

Pest Update (June 26, 2019)

Vol. 17, no. 19

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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, instead 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 particular 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

We are right where we should be for plant development. The smokebushes (*Cotinus*) are starting their “smoky” display of blooms in Brookings. It is still wet across much of the state with more rain predicted in the coming week. However, there are some dry spots beginning to appear in the southcentral part of the state.

Timely Topics

“Winter” injury on trees

Our winter was long and extended into what should have been spring. We did experience a few short bursts of spring with temperatures reaching into the 70s and even 80s throughout the state but then the two cold snaps, early and mid-May, saw night temperatures drop to near or below freezing.



We could have done without either the warm-up or cool down as the combination of the two resulted in some unexpected damage, with ash, hackberry and smokebush dieback being reported throughout the state. I had numerous calls, emails and texts describing or sending pictures of these trees either leafless or only scattered patches of a canopy in leaf. Usually if you pulled the bark away, it was still green beneath which showed life.

I recommended that people wait until about now to decide whether to remove the plant and by late June many ashes, hackberries and smokebushes were recovering though some are just leafing out now.

The problem is these trees decided to start leafing out just at the wrong time, but they could not help it, it's in their genes. Leaf out is largely controlled by temperature. Weather becomes warm, buds open. However, it's a little more complicated than that with a prerequisite of a period of cold weather (temperatures in the 30s °F) for a certain number of days preceding a period of warm weather to trigger growth.

In addition, many tree species also have a photoperiod requirement, meaning they are not going to leaf out until they have gone through a winter, the air is warm, and the days have lengthened to a specific duration. Using these cues – cold, warm

and light - keeps a tree from just breaking bud because we had a few warm days in February.

The problem we had experience this spring was we had a cold winter (check), the days were getting longer (check again) and we had some warm weather (grow!) but then we had a cold snap. What tree species were affected depended upon where they were in the dormancy process. Oaks tend to wait until late May to begin to grow while other trees, such as basswood, leaf out early. It seems that the trees most affected by the cold snap were the in-between trees, ash and hackberry, that were just ready to break bud when the cold snaps appeared.

Tree tubes and winter hardiness

Tree tubes are a benefit to tree planting and have become a popular fixture in many new belts. The original objective of these tubes was to reduce deer browse and at this they excel, at least until the trees are above the tubes. And people noticed that that tubed trees often quickly grew out above the tubes.



The warmer, humid air combined with scattering of light wavelengths in translucent tubes (interestingly tree tubes are available to allow for certain wavelengths to penetrate) resulted in a tree that put all its resources in one objective – grow up. Trees in tubes achieve faster vertical growth than their unsheltered counterparts, sometimes twice the rate, but this growth comes at a cost. The same trees have a smaller diameter (caliper) compared to unsheltered trees and less root mass.

Tree tubes did not result in more biomass, just a reallocation of the biomass. If the tubes were removed too soon – just as the trees started to peek out of the top – the trees were prone to falling over or snapping near the base. Allowing the tree to grow for a few more years in the tubes, or use vented tubes, reduces this problem.

However, a problem few consider is the effect a “mini-greenhouse” may have in a tree shutting down for winter. I remember seeing winterkill in cottonwood, that’s not a common sight, growing in sealed tubes back in the early 90s. The trees sometimes still had green leaves on them into October or even November, but the tender growth was killed back by the cold. We found that if we raised the tubes off the ground in August to allow air to flow up through the tubes the trees started shutting down sooner and we had less problem with winter injury.

Vented tubes are another way around this problem, but the other key is the tree in the tube. Temperate deciduous trees mostly fit into two different growth patterns, performed and sustained. Tree species with performed (fixed) growth have all their leaf and shoot primordia already formed in the buds and the growth simply telescopes out over about a 30-day period in spring. Once this is completed, regardless of weather conditions, the tree is done with shoot expansion for the year and will wait till the following year to resume growth. Tree species with preformed growth include ash, hickory, sugar maple and oak (as well as most conifers). This is also referred to as determinate growth

Sustained growth trees, indeterminate growth, do not have all their primordia preformed, just some, with new primordia continuing to form through the season. Hence growth continues into summer if conditions are favorable. These trees include birch, cottonwood, elm, hackberry, honeylocust, linden, poplar, silver maple, and willow.

