Pest Update (December 2-9, 2020)

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Note: samples containing living tissue may only be accepted from South Dakota. Please do not send samples of plants or insects from other states. If you live outside of South Dakota and have a question, 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 as the label is the final authority for a product's use on a 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.

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Plant development for the growing season

Timely Topics

"Oh, the weather outside is"…..warm. We are having a warm, dry late fall. This is nice for us, but not so good for our woody trees and shrubs. This long, dry period is probably going to mean more twig dieback and winter burn next year.

Frost cracks on ornamental trees; wrap or do not wrap?
I received a question this week on the benefit of wrapping trees to prevent winter injury, specifically splitting of trunks.

Frost cracks are deep, longitudinal cracks that appear on the lower trunks of trees. While referred to as frost cracks, the origin of the crack is not related to frost or cold but a mechanical injury to the trunk. The genesis of the crack is a wound to the trunk; grass-whip, lawn mower, improper pruning; and this result in a structural weakness.

When the trunk is exposed to warm winter days followed by cold winter nights this rapid temperature change causes unequal contraction of the wood layers and the crack ruptures to the surface. Frost cracks almost always appear on the southwest side of the tree as this is the area of the trunk that may experience temperature changes of 20 to 30^{o}F or more from a sunny winter day to a clear winter evening – when you hear them split can sounds like a rifle shot.

Will wrapping trees during the winter help? It might, but keep in mind wounding is the start to a crack so do not hit young trees with weed-whip string and lawnmowers. If you want to wrap the trunks remember the purpose is to reduce the range of temperature fluctuation and some paper or plastic wraps may cause a more rapid temperature change.

In addition, if the wrap is left on into the next growing season it may trap moisture creating a favorable habitat for pests. Left on even longer it can girdle the tree.

Wrap or do not wrap? I suggest no since the problems of leaving it on too long outweighs the small benefit of winter protection. Do make sure the trees are receiving adequate water during the growing season and do not wound the trunk – these are the means to reduce frost cracks.

E-samples

Peach tree with oozing resin

This is a peach tree that has a canker (as seen in the picture) as well as excessive gum production and dieback. The canker is opportunistic, attacking trees that are already in decline due to other stress agents with drought, poorly-drained soils and our harsh winters all common peach stressors. Not much can be

done to control this disease other than maintain the plant's health but it is another reason we buy peaches, rather than grow them in South Dakota.

Samples received/Site visit

Brown County **Scotch pines turning brown and dying**

My initial concern when I looked at the pictures was that pine wilt disease had finally reached the northern edge of our state. Pine wilt disease has been moving north as our summer temperatures rise above the 72^{o}F, a threshold for the presentation of the disease in introduced pines. I had not confirmed pine wilt disease farther north than Highway 212 and was not happy with the possibility it was now moving farther north.

Fortunately, the problem was not pine wilt. The decline was from the loss of the inner foliage. The foliage at the tips was still present but sparse and yellow (not the yellowish color change that is common with Scotch pine during the winter). The twigs also were darker than normal.

The problem was pine tortoise scale (*Toumeyella parvicornis*). This is a sucking insect that feeds on the pine shoots and needles. The insect is a soft scale, so it also excretes honeydew, a sticky liquid that is a byproduct of their feeding. Honeydew is an excellent food source for mold, and it is frequently colonized by sooty mold which gives a dark appearance to the affected shoots.

High scale populations can remove a significant amount of sap from the tree, weakening and even killing their host. We rarely see high populations because many insects find scales very tasty and they goop them up. Scale predators and parasitoids generally do a great job managing the scale population and we rarely have to intervene.

But why didn't the natural enemies do their job? A possibility is that they are gone and the reason they are gone is spraying. Forest entomologists discourage spraying for scales as many insecticide treatments may kill more of the scale enemies than the scales themselves.

The insecticide sprays that are recommended are oils and soaps as these are effective against the crawlers (the mobile young of the scale) but do not kill many

of their natural enemies. The application timing is also exacting, just as the crawlers hatch to maximize the kill of this vulnerable stage before they become adults and are not susceptible to many treatments.

So, what was sprayed here? Nothing against any pest on the trees but instead one in the air – mosquitoes. These sprays, which are performed in communities across South Dakota help us enjoy warm summer evenings without contenting with annoying bites (and bites that can transmit deadly diseases). But an unintended consequence of these non-targeted sprays may be the impact on insects that are predators and parasitoids of insects that feed on our trees.

This is not a new phenomenon. Back in the 2000s, Michigan State University noted an increase in soft scales on trees that they attributed to mosquito sprays. There was a study published in *Wingbeats* (Knepper and Walker. 2001. Preliminary studies of the occurrence of Cottony Maple Scale in five Michigan counties. *Wingbeats* 12(2): 14-15, 26.) that noted outbreaks of this soft scale that they thought may be due to loss of natural enemies from mosquito sprays.

Michigan communities that had conducted mosquito sprays had higher soft scale densities on trees than nearby communities that did not spray. The results of the study were not clear-cut, for example, the year following the largest acreage sprayed, had the lowest population of scales. Hence the increases cannot be blame entirely on the sprays, they are just one factor.

