Pest Update (October 4, 2017)

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

Email: john.ball@sdstate.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.

Plant development for the growing season

Frost and even flurries are in the forecast for parts of western South Dakota. Quite a switch from the 90s a couple of weeks ago. While we may still see some warm or even hot days during October, cool will become more of the rule than the exception. Fall color is at its peak so enjoy nature's celebration of fall with the reds, yellows and purples lighting up the trees.

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 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.

Once we do find it in South Dakota our approach will be similar to that of Minnesota. There is now a quarantine in Martin County to limit the movement of ash wood - e.g. logs, green wood, chips, firewood – out of this new county. This action will aid in slowing the spread of the insect across the state and help reduce the strain on resources to remove infested trees. This is of particular value from May through September, a time period when the adult beetles are emerging from ash and flying to infest living ash trees.

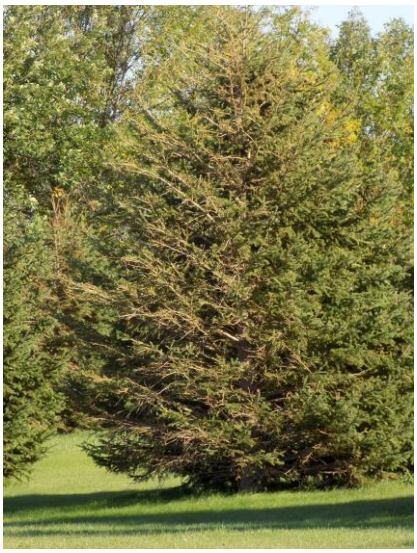
Timely Topics

The question this week; "How do I get rid of these %#$#*! lady beetles!" The multicolored Asian lady beetles (*Harmonia axyridis*) are on the move again this year. The multicolored Asian lady beetles were introduced into this country from Russia, Japan and Korea beginning in 1916 with most introductions in the 1960s and 1970s. They were brought over as they are efficient aphids feeders, better than our native lady beetles, and in our region are important controls for the soybean aphid and the cornleaf aphid. The multicolored Asian lady beetles may be yellow, orange or red and sometimes with spots.

People are already finding them tunneling through their windfall apples (and in their raspberries). Soon people will be noticing these lady beetles on the ceilings in their kitchens and other rooms, particularly sunny rooms. Not only are they a nuisance due to the large number that can be found in a home, they can bite! The bites do not draw blood, nor do they carry any diseases, but it is another annoyance. Finally if you smack one you'll find it gives off a yellow-orange fluid (its blood) that has a foul odor and stains surfaces. And if that is not enough about 25% of people have allergic reaction to contact with the beetles. Apparently, these are not the best house guests.

No one is quite sure what triggers the mass migration of these beetles from field to homes, but their mass movement to buildings is most likely related to the shorter day lengths, a drop in night temperature (40s-50s^{o}F) followed by warmer (60s-70s^{o}F) days, and a reduction in food availability. Typically the lady beetles begin moving sometime in early October. Keeping the beetles out of the house requires several different strategies.

First, seal as many opening into the house as possible, this means around doors and windows, fascia board and vents and any other opening more than 1/8-inch or larger. Second, but only after finding the first approach does not work, is to apply an insecticide. The insecticide should be applied around doors windows, and rooflines, areas where the insects typically gain entry into the house. The common active ingredients used for treating homes are Bifenthrin (Ortho Home Defense Indoor and Outdoor Insect Killer and Deltamethrin (Bonide Household Insect Control). Do not apply these insecticide to the landscape as beetles can travel long distances to houses and do not necessarily land on nearby trees and shrubs before reaching the house. Remember the strategies focus on keeping them out of the house, once they are in you now have winter guests that will not leave (like relatives).



Hail damage and long-term survival of conifers. Various areas of the state have been the target of hail storms this year with one of the worse in the Castlewood area last summer. Becky from the SDSU Cooperative Extension Service took several pictures this past week of the damage.

The trees are stripped of their needles to various degrees. Some trees have the damage limited to one side of the tree while others have random branches throughout the tree stripped of their needles. There is also discoloration occurring on the remaining needles with some tips turning brown or tan.

The question, of course, is will these trees recover? Generally hail storms are not fatal, however, the outcome is usually not a nice looking tree. Conifers lack the ability to sprout from damaged branches so once the shoot has lost its needles it may remain bare for a long time, perhaps three or more years. It may also never fully recover and the entire tree left with a misshapen appearance.

In addition, the wounds created by the hail are excellent entry points for pathogens as well as a stress that leaves the trees more vulnerable to pests. Cytospora canker, a common disease of spruce, is associated with stress and these hail-damaged trees are likely to be affected by this disease. Diplodia tip blight, a disease of pine, symptoms often appear after hail. This is not because the hail provided wounds for the disease to enter, but that the mechanical injury stressed the tree and the already present disease begins to injury the tree.

