

# Pest Update (May 20, 2020)

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Note: samples containing living tissue may only be accepted from South Dakota. Please do not send samples of dying 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.

## Available on the net at:

<http://sdda.sd.gov/conservation-forestry/forest-health/tree-pest-alerts/>

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 and 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.

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## Plant development for the growing season

The cold weather is behind us now and the forecast is for warm weather for the next week. We are also starting our typical spring rains and these are welcomed in many areas of the state that are a little dry now.



The annual progression of our spring-flowering trees and shrubs are in full swing with many crabapples in full bloom right now. South Dakota's oldest and best known ornamental release, the purpleleaf sand cherry (*Prunus x cistena*), is also blooming now. This shrub was released in 1910 by N.E. Hansen, the famous plant explorer/botanist and former head of the horticulture department at South Dakota State College.

## Treatments to do now

Now that the growing season is in full swing there are numerous treatments to be applied. These treatments are necessary to protect the plant from becoming infested or infected by a pest or pathogen. Waiting until you see symptoms of an infestation or infection is usually too late for effective treatments.

**Clearwing ash borer** treatment with an insecticide containing permethrin as an active ingredient also begin now. The bark must be sprayed to protect the tree as the insecticide will kill the adults as they are walking on the bark to lay their eggs. The insecticide will also kill the newly hatched larvae before they burrow into the wood. Systemic treatments to kill the insect once it burrows into the tree are generally ineffective so injecting a insecticide or pouring one around the soil 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 and the shrub is starting to flower in the southern part of the state. You will know the adults are flying when you see the pupa skins (picture above) sticking out of the emergent holes on infested trees.



Now that buckeyes are beginning to bloom, bronze birch borers are emerging from infested trees. **Bronze birch borer** (*Agrilus anxius*) is a native insect that attacks birch. It is a close relative to the emerald ash borer so they both make D-shaped hole as the adult emerges from the tree. The time to treat birch trees is now as the female beetles are finding places on the bark (usually near a branch union) to lay their eggs. The bark can be sprayed with an insecticide containing permethrin as the active ingredient with a second application

in about three weeks. Insecticides containing emamectin benzoate can be injected now to kill newly hatched larvae that will hatch this year. If the canopy has dieback back more than about 40% the tree too far gone for treatments.



Bronze birch borers colonize almost every birch species with their favorites being Asian and European species such as the cutleaf European white birch. The river birch is very, very rarely attacked by bronze birch borer and can be considered a borer-free alternative to other species.



**Cedar-apple rust** galls on the junipers have expanded during the past week and this is an indicator to begin treatments to protect susceptible apples and crabapples from cedar-apple rust. The galls form on the junipers (cedars) and release spores that infect the apples and crabapples. 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 repeat three more times at 7 to 10-day intervals. Captan, a common fungicide for apple scab is NOT effective against cedar-apple rust.



**Codling moth** adults are flying and laying eggs on the newly forming apples. Once the larvae hatch, they will burrow into the developing apple, usually near the base of the fruit, resulting in a trail of brown, powdery frass through the apple. This frass often extrudes from the entry hole as in the picture to the left.

The treatment is usually Malathion, though there is much evidence that carbaryl (Sevin) provides better control. The first treatment begins about *10 to 20 days after petal fall*, as the fruit just begins to form and then three more applications spaced about 10 days apart. This treatment will also control **plum curculio**, an insect that cannot usually get through the tough skin of an apple, but the egg laying leaves the fruit dimpled and distorted. The picture to the right shows bird pecks (the large hole) and plum curculio damage (the dimples).



