

# Pest Update (September 26, 2018)

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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 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

### Autumn foliage color

We have entered the autumn color period so just a couple of thoughts relating to this seasonal phenomenon. First, the color changes begin in response to the shortening days and cooler temperatures. Tree leaves stop producing chlorophyll (the green color) and some trees species start producing anthocyanin (the red-purple colors). Yellows (carotene and xanthophylls pigments) also begin to appear, not because the tree is beginning to produce them – in fact they are always present – but as chlorophyll disintegrates these pigments are unmasked.



Trees noted for their brilliant red fall color include red and sugar maples (as well as the freeman maples), serviceberry, sumac, and red oaks. Trees that have bright yellow fall color include ginkgo, quaking aspen and sometimes even honey locust as well as 'Harvest gold' linden. Catalpa, sycamore and black locust have little color change.

Fall color is best when we have combination of dry, cool, sunny weather during autumn. Rainy, cloudy weather will reduce the intensity of fall color. The yellows will still appear, but the reds will not be as intense. This autumn is across the board with some areas too dry and others too wet, so autumn color change may be spotty this year.

### Timely Topics

#### Pine wilt disease update

While emerald ash borer has dominated the news in South Dakota, it is not the only threat to our community forests and windbreaks. We have another threat, though ironically this is a native pest that attacks exotic trees, rather than an exotic pest attacking a native tree.

The pinewood nematode (*Bursaphelenchus xylophilus*) is native to North America and feeds on the living cells surrounding the resin canals in the sapwood and blue stain fungi within the wood of pines. In a native host, such as ponderosa pines, the nematode does little injury, but in an exotic pine such as Scotch (*P. sylvestris*) or Austrian (*P. nigra*) pine, it becomes a killer. The nematode and perhaps a bacteria associate, colonizes the vascular system,

restricting water transport and causing a wilt disease known as pine wilt. The disease kills a tree usually the same season that symptoms appear.

Pine wilt disease was first noted in Missouri in 1979, at first it was thought to be an exotic threat but when the disease was only observed on exotic pines, not the native, the thought turned to the nematode being native. The disease was soon found in much of the Midwest from Michigan to Nebraska. It was first noted in the Lake Andes-Yankton area in the mid-1980s.

The occurrence of pine wilt disease is associated with dry and warm summer (a mean temperature above 70°F). If the summer are not warm enough, the disease does not appear despite the appearance of the nematode. South Dakota summers have been warmer in the past decade and this has permitted the disease to advance north. It was once restricted to the southern tier of counties, then I-90, then Hwy 14 and now Hwy 212. While we have not confirmed the disease in the northern third of the state, nor North Dakota, I suspect we will within a decade.



The first symptom of the disease is the needles discoloring on several branches, from green to a pale green and finally a light brown during the summer. The brown needles will also be hanging (the wilt). The symptoms may appear on only a few branches, usually near the top of the canopy, but within a few weeks to a month or two they have spread throughout the entire canopy of the tree.

The tree usually is dead by autumn though occasionally death is delayed until the weather warms the following spring. When the dead tree is felled, the stump will have blue stain in the sapwood. Logs from infested trees are very light as the wood has also dried due to the plugging of the vascular system.



The disease is carried by sawyer beetles (*Monochamus*) from an infected tree to a healthy host, usually through the maturation feeding by the newly emerged beetle. The nematode may be transported to drought-stressed pines during oviposition by the beetles as they are attracted to stressed trees.



The management of this disease is prompt removal and disposal of the dead, infested trees. This should be done from autumn through early spring. We look at April 1 being the finish date as after that time the longhorned beetles emerge and can carry the nematode to nearby healthy trees. The disease does not move quickly through a group of trees or windbreak. Some trees may carry a small population of nematodes for a year

or two before the population expands and the tree presents symptoms. It can take a decade or more before the entire belt dies from the disease.

There are preventative treatments for the disease. Trees can be injected with products labelled for control of pine wilt and containing abamectin or emamectin benzoate as the active ingredient. These products when injected into the trunk are effective (95%) at reducing the propagation of the nematode. Spraying the trunk, shoots and needles to kill the longhorned beetle before it spreads the nematode into the tree have been much less effective.

**This is also the time of year when I get lots of questions about eating those ‘chestnuts’ that are falling everywhere.** This is one picture of these “chestnut” fruits sent in several years ago, but I am getting them almost every day now. First, these are not chestnuts. The American chestnut (*Castanea dentata*) is not adapted to our state’s growing conditions and there are very few in the state. There are not many American chestnuts anywhere due to the disease Chestnut blight that entered the country from Asia in 1904 and almost eliminated the species – once one of the most common trees in the Eastern Deciduous Forest – within 50 years. The Chinese chestnut (*C. mollissima*) is even less hardy and I do not know of any in South Dakota or western Minnesota. The Chinese chestnuts planted at the Minnesota Horticulture Research Center near the Twin Cities have been short-lived.



What people bring or send in as chestnuts are usually nuts from the buckeye tree (*Aesculus glabra*). This is a common tree in our region since the squirrels plant them for free in almost every garden. The nut contains the poisonous glycosides aesculin and fraxin. Ingesting the raw seed can result in muscle twitching, vomiting and abdominal pain, diarrhea and death. The raw nuts, tender shoots and leaves, particularly wilted leaves, are also toxic



to horses and cattle (rabbits too but they seem to be smart enough not to eat them). Squirrels seem to do just fine eating the raw nut and it apparently contains a sweetener that (at least to a squirrel) is sweeter than sugar. The nut can be made safe for human consumption by roasting and leaching and they were used as a starchy food by Native Americans, but I do not recommend even trying to do this.

