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

This past week was warm and wet. Daytime temperatures were in the 80s while many areas of the state received a half of inch or more of rain. It would be nice to see this repeated for a few more weeks. June is our wettest month, so we have a good chance of relieving the drought.

The consistently warm temperatures pushed the growing degree days (GDD-base 50) up another 100 to 150. Here are the total GDDs for communities across the state.

Aberdeen	622
Beresford	931
Chamberlain	910
Rapid City	809
Sioux Falls	861

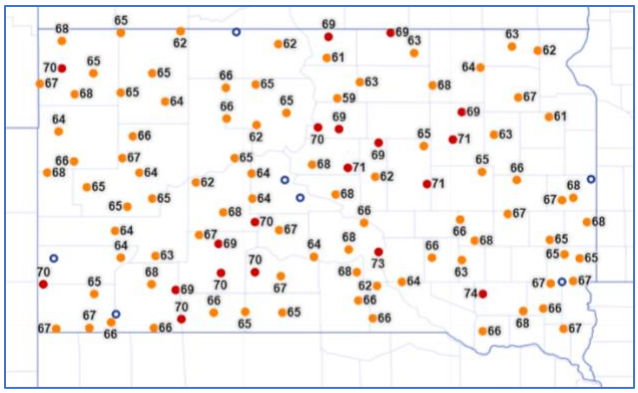
We are beginning to see our summer flowering shrubs coming into bloom. The last lilac to bloom is the late lilac (not much imagination went into naming this plant). They started blooming in Brookings during the past week. They are attractive flowers but lack the fragrance of common lilac. Best to view at a distance.

Soil temperatures

Soil temperature, along with moisture, are the drivers for root development along with water and element

absorption. The sweet spot for all these functions is a soil temperature at a 4-inch depth somewhere in the 60s. We are now in the period for optimum root establishment and growth for the trees and shrubs planted this spring.

If we just could have a little more rain to go along with the warm temperatures.



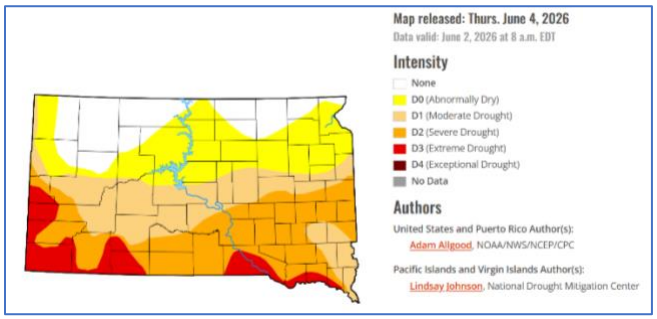
Drought monitor

The recent rains have helped reduce the area of the state under some level of drought intensity. The drought-free region of the state has increased to 19%. Brown and Perkins counties in the northwest and McPherson, Brown, and Marshall counties in the northeast are in the drought-free areas of the state.

Another quarter of the state to the south is classified as “Abnormally Dry.” There is another quarter of the state - a ribbon through the middle - classified as “Moderate Drought.”

About a quarter of the state from Brookings to Pennington counties are under “Severe Drought.” The southwest corner of the state, including much of the Black Hills, is under “Extreme Drought,” along with the counties along the Missouri River, from Gregory to Clay counties.

Here is the current map from the National Drought Mitigation Center at the University of Nebraska-Lincoln. It looks worse than last week’s map. We need the rain!



Treatments to Start Now or Soon

Spruce bud scale

Spruce bud scale (*Physokermes piceae*) crawlers will soon be hatching. The adult female scale resembles a small round, reddish bud. They can be found on the tips of the branches where the side branches attach to the shoot. They, and their mobile young called crawlers, suck the sap from the shoots resulting in dieback and decline of the lower branches. Since these are soft scales, they produce honeydew that results in a black, sooty appearance to the needles and twigs.

The scales have one generation per year and the crawlers’ hatch about the time littleleaf lindens bloom, about 900 GDD, which should be in another week or two as our day temperatures become warmer.