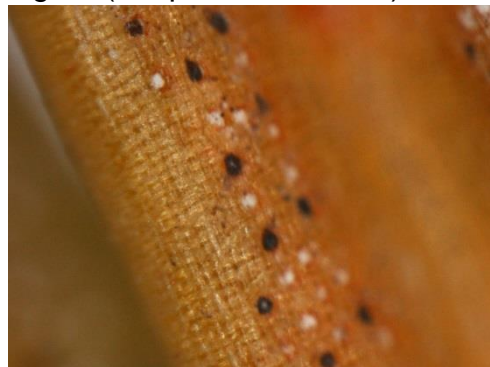
The other option is **bagging the individual apples** using the Japanese fruit bags when the apples reach about ½-inch diameter. This is no guarantee of control as

the fruit may become infested before that size, but they do provide reasonable control of this pest and many others as well as improve the shine to the fruit. And finally, if you want to hang jugs of bad smelling liquid to attract codling moths and repel unwanted visitors at the same time consider mixing **molasses and water** in a 1:7 solution with a few drops of dishwashing soap. Pour this solution into a one-gallon milk jug with the top cut out of it and hang from the tree. The fermenting mix is attractive to codling moths (as well as wasps and critters) and they *may* prefer this to your apples. It also creates a mess if you bump the bucket while mowing your lawn.....



The new shoots are expanding on spruce so it's time to apply a fungicide to protect against **rhizosphaera** or **stigmina needlecast**. These are the most common foliage diseases of blue spruce. These diseases cause the older foliage to turn yellow by midsummer and then purplish-brown. Usually small black fruit bodies can be found in the spring lining the stomata along the needles. Stigmina needlecast fruiting bodies have fuzzy edges (as pictured above) while

rhizosphaera fruiting bodies are smooth (as pictured to the right). The disease results in premature needle drop and a thin and discolored canopy. The disease can be managed by an application of chlorothalonil now and a second application in about two weeks. If the needlecast is due to Stigmina the applications may have to continue every 10-days till August. It is important to treat the entire canopy, not just the lower branches when treating for Stigmina.



## Timely Topics

### ***Now is the time to treat for emerald ash borer***

If you have 1) a large, more than 60 inches circumference at 4.5 feet above the ground, valuable ash tree and 2) you live in Minnehaha or Lincoln Counties, now is the time to do emerald ash borer treatments.

The focus on larger tree, those more than 60 inches around or about two-foot diameter (at 4.5 feet above the ground) is these trees can be major assets to the home landscape, providing cooling shade and privacy, benefits a new tree will not produce for decades. These larger trees can also be expensive to remove if they are over the house or in the backyard. I have seen bids of \$2,500 or more to remove large ash trees.

The cost of treating these trees is about \$10 an inch diameter (at 4.5 feet). A 20-inch tree will cost about \$200 to treat and the tree owner will spend about \$1,600 protecting this tree over 20 years (treating every other year for the first 10 years, then every three years for the next 10 years). This is still less money than removing the tree and all the benefits of a large tree are still there to enjoy.

Minnehaha and Lincoln are the two counties that we have confirmed emerald ash borers infesting trees. The recommendation we are following is like other states. There is no need to treat ash trees till it is found in your county or within 15 miles of your location. Some property owners in counties adjacent to the Big Sioux from Minnehaha to Union are beginning to have their ash trees treated. While we have not yet found it in Union County, the beetle does seem to spread quickly along rivers so I am sure we will find it there within a year or two.

### ***Woodpecker damage to bur oaks, a possible treatment***



This past week I was up in Aberdeen working with Aaron, the city forester, on woodpecker damaged bur oaks. The problem is woodpeckers drilling into the bark searching for the small larvae of the **gall wasp** *Callirhytis flavipes*. During the winter these small, white larvae are found within the inner bark of the branches and twigs of mature oak trees and the trunks of young trees. The gall wasps emerge in the spring as adults and move to the newly expanded leaves where they insert eggs into the midrib, the central vein of the leaf. Once the eggs hatch, the larvae form a gall on the vein and live out their short lives within this structure. Adults emerge later in the season and lay eggs on the twigs and branches.

The galls formed by this gall wasp are not particularly harmful to the tree, no more than the many other galls that form on oaks. What makes this gall wasp a problem is the woodpeckers that feed on the larvae during the winter. The woodpeckers can shred most of the bark from young trees, enough that the trees are be killed by this injury. The trees that are not killed by the woodpecker activity, often have the tops killed back enough that the trees become misshaped and of little value as a windbreak tree.