## E-samples



**Why is the bark changing color on my cottonwood?** The answer is simple; its not a cottonwood (*Populus deltoides*) but the white poplar (*Populus alba*), a tree native from Central Europe to Central Asia. This tree species has a three-lobed leaf that is almost a powdery white on the underside. The young shoots and buds also are powdery white. The bark on the younger branches and stems is smooth and gray-white, becoming gray and deeply furrow as the trunk matures.

White poplar is one of the toughest trees for South Dakota with an ability to grow almost anywhere. Some of the tallest trees in West River communities such as Wall are white poplars. They also grow too well! The tree suckers profusely and sprouts come up everywhere around the tree. I have some entire blocks in abandon towns covered completely with this tree.



**Banded or redheaded ash borers in an ash tree.** These *Neoclytus* species are commonly referred to as roundheaded borer (the emerald ash borer is a flatheaded borer). These borers are native and attack recently dead or dying ash as well as other hardwood species. No one paid much attention to them before emerald ash

borer came along but now when someone cuts down a dead and dying ash, they wonder if they found the emerald ash borer.

Two distinct differences between these borers and the emerald ash borer. First, the emerald ash borer is almost flat with a small head capsule and the body is in bell-shaped segments. The banded/redheaded ash borers are round with a swollen area behind the head capsule. The body segments have a round shape.

The other difference is the banded/redheaded ash borers make meandering galleries just beneath the bark while the emerald ash borer the galleries are a distinctive S-shaped.



**More borers with the question “Why is my tree dying?”.**

Longhorned beetle name come from the long antenna of the adult beetles. There are many different longhorned beetles in our state, but most spend part of their life – the larval stage – burrowing through recently dead

or dying trees. They are not the reason the tree is dying or dead but are merely taking advantage of the condition. The reason the tree is dying is unrelated to the insects and unfortunately cannot be determined from the picture.



**Poplar vagabond aphid.** The swollen, distorted tips on cottonwoods branches start drawing attention at this time of year. The distortion is not due to herbicide (the usually suspect everyone points to when they see a misshapen leaf) but an aphid, lots of aphids. The galls are formed by aphids feeding on the young growing tips in spring and early summer. This feeding causes the plant to form this fleshy, hollow structure around

them – like your meal turning into your house. The aphids emerge from their galls in late summer, only to return to their host in late autumn to lay eggs on the galls on in bark crevices. The eggs hatch in the spring and the cycle continues.

The galls do little harm to the tree and not all cottonwoods are equally attractive to the insects. I have seen one cottonwood with almost every shoot tip infested and the adjacent tree without a single tip affected.



**Russeting** 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. We certainly had the wet weather this spring in much of the southeast where we are seeing this problem. Nothing can be done to treat this type of russeting, but we not likely to see it as bad next year.

### **Samples received/Site visits**

Jackson County  
**can it be treated this fall?**

**Is this cedar-apple rust and**

This is cedar-apple rust on the apple leaves and despite the dry conditions in central South Dakota I have seen a lot of apple trees infected with this disease. The disease cannot be treated now, instead the treatments are applied in the spring as the leaves are just about fully expanded (this is also the time when the galls are opening on the junipers) and repeated for at least three times about 10 days apart. I'll make a fungicide recommendation next spring once we see what will be available to homeowners next year.

Lyman County  
**The interior needles of these pines are turning color but there is also some discoloration on the new needles.**

Nothing ever said that you can have one problem with a tree at a time! The yellowing of the older, interior foliage is the normal needle drop that occurs each autumn. However, the banding on the new needles is due to the fungal disease dothistroma needle blight. This is a common foliage disease of pines in the southern part of our state. It can be managed with spring applications of a copper fungicide applied as the new growth expands in the spring with a second application made in late June.

Minnehaha County  
**honeylocust leaves?**

**What is causing the cupping of these**



This cupping of the leaflets into small pods is due to feeding by the honeylocust pod midge (*Dasineura gleditschiae*). This midge (a fly) lays its eggs on the expanding leaflets in the spring. Once the eggs hatch, the young larvae feed on the inside and the leaflet forms a pod around it. They feed in this pod for several weeks before pupating. There can be four or more generations per year. The pods rarely cause more problems than making the tree

look poor and we usually do not need to treat for this insect.

Minnehaha County

### Why is my spruce turning brown?



This was an interesting one! When I stopped by, the larger spruce was almost completely scorched and the adjacent one started. If you look closely, you can see that the pattern of bare branches (and discolored foliage) almost spirals around the tree from the top to the bottom. The tree owner said that it started this spring on the first tree and now was affecting the second.

This is not a common pattern with most diseases, cytospora canker being the most common disease of Colorado blue spruce, but it is with soil applied herbicide. The only way to be certain is testing. The foliage of this tree had 1,100 ppb of Dicamba and 1,140 ppb of 2,4-D. Apparently, someone goofed with an

herbicide application. Dicamba is deadly to most trees, including spruce, and applications within a distance equal to their height (the root zone) can result in dieback or death.

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