

# Pest Update (June 22, 2016)

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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.

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## Plant development

We seem to be a little ahead for average plant development as we are going into summer. This is not much different than last year when the catalpas and lindens were in full bloom by now. Some years their flowering does not occur until early July. This means that some of our treatments performed at the end of June may be applied a little earlier.

## Tasks to complete in another week

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



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 in late June this year. 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 growers 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<sup>®</sup>. 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<sup>®</sup> at most hardware stores or you can buy the completed “apples” from the Internet, try [www.GardensAlive.com](http://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<sup>®</sup>’ and can also be obtained from [www.GardensAlive.com](http://www.GardensAlive.com).

## Timely topics

### **Emerald ash borer in Nebraska expanding but no need to treat South Dakota trees yet.**



More trees infested by emerald ash borer are being found in eastern Nebraska. As is often the case, once you find the first infested tree, you find others nearby and then some satellite trees farther out. None of the infestations are any closer to the South Dakota border and we are still not recommending the initiation of any treatments to protect ash. The general recommendation is to only begin treatments when the insect has been identified within

15 miles of your ash tree. Trees that have been recently infested can be treated though trunk injections to kill existing infestations so there is no need to start treatments now ‘just in case.’ Applying pesticides as soil drenches or bark sprays, other common methods to treat for emerald ash borer, do kill non-target organisms. Injecting a tree does create wounds and is a stress to the tree. Right now the environmental and tree health costs to these treatments outweigh the benefit that a homeowner’s tree might be harboring the undetected infestation in South Dakota. Once the insect has been found in the vicinity, then the use of pesticides is a valid means of protecting an ash tree.

### **Cottony ash psyllid – as if we needed another problem on ash**

As if ash does not have enough problem in the Midwest, there is another exotic threat. Right now we are seeing defoliation and foliage distortion on black ash (*Fraxinus nigra*), Manchurian ash (*F. mandshurica*) and their hybrids, ‘Northern Gem’ and ‘Northern Treasure.’ The culprit is a small psyllid called the cottony



ash psyllid (*Psyllopsis dircepanis*). This sucking insect was discovered in the early 2000s feeding on black ash in Alberta, though it may have appeared earlier in the United States. The insect is native to southern Europe.

The adults are slightly smaller than 1/8-inch and resemble miniature cicadas as they fold their wings roof-like over their body. The nymphs are a little smaller, wingless and flatter. The nymphs are responsible for most of the damage, extreme leaf curling, it almost appears as severe herbicide injury. However, if you uncurl a leaf, you'll find the nymphal

stage in the cottony masses on the underside of the leaves. There are two generations per year, with the first generation of nymphs out in mid-June, hence the recent appearance of the damage. Another generation of nymphs will be out in mid-August but this second generation is not as damaging as most of the foliage has harden off by then and is not as susceptible to injury. Eggs are the overwintering stage.



We have seen this insect in our state for at least six or seven years and it has been discussed in past Updates. Fortunately the woolly ash psyllid do not appear to attack green ash (*F. pennsylvanica*) or white ash (*F. americana*). These ash, particularly green ash are often attacked by the ash leaf curl aphid (*Prociphilus fraxinifolii*) an insect that causes leaves to loosely curl into clumps.

Once you see the damage it is really too late to treat. If you catch the damage just as its starts, an insecticide containing acephate, and labelled for this use, can be applied. This insecticide is a foliage systemic treatment and will kill the insects as they feed (but not remove the damage). A soil drench systemic insecticide will not be absorbed fast enough to provide any control for the aphids this year but a spring application next year can prevent the problem from occurring next summer.

### **Chlorosis - tree leaves turning yellow**

Chlorosis, a foliage condition where the leaf veins remain green but the surrounding tissue turns pale green or yellow, is a common occurrence at this time of year. We typically see these symptoms appearing on Amur maple (*Acer tataricum* var *ginnala*), red maple (*Acer rubrum*), swamp white oak (*Quercus bicolor*), river birch (*Betula nigra*), and silver maple (*Acer saccharinum*). The



reason for chlorotic leaves is not a fungus or other pathogen, but the lack of iron (FE) or manganese (MN) in the foliage. The lack of iron or manganese is from soils with inadequate amounts of these microelements, but alkaline soils rendering these elements into forms not available to the tree. Any soil with a pH greater than 7.2, and that includes many of the soils in our communities, can result in these trees turning almost a golden yellow by mid-summer. Severely affected leaves can turn completely yellow, fall prematurely and leave the canopy bare by autumn. Some trees may decline and die if these symptoms appear for several years in a row.

