Pest Update (August 2, 2017)

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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.

Plant development for the growing season

We are right on schedule for plant development and now (at least in Brookings) receiving some much needed rain! The summer flowering shrubs; hydrangeas, hypericums and potentillas; are all in bloom. We are also seeing one of our best late summer flowering trees in bloom, the Amur maackia (*Maackia amurensis*). This small tree (less than 20 feet at maturity) is native to Asia and is planted in this country for its late summer flowering and attractive coppery bark.

Emerald ash bore - 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.

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.

It seems that most of the new infestations are discovered between March and July. These infestations are only new in the sense that they were recently discovered, not that the tree was newly infested. Generally when a tree is found to be infested with emerald ash borer it has been infested for several years already.

Why the new infestations occurring in spring and early summer is anyone's guess. I suspect people are probably out looking at their trees more once they leaf out and notice anything unusual then. By late summer, many of our ash look bad. Ash with branch dieback, sprouts and even some woodpecker damage are a common sight by now and while there is the possibility that one of these trees may harbor emerald ash borer, most people are not going to spend the time to look at all of them.

Timely Topics

Rain (finally). We have experience a little drought relief this past week or two many parts of the state this last weekend with the heavy rains. This is after a summer in which much of the state has received less than 25% of their normal precipitation. This weekend rain will be a big help in slowing the decline and dieback of many trees that had suffered during the dry months that preceded these showers. Interestingly, some trees may show *more* symptoms of drought now that the temperatures are cooler and we are having some rains. Buckeyes, hackberries and walnuts, among other tree species, will shed leaves due to dehydration but sometime these dying leaves will not drop until some rains occur. Also remember that August and September precipitation is critical for trees to prepare for winter properly so let's hope that there is more rain in the forecast.

Why are the leaves turning color? At this time of year I start receiving calls, texts and emails about leaves on a tree are turning yellow or brown. There is no single cause for this color change. It depends on the tree species and the stresses the tree is enduring. However, it is a common enough occurrence on elms, for example, that most communities stop conducting Dutch elm disease (DED) surveys by mid-August. There are so many stresses that can result in yellowing and browning elm leaves that foliage symptoms are not enough of a reason to take samples from the tree for further verification of the disease. On the campus of South Dakota State University we receive lots of reports of DED on various trees at this time, but rarely are any of these trees infected, they just have yellowing leaves.

In much of the state where drought still persists, the yellowing and browning is generally due to moisture stress. The lack of rains combined with high temperatures is resulting in marginal scorching of the foliage and premature fall color on ash, cottonwood, hackberry, maple and oak (Josh, a forester with the SD Dept of Ag provided this picture). Some of these trees are already beginning to drop their leaves. Usually the first

leaves to drop are the interior leaves but as drought stress continues even the newest leaves may begin to drop prematurely. Discoloration and defoliation are not just limited to deciduous trees. Pines and spruce will lose their older needles if the tree is drought stressed.

Aphids and scales are also building up populations in many trees – larger populations then we have seen in years – and they have become very common on elms, lindens and maples. The heavy sap loss on these trees is resulting in premature fall color. The leaves on these affected trees typically are yellowing and also sticky due to the honeydew production from the insects. Mites can also result in yellowing leaves, as can be seen in the picture of the honeylocust on the preceding page. Viruses can also cause leaf discoloration and it is common to find a mosaic on hackberry leaves infected with a virus. They symptom usually show up by this time of year and are often confused with those from herbicide applications.

Another reason for individual branches turning color is squirrels! These small rodents are girdling the branches of hackberry and cottonwood resulting in yellowing leaves on individual branches throughout the tree. No treatment for the aphids and scales is necessary, or effective, at this time of year. Treatment for squirrels? Depends on how good you are with a .22.

E-samples

Cedar-quince rust (*Gymnospo0rangium clavipes*) is appearing on hawthorns, serviceberries and flowering quince in the area. We do not have a lot of quince in South Dakota but Sam, an arborist from Aspen Arboriculture Solution in Sioux Falls, found an infected quince. The disease alternates between these hosts and junipers (primarily eastern redcedar and Rocky Mountain juniper). The infection on the junipers is not the same round galls as occurs with cedar-apple rust but instead are merely swellings of the stem. The infection on the primary hosts; the quince, hawthorn and serviceberry; typically appears on the leaves petioles, shoots and fruit. We see it most often on hawthorn and serviceberry fruit.

