



Tree Pest Alert



April 21

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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

The cold weather persisted through last week with brief snow flurries common in late afternoons and evening. The growing degree days (GDD) base 50 is about 95 for the Sioux Falls area and only 50 for Rapid City. However, this is close to where we were last year (and remember we had a few May flurries!).



Cherries, as with many stone fruits, are among our earliest blooming trees. This is a picture of a purpleleaf sandcherry (*Prunus x cistena*) in full bloom. I have also seen apricots and a few peach trees blooming and if we have a hard frost in the next few days, it may mean another year of poor apricot and peach production in South Dakota.

Treatments to Begin Now

Diplodia tip blight

Diplodia tip blight (*Diplodia pinea*) is one of the most common disfiguring diseases of 2- and 3-needled pines in South Dakota. It is a common disease on Austrian (*Pinus nigra*) and ponderosa (*P. ponderosa*) pines.

The most common means of managing the disease is with fungicides. The treatment are foliage applications with a fungicide containing Thiophanate-methyl, Propiconazole, or Chlorothalonil (and labeled for treatment of this disease). The first application is applied just before the bud sheaths have opened.

Timing is critical. Once the bud sheaths have opened and the candle begins to form, it is a little late to start the first application and this is the one that provides most of the protection. A second application is made about two weeks later.

Spruce needleminer

The spruce needleminer (*Endothenia albolineana*) larvae are moving from their webbed nest and resuming their feeding. This is a picture of a larva in its nest of webbed needles. A spray of high-pressure water right now will knock them off the tree but be sure to rake up the fallen needles and larvae after the water spray.



The other approach is pesticide treatments, most commonly insecticides labelled for the needleminer and containing Carbaryl, Malathion, or Spinosad as the active ingredient. A spray into the canopy will kill the larvae as they begin moving out onto the foliage. Remember to spray inside the canopy, not just the exterior. Actually “power washing” the lower canopy of the spruce is a good way of cleaning off all the dead and dying needles as well as some insects. However, be aware the tree will appear a little open afterwards!

Tent caterpillars

Tent caterpillar nests are expanding and becoming more noticeable as hatch continues. Tent caterpillars begin to hatch and start spinning webs at about 95 GDD and we are or above this threshold in the southeastern part of the state.



We have three different species of tent caterpillar in South Dakota: forest tent, eastern tent, and western tent. They have similar life cycles and treatments are the same so identification is not critical to management.

Regardless of which “worm” is in a tree, now is the best time for treatment as the insects are venturing outside of their nests and beginning to feed on foliage. The caterpillars are less than 1/4-inch long, so it does not take a lot of insecticide to kill them right now. There are many insecticides labelled for their control.

But the simplest and best treatment now is to tear open the nests. The nests help protect the young larvae from the environment and their natural enemies. Kicking them out the house now is certain death. Just tear the nests open. Do not burn the nests. While that is entertaining, it can lead to ‘fire blight’ on much of the tree!

Zimmerman pine moth

See information under Lyman County in the **Samples Received/Site Visit** section of this *Pest Alert*.

Timely Topics

Emerald ash borer update

We are continuing to monitor insect development this spring. While there are a few larvae still in the J-shaped stage (which they entered last fall), most are now in the prepupal and pupal stage.



This means the insects are no longer curled and now are straight but shrunken. They will soon develop into pupae and a few are already beginning this process. This stage begins as the insect takes a white, cylindrical shape, nondescript form that gradually takes the appearance and form of an adult.

This process will take several weeks. Once the insect transforms into an adult, it may remain just beneath the bark for a few days to a week or more before chewing a D-shaped hole and emerging.

Based on the current development of the insect and the long-range weather forecast, emergence is expected to begin around June 1 in Sioux Falls.

A reminder to sweat bare-root hackberries and oaks

Soil temperatures are in the high 40s to near 60°F in the upper 4-inches for almost all the state. This is a great time to begin bare-root tree planting. The soils are warm enough to promote fast root growth, yet the air temperatures are still cool.

The cool air temperatures will help slow leaf expansion and transpiration until the roots are able to replenish this water loss. A little more rain will help as well as root development depends on two basic ingredients, warm soils and moisture. It will probably be necessary to water newly planted seedling going into windbreaks this year. Every seedling should receive about a pint of water at planting.

But some plants need a little more than water. They need to work up a sweat first! Two tree species commonly planted in South Dakota – hackberry (*Celtis occidentalis*) and bur oak (*Quercus macrocarpa*) – will either not break bud or do so very slowly if not sweated before planting.

Sweating is only necessary for bare-root trees that were in cold storage for the winter. Since most bare-root stock is harvested in the fall and held in coolers at near freezing temperatures for the winter, assume that any bare-root bur oak or hackberry will need to be sweated.

Sweating is a simple process. The bare-root tree seedlings are laid on a warm surface (soil or flooring) and in a building. The air temperatures should be between 45 to 70°F.

Cover the roots with moist material - wet straw or wood chips – water, and then cover the plants, roots, and tops with plastic. Be sure this “mini-greenhouse” is in shade and not exposed to direct sunlight as the temperatures will become too high. The waxed boxes the trees come in from the Big Sioux Nursery work well for sweating.



After three days to a week, the buds on the seedlings will begin to expand. Once this occurs, take the seedlings and plant them as soon as possible. Since the seedlings are going to leaf out quickly, planting needs to be done after hard frosts are common (which can damage the tender leaves).

