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 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

What happened to the long, cool spring? We have made a very abrupt transition into an extremely hot summer. Temperatures have climbed into the 90s with 100s projected in the southern half of the state.

These warm temperatures have accelerated the growing degree days (GDD – base 50) accumulation. The current total for communities throughout the state are:

Aberdeen	690
Beresford	890
Chamberlain	930
Rapid City	630
Sioux Falls	900

The Japanese tree lilacs, the last lilac to begin blooming, is just starting to flower in Brookings. Catalpa, another early summer flowering tree, is in full bloom in many communities.

Treatments to Begin Now

Codling moth

Treatment time is upon us as the adult codling moths *(Cydia pomonella)* are out and beginning to lay eggs on the developing fruit. Once the eggs hatch, the larvae will burrow into the newly forming apple, usually near the base of the fruit, resulting in a trail through the apple filled with brown, powdery frass.

Treatment is usually malathion applications, though there is much evidence that carbaryl (commonly sold as Sevin) provides better control, beginning about 10 days after petal fall with three more applications spaced about 10 days apart. The other option is bagging the individual apples using the Japanese fruit bags when the apples reach about ½-inch diameter.

This is no guarantee of control as the fruit may become infested before it reaches that size. The bags do provide reasonable control of this pest and many others. The bags also can improve the shine to the apple.

Spruce bud scale

Spruce bud scale *(Physokermes piceae)* crawlers will soon be hatching. The scale resembles a small round, reddish bud which 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 which should be in another week or two.

The best treatments are insecticides containing Carbaryl as the active ingredient and 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 control this summer.

Spruce needleminer

Spruce needleminer larvae dropped from their webbed nests several weeks ago and formed cocoons in the soil. They begin emerging as adults at about 800 GDD in South Dakota so the small gray moths are beginning to fly. Previously infested spruce trees can be sprayed with an insecticide containing carbaryl as the active ingredient (and labelled for this use) to kill the adult moths before they lay eggs.

Timely Topics

Emerald ash borer update

The emerald ash borer adults are flying with more emerging every day. We will not reach the peak of emergence for another week or two.

We are collecting adults from small, 2-inch diameter, 1-foot-long pieces of infested ash wood. These small pieces can sometimes have three to nine adults emerge over a two-week period! It will not take a lot of infested ash wood being moved out of a quarantined areas (Lincoln, Minnehaha, and Turner counties for South Dakota) to start a new infestation.

Water, water, water!

This is a repeat of an article I had in last year's Pest Alert on June 16th. It is just as relevant this year.

Every tree in the state needs a drink right now. When temperatures hover in the 90s and low 100s, mature trees need a good drink about every five days.

Assuming it does not rain during a five-day period, matures trees may require about 500 gallons of water. An often-cited rule-of-thumb for matures trees – those more than 10 inches in diameter at 4.5 feet above the ground – 15 gallons per inch per watering is needed. This means a 20-inch diameter tree needs about 300 gallons per watering.

This is a good approximation. The amount of water may be less than what the tree requires but trees store water and so do soils. A tree would receive about 900 gallons over a two-week period following the irrigation rule-of-thumb and a little rain during this same time would balance it out the 1,500-gallon requirement.

A 1/2-inch garden hose delivers about 10 gallons a minute, so a lawn sprinkler needs to be on about 30 minutes to deliver 300 gallons. The sprinkler should be set near the trunk of the tree and then moved a few times to soak an area equal to about half the height of the tree. This is the area where the tree's root density is the highest.

The watering needs for younger, smaller trees is as critical but the amount of water needed is less. However, since they have a smaller trunk and the roots occupy a smaller volume of soil, they cannot store as much water so the frequency increases. They need to be watered about every three days.

Tree seedlings should receive about a quart of water each watering. Saplings – trees about one to two inches in diameter at 6 inches above the ground (referred to as caliper) – need about two gallons each watering. Young trees, those larger than saplings but less than 10 inches in diameter at 4.5 feet above the ground need about 5 to 10 gallons per diameter inch each watering.

Tree size	Water quantity/watering
Tree seedlings	1 quart
1 inch caliper tree	2 gallons
5-inch diameter tree	50 gallons
20-inch diameter tree	300 gallons

Rules-of-thumbs are only approximations, and these watering recommendations should be compared against soil moisture levels.

After watering, check the moisture in the soil to a 12-inch depth with a probe. An old screwdriver will work. Push it into the soil and pull it out and see if it is damp for its entire length. Before watering the next time, push the probe in and see if the soil is still moist (note if the ground is so hard the probe cannot be pushed down, it is

dry!). If the probe is still moist because it rained during the last few days or the ground is poorly drained, skip the watering.

