, emerging leaves. Mild temperatures and wet leaves are the perfect conditions for spore germination. If the weather remains wet during the summer, secondary infections continue to develop.

Not all buckeyes are equally infected by the disease. One cultivar that seems not to be affected by leaf blotch disease is 'Autumn Splendor' buckeye, a complex cross of yellow (*Aesculus flava*), red (*A. pavia*) and Ohio buckeye (*A. glabra*). This Minnesota release is far superior to the Ohio buckeye that a squirrel planted in your garden.

Kingsbury County, Fall webworm on cottonwood

Fall webworm (*Hyphantria cunea*) formed its silky nests on the branch tips about four to six weeks ago (despite the name Fall). The fully grown caterpillars are over an inch long and covered with light-colored hair.

While the nests are unsightly, almost two to three feet long and filled with leaf fragments, insect poop and cast skins, there is little value to spraying at this time of year. The caterpillars have about finished feeding and soon will drop to the ground to pupate.

Spraying now is what we call “revenge spraying,” makes you feel good but really does not help the tree or reduce the possibility of another attack next year.

Pennington County, Pine engraver beetle emergence holes on tree trunk

This stop was to look at a Scotch pine that had recently died. The tree’s owners suspected that the small holes that riddled the trunks were from an insect that killed the tree.

They were close. The small holes were created by an insect, the pine engraver beetle (*Ips pini*). But the insect was not the primary cause of the tree’s recent, and sudden, death. The tree died of pine wilt disease. This disease is caused by a small nematode, the pinewood nematode (*Bursaphelenchus xylophilus*) and its associates. The disease usually kills the tree within months of the infection.

Pine engraver beetles live in recent down branches or declining trees. They are a frequent problem with ponderosa pines in the Black Hills, but we do not usually see them in Scotch pine. Still, a dying Scotch pine is as attractive as a home to the engraver beetles as ponderosa pines.

Interestingly, the ponderosa pines on the property were not attacked or dying. Ponderosa pine is rarely killed by pine wilt disease.

Union County, Chlorosis on red maple

Chlorosis describes a symptom – yellowing leaf blade with green veins. This usually appears on trees that have a micronutrient deficiency; iron, manganese, or both. The deficiency is not from the lack of these elements in the soil. Instead, it is the lack of these elements in a form that is available to the tree.

Alkaline soils reduce the solubility of these elements which limits the amount carried by water into the plant. Since soils with a pH above 7.3 are common in the state, trees susceptible to deficiencies – river birch (*Betula nigr*a), swamp white oak (*Quercus bicolor*) and many maples (*Acer*) are often chlorotic.

Red maple (*Acer rubrum*) is sensitive to alkaline soils and the limited availability of iron and manganese. The common symptoms are light yellow leaves with faint green veins. If the tree has suffered from the deficiency for several years, dieback and eventually death may occur.

If the soil is only slightly alkaline, pH 7.2 or 7.3, then incorporating elemental sulfur into the soils surrounding the tree may be sufficient to relieve the symptoms. But if the pH is 7.4 or higher, adding a chelated form of either iron or manganese may be necessary.

Large red maples (more than ten inches in diameter at 4.5 feet) are best managed with trunk injections of manganese. This is applied in early fall or spring and provides two years of control. While the deficiency is usually iron and manganese, the manganese deficiency is often the significant one of the two.