



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 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: Bess Pallares, Carrie Moore, and Dawnee Lebeau

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Plant development for the growing season

We are at 59 growing degree days (GDD- base 50) now in Sioux Falls, 84 GDD in Rapid City, and only 15 GDD in Aberdeen. We are off to a cold start this spring as we were at 72 GDD in Sioux Falls at this same time last year. Silver maples are beginning to bloom but otherwise plant development has been slow.



A few pests will be active soon. Egg hatch of spruce spider mites begin at about 50 to 60 GDD, when silver maple bloom – see Kingsbury County site visit in this *Pest Alert*. Zimmerman pine moth larvae will also be on the move – see Minnehaha County site visit in this *Pest Alert*.

The maple sap flow has been very slow. I talked with some producers in South Dakota that have only seen a trickle while others in southwestern Minnesota harvested several hundred gallons during the warm up last week.

Treatments to Begin Now

It is a good time to get out there and train your fruit trees. The traditional time is after the coldest weather has passed but before the tree begins to leaf out. This is often a narrow window in South Dakota; late March to mid-April.

This is an easy time of year to prune young fruit trees. The arrangement of the scaffold branches (the branches attached to the trunk) are not hidden by leaves. This makes it simpler to choose which branches to remove to create an open canopy that allows light and air to penetrate into the interior.

If the training, which begins when the tree is young, is done right, the mature tree will have an open, layered appearance which allows light and air in the canopy. At a

recent fruit tree pruning workshop hosted by the Kingsbury Conservation District, we trained some young trees and got to see the payoff of these efforts in mature trees. This is a picture of an apple tree that was properly trained about 20 years ago and maintained since – the perfect apple producer!



Timely Topics

Emerald ash borer update

The continual cool weather is not speeding up development of the emerald ash borer. They are still in their slumber within the sapwood of their host. The transformation from larva to pupa occurs during May with the first adults emerging at the beginning of June.

Emerald ash borer has NOT been found in eastern Wyoming

A tree company thought they found emerald ash borer in the Sundance Wyoming area. They did not follow proper procedure and report this to Wyoming State Forest. A new state find must always be reporting to the appropriate state agency, but they just announced it on their Facebook page. They also drove into Spearfish and placed flyers that people need to treat their trees now. Rex McDonald, from the City of Spearfish, was first to question this find and passed along the information.

Fortunately, what they found was not the emerald ash borer but most likely one of our native ash borers, either the redheaded ash borer or the banded ash borer (*Neoclytus*). These two species are commonly found in recent dead or declining ash and other hardwood. The larvae are legless, round, and cream-colored, between 1/2- and 1-inch long. The rounded segments remind me of the Michelin tire guy (minus the arms and legs). The insects are in the pupal, not larval, stage in late winter.

Emerald ash borer larvae are also legless, cream-colored and of similar length as *Neoclytus* larvae, but are flat with bell-shaped segments. The insect is in the larval, usually the J-shaped, stage in late winter.

The adult exit holes are also different. The redheaded and banded ash borer create oval-round holes about 1/4-inch in diameter as they emerge from the tree. The emerald ash borer makes crisp D-shaped holes only about 1/8-inch in length.

The holes in the tree that triggered the misidentification were not D-shaped, but more oval. This were most likely *Neoclytus* but definitely not emerald ash borer.



E-samples

Black knot disease in cherry

A picture of a Schubert chokeberry was sent in with the question about all the black galls on the branches. These elongated black galls are found along branches and occasionally trunks of *Prunus* trees, mostly chokecherries. They are caused by the fungus *Apiosporina morbosa*.



The lumpy, cracked black galls may girdle the branch they are attached to. The leaves distal to the gall may wilt and the shoot tip die. The cankers may also result in little injury other than the aesthetics, it depends on the tolerance of the tree to the galls. Dead man's finger is another name for the disease and an infected tree can look like a bad Halloween.

The disease is difficult to manage. The large galls are the second-year infection. The first year infection may present as only a slight olive-green swelling on a twig with a felt-like texture. If the large galls are pruned off the tree now, do not be surprised to find them appearing

again this summer as all the younger galls were missed in the pruning.

