

Pest Update (June 17, 2015)

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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. **Walnut samples may not be sent from any location – please provide a picture!**

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

We are still ahead of last year in plant development. The arrowwood viburnums are in full bloom in Brookings along with the very fragrant mockoranges (picture). The wet weather we received during May, combined with the warmer temperatures, is resulting in a speed up in plant growth.

Pest treatments to be done now



Spruce bud scale crawlers will be hatching soon. The scale resembles a small round, reddish bud and they can be found on near the tips of the branches where the side branches attach to the shoot. They, and their mobile young called crawlers, suck the sap from the shoots resulting in dieback and decline of the lower branches. Since these are soft scales they produce honeydew that results in a black, sooty appearance to the needles and twigs.

The scales have one generation per year and the crawlers' hatch about the time littleleaf lindens are in bloom, meaning very soon. The time to control them is during the crawler stage. The best treatments are insecticides containing carbaryl as the active ingredient and applied on the foliage and shoots near the tips. Products containing imidacloprid can be effective as a soil drench but need to be applied in the fall for control the following year.



We are also coming up to the time to treat for spruce needleminer. The needleminer (*Endothenia albolineana*) gets its name from it's the fact that the young larvae are so tiny they can live inside the needle, mining it as they feed. They eventually outgrow their home and then create a nest of webbed, detached needles to live in. The larvae usually feed on the lower, exterior needles, almost stripping the tips of needles but they

can also be found in the interior of the tree and even the tops of young trees. The adults are small moths that will begin flying soon and depositing eggs on the needles. Management is usually with a pesticide containing carbaryl as the

active ingredient and labeled for this use. The trees should be treated next week as the adults begin to take flight.

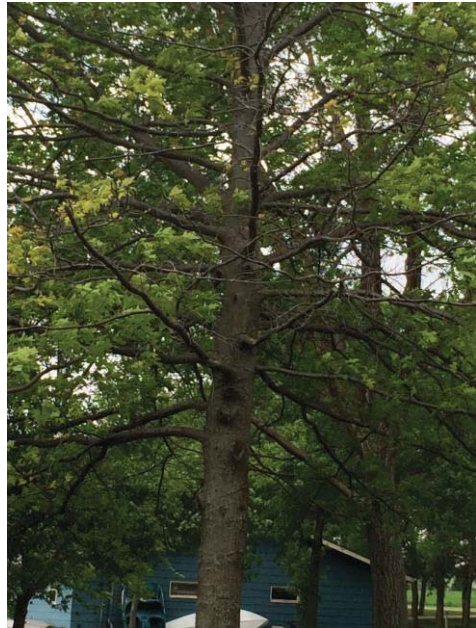
Timely topics

Why are my tree's leaves turning yellow?



Chlorosis, a condition where the leaf veins remain green but the surrounding foliage turns pale green or yellow, is a common occurrence on certain tree species in South Dakota. The ones that we typically see these symptoms appearing are Amur maple, eastern pin oak, red maple, red oak, river birch, and silver maple. The reason for this chlorosis is not a fungus or other pathogen, but the lack of iron (FE) or manganese (MN) in the foliage. The lack

of FE or MN is not due to the soils containing inadequate amounts of these microelements, but our alkaline soils rendering these elements into forms not available to the tree. Any soil with a pH greater than 7.2, and that includes many of the soils in our communities, can result in these aforementioned trees turning almost a golden yellow by mid-summer. Severely affected leaves can also begin to fall prematurely leaving the tree bare by autumn. Some trees species, red maples and eastern pin oaks, may dieback if afflicted with this disorder every year.



However, not all yellow leaves are due to a microelement deficiency. Trees may have yellowing leaves due to drought, flooding, aphids or any number of other stresses. Some tree cultivars such as the 'Princeton Gold' Norway maple (picture left) produce yellow leaves, hence it is important to rule out other reasons for the yellowing foliage before assuming it's the lack of FE or MN. The simplest check is 1) the foliage is truly chlorotic, the foliage is yellow but the veins

are green or a light green, 2) the species is one of the one identified as being susceptible to microelement deficiency and 3) the soil is alkaline. If these three

conditions are met, the most likely the tree is not able to obtain enough FE or MN.