Most tree owners are not going to water their trees as much or as frequent as recommended here. Nor are people likely to monitor the soil moisture before watering. This is a lot of time and expense but do not be surprised if a tree is dropping leaves, wilting, or has discolored needles if it is not being watered properly this summer.

While trees need watering now, they do not need to be fertilized. Surprisingly, this is a common question. But trees do not need fertilizer, what they lack is water.

Winter injury continues

The early spring temperature fluctuations we experienced – 90s and 20s in the same week – caused injury to some trees. They were in their process of deacclimating – losing their cold tolerance – during that period.

Hackberries, honeylocusts, and silver maples have been slow to leaf out this spring. Some began to leaf out only last week. The new leaves or leaflets are tattered and may have a black margin. These trees will recover this year if they receive adequate irrigation. The tender leaves are tending during hot summer weather than the cool, moist weather of spring.

Some sugar maples and honeylocusts died from the early May weather fluctuations. They are completely dead; buds are brittle and the wood beneath the bark brown rather than white. It may be cultivar related. I have not seen a dead Northern Acclaim honeylocust but have seen Sunburst and Skyline honeylocust dead to the ground.

E-samples

Emerald ash borer imposters!

I received two pictures of insects that people often think might be emerald ash borer. Fortunately, neither were the borer but instead common South Dakota insects.

One was the pupal skins shed by the clearwing ash borer *(Podosesia syringae)* as it emerges from the ash tree. The adults began flying a few weeks ago when we passed the 350 GDD threshold (May 18 *Pest Alert*). They resemble small wasps so are either missed or avoided if someone does see one.

Peak emergence is about 900 GDD so we are either at peak or close to peak in many areas of the state. The adults lay their eggs on the bark and tiny larvae are beginning to hatch. The larvae tunnel deeper in the trunk than emerald ash borer. They also maintain an opening to the trunk so usually the ground beneath an infested tree is covered with tiny pellet-like frass, a mix of sawdust and poop. Larvae feed from June until spring of the following year.

The adults emerge in May and June and the papery skin to the pupae is left at the entrance of the hole as the adult flies away.

The other insect was a redheaded ash borer *(Neoclytus acuminatus)* found on the trunk of a dying hackberry tree. The redheaded ash borer, despite the name, bores into more than ash. Hosts include basswood, hackberry, honeylocust, and oak, among others. The preferred hosts, however, are ash, oak, and hackberry.

The adults have a pair of short legs and two pairs of exceedingly long ones. The body is long (1/2 to 3/4 inch) and has four narrow bands of yellow hairs on the wing covers.

The adults can be found anytime during the spring or summer. They are attracted to recently dead or dying trees. They are good indicators that the tree has a problem rather than being the problem.

Basswood bumps!

I received this image of a basswood leaf with these tiny bumps coming out of the leaf surface. These bumps are the work of an eriophyid mite, *Eriophyes tiliae*, that create these galls on the leaves. The reddish bumps are nail galls. They form from leaf tissue distorted by chemicals in the saliva of the mite. The mite lives in this shelter – feeding and hatching young – during the growing season.

The galls do not harm the leaf nor the tree. The damage is merely cosmetic so there is no need for control measures.

Maple bladder galls

Bumps on silver maple leaves are very common right now. The small (1/16 to 1/8 inch) hollow swellings on the upper surface of the maple leaves are the work of the mite *Vasates quadripedes* which infests silver maple and red maple leaves. The galls are green now but will turn pink to red and eventually black. The galls do not turn color all at once so later this season you can find a single leaves with pink, red, and black bumps.

The galls do not harm the tree and they are not usually uniformly distributed in the canopy. There are often more galls on leaves near the trunk and large branches which also serve as the overwinter sites for the mite.

Treatments are not necessary and, in some instances, oils for example, can cause more harm to the tree than the mites.

Plum pockets

Unlike Hot Pockets, plum pockets are inedible. The plum fruit rather than developing a thin, firm skin that holds a sweet and juicy flesh around a single large seed, forms a thick spongy skin and flesh and seed disappear. This is a fungal disease *Taphrina communis*. It begins as a small blemish on the developing fruit and end with the fruit become 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 Bordeaux mix (copper sulfate) just before the buds open. This treatment will not eliminate the problem, but it will significantly reduce the number of infected fruits.

Samples received/Site visits

Beadle County, Orange spots on buckthorn

A rust disease that is appearing right now is crown rust on buckthorn. Why anyone cares about a disease that attacks buckthorn is beyond me, but I always get a few calls to look at these bright orange spots on some shrubs in a yard.