The best treatments are insecticides containing carbaryl as the active ingredient (and labelled for this use) applied on the foliage and shoots near the tips. Products containing imidacloprid can be effective as a soil drench but need to be applied in the fall or spring for controlling the insect during the summer.

Spruce needleminer

We are also coming up to the time to treat spruce needleminer. The needleminer (*Endothenia albolineana*) gets its name from the fact that the young larvae are so tiny they can live inside the needle, mining it as they feed. They eventually outgrow their home and then create a nest of webbed, detached needles to live in.

The larvae usually feed on the lower exterior needles, almost stripping the tips of needles; however, they can also be found in the interior of the tree and even the tops of young trees.

The adults are small moths that deposit eggs on the needles. The treatment is usually with a pesticide containing carbaryl as the active ingredient and labeled for this use. Infested trees should be treated in another two weeks or so, as the adults should be flying by then.

Timely Topics

Emerald ash borer update

We continue to monitor development of emerald ash borers in ash trees. The adults are continuing to emerge from their D-shaped exit hole. Emergence is not all at once. It will peak in another week or two, about 1000 GDD, and then decline until mid-July when the last one emerges for the year.

The adults feed on ash leaves during the day. The feeding appears as small notches on the leaf margins, more nibbling than chewing. The slight defoliation is rarely noticed.

Pine engraver beetle update

We are surveying green slash piles in the Black Hills to monitor development of pine engraver beetles (*Ips pini*). The adult beetles began burrowing into green slash in mid- to late May. Now there are many nuptial chambers where the male and his group of two to three females mated.

The females have constructed their own galleries off this chamber. Small, legless, white larvae are hatching and tunneling away from mom's gallery. They will feed for about another two weeks before pupating and emerging as adults.

The second generation of adults should be flying about the third week of June. If there is fresh green slash available, they will be content to burrow into this material. If there is no green slash, these adults may attack standing pine trees, especially drought stressed trees.

Trees are susceptible to attack if the April to June precipitation is less than 75 percent average. We typically see about 8.4 inches of precipitation in Custer during April, May and June. We are currently at 5.1 inches. The recent rains have helped reduce the moisture deficit for the pine, but we need a few more inches of rain during the rest of the month.

Spring frost injury still showing up in tree leaves

While we are near the start of summer, we still are seeing frost injury on some trees and shrubs. This is not from a recent frost. The injury occurred back in April when the opening buds were damaged during the 1ºF to 5ºF temperatures.

The warm to hot temperatures (78ºF to 89ºF) during the previous weeks pushed the bud opening. The cold temperatures that followed damaged the tiny expanding leaves.

This resulted in shriveled and blackened leaves hanging from the shoots. The blacken tissue has been shed. Now the margins look rough and ragged. Some damaged leaves are also dropping. People are confusing this damage with herbicide drift or chewing insects.

Japanese tree lilac (*Syringa reticulata*) was one of the plants that had tender leaves expanding at the time of the sub-zero temperatures. This is why this species is the one more often reported with these symptoms this spring.

Best ever tree stake

While marking ash trees for treatment, Hunter, a SDDANR forester, and I came across an unusual tree. A white mulberry (*Morus alba*) was growing in the hollow square of a sign pole.

A bird perched on top of the sign may have deposited the seed but that is just a guess. Regardless of how it got there, the tree was perfectly protected and supported so the slender stem quickly shot up to the top of the sign.

Unfortunately, the stem will eventually be girdled by this support.

E-samples

Apple scab appearing on leaves

Apple scab is already beginning to appear in apple and crabapple leaves in the southern part of the state. The most common symptoms of this foliage disease are olive-green spots developing on the leaves and the leaf appearing slightly off green or even yellow. The spots gradually enlarge and become darker. Severely infected leaves may begin dropping by mid-summer.

The disease overwinters on infected fallen leaves. Spores are released in the spring and infect the tiny leaves as they are coming out of the bud. There is not much that can be done once the disease symptoms appear. The management of this disease, as was pointed out in earlier issues of the *Pest Alert*, is to begin fungicide applications in early spring, just as the buds are expanding.

Sprays are continued on a 10-day until later in June but if the first two sprays are missed (and in many areas of the state the third application should already be on), further control by spraying will be minimal.

