

Pest Update (June 27, 2018)

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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.

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Plant Development

The Ural false-spirea is beginning to bloom in Brookings. This is a little ahead of schedule since we seem to be in a warm and wet pattern across much of the state. Warm, wet weather is the perfect conditions for many foliage pathogens to get started and I am already seeing trees partially defoliated by diseases.

Treatments to do now

Apple maggot (*Rhagoletis pomonella*) is the most serious apple pest and treatments now.



Symptoms of a maggot infestation are dimpled, lumpy appearance to the surface of the apple and the flesh often turning mushy and containing the brown trails of the larvae, hence the other common name “railroad worm.” A sure sign of the pest – an unpleasant one if you happen to find one, or *half* of one, while eating the apple – is a small (1/4”), creamy white and legless larva in the fruit. The adults, resembling

houseflies with banded wings, should be flying and placing eggs on the developing apples in another week or two and will continue egg-laying for another month. Once the eggs hatch the larvae burrow into the apple. The apple maggot pupates in the soil and probably will be emerging as an adult beginning next week. However, egg laying does not really begin until a week or so later so there is still time plenty of time to begin treatments (even if any eggs are laid now, the egg is either crushed by the expanding fruit or the larvae cannot survive in the high-acid of the newly developing apple). Treatment is either Carbaryl (Sevin) or Malathion applied starting in another week or two with subsequent applications every 7 to 10 days for three or four applications. Apple maggots tend to emerge from the soil after a 1/2-inch rains so some producers time applications with rainfall, but this is not necessary for the home production.



Another means of management is to place 3-inch diameter bright red balls in the tree, about 2 in semi dwarf trees (about 10-15 feet tall) and 5 in standard size trees (about 20-30 feet tall) that are covered with a sticky material called



Tanglefoot[®]. The female apple maggot always flies to the biggest, brightest apple to lay her eggs and these will be the biggest, brightest “apples” in the tree. You cannot eliminate the pest by using this control, but the population can be significantly reduced. The “apples” can be made from material found in almost any garden store – even can find Tanglefoot[®] at most hardware stores or you can buy the completed “apples” from the Internet, try www.GardensAlive.com.

Still another possible control measure is to spray Kaolin clay on the fruit. The clay is not a true pesticide, but it irritates the adult apple maggot and they tend to fly to other fruit. The clay must be reapplied if we have some heavy rains so expect to make several applications during a season. It often takes at least three applications to work. The clay is sold as ‘Surround At Home[®]’ and can also be obtained from www.GardensAlive.com.

Timely Topics

Why are the bare-root honeylocust not leafing out?

This has been a question from producers in the Spink-Edmunds-Faulk Counties area. The problem is widespread and not related to other trees in these newly planted windbreaks, so it was somewhat of a puzzle.

One newly planted belt I inspected was particularly revealing. The seedling trees were planted this spring along with bur oak and hackberry. The oaks and hackberry had excellent survival but with the honeylocust it appeared to be about 40%.



The word “appears” is important as the trees that had not leafed out yet were not dead. When I dug several of them up the roots were still alive. When the outer tissue was peeled away, the wood beneath was light-colored and moist. The same was true of the stem. There just was an absence of leaves and the fine white, thread-like roots to provide the water for these leaves.

Frequent readers of the *Update* may recall that honeylocust is on the list of bare-root trees (birch, hackberry, and oak most common) that benefit from sweating. This is a common planting practice for bare-root trees that achieve deep dormancy under refrigeration. These species may require a forcing process – exposure to warm, humid conditions – to break dormancy after leaving the cooler.

While the physiological response to sweating has not been well researched, the few studies available observe that root growth on these species occurs after bud break. If the buds do not break, root growth is delayed or does not occur resulting in desiccation and death by early summer.

Two species that most often benefit from sweating, oak and hackberry, had broken bud and were growing in this belt without having been sweated. But why not the honeylocust?

If we have cool weather in May often time sweating is not necessary. Early to mid-May was relatively cool in the region 50-70s°F but then it turned hot! Honeylocust is one of the last trees to leaf out, later than either oak and hackberry. The weather conditions when the honeylocust should have broken bud may have been too warm and dry compared to the conditions a week or so earlier when the oaks and hackberry would have been leafing out.

Many of the honeylocust were starting to leaf out from adventitious buds low on the stems. I could usually find the trees just starting to set buds or leaf out just above the fabric level. If we have relatively cool and moist weather during the next week or two many of these trees will leaf out just fine this year though there may be some tip dieback.

Emerald ash borer update



Emerald ash borer adults are still emerging from infested trees in Sioux Falls. The peak to emergence is about now – when lindens are in full bloom - with new emergence beginning to taper off and finally ending sometime in July. The adults live for about 22 days (3 to 50 days is the range in the lab). This means we probably are having the highest number of adults flying

(and laying eggs) now and the last adult will probably emerge in July and be dead by Labor Day.

I am still receiving calls from owners of ash trees in Sioux Falls wanting to know how to treat their own trees. The short answer is don't. First, we are getting beyond the time that soil drenches, the primary means for applying treatments available to the public, are effective. Second, these treatments are only effective on small trees, those less than 7 inches in diameter (at 4.5 feet) as the concentration is not enough to provide protection for larger trees. If you really like your tree, hire a professional applicator as these individuals have insecticides available to them that are far more effective than ones that the public can buy off the shelf.