You rarely see winter injury problems with tree tubes and preformed growth species. The problem is mostly with the sustained growth species and these are the one that extending tender growth in the tubes until late autumn are a concern.

How can you tell if the hole is from the emerald ash borer?



I had a tree company tell me every time they find holes in the trunk of an ash; they assume it's from the emerald ash borer and tell the tree owners they must inject the tree now to save it. The emerald ash borer leaves a characteristic D-shaped hole as the adult chews its way out of the tree. It's the only insect to make a D-shape hole in an ash. The problem is many people are unfamiliar with the alphabet and assume any hole in an ash tree must be from this borer.

So, let's make it simple. If you are standing in front of the ash tree, the tree is still alive, and you can see holes, they are probably NOT due to the emerald ash borer. The only time you find emergence holes from the emerald ash borer on the trunk at about eye-level is when the tree is either dead or very near dead (as the above picture). An infested ash that is just presenting a little canopy decline will not have holes near the ground but up the canopies.



E-samples



Cedar-hawthorn rust (*Gymnosporangium globosum*) symptoms are appearing on hawthorns in the state. The symptoms begin as small yellow spots that enlarge and turn orange. The center of the orange lesions will have tiny black dots which are the fruiting bodies for the fungus. The long fungal tubes, the aecia, appear on the underside of the leaf beneath the orange lesions. The disease is not fatal to the hawthorn but can result in so much defoliation that you wish the tree would just die and be done with it. The two hawthorns most commonly seen with this disease in South Dakota are the Arnold hawthorn (*Crataegus. arnoldiana*) and downy hawthorn (*C. mollis*).

This rust disease alternates between hawthorn and junipers (cedars), with eastern redcedar and Rocky Mountain juniper being the most common alternate hosts.



Hawthorn leaf blight (*Diplocarpon mespili*), also known as Entomosporium leaf spot, is appearing on the few English hawthorns (*Crataegus oxyacantha*) found in the state. The cultivar Paul's Scarlet (*C. oxyacantha* 'Pauli') is very susceptible to this disease and I rarely saw a hawthorn not affected by this disease back in Michigan and New England. Many English hawthorn were almost completely defoliated by this pathogen by August.

We do not see much of the disease in South Dakota because we do not have many English hawthorn, winter kills them before the disease. Fortunately, our commonly planted hawthorns, cockspur (*C. crus-galli*) and the popular cultivars of *C. x mordenensis*, Toba and Snowbird, are resistant to the disease.



A picture of the **redheaded ash borer** (*Neoclytus acuminatus*) was submitted to the South Dakota Department of Agriculture emerald ash borer website. The redheaded ash borer adult does not look anything like the emerald ash borer though their larvae and their galleries are close enough in appearance to cause some confusion.

The redhead ash borer is about 1/2-inch long, about the same length as the emerald ash borer but the head and thorax are red rather than emerald green. The wing covers (elytra) have four transverse bands of fine yellow

hairs and the legs are long and reddish. The redheaded ash borer also has long antennae, about half the length of the body.

The redheaded ash borer is also not too particular about what it will attack. While it typically infests dead or dying trees, it is not merely restricted to ash. This insect and its close relative, the banded ash borer, will attack ash, elm, hickory, and walnut.



Spindle gall on cherry. These long, slender, almost finger-like projections, on the leaves are galls formed by small (microscopic) eriophyid mites (*Eriophyes*). The galls are yellowish-green to almost red and are hollow. They tend to be clustered at the base of the leaf blade and near the midrib. The mite feeding on the underside of the leaves cause plant tissue to form these tubes on the upper surface. The pouches provide a nice home for the mites – they live in them all summer – and are not a problem for tree.

