

Pest Update (September 13, 2017)

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John Ball, Forest Health Specialist SD Department of Agriculture,
Extension Forester SD Cooperative Extension

Email: john.ball@sdsu.edu

Phone: office 605-688-4737, cell 605-695-2503

Samples sent to: John Ball

Agronomy, Horticulture and Plant Science Department
rm 230, Berg Agricultural Hall, Box 2207A
South Dakota State University
Brookings, SD 57007-0996

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



Fall color is about to get started in South Dakota. The trigger for fall color is the decreasing day lengths followed by cool night temperatures. These are the cues trees used to begin the process of acclimating or preparing for winter. As part of this process deciduous trees begin to shed their leaves. Leaves do not just fall; they first develop an abscission layer at

the base of the petiole (the leaf stalk). This abscission layer is formed by two layers of cells, a separation layer of thin walled cells that eventually break allowing the leaf to fall and a protective layer on the stem side of thick corky cells to seal the abscission point and prevent pathogens from entering.

This corky layer of cells also slows the movement of water and elements into the leaf and also restricts the movement of sugars out of the leaf. This biological roadblock affects the development of the two main fall color groups, the reds and the yellows. Yellow pigments, primarily carotenoids but also lycopenes that are always present in the leaf but are masked by the green chlorophyll.



As chlorophyll begins to break down in the fall with the restriction of water and elements the yellow begin to show through as seen in the picture of the Sweet birch above. The reds are due to the formation of anthocyanin. They result from the buildup of sugars in the leaf and these are responsible for the bright reds seen in the sugar maple picture at the top of this article

Fall color is at its best when we have a combination of sunny, mild days and cool – but not freezing – nights. Freezes can result in leaf browning rather than coloring and excessive rains in the fall reduce the warm sunny weather important in the formation of sugars. That is not an issue this year but the color might be less due to the dry weather causing leaves to drop before the color fully develops.



We are already seeing some spectacular color changes in many trees, yellow in ash and cottonwoods and red in maples, but much of this premature color change is due to the drought than the autumn season. I snapped this picture of a young Autumn Blaze maple in a park in Winner, South Dakota last week. This early color change means the tree is in trouble rather than a celebration of autumn. See autumn watering requirements of trees in the Timely Topics section of this *Update*.

Emerald ash borer - Update

This summer's confirmation of emerald ash borer in Buena Vista County in Iowa, a mere 80 miles from South Dakota, has heightening concern about its eventual presence in South Dakota. The day is certainly getting closer. Confirmed infestations are found in the Omaha, Nebraska and Minneapolis-St. Paul Minnesota metro areas and now in about half the counties of Iowa. The most ominous finding with the Alta, Iowa discovery is that it was about 100 miles from the closest known population in Iowa meaning someone moved infested wood there.

The *Update* will provide weekly information on the location of emerald ash borer confirmed in South Dakota or a bordering county of an adjacent state. ***At this time no emerald ash borer infested trees have been identified in the state or an adjacent county of a bordering state.*** The nearest infestations are highlighted in red; the Twin Cities of Minnesota; Buena Vista County and the counties in central Iowa and the Omaha-Council Bluff area of Nebraska and Iowa.



The new infestation confirmed in Welcome (Martin County) Minnesota was made from adult beetles collected in a purple panel trap. This is a little unusual as most new finds are from infested trees. This find also appears to be isolated, much as was the Alta, Iowa discovery, and far from the established infestations at the eastern end of

the state. This most likely means someone carried infested wood products, firewood or even logs, from an infested areas. There are probably a few infested trees in that area, but hopefully that's it for now. Regardless, this is a good reminder not to move ash wood, either firewood or logs, unless it has been treated specifically to kill any emerald ash borer larvae or pupae.

However, while EAB is closer it's still too early to begin treating trees in South Dakota.



There are very effective treatments to protect ash trees from emerald ash borer. However, it is still too early to begin treating trees in South Dakota. Our recommendation, consistent with other states, is not to begin treatments until the insect has been confirmed within 15 miles of your trees. There are reports of companies already going around communities in eastern South Dakota telling people to start treatments now, but this is premature.

Treatments are now so effective that you can even save trees that have been infested for a few years so there is no need start pesticide treatments now. Owners of ash trees should wait until it is found near their area and then decide, based on cost, which ash to begin treating.

Timely Topics



Autumn is upon us and we need to be thinking of winter. Remember now is the time to be watering your trees, not just before the soil freezes. We have not had had sufficient rains in much of the state this past summer. If you are in an area that has received less than 3 inches of precipitation in the last month you may want to begin watering your trees, particularly the young, newly planted ones. I have received a lot of conifer samples that

have the symptoms of drought-stress and my field visits in West River locations certainly indicate the trees are drought stressed.

While it may seem logical that a tree stressed by drought will be better prepared for winter than a tree filled with water, the reverse is true. Acclimating for winter requires the tree to spend some its energy in withdrawing water from the cells and replacing some of that water with a natural antifreeze. A healthy tree has the energy reserves to complete this process and enter the winter with tissue that can tolerate the winter cold. A drought stressed tree will not be able to complete this entire process and that leaves tissue vulnerable to freeze injury.

