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

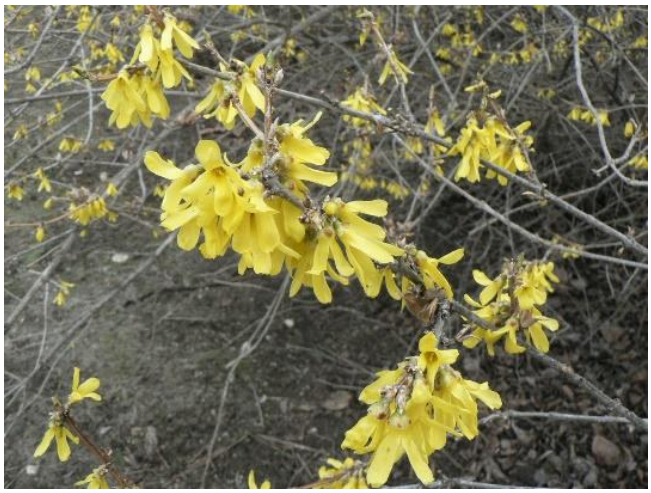
The growing degree days (GDD-base 50) slightly increased from last week as the weather was cool and wet. There are still patches of snow across the West River rangelands and beneath the forests of the Black Hills.

And then there is Aberdeen. It may be going into another Ice Age. The temperatures are staying cold up there in the South Dakota equivalent of the tundra.

The current GDD for communities around the state are as follows:

Aberdeen	19
Beresford	165
Chamberlain	145
Rapid City	127
Sioux Falls	145

The forsythias (*Forsythia*) are in bloom throughout the southern half of the state, along or south of Highway 14. This shrub typically begins to flower about 90 to 100 GDD.



Corneliancherry (*Cornus mas*) is supposed to bloom at 100 GDD but they decided to sleep in a little longer this year. The flower buds are still tight on the shrubs at McCrory Gardens in Brookings.

We are also seeing Norway maple (*Acer plantanoides*) start flowering at 150 GDD. The flowers are one of the few maples that have colorful flowers. The yellow blooms are a welcome sign of spring.

Treatments to Begin Now or Soon

Apple scab

The apples and crabapples buds are beginning to swell in the southern half of the state. The first application of fungicide should be applied as the leaf buds are beginning to swell.

The most common fungicides used for preventative treatments of apple scab have Captan or Myclobutanil 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 seven 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.

The crabapples in the Vermillion area have leaves large enough that the second application will need to be applied soon. The same trees in Aberdeen will not have developed enough for their first application for another week.

Spruce needleminer

The larvae are beginning to move from their webbed nest to resume feeding. Right now, a spray of high-pressure water 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

More of the emerald ash borer larvae in their winter chambers beneath the bark are transiting into prepupae. The prepupae look like emerald ash borer larvae but are a little stouter and are about 5/8-inch long.

This stage will quickly past into the pupal stage during early May. The pupal stage lasts for a few weeks before becoming adults. Once adults, the insects move to the bark where they chew a D-shaped hole to allow them to exit.

The development of the emerald ash borer is on track for the first adults to be flying in Sioux Falls just after Memorial Day. I expect emergence to begin a little earlier in the Dakota Dunes area.

Soil temperatures are now acceptable for bare-root planting

Despite the slow warm up, the soil temperatures at four inches beneath the ground are in the high 40s and low 50s across most of the state. The threshold for fine root development of seedling trees is 45ºF so we are about to enter the planting season for bare-root conservation trees.

The minimum threshold for planting is 45ºF but the optimum soil temperatures for root growth are in the 60s. Fortunately we usually have those temperatures by mid-May so the roots of seedlings planted now will quickly expand out in the surrounding soil.

A few thoughts on planting bare-root trees this spring. Think of them as packaged fish from the store, a perishable product with a short shelf life. Once the trees are at the site, they should be planted quickly – on the same day. The cooler at the district shops where the trees are kept at cold temperatures (mid 30s F) and high humidity (above 90%) can maintain trees for a month or more this spring.

The same is not true for the same trees piled in the shade of a pole barn at the farm. The temperatures are too high and the humidity too low for storage for more than a day or two.

Ideally the planting is done under cool, moist, cloudy conditions. The worst weather for the planter is often the best weather for the plant.

But even cool, moist, cloudy weather can dry out exposed roots so limit the exposure of seedling roots to the air. There can be about 50% mortality (loss half the planting) if the seedlings are exposed to the air for more than 15 minutes during rainy, cool (less than 55ºF) weather, two minutes if cloudy.