Management of the problem is difficult. Some people have tried protecting their small oaks with Tanglefoot Bird Repellent<sup>®</sup> on the trunk. This is a sticky material that comes in a caulking tube that can be smeared on the trunk to discourage

woodpeckers. This is a very time-consuming task and must be repeated every year. Insecticides to kill the gall wasps have not been completely evaluated yet. The timing for insecticide sprays is critical and the gall wasps are flying for an extended time period in the spring and late summer.

Using systemic insecticides to kill the larvae is a possibility that we are exploring. The insecticide used for emerald ash borer and many other insects, emamectin benzoate, is labeled for treating oak gall. We are doing a trial on trees that are presenting with moderate to heavy woodpecker damage with trunk injection on the larger trees (4-inch caliper or larger) and soil drench for the smaller trees. The treatment needs to be applied in the spring and fall so it will be next year before we can begin to evaluate the success of the wasps.

## **E-samples**

### ***Alcoholic flux***



I seem to get a picture or two every spring of foam oozing out of the base of a tree. This is called alcoholic flux or white flux. It occurs when microorganisms ferment sap in the tree and it oozes out of cracks and other bark wounds. Alcoholic flux is acidic and nearly colorless though can appear almost as soap bubbles. It often has a pleasant fermentative odor, almost fruity (but don't lick it!). These bubbles or foam usually appear during wet weather and only persist for a day or two. They occur on stressed trees though the stress may be due to any number of agents including the base of the tree being struck by lawnmowers or grass-whips.

### ***Cedar galls***



Usually I receive calls about the symptoms of cedar-apple rust on apple trees. I rarely get calls where the concerns are galls on the cedars, better known as junipers. The orange gelatinized galls now appearing on the eastern redcedars and Rocky Mountain junipers are perennial so remain from year to year. It usually takes about two years for the galls to develop before they produce the horns that release spores that infect the apple leaves. Later this summer, spores will be released from these infected leaves that are carried by the wind to land and infect junipers. The injury to the juniper from the disease is usually minimal, just a few scattered woody galls through the canopy. However, the galls can result in tip dieback on the branches and I have seen some trees in South Dakota covered with these galls.

and on these same trees there was significant dieback that may have been related to these galls.

There are no fungicide treatments that will remove the woody galls that have already formed on the juniper. The only treatment is to prune them off. Spraying a fungicide to prevent new galls from forming is usually not recommended as the treatments are rarely effective due to the long time period in which spores are released from the apple leaves. If someone decides to treat their junipers, fungicides labelled for control of cedar-apple rust on junipers, must be used and these generally have Triadimefon as the active ingredient. The sprays begin when the spores are being released by from the apples, about mid-June and continue on a two-week schedule until the end of September.

### ***Forest tent caterpillar***



The tent caterpillars have been covered in the last several issues of the *Update*. Most tent caterpillars in our state are either the eastern tent caterpillar or the western tent caterpillar. Both form large nest at branch unions in the interior of the tree.

But up in northeastern South Dakota, there is also the forest tent caterpillar which can be identified by the 'keyhole' pattern on their back. The forest tent caterpillar does not form as dense of nest as its too cousins but can devour foliage just as fast. Treatments are the same and should begin soon it not applied already as the caterpillars are now about an inch long.

### ***Gummosis in stone fruit trees***



Stone fruits are fruit trees that produce fleshy pulp surrounding a stone (apricot, cherry, peach and plum). These trees share many disease and disorders and one of these is gummosis. This is a general condition in which gum is exuded from the wood. The amber-colored gum is a nonspecific wound response and can be due to diseases, insects, or mechanical injury.

The most common reason for gummosis is a perennial canker such as cytospora canker. The fungi cause a sunken lesion on the bark which oozes the from the wound. If the tree is healthy it can grow faster than the canker and contain the disease. However on weakened or dying branches (often those that injured by cold winters), the fungi can rapidly expand and kill the shoots.

The best management is to keep the tree healthy and prune out any dying or infected branches.

### ***Witches-broom on ponderosa pine***



Brian, one of the foresters with the South Dakota Department of Agriculture, send in this picture of a broom on a ponderosa pine tree. The broom is most likely due to an infection by the fungus *Elyroderma deformans*, which causes needle cast (premature shedding) and brooms on ponderosa pine.