If a tree has lost more than one-third of its needles (as in the picture to the left), you might want to consider removal. If it is one-third or less there is a good chance it will recover, though the appearance will be poor for several years to come.

There is not much that can be done for these trees other than prune out any branches that are stripped of foliage that also do not have live buds at their tips. If the terminal buds are brittle and hard, they have died and the branch will not recover. However, if the buds are soft they may still open next spring and produce new needles. The tree will look sparse since the needles that are lost will not be replaced but within three to five years the appearance of the tree will become normal. In addition to pruning, the trees should be watered (assuming you are receiving less than an inch of rain a week) for the next couple of weeks.

Patience is also a good idea. Wait until next summer and see how well the tree produces a new flush of growth before deciding whether to keep or remove the tree.

Can ponderosa pine grow on alkaline soils? I had a question regarding the suitability of pine in some of our West River alkaline soils. The short answer is yes. It is native to soils with a pH between 4.9 and 9.1 and is found in native stands in the Nebraska and out on the Pine Ridge growing on soils with a pH range of 5.9 to 7.9 (in the upper 8-inches of the soil). It is also a common tree growing on the disturbed, alkaline soils found in many of our communities and the tree is performing well soil with a pH of 7.8 on my campus. There was one study that noted difference in the nutrient content of plant tissue between

ponderosa pine seedlings growing in acid or alkaline soils with lower contractions of nitrogen and manganese, among other nutrients, in the trees on alkaline soils. However, ponderosa pines are not as demanding of nutrients as most other trees and lower concentrations do not appear to generally hinder growth.

E-samples

Ash rust pictures are coming in from a few areas of the state that had rains this spring. This fungal rust disease, *Puccinia sparganioides*, begins as bright orange spots on the petioles and undersurface of the leaves. These enlarge during the season, becoming almost gall-like and further distorting the leaves. The infected leaves drop prematurely sometimes as early as July, though the lower severity of infection seem to have limited the shedding this year.

This year the conditions were just right along the eastern edge of the state for the development of the disease, cool and wet, so we have not seen as much of a problem with this disease as some years. The disease, as with many other rust diseases, has two hosts, one is the ash and the other is a number of cordgrasses common found in ditches. The disease can be managed with a single application of a fungicide containing Myclobutanil made just as the leaves come out so it's too late for treatment this year. Treatments are not usually recommended anyway since the disease is not a tree-killer.

A picture of dock was send in with a question on controlling it in a pasture. Dock is a common weed on the Northern Plains and we have two species the **Pale dock** (*Rumex altissimus*) and the **Curled dock** (*R. crispus*) in South Dakota. They both are long-lived perennials, reproducing from seeds and roots, and are aggressive enough to invade poor pastures. They contain fairly high levels of oxalate so are not favored for grazing hence will become more a problem in pastures as the grasses are grazed down around them. There are some reports of sheep being poisoned by feeding on the curled dock and for us, they are a pollen source for hay fever. Dock is managed by mowing in the spring to reduce seed production and applications of a post-emergent herbicide (2,4-D, Milestone, Transline) during

periods of rapid growth. Treatment will be required periodically for several years or more as the seeds can persist in the soil for decades.

I received a nice picture of a cherry leaf with window-paining damage to the leave. This window-pane appear to the leaf, where only the upper layer of leaf tissue between the veins is chewed, is common from the feeding by **pear slugs**, *Caliroa cerasi* (cherry slugs is another name) The "slugs" are nonstinging wasps as adults but the larvae do resemble the garden slug. They are dark green, swollen near the head and are very slimy. They feed in late July and often the damage is not noticed until they have already developed into adults. We sometime have a second generation of this insect in September so some folks might still find a few slugs on the leaves of their cherries and pears. They really do little harm to the tree but the browning leaves are unsightly. The most common treatments to apply when the larvae are present include insecticides containing Carbaryl or Malathion as the active ingredient.

A picture was sent in of a cottonwood "oozing" from the trunk. This is a common problem with elms and cottonwoods and is called wetwood or slime flux. It is a bacterial disease that can result in wilting leaves and dying branches but usually the oozing of a foul smelling, alcoholic (but don't drink it!) liquid is the only visible indicator of the disease. The bacteria lives in the sapwood and the fermentation activity results in the development of an alkaline liquid under pressure that is forced out of the tree through cracks and old pruning wounds. The liquid is so alkaline that it will bleach the bark white as it runs down the tree! Once it was a common practice to place a drain tube in the tree to relieve the pressure but now it has been found that wetwood reduces decay so it may even be a benefit to the tree.

