



**SOUTH DAKOTA STATE
UNIVERSITY EXTENSION**

Tree Pest Alert



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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 hot, dry, and windy. It was an abrupt change from the mild weather of the weeks before. We are swinging in the other direction now with cold wet weather in the forecast for the coming week. The average annual temperature in South Dakota is a mild 46°F but we live in the extremes here - too hot (120°F), too cold (-58°F) – not the Goldilocks weather we would like.

This spell of hot weather pushed the growing degree day (GDD-base 50) accumulation. Here is the current GDD for communities across the state.

Aberdeen	455
Beresford	590
Chamberlain	600
Rapid City	450
Sioux Falls	550

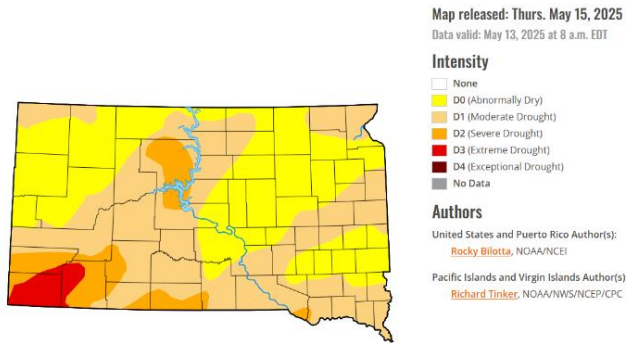
Black locust (*Robinia pseudoacacia*) flowering coincides with emerald ash borer (EAB) emergence. They both begin at 550 GDD. This is about two weeks earlier than we have seen since EAB was confirmed in our state back in 2018.



Drought monitor

The hot, dry weather during the past week was not a help in reducing the drought intensity in the state. A little less than half the state is classified as either "Abnormally Dry" or "Moderate Drought." About ten percent of the state is under "Severe Drought" or Extreme Drought." Hopefully, the forecasted rain will help to break the drought.

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



Treatments to Do Now

Many pesticide treatments are applied during May. This is the time of year that many diseases infect their hosts. Insect activities also increase with the warm weather.

Bronze birch borer

The bronze birch borer (*Agrilus anxius*) 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 (*Betula papyrifera*), are only susceptible to attacks when they are stressed. But the insect is lethal to healthy Asian birch (*B. platyphylla*) and European birch (*B. pendula*) and their cultivars.

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. The adults emerge at 545 GDD so the treatments should be applied now.

A soil drench of an insecticide containing Imidacloprid or Imidacloprid + Clothianidin as active ingredients and labeled for this use may also be used. This treatment will take a few weeks to be absorbed by the trunk and move through the canopy. If applied earlier in May, it would be in the canopy now to kill the adults as they feed. If applied now, it will kill the larvae as they tunnel through the trunk later in June.

Cedar-apple rust

Cedar-apple rust galls on the junipers are swelling and turning reddish orange. This is an indicator to begin treatments to protect susceptible apples and crabapples from cedar-apple rust. The galls are developing their gelatinous, orange telial horns that will release teliospores to infect the apples and crabapples. The horns expand during wet weather and then shrink down during dry spells. They can expand and contract several times. They are popping open now with the wet weather.



The teliospores can be carried as far as six miles, though most apple and crabapple infections occur within three hundred feet of the cedar. The infection on apples and crabapples results in discolored foliage and fruit and premature drop of the leaves. Fungicides containing myclobutanil as the active ingredients can be applied beginning now and repeated three more times at 7 to 10-day intervals. Captan, a common fungicide for apple scab control, is NOT effective against cedar-apple rust.

Codling moth

Treatment time is upon us as the adult codling moths (*Cydia pomonella*) are flying and beginning to lay eggs on apple leaves and 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.

Codling moths feed on the apple seeds, not the flesh. The larvae often burrow through the apple's base, close to the developing seeds. If they just ate the seeds, we might see that as a benefit – we do not eat the seeds. The problem is the larvae make a mess of the apple flesh as they tunnel through the fruit – their paths are filled with crumbly apple flesh and insect poop – not very appetizing.

Common treatment options for homeowner apple trees are insecticides with either Carbaryl or Malathion as the active ingredient. A more recent option is the use of Spinosad, a pesticide made from naturally occurring soil bacterium. While these are common active ingredients for fruit tree sprays, not all products containing these ingredients are labelled for apple trees. Always read the label.

Regardless of the active ingredients in the fruit tree spray, the first treatment for control of codling moth is applied ten days after petal fall with three more applications spaced about ten days apart. The other option is bagging the individual apples using the Japanese fruit bags when the apples reach about ½-inch diameter.

The use of fruit bags is no guarantee of control as the fruit may become infested before it reaches this size. But the bags do provide reasonable control of this pest. The bags also can improve the shine to the apple – worth a try.