If the weather is hot (70ºF) and sunny, the 50% threshold for exposure drops to 30 seconds. Keep the trees moist and covered during the planting!

The difference between Meyer spruce and Colorado spruce

I run into an occasional problem when landowners thought they planted Meyer spruce (*Picea meyeri*) and the trees are Colorado spruce (*Picea pungens*). Sometimes they know they planted both but are unsure which tree in the yard or belt is which.

Meyer spruce has yellow brown to cinnamon brown shoots that are covered in fine hairs (a light fuzz). The needles are 1/2 to 3/4 inch long and have a blunt tip. The cones are cylindrical oblong, 2 to 3 inches long with a rounded margin to the scales.

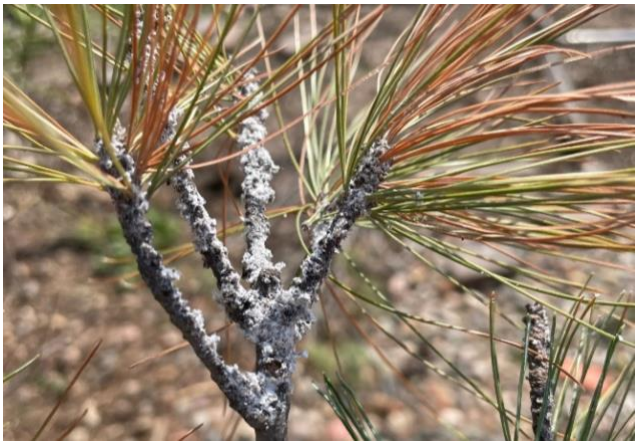
Colorado spruce has light yellow brown to orange shoots that do not have hairs. The needles are about 1 inch long and have a sharp point. The cones are the same shape as Meyer spruce but are 2 to 4 inches long and the scales have a notch in the center of the margin.

E-samples

Pine bark adelgid

This is a picture sent in of the pine bark adelgid (*Pineus strobi*). They are an occasional problem on two-needled pines such as Austrian and Scots pine as well as the five-needled pines, eastern white pine and limber pine. I do not see them often on ponderosa pines.

The aphid-like insects have a white, woolly coating so the colonies look like patches of fuzz along shoots and on the bark of the trunks. They suck the sap from the shoots and trunks.



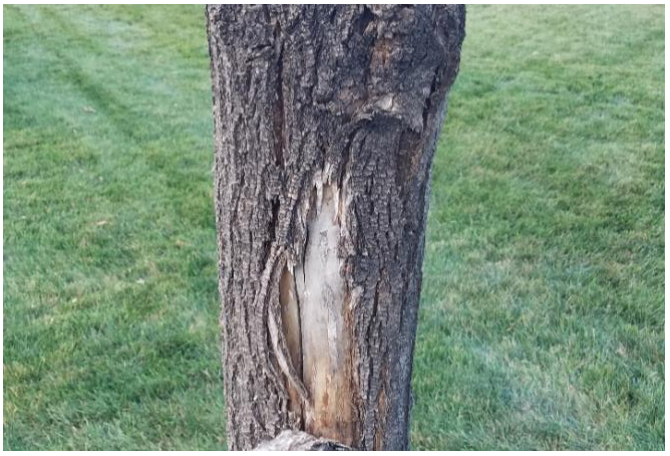
The injury is usually minor, but I have seen trees killed by a heavy infestation. They also are very host specific. I have seen groups of pines where only one or two of the trees become infested and the neighboring pines remain free of these insects for decades.

Treatment of these insects on small trees is applying a dormant oil early in the spring before bud break to smother the adults before they lay eggs (we are rapidly ending this window). Superior oil or insecticidal soap can be applied in May to kill the young crawlers that hatch.

Sunscald on white ash

We usually do not think about sunscald as a problem on ash. The bark roughens quickly in young trees and provides enough insulation that rapid temperatures do not occur in the wood.

Sunscald is an environmental disorder caused by the winter sun warming the bark on the south or southwest side of the trunk. The warmth increases susceptibility to cold. When the sun sets the bark temperature drops to that of the surrounding air and the tissue dies.



