

Pest Update (June 13, 2018)

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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 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



Some of our summer flowering shrubs such as the bumalda spireas are beginning to bloom. The catalpas are also in full bloom in many areas of the state and these trees are covered with white flowers. While we had a late start to the spring, its been warm enough that we have caught up and our plant development is right where we normally are at this time of year.

Treatments to do now



The first Dothistroma treatment should be done by now. This is a very common disease of Austrian pines this year (also ponderosa pines in East River shelterbelts and the Black Hills) and is responsible for some of the discolored needles we are seeing on pines this year. The symptoms are dead needle tips beyond the yellow to tan spots. The spots have now enlarged to form brown to reddish brown bands and sometimes

fruiting structures can be seen in the bands. The infection this year is so bad that the entire needle may be discolored. The treatment is a copper fungicide applied now as the candles are expanding and repeated in late June and again in mid-July.

Tasks to complete in another week



Spruce bud scale crawlers will soon be hatching. 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 bloom which should be in another week. 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. The treatment is usually with a pesticide containing carbaryl as the active ingredient and labeled for this use. Infested tree should be treated in another week as the adults should be flying by then. This is a little earlier than normal as some years the treatment is applied at the beginning of July.

Timely Topics

Emerald ash borer update



Emerald ash borers are flying now in Sioux Falls and while you are not likely to see the adults, you might see the exit holes they make as they leave the tree. The D-shaped holes are unique, and this is the only insect that makes a D-shaped hole on an ash tree.

This is still a very good time to the treat trees in the Sioux Falls area for this insect. I have received numerous calls from tree owners wanting to treat their own trees. Generally, the Imidacloprid products available to the public as a soil drench do not contain a high concentration of the active ingredient and are only effective on trees less than 6 inches in diameter (measured at 4.5 feet above the ground). The Acephate products implanted into the trunk can be used on larger diameter trees.

However, most of the treatments available to the public only work under low pest pressure. Once we have the insect throughout the Sioux Falls community and in higher number, these treatments may infective to prevent successful attacks. While ash tree owners are looking for ways to avoid paying the \$200 to \$300 or more that a commercial applicator will charge to treat their tree, do-it-yourself may not be the best option.

If you only spent \$40 on the treatment but the tree dies, you really have not saved anything (including the tree).

Chlorosis - tree leaves turning yellow



Chlorosis, a foliage condition where the leaf veins remain green, but the surrounding tissue turns pale green or yellow, is a common occurrence at this time of year. We typically see these symptoms appearing on Amur maple (*Acer tataricum* var *ginnala*), red maple (*Acer rubrum*), swamp white oak (*Quercus bicolor*), river and gray birch (*Betula nigra* and *B. populifolia*), and silver maple (*Acer saccharinum*).

The reason for chlorotic leaves is not a fungus or other pathogen, but the lack of iron (FE) or manganese (MN) in the foliage. The lack of iron or manganese is not due to the soils lacking in these microelements, but the alkaline soils rendering these elements into forms not available to the tree. Any soil with a pH greater than 7.2, and that includes most of the soils in our communities, can result in these trees turning almost a golden yellow by mid-summer. Severely affected leaves can turn completely yellow, fall prematurely and leave the canopy bare by autumn. Some trees may decline and die if these symptoms appear for several years in a row.

Not all yellowing 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 (*Acer platanoides* 'Princeton Gold') produce yellow leaves, hence it is important to rule out other reasons for the yellowing foliage before assuming it's the lack of iron or manganese. Generally, the other stresses will have yellowing leaves, not leaves where the veins remain green.

If it is chlorosis due to a deficiency of either iron or manganese, the next step is to determine which of these microelements may be missing. Iron chlorosis is usually the missing microelement if the newest foliage, the leaves on the tips, are turning yellow with the veins remaining green. If the older, interior foliage is turning chlorotic then it most likely is manganese. It is also possible for a tree to be lacking both microelement.

Since the problem is not the lack of soil iron or manganese, 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 iron or manganese, implanting FE or MN capsules into the trunk, fertilizing with a chelated form of iron or manganese, 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 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 the leaves that come out after the treatment is applied will become yellow. 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 two years. There are implants that are available for homeowner use, 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 must be carefully followed to avoid any unnecessary injury to the tree. Drilling holes into the tree creates wounds that may result in decay if done improperly.

Chelated forms of iron and manganese can be applied to the soil and these applications provide benefits for at least a year, perhaps two, but may take several months before the affected 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. Chelated iron and manganese is available at many garden centers and farm supply stores, but you still may have to do some looking as it is not a common product.

Altering the pH so that the iron and manganese in the soil is available to the tree is the best solution, but not easily done. The alkaline soils in our state are well-buffered meaning the pH is not easily lower or will stay low 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. Do not expect the results to be 'overnight', the greener foliage may not occur until the next growing season, if at all.

E-samples



Boxelder galls. Small bumps are appearing on upper side of boxelder leaves. If you flip these leaves over, you'll notice a white velvety growth. These are due to a fungus but a mite, the boxelder pouchgall mite (*Eriophyes negundi*). The galls are harmless, and the infested leaves still manufacture enough food to service the tree. There is no need to treat for these mite (first most people do not care what their boxelder looks like) since they do not

harm the tree. The natural enemies of these mites (predatory mites and thrips) usually keep the population low and any spray may kill too many of them.

