Pest Update (May 17, 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

The nanneyberries (pictured), lilacs, buckeyes and Tatarian honeysuckles are all in full bloom in Brookings. We are at about the same point in plant development as last year and still ahead of most years. Many years the crabapples were just beginning to bloom at this time in Brookings and this year they are almost finished.

Treatments to do now

Now that the growing season is in full swing there are numerous treatments to be applied. These treatments are necessary to protect the plant from the pest. Waiting until you see symptoms of an infestation or infection is usually too late for effective treatments.

Now that buckeyes are blooming, bronze birch borers are emerging from infested trees. **Bronze birch borer** (*Agrilus anxius*) is a native insect that attacks birch. It is a close relative to the emerald ash borer so they both make ac D-shaped hole as the adult emerges from the tree. The time to treat birch trees is now as the female beetles are finding places on the bark (usually near a branch union) to lay their eggs. The bark can be sprayed with an insecticide containing permethrin as the active ingredient with a second application in about three weeks. Insecticides containing imidacloprid can also be used as a soil drench in the fall to kill newly hatched larvae the following year so it's too late now for these treatments to be effective. If the canopy has dieback back more than about 40% the tree too far gone for treatments.

Bronze birch borers colonize almost every birch species with their favorites being Asian and European species such as the cutleaf European white birch. The river birch is very, very rarely attacked by bronze birch borer and can be considered a borer-free alternative to other species.

Cedar-apple rust galls on the junipers have expanded during the past week and this is an indicator to begin treatments to protect susceptible apples and crabapples from cedar-apple rust. The galls form on the junipers (cedars) and release spores that infect the apples and

crabapples. The infection on apples and crabapples results in discolored foliage and fruit and premature drop of the leaves. Fungicides containing Myclobutanil as the active ingredients can be applied beginning now and repeat three more times at 7 to 10 day intervals. Captan, a common fungicide for apple scab is NOT effective against cedar-apple rust.

Codling moth adults are flying and laying eggs on the newly forming apples. Once the larvae hatch, they will burrow into the developing apple, usually near the base of the fruit, resulting in a trail of brown, powdery frass through the apple. This frass often extrudes from the entry hole as in the picture to the left. The treatment is usually Malathion, though there is much evidence that carbaryl (Sevin) provides better control. The first treatment begins about 10 to 20 days after petal fall, as the fruit just begins to form and then three more applications spaced about 10 days apart. This treatment will also control **plum curculio**, an insect that cannot usually get through the tough skin of an apple but the egg laying leaves the fruit dimpled and distorted. The picture to the right shows bird pecks (the large hole) and plum curculio damage (the dimples).

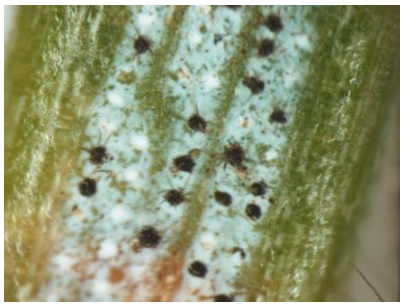
The other option is **bagging the individual apples** using the Japanese fruit bags when the apples reach about ½-inch diameter. This is no guarantee of control as the fruit may become infested before that size but they do provide reasonable control of this pest and many others as well as improve the shine to the fruit.

And finally, if you want to hang jugs of bad smelling liquid to attract codling moths and repel unwanted visitors at the same time consider mixing **molasses and water** in a 1:7 solution with a few drops of dishwashing soap. Pour this solution into a one-gallon milk jug with the top cut out of it and hang from the tree. The fermenting mix is attractive to codling moths (as well as wasps and critters) and they *may* prefer this to your apples. It also creates a mess if you bump the bucket while mowing your lawn…….

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.



The new shoots are expanding on spruce so it's 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. Stigmina needlecast fruiting bodies have fuzzy edges (as pictured above) while rhizosphaera fruiting bodies are smooth (as pictured to the right). 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. It is important to treat the entire canopy, not just the lower branches when treating for Stigmina.

