

Pest Update (May 10, 2017)

Vol. 15, no. 12

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.....	2
Treatments to do now	
Second apple scab treatment.....	2
Clearwing ash borer.....	2
Diplodia tip blight.....	3
Needlecast diseases of spruce.....	3
Treatments to do soon	
Pine needle scale.....	3
Timely topic	
Emerald ash borer update.....	4
Irrigation requirements for seedlings.....	5
Irrigation water quality.....	6
E-samples	
Ash flower galls are dropping.....	7
Tent caterpillars.....	8
Samples received / site visits	
Pennington County (dying poplar tree).....	8

Plant development for the growing season



This has been a crazy couple of weeks, cold and snowy to hot and dry. No wonder lots of trees don't like to grow in South Dakota! Plant development is proceeding very quickly now and there will be a number of pest treatments that need to be done now or will need to be applied shortly.

The crabapples are in full bloom in Brookings along with the double-flowering plum (pictured above) and purpleleaf sandcherry.

Treatments to do now



You probably should have applied your second application of fungicide for apple scab soon. Remember most of our fungicides labeled for homeowner use are protectants. They provide a chemical barrier between the susceptible tissue and the pathogen's spore. Once the spore germinates and enters the leaf it is too late for fungicide treatments.

This is the reason for beginning treatments as the leaves open and then continuing applications on a regular basis into the growing season. If you have not yet started treating your apple or crabapple for apple scab it is probably too late to prevent infection this summer.



Clearwing ash borer treatment with an insecticide containing permethrin as an active ingredient can begin now. The lower 6 to 10 feet of the ash trunk should be sprayed to protect susceptible trees. The insecticide will kill the adults as they are walking on the bark to lay their eggs. The insecticide will also kill the newly hatched larvae before they burrow into the wood. Systemic treatments are generally ineffective so injecting a pesticide or pouring one around the soil are not practical means of managing this particular borer. The adults are usually out flying about a week or so after Vanhouttee spireas begin to bloom and the shrub is flowering now. You will also know the adults

are flying when you see the pupa skins sticking out of the emergent holes on infested trees as seen in the picture to the right.

All ash trees do not need to be sprayed, just ones that are showing stress from drought or other stressors. A healthy ash tree usually is not susceptible to this borer.



Diplodia tip blight first fungicide treatment should be applied now. Tip blight is probably the most common disease of pines, particularly Austrian pine. Symptoms in early summer are the new needles becoming brown and stunted (as seen in the picture below). Twigs may be infected and become stunted and deformed. The treatment is a fungicide containing thiophanate-methyl, propriconazole or chlorothalonil (labeled for control of this disease) just before the buds sheaths have opened. Timing is critical, once the bud sheaths have opened and the candle begins to form, it's be a little late to begin the first application and this is the one that provides most of the protection.



The new shoots will be expanding soon on spruce so it close to time to apply a fungicide to protect against **rhizosphaera** or **stigmina needlecast**. These are the most common foliage diseases of blue spruce. These diseases causes the older foliage to turn yellow by midsummer and then purplish-brown. Usually small black fruit bodies can be found in the spring lining the stomata along the needles. The disease results in premature needle drop and a thin and discolored canopy. The disease can be managed by an application of chlorothalonil now and a second application in about two weeks. If the needlecast is due to Stigmina the applications may have to continue every 10-days till August. Also for this needlecast it is important to treat the entire canopy, not just the lower branches.

Treatments to do soon



Pine needle scale, also called white scale, is an armored scale, one that forms a hard, waxy covering over their body. The eggs overwinter beneath mom's shell and hatch occurs about the time common lilacs are in bloom. The mobile immature, called crawlers, move out to the new needles, settle down, insert a "beak" into the needle and begin to suck out sap. The crawlers lose their legs and develop a hard shell (at least the females, the males develop wings and fly). The eggs are laid under mom and then she dies. This is completed by mid to late July and we usually see a second generation in late summer.

The female's dried shell remains on the needle for years so it always looks like a bigger problem than what it really is. The natural enemies of the scale generally

keeps the scale population in check so treatments are not always needed. If treatment is necessary use 2% horticultural oil or insecticidal soap as these do little harm to the natural enemies of scales (however, read and follow label directions and precautions carefully as a misapplication can cause needle discoloration. Insecticides containing acephate are also effective, but harm natural enemies. All applications should be made beginning in mid-May (about one week after Tatarian honeysuckle blooms) and another application mid-July.