Spruce needlecast disease

The new shoots are just beginning to expand on spruce, so it is time to apply a fungicide to protect the expanding needles against rhizosphaera or stigmata 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. Stigmata needlecast fruiting bodies have fuzzy edges while rhizosphaera fruiting bodies are smooth. The disease resulting from either pathogen causes premature needle to 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 stigmata 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 stigmata. Only the lower third of the canopy needs to be treated for rhizosphaera needlecast.

Oystershell scale

Those teardrop pale gray bumps on the bark of trees are the dead female adults of the oystershell scale (*Lepidosaphes ulmi*). The eggs started hatching at about 350 DD and continue till about now, 500 GDD. The crawlers are moving out from beneath the scale of their dead mom to feed on the new shoots.

They are very vulnerable to insecticide treatment right now. One of the best to use on small trees is horticultural oils as these will kill the crawlers but have limited impact on the many insects that feed on the scale. Horticultural oils can injure trees if applied at too high of rate or during hot weather so read and follow label directions.

Timely Topics

Emerald ash borer update

Adult EABs have started emerging during the past few days. New D-shaped emergence holes are appearing on the ash trees we have been monitoring this spring.

The tunnels leading from the overwinter chambers to the bark are carved by the larvae before they settle back into the chamber and curl for their winter nap.

The adults move back through these tunnels and then chew their way through the bark to emerge. The exit hole forms a crisp D shape about 1/8 inch wide; the same cross-sectional dimensions as the adults.

Adults do not emerge at once, so we are still finding pupae as well as teneral adults, fully formed adults that are hardening their exoskeleton before emerging.



Once the adults emerge, they move up into the host tree foliage where they chew on the margins of the leaves creating small notches and tears. The adults are a brilliant metallic green (with a little red beneath the wings) and about 1/2 to 3/4 inch long but less than 1/8 inch wide.

Adult females feed on foliage for a week or two before laying eggs. The eggs take a week or so to hatch so I do not expect to see the first larvae of 2025 until the second week of June which is much earlier than past years.

Water before injecting an ash tree

We are still in a good window for treating ash trees for EAB. Treatments applied will kill adults as they are feeding on the leaves, a prerequisite to laying eggs. Some adults are now flying and will begin laying eggs in another two weeks. It can take a week or more before the insecticide injected into the tree reaches the leaves in the canopy.

This means there may be some egg hatch on ash trees treated now or during the next week or two. Fortunately, the insecticide will move into the canopy soon enough to kill any young larvae that hatch before they do any damage to the tree. It is still a good time to treat ash trees.

If the rain faucet turns off before a tree is injected, then the ground must be watered before treatment. Dry soil slows the uptake of insecticides injected into the trunk. Commercial applicators remind customers to water their trees the evening before they do the injections. This does not mean just sprinkling some water on the lawn.

A mature ash tree will need several hundred gallons of water applied the evening before (unless it is raining). Divide the area beneath the tree into quadrants. Place an oscillating sprinkler into a quadrant so the water coverage is through this area. Be sure the coverage is from the trunk of the tree to a distance equal to at least

one-third to half the tree's height. The sprinkler should be run for at least 30 minutes in each quadrant.

Shoot tips slow to leaf out on birch, hackberry, linden and maples

We are seeing many of these trees slow to have the upper canopy leaves open. This also occurred in saplings but again only the tips are affected. This is another example of winter desiccation injury.

In some instances, the buds at the tips are still soft and flexible but have just not opened yet. The shoot these delayed buds are attached is still green beneath the bark.

These trees will likely recover, especially with a week of cool, moist weather. There is no need to prune them to remove the "dead." If the buds are hard or missing (pictured) and the shoots snap when bent, then they are dead and can be pruned out now.



May beetles/June bugs feeding at night on tree leaves

The 1/2- to 1-inch long, shiny brown beetles have been bubbling out of the soil during the past week. May beetles and June bugs are interchangeable names for these scarab beetles (*Phyllophaga*). The adults are nocturnal so go unnoticed unless you leave the yard lights on. They are attracted to lights so sometimes the ground near all-night convenience stores can be covered with them in the morning.



The adults feed on leaves during the night. They do not eat the entire leaf. Much like children who leave the crust from their toast, these beetles leave the thick fibrous veins as they nibble on the fine leaf blade.



The larvae are called white grubs. They feed on grass roots for two or three years. They are not as damaging to turfgrasses as Japanese beetles or the European chafer. They are bigger and are tasty to raccoons and skunks. These critters will tear up an infested lawn to find the grubs.

Wings of maple seeds turning pink

Pink wings to the samara-like schizocarps of Freeman maple (*Acer x freemanii*) and silver maple (*Acer saccharinum*) have appeared during the past week. These winged fruits helicopter down from the canopy every spring but usually with green wings.

This spring the wings have turned pink to light red. The color is from a naturally occurring plant pigment, anthocyanin. This is the same pigment responsible for red autumn foliage.

