

Pest Update (August 28, 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.

Plant Development.....	2
Timely topic	
What's up with Paulownia?.....	2
Locust borer and Purple Robe locust.....	3
BOB is back.....	4
Tree tubes and leaning tree.....	5
E-samples	
Wetwood (slime flux) on Siberian elm.....	6
Walnut anthracnose.....	6
Samples received/site visit	
Brookings County (tar spot).....	7
Gregory County (ash anthracnose).....	7
Marshall County (not emerald ash borer).....	7

Plant development for the growing season

The summer is winding down with the day temperatures more often in the 70s than the 80s. The days are also becoming shorter and this is the cue many plants use to begin the process of going dormant for the winter. We are even seeing a hint or two of autumn foliage color changes though I expect we will see at least one more week of hot weather during September.

Timely Topics

What's up with Paulownia?

I have received numerous calls asking about more information on Paulownia also known as the Empress Tree (*Paulownia tomentosa*). There was an article in Bloomberg that was picked up by the media and apparently many South Dakotan noticed this “wonder tree” from Asia.

The tree is reported to grow 15 feet a year, produce sawlogs in four years that are five times the value of walnut and absorb 10 tons of carbon per year – eliminating global warming.

There is truth in all these statements (but not solving global warming). The tree can be very fast growing, and many achieve 10 to 20 feet per year of height growth. Paulownia is a valuable wood – strong, lightweight, doesn't split or crack – and is used for decorative boxes and musical instrument. The Japanese import the wood from the United States and Brazil in huge quantities each year.



So why aren't we promoting it in South Dakota? Its not hardy, not even close. The tree is hardy to about -5°F. We have two trees in the state, Parker and Springfield, and they usually each die to the ground every year. They do grow about eight feet a year, but it's the same eight feet every year. There is a 'cold-hardy' Paulownia called 'Arctic' but that might survive -15°F and it still cannot survive the milder winters of Iowa so not much chance in South Dakota.

If you see one in South Dakota, you would swear you are looking at the weed velvet leaf. The leaves are large, more than 1 foot wide and long, with three to five shallow lobes. They also have a velvety texture to the upper and lower surfaces, almost woolly on the underside.

The two-inch long flowers, which you will never see in South Dakota, look like a catalpa but are larger, lavender-blue with a yellow throat, and are arranged in upright clusters that can be almost a foot long.

It's probably just as well you cannot see the flowers as the tree can be a prolific seeder and is considered invasive in many Eastern States.

Locust borers are beginning to appear



The locust borer (*Megacyllene robiniae*) is a common insect associated with declining black locust trees. Adults, as seen in this picture, are very colorful and distinctive with a large yellow 'W' on the wing covers and yellow bands on the thorax of any otherwise black insect. The adults fly in late summer and can be found searching for egg-laying sites on the locust or feeding on flowers in

the garden. The legless larva, found from late autumn to the following mid-summer, is about one inch long at maturity and is typically cream colored with a brown head. The best means of treatment, other than maintain the health of the tree by watering, is to apply a bark spray of a permethrin product labels for borer now before the real flight begins.

Black locust (*Robinia pseudoacacia*) is best known for its attractive and fragrant white flowers that hang in long chains from the tree in early summer. The tree should not be confused with the honeylocust (*Gleditsia triacanthos*) a tree that does not serve as a host for this insect.



The black locust is the only host for this insect. It does not infest any other species of *Robinia*. The most common cultivar of black locust is the 'Purple Robe' locust, noted for its attractive purplish flowers (and few seeds). Unfortunately this same cultivar is very susceptible to the borer and most trees I have seen are killed by this insect before they are 10 years old.

BOB is back



Bur oak blight, otherwise known as BOB (*Tubakia iowensis*) is showing up more along the woody draws in Sioux Falls. The disease was first noticed on bur oaks in southern Minnesota, Iowa and eastern Nebraska back in the 1990s where it became associated with dying oaks. It has been reported in past *Update* issues and the disease has been found in most of the South Dakota counties bordering Minnesota and Iowa. The leaf symptoms do not really become

noticeable until August so now is the time samples and phone calls begin to come in.

The most common symptoms associated with the disease are leaves becoming discolored in late summer with purple-brown lesions appearing along the middle vein, yellow wedge-shaped blotches on the leaf blade and black pustules at the base of the petiole. The infected leaves tend to persist on the tree throughout much of the winter. The symptoms generally occur on the lower branches but during successive years intensify and eventually cover the entire canopy.



The disease is a leaf disease and infected trees will produce new leaves the following spring. However, infected trees are more susceptible to secondary stress agents such as two-lined chestnut borer and often begin showing extensive dieback after a few years of the initial symptoms and may die if the disease and the secondary stresses are left unmanaged. It is common to see only one or two trees in an oak grove expressing symptoms so there appears to be some variation in resistance to the disease. The disease is also more prevalent on the bur oak botanical variety *Quercus macrocarpa* var. *oliviformis* which is more common to dry, upland sites. This variety is common in eastern South Dakota and produces slightly smaller acorns than most other bur oaks. Since the disease is

specific to this subspecies of bur oak, we are not likely to see the disease appearing east of Highway 81 except along the Missouri River.

The disease really needs a wet spring (like we had this year) to get it going. When we experience wet weather during the initial shoot expansion in May, the disease

proliferates and mature bur oaks can develop symptoms throughout the canopy during August, sometime almost appearing overnight. If we have a series of dry springs, infected trees can make a recovery.