Not all yellowing leaves are due to a microelement deficiency. Trees may have yellowing leaves due to drought, flooding, aphids or any number of other stresses. Some tree cultivars such as the 'Princeton Gold' Norway maple (*Acer platanoides* 'Princeton Gold') produce yellow leaves, hence it is important to rule out other reasons for the yellowing foliage before assuming it's the lack of iron or manganese. Generally the other stresses will have yellowing leaf, not necessarily chlorotic leaves where the leaf veins remain green.

If it is chlorosis due to a deficiency of either iron or manganese, the next step is to determine which microelement may be missing. Iron chlorosis is usually the missing microelement if the newest foliage, the leaves on the tips, are turning yellow with the veins remaining green. If the older, interior foliage is turning chlorotic then it most likely is manganese. It is also possible for a tree to be lacking both microelement.



Since the problem is not the lack of iron or manganese, merely adding these microelements as a fertilizer to the soil will usually not solve the problem. Pounding nails into the trunks is not helpful as this is a poor way of getting iron in the tree and most nails do not contain a lot of extractable iron. The solution is either spray the foliage with a solution containing iron or manganese, implanting FE or MN capsules into the trunk, fertilizing with a chelated form of iron or manganese or reducing the soil pH so the microelements already in the soil become available. All these treatments work best if applied early in the growing season, as the leaves are expanding.

Spraying the foliage with a ferrous or manganese sulfate will provide a quick green-up but only if the application is made just after the foliage fully expands. If done late in the season, the leaves may not color well. The application is also only a temporary fix and the leaves that come out after the treatment will become yellow. Misapplication of these sprays can also damage foliage and stain concrete and stucco. The applications should also be made in the evening, while temperatures are cooler, as these microelement solutions can result in leaf injury.



Implanting iron or manganese in the trunk can provide a green-up within a few weeks of application and the benefits may last two years. There are implants that are available for homeowner use, but these are rarely carried in local garden centers and department stores. The implants should be placed low on the trunk and a sharp drill bit used to make the holes. The products are easy to apply but the directions should be carefully followed to avoid any unnecessary injury to the tree. Drilling holes into the tree creates wounds that may result in decay.

Chelated forms of iron and manganese can be applied to the soil and these applications provide benefits for usually a year, perhaps two, but may take several months before the leaves lose their chlorotic appearance. The chelating agent keeps the iron or manganese in a form available to the tree but not all chelating agents are effective in our slightly to moderate alkaline soils. The best chelating agent for our soils contain FeEDDHA and this one should be on the label. Chelated iron and manganese is available at many garden centers and farm supply store but you still may have to do some looking as it is not a common product.

Altering the pH so that the iron and manganese in the soil is available to the tree is the best solution, but is not easily done. The alkaline soils in our state are well-buffered meaning the pH is not easily lower or will stay lowered for very long. However it is worth a try and the most common acidifying agent is elemental sulfur (sold as organic soil acidifier). This can be easily purchased in the garden section of most garden centers. When applying this product, carefully read and follow the label directions. Also do not expect the results to be 'overnight', the greener foliage may not occur until the next growing season, if at all.

## E-samples

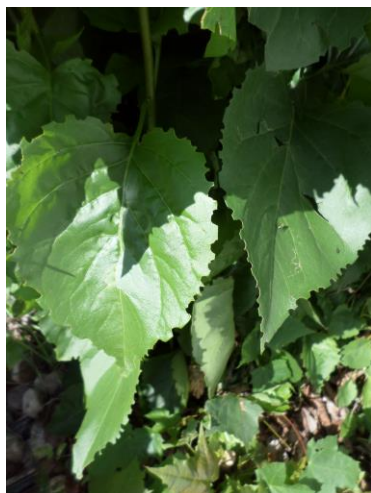


**Apple scab** (*Venturia inaequalis*) symptoms are appearing on the foliage of apple and crabapple trees across the state. This common fungal disease results in infected leaves developing olive-colored, irregularly shaped lesions. The leaves then begin to turn yellow and start to fall prematurely. There are already trees

dropping their leaves in many South Dakota communities. While we see the disease symptoms every year, this year it is particularly bad since we had the perfect spring weather for spore germination. These spores germinate very quickly when we have humid, wet, warm weather – sounds like this spring, doesn't it? The disease overwinters on the fallen, infected leaves and the spores are released from these in the spring. It's too late for effective treatment at this time as the disease has already entered the leaves.