Timely Topics

It's another bad year to be an ash tree. The cold snap two weeks ago caught many ash (and hackberries) trees just as the leaves were expanding. I have seen numerous trees with classic symptoms of frost damage, blackened tips of young leaves. Trees that have fully mature leaves, such as basswoods, maples and elms, were not affected. Nor were trees that had not leafed out yet, bur oaks and coffeetrees. It seems that these late frosts always catch the trees that are in-between, the ash,

hackberries and to a lesser degree, black walnut. When this happens, as it has in past years (2009, 2010 and 2015), the ground becomes littered with their small, partially developed leaves that have a blackened margin. While it may appear alarming, affected ash and hackberries, will soon put out additional leaves and usually by the end of the summer no one can even tell that the tree was defoliated earlier in the year. However I expect to receive lots of calls on "dying" ash and hackberries again this year.

Ash anthracnose is beginning to show up and with all the concern in the news about emerald ash borer, it seems everyone is noticing anything wrong with their ash trees! This is a common fungal disease of ash and some years the disease can result in almost a completely defoliated tree by the middle of June. I have already seen ash trees with many of their leaves lying on the grass beneath them due to this disease and frost. The common symptoms of ash anthracnose are blotches and distortions to the newly expanding leaves and the leaflets will often become distorted and have a slight curl. The infected leaflets will fall individually rather than as the whole leaf. Usually the tree produces a second crop of leaves by the end of June so the problem is short-lasting though this is a stress on the tree. The disease overwinters on the twigs and spreads to the leaves as they are expanding so the control time period has already passed and since the disease is such a minor threat to the tree generally no control is recommended.

Tent caterpillars are on the move. As mentioned in last week's Update, tent caterpillars are beginning to create their webs in trees. The infestations this year seem to be particularly numerous in south-central South Dakota where almost every chokecherry or plum is covered in the tents. The caterpillars are leaving their tents to feed so insecticide sprays are the only option for management and the sooner treatments are applied, the better. As the caterpillars continue to become larger, the amount of pesticide required to kill them increases and they will just about completed their feeding for the year. Ideally any spray is applied before the caterpillars are more than ½-inch long.

Waiting until the caterpillars are about 2-inche long is merely revenge spraying; they have already eaten about everything they can.

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.

How many fruit trees do I need to plant to have fruit?

This question comes up each year as people start thinking about planting fruit trees – received two calls just this morning. Most have heard you need to plant two trees to have fruit, often assuming you need a "boy" tree and a "girl" tree. This is not quite correct. You do need two trees for producing many tree fruits, but it has nothing to do with gender.

Most fruit trees are neither male nor female as their flowers contain the reproductive structures, stamens and pistils, for both sexes. Flowers with both male and female parts are referred to as perfect. However, the individual trees of some fruit tree species will not accept their own pollen and for these you do need two trees. These are called self-sterile fruit trees and include apples, pears and hybrid plums cultivars.

To obtain fruit from self-sterile trees, you must plant two trees but these trees must be two different cultivars, not merely two different trees. If you want fruit from a 'Haralson® apple, you have to plant anther apple cultivar near it, ideally within 50 feet. Just having two Haralson® apple trees will not result in apples, only flowers. To further complicate the process, if you have a Haralson® and a Haralred® apple tree you will still not receive fruit as the Haralred® originated from

a ‘Haralson’ apple tree so they are too closely related to pollinate one another. Two other popular apples, ‘Fireside’ and ‘Connell Red’ share the same problem, they cannot pollinate one another. Another challenge to selecting apple cultivars are you must not only have two different, and unrelated, apple cultivars, but the trees must be blooming at the same time. A ‘State Fair’ apple tree, in which the fruit ripens in August, may be finished blooming before a late season apple such as Haralson^{R} begins to flower. Usually it is not a good idea to assume an early season apple will pollinate a late season

Pears and hybrid plum bloom within a narrow time periods so the flowering of their many cultivars will generally overlap. However, some cultivars are better pollinators than others and some trees do not produce viable pollen at all. One of the best pollinators for plums is ‘Toka’ and is a good choice for any plum orchard. ‘LaCresent’ and ‘Superior’ are two popular plums but these share a similar parentage and cannot be used to pollinate one another.