The most common treatment for BOB is an injection of propiconazole, a chemical used to treat oak wilt (Alamo), made during the early growing season (May or June). The trees should be injected after they have leafed out, but before symptoms appear. The injections may reduce symptoms appearing that autumn and even the following year. Not all trees will respond to treatment and treatments are on-going process, every few years, rather than a cure. An additional approach is to manage the overall health of the tree, reducing the impact of any other stress agents, construction and borers being two common ones. Only trees that are showing symptoms now should be considered for injection next spring. Bur oaks vary in their susceptibility to the disease and not all will present symptoms or need treatments.

Tree tube removals and leaning trees



A common problem with tree tubes is that trees will fall over once the tubes are removed. Tree tubes protect seedlings from rabbits and deer (browsing and rubbing) as well as mechanical injury from weed eaters. They also provide a “mini-greenhouse” that improves the growing environment for the young trees resulting in better survival and growth.

The downside is the rapid terminal growth comes at the expense of diameter growth. The protective tubes limit swaying in the wind, an important trigger for diameter growth, so the trees in the tubes do not develop the proper taper. If the tubes are removed after the tree begins to grow above the top, the slender stem will often bend completely over as it cannot support the top.

The solution is to either remove the tube while the tree is still small and not peeking out above the tube (though this eliminates the protection) or leave it in the tube until the tree’s trunk is almost filling it and the canopy is far above it. As the tree increases in height above the tube, the trunk will sway and develop the necessary taper.

The worst time to remove the tube is just after the tree has branched out above the tube. These young branches are heavy since they now have room to expand but the trunk is still too slender to support it.

E-samples

What is causing this discoloration on the bark of a Chinese elm?



First, it's not a Chinese elm, but Siberian elm (*Ulmus pumila*). The discoloration is called wetwood (slime flux) and is common on American elms (*U. americana*) and Siberian elms (as well as other cottonwoods and willows). The disease is caused by a bacteria *Erwinia nimipressuralis* along with yeasts. The fermentation activity of these organisms converts carbohydrates within the wood into a gas (mostly methane hence the odor) and a liquid. The resulting pressure (up to 60 pounds per square inch) can force the liquid to ooze out from old pruning wounds and bark cracks. This liquid is very alkaline and will “bleach” the bark white as it runs down the tree. While the disease appears unsightly, it may protect the tree from decay hence the old practice of

installing drain tubes to relieve the pressure and dry the hollow out have been discontinued.

Walnut anthracnose



Every late summer I receive calls, e-samples and samples of fallen yellow walnut leaves. This is the common fungal disease, walnut anthracnose (*Ophignomonia leptostyla*). The symptoms, yellowing leaves with brown spots, do not present in our state until about Labor Day. The infected leaflets begin to drop to the ground individually, rather than the complete leaf and every fallen leaflet will have small lesions, from pinhole to pencil size, each with a brown ring around them. The disease is not a major threat to walnuts as the leaves do not yellow until late summer, usually just before they begin to fall. However, the same is not true of the infected

fruit. The fruit can also begin to fall prematurely and the ground beneath many walnut trees is covered with fallen leaves and shriveled nuts.

There is not much to do about the disease. A common recommendation is to rake up and destroy the fallen leaves and nuts since the disease overwinters in these plant parts. Unfortunately, unless you rake up your yard, as well as that of every walnut owner within several blocks, you are not likely to achieve much control of

the symptoms next year. The addition of nitrogen fertilizer (21-0-0) in late spring, after full leaf expansion, will often decrease the severity of the disease. Mancozeb may be applied at bud-break and repeated for several more applications about two weeks apart but may only be applied to walnuts where the nuts will not be harvested.

Samples received/site visits

Brookings County

What are these dots on the maple leaves?



These hard, black blotches on the leaves are fungal disease Tar spot, caused by fungi in the genus *Rhytisma*. The spots are common on silver maple (*Acer saccharium*) but also red maple (*A. rubrum*) and the hybrid of the two, the Freeman maple (*A. x freemanii*).

The disease began as greenish-yellow spot in late June and then develops into these black tar-like structures we are seeing now. The remaining leaf tissue is sometimes chlorotic. The treatment for the disease is two-fold. First, a common recommendation is to remove and destroy the fallen leaves this autumn to reduce the overwintering fungus, usually not a practical treatment unless you are able to go through an entire neighborhood. Next year treat the tree with a copper fungicide just after the leaves fully expand and repeat the application about two weeks later. However, if we do not have a wet spring the disease is not likely to be severe.

Gregory County

Why are the leaves turning brown on this ash?

This is ash anthracnose, a common, but rarely serious, foliage and shoot disease of ash. We are seeing more of this disease this year and last due to the wet spring weather. The tree should leaf out just fine next spring but with emerald ash borer on the horizon, the long-term outlook is not good for this tree.

Marshall County

Is this emerald ash borer?



These were exit (emergence) holes found along the lower trunk of an ash tree. The emerald ash borer adults cut a crisp D-shaped hole as it emerges from the tree. The holes are about 1/8-inch wide. The wood samples showed holes that were almost D-shaped but a little larger than is typical with emerald ash borer. Still these were close enough that a site visit was called for.

The ash tree was slightly declining, a few dead branches, but otherwise appeared normal. However, there was a large cavity in a lower limb and the trunk appeared to have some decay. The insect was the banded ash borer (*Neoclytus caprea*), a native ash borer that infests declining tree. It makes an exit hole that is more oval, but can appear almost D-shaped, but it usually larger, about 1/4-inch across.

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