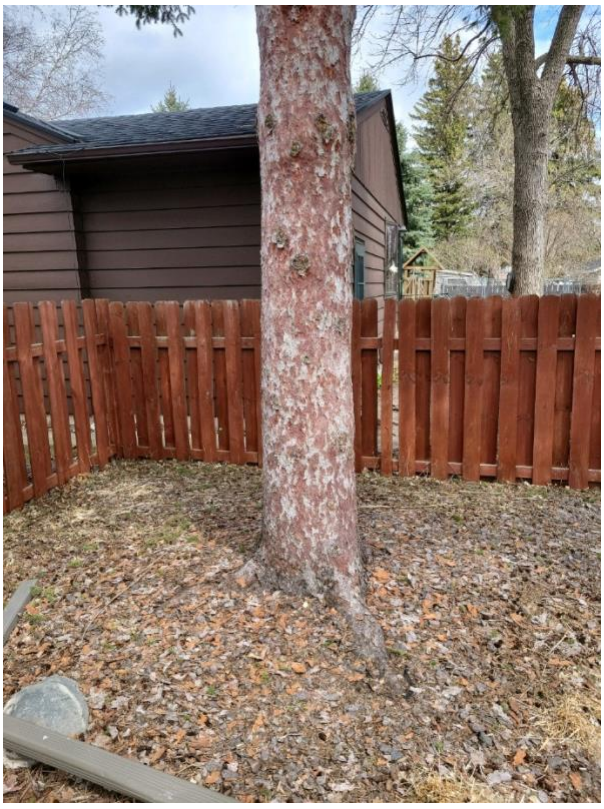
The problem is common with thin, smooth barked trees so green ash is rarely affected. The same is not true of white ash and its many cultivars. The purple-leaf

cultivars have smooth, thin bark while they are young and are susceptible to winter sunscald. These trees are usually placed in a tube for the first few winters to reduce this problem.

Unfortunately, the damage is done already and as the dead bark peels away there will be a long, vertical scar. Not only will the scar be unsightly and an entranceway for decay, but the scar will also interfere with the uptake of any insecticide injected into the trunk for emerald ash borer control. The tree should be removed, and another tree planted (but not an ash).

White spruce bark flaking off

This is normal for a mature white spruce (*Picea glauca*) and its variety, the Black Hills spruce. The bark is thin and scaley as the tree matures and it flakes off revealing a lighter gray layer of bark. If squirrels are scampering up and down the tree, they easily dislodge the scaley bark.

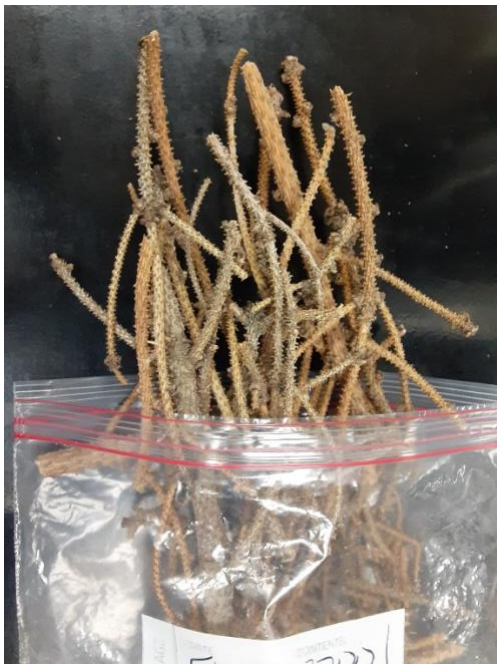


Samples received/Site visits

A reminder on submitting samples

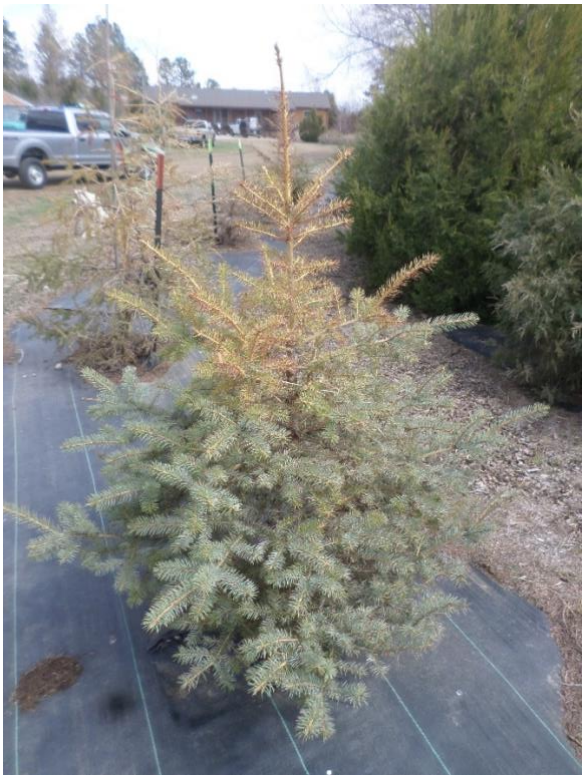
We will not identify the tree owner or location, but it is a frequent problem with samples. This is a bag of dead twigs that was mailed to the lab at SDSU. No information other than the whole tree looked like this.