**Is this edible?** Amur chokecherry (*Prunus maackii*) fruit was the question this past week. This Siberian cousin to our common chokecherry (*P. virginiana*) does produce fruit but its fruit is a little larger than our chokecherry and it starts out red before turning a dark red, almost a black. You rarely see the fruit as the birds take it very quickly but apparently this tree has been missed so far so more delicious, but tart, fruit for the tree owner.



**Root weevils.** Notches in the leaves of lilacs (*Syringa vulgaris*) is generating some pictures. The notches are along the margin of the leaf. The notches are irregular shape and spacing so are different from the half-moon notches made by leaf-cutter bees. These irregular notches are from feeding by the adult root weevil. There are at least four root weevils in our state, the strawberry root weevil (*Otiorhynchus ovatus*), the rough strawberry root weevil (*O. rugostriatus*), the lilac root weevil (*O. meridionalis*) and the black vine weevil (*O. sulcatus*). Despite the names, they all can feed on lilacs or burning bush (*Euonymus alata*) foliage.

The root weevils overwinter as mature larvae which have been feeding in the soil on the roots of a wide range of plants from clover to spruce. The insect pupates in the spring with the adults emerging from the soil in June. The adults do not fly but climb up on the plants at night to feed and lay eggs. If they are disturbed the adults quickly drop to the ground and hide. They are not easy to find. However, they are darn easy to find in the house. The adults seem to have a preference for an air-conditioned home during this hot days and you can find these insect walking around in your family room looking for a place to hang out and relax. The adults are beetles about 1/3 inch long with a long stout. They also like moisture so keeping the foundation of your home water by watering flowers next to the house encourages them to come on in. Home control is a vacuum or cat. No treatment is really needed on the lilacs as the root feeding is usually not enough to harm the plant and the notching on the leaves is not too distracting. Yews (*Taxus*) is another matter and when I worked out East, black vine weevil was a considerable stress to these foundation evergreen plants but winter is the bigger stress for yews in South Dakota.

## **Samples received/site visits**

Brule County

**Is this herbicide on the aronia berries?**

Aronia is also known as chokeberry and despite the name, this is become a popular fruit crop. The only way to be sure is to do tissue analysis for a specific chemical. We do not have the technology (unlike TV) to insert a leaf sample into a machine and have the results pop out. The analysis begins with knowing what chemical you are looking for. That said, the sample submitted does not have the symptoms typically associated with many of the herbicides used in the state. The leaves are of normal size and shape, just the leaves are chlorotic and also have some small spots. The spots look like the beginning to lesions from cedar-apple rust, a disease that can occur on aronia in wet years. Another common problem with aronia during wet springs, particularly on soils with a pH higher than 7.2 is iron chlorosis. The chlorosis seems to be the bigger problem here.

McCook County

**What is wrong with this spruce?**

The shoots submitted have abnormally small foliage though the shoot length is normal. This is a little usually as needle length and shoot length often go hand-in-hand, either they are either normal or they are both smaller than normal. There were no symptoms or signs on the samples so I am going to have to make a call for more information.

Todd County?

**What is causing the dieback on this willow?**

This looks like black canker, which is part of the willow blight complex, diseases of willow black canker and scab. The disease starts with the blackening of the



margins of the new leaves in the spring. The terminal shoots on these branches also blackening and curling. The symptoms appear very close to those seen with fireblight, but this is not the same disease. The disease also results in cankers along the shoots and these can expand to girdle branches as well smaller shoots. The most common recommendation is to water the tree during dry periods to reduce stress and, if possible and practical, prune out and destroy infected shoots and branches to reduce the spread of spores in the spring.

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