Chlorosis appearing in maple leaves

Maples with yellowing leaves are becoming a common sight. A yellow leaf blade with the interior veins remaining green is known as chlorosis. This is usually due to the lack of iron and/or manganese in the leaf.

Chlorosis is not common to all maples. We rarely see chlorosis in Norway or sugar maple nor boxelder. It is common in red and silver maple along with their hybrid, the freeman maple, and its many cultivars.

The lack of iron and manganese in the foliage is not due to their absence in the soil. Our South Dakota soil has adequate amounts of these microelements. The problem is our alkaline soils render them unavailable to the trees, at least in the quantities they need to maintain green leaves.

Merely adding iron to the soil will not help unless it is the chelated form of iron FE-EDDHA (Ethylenediamine di2-hydroxyphenyl acetate ferric). This is available in water-soluble iron chelate products. Chelated forms of manganese are not effective and can make the problem worse.

The best solution is either injecting the needed microelements directly into the tree or using implants containing iron or manganese. These provide several years of green foliage. The injectable products are available from commercial applicators. The implantable products are sold in many garden centers.

Another management option is adding elemental sulfur to the soil to lower the pH. Ideally the soil pH is less than 7.0 to avoid chlorosis. If the pH is only 7.3, adding elemental sulfur may be sufficient to lower the pH. If the soil pH is greater than 7.3, adding sulfur may not be able to lower the pH enough or it will take years of annual applications to achieve the desired pH. Sulfur should be incorporated into the soil, which is also difficult to do surrounding an established tree.

Note: chlorosis in river birch, red oaks and swamp white oak is due to iron deficiencies, not manganese.

Fireblight in hedge cotoneaster

This is hard to tell from the picture of a hedge cotoneaster (*Cotoneaster lucidus*), but this might be fireblight caused by the bacterium *Erwinia amylovora*. The symptoms of darkening and curling leaves, along with blackening shoots, are consistent with those expressed by this disease.

One option is to prune back the affected canes to about three inches from the ground. Generally, we do not suggest pruning for fireblight during the summer. But if the pruning is done during dry weather there is little risk of spreading the disease. The cut canes should be destroyed by cutting them into small pieces and disposing of the clippings in the trash.

This fall after the plants go dormant, cut all the canes to within three inches of the ground and destroy the clippings. This usually removes the disease from the entire hedge row. If the entire row is treated this way it will come back as a nice hedge the following spring.

Plum pockets

Unlike Hot Pockets, plum pockets are inedible. The plum fruit forms a thick spongy flesh. The seed disappears so the fruit is hollow. This is a fungal disease *Taphrina communis*. The disease begins as a small blemish on the developing fruit and ends with the fruit becoming hollow and spongy.

At this time, the best management is to remove and destroy the infected fruit so it cannot produce spores that will infect next year's fruit. Next spring, any tree that was infected this year can be treated with a single application of copper fungicide just before the buds open. This treatment will not eliminate the problem, but it will significantly reduce the number of infected fruits.

Shaggy mane mushrooms appearing in lawns

The nice rain we received last week resulted in mushrooms appearing in lawns. Michael, a Master Gardener in Aberdeen, sent this one in of a shaggy mane.

Shaggy Mane mushrooms (*Coprinus comatus*) seem to appear overnight if we have some light rain. The mushroom has a shaggy, scaly, white cap about 1 to 2 inches wide and 2 to 6 inches tall. The gills on the underside are white but turn black and inky within a few days.

The mushrooms do not last long, and the caps soon turn gooey. The stems last for a few more days after the cap has disintegrated. Then it also falls and all that remains is slightly gooey debris.

Inky cap mushrooms (*Coprinus atrementarius*) look like shaggy mane mushrooms. They both produce a black

ink-like substance and have a bullet shape when they are young. The inky caps have more defined caps while the shaggy mane, as the name implies, are shaggy.

A reminder: do not use these pictures or information to collect mushrooms to eat! There are look-a-likes that can be poisonous! Start your mushroom hunting adventure with an experienced hunter.