The disease is sometimes confused with Diplodia tip blight as both cause stunted tips to present with reddish-brown foliage that wilts before turning brown then gray. A chief difference is usually the twigs of trees infected with *Elyroderma* needle cast will have small brown lesions in the inner bark.

The disease is found throughout the Black Hills and can affect all ages of ponderosa pine. The disease is usually not a serious threat to the host until new infections occur every year and more than about 1/3 of the canopy is affected. Infected trees are also more susceptible to bark beetles.

### **Samples received/site visits**

Brookings County

#### **Browning arborvitae tips - arborvitae leaf miner**



This was an unexpected find. Arborvitae leaf miner (*Argyresthia*) is native to Minnesota all the way to Maine. I remember seeing it in Michigan and Massachusetts on arborvitae. I cannot find a record of it ever been seen in South Dakota but doubt if this is the first infestation – probably just been overlooked for a decade or more.

It's easy to overlook these insects. The mature green larvae are only about 1/5-inch long and feed within the scale-like leaves. The hole they create to enter the needle is about the size of a pin tip can only be seen under magnification. Once the infested leaf scale is opened, there is either the larvae (at this time) or its hollow and filled with frass.

The damage from this insect are yellow shoot tips scattered throughout the plant. This may be confused with winter desiccation injury which also results in browning tips. The difference between the two symptom patterns is the browning shoot tips



from leaf miner feeding are usually scattered throughout the tree while those due to winter injury are concentrated on the south or west side.

Brown County

### **Powdery coating on a mugo pine**



This is pine tortoise scale (*Toumeyella parvicornus*), a sucking insect that excretes a sticky substance called honeydew. If the pine is heavily infested by this scale the branches are covered with a sooty mold fungus that lives on the honeydew.

Heavy infestation can also result in thin canopies and dead branches. The control is either imidacloprid as a soil drench or Malathion applied when mockorange are in bloom (maybe two week from now), and repeated 10 days later to kills the hatched crawlers. A treatment of horticultural oil is not as effective at killing crawlers as Malathion but oils are not deadly to the insects that feed on this scale. The natural enemies of the scale provide most of the control of the crawlers. A drawback is that oils can be toxic to the pine if applied on days where the temperature will be above 85°F or if applied above label rates. Always read and follow label direction!

Lincoln County

### **Bumps on maple leaves**



Maple bladder galls are beginning to appear on silver maple leaves. These small bumps are not due to a disease or an insect, but a mite, the maple bladder gall mite (*Vasates quadrupeds*). This mite overwinters beneath the maple bark scales and moves out to the leaves as they open in the spring. The mites feed on the underside of the leaf though the galls to form on the upper side. The galls begin as light green turning a pink to rose by mid-season and finally black by

autumn.

While the galls can almost completely cover the leaves, they do not harm the tree so no treatments are advised. There are few effective treatments for this mite anyway as the timing is difficult to judge. Also some treatments, the use of dormant oils, as a bark spray to kill the adults may harm to the tree if applied after the leaves have opened. The best solution is just to learn to live with them, the tree does just fine.

Spink County

### **Declining row of Colorado spruce**

The call was regarding dying spruce in a cemetery – not really what you want to see when you enter. The trees are about 25 years old and about 20 feet tall. The needles on the lower branches are turning purple and dropping.



Frequent readers of the *Update* have already figured out the trees were infected with cytospora canker (*Leucostoma kunzei*). This disease begins as a sunken canker on a branch that is usually covered by bluish-white resin blotches. The canker expands until it girdles and kills the branch.

The pathogen enters the branch through wounds. If the tree is healthy, it can outgrow the cankers. However, if it is stressed by age (20 to 30 is old for a spruce in South Dakota outside of the Black Hills), competition, drought or poorly-drained soils, to name a few common stressors, the cankers can rapidly expand and kill branches.

These trees had several strikes against them. First, they were entering old age for spruce in Eastern South Dakota, they were too close to one another, 12 feet, and they were in a low area that had water sitting on it the past two years. The best solution is start their replacements, another row on slight higher ground and still plant each tree on a shallow berm (even 6 inches) and minimum spacing of 16 feet apart.

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