

# Pest Update (Oct 1, 2014)

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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. **Walnut samples may not be sent from any location – please provide a picture!**

## 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 at peak in many areas of South Dakota (what there is of it this year).** Fall color is seasonal phenomena that note the beginning for trees to prepare for the cold weather ahead. The triggers for autumn foliage to begin to color are increasing length to the night followed by cold 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<sup>R</sup> and Firefall<sup>TM</sup> 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 have warm nights, a condition that many areas experienced until recently, color also does not develop as well. Unfortunately, the weather appears to be turning to very cold and with the subfreezing nights upon us, leaves will soon be falling. We may not see much fall color this year, or at least as good as many other years.



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.

### What is wrong with my apples?



This is the time of year when I receive a lot of apple samples so let's look at some common apple problems. The first picture shows two common problems on apples, but they often are merely cosmetic and do not affect the flesh or at least it is not hard to cut around the damage. The large hole is due to birds. Usually when someone finds a hole in their apple they assume it is a burrowing insect and discard the apple without further inspection.

However, oftentimes the hole is the only damage (though rot can occur as well) and it can be easily cut around. The crescent shaped sunken spot to the left of the large hole is the damage done by the female plum curculio as she lays her eggs. While plum curculio larvae can cause significant injury to plum, the tough skin of an apple usually prevents entry and there is no injury beneath the fruit.







Not so with **apple maggot**, the most common and serious apple pest in South Dakota. This insect leaves dimples on the skin of the apple; heavily infested apples can look very lumpy. If you pick these apples before they fully ripen, you will find a small white “worm”, the larvae of the apple maggot. The larvae leave brown tracks as they burrow through the fruit, a reason they are sometimes called railroad worms. The tracks often have decay develop around them and if the fruit is heavily infested, almost the entire flesh can be ruined. If you pick the fruit up from the ground at this time of year often all you will find are the tracks as the larvae has left the fruit to pupae in the soil. The adults emerge next summer, about the end of June, to lay eggs on the developing apple.



## E-samples



One of the most common trees I am asked to identify is the **white mulberry (*Morus alba*)**, an introduced tree from Russia that is common throughout the state. It may produce a small dark raspberry-like fruit in the summer; however, since mulberries are either male or female it is possible to have a tree that never has any fruit. The different leaf shapes, which can occur on the same tree, seem to puzzle folks who are not sure what tree produces so many different leaf shapes.



I also receive a picture of an apple that showed another problem than those mentioned above. **Russetting** is the formation of corky layers, rough and discolored, on the surface of the fruit, sometimes in networks of fine threads and blotches. It usually affects the epidermal cells so it does not affect the flavor of the fruit. There are several possible causes for this to occur on an apple from late frosts, bacteria and fungi (particularly if the weather was cool and wet in early summer) and even mites and mildew. Pesticides can also be responsible. Usually in South Dakota the problem is weather related, either a late frost or a period of wet weather about 30 days after full bloom.



**Powderpost beetles** are a common problem with wood that is not properly dried. The name “powderpost” comes from the fine, almost flour-like, powder found around small, round “shotholes” on the surface of infested wood. The larvae can do extensive damage to the wood as they burrow through it. There are several different families of insects that are called powderpost beetles and they are found in different wood, some only infested

hardwoods, others softwoods, but the damage they do is similar. Most powderpost beetles enter the home in lumber or finished wood products such as flooring, paneling or even furniture. If wood for these products was improperly stored or dried, they can become infested. The most common problem I have seen in South Dakota is hardwood flooring or paneling made of pine. The adult insects flying around the house can be alarming as well as the appearance of holes and powder in flooring and walls. The adults can only lay eggs, and have them hatch and the new larvae develop, on bare, unfinished wood. Wood that is painted or varnished cannot become infested (finished furniture that has beetles emerging from it was infested before the wood was finished).



## **Samples received/site visits**

Moody County  
**tree?**

**What is causing these tiny holes in my pine**

I have a lot of questions from East River producers wondering if mountain pine beetle is killing their pine trees. Mountain pine beetle is found in the Black Hills area, not eastern South Dakota (thank goodness!). The most common insect associated with the small pin-like holes in the trunks of dying pines is the ambrosia beetle. These insects infesting dying pine, along with engraver beetles and longhorned beetles and there are lots of dying pines in over-mature shelterbelts in eastern South Dakota; old age is the real problem.

Union County

**What is wrong with these pines?**

This is an eastern white pine and the white, fuzzy, material on the twigs is the pine bark adelgid. This is a sucking insect that is found on white pines along the eastern edge of the state. In past years I have received samples from as far

north as Watertown and all the way down to Dakota Dunes. The white filament covering the insects can be found on twigs, branches and trunks, sometimes covering the entire trunk except at the whorls! The overwintering females can be control before they lay eggs by an early April spray of horticultural oils or insecticidal soap. Even a high-pressure stream of water may be sufficient to reduce the population and this may be the best option as the insect rarely reaches a population size to injury trees in our state

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