Wetwood in an elm

I received a picture of an elm tree that was oozing fluid. This is not the same as the sweet sap that comes from maples. This is a darker, foul smelling, alkaline liquid that drains from old pruning wounds and bark barks. The liquid is so alkaline that it will bleach the bark of the tree as it runs down the wood – nothing anyone would want use to make syrup!

The disease is common on elm (*Ulmus*) and cottonwood (*Populus*) in South Dakota but can also be found on mulberries (*Morus*) and willows (*Salix*). Gas builds up in the trunk of infested trees through fermentation by bacteria, and the high pressure – 60 psi – causes the liquid out through cracks and wounds.

The disease may result in some minor dieback in a tree, but usually the only symptom is the bleached bark and the appearance of the dark liquid. An old, recommended practice was to drill holes into infected trees and install tubes to drain the liquid from the tree, but this is no longer advised. Drilling into the tree will result in more decay, not less. It is best just to leave the tree alone.

Samples received/Site visits

Lake County, Drought stress on transplanted spruce

The call was about Colorado spruce (*Picea pungens*) that were planted a few years ago. Most of the trees appeared fine, but there were a few that had numerous dead twigs. These small trees also had yellowing needles. These are common symptoms of transplant shock – the stress imposed by root loss and decline from transplanting.

Trees of this size generally recover from transplant shock within three years or so. Most of the trees in this planting have already recovered. But there are a few that are struggling. This may be due to more root damage at planting or just the genetics of these trees.

Regardless, the only treatment is continuing a regular watering schedule – at least once a week – and maintain the ring of mulch around the trees. Fertilizing will not help.

Minnehaha County, Leaf tatters in hackberry

The symptoms appear just after the leaves open with the expanding leaves having reduced interveinal tissue, almost a lacy appearance. While there are some insects

such as June beetles that can cause this injury, there is another common source of damage – cold injury.

Current thought is that leaf tatters may be weather related injury caused possibly by cold injury while the leaves were still in the bud. The injury kills some of the cells becoming part of the leaf blades. The dead tissue drops out as the leaves expand.

Fortunately, this leaf damage occurs early enough that the trees will produce new leaves during the next few weeks. The leaf tatter problem appears to have little impact on the tree's health.

Pennington County, Diplodia tip blight

This was one of several stops to look at pines with dying or stunted needles at branch tips in the lower canopies. The discoloration of the pine needles was thought to be due to beetles. But the symptoms did not match. Instead, it was diploidia tip blight (*Diplodia pinea*).

While we do not lose ponderosa pines (*Pinus ponderosa*) to diplodia tip blight, it can leave the host disfigured and stressed. This fungal pathogen kills the expanding needles and shoots on 2- and 3-needled pines. It does not affect the 5-needled pines such as eastern white pine (*Pinus strobus*).

Diplodia tip blight is not usually a tree killer as the disease cannot invade older shoots. Mature branches and even the trunk can sometimes be killed by the disease if wounded by hail or other injury. They can also invade older tissue if the tree is stressed. The infection can also remain dormant for years in host tissue until stress weakens the tree's defenses.

The most common symptoms are new shoots which are stunted with their needles turning straw-colored. These needles may be covered with sap (resin) causing them to be stuck together. The affected needles turn gray by the end of the year and may hang for another season before falling.

The disease usually affects the lower two-thirds of the canopy. One common indicator of the disease is the lower branches are covered in straw- and gray-colored needles while the top of the canopy has normal color needles.

Pennington County, Western gall rust

A little wet weather seems to bring out the bright spores of tree diseases. This is a ponderosa pine (*Pinus ponderosa*) branch with western gall rust (*Endocronartium hacknessii*).

The yellow-orange spores form in the cracks of the galls and are spread during moist, late spring weather. This is an unusual rust disease as it does not require an alternate host to complete its life cycle, instead spreading from the branch galls to the new needles. New galls are produced on current year's shoots.

Western gall rust affects mostly ponderosa pines though can infect most 2- and 3-needled pines. The disease results in woody cankers that can cause dieback and deformities. Seedling and saplings may be killed by the disease. Management is focused on removing small trees with galls, as a tree once infected will continue to become infected even if the galls are removed.