South Dakota State University Extension

Tree Pest Alert

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In This Issue

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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Plant development for the growing season

Snow appeared in the Black Hills and along the northeastern edge of the state during this past week. The weather was cool and wet throughout the state. Many areas saw day temperatures only in the 30s.

The cold weather stalled the growing degree day (GDD-base 50) accumulation. Many sites only added another 30 to 40 GDD during the past week. Here is the current GDD for communities across the state.

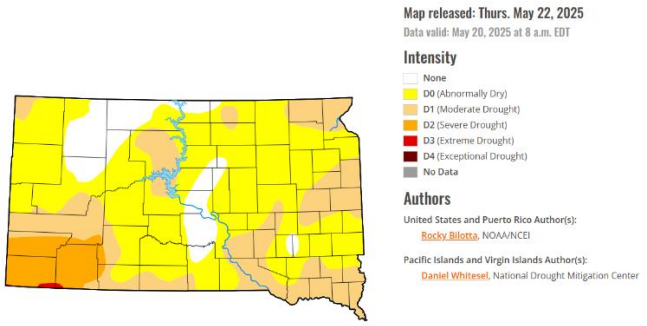
Aberdeen	469
Beresford	635
Chamberlain	630
Rapid City	480
Sioux Falls	590

Nannyberry (*Viburnum lentago*) is in bloom now in Brookings. This is one of our native tall shrubs. It can be found growing along streams in the central and northern Black Hills. This large shrub is also native to the counties along the eastern border of the state. The plant is also a common ornamental planted for its attractive spring flowers and bluish summer fruit.

Drought monitoring

We are finally seeing a reduction in the drought intensity. Some areas in the northwestern area of the state received more than 5-inches of precipitation during the past week. Many other areas had between 2- and 4-inches of precipitation. Only the southeastern part of the state missed much of the rain.

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



Treatments to Begin Now

Clearwing ash borer

This was the most common borer in ash before the arrival of emerald ash borer. The significant difference is that the clearwing ash borer (*Podosesia syringae*) is a native insect so can only successfully attack stressed trees.

Treatment with an insecticide containing Permethrin as an active ingredient can begin now. The lower six to ten feet of the ash trunk should be sprayed to protect susceptible trees. The insecticide will kill the adults as they are walking on the bark to lay their eggs.

The adults with their banded abdomen and smokey brown wings resemble wasps. A clever way to get birds and people to leave you alone! Fortunately, the borer lacks a stinger so are only a threat to ash and lilacs. People are safe.

The insecticide will also kill any newly hatched larvae before they burrow into the wood. Systemic treatments are ineffective so injecting pesticide or pouring one around the base of the tree are not practical means of managing this borer.

The adults are usually out flying about a week or so after Vanhouttee spireas begin to bloom; the shrub is blooming now. You will also know the adults are flying when you see the pupa skins sticking out of the emergence holes on infested trees.

All ash trees do not need to be sprayed, just ones that are showing signs of stress from drought or other stressors. A healthy ash tree usually is not susceptible to this borer.

Lilacs that have canes less than one inch in diameter at the base are also not susceptible to this borer, but it is common in the older canes of mature lilacs.

Spruce needlecast disease

The new shoots are expanding on spruce, so it is time to apply fungicide to protect the expanding needles against rhizosphaera or stigmina needlecasts. These are the most common foliage diseases of Colorado spruce. These diseases cause the older foliage to turn yellow by midsummer and then purplish brown.

The small black fruit bodies of these pathogens can be found lining undersides of the older needles in the spring. Stigmina needlecast fruiting bodies have fuzzy edges (below) while rhizosphaera fruiting bodies are smooth. The disease resulting from either pathogen causes premature needle drop and a thin, discolored canopy to develop.

These diseases can be managed by an application of a fungicide containing Chlorothalonil as the active ingredients and labelled for this use. The first application should be applied now and a second application about

two weeks from now. If the needlecast is due to stigmina the applications may have to continue every ten days until August or until spring rains end. It is important to treat the entire canopy, not just the lower branches when treating for stigmina. Only the lower third of the canopy needs to be treated for rhizophaera needlecast.

Timely Topics

Emerald ash borer update

Adult EABs have started emerging from their ash host in Minnehaha, Lincoln, and Union counties. This is about two weeks earlier than their typical emergence. Brookings County is at 490 GDD so adults are not flying there yet. But fully formed adults are appearing in the overwintering chambers in the sapwood of infested ash.

When I extracted some from their overwinter chamber, they reacted like anyone who was awakened a little early – confused and staggering about. They quickly recovered, however, and took flight. These adults would have taken another week to move themselves along their pre-constructed tunnel and chew their way out of bark. Adult emergence should begin around Memorial Day in Brookings.