Since the problem is not the lack of FE or MN, merely adding these microelements as a fertilizer to the soil will usually not solve the problem. Pounding nails into the trunks is not helpful as this is a poor way of getting iron in the tree and most nails do not contain a lot of extractable iron. The solution is either spray the foliage with a solution containing FE or MN, implanting FE or MN capsules into the trunk, fertilizing with a chelated form of FE or MN or reducing the soil pH so the microelements already in the soil become available. All these treatments work best if applied early in the growing season, as the leaves are expanding.

Spraying the foliage with a ferrous or manganese sulfate will provide a quick “green up” of the foliage but only if the application is made just after the foliage fully expands. If done late in the season the leaves may not color well. The application is also only a temporary fix and often the leaves or newer leaves will become yellow later in the summer. Misapplication of these sprays can also damage foliage and stain concrete and stucco. The applications should also be made in the evening, while temperatures are cooler, as these microelement solutions can result in leaf injury.

Implanting iron or manganese in the trunk can provide a green-up within a few weeks of application and the benefits may last a year or two. There are implants that are available for homeowner use, such as Medicaps, but these are rarely carried in local garden centers and department stores. The implants should be placed low on the trunk and a sharp drill bit used to make the holes. The products are easy to apply but the directions should be carefully followed to avoid any unnecessary injury to the tree. Drilling holes into the tree creates wounds that may result in decay.

Chelated forms of iron and manganese can be applied to the soil and these applications provide benefits for usually a year or two but may take several months before the leaves lose their chlorotic appearance. The chelating agent keeps the iron or manganese in a form available to the tree but not all chelating agents are effective in our slightly to moderate alkaline soils. The best chelating agent for our soils contain FeEDDHA and this one should be on the label. Chelated iron and manganese is available at many garden centers and farm supply store but you still may have to do some looking.

Altering the pH so that the iron and manganese in the soil is available to the tree is the best solution, but is not easily done. The alkaline soils in our state are well-buffered meaning the pH is not easily lowered or will stay lowered for very long. However it is worth a try and the most common acidifying agent is elemental sulfur (sold as organic soil acidifier). This can be easily purchased in the garden section of most garden centers. When applying this product, carefully

read and follow the label directions. Also do not expect the results to be “overnight”, the greener foliage may not occur until the next growing season.

E-samples

Cottony maple scale



Rick, one of the South Dakota Department of Agriculture’s foresters, emailed me to say he was seeing a lot of cottony maple scale down in the southeastern part of the state. The cottony maple scale, which despite the name will infest hackberries, lindens and elms as well as maple, is highly visible now with its enormous egg masses ready to pop. The eggs hatch in about a week, when littleleaf linden is in bloom, and the crawlers migrate to the

leaves to suck sap from the foliage and eventually settle on the branches and twigs to resume their feeding. The cottony maple scale is a soft scale, meaning it produces honeydew, a sticky substance that rains down from the tree and creates a tacky surface on everything below. The scale can be managed on small trees with insecticidal soap, one application in a week and repeated 10 days later. Insecticides applied as soil trenches and taken up within the tree to kill the scale are also effective, but must be applied at least 30 days before the crawlers hatch so too late for this year.

Hackberry galls



The hackberry nipple gall is appearing on hackberry leaves throughout state. The elongated bumps on the lower surface of hackberry leaves are due to feeding by the hackberry nipple gall maker, a very small psyllid. The adult psyllids, which resemble very small cicadas, overwinter in the warty bark of the hackberry and once the new leaves appear migrate out to them and lay eggs. Once the eggs hatch, the young nymphs begin to feed and while doing so inject a substance into the leaf which stimulates the formation of a gall to enclose and protect the insect. The nymphs hatch out from these galls as adults in late summer and either fly about often collecting on window screens and even plugging up the intakes on

air conditioners before settling in for the winter on the hackberries.

