Pest Update (April 12, 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/

Plant development for the growing season

The warm weather we are seeing, along with some much needed rain is still pushing the development of our plants. Forsythias are in bloom in Brookings along with several other early spring bloomers such as Corneliancherry. Unfortunately we are still getting episodes with sub-freezing temperatures so I am seeing magnolias with frost-damaged flowers, the same as last year. It's hard to be a magnolia in South Dakota.

The warm weather is also moving up our treatment schedule. Many of our early spring treatments, the first apple scab spray for example, that typically start in mid-April may be sooner.

Treatments to do soon

There are probably two major foliage and fruit diseases of apples in our area, apple scab and cedar-apple rust. These diseases result in leaf discoloration, olive-drab blotches for apple scab and orange spots for cedar-apple rust.

Apple scab infected leaves begin become discolored by midsummer and if the infection is severe may fall by August. The fruit may also develop scabby lesions. The late winter-early spring control for scab begins with raking up and burning or otherwise destroying all the fallen apple leaves within a few hundred feet of the trees. Apple scab overwinters on the fallen leaves and during the wet spring weather spores are released from these fallen leaves to infect the newly developing leaves. This raking and burning has limited value, and is not a substitute for fungicide applications, but can help with management, particularly for isolated trees. Even mowing right now to break down the fallen leaves can help with the deterioration of the tissue.

Cedar-apple rust control begins with the removal of infected "cedars", more properly referred to as junipers, near the apple trees. This disease needs to alternate between two hosts, the apple (or crabapple) and junipers. Removing one of the hosts is a means of breaking the disease cycle. Rocky Mountain junipers and eastern redcedars with the small hard "apples"

surrounding twigs (these are the fruiting bodies to the fungus) should be removed before spring. However, as with leaf raking for apple scab, removing the cedars may have limited value as all the infected trees within several hundred feet need to be removed and this will still not prevent infection from more distance trees, up to a mile away, so fungicide applications will still be needed.

Fungicide treatments for apple cultivars susceptible to apple scab, start with the first application applied as the buds are *just* beginning to expand, less than a 1/2-inch of leaf showing. Cedar-apple rust fungicide applications start when the new leaves are about one week old, though treating the expanding leaf can also be beneficial. **These first applications are critical to the successful management of these diseases and if missed cannot be made up with applications later in the spring and summer**.

The most common fungicides used for preventative treatments of apple scab have Captan or Mycolobutanil listed as the active ingredient. If the apple scab treatment is for an ornamental crabapple, one in which the fruit will not be harvested, Chlorothalonil, commonly sold as Daconil may be used. Captan is also the most common fungicide included in multi-purpose fruit tree sprays such as Gordon's Liquid Fruit Tree Spray. Captan is effective on apple scab, but not cedar-apple rust. Myclobutanil, sold as Spectracide Immunox Multi-Purpose Fungicide Spray is probably the most commonly available fungicide that is effective on both these diseases. However, an important note is the Spectricide Immunox plus is not listed for apples as it contains an insecticide, Lambda-cyhalonthrin, so be sure to buy the correct product.

Applications of the fungicide are made about 7 to 10 days apart from the green tip stage until after petal fall, the weather usually turns a little drier then and a 10-14 day interval can be used until the end of June when applications generally stop.

Some tough apples!

Of course you can avoid the problem by planting apple trees that do not usually get these diseases. The apples that are less susceptible to these diseases are:

Freedom
Frostbite™
Haralson and Haralred® (moderately susceptible to apple scab)
Honeycrisp (moderately susceptible to cedar-apple rust)
Liberty
Sweet Sixteen (moderately susceptible to apple scab)

Tent caterpillars can be treated right now by pruning. Tent caterpillars (there are three different species, eastern, forest and western), are common defoliators of mountainash, cherry, crabapples, apple, and plums. If you look at one of these trees right now you might find these globs of what appears to be molten glass around the twigs. These are the egg mass to the tent caterpillar (see picture). If these egg masses are pruned off and destroyed (don't just throw them on the ground, unless the mice eat them the eggs will still hatch) you'll save the tree from defoliation. The new egg masses do look like molten glass, very smooth and shiny. If the egg masses are a gray to white and have lots of holes in them, they are last year's egg masses and not a threat to your tree.

Zimmerman pine moth is not just a single insect, but a complex of three different species of closely related insects. The three species found in South Dakota are *Dioryctria ponderosae*, *D. tumicolella* and *D. zimmermani*. The first two are generally found West River, while the last is found only East River. All three insects are easily identified by the masses of reddish pitch created in response to the burrowing activity of the larvae. Typically the pitch masses will be found near the branch whorls and infested trees will often have broken branches near these pitch masses as well as deformed tree tops. While the damage is the same, the treatment window differs among the three due to different life cycles. ***D. ponderosae* and *D. zimmermani* should be treated with a bark spray during the end of April, in another week or two, and again in mid-August.** *D. ponderosa* is treated the first week of June and again in early July. The most common insecticides for managing this insect contain Permethrin as the active ingredient. The application must be made with sufficient pressure to penetrate the foliage and cover the trunk and branch attachments.