Samples received/site visits

Brookings County **Why are my oaks turning brown?**

Fortunately this was not Bur oak blight (BOB), *Tabakia iowensis*, but just a big aphid populations. Aphids are common pests of many trees but they are often overlooked as a reason for the discoloration of foliage. Aphids are small (1/16-inch), pear-shaped insects that feed by sucking sap from tender shoots and leaves. The piecing-sucking injury results in browning and stippling of the foliage. They can remove tremendous amounts of sap during a day, tens of gallons, and much of this substance is undigested and is excreted out as a waste product called honeydew. This sticky material is the reason for the tacky feel to decks and lawn chair, and cars beneath an infested tree.

Aphids are host-specific and the aphids on the oaks are not likely to move to other vegetation. It is also fairly late in the year and beyond any need for treatment. Insecticides are rarely recommended for managing aphids on large trees as these trees can withstand the injury and there are many natural enemies of aphid that generally do a better job at reducing a large aphid population.

Minnehaha County **Is this pine wilt disease?**

Pine wilt disease is not due to a fungus or even a bacteria but a very small nematode, the pinewood nematode (*Bursaphelenchus xlyophilius*). This nematode is found in dying (and dead) pines feeding on blue-stain fungi and is not considered a problem on our native pines. However, just like emerald ash borer, an Asian borer, is not a concern on Asian ash but is deadly on North American ash, this native nematode becomes a killer on exotic pines. Austrian, mugo and Scotch pine are very susceptible to this disease. Pine wilt was confirmed killing these pines in Missouri back in 1979 and since that time has almost eliminated Scotch pine from the central Great Plains.

We were not able to extract any nematodes from the sample submitted. This does not mean the nematodes are not present, just not in the sample. While taking increment cores of wood from the lower trunks of suspected trees is usually sufficient to find the nematode, sometime it takes an entire cross-section of wood about 1 inch thick cut from the lower trunk near a whorl of branches to yield nematodes.

Minnehaha County **Is this verticillium or Dutch elm disease on this American elm? The tree died fairly quickly.**

Neither pathogen was isolated from the samples submitted. This does not mean the diseases are not present, just not present in the tissue send it for testing. Also these are not the only pathogens that can kill an elm. While Dutch elm disease and verticillium wilt are the two most common, elm yellows, a disease formerly known as phloem necrosis, occasionally appears in the state, mostly in the eastern half. The twigs of trees infected with yellows have a butterscotch color, differing from the brown or green streaking associated with Dutch elm disease and verticillium.

However, after stopping by to see the tree, I believe the tree's death is due to Dutch elm disease. I have seen trees decline fairly quickly from the disease, from healthy to dead in a season or two. Usually this is due to either a root-graft infection (not likely in this instance as it is an isolated elm) or a beetle vectored the disease in the lower canopy and it moved quickly throughout the tree. The samples may have been taken from a branch distal to the infection so it wilted due to the vessels plugging but the pathogen was not present. If you cut a section of bark away from the lower trunk of these trees, most likely the diagnostic streaking of the disease will be present.

Minnehaha County **What is browning these blue spruce needles from trees near Dell Rapids?**

The samples were infected with Stigmina needlecast disease (*Stigmina lautii*). Symptoms are similar to Rhizosphaera needlecast, purpling and loss of older needles, usually beginning with the lower branches. The small dark fruiting bodies can be found on the needles and differ from those produced by Rhizosphaera. Stigmina fruiting bodies have a "spider-like" appearance around them, rather than a smooth margin. This disease

is managed by applications of a fungicide containing the active ingredient Chlorothalonil applied when the new growth begins to expand in the spring and then repeated every 10-days through August. Treat the entire canopy, not just the lower branches.

Turner County **What is causing this damage to our spruce trees?**

This was an interesting sample because all the youngest needles were shedding, not the older needles, and the terminal buds at the tips of these shoots were healthy. These are not symptoms of any pathogen or insect so the cause was most likely a disorder and only a visit is going to provide the clues for the cause.

Once I visited the spruce belt, the cause was clear – a growth-regulator herbicide. The damage was limited to the lower branches of most trees and the damage was present as slightly twisted shoots bare of needles. A few of the trees had these symptoms also present as a strip up the side of the tree. What happened? A growth-regulator herbicide was used to kill the broadleaf weeds around the base of these trees last June, about the time the shoots were expanding. New growth is very sensitive to herbicide drift and is easily damaged. These trees will survive and most will show no further damage than a few lower branches dying but on a few I suspect the one side of the tree will be a little thin due to the loss of this year's needles.

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