While the galls do detract from the appearance of the tree, think of them as zits on a teenager, they cause no significant injury to the host. Occasionally some heavily infested leaves will fall prematurely but generally the tree capability to manufacture food is not reduced by the formation of these galls. Hackberries also continue to produce new foliage as the season progresses so new leaves form after the nymphs have settled in and these new leaves that will not become infested hide the interior damaged leaves.

Pesticides containing acephate or carbaryl as active ingredients can be applied just as the spring leaves are expanding and one application will often reduce the extent of damage but will not eliminate the problem. Caulking cracks around windows and doors and repairing holes in screens can reduce the number that enter the house though the adults, at 1/10-inch, can often squeeze through screen mesh. The adults can “bite” people, really just a skin prick as they taste to decide you are not a tree, but it can be annoying.



The hackberry nipple gall can be found on almost every hackberry tree in the region but it's not the only gall on this tree. The **hackberry bud gall** is also a common occurrence. This gall is due to the feeding by the hackberry budgall psyllid, a close cousin to the hackberry nipplegall maker. The damage caused by the budgall psyllid results in the infested buds not expanding so the tree will have twigs or portions of twigs that do not leaf out in the spring. Generally

more than enough buds on a tree will not become infested so there is only minor injury to the tree but they will appear a little thin in foliage with gaps behind the terminal leaves.

Fireblight



Fireblight is showing up across the state. This is probably the most common bacterial tree disease in our state and region. The disease can occur on many species of the Rose family, but most commonly occurs on apple, crabapple, hedge cotoneaster, mountainash and pear. The tell-tale symptoms of a shoot infection are rapidly wilting foliage that remains attached to the twigs, the shoot tips become blackened and often curl and small droplets of reddish brown bacteria ooze along the affected branch or shoot. Cankers, identified by their darker, sunken, flat appearance to the bark also may occur.

The disease is transmitted from tree to tree through wind or rain and enters the plant through small natural openings in the leaves (stomata) or trunks (lenticels). Hail damage also provides an entryway into the plant and this is one reason we see a lot of fireblight in the hail-plagued communities in the Black Hills.

Another avenue are vectors, organisms that carry the bacterial from host to host. The three most common vectors are bees and other pollinators, aphids and leafhoppers and people. Bees introduce the disease into a new host through their visits to flowers. This infection is called blossom blight and usually results in wilted flowers. Sometimes the disease stops there but it can move into the twigs and branches and become a shoot blight. Aphids and other sucking insects can carry the bacteria as they move from tree to tree during the early summer as they seek out fast growing shoot tips as feeding sites. People can carry the disease on their handsaws or pruners as they trim trees and shrubs.

Management of fireblight on homeowner trees has limited options. Infected branches can be pruned out to reduce the spread to other parts of the tree. The common recommendation is to remove the entire affected branch or shoot back to its origin (the trunk, limb, or branch it is directly attached to). However the disease may have spread further into the plant yet not expressed symptoms. Pruning is best applied in late winter as the disease spread usually stops once the summer heats up. Regardless of timing, pruning tools should be disinfected between cuts and at the end of the day to avoid spreading the disease. Lysol disinfectant is one of better products to use as it will sterilize the metal surface and is not corrosive.

A copper containing fungicide are toxic to most bacteria and these are the only fungicides that have an effect on fireblight. Copper is applied just before bud break. When using a copper fungicide, read and follow label directions very carefully. Copper can also be toxic to plants if misapplied.

The best means of managing fireblight is to plant cultivars that have resistance to the disease. There are many apple and crabapple cultivars that are resistant, such as ‘Haralson’ and ‘Honey Crisp’ for apples and ‘Camelot’ for crabapples.