Why the wings turn pink to red during some springs is not well understood. The phenomenon appears during droughty, sunny weather so it is believing to be a stress reaction to the dry conditions. There is also a theory that the pigment provides some ultraviolet protection – like a suntan lotion – to protect the seed coat (which also turns red).



E-samples

Crane flies

This is a picture of a very large cranefly in Pierre. The slender bodies and long legs resemble giant mosquitoes. These large flies are known as mosquito hawks, but they do not feed on them. Fortunately, these large insects do not feed on people either so no worries about a bite or having the blood sucked out of you.



The worm-like larvae feed on roots of marsh plants so the adults are often found near ponds and streams. Some crane flies emerge in the spring while others in late summer or fall.

Desiccation injury appearing in maples and spruce

The pictures are coming in several times a day now. Desiccation injury is continuing to appear on Colorado spruce (*Picea pungens*) and maples. The maples are slow to break bud at the tops of the tree (see note under Timely topics).

This is a picture of a sugar maple (*Acer saccharum*) showing delayed leaf expansion and some tip dieback. The owner did not water the tree last fall under the incorrect assumption that larger trees do not need watering. They do, of course, and this tree is certainly evidence of his need.



Mature spruces are also showing desiccation injury (see top of next page). The presentation is needle discoloration – yellow and tan – on the terminal shoots. This can quickly lead to needle cast. This tree has had almost all the terminal defoliated. Again, this tree was not watered last fall.

Spruce needleminer (see May 7 issue of the *Tree Pest Alert*) can cause similar needle cast but usually it is more concentrated at the top of the tree. The cast needles will also have a hole at their base when the needleminer emerges after feeding in the needle.



Lilac bacterial blight on Japanese tree lilac

Lilac bacterial blight (*Pseudomonas syringae* pv *syringae*) may be responsible for the decline and dieback of this Japanese tree lilac (*Syringa reticulata*). The symptoms of bacterial blight are like those of fire blight, another bacterial disease.



Infected trees will have necrotic blotches on leaf margins of twisted and curled leaves. The shoots will have blackened streaking, and the tips will die back. These shoots will have dead, wilted leaves hanging from the tips.

Bacterial blight affects Japanese tree lilac and common lilac (*Syringa vulgaris*). The white flowered cultivars are the ones more commonly affected. While common lilac has many yellow to purple flower cultivars, all Japanese tree lilac cultivars have either white or a creamy yellow flowers so all are susceptible to the disease.

While the symptoms appear to be caused by bacterial blight, a sample is needed to test the tissue for confirmation of the disease.

Sapsucker injury to trunk

Sapsuckers – a woodpecker – has been drilling holes in the trunk of this tree. These birds drill holes into the sapwood to drink the sweet sap as well as small insects that are attracted to the liquid.



These birds – most likely the yellow-bellied sapsucker (*Sphyrapicus varius*) – make characteristic parallel rows of holes in the tree, often encircling the trunk. The hole may be used for several years. The birds are difficult to discourage from returning to their favorite trees. Putting hardware cloth over the rows can stop them but remove the cloth by late summer to prevent injury to the tree.

Samples received/Site visits

Codington County, Pine wilt disease in Scotch pine

This was another stop to look at Scotch pines (*Pinus sylvestris*) that “suddenly” turned tan. The needles and twigs are dry to the touch and snap easily. This is pine wilt disease, a disease covered numerous times this spring in the *Tree Pest Alert*. These are the lingering infections that did not show noticeable symptoms of infection last fall. These trees just started to turn color this spring.



Miner County, Maple borer: an emerald ash borer look-a-like

This was a stop to look at an old belt of declining silver maples. Many of the trunks had crisp D-shaped holes on bark. These trees are infested by an *Agrilus* insect. It is not the *Agrilus planipennis*, the emerald ash borer, but *Agrilus masculinus*, the maple borer.



the trunk. This allows the trunk to continue to grow, at least for some time. Eventually even this must be replaced to prevent restricting tree growth.

This is a native borer of maples in our state. The maple borer is smaller than the emerald ash borer, so the D-shaped exit holes are a little smaller as well. It is more commonly found in boxelder, but it also can be found in declining silver and red maples in central and eastern North America.

The maple borer only attacks declining hosts, so it is indicator that the trees are dying rather than being the primary factor. The trees are past their useful life and should be removed – no windbreak last forever.

Minnehaha County, Forgo the tree fort

It is a lot of fun building a tree fort, but we forget the injury the construction can do to the tree. This is a cherry tree in which platforms supported by beams nailed into the wood are lacing the canopy.

The nails are not as much of a concern as the beams which press again the bark which prevent trunk expansion. This will kill the conductive tissue beneath the bark restricting the flow of water and sugars. The dead bark also provides an entrance for decay fungi. One of the limbs also has the shelf-like conks of a decay fungi.



It is better to build a free-standing structure with platforms lacing through the canopy rather than attached to the tree (though you must take care not to damage the roots). The other option is to place large bolts through the limbs with a gap left between the beams and