Most pear cultivars are compatible with one another, the two exceptions being ‘Gourmet’ and ‘Luscious’ which are pollen-sterile. This means that neither of these trees will serve as a pollen source but will accept pollen from another cultivar.

Apricots are generally not self-sterile but the two cultivars frequently planted in our region ‘Moongold’ and ‘Sungold’ must be planted together to ensure fruit production. The majority of other apricots are not self-sterile but many are not as hardy to our region.

There are also fruit trees that are self-fruitful rather than self-sterile. These fruit trees that are able to pollinate themselves so you only need the one tree to have fruit set. The fruit trees in our region that are self-fruitful include European plums and sour (pie) cherries.

E-samples

And speaking of pollination (in the preceding article). I received this great picture of a ‘growth’ on a spruce tree. The growth is nothing more than the male cone. Conifers do not produce true flowers or fruit. Instead they produce male (staminate) cones and female (ovulate) cones. The male cones are generally along the lower branches and the female cones near the top. This is an interesting mechanism to prevent a tree from pollinating itself as the pollen is wind carried. The male cones can turn color, almost ornamental, before breaking apart.

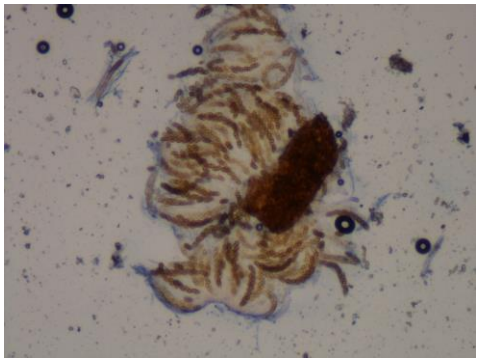
Samples received/site visits

Clark County FL1700008 **What is wrong with this spruce?**

Well, this is actually a rare find. Not a spruce with needlecast disease, but a spruce with Rhizosphaera needlecast rather than Stigmina. Fortunately treatment for this needlecast is simpler than for Stigmina and the directions can be found above under treatment soon.

Custer County **What is wrong with this mature spruce?**

A sample submitted by Dave, one of the Department of Agriculture's foresters from spruce in Custer County showed SNEED, Sudden Needle Drop, which is associated with the pathogen *Setomelanomman holmii.* The shoots were peppered with the black fruiting bodies of the fungus.



This is a fungal pathogen that seems to come and go. I have a few years where many samples are identified with the pathogen (the second so far this year) and then an equal number of years where I see very few. The pathogen can also be found on trees that are not presenting any symptoms of yellowing and browning of the older needles so clearly it is not the sole, or perhaps even the most important reason for needle discoloration and shedding.

SNEED is associated with stressed or declining spruce and is now considered more of an indicator of stress than a stress in itself. Most likely age, 40+ years, is the true stress for this tree.

Hand County **What is on this elm twig? Is it responsible for the sap dripping on everything below the tree?**

These small (rice grain size) white, fringed scales are called the European elm scale (*Gossypari spuria*). The scales feed by sucking sap from the twigs and excreting it as a sticky substance known as honeydew. The leaves attached to the twigs upon which the insect is feeding often turn a premature yellow and may wilt by midsummer. Occasionally a heavy infestation is mistakenly identified as Dutch elm disease.

Lawrence County **What is wrong with this pine?**

I was able to find a small twig beetle but apparently this was not the problem. The needles are infected with dothistroma needle blight. This is a fairly common disease in the Black Hills (though often misidentified).

Tripp County **What is this two-needled pine tree?**

We have a number of two needled pines in our state, most commonly Austrian pine, mugo pine, ponderosa pines (which can have 2- or 3-needles in a cluster) and Scotch pine. Only one of these trees has bluish-green twisted needles and that is Scotch pine (*Pinus sylvestris*). These are common trees in your county and mature trees can be easily identified by their orange upper bark. Unfortunately these trees are also highly susceptible to pine wilt disease and we are rapidly losing mature Scotch pines in the southern half of the state.

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