Timely Topics

Emerald ash borer update

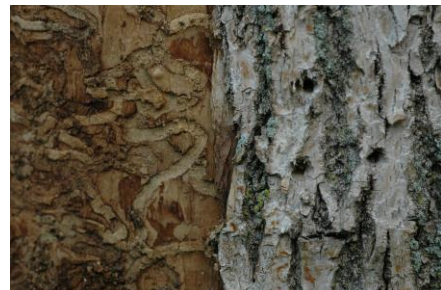
Emerald ash borer is on everyone's mind these days. This is like the Sword of Damocles, we lived in the luxury of overplanting tree species without worry (despise seeing the impact of Dutch elm disease) and now we have our ash just waiting for the 'sword' of emerald ash borers to drop. A horrible use of a metaphor and I am sure someone will take me to task but still it's like waiting for the one hair to break.

Every week now I receive pictures of trees that people believe are infested with emerald ash borer. Most of the time the pictures are of ash, but I do get the occasional boxelder or hackberry that were attacked by their native *Agrilus* borers which make a similar D-shaped adult emergence hole.



This past week I received pictures of an ash infested by the redheaded ash borer. This is a native insect and it, and its close relative the banded ash borer, are commonly found in stressed and dying trees. The easiest way to separate the tunnels, or galleries as they are called by entomologists, is that they are meandering trails on the wood beneath the bark (see picture to the left).

The galleries for the emerald ash borer (see picture to the right) are serpentine, usually winding back



and forth in tight patterns. The emergence holes for the adults differ as well. The redheaded and banded ash borer make an oval exit hole while the emerald ash borer hole is D-shaped. Sometimes the redheaded emerges at a slight angle to the bark and in these instance it can almost appear D-shaped so you have to look close.



The emerald ash borer will be emerging about the time black locust are in bloom, about a week or two away in much of the state. In anticipation of the flight, APHIS, the South Dakota Department of Agriculture and the South Dakota Cooperative Extension are placing purple panel traps up in ash trees across the state. There will be about 200 traps throughout the state and these are a means of detecting the insect. They are not the best means. There have been numerous occasions when the insect was found in a town but never pick up in a trap. They are just one more tool in the tool box in the state's approach to finding any infestation in the state. As a final reminder, emerald ash borer has NOT been discovered in the state with the closest known infestations in the Omaha, Nebraska and Minneapolis, Minnesota regions.

Irrigation requirements of newly planted tree seedlings



Everyone knows you need to give access to water for livestock, but for some reason seedling trees are not expected to need any water. Trees did not evolve to be ripped out of the ground, stored at or near freezing temperatures and then planted in another location the next spring. The fact that they can survive this treatment is amazing and speaks to the resiliency of trees – they are very tough. Still 100 percent survival is rare, even under perfect conditions, and 75 percent first-year survival in a new belt is more reasonable depending on the species and the site.

You can improve these percentages by how you care for the trees after they are planted. The greatest need to a seedling tree following planting is water. The root system has been damaged by the lifting, storage and planting process – it's impossible to avoid some injury – and recovery depends on growing fibrous non-woody roots very quickly. These fine, almost hair-like roots are responsible for most of the water and nutrient absorption.

So how do you increase the production of non-woody roots? Water! I often am asked should fertilizer be applied? No, not if you are not watering. The only way nutrients (more properly referred to as elements) can enter the seedling roots is to be carried via the water stream. No water, no nutrients, it's as simple as that.

How much water does a seedling tree need? Ideally each seedling receive about 32 oz. of water within an hour of planting. This soaking helps settle the soil around the roots and rehydrates the roots, stem and buds (and foliage for

evergreens). After that the seedlings should be water every 2 to 3 days with about a pint and a half of water at each watering. The watering needs to be a slow soak so the water permeates the soil to a depth of 12 inches, not run off. And water the tree, not pour water on the fabric as much of this water will run off rather than soaking in around the seedling.



The second year trees still benefit from supplemental irrigation, about twice a week with about one gallon at each watering. The third year the watering can be reduced to about once a week but now four gallons of water at each watering. Obviously this watering schedule and rate is assuming no precipitation. If the trees received an inch or more of precipitation during a week you can forgo the watering.

How many years do you need to give supplemental irrigation? The recommendation for the Plains vary but range from 3 to 8 years. Eight years would be great but I'm satisfied if a landowner will water their windbreak trees for at least the first three years.

Water quality

The quality of the water is as important as the timing and rate. Poor quality irrigation water can kill seedlings and ruin soils for future planting. Water quality is determined by the concentration and composition of dissolved salts. Just like too much salt in your diet is harmful, too much salt in a tree's diet can lead to injury or death.

The total concentration of dissolved salts in irrigation water is measured as deciSiemens/meter (dSL/m). The salinity hazard of irrigation water to trees, particularly seedling trees, is divided into four categories.

