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 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

The wintry weather is still lingering along with an occasional snowstorm. It is a slow start to spring in much of the state. The growing degree days (GDD – base 50) accumulation in Sioux Falls and other communities is less than at as this time last year. It not a state-wide trend, however, as we are ahead in the Black Hills.

The 2022 GDD accumulation for these South Dakota cities is currently:

City	2022
Aberdeen	20
Beresford	144
Chamberlain	154
Rapid City	153
Sioux Falls	90

Last year the cornelian-cherries (*Cornus mas*) were blooming in Brookings by this week. These are one of our earliest blooming shrubs. They have bloomed as early as March 21 and as late as May 8.

While I hope it is not going to be May 8 this year, but the flower buds are still tight. They are not close to opening yet. South Dakota spring weather is full of surprises and a burst of warm weather can still speed up the season.

Treatments to Begin Now

Apple scab. The apples and crabapples buds are beginning to swell in parts of the state, so the treatment time is very soon. The first application of fungicide should be applied as the buds are beginning to open.

The most common fungicides used for preventative treatments of apple scab have Captan or Mycolobutanil listed as the active ingredient. If the apple scab treatment is for an ornamental crabapple, one in which

the fruit will not be harvested, Chlorothalonil, may also be used.

Applications of the fungicide are made about 7 to 10 days apart from the green tip stage until after petal fall. The weather usually turns a little drier by then and a 10-to-14-day interval can be used until the end of June when applications stop.

Spruce needleminer treatment. The larvae will soon begin moving from their webbed nest to resume their feeding. A spray of high-pressure water right now may knock them off the tree though be sure to rake up the fallen needles and larvae after the water spray. The other approach is pesticide treatments to kill the larvae as they begin moving out onto the foliage. The most common insecticides for this purpose contain Carbaryl or Permethrin as the active ingredient and are labelled for control of this insect.

Remember to spray inside the canopy, not just the exterior. Actually "power washing" the lower canopy of the spruce is an effective way of cleaning off all the dead and dying needles as well as some insects. However, be aware the tree will appear a little more open afterwards!

Timely Topics

Emerald ash borer update

The slow start to the growing season is also slowing down the development of the borer within the trees. There are a few more J-shaped larvae that have done their 'morning stretch' and have straighten to begin the transformation to a pupa. This transformation will take a few more weeks. Once the insect enters the pupal stage within the chamber, that stage will last for about another three weeks The below picture shows what the pupa looks like. Emergence begins at about 500 to 550 GDD and we will hit that at the beginning of June.

Emerald ash borer treatment workshop on May 3 in Sioux Falls

The City of Sioux Falls, Dakota ISA chapter, South Dakota Department of Agriculture and Natural Resources, and South Dakota Extension Service are sponsoring a workshop for applicators to learn about spread of EAB in eastern South Dakota, the developmental stage of the insect, and treatment options available to protect trees from becoming infested.

This is an opportunity for applicators to learn about and discuss the systems available for injecting ashes with demonstrations by Arborjet, ArborSystem, Rainbow, and Warne Chemical (Chem-jet). I will discuss EAB life cycle and identification of the insect and infested trees. Bryan Peterson, Urban Forestry Specialist for the City of Sioux Falls will be on hand to discuss tagging and reporting specifications for applicators.

The workshop will be at Laurel Oak Park, 3401 East 49th Street, Sioux Falls on Tuesday, May 3. It will begin at 10:00 am by the Picnic Shelter and run for about two hours. No registration is necessary, and it will be held "rain or shine." This is a fantastic opportunity for those who already offer emerald ash borer treatments in the area to refine their skills as well as companies that are thinking about offering this service to learn more about it.

Planting bare-root tree seedling

Bare-root is the most common way windbreak trees and shrubs are planted. It is an inexpensive way to plant and provides better establishment that other methods such as container planting. Since there is not soil is attached to the roots of bare-roots seedling, there will not be any changes in soil texture around the trees which can interfere with water movement.

The challenge is the narrow window for planting bare-root seedlings. The top – stem, branches, and buds – must be dormant. If the buds are starting to open, the expanding leaves will require water but that will be limited until the roots begin to grow.

Keeping the top dormant is easy. Just keep them in the cooler until planting (except for those that require sweating – discussed in the next issue of the *Pest Alert*). The roots need to start growing as soon as they are in the ground since root growth must precede leaf growth.

Seedlings need water even before they leaf out. When the tops are exposed to temperatures in the 40ºFs, water will be lost through buds and stems. Water loss is even greater in evergreens as they will also be losing moisture through the foliage.

This means we need soils warm enough to start root growth at planting, not a week or two later. Root growth may begin as low as 42ºF for some tree species and as high as 48ºF for a few others, but most will start at soil temperatures (upper four inches) are at 45ºF. This threshold is just being reached only in the southern third of the state. The soil temperatures in most of the state are still in the low 30ºFs.

Cool temperatures and rain/snow are expected in the many areas of the state for the next week or so. The temperatures are predicted to be in the 40s so the soil should slowly thaw. Bare-root planting can begin starting in another two weeks.

Ideally, we will have a prolonged period of day temperatures below 70ºF along with cloudy, wet weather. The worse the weather for the planter, the better for the plant!