So, what to do? First, the scale population is so high on the Scotch pines that the trees do need to be treated. Pyriproxyfen, sold as Distance and Fulcrum, is an insect growth regulator that is very effective on sucking insects such as aphids and soft scales yet has little impact on their natural enemies. The treatment window is mid-June to late June for northern South Dakota. The crawlers are out at about 500 GDD50, about the same time catalpas begin to bloom.

Another possibility is a soil drench with imidacloprid in late May. This will be absorbed into the tree and carried up to the shoots and needles killing the young crawlers as they feed. A soil drench is best applied to trees less than 16 inches in diameter. Soil applications of imidacloprid can have negative impact on soil microbial activity.

A third possibility is trunk injections with imidacloprid. This is becoming a more common approach but there is a slight trick to technique and timing with trees, such as pines, that produce resin. The manufacturer's recommendations for the injection equipment should be carefully followed.

And finally, managing area mosquito sprays is also part of the strategy. Mosquitos tend to stay near, within 300 feet, of where they hatch so removing anything that hold water – the breeding site for mosquitos is key part of management. However,

some can travel as far as five miles so the larger the area to remove anything holding standing water, the better.

Also try to not spray near the pines, stay at least 300 feet away and apply the mosquito spray late in the evening. These measures will reduce the impact on non-target insects.

Moody County **Is this emerald ash borer?**

It was a reasonable concern since the ash was declining and there was blonding and woodpecker drills throughout the upper limbs and trunk. Since the tree was declining, and they were going to remove it anyway, we cut it down to peel the bark away from the wood.

The primary problem was the tree was in a low area that had standing water during part of the past two years and that stressed the tree. The stress attracted the ash bark beetle and these secondary pests had riddled the upper part of the tree. There were also extensive galleries meandering along the outer sapwood. Some of the galleries dipped deeper into the wood and when I carved in I found a pupa. Not the emerald ash borer (which is still a j-shaped pre-pupa now) but the redheaded ash borer. The redheaded ash borer pupa has long antenna and that quickly separates it from emerald ash borer.

I was not able to find any signs of emerald ash borer. There were no D-shaped exit holes in the wood, and I did not find any larvae. Also the galleries were not quite the same as emerald ash borer. They were a little wider and meanders along the outer sapwood rather than being serpentine.

While redheaded and the banded ash borers do burrow deep into the sapwood, they can spend some time tunneling through the outer sapwood – the same location as emerald ash borer. During that time they are also within the reach of woodpeckers and these birds will readily feed on them.

Hence, not every ash with blonding and woodpecker drills is infested with emerald ash borer, sometimes it is just the native borers. And nothing says they all cannot be in the same tree, so it is good practice to check out these suspect trees.

Pennington County **Bark beetle in ponderosa pines**

Mountain pine beetle is for the most part gone, returned to its small endemic population where it is limited to an occasional kill of small trees here and there. But mountain pine beetle is not the only bark beetle in the forest. And some of these are now causing a problem.

There are pockets of dying pines throughout the Black Hills. The pockets range from one or two trees to clusters of fifty or more, with yellowing and browning needles. The trunks of these trees are sometime covered in small whitish pitch tubes, so the symptoms and signs are like those seen with mountain pine beetle, but these instead are due to two other bark beetles, the five- and six-spined engraver beetles (*Ips grandicollis* and *Ips calligraphus*).

These are closely related insects. One is sometime just considered a subspecies of the other. The primary difference is the number of points on their posterior, five versus six, and the *Ips grandicollis* is a little smaller, 1/6-inch, compared to the 1/5-inch length for *Ips calligraphus*.

Generally, engraver beetles colonize dying or stressed trees and leave healthy ones alone. Engraver beetles cannot successfully colonize a healthy tree as these trees produce pitch. This oozing, sticky substance can either drown or immobilize attacking beetles. The continual drought in the Black Hills has left many pine stands stressed and susceptible to attack as their pitch production is much reduced. If the drought persists into next year, we will see continued expansion of the engraver beetle population and increased pine tree mortality.

The winter is spent as adult beetles either beneath the bark of pines or in the litter beneath the trees. The adults will begin flying in the spring as soon as we have temperatures consistently in the 50^{o} and 60^{o}F. This usually occurs by early April in the southern Black Hills and late April or early May in the upper elevations of the northern Black Hills. There are several generations per year. but they overlap so much that we can find adults flying almost continuously from April to September.

Once the adults begin to fly, they are attracted to stressed trees or even more to fresh slash (logging debris) or even fresh wood chips. During this drought period,

avoid cutting and piling fresh cut branches near standing pines during the spring. This green material is attractive to beetles which can later move to nearby pines as the slash dries. Fresh wood chips can attract the beetles into an area and since these are not suitable for a food source, the beetles may immediately move to the trees.

Individual, high-value trees can also be protected from attack by spraying the entire tree trunk to the top and all the branches, with an insecticide labelled for bark beetles. These usually contain bifenthrin, carbaryl, or permethrin as active ingredients. The trees need to be sprayed in late March or early April before the beetle flight begins. The chemicals remain active on the bark for the entire growing season.

Reviewed by Master Gardeners Dawnee Lebeau, Carrie Moore, and Bess Pallares

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