Fall webworm (*Hyphantria cunea*) is beginning its annual appearance. I received these pictures from Allyssa, one of the South Dakota Department of Agriculture's foresters. As the name implied, fall webworms occur in the fall (really late summer) rather than the spring as with the tent caterpillars. Another

big difference is that fall webworms live in the webs they spin at the tips of branches while the tent caterpillars form a temporary tent in among the interior branches and then move out of the tent to feed.

Fall webworm larvae have either red or black heads (and interestingly there even are some differences in web construction between these two types, the redheaded make nests covering much of the tree canopy while the blackheaded make smaller nests). The larvae have pale green bodies with long white to gray hairs that run along the body. They can become almost an inch long.

Fall webworm caterpillars do leave the nest as they mature and drop down to the ground to form a cocoon. The adult moths are a white tiger moth that appears in early summer. The females lays eggs on trees that are open-grown or along edges and some species seem to be preferred over others. Cottonwoods, elms and walnuts are among their favorites as well as most cherry and apple trees.

The damage done to the tree looks worse than the actual harm to the tree. Most people just live with the ugly nests and defoliation. However if someone wants to limit the damage, now is the time for treatments. Once the larvae have matured they have completed most of their feeding and treatments are no more than revenge. Malathion is one of the most common general insecticides used to manage this insect but a better choice might be one containing spinosad. This is a metabolic byproduct of the bacterium *Saccharopolyspora spinosa* and is effective against a wide range of caterpillars (as well as some flies and beetles). The formulation available to tree owners is called Captain Jack's Dead Bug Brew, no kidding, but it works. The spray should be applied on the foliage just outside of the nest as well as the nest itself. The insect must ingest the material so it must be applied to foliage.

Samples received/site visits

Faulk County **What is wrong with this plum? Is it Roundup applications?**

Plums, as with all *Prunus*, are sensitive to just about every possible insect, disease and disorder and may die if you just look at them funny. The point is that there are lots of problems that can affect plum. I doubt if it was herbicide in this

instance as the foliage symptoms are not consistent with most common products. The sample showed some new root production this spring but no insects or pathogens that might explain the top dieback. This might require a stop.

Grant Country FL1700010 **What is wrong with these Meyer and Norway spruce planted in a windbreak a year or so ago?**

This one required a site visit as the sample really did not tell a lot except the trees were stressed and there were no foliage diseases. Once on site, the answer became apparent. The trees in the low area were the ones most presenting symptoms. These was even noticeable with the hackberries, a trees adapted to poorly drained soils, where the trees on top of the slope were growing at twice the rate as the ones at the bottom. Spruce, all spruce, even Meyer and Norway spruce, do not fare well on poorly drained soils. The trees may survive but will not thrive and it may be better to replace these with a broadleaf trees such as European alder which is adapted to these environmental conditions.

Lawrence County **What are these bumps on the shoots?**

These are the pineapple shaped galls created by the spruce gall adelgid (*Adelges*). There are two species, the eastern (which forms galls at the base of shoots) and the cooley (which forms galls at the shoot tips). The pineapple-shaped galls are the result of feeding by the young nymphs as the shoot tips form. We rarely see this many samples of gall aphids but this year they seem to appearing on many white spruce. This may be a one year occurrence and the natural enemies reduce the population before next year.

Union County **Why did the whole windbreak die?**

This was an interesting stop. The trees were all dead, but they were all planted properly and had been receiving excellent care (including watering). The

problem? The previous crop was corn and Atrazine was used as an herbicide. While Atrazine is labelled and used for weed management in conifers, even seedlings, the rate and timing must be carefully followed as high rates are toxic to young trees and persist long enough to kills seedlings planted a year or more following a summer application. We were able to detect Atrazine in the foliage of these seedlings planted a year after the herbicide application. Atrazine residue must be considered when planting a new windbreak.

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