

Pest Update (July 7, 2014)

Vol. 12, no. 15

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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 product identified in this publication.

Plant Development.....	2
Timely topics	
Ash leaf curl aphid.....	2
Cedars – what is going on with them?.....	2
Dutch elm disease.....	4
Powdery mildew.....	5
E-samples	
Ash and privet borer.....	5
Anthracnose.....	6
Samples received	
Brule County (elm spindle gall).....	6
Dawes County NE (recently planted linden declining).....	7
Gregory County (ash anthracnose).....	7
Harding County (dying spruce and Rocky Mountain juniper).....	7
Marshall County (needlecast on spruce).....	7
Perkin County (dying Russian-olive and woodbine).....	8
Perkin County (apple scab).....	8

Plant development (Phenology) for the growing season



Plant development. The ural false-spireas are in bloom in Brookings. This is one of our summer flowering shrubs and it usually begins flowering at this time of year. We seem to be now just about normal for plant development this year, though the year started out a little slow.

Timely Topics



The ash leaf curl aphid, also known as the woolly ash aphid (*Prociphilus fraxinifolii*) is showing up across the state again as it does every summer at this time. The symptoms are curled leaves forming rosettes at the ends of ash shoots; particularly the rapid growing terminal shoots of young trees. If you unfolded the leaves you'll find little "fuzz balls" that are aphids. You might also find lady beetle larvae that are feeding on the insects.

Control is usually either letting it be – since any treatment will not uncurl the leaves and the lady beetles do a pretty good job of control – or acephate (Orthene Systemic Insect Control) since this is a foliage systemic treatment and will kill the aphids as they feed (but not remove the damage). Most other insecticides are contact poisons and will not reach the aphids living inside the curls. A soil drench systemic insecticide will not be absorbed fast enough to provide any control for the aphids this year but a spring application next year can prevent the problem from occurring next summer.

The problem with cedars. I have received many calls and emails regarding the decline of eastern redcedars and Rocky Mountain junipers (both are junipers) across the central part of the state. During the past three weeks I have made several field visits out to examine declining trees and examine samples submitted from declining trees.

First, the problem is widespread, but localized. I can find browning junipers from the northern boundary with North Dakota to the southern boundary with Nebraska. Most of the damage is between Highmore and Mission. However, even within this area you can easily find windbreaks where every tree is near perfect, in fact most of the junipers in windbreaks appear healthy and are thriving.



Second, the problem is not linked to a single causal agent nor is the symptom pattern identical on all the trees. Here are the most common reasons for decline of junipers in central South Dakota and their symptom patterns.



Entire trees turning brown or gray but occurring in groups or as individual trees in a belt. The sapwood within the trunks is browning and dry.

A common reason for these symptoms is the lower stem being girdled by the landscape fabric. As mentioned in the last issue of the Pest Update, I have come across some belts where fabric girdling the trunk appears to be the primary cause of decline. We see a few belts a year where the trunks have become constricted by the fabric and the tree is girdled as it becomes imbedded in the material. Usually trees girdled by the

fabric are about 8 to 15 feet tall and the fabric beneath these trees is completely covered by soil and debris. Since the fabric is protected from exposure beneath cedars it does not become brittle or degrade and can girdle the trunk as the stem expands but the fabric does not split.



Entire trees turning brown, often in groups, usually in in the lowest part of the windbreak. The sapwood within the trunks is brown.

The two unseasonably cold weather episodes experienced in the state, last October and this May, resulted in some foliage and sapwood cold injury as the trees had deacclimated from their tolerance to freezing temperatures. The dead sapwood cannot transport water and the foliage is browning as it dehydrates.

Entire tree turning brown, often in groups near the tops of hills or drier soils, numerous small BB size holes in the trunk.



The BB size holes are the exit holes for the cedar bark beetle. This insect is considered a secondary pest only able to colonize trees that have been stressed by drought or other stress agents. The drought of 2011/2012 was a major stress on junipers and this left many junipers susceptible to attack by this insect. You can usually find the galleries (tunnels) the insect makes beneath the bark. Most of these trees

have died by now so no insecticide treatments for the bark beetle are of any

value. Bob, at the Winner Extension Regional Center, took this picture of what appears to be a *Chrysobothris ignicollis*, another beetle that is attracted to dying junipers. Again, neither of these insect is the primary cause of death, that was the drought. They came in afterward to finish the trees off.