This means the ideal time to begin sweating bare-roots seedlings in much of the state is about mid-May. The danger of hard frosts will be over by the time the buds are expanding.

E-samples

Frost injury on new foliage

We have seen enough brief periods of sunny, warm weather than some trees have been ‘fooled’ into leafing out a little too early. Peach trees are very gullible and never seem to learn that warm spring weather is quickly following by freezing winter-like weather.



This poor peach leafed out in Yankton and was injured by the hard frost. The most common symptoms of frost injury are shriveling and blackening of the leaf margins. Severely damaged leaves will begin falling in a week or two. Fortunately, the trees will produce new leaves this spring.

Pine needle scale

The flocking on pine trees, the small white bumps on the needles, are an insect known as the pine needle scale (*Chionaspis pinifoliae*) as can be seen in this recently sent picture. Pine needle scale is an armored scale, one that forms a hard shell and armored scales do not produce honeydew, the sticky material excreted by aphids and soft scales.



Pine needle scale is very common insect on Austrian and mugo pines (pictured here). Right now, you can find eggs beneath the teardrop shaped scales and these will hatch about the time common lilacs are in bloom, late May or early June. Managing this insect is difficult as most pesticides do a better job at killing the predators

and parasites that feed on the scale than the scales themselves. Only use pesticides containing Acephate or Carbaryl if the scales are so thick, they are killing the tree (and remember most of the scales you find on the needles are the old, dead scales. These you can scrape off with your fingernails. The new scales will stick).

You will have more effective control and less of an impact on their natural enemies if you use insecticidal soap or horticultural oil but remember the treatment window is still probably several weeks away. The newly hatched crawlers are the life stage most vulnerable to treatments.

Samples received/Site visits

Davison County, Pine wilt disease

This is a sample from a dying Scotch pine. While a Scotch pine dying of pine wilt disease is not unusual, the sample did not show blue-stain but still contain the nematodes. That is unusual.



Blue-stain fungi are Ascomycota species found in two genera, *Ophiosoma* and *Grosmannia*. They decompose resins while growing the resin ducts of conifers. Blue-stain fungi get their name from the characteristic blue coloration of the infected wood.

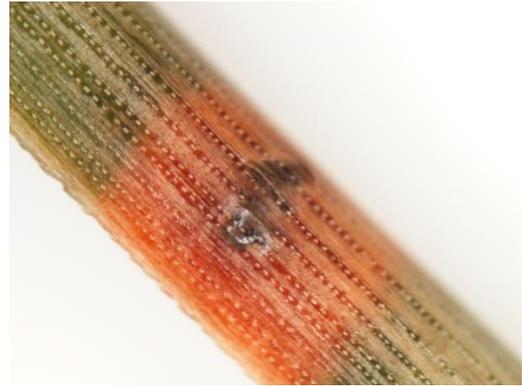
The spores from the blue-stain fungi are carried from tree to tree by sawyer beetles. The pinewood nematode also hitches a ride on the beetles so both organisms are carried to a new host at the same time. The blue-stain fungi also serve as a food source for the nematode as well as aid in reducing the pine tree defenses to the invasion.

Usually, we find blue-stain in the positive samples for the nematode and the nematode is absent from samples that are not stained. However, staining does take time to develop so the fungus can be present without the discoloration and the nematode can be present in sections of wood without the blue stain.

Lake County, Dothistroma needle blight

This is a follow up to a site visit last week of some mature Austrian pines. The concern was pine wilt disease, but the trees were not presenting the typical symptoms associated with this nematode disease.

The shoot tips were also healthy which tends to rule out Diplodia tip blight. Samples were bought back, and the trees are infected with a common foliage disease *Dothistroma* needle blight (*Dothistroma pini*). This fungal pathogen is common on Austrian, mugo, and ponderosa pines.



The early needle symptoms are resin-soaked bands and yellow spots developing in the fall. These bands turn reddish brown and the needle distal to the bands turns yellow and dies. The base of the infected needle may remain green.

The disease can be managed with fungicide containing copper or Mancozeb applied at budbreak (coming soon) and a second application made about a month later when the new needles have fully expanded.

Lincoln County, Diplodia tip blight

This tree is presenting the classic symptoms of Diplodia tip blight, stunted needles on dead shoot tips. These symptomatic shoots may be scattered throughout the canopy, though are usually more concentrated in the lower one-third. In some instances, the symptoms may be confined to a single branch.



The disease is common on mature Austrian and ponderosa trees throughout the state. Drought stress and mechanical damage (such as hail) tend to increase the appearance of the disease on a tree.

Treatments are available to manage, but not cure, the disease. These are covered in an earlier section of this *Pest Alert*.

Lyman County, Zimmerman pine moth

We are seeing more damage by this insect throughout the state. If you find pitch masses along the trunk near where branches are attached, the problem is most likely Zimmerman pine moth. These infested trees often suffer from branch breakage or broken tops so misshapen trees are common.



The best means of treating this problem is an application of an insecticide labelled for Zimmerman pine moth and containing Bifenthrin or Permethrin at the end of April, to kill overwintering larvae before they burrow into the tree and repeat the treatment in mid-August to kill the adults as they lay eggs. There are three species of Zimmerman pine moth found in the state and their flight periods differ. However, bark treatments are very persistent and generally a treatment made at the end of April will kill egg-laying adults and newly hatched larvae regardless of when they occur.