Cottony ash psyllid – as if we needed another problem on ash



As if ash does not have enough problem, there is another exotic threat. We are seeing defoliation and foliage distortion on black ash (*Fraxinus nigra*), Manchurian ash (*F. mandshurica*) and their hybrids, 'Northern Gem' and 'Northern Treasure.' The culprit is a small psyllid called the cottony ash psyllid (*Psyllopsis dircepanis*). This sucking insect was discovered in the early 2000s feeding on black ash in Alberta,

though it may have appeared earlier in the United States. The insect is native to southern Europe.

The adults are slightly smaller than 1/8-inch and resemble miniature cicadas as they fold their wings roof-like over their body. The nymphs are a little smaller, wingless and flatter. The nymphs are responsible for most of the damage, extreme leaf curling, it almost appears as severe herbicide injury. There are two generations per year, with the first generation of nymphs out in mid-June, hence the recent appearance of the damage. Another generation of nymphs will be out in mid-August, but this second generation is not as damaging as most of the foliage has harden off by then and is not as susceptible to injury. Eggs are the overwintering stage.

We have seen this insect in our state for at least six or seven years and it has been discussed in past *Updates*. Fortunately, the cottony ash psyllid do not attack green ash (*F. pennsylvanica*) or white ash (*F. americana*). These ash, particularly green ash, are often attacked by the ash leaf curl aphid (*Prociphilus fraxinifolii*) an insect that causes leaves to loosely curl into clumps.

Once you see the damage it is too late to treat. If you catch the damage just as it starts, an insecticide containing Acephate, and labelled for this use, can be applied. This insecticide is a foliage systemic treatment and will kill the insects as they feed (but not remove the damage). A soil drench systemic insecticide will not be absorbed fast enough to provide any control for the aphids this year, but a spring application next year can prevent the problem from occurring next summer.



Cottony maple scales (*Pulvinaria innumerabilis*) are becoming very noticeable on maples, though the insect can also be found on hackberries, lindens, and elms. This soft scale overwinters as an immature female on the twigs and now some are just beginning to bulge with masses of eggs – almost looks like “Jiffy-Pop” on a twig. The eggs will soon hatch, and the young crawlers move about the twig until they find a suitable place to feed. Once settled, the female crawlers lose their mobility and remain stationary for the remainder of its short life (the males as adults are winged but do not feed).

The cottony maple scale is a soft scale, meaning it produces honeydew, a sticky substance that rains down on leaves as well as decks, cars and any other object below the infested tree. The best solution for small trees (6 to 10 feet) is to treat with an insecticidal soap soon, about the time lindens are in bloom and repeat ten days later (but see note on lindens below). Be sure to read the label on the soap before applying to silver maples as some formulations may injure the foliage. A soil drench of an insecticide containing imidacloprid can also provide effective management of the scale on tall tree, but the drench should be applied in May, rather than now, to ensure good distribution of the pesticide through the tree’s canopy. However, the best control for scales is all their natural enemies so often the best treatment is just to allow nature to do its work.

Important note: lindens are susceptible to cottony maple scale. However, Imidacloprid should not be used on lindens as the flowers are very attractive to

bees and this systemic insecticide can be found in the nectar and pollen. The pesticide may not be in high enough concentrations to kill visiting bees but enough to affect their ability to fly and navigate.

And an EAB look-a-like



I received this picture (and then the physical sample) of an *Agrilus* that landed on a car near north of Sioux Falls. They were wondering if this was the emerald ash borer (*Agrilus planipennis*). No, fortunately. This is another *Agrilus*, the rose stem girdler (*Agrilus cuprescens*). Its one of 16 *Agrilus* found in the state already, some are native and others like the stem girdler, an earlier introduction. The rose stem girdler was accidentally introduced

from Europe in the early 1900s. It moved into the Great Plains by the 1950s. It attacks roses as well as raspberry and blackberry (the plant, not the phone) canes hence the other common name the raspberry cane borer.

It is greenish-bronze beetle that flies at the same time as the emerald ash borer, so the confusion is not too surprising. One big difference is the size. The rose stem girdler is about 4-5 mm long, about half the length of the emerald ash borer.

Sample received/site visits

Moody County

What is killing my cherry?



This sample was sitting on my desk when I returned from 2-days on the road. It's a good reminder that do not place samples in sealed plastic bags with a wet paper towel! The amount of fungal growth was amazing! The problem with this tree can only be solved with a saw. This is a saprophytic fungus – one that lives on dead and dying sapwood. It is not the cause of the problem, that might be anything from old age (cherries are old at 30) to

poorly drained soils, a frequent killer of cherry.

Tripp County

Dying spruce trees in a belt. Some trees are looking fine, others are dying.

Generally, drought and our long winter have been the overriding factors in spruce decline and death this past spring. It is not unusual to see only some of the tree affected in a belt from these stresses. However, I will schedule a visit.

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