Entire trees turning brown, often as individual trees. However the interior foliage is still green. The sapwood is white and moist.



There are two very common foliage diseases of junipers collectively called twig blight either Kabatina or Phomopsis twig blight. Kabatina twig blight is a fungal disease that is common on junipers, particularly on trees stressed by drought or mechanical injury such as snow/ice loading or hail. The disease enters the tissue through wounds usually during late summer or autumn though the symptoms, yellow-brown shoot tips, do not occur until

spring. There has been numerous samples from the southern part of the state, particularly the southwest, that have this disease. The disease is similar to phomopsis twig blight but the symptoms for this disease usually do not begin to appear until midsummer and the fungal fruiting structures on the twigs differ. Phomopsis foliage started showing browning foliage within the last few weeks. The discoloration is mostly limited to the tips but can be on tips throughout the trees so it may appear that the entire tree has turned brown. Usually you will also find gray tips, shoot tips that died last year from the disease, mixed among the brown tips from this year. There are effective fungicide treatments for phomopsis, fungicides containing copper, mancozeb or propiconazole and labelled for twig blight, can be applied at 14-day intervals beginning in mid-May and continuing until the weather begins to turn dry. Unfortunately, there are no fungicide treatments for kabatina twig blight.



Dutch elm disease is beginning to showing up across the state.

The symptoms of Dutch elm disease (DED) are wilting and browning leaves, often throughout the canopy but sometimes restricted to the length of an individual branch or limb. They trees expressing symptoms now were probably infected last year or even several years ago, sometimes via root grafts with nearby DED-infested trees that were not promptly removed. These early expression of symptoms are not usually due to new infections carried in by beetles. The symptoms of new infections started by beetle-carried spores generally occurs

in July and are often limited, at least initially to the leaves at the tips of branches

turning yellow and wilting. Bark beetles and root grafts are the means by which the fungus spreads from host to host. The most effective community-wide effort is to quickly identify and remove DED-infested trees. The sooner infested trees are removed, the less likely the surrounding healthy elms will become infected. Individual, healthy trees can be protected from the disease by root-flare injections of either Arbortect or Alamo fungicides though these must be repeated every two to three years. The injections can be done by commercial tree companies.



Powdery mildew is appearing on lilacs in many areas of the state. This is a very common disease of lilacs but powdery mildews (usually different fungi as these mildews are host specific) can occur on many different plants including grapes, roses and Virginia-creeper. Powdery mildew appears as white to grayish spots or patches on the leaf that often contain small pin-size black dots. These symptoms usually occur on the upper leaf surface.

They also are more common on plants that are crowded and shaded, locations that provide the high relative humidity need for the disease to develop. Since the disease occurs mostly on crowded plantings, the best solution is to selectively prune out (or even remove) plants to provide better air circulation and lower the humidity. There are also many fungicide labeled for control of this disease but these need to be applied every 10-days throughout the growing season or at least throughout the hot, humid summer weather.

E-samples



Ash and privet borer. I received an interesting picture from Bruce at the APHIS office in Pierre. This insect was found in declining ash trees near Plankinton last week. This is the ash and privet borer (*Tylonotus bimaculatus*). The insect is native to the eastern and central United States and has been recorded previously in South Dakota though it is a relatively rare insect. The borer is typically found in

mature or drought-stricken windbreak trees. The adults emerge in May or June and the female lays eggs on dying ash trees (or at the base of privet stems though this is not a common host in South Dakota). The larvae begin feeding in the phloem tissue and then move into the sapwood as they mature. The larvae pack their galleries with frass so the initial tunneling by the larvae is very similar to those created by the emerald ash borer. The insect moves back closer to the bark to pupae and the adults emerge from oval-shaped holes similar in size to

those made by the emerald ash borer. The insect takes two years to complete their life cycle. Since the adults are attracted to dying trees, management is focused on keeping the tree healthy rather than treating the insect. The insect is not a serious problem in South Dakota but is a close “look-a-like” to the emerald ash borer.