Salinity level	dS/m	Irrigation value for seedling trees
Low	<0.25	Excellent water quality for all trees and shrubs
Medium	2.50-0.75	satisfactory water quality for most trees and shrubs
High	0.75-2.25	Use for salt tolerant trees and shrubs
Very high	>2.25	Not recommended

Mature trees can tolerate a higher salinity level than seedlings with most able to grow on soils that are below 2.0 dS/m. The trick, of course, is getting them started on soils with high salts.

There is no practical way to treat saline irrigation water for seedling trees. Water with high sodium, but low total salt levels can be treated with gypsum to improve

infiltration rates but generally the challenge we face in South Dakota is high salt levels from several salts, not just sodium.

The solution is plant trees that can tolerate the high salt levels in water or soil.

Trees and shrubs that are the most tolerant

Ash
Austrian pine
Golden current
Hawthorn
Lilac
Russian-olive
Sea buckthorn
Siberian elm
Siberian peashrub

Trees and shrubs that have low tolerance

Colorado (blue) spruce
Chokecherry
Cottonwood
Poplar
Willows

E-samples



I have received numerous calls regarding small clusters of “buds” on the ground beneath ash trees. These are the male flowers that are falling from the trees. Most of the ashes planted in our communities are male cultivars as no one wants the seeds produced by the female trees. The male flowers appear as bundles of dark purple, apetalous (no petals) flowers on very short stalks and occur before the leaves open. These are often infested by the ash flower gall mite which results in an abnormally large bundle of flowers that turn dark brown and often remain hanging from the tree for one or two years. At this time of year while the trees are bare, I also receive lots of pictures of the infested flowers that have formed these galls on the tree. The galls do not harm the tree but they do look unsightly.





Tent caterpillars are webbing in trees. **Tent caterpillars** egg masses are beginning to hatch in southern South Dakota. It is still possible to prune out the infestations since the nests are small and the caterpillars have not migrated out of them yet. However, over the next few weeks these “worms” will begin to move out and feed on the expanding foliage of cherries, apples and other preferred host. Once the insects begin to

feed throughout the canopy, it may require an insecticide application to manage the extent of defoliation. The most common available insecticides for managing this insect are ones that contain carbaryl or malathion as the active ingredient. Carbaryl is commonly sold as Sevin while malathion is sold as Malathion. *Remember spraying any fruit tree during flowering will have the undesired effect of also killing any bees that are pollinating the flowers so avoid this time period.*

Homeowners now have another option for managing tent caterpillars and other moth and beetle larvae, Captain Jack’s Deadbug Brew™ from Bonide (you have to love the name). This product contains spinosad, a natural insecticide derived from an actinomycete bacterium. Spinosad has been available to commercial applicators for years but now products can be found in the market for homeowners. Spinosad exhibits low toxicity to mammals and while toxic to pollinators at the time of the application, once the residue has dried on the foliage (about 2 or 3 hours) there is little risk to honeybees (*Rev Environ Contam Toxicol* 2003: 179: 37-71). However I still recommend avoid spraying trees in bloom.

Samples received/site visits

Pennington County

Is this insect killing the tree?



This was an e-sample sent to me by Phil, an SDSU range entomologist, that had pictures and question sent in by a homeowner. I followed up with a site visit last week. First the tree is a poplar, not the longest lived trees and one that is susceptible to a multitude of diseases, disorders and insects. The tree died due to a decay fungi on the roots that was able to take advantage of the opportunity of the tree owner cutting off some larger roots near the

trunk. The roots were coming up in the yard – a common occurrence with poplars on compacted soils – and cutting them seems to be a good way to stop the problem.



This technique will work since it will often kill the entire tree and the roots, but that is not usually the desired outcome. The serpentine galleries in the wood that looked suspiciously like those created emerald ash borer are from a native, but close-related, bronze poplar borer. This insect will colonize declining poplars and aspens. The galleries created by the insect can form a network that



girdles the tree hastening its death.

The insect that was found beneath a bark strip that was torn away (and pictured on the previous page) is not a plant-feeder but instead feeds on insects and other critters living beneath the bark. It appears to be a flatheaded beetle (*Cucujus*), but I have not looked at the sample, only the picture.

This sample really highlights a common challenge to diagnosing tree decline. The insect often found on the tree has nothing to do with the tree's dead, it is merely using the decaying tissue as a home.

The South Dakota Department of Agriculture and South Dakota State University are recipients of Federal funds. In accordance with Federal law and U.S. Department of Agriculture policy, this institution is prohibited from discriminating on the basis of race, color, national origin, sex, age, or disability (Not all prohibited bases apply to all programs.) To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 1400 Independence Avenue, SW Washington, DC 20250-9410 or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

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