

Pest Update (September 11, 2019)

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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

Another week of wet, but now warm (or hot), weather. This is the year for leaf diseases. Many trees are dropping their leaves due to fungi, not fall!

Timely Topics

The Sioux Fall Tornadoes – lessons to learn

Sioux Falls was struck by three tornadoes last Tuesday night. The tornadoes were not on the ground very long, apparently only a minute and each less than a mile, but wind speeds were above 120 mph. The area with the most damage was either side of I-229, between I-29 and Hwy 115. The northern area of the community escaped the brunt of the winds and damage.

Tornadic wind speeds will often result in trees falling over or shedding branches. Trees are not really designed to withstand these strong, gusty winds so some damage is to be expected. However, trees that are properly pruned have a better chance of surviving high winds with the canopy intact.

Lesson #1 – prune young trees to reduce future storm damage



Honeylocust split by the recent storm.

Many of the damaged trees had codominant stems that split apart under the wind loading. Where these stems connect on a trunk is a weak spot and they frequently snap off at the connection. If this honeylocust had been properly pruned to a single stem, the tree owner could have avoided finding half the tree lying on the ground after the storm.

I inspected the community brush piles for signs of emerald ash borer. Since the storm impacted the southern part of the city where this insect has yet to be detected, I did not find any evidence of infested wood. However, about a third of the trees dropped off at the sites were green ash and another third silver maples.

These are both common trees in the community so finding them in the brush pile was not surprising. These two trees are also prone to creating codominant stems, so the pile was filled with stems that were sheared off at the V-connection between the two (or three) stems.



Split maple stem in brush pile.

It is best to correct these defects when the tree is small, and the codominant stems can be reduced to just one with a hand pruner. Once the tree is mature the manage become more complicated and may involve installing tree support cables and rods or pruning to reduce the spread and weight of the stems. These are complicated procedures and are best performed by professional arborists.



Split ash that was treated for EAB.

Lesson #2 – don't treat ash for emerald ash borer if you are not going to properly care (prune) the tree.

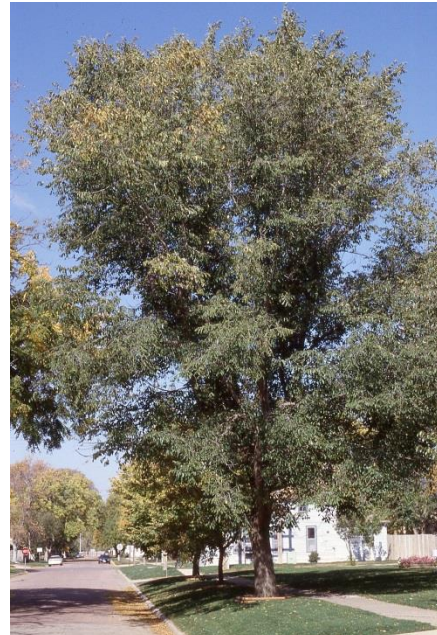
I saw an ash street tree that was split by the storm. The part remaining standing still had the tag showing the homeowner had paid to have the tree treated to protect it from emerald ash borer (EAB). While no one can predict a tornado or straight-line wind event, Sioux Falls has severe ice storms, snow storms, wind storms every few years and if someone is going to spend the money to treat their trees for emerald ash borer protection, they should also protect their investment with proper pruning.

Siberian elm – what to do when it's a weed

Siberian elm (*Ulmus pumila*) is often, and incorrectly, called the Chinese elm. The true Chinese elm (*U. parvifolia*) is a superior tree but is not hardy much farther north than Yankton.

Siberian elm was introduced by Professor Hansen from seed collected in northern China. The trees there were noted for their rapid growth and drought tolerance – two qualities prized on the plains of South Dakota. Hansen was also impressed by their gracefully appearance, almost birch-like was the way he described it.

If readers think he must have been looking at a different tree than the half dead one out their window, they are probably right. Hansen also though we introduced the poorer seed sources, not the best. I agree. I have seen nice Siberian elms in northeastern China.



Siberian elm in Elk Point.