Anthracnose is showing up on a number of tree species in the state with ash and maple being the two most common hosts. The disease is caused by a fungus, with different species of fungi associated with different host genera. I have received a number of samples and e-samples of disease. The infected leaves have yellowish to brown (almost black) blotches that may enlarge and distort the leaf's

shape. Infection of the petiole can result in leaf drop and this is what is now occurring on many of the trees. The disease can be severe during years where May and June are wet – the conditions we experienced this year. Trees that are severely infected can have most of their leaves fall but the second set of leaves that develop during the drier summer usually are disease free though smaller than normal since they are forming during hot and dry conditions.

Since the disease infected the leaves as they begin to expand, it is common to see only one tree in a row, or sometimes only one side of a tree, infected. If that tree or portion of a tree is leafing out just a little ahead or behind the rest, it may have been during the optimal window for infection.

Samples received/site visits

Brule County FL1400015

What is this growth on the elm leaves?



This is the elm spindle gall caused by the feeding activity of an eriophyid mite (*Eriophyes parulmi*). The mite feeds in the leaf tissue sucking out juice and replacing it with toxins. The toxins cause the abnormal spindle-like growth on the upper surface of the leaves. The problem is more a curiosity rather than a serious threat to a tree's health.

Dawes County NE FL1400016 **Declining linden trees that was planted last year**



There were no signs of an insect or a pathogen associated with the sample that was submitted. The most common reason for abnormally small leaves and dieback in a recently planted linden is being planted too deep. The first pencil size root should be just beneath the soil surface, it is deeper in the soils, and the short crook, where the tree was budded, is not above the soil, then the tree was

planted deeper that it should have been.

Gregory County

Discolored green ash foliage

This is ash anthracnose, a common foliar fungal disease we seen during wet springs. The disease is not fatal and is usually limited to the foliage though occasionally the shoot can become infected. The disease is usually one that fungicide treatments are recommended as the problem only occurs during wet springs. For more information, see e-samples above.

Harding County

Dying spruce and Rocky Mountain junipers

The spruce sample submitted need not show any signs of an insect, mite or pathogen. However the new growth for this year and the growth from the previous year were much shorter than normal. This symptom pattern usually indicates an environmental stress as being a primary cause for the decline rather than a pest. The decline may be related to the drought experienced during the 2011-2012 year.

The Rocky Mountain juniper has Kabatina twig blight, see information above in Timely Topics.

Marshall County

Dying spruce

This is rhizosphaera needlecast, a fungal disease that was a common source of samples until a few years ago. I have received few samples of this disease during the last two or three years. Rhizosphaera needlecast results in the lower, interior needles in the canopy turning brownish purple then shed prematurely. A spruce infected with needlecast may only have two years of needles on a branch rather than the normal five to year years. The disease is easily confused with a needlecast caused by Strigmina, which produces similar symptoms, but the fungal fruiting structures differ so they can be separated in the lab or even the field with a 10x lens. The treatment for rhizosphaera is two applications of a

fungicide containing chlorothalonil. The first application when the new needles have half elongated (usually mid-May) and the second about three weeks later. The tree will need to be treated for two years in a row to show any reduction in symptoms. The fungicide will not “cure” the tree, two years of application may need to be done another five or so years later.

Perkin County **Browning and dying foliage on Russian-olive and woodbine**

The samples were difficult to examine as they were placed in a plastic bag with damp paper towels. This usually results in a moldy sample. It appears that the Russian-olive has phomopsis canker. There were some purplish-black cankers on the twigs, though the leaves did not appear as wilted as they should be. The typical symptom pattern is flagged branches, those with wilted, hanging leaves, appearing throughout the canopy of the tree. Management of this disease is keeping the trees healthy with watering during dry summers and pruning out branches with the canker. I have seen a lot of this disease West River during the past decade and a number of Russian-olive shelterbelts have declined to the point the trees were removed.

The woodbine appears to be infected with a leaf spot, probably anthracnose, though the sample was too moldy to be certain. Most leaf spot diseases on woodbine are not fatal, but can make the foliage look very poor during the summer. Premature leaf fall can also occur.

Perkins County **Browning and dying foliage on apple**

This is apple scab, a disease discussed in the Update earlier this year. This foliage disease occurs almost every year and during wet springs – as we experienced this year – the disease becomes very common. The treatment for the disease is fungicide applications beginning when the buds are just beginning to expand. It is too late for control this year. Fortunately the disease is not fatal to the tree, usually only resulting in discolored leaves that fall prematurely.

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This publication made possible through a grant from the USDA Forest Service.