E-samples

Heartwood and heart rot in peashrub

Siberian peashrub is a common ornamental windbreak and ornamental shrub. Too common. It is considered an invasive weed in Minnesota and its sale and propagation is prohibited there (note: not in South Dakota).

The sample shows a dark center to the stem. First, darken wood in the center of a woody plant is not always a cause of concern. Many woody plants form heartwood along with sapwood. Sapwood is the lighter colored wood that forms a thick ring around the trunk just beneath the bark. This is the wood where water is transported, and food is stored as starch.

At the center of many woody plants is the heartwood. This is non-functional wood. It does not store food or nutrients and it does not transport water or food. It does not even provide much support, which is another role of the sapwood.

Peashrub sapwood is light yellow. The heartwood is a dark red. The contrast between the two is attractive. Woodworkers crave pens out of this contrasting wood, so the pen has ribbons of dark and light.

Most of the discoloration in this picture is heartwood but there also appears to be a little decay. Since heart rot starts in the interior it is not an immediate concern. Almost any wounding that breaks through the bark provides any entry point for heart rot. A simple treatment is just to cut the stems that snap from the decat to a height of about two inches. The plant will sprout back, and the new sprouts will be free of the disease.

Pine needle scale on spruce

Pine needle scale is poor at tree identification. It is equally at home on spruce as it is on pine. The most noticeable feature of this insect is the white oval-shaped shells that dot the needles of infected evergreens. These shells do not move as the adults beneath are not turtles that scurry around but more like a rock.

The rock analogy is not a bad one because the insect beneath the shells right now is dead. The females laid eggs beneath the shells before they died. These will hatch and move out beneath their dead mom to wander out to the newly formed needles beginning at 300 GDD, about the time common lilac reaches full bloom.

Our treatments are focused on the juveniles, called crawlers due to their mobility. The crawlers move out to the new needles and insert their mosquito-like mouthparts in the needle to feed. Dense populations can remove enough content from the foliage to cause injury. Branches with heavily infested needles may produce less growth and even die.

One important note for treating pine needle scale. It is important to remember that the very noticeable white

bumps are the dead moms. These will remain attached for several years. Spraying does not remove them, nor are they a concern. In fact, the presence of the bumps can give an applicator a measure of the success of their treatments.

This picture shows a spruce that was properly treated for pine needle scale last year. You can see the white bumps on the foliage formed two years ago, but the needles from last year are completely free of the scales.

Samples received/Site visits

Codington County, Declining maple

This was a stop to look at two mature sugar maples that were in decline. The trees had numerous dead or decayed branches. Some of these had snapped and fallen to the ground.

This was the concern to the tree owner but there was also a trunk cavity in one of the trees. This means there is some decay in the trunk and that can reduce stability. A cavity does not mean the tree must be removed but it does means that the tree is at a greater risk of failing.

The first step is to have the trees pruned of the dead and dying wood and see if there are any other defects in the canopy. If the trees appear sound, a mulch area around the root flare, out at least a far as the surface roots, will be beneficially to the tree and keep the lawn mower away.

Corson County, Declining pines, and spruce

The visit was in response to the rapid decline of pines and spruce in pockets throughout two long rows of trees. The trees were discoloring and rapidly declining. The declining trees also had produced a large cone crop last year and this is sign of stress, not health.

But the most diagnostic symptoms were the twisted and deformed terminals of the affected pines and spruce. The shoots on the pines were swollen and club-shaped with small, flattened needles. These tips were not dead, merely deformed. These are classic symptoms of exposure to a growth-regulator herbicide.

While the application must have been made last year, there is still a chance the herbicide may be detected in the foliage. Samples were collected and there will be a follow up to this in the *Pest Alert* in about two weeks.

The pines had two other problems. This was one of the most heavily infested belts of Zimmerman pine moth that I have seen in South Dakota. Every tree had lower broken branches or deformed stems. The good news is the owner had started spraying for the moth and achieved almost perfect control. I was not able to find any recent attacked on any of the trees and most were recovering. Treatments applied with the right product, at the right rate, and time do work!

The other problem was a few pines had quickly died in the past year or two. This was from pine wilt disease due to the symptom pattern and rapid decline of the trees. The interesting note to this is the trees were Austrian

pines in a belt of Austrian and ponderosa pines. I have noticed in some belts the mixing of the two species. I often find a few Austrian pines in a ponderosa pine row. They are easy to detect these days as the Austrian pines are turning tan and dying of pine wilt while the adjacent ponderosa pines are unaffected.

Walworth County, Declining spruce

This may also turn out to be a sad tale. The spruces were declining along the lower branches. A line of dead and dying branches was moving up the trunks of several trees.

The tree owner sprayed to control the kochia growing beneath the trees. The herbicide used contained Picloram. This herbicide is used for weed control in rights-of-way and pastures but it can be deadly on trees, especially conifers. Spruces seem to die if you even shake a jug of it near them! Applying picloram beneath a spruce is a death sentence.

As with the Corson County pines and spruce, samples were collected to see if any herbicide could still be detected. A follow-up will be in a future *Pest Alert*.