E-samples



Chokecherry midge (*Contarinia virginiana*) is an insect that is occasionally seen in the chokecherry fruit at this time of year. The bright orange larvae can be found feeding on the inside of the swollen fruit now. The larvae release a toxin as they feed which causes the seed to abort and the fruit to enlarge – more room

for the midge. The larvae drop out of the distorted fruit in another few weeks and pupae in the soil. Next spring the adult fly emerges about the time the chokecherries bloom. The only treatment is to remove and destroy infested fruit. There are no insecticides labelled for treatment of this insect. There is also a cherry curculio (like the plum curculio) that causes similar damage, but the larvae are white rather than orange. Plum pockets, a fungal disease, can cause similar symptoms, but the hollow fruit will not contain larvae.



Herbicide questions are coming in from acreage owners now that the spray season is in full swing. The most common symptoms are distorted leaves with some plants have every leaf damaged. This is a picture of a dwarf Korean lilac (*Syringa meyeri*), but it is almost impossible to tell the damage is so extensive!

Often the owners suspect an applicator as they noticed the drift coming from an adjacent field. If somebody is concerned that their trees may have been impacted by drift from an adjacent field, a complaint should be made within 30 days of the application or the first appearance of damage (the sooner the better, preferable within days of the application). The complaint is made through Ag Services, South Dakota Department of Agriculture. They can be contacted at 605-773-4432. A pesticide complaint can be filed on line at:

www.state.sd.us/eforms/secure/eforms/E2093V1-PesticideComplaint.pdf.



Pouch fungus (*Cryptoporus volvatus*), the gray-brown saprot, produces a conk – fruiting body – that is commonly seen along the trunks of recently killed pine trees. These small (1-inch diameter), tan, almost button-like structures can be found lining the trunk of dead ponderosa pines in the Black Hills. During the mountain pine beetle epidemic these were a very common sight on the dead trees and were often associated with the holes created by the insects.

The conks appear within a year after the tree dies (some of these trees might still look alive but they are zombie trees, the living dead). They are indicators that the sapwood, the tissue responsible for supporting the tree, is being

rapidly degraded and are a sign the tree may soon fall.

Sample received/site visits

Kingsbury County

Follow up on last week's sample



This is one sad spruce! Not only were we able to find spruce needleminer in the foliage, the twigs were infested with spruce bud scale (see picture) and there were even some pine needle scales on the foliage. The webbing and debris appear to be from an infestation of the spruce spider mite – this is a zoo for problems!

The reason for all these pests proliferating on the tree may be related to the spacing between the trees. Once spruce begin to crowd into one another, the shading and poor air circulation create an environment that is beneficial to these pests. While insecticide and miticide treatments may help, removing every other tree in a row may help more.

Moody County

What is wrong with my Scotch pines? They are beginning to die, one by one.

This is a planting of about 50 Scotch pines (*Pinus sylvestris*) and an equal number of Austrian pines (*P. nigra*). The trees have their foliage turn brown about this time, with the foliage turning a gray and hanging by fall and the tree dies. The disease is most common in Scotch and Austrian pine, but mugo pine

(*P. mugo*) can also die from the disease. Our native ponderosa pine (*P. ponderosa*) appears not to be affected by the disease.

The problem is pine wilt which is caused by a nematode (*Bursaphelenchus xylophilus*) though there may also be bacteria involved in the disease. The nematodes are carried from an infected, dead tree to a health pine by sawyer beetles (*Monochamus*). The nematodes invade the new host through the wounds created as the beetles feed on the needles or cut egg niches into the bark.



The symptoms of the disease begin with the sudden discoloration of the foliage followed by the rapid death of the tree. A common remark from owners of infested trees is that the tree looked fine in the spring but by summer the needles were turning yellow then brown and left hanging. Infested trees are also easy to identify from their dry wood that is almost free of pitch. The logs cut from infested trees are extremely light and there is almost no sticky pitch



exuding from them. The wood will also be stained blue by a fungus.

While these are all common symptoms of the disease, the only way to be sure this is the disease is to extract the pine wood nematode from the tree. The nematodes are easiest to extract from a “cookie”, a 1-inch thick cross-section of wood cut from the trunk at a lower whorl of branches. The wood should be placed in a plastic bag and mailed so it arrives on campus within a few days (and the same week, do not mail samples on a Thursday or Friday).

The treatment for protecting a stand of pines is to removal (cut flush to the ground) and destroy the wood of any infested pine before April 1. This kills the sawyer beetles before they can emerge and spread the nematode to nearby healthy trees. Healthy Austrian or Scotch pines can be injected with Avermectin products, abamectin or emamectin benzoate, by a commercial service. The treatments can be done anytime during the summer but are most effective with a fall application. These treatments only protect a tree from becoming infected, they will not cure an infection.

Moody County

What caused all my trees to have their leaves curl? Is this herbicide drift? I saw a guy spraying the field next to the house.



These trees are presenting symptoms that are common for drift exposure to growth-regulator herbicides. The leaves are twisted and cupped and the leaf petioles are curled (sucking insects such as aphids can cup a leaf, but they will not cause the petiole to curl). However, a foliage analysis is needed to determine the herbicide.

A pesticide complaint can be filed with the South Dakota Department of

Agriculture through the form available in this *Update*.

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