Watering now is the best way to reduce winter-burn and winter-kill in the coming cold season. This is particularly important for drought sensitive trees such as birches, lindens and maples. About four or so years ago we experienced a dry autumn followed by a relatively warm, dry winter. The following spring there

were many birches, maples and lindens that did not leaf out on the upper half of their canopies due to winter injury

The best means of watering is a long, soak. If the water is running off rather than soaking it either you are watering too fast or the ground is already saturated. Young trees, those about two-inches in diameter (measured at 6 inches above the ground), need about 20 gallons a week at this time of year, a 4 inch tree, almost triple that amount. As the temperatures cool and we receive some rains, this amount may be too much so also check the soil before beginning the weekly watering. Take a potato fork and stick it in the ground to a depth of 8 inches. If the soil is still moist at the depth, you should wait a little longer to water.

Fungus among us



I received a picture of **dead man's finger** (*Xylaria polymorpha*) that was growing near the base of a silver maple. The tree had a major root severed during a sidewalk project a few years ago and this may have led to the fungus growth. Dead man's fingers is a saprophytic fungus living off of decaying wood in a dead or declining root rather than being the reason the root died (that we can blame on construction). The club-like stroma grows

out of the ground, almost like fingers reaching out of the grave – kind of eerie. The fungus produces enzymes that degrade the “glue” that holds wood together and is one of our soft rots. The fruiting structure forms in the spring, but really are not noticed until now when they begin to turn black and creepy. It is a good indicator that the roots of the tree are rotten and its stability is questionable.



I also received a picture of a young bracket fungus, **sulphur shelf** or **chicken-of-the-woods** (*Laetiporus sulphureus*). This fruiting structure grows as bright yellow or golden structures on the tree. They almost appear as globs when they first form, but become more shelf-like as autumn progresses. This fungus is also a saprophyte, creating a brown cubical rot in tree trunks. The appearance of this fungus is also a good indicator that the

tree is decayed and its stability may be seriously compromised. I have seen trees with this fungus that are almost completely hollowed out. The fungus is edible, hence the name chicken-of-the-woods since it tastes like chicken (what doesn't?) but its real more that it has the texture of the rubbery chicken we eat at church gatherings. However, it is only edible when it is young, should not be

consumed with alcohol and even following these precautions some people may still have a strong adverse reaction – hum, maybe stick with rubber chicken.

E-samples



Marrasonia leaf spot (*Marssonina populi*) is a disease that affects aspens, cottonwoods and other poplar species. The disease begins a dark brown flecks scatter about the leaf. The leaf develops a bronze cast and gradually the flecks become blotches that eventually cover the entire leaf. Affected leaves are often smaller than normal and usually begin dropping prematurely. The disease does not kill the tree but is another stress and may contribute to the

decline and death of an infected tree. The disease is rarely treated, since a single year of infection does not pose a threat to an otherwise healthy tree, but can be managed with applications of a fungicide contacting chlorothalonil or mancozeb labelled for this use. The applications begin at bud break and repeated at 12 day intervals for at least 3 times, more if spring rains continue.



Septoria leaf spot (*Septoria*) on dogwood. This is a common disease in late summer if we get some rains (and some areas of the state have been receiving *above-average* precipitation the last month – lucky counties). The spots begin as small, angular brownish purple shaped blotches that are bordered by leaf veins. Eventually

the spots enlarge, crossing the veins, and develop light brown to gray centers. The disease usually results in early leaf fall and one common recommendation is to rake up the fallen leaves but all this accomplishes is a stiff back as the spores can come in the next spring from miles away. The disease can be treated with spring applications of chlorothalonil or mancozeb that are labelled for this use. The first treatment is applied at bud break and repeated for at least 3 times about 12 days apart.

Samples received/site visits

Hamlin County **This is a ponderosa pine that is declining. We think it's dothistroma. There were two big hail storms this past summer that may have contributed to the damage.**

This is Diploida tip blight, not Dothistroma needle blight. Dothistroma needle blight damage is limited to the needle and does not stunt the shoot tip, as occurs with diploida tip blight. Also the needles infected with dothistroma needle blight

are often banded with the reddish bands having a yellow halo. Diplodia will usually have browning needles and at this time the black fruiting structures can be found at the base of the needle, usually just beneath the sheath. The disease was present in the tree before the hail but the mechanical stress from the hail storm weakened the tree so the disease could present symptoms.

Tripp County

What is wrong with this honeylocust?

I stopped by last week on my way back from Rapid City. This tree has necrotic canker. Trees infected with this disease often produce yellowing foliage that falls prematurely (though these symptoms can also be associated with mites and a number of other pests) and the branches and trunk will have slightly sunken cankers, often with a reddish stain to them. The disease gets its start in the union where branches attach to the trunk. There is not much that can be done to manage this disease and it seems to be more of a problem the further west honeylocust is planted in the state, most likely due to the harsher growing conditions increasing susceptibility to the disease.

Tripp County

Why did the pines die in these belts?



I also stopped by a windbreak planting of cedars (junipers) and pines planted last year. It was hard to find the trees among the weeds, but I eventually came across the rows of fabric and then found the trees. The survival of the cedars was excellent, about 90%, but the pines the survival was a little less than 60%. The pines that were still alive had excellent growth this year and the needles were of normal length and color. Pines have a reputation of a lower first year survival rate than many other tree species, but they do perform better once established.

Since the trees that had died, died last year there was only an occasional dry stick found at a fabric slit (and these were usually weed filled), so there is no means of determining why these pines died last year.



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