Pine engraver beetle. The warm, dry spring has moved up the emergence of the pine engraver beetle (*Ips pini*). The adults spend the winter beneath the bark of standing or down trees or in the litter beneath the tree. When we start having consistent warm weather (temperatures in the 60^{o}F) the adults begin flying. *This flight usually coincides with the leaves of apple trees beginning to open*.

These adults actually prefer fresh slash (the branches and limbs left on the ground from recently felled trees). If the needles attached to these branches are still green, most likely the beetles will attack the slash and not the standing trees. However, during periods of drought or if slash is not available or has dried out, the beetles may attack stressed trees. Treatment for the pine engraver beetle is a trunk application of an insecticide labeled for bark beetle control. Most of these will contain Carabryl or Permethrin as the active ingredient. The entire tree, from the top of the canopy to the base of the trunk, must be treated when treating for the engraver beetles. A single treatment made soon with coverage over the entire tree is sufficient to manage this insects.

Timely Topics

Horses and cherry trees. Every year or so I receive a question or two about horses and cherry trees. Most people know this trees can be poisonous to horse but are not clear about the details so it's time for an update.

While cherry fruit is safe to consume (and can be delicious!) the same is not true of the leaves, shoots and bark (and even the fruit pit). These all contain various concentrations of cyanogenic glycosides which are toxic and ingesting these material can be lethal to many animals including most livestock. It's usually not a concern for people as we generally do not want that much "roughage" in our diet but if you chew a cherry twig you find it to be bitter, that is the cyanide.

The cyanide in the cherries has a purpose. It's a defense to keep from being eaten and many animals will avoid browsing on these plants or only consume a small amount before moving on to other, tastier plants. However if an animal does browse the plant the material is hydrolyzed in the stomach (with the help of the micro-organisms present in the gut) to hydrogen cyanide.

When toxic amounts of the cherry are ingested, symptoms present very quickly often within 20 minutes. The initial symptoms are distressed behavior, followed by staggering, muscle tremors and rapid respiration. The animal may begin kicking but will soon lay down and it's breathing slow down along with the heart rate. The animal may make a few paddling of the feet before convulsion then death.

"The dose makes the poison" to paraphrase Paracelsus. So there is little concern if the livestock ingests a leaf or two. However, ruminants that consume 0.25% of their body weight in leaves are likely to have received a fatal dose and this consumption may take place over several days. So if a 1000-pound animal

ingests 2.5 pounds of cherry leaves, about 200 to 250 leaves, over several days the dose can be fatal.

If the leaves are wilted or drier, which concentrates the toxin, the amount of foliage needed to supply a fatal dose may be even smaller. The cherries also differ in their concentration of the cyanide toxin and black cherry (*Prunus serotina*) is the most toxic with a lethal dose requiring only half the amount of leaves as most other cherries found in South Dakota, the common chokecherry (*P. virginiana*) and the western sand cherry (*P. bessyi*).

Buying nursery stock. This is the time of year when people begin to visit their garden centers to "spruce" up the home landscapes. While this is a good time to start *looking*, it might be a bad time to start *buying*. Many of the big box stores have seasonal garden centers that rely on bare-root material shipped in from distance wholesale nurseries. Plant material shipped in during the spring from warmer climates may have already leafed out and the tender foliage will be susceptible to frost injury if planted out. The other concern is bare-root plants should be planted before they leaf out, not after. While many of these bare-root trees, shrubs and vines available are packed in moist (or at least once moist) material, the leaves may dry out before the roots can begin to absorb sufficient water to support them.

E-samples

I received pictures of declining cotoneaster with the question of what to do about it. First, the dying canes had a borer in them. The flatheaded appletree borer (*Chrysobothris fermoroata*) is probably one of the most common wood borers in the region, most likely as it colonizes a wide range of hosts from apple to willow. It can also attack cotoneasters though I usually do not find borers in this shrub, probably because of the small diameters of the canes. It is generally attacking stressed plants rather than being the reason for the decline.

The easiest way to manage most serious problems in cotoneaster is to prune the hedge to about 2-inches tall and destroy all the cut material. This usually cuts below any fireblight infestation and borer infestations. If the hedge cotoneaster is reasonable healthy, it will sprout back vigorously and assume its original height within a few years.

This is a picture that came into the lab. This is a wolf spider, one of the more common spiders on the Great Plains. It is large (for a spider) about 1.5 inches with a hairy body in patterns of black, gray and brown. It is also a fast moving spider and that tends to frighten people. Fortunately people are not the preferred prey unless you remember the final scenes of the *Incredible Shrinking Man*, where Scot fights off the spider with a cloths pin.

Samples received/site visits

Perkin County **Why is this ponderosa pine turning yellow? The trees also have a lot of sap flowing from it.**

The yellowing may be normal. I often see ponderosa pines in the western part of the state turn a light yellow during late winter. This is most noticeable on the pines along Skyline in Rapid City. This usually is limited to the newest needles, the ones that formed last spring, and these needles turn green again once the weather warms.

The sap flow is unrelated to this and without a picture I cannot say why the trees are “sappy.” However, I do see a lot of Zimmerman pine moth damage on pines in your area and this might be the reason for the sap. Zimmerman pine moth is discussed in this *Update*.

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