As the saying goes, “Dead men tell no tales.” The same is true for trees. Dead twigs do not provide any clues to the cause. Samples need to include dying tissue so we can determine the causal agents.



Corson County, Dying blue spruce

The trees had had some impressive growth for the first few years but then almost stopped. This was easily visible in the abrupt reduction in shoot growth and diameter growth. The roots were dry with only a few white root tips. The other clue – the soil was almost powdery it was so dry.

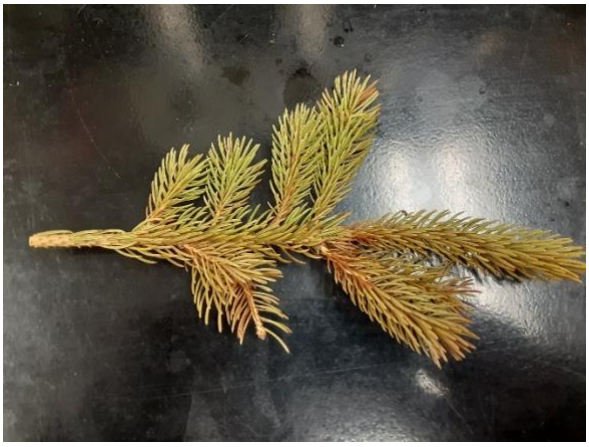


Much of the state, including Corson County, experienced drought last year (and for many areas, the year before). While Colorado spruce is frequently listed as drought tolerant, what is meant by that is Colorado spruce can survive in regions with 16 inches of annual precipitation.

Corson County's mean annual precipitation for the past decade was 17.5 inches – acceptable for Colorado spruce. But the county received only 13 inches in 2020, 15 inches in 2021, and 12 inches in 2022. Combined with the high summer temperatures, this moisture deficit explains why the young Colorado spruce are dying in the region and the mature trees are suffering decline - usually the loss of their lower branches or the top – they need a drink!

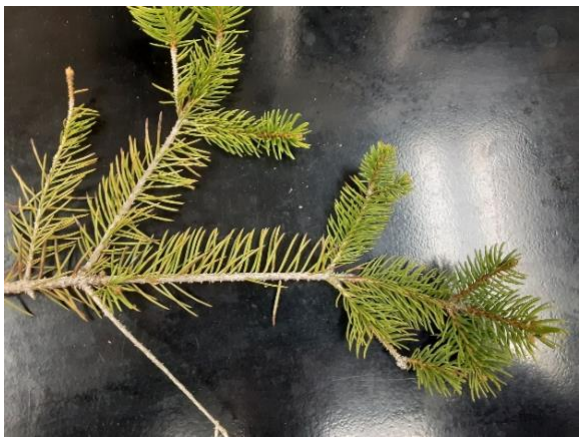
Kingsbury County, Declining spruce

The sample that was submitted did not present any signs or symptoms associated with a stressor. The needles and shoot on the sample were normal. I will have to follow up with a visit to see what the concern might be.



Minnehaha County, Stigmina on Colorado spruce

The sample showed a reduction in growth last year which is an indication of stress that occurred after the buds were formed in midsummer 2021. The stress could be anything though drought is a possibility.



The tree was also infested with stigmina needlecast caused by the pathogen *Stigmina lauti*. This is a fungal disease of the two-year-old needles. It is a common disease of Colorado spruce. We rarely see the disease on other spruce species.

The disease is similar in appearance to another needlecast disease, Rhizosphaera, and the two are often mistaken. An easy separation is the black sporodochia that line the needles which have a thready or spider-like appearance whereas the black sporodochia have a smooth dot-like appearance for Rhizosphaera.

The treatment for stigminia is an application of a labeled fungicide containing Chlorothalonil as the active ingredient made when the new needles have half expanded and then repeated every two weeks until the weather turns dry, usually mid-June. The entire tree should be treated.

Rhizosphaera treatments use the same fungicide, and the first treatment is at the same time. But Rhizosphaera needlecast only requires two treatments (two weeks apart) and only the lower one-third of the tree needs to be treated.