Pest Update (September 14, 2016)

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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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Timely Topics

What cause leaves to turn color in the fall?

Fall color is beginning in many areas of South Dakota. Fall color is seasonal phenomena that notes trees beginning to prepare for the cold weather ahead. The triggers for autumn foliage are increasing length to the night 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 shed their leaves. However, leaves do not just fall; they first develop an abscission layer at the base of the petiole (the leaf stalk). This abscission layer is a separation layer of thin walled cells that eventually breaks allowing the leaf blade and the petiole to fall. A protective layer on the twig of thick corky cells then seals the abscission point and prevents pathogens from entering this wound.

This corky layer of cells also slows the movement of water and elements into the leaf while it is still attached and restricts the movement of sugars out of the leaf. This biological roadblock influences the development of the two main autumn foliage color hues, the reds and the yellows. Yellow pigments, primarily carotenoids, but also lycopenes, are always present in the leaf but are masked by the green chlorophyll. As chlorophyll begins to break down with the blockage of the movement of water and elements, the underlying yellow begins to show through. Quaking aspen is probably the tree with the brightest yellow fall color and there are hillsides in the Black Hills have ribbons of yellow from the changing aspen trees. Many birches have good yellow color and even green ash and cottonwood can have a nice display of yellow in many years. The red foliage colors are not unmasked but created. Anthocyanins, responsible for the reds, result from the buildup of sugars in the leaf and these results in the bright reds. The best red color is found in the maples, particularly sugar maple and the many cultivars of Freeman maple such as Autumn Fantasy^{R} and Firefall^{TM} maple.

Autumn foliage 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. If we also warm nights, a condition that may areas experienced until recently, color also does not develop as well.

Broadleaf trees are not the only ones to turn color in the autumn, many of our evergreens do as well. This color change and shedding is sometimes greeted with alarm by homeowners who believe their tree is dying when it is just a normal seasonal process. This year the color is even more noticeable as the dry, sunny weather seems to make the older foliage turn almost a straw yellow before it is shed. This is very noticeable on the pines, particularly Austrian and white pine, where many trees are almost a straw-yellowing in the interior. Spruces generally do not have their older foliage turn yellow, brown is more common, and not nearly as attractive.

Fall is a great time to transplant many trees and shrubs. Surprisingly to some, fall is the best time to plant evergreens. The combination of warm soils and cooler temperatures are conductive for trees to begin establishing their roots. The key is planting now, while we still have a month or more of soil temperatures above 45ºF. This is the threshold for rapid root growth and once the soil temperatures slip below this point, root growth decreases and stops.

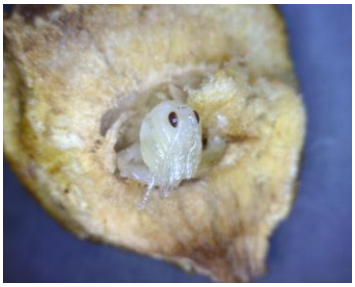
It is critical for the roots to become established before cold soil temperatures develop so here are a few tips to help the process. First, be sure to water the plant throughout the fall, even when the air temperatures begin to cool down. Plants need moist soils to continue root growth. Moist does not mean wet, however, so check the soil to a depth of 6 inches or so before watering. Do not add any water if this zone is still moist. Next, place a 2 inch layer of a coarse, organic mulch down around the plant. Shredded pine or oak bark is the best and have the mulch extend at least 2 feet out from the plant. This mulch will help keep the soil temperatures warmed a little longer into the season. Be sure to pull mulch away from 6-inch ring around the base of the tree or shrubs. If mulch is placed against the trunk it can provide a nice shelter for rodents to live and feed.

What should not be planted in the fall? The list is very short but the trees that are best planted in the spring are: birch, hickory, magnolia, and walnut.

E-samples

This was a great year for **cedar-apple rust**. The symptoms, bright yellow to orange spots, develop on the upper leaf surface in midsummer. These spots gradually enlarge and directly beneath each spot a small bulge appears. This produce small hair-like structures which release spores into the air. These spore infect the juniper host and the cycle repeats. Susceptible crabapples and apples (such as the Wealthy apple pictured above) are covered with these spots right now and many are already dropping their leaves. Raking up the fallen leaves will not reduce infection next year so just mow them.

Oak galls are very common on bur oaks. The galls are generally due to small cynipid wasps that lives inside the deformed tissue. This appears to be the oak rough bullet gall caused by the gall maker *Disholcaspis quercusmamma*. In the fall the wasps chew out of the galls, fly to the terminal buds and lay one or two eggs on each bud. As the buds expand in the spring, the larvae hatch burrow into the growing shoot. The feeding stimulates the oak to form a gall around the insect which not only provides nourishment but shelter as well. Patrick, an entomologist with SDSU, took this great picture of the wasp in the gall.



The galls first appear as small green bumps on the new shoots. They turn red, then brown, as the galls enlarge. Completely formed galls are round with a point at the apex. Usually you will see a cluster of galls along the shoot and each gall will contain a single larvae.

There is a range of susceptibility among bur oaks. One tree will be covered with the galls and the one next to it, not a single gall. The only management is to prune off and destroy the larger galls, those more than 3/8-inch but leave on the smaller ones as these probably contain the parasitic wasp that feeds on the gall maker larvae. These parasitic wasps will emerge next spring. Also keep in mind that even pruning the mature galls may cause more damage than just leaving them on. Sometimes it's best to just let nature take its course.

Here is a picture sent in of an unusual moth, **the large tolype moth** (*Tolype velleda*). This moth is extremely hairy (maybe we should call it the Chewbacca moth). The hairs are white on the head and sides of the thorax, black on the middle of the thorax and the abdomen white to grey. The adults are out flying at this time of year. The larvae send the summer feeding on foliage from a number of tree species from apple to oak.

Here is a sad picture of a bur oak that was planted this spring as a bare-root tree. The question was would the tree survive. Not likely. The few leaves that developed are very undersized and probably did not generate much food through the photosynthetic process. The reason for the poor performance may be related, at least in part, from the grass control (or better, the lack of grass control). Newly planted seedlings much have protection from the surrounding grasses for at least several seasons. These grasses are strong competitors for water and elements. They also can produce alelochemicals that stunt the growth of trees.

Samples received/site visits

Clark County **What is wrong with this black walnut? The leaves have been turning brown and dropping.**

This is walnut anthracnose, a common foliar disease of walnuts that usually starts showing up at this time of year. While the leaves are blotched and browning, the shoot and buds included in the sample were still plump and healthy so this appears only to be the foliage disease. The disease was discussed in last week's *Update*.

McCook County **What is causing these bumps on the ash?**

This is ash rust. The disease was not very common this year as the beginning of the summer was fairly dry. The disease moves between grasses and ash and we usually do not recommend any treatments as the severity of the disease depends on the spring rains. If we have a dry spring we usually do not see much of the disease.

Stanley County **What kind of nut is this?**

This is the fruit, husk and nut, to the black walnut (*Juglans nigra*). Most likely it was a gift from a squirrel as these small rodents frequently bury walnuts that they carry from other yards. If he has several and wants to plant them, the directions are in the last issue of the *Update*.

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