But what do you do when you don't want Siberian elm? First, the options are very limited. Most livestock will not browse it so intensive grazing of a thicket of Siberian elms does not work. Buck goat will browse it if no other food is available but browsing does not destroy the root system, so it just sprouts back. Fire has the same problem. The tops of young trees can be killed by a surface fire, but the trees will still sprout back from the roots.

The best is herbicide either as a foliage application for seedlings and saplings or as a topical application to cut stumps of larger trees. Foliage treatments are used on trees less than 6 feet tall. The herbicide should be applied to fully expanded

leaves in late spring through early summer so that all the foliage – especially the foliage at the branch tips – is wetted, but not applied to drip. Garlon 4 (triclopyr) is one of the most commonly used herbicides and is applied as a 1.5 percent v/v solution. Garlon is safe for grasses but is deadly to other nontargeted woody plants so applications must be performed carefully. Do not apply on windy days or when the air temperature is above 85°F.

Add a blue dye so it is easy to spot missed trees and expect to have to come back the following summer to apply to missed plants or the few that will resprout.



Larger trees, those more than 6 feet tall, should be cut close to their base during late spring/early summer while the tree is actively growing. Immediately after the tree has been cut, *within 5 to 10 minutes*, spray the stump with Roundup (glyphosate). The easiest method is using a low-volume sprayer though it can be brushed on as well. The Roundup concentration should be about 50 percent to prevent resprouting. The portion of the stump that must be treated, but is often missed, is not

the center of the stump which is dead already but the outer sapwood (labelled as green) which is a ring near the bark. Be sure to spray this area of the stump.

E-samples



I received a picture of marssonina leaf blight on cottonwood from McPherson County this week. This disease results in defoliation of cottonwood and other poplars. The disease starts as small leaf spots and lesions on the petioles (the leaf stalk)). The spots are small (1/8-inch across), brownish circular to angular spots with a darker halo. The center may be white.

There are four different species of Marssonina that cause this disease and their symptoms differ slightly – halos are more common with *M. brunnea*, for example – but they all cause defoliation.

The disease overwinters on the infected shoots and in the fallen, infected leaves. Spores are released from these tissues during wet spring weather. If the weather stays wet during the summer, the new foliage will be continuously infected from previously infected leaves and shoots. If we have a dry spring and summer, defoliated trees

are rare. If we have a wet year, like this one, many cottonwoods are defoliated by this time.

The most common treatment is to do nothing but hope for dry summers. Mowing the leaves in late fall to speed up decomposition will help reduce spore production next spring or plowing them under if the trees are in a windbreak protecting crops.

The trees can also be sprayed with a fungicide containing chlorothalonil and labelled for marssonina with the application made just as the buds are opening in the spring.



An unusual pest has turned up in Minnehaha and Turner Counties this summer. This is the spruce gall midge (*Mayetiola piceae*), a small insect that lives in the tips of spruce branches. The infested tips become swollen, often resembling miniature corn smut, and once the adults emerge these galls have numerous holes. The problem is more common on white spruce

(Black Hills spruce) and Norway spruce than Colorado blue spruce. The insect rarely infects all the tips on a tree, but individual shoots may die or exhibit unusual growth. If the galls are found on a young spruce, the galls can be pruned out and destroyed to kill the enclosed adults. Mature infested trees can be sprayed in the spring with an insecticide labelled for galls and applied just as the spruce buds are beginning to swell.

Samples received/site visits

Grant County

Inspection of Meyer spruce planting



Seedling Meyer spruce

I stopped by a belt of young Meyer spruce (*Picea meyeri*) last week. Meyer spruce is one of my favorite spruce (and readers of the *Update* know I am not generally a fan of spruce). Meyers spruce is native to Nei Mongol, the northcentral region of China, which is characterized by long, cold winters and hot, dry summers. Meyer spruce is found in the mountainous areas of this region but is also found on the sandy soils on the fringe of the Tengger Desert.

It appears to be more heat tolerant than Colorado spruce (*Picea pungens*), a tree that often declines in our region by the time it turns twenty. Meyer spruce is not a perfect tree, it grows slower than Colorado spruce, maybe a few inches less a year, and deer like to browse the seedlings.

One of the biggest problems I have seen with Meyer spruce is it does look like a Colorado spruce, so they are sometimes confused in plantings. I have looked at declining belts of young Meyer spruce, only to find these were misidentified Colorado spruce!