Common buckthorn *(Rhamnus cathartica)* is a tall shrub/small tree that sometimes becomes large enough to be confused with crabapples (except buckthorn does not have a showy flower and the fruit is a small purplish-black berry rather than a crabapple).

The disease, crown rust, alternates between buckthorn and cereal crops and grasses. While buckthorn is the primary woody host, the disease is also present on Elaeagnus species such as silverberry and Shepherdia species such as buffaloberry. There is no control for the disease as buckthorn is a weed rather than a valuable ornamental.

Common buckthorn is a prolific seeder as the birds which love the fruit deposit the seeds everywhere and they all seem to germinate. The plant not only serves as the alternate host for rust diseases that affect cereal crops, but it also attracts soybean aphids and the spotted wing drosophila. Buckthorn is a pest that attracts more pests!

Brookings County, European elm scale

The European elm scale *(Erioccus spurius)* is a common pest of American elm. The symptoms – yellow and wilting leaves – are sometimes mistaken for Dutch elm disease. This was the reason for the stop. The tree owners were concerned that their elm, which they were having treated to protect it from the disease, had somehow become infected.

But it was not Dutch elm disease that was the problem, it was a scale. They are easy to miss. The adult scale is immobile and can be found right now in the branch union. It will appear as a dark bump with a distinct white waxy fringe. What is probably more noticeable is the sticky dark film on everything beneath the elm tree. The European elm scale is a soft scale which means it produces honeydew, a sugary byproduct of its feeding directly in the tree's plumbing that carries the sugars produced by the leaves.

The adult scales started laying eggs a week ago and some of these are beginning to hatch. The near invisible young, called crawlers, are moving out to the leaves to feed until this fall when they will return to the twigs and settle down for the winter. Next spring, they will mature to become adults and the cycle continues.

Soil treatments of imidaloprid or either a soil drench or basal bark spray of dinotefuran in the spring can control soft scale population. These are available in products that can be used by commercial pesticide applicators.

Custer County, Pine engraver beetle

Small pockets of browning pines are appearing on acreages in the Custer area. These are trees that died last year or this winter from a combination of drought and the pine engraver beetle. The bark along the tops of these brown trees is often missing due to woodpeckers searching for the insect beneath the bark.

Any down pine branches or tops are now covered with the fine boring dust from the adult beetles as they bored into the tree. When the bark beneath the dust is pulled away, tunnels may be found with small – smaller than a rice grain – white, legless larvae. These will complete their feeding soon, become pupae and emerge as adults.

Some have already completed this cycle and are flying as adults. If there is a supply of fresh green branches and tops, the adults will burrow into this material to lay eggs. If this material is not available, they will move to stressed live trees. Unfortunately, the drought has left most pines in the southern Black Hills stressed.

McCook County, Orange spots on ash leaves

If we have a little humidity and hot weather in mid-June, I can count on some calls and visits to ash trees in the Salem-Mitchell area. The calls are about the orange spots that are appearing on ash leaves. This is the disease ash rust which begins as bright orange spots on the petioles and undersurface of the leaves. These will enlarge during the growing season, becoming gall-like and further distorting the leaves by mid-July.

These infected leaves usually drop prematurely resulting in round of telephone calls and emails from alarmed tree owners as their yards become covered with leaves during July and August. The disease, as with many rust diseases, has two hosts, one is the ash and the other is grasses.

The disease can be controlled with a single application of a fungicide containing myclobutanil made just as the leaves come out, - obviously that period has passed. We do not recommend annually treating for the disease since it only periodically becomes a problem.

Minnehaha County, Cottony maple scale

The cottony maple scale, which despite its name will infest buckeyes (pictured), hackberries, lindens, and elms as well as maple, is highly visible right now with its enormous egg masses (called an ovisac) ready to pop. The eggs will begin hatching in about a week, when littleleaf linden is in bloom, and the crawlers migrate to the leaves to suck sap from the foliage, eventually settling on the branches and twigs to resume their feeding.

The cottony maple scale is a soft scale. It produces honeydew, a sticky substance that rains down from the tree and creates a tacky surface on everything below. The sticky honeydew which often turns a powdery black from the sooty mold that lives on the film, is often noticed before the insect.

The scale can be managed on small trees with insecticidal soap, one application in a week and repeated 10 days later. Insecticides applied as soil trenches and taken up within the tree to kill the scale are also effective but must be applied at least 30 days before the crawlers hatch, too late for this year. NOTE: systemic insecticides for the scale should not be applied to lindens as they can kills pollinators that will soon be attracted to their fragrant flowers.