Still, pruning out the large galls at this time of year may help as these will be producing the spores this spring to infect the young shoots. The downside to pruning is to provide any control may require removing galls from all the infected trees within several hundred feet (and that may not be enough).

Fungicide sprays may help reduce future infections but are hard to time. Fungicides containing Chlorothalonil or Thiophanate-methyl (and are labelled for treatment of this disease on the host) may be applied just as the flower buds begin to open and repeat at a 10-14 day interval until the weather turns warm and dry. This may mean three or more applications.

Sawyer beetles in burned ponderosa pines

The question was how soon will these borer degrade the wood? Fire-damaged trees can be salvaged and harvested for wood but sometime it's a race between the logger and the sawyer beetles.

Sawyer beetles (*Monochamus*) get their name from the sawing, raspy sound made by the larvae as they chew their way through the wood. It is not as loud as a chain saw but you can sometimes hear them chewing in a forest of standing burned trees.



The larvae make large tunnels through the wood. They also introduce decay fungi into the tree and the combination of the two can degrade the wood. This degradation can have a significant impact on the shelf-life of the wood quality in a standing tree.

Eggs are typically laid on the trunks in diamond-shaped niches during mid-to-late summer. Egg hatch begins within a couple weeks and the young larvae burrow into the inner bark where they feed for a while before burrowing deeper into the sapwood.

They continue to feed during the following spring, pupa in summer and then emerge as adults. Most sawyer beetles have a single generation per year, though in the northern part of the range it may take two years for a generation to be completed.

There are four stages (instars) to the larval phase. The first two, which are the smallest larvae, spend much of

their time in the inner bark. The remaining two, the larger ones, burrow through the wood, degrading it in the process.

The speed of this degradation is determined the size and abundance of the larvae. This means the wood quality in these burned trees may be reduced within a few weeks to a couple of months. Ideally this wood is harvested and processed soon.

Samples received/Site visits

Clay County, Cottonwood dropping pieces

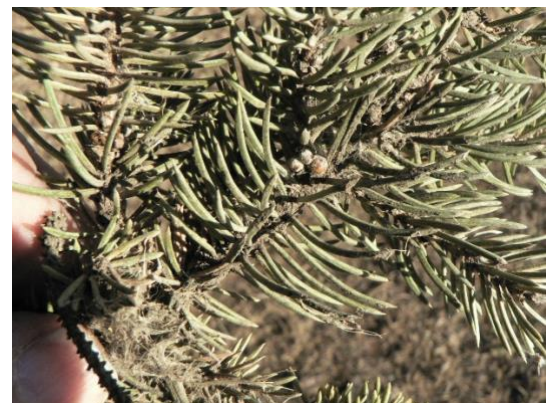
The call was about some large cottonwoods that were dropping fuzzy material. Cottonwoods are also dropping something; bud scales, twigs, branches, occasionally limbs. Having a cottonwood in a year is like having a dog that sheds – you are always raking (combing).



The fuzzy pieces were the puzzling ones and most likely are just finely shredded bark. These often break off from the bark ridges at branch unions or by squirrels scampering through the canopies.

Kingsbury County, Spruce spider mites and bud scales

The call was about old Colorado spruce that were thinning throughout their canopies. The cause of the decline are probably varied, old-age being one, but the trees were also heavily infested with spruce spider mites (*Oligonychus ununguis*) and spruce bud scales (*Physokermes piceae*).



There was the debris from previous spider mite activity – webbing, cast skins – and eggs (spruce spider mite eggs have a single stripe on them). The eggs are just beginning to hatch. It may be slow, since the temperatures are dipping below freezing at night and part of the day, but will continue for the next few weeks. Peak feeding activity for young and adult spruce spider mites is between 200 and 360 GDD in the spring (May) and again between 2,400 and 2,800 GDD in the fall (September).

A dormant oil spray can be done before egg hatch, and may still be effective if done now, but a caution that oil can remove the blue from a blue spruce.

