Pest Update (February 20, 2019)

Vol. 17, no. 4

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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 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

We are still in the polar vortex and have delayed completing our emerald ash borer mortality survey for another week – might see a little more kill. The surveys in other northern states are showing similar trends; larvae in the thin-barked upper branches are experiencing high cold mortality while those in the thicker barked trunks are surviving.

Timely Topics

Pine wilt disease is now largely overshadowed by emerald ash borer but its still a significant tree-killer on Scotch (also known as Scots) and Austrian pines. This lethal disease is caused by the feeding of the pinewood nematode (*Bursaphelenchus xylophilus*) and possible associates, several bacteria. It has not been proven yet, but there may be one or more bacteria that modulate the virulence of the nematode. This means that the nematode might not be able to kill its host unless it has its bacteria friends along.

An Austrian pine with the early symptoms of pine wilt.

Emerald ash borer is a problem as it is an exotic (non-native) borer that attacks our native ashes such as green and white ash. The Asian ash have a high tolerance to this insect. The opposite occurs with pine wilt disease. The pine wilt nematode is native to the Untied States and infects exotic (non-native) trees such as Austrian, mugo, and Scotch pine. Our native pines, ponderosa for example, are not killed by the infection.

So darn if you do, and darn if you don't. You plant native trees and an exotic pest comes over and kills it since it lacks defenses. You plant an exotic tree and our native pests kill it since the pests find them to be an easy kill. What do you do?

The same tree by the end of the summer.

Keep planting I guess but be sure to plant a diversity of tree species as no one knows what or where the next threat is coming – or when.

Pine wilt disease was first noted in Nagasaki, Japan in the 1930, apparently the nematode was accidently taken over there. It was identified in this country in Missouri in the late 1970s and from there identified in Illinois, Indiana, Michigan to the east and Kansas and Nebraska to the west. It was first identified in South Dakota in the early 1980s in the Lake Andes area on a Scotch pine grove.

The disease remained along the southern border of the state for more than 15 year before it gradually spread northward and is now found as far north as Watertown, Pierre, and Spearfish. It has not been detected in North Dakota yet.

What has allowed the spread? It may not be so much as the nematode moving north as warmer summers are allowing the disease to develop. The nematode can be extracted from trees not presenting symptoms in cooler climates, but it appears that we need summers with a mean temperature in the low 70s to have the disease develop – yes, you can blame global warming – our summer temperatures have risen in the past decade. The Japanese were the first to make this association of the disease and summer temperatures as the disease spread faster in the southern part of the country than the north.

Unfortunately, this disease is wiping out some majestic Scotch pines in our communities and is decimating Austrian and Scotch pine windbreak. The best advice is to dampen planting of these trees in future landscapes and windbreaks. It does not mean stop but try to limit your potential losses.

E-samples

This e-sample was from a dead Scotch pine in the Yankton area. It had the classic symptoms of pine wilt disease, looked fine last summer and dead now. The neighbor had a pine that declined as quickly. While collecting a wood sample or better a “cookie” a cross-section of wood from the lower trunk, is the best means of extracting and identifying the nematode, it’s a moot point here as the tree is dead.

The only advise is to remove and destroy the tree before April 1 when the sawyer beetles that carry the nematode from dead to healthy trees begin to emerge. If possible, burn the wood.

Healthy Austrian and Scotch pines can be protected by injections with one of two nematocidal avermectin compounds – abamectin and emamectin benzoate. These same active ingredients are used for emerald ash borer and they work to kill or immobilize the nematode (or the EAB larvae). However, while you can inject a tree infested with EAB and have it recovered, pine wilt treatments are only effective as preventative, not as a cure.

The other difference is the treatments are more expensive for pine wilt and they are not as effective on the larger trees. While there are some people treating their pines, I suspect most will let them die and eventually Austrian and Scots pine will become as rare as ash will be in a few decades.

Carpenterworms in ash. I also received a picture of a declining ash tree with large holes and wounds along the trunk. This is probably the work of the carpenterworm (*Prionoxystus robiniae*). This is a common insect in dead or dying ash trees (among other species) and is one of the largest larvae you can typically find in these trees as the "worm" can become 2 to 3 inches long!

The adult is a large gray moth that appears in late spring to early summer. The presence of the insect is more an indication that the tree is dying rather than the sole reason the tree is dying. The reason for the decline of this ash cannot be determined from the pictures submitted and I will have to follow up with a visit. Usually the problem is mechanical – the tree is being hit with a mower deck – or soil related – the continuing drought in the central part of the state where this tree is located may be the true cause for the decline.

Samples received/Site visits

Tripp County **These are some Colorado spruce that have been losing needles. The trees are about 30 years old.**

You can tell from the sample that the tree is really slowing down its shoot growth – at least on these shoots. This symptom pattern is usually an indication of a problem in the roots or trunk rather than the foliage. I suspect that drought has finally caught up with these trees and that in combination with cytopsora canker – a common disease in 30-year old spruce – is slowly killing these trees.

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