Pine engraver beetle adults are burrowing into slash piles

Adult pine engraver beetles (*Ips pini*) are burrowing into freshly down branches and slash piles. The first-generation adults are attracted to fresh pine branches as these still have inner bark that is a suitable food source for their young. Down branches also lack the resin defenses of living trees – the sticky sap - so the adults and their young can tunnel without the risk of drowning in the sticky goo.

The problem will be in about 40 days when the second-generation adults emerge from these down branches and slash. The wood will have dried out so it will not be attractive to the new adults. These adults will search for any recent blowdowns to infested. They will also attack trees if these are drought stressed. The moisture deficit means the pines cannot produce sufficient resin to prevent successful attacks.

Infested wood can be identified by the small piles of brown dust-like powder along crevices on the bark. If the bark beneath the sawdust is pulled away, the small (1/8 to 3/16 inch long) reddish brown beetles can be found carving tunnels in a Y- pattern. During the next week, tiny tunnels will be radiating out from these tunnels as the larvae hatches.

The larvae will tunnel and feed for about two to four weeks. The pupal stage will last another week or so and then the next generation of adults will emerge (about 35 to 45 days from now). If this second generation of adults cannot find fresh green down wood, they will move to standing trees. The continuing drought has left our Black Hills pines stressed. These trees may be very susceptible to attack by this second beetle generation.

Cold temperature injury is appearing in tree leaves – it is not herbicide drift

The hot weather we saw earlier in May forced some woody plants into opening buds a little sooner than normal. This left these trees with tender leaves when the temperatures rapidly shift to near or at freezing.

Trees with fully open and hardened leaves survived the cold with little injury but not so for the ones with leaves that were still opening. These expanding leaves now have blackened spots and margins.

While this damage can appear alarming, the trees will recover. They will produce a second set of leaves if the damage is extensive – usually about half the leaves affected. If it is just injury to a few leaves throughout the canopy, the affected leaves may fall but the tree may not need to produce replacements.

I am already getting calls where tree owners are confusing this cold weather injury with herbicide drift. One major difference in symptoms is cold weather injury usually does not cause the affected leaves to curl. This is a common symptom for exposure to drift from growth regulator herbicides.

E-samples

Apple scab beginning to appear

Aaron, the city forester of Aberdeen, seen in this picture of crabapple leaves that have a few small blotches and appear chlorotic. The owner of the crabapple said that the tree has been losing most of its leaves by mid-summer. Common apple scab symptoms are leaves that develop blotches, become chlorotic and drop their leaves prematurely.

There is variability in resistance among the many crabapple cultivars. Some, such as Royal Raindrop, never seem to show symptoms, even during wet years when infection rates are high. Others, such as Red Splendor – a tree with rose to pink flowers and red fruit, seem to become infected every year regardless of the weather conditions.

The tree owner did not remember the cultivar name but apparently it is in the highly susceptible group – it might be Red Splendor. Unfortunately, it is too late to do much about it as the leaves are already infected.

More cedar-apple rust galls

Cedar-apple rust galls on the junipers are swelling and turning reddish orange. This is a picture of a cedar (Juniperus) tree sent in by Art from East Pierre Landscape & Garden Center. The galls do very little to the cedars, but the disease can cause defoliation on the other host – apple and crabapple. Fungicide treatments for apple and crabapple were discussed in the last issue of the *Tree Pest Alert*.

Mold on bare-root seedlings

I usually receive a picture or two in the spring of mold appearing on bare-root nursery stock. This is a white, cotton candy-like, mold. This mold is not a concern. It is on the surface of the roots and any soil particles and can be easily washed off. It is not an infection.

The mold appears when the stock is stored at temperatures above 35ºF with high humidity. These conditions often occur after the stock has been moved to cooler at a conservation district office or garden center.

If the white to gray film can be easily washed off and the tissue in the roots is white or light green, there is no concern. But if the mold is more a pink than is dotted over the roots and the inner wood of roots is brown, then that is an indicator of a far more serious problem, and the trees should be discarded.

Samples received/Site visits

Codington County, Winter desiccation injury on Austrian and Scotch pine

This was a sample of Austrian (*Pinus nigra*) and Scotch pines (*Pinus sylvestris*) with scorched needles. This was not pine wilt disease, but winter desiccation injury. The shoots were still alive and would bend rather than snap. The affected needles were still green at their base with a very defined line near the tips where they were scorched.

These are common symptoms for winter desiccation injury. Trees infected with pine wilt disease usually present with brittle shoots that easily snap. The attached needles are tan or brown for their entire length.