Samples received/site visits

Brookings County

What is wrong with this spruce?



It seems every needle was covered with the fruiting bodies of *Stigmina* needlecast (*Stigmina lautii*). Symptoms are like those for *Rhizosphaera* needlecast, purpling and loss of older needles, usually beginning with the lower branches. The biggest difference is the small dark fruiting

bodies on the needles have spider-like margins while the margins for *Rhizosphaera* are smooth. The treatment for this needlecast disease is to apply a fungicide labelled for needlecast and containing chlorothalonil when the new growth begins to expand then every 10-days through August. Treat the entire canopy, not just the lower branches.



Corson County

Why are these pines having their needles turn color?

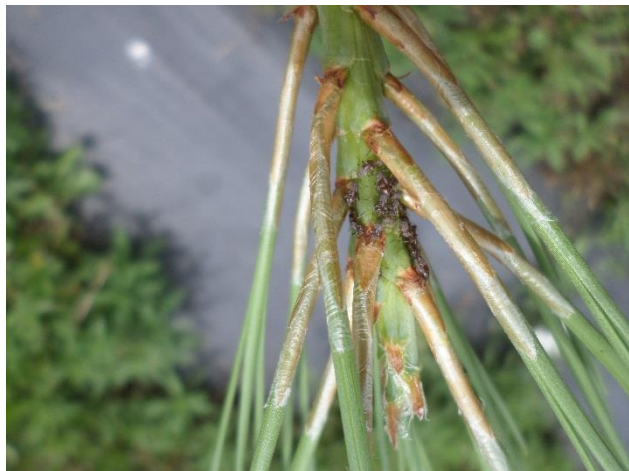
This one required a site visit and it was a very useful site visit as the problem would have been easily missed with just a few needles mailed (or photographed). I noticed the trees had a pale green color and some of the new shoots were distorted. These are symptoms associated with a wide range of possible agents.



However, when I got closer, I noticed ants, lots of ants, on each of the expanding shoot tips. What are ants doing on the shoots? Protecting their herd, herds of aphids.

These were the giant conifer aphid (*Cinara*), large (more than 1/8-inch long), soft-bodied insects that feed in groups. These are sapsucking insects and heavy infestations can result in yellowing of the foliage and reduced shoot growth. They are found on the newest growth as this tissue has the highest nutrient content and since they are after tasty plants, well-maintained belts are more likely to see bigger problems than highly stressed trees.

Aphids secrete a sticky material called honeydew. Many insects feed on the honeydew and ants will actually “milk” aphids for the material as well as protect them from other insects.



The natural enemies, lady beetles and lacewings, usually provide enough control of the populations but heavily infested trees can be sprayed with an insecticide labelled for control of aphids and containing the active ingredient carbaryl or acephate. Acephate is a systemic insecticide and is very effective on sucking insects.

Miner County

What is killing my honeylocust?

This was an interesting stop as there were two unrelated problems with these trees. First, three 12-foot tall honeylocust had died quite quickly. The trees had normal shoot growth but “just died”. The concern was whether they would lose the last one. The four trees had been planted by a landscape service about 6 years ago.



When a tree suddenly dies, the cause is often below ground and a little digging reveal a problem – the wire baskets were still on, not just the bottom of the basket, the entire wire basket. While leaving the basket on is not quite the concern we thought back in the

80s since the wire rarely girdles a root. Still leaving the entire basket on can result in a distorted and impaired root system.



The smaller honeylocust on the property were also being defoliated by chafer beetles. This is a group of insects that spend much of their lives as C-shaped grubs in the soil feeding on roots. The adults are leaf feeders and generally feed on the soft tissue between the veins so when they are done with a leaf all that is left are the “bones”, the veins.

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This publication made possible through a grant from the USDA Forest Service.