Spiny-elm caterpillar (Mourningcloak butterfly)

I received a great picture of these caterpillars on an aspen tree, the branch is just covered with them! These caterpillars can now be found feeding on aspens, cottonwoods, elms, hackberries, and willows. The mature larvae are about 1.5 inches long and are easily identified by their rows of branched spines that run the length of their bodies. The body is velvety black with small white spots and large red spots. The adults are flying in the fall, overwinter in protected shelters and in the

spring resume fly to lay their eggs on twigs. The eggs hatch several weeks later and the larvae move as a mass to the terminals to feed on the tender new leaves. I have seen some young trees completely defoliated by these insects in past year. The management is simple, apply an insecticide containing carbaryl (Sevin) or malathion (Malathion) as soon as the feeding is observed.



I received a great picture from Karen (one of my best photographers over the years) of the **woolly elm aphids** enclosed in their cotton-like masses within the curled leaves. The insect feeds on the leaves of elm, but on the roots of the serviceberry, an interesting change of hosts and parts! The insect usually does little injury to the elms but the sticky honeydew that drips down from the tree is sometimes annoying to people. Treatments are difficult to apply as the

aphids are protected from contact insecticides since they are within the curled leaf. Systemic insecticides are very effective, either as soil drenches or trunk injections, but usually need to be applied about a month before you see the insects. If the tree is small enough to spray, an application of an insecticide containing acephate may provide good control. This is a systemic insecticide that will move into the leaf and kill the aphids as they suck the sap from the tissue. There are few commonly available insecticides containing acephate available anymore. The one I find most in South Dakota is Bonide Systemic Insect Killer.

Samples received/site visits

Bennett County

What is wrong with this crabapple? Is it fireblight?

Yes, this is the beginning stage of the disease. See the information under e-samples for more information on this disease.

Brookings County

The leaves on this crabapple have brown blotches to them. Is this spray damage?

This is apple scab, a very common fungal disease problem. The early symptoms are olive-drab to brown spots and marginal browning, exactly as the symptoms appeared on the samples. The symptoms are not similar to those of many of the herbicides applied at this time of year.

Custer County

Is this Dothistroma affecting these pines?

Yes, this sample did show the signs of Dothistroma needle blight. The foliage also has other stresses, perhaps winter injury, so the disease is not the only factor.

Davison County

Is this Black rot?

This is not a common disease in South Dakota though it can be found, particularly on marginally hardy apple cultivars, or trees already infected with fire blight. The disease causes leaf spotting, fruit rot and stem cankers. Infected fruit is probably the easiest to identify and these will have black concentric rings covering large areas of the apple. The infected fruit mummifies and will remain hanging from the tree until late autumn or even into the next spring. Infected leaves will have circular lesions with a purplish border and tan interior. Infected leaves generally do not fall much earlier than healthy foliage. The branch cankers are difficult to detect and appear as rough or cracked bark. While the sample did have rough and cracked bark this is also a characteristic of old trees and is not the disease. I suggest checking the leaf and fruit later in the season as this is the best means of identifying the disease.

Davison County

What is wrong with the Austrian pine seedlings?

The problem appears to have started in the roots. The entire stem of the tree has dried out and most of the roots are dead as well. The problem may be as simple as they dried out before and during planting or there may be a disease. However, generally the death of seedling trees is more a people problem than a pathogen. I will continue working with the samples.

Minnehaha County

Insect found in the base of a cranberrybush.

This is the pupa of one of the two viburnum borers (*Synanthedon fatifera* or *S. viburni*). These insects feed in the base of the stem, resulting in dieback or the stem breaking off at the base. The best control is a product containing permethrin, though ones labeled specifically for viburnums or the borer are hard to find. The best time to treat is now as the adults are flying. These are common pests in viburnums but are often overlooked. The appearance of wilting leaves or broken stems are good clues that these borers may be in the stems.

Tripp County

What are these bumps on the maple leaves?

The bumps are due to a mite, the maple bladder gall mite, and the cluster of galls form by their feeding turn from green to red to black as the season progresses. There is little that can be done to control this mite nor is there a need since they merely make the leaves look ugly but do not reduce the leaf's functions.

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