There are numerous miticides that can be used to manage spruce spider mites and we are coming into the time for their application. Some of these can be applied as soil drenches or trunk injections, rather than canopy sprays, which reduces impact to non-target organisms. These miticides are available to commercial applicators and spruce spider mite is one of those pests that spruce owners should rely on commercial applicator for treating rather than do-it-yourself.

The spruce bud scale may also need to be treated. Dense populations of these scales, which resemble small reddish-brown buds, can suck enough sap to cause premature needle loss. Treatment for this insect is in late June, after the eggs hatch and the young crawlers are moving out to their feeding sites.

Young trees infested with mites and scales can be treated in another week or two with a high-pressure stream of water to dislodge the mites and young female scales.

Minnehaha County, bronze birch borer



This is a row of Dakota Pinnacle birch (*Betula platyphylla* 'Fargo') that are infested with bronze birch borer (*Agrilus anxius*). The tell-tale lumpy bark (picture at the top of the next column) is an indicator the larval are tunneling through the wood. The tree calluses around the galleries leaving rolls like a blanket on a bed.

This borer, a close relative to the emerald ash borer, but burrows through birch rather than ash. There is another difference between the two.



Emerald ash borer is native to Asia and is lethal to North American ash, only killing Asian ash when they are stressed. Bronze birch borer is native to North American and are lethal to Asian or European birch, only killing North American birch when they are stressed.

Dakota Pinnacle birch is an Asian birch, and despite being release as borer-tolerant, clearly is not. We rarely see them survive more than a decade before dying from repeated attacks by the bronze birch borer. The only means of ensuring long-term survival of this cultivar is by treatments to control the borer, much as we need to do for ash in areas infested by emerald ash borer.

A simpler solution is to avoid buying an Asian (*Betula platyphylla*) or European (*Betula pendula*) or their crosses. These are the most common introduced species sold but we occasionally see other. The best choices for a white birch that are borer-tolerant are cultivars of paper birch (*Betula papyrifera*) or gray birch (*Betula populifolia*).

Minnehaha County, Pine wilt disease

Scotch pines infected and killed by pine wilt disease last year are easily notice at this time of year. The entire canopies are covered in brown or straw-colored, hanging dead needles.



These trees were infected last spring by sawyer beetles that carried the nematode (pine wood nematode – *Bursaphelenchus xylophilus*) responsible for the disease to new hosts. The sawyer beetles will be emerging from these dead pines in search of new hosts. The best means of slowing the spread of pine wilt disease is to remove these dead, infected trees and destroy the wood

before April 1. This is in plenty of time to prevent the adult beetle from emerging and carrying the disease. The infested trees must be cut flush with the ground as even a 6 inch high stump can harbor the nematode and beetle.

Minnehaha County, Zimmerman pine moth in spruce

Zimmerman pine moth is a major pest of Austrian and ponderosa pines throughout the region. The appearance of bubble gum globs of pitch at branch whorls, broken branches, and deformed tops are common symptoms of infested trees.

The moth larvae burrow into the trunks and branches causing this damage. The larvae can also bore into spruce. There is a difference in the damage, however, as spruce tops are killed rather than branches. These usually occur in spruces about six to 15 feet tall. Dead tops in taller spruce are usually from other agents.

This call was about a young spruce with a dead top. The tree was felled and Zimmerman pine moth damage was evident at the top.



The cream-white resin glob are produced by the tree to pitch out the larvae as they burrow into the tree. The globs from last year are still soft and gummy and if pulled apart will reveal feeding holes created by the larvae.



The tiny larvae on pines and spruce are now in webbed nests beneath bark scales. They will emerge from this

webbing in April and move into the branch whorls at the trunks of pine or the tops of spruces to burrow into the wood. They will spend the summer tunneling through the inner bark and wood, killing the tree top (spruce) or weakening the branch connection (pine) causing the branch to break.



The most common treatment is an application of an insecticide containing Permethrin as the active ingredient (and labeled for control of Zimmerman pine moth on the host) applied to the trunk and branch union next week. The larvae start moving at about 100 GDD and a timely application will kill the larvae as they crawl along the bark. Spruce adjacent to infested trees need only their tops treated, usually the top four feet of an 15-foot tall tree but the pesticide must penetrate through the needles and reach the bark.