The difference between the two is easy if you have the cones. The Colorado spruce has a cone that is 2 to 4 inches long which is equal to the length of a Meyer spruce cone. However, the Meyer spruce cone is brownish-yellow, and the cone scale have a blunt tip rather than the notched tips found on cone scales of

Colorado spruce. However, if all you have is a seedling, it gets a little tougher.

Colorado spruce has a bright yellowish-brown shoot that is smooth (no hairs). Meyer spruce has a dull yellow brown shoot that is either smooth or with very fine hairs. The needles of Colorado spruce are about 1 inch long and sharp and pointed – they hurt when you brush the tip. The needles of Meyers spruce are about the same length but have a blunt tip, they do not hurt when you touch them.



Jackson County

Can I save my tree?



This is a dying Siberian elm near the town of Cottonwood. First, Cottonwood is not the best place for a tree, any tree. The summers are too hot and dry (record 117°F, average 90°F). The winters can also be warm and dry with temperatures occasionally reaching 80°F in midwinter (or -43°F!). Average precipitation is about 17 inches.

The brutal climate with its seasonal temperature fluctuations leaves all trees stressed. While Siberian elm is known for its toughness, it still is susceptible to many canker diseases and these can be fatal when the tree is stressed. The tree is infected with Tubercularia canker and has extensive dieback. I recommend removal.

Lawrence County **What is wrong with these ponderosa pines?**



The needles submitted have the classic resin-soaked green bands and yellow to tan spots that are the classic symptoms for dothistroma needle blight. This is one of the most common foliage diseases of ponderosa pine and is often seen during years of wet weather. The spores are spread by wind or rain and require wet foliage to germinate and infect the needles.

Young expanding needles are resistant to the disease but become susceptible as they mature. The second- and third-year needles are susceptible anytime during the growing season. The infected needles may remain on the tree for another year but eventually are shed. This leaves the tree with a more open canopy. Repeated infections – common when we have a series of wet summers – can result in top dieback (as in picture) and even the death of the tree.



Copper fungicides are used to manage the disease. The first application is made just before the buds open in the spring (this protects the older needles from becoming infected) with a second application made about a month later to protect the new needles that are now maturing. Two years of treatments may be needed to get the disease under control.

Mellette County **Why do all the oaks have discolored leaves?**



I received several reports of widespread foliage discoloration on the native stands of bur oak growing along the Little White River. The discoloration was also observed last year.

I stopped by last week to look at the trees and the damage is very apparent. Every oak has discolored leaves. When I was walked up to the trees, the individual leaves



showed brown blotches which were the result of an insect tunneling between the upper and lower tissue of the leaves. The leaves were also skeletonized, with the upper leaf surface tissue chewed but the mesh of veins remaining. I was able to find adult insects on the trees.

The foliage injury is due to the basswood leaf miner (*Baliosus nervosus*). While basswood (*Tilia americana*) is the favorite host, this same insect frequently

attacks white oaks including bur oak. We do not have native basswood trees west of Hwy 81 but there are extensive oak stands lacing the many creeks and rivers in western South Dakota and these are suitable hosts.

Female adults lay eggs in June after the leaves fully expand and once hatched the larva burrow into the leaf to feed for the summer leaving brown blotches on the leaves. The adults emerge in August and continue injuring the leaves by feeding on the upper surfaces of the foliage.



The adults are dark reddish yellow and have wedge shaped wing covers with ridges running the length of them. They can be found in clusters on the leaves right now and if disturbed will either drop to the ground or fly off.

The defoliation on the oaks in these draws is near 100% on some trees and rarely less than 40%. The trees have already set buds for next year and appear to be otherwise healthy. While an individual tree can be treated with an insecticide to reduce the defoliation, this is impractical for the oak draws in this area. A light surface control burn in early spring can kill the adults that are overwintering in the leaf litter, but this is also impractical for these draws.

Fortunately, the population of this insect tends to drop after two or three years of defoliation and the problem disappears for a decade or so. There was an outbreak of this same insect in these draws about 15 years ago and the defoliation was severe on the oaks for about three years and then the insect population crashed.

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