Custer County, Death by barbed wire

This stop was to look at some ponderosa pines (*Pinus ponderosae*) that were presenting with severe dieback. The causal agent was easily found – the barb wired wrapped around the trunks.

Pines are commonly used as fence posts in the Black Hills. If you ever tried to set fence posts in these rocky soils, you would understand why people would take the opportunity to wrap the wire around a tree.

Unfortunately, this action will eventually girdle the tree as it tries to expand. It might take a decade or more but the “post” dies.

Lawrence County, Fall cankerworm loopers feeding on bur oaks

The northwestern part of the state from Spearfish to Bison is experiencing a third year of defoliation on their native oak stands. The leaves are being devoured, except for their veins, by the fall cankerworm (*Alsophila pometaria*). Cankerworms are common on basswood, elm, linden, oak, and maple. Bur oaks stands are the ones experiencing heavy defoliation.

This native insect is also known as a looper. This name comes from the larval form of locomotion. The caterpillars have three pairs of legs on their thorax near the front of their body and three pairs of prolegs near the end of their abdomen. They move by stretching their front legs out and gripping them, then pulling their back legs up; the motion is like a slinky toy going down the steps.

The larvae have two color forms: light green with white lines running along the body or dark brownish green with a black stripe along the body. The mature larvae are about one inch long.

There is one generation per year. The larvae feed until early summer then they form a long thread and lower themselves to the ground where they form pupae in a cocoon of silk and soil debris. They remain in the soil until fall when the adult moths emerge. The female moth does not fly but crawls up the nearest tree to lay eggs which remain dormant until spring.

There are treatments that can be injected into the trunk or soil which are absorbed into the canopy foliage and kill the larvae as they feed. They need to be applied early in the season as it may take one to three weeks for the chemicals to reach the leaves.

These are not recommended for basswood (and other lindens) as the insecticide can also be absorbed into the flowers and affect pollinators. They can be used on oaks, which are wind-pollinated, but the time has passed

for this season as the larvae are already feeding – it does not take them long to strip a tree of its leaves.

Another treatment option, better suited to treating groves of oak trees, is spraying the canopy with insecticide. A common choice is one containing Permethrin that is labelled for this use. An advantage of permethrin is the insects are killed almost immediately. Another option is spraying with an insecticide containing Spinosad. This is an insecticide derived from soil bacterium. It is highly effective on caterpillars for about a week following application. But it can take longer to kill the loopers as they feed.

Pennington County, Bronze birch borer

This stop was to look at a paper birch (*Betula papyrifera*) with one of the stems showing dieback at the top. The affected stems also had reddish blisters and ripples in the bark – almost like a curled blanket.

This is injury from an infestation by the bronze birch borer (*Agrilus anxius*). They tend to attack one stem at a time in multiple-stem trees. This insect is a close relative to the emerald ash borer with a couple of big differences. Bronze birch borer attacks birch, not ash. Bronze birch borer is native to North America. It did not arrive from another continent.

This means that our native birches, such as paper birch are only susceptible to attacks when they are stressed. Two years of drought have left many trees stressed.

Susceptible trees can be treated with a bark/leaf spray of an insecticide containing Permethrin as the active ingredient and labeled for this use. The insecticide will kill the adults as they walk on the bark or as they feed on the leaves. Adults emerge at 545 GDD so the treatments should be applied now before they begin emerging in Rapid City.

A soil drench of an insecticide containing Imidacloprid or Imidacloprid + Clothianidin as active ingredients and labeled for this use may also be used. Trunk injections of Emamectin benzoate, the same active ingredient used to manage EAB, can also be applied.

These treatments will take a few weeks to be absorbed by the trunk and move through the canopy. If applied now, it will kill the newly hatched larvae as they tunnel through the trunk later in June. Trunk injections of Eme

Turner County, Ash plant bug

Small light-colored spots are appearing in ash leaves. These punctures are called stippling. They are caused by sucking insects inserting their beak into the leaf and sucking out the cell contents.

The insect doing this damage to ash is the ash plant bug (*Tropidosteptes amoenus*). Adults are slender, almost oval and 1/4-inch long, green to light brown with a distinct yellow triangular mark on their back. The wingless nymphs may be as large. They are pale yellow or red but may also be almost black. Infested leaves will often have varnish spots, shiny black specks of excrement, along with the nymphs and adults.

The feeding can be so heavy that the stippling coalesces into blotches. The infested leaves can fall prematurely. The first generation of plant bugs cause more damage as the young leaves are more sensitive to their feeding injury. The second generation, which appears in midsummer, feed on tough mature leaves so the damage is less noticeable.

Ash plant bug damage is cosmetic and does not affect the tree's health. There is no need for any treatment.