

# Pest Update (April 25, 2019)

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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

Corneliancherry (*Cornus mas*) and forsythia are finally beginning to bloom in Brookings while serviceberries and crabapples are still in the bud stage. Many years by this time crabapples have been full bloom in Brookings! Compared to past years, this growing season seems to be off to a very

slow start due to the cold weather. While a few days have been warm, it looks like a return to snow this weekend!

## 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 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. If the tree leaves on your crabapple look like the picture from Sioux Falls on the next page, you are late!

Cedar-apple rust fungicide applications start when the new leaves are about one week old (now for Sioux Falls), 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 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 *Spectracide Immunox plus* is not listed for apples as it contains an insecticide, Lambda-cyhalothrin, 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.

**Diplodia tip blight** treatments should be started soon in much of the state. This is the most common disease of pines, particularly Austrian and ponderosa pine.



Symptoms begin in early summer with the new needles becoming brown and stunted, less than half the length of normal needles. Twigs may be infected and become stunted and deformed. The treatment is a fungicide containing thiophanate-methyl, propiconazole, or chlorothalonil (labeled for management of this disease) *just before the bud sheaths have opened*, timing is critical, and the treatment needs to be repeated in 10 to 14 days, as this is the period when the shoot is very susceptible to infection.

The bud sheaths will soon begin to open throughout the state so try to get the first application on in the next week or two.

The treatments will not 'cure' the disease, but the tree will present fewer symptoms for several years or more before the treatments need to be repeated. It usually takes two years of treatments at the beginning to get the disease under control.

**Spruce spider mites** become active as silver maple leaves are expanding – now across much of the state. Spruce spider mites are cool season mites meaning

they are active in the spring and fall, not during the summer heat. The mites will go dormant once the temperatures consistently reach into the mid 80's. While the mites will begin feeding soon, the damage to the needles, bronzing and browning,



does not typically show up until summer just as the mite populations begin to decline. Treatment options are very limited for homeowners, horticultural oils and insecticidal soaps being the two most common. These are really suppression treatments, not eradication, and the webbing often prevents these pesticides, particularly the soap, from penetrating. They should be applied now and then another treatment next week, about 7 to 10

days after the first treatment to kill the mites as they hatch from eggs. Be aware of the cautions to the use of these products, particularly on blue spruce, as applications of oils or soaps can result in the loss of blue or silvery color to the foliage. You can make a *blue* spruce, a *green* spruce, very quickly, so read and follow label directions very carefully.

The other common pesticide that homeowners can buy has the active ingredient acephate, but this is an insecticide that is more of a mild suppression on mites than real control. Acephate should also be applied in two treatments spaced 10 days apart. Homeowners with large spruce trees, or trees that are heavily infested, should consider hiring a professional service. They have the equipment and chemical products that can truly provide some control of mites.

## Timely Topics

### ***Emerald ash borer treatments***



We had our first 2019 EAB commercial applicator's training last week so now is a good time to remind ash tree owners in Sioux Falls of their options. There are many different active ingredients, products, and application methods available for managing emerald ash borer. Some products are available for homeowners to use, but the most effective are restricted to commercial applicators. If a homeowner has a tree larger than 4 or 5 inches in diameter (at

4.5 feet above the ground) they should hire a commercial service.

Treatments are not recommended until emerald ash borer has been detected within 15 miles of your tree's location so for now it's Sioux Falls and nearby communities. Treatments are the only means of protecting an ash tree from being killed by this insect. Very few trees survive an infestation within treatments.

Treatments are not a vaccine. They must be applied either annually or biennially depending on the application and chemical used. Several products can also be used therapeutically, to kill an existing infestation in a tree, while others only protect a tree from becoming infested.

There are three methods of applying insecticides to your tree; soil, bark sprays, or trunk injections. Most of the products listed are for commercial applicators only. Products available to homeowners are noted by a <sup>2</sup> following the chemical.

### **Soil treatments:**

*Require annual application, restricted to mid-spring and autumn, and are used to protect trees from becoming infested.*

There are insecticides available to homeowners as soil drenches. Commercial applications may also use soil injections, but *Sioux Falls is not permitting soil treatments on boulevard (street) trees*. Insecticides delivered as a soil drench should be applied at the base of the trunk, within a foot, with the sod or mulch pulled away before making the application. The sod or mulch can be put back in place after the insecticide solution soaks into the soil.



Soil injections should be made within 18 inches of the base of the trunk and injected to a depth of 2 to 4 inches. Injections made farther from the trunk and deeper into the soil are less effective.

The amount of chemical used for soil drenches and injections is based upon trunk diameter. Since trunk area increases at a different rate than trunk diameter, these treatments become less effective for tree larger than 15 inches dbh<sup>1</sup> and are best limited to trees less than 10 inches.

There are some specific labels that allow a 2x rate for trees between 15 and 22-inch dbh. However, note there is a restriction of the amount of imidacloprid that can be applied to the soil per acre per year.

Soil applications of imidacloprid formulations should be made starting just after the leaves have opened until about early June. Treatment may also be applied after Labor Day until the leaves begin to drop for protection the following year.

Soil applications of dinotefuran formulations move quickly throughout the tree so can be made beginning when the tree leaves have opened until about the middle of July.

All soil treatments need to be applied annually and at the highest labelled rate to protect an ash tree from becoming infested. They are not effective in trees that are already infested by the emerald ash borer. Formulations available to homeowners have provide inconsistent management of emerald ash borer. It is best to hire a commercial applicator to provide treatments.

Soil application should only be made in moist soils, preferable soils that have been watered the day or evening before application. Soil applications can also result in contamination of ponds, lakes and streams and some have restriction for use within 100 feet of water.

Insecticides delivered via soil applications can be absorbed by surrounding plants so should not be used if flowers, which may be attractive to pollinators, are beneath the canopy of the tree.

### **Soil insecticides for emerald ash borer**

<u>Active ingredient</u>	<u>Formulation</u>
Dinotefuran	Transtect™ (70WSP) Safari™ (20 SG)
Imidacloprid	Bayer Advanced™ Tree and Shrub Insect Control <sup>2</sup> Dominion™ 2L Imidastar™ 2L Merit <sup>R</sup> (5WP, 75WSP) Ortho Bug B Gone Systemic Insect Killer <sup>2</sup> Xytect™ (2F, 75WSP)

### **Systemic bark sprays**

*Require annual application, restricted to midspring through midsummer, and are used to protect trees from becoming infested.*

Insecticides can be sprayed on the lower trunk of the tree (the lower 6 feet). These chemicals are absorbed through the bark. They are carried up by the sap flow to kill the larvae beneath the bark and adult beetles feeding on the leaves.

There is one active ingredient that can be delivered via trunk spray. The spray does not need to be made at high pressure (the water pressure coming from a garden hose is sufficient). Surfactants may be used to improve absorption through the bark but are not necessary.

Systemic bark sprays should be applied to protect trees from becoming infested. They are not effective in trees that are already infested by the emerald ash borer. They need to be applied annually and are best applied after the leaves have opened till about middle of July.

### **Systemic bark sprays**

<u>Active ingredient</u>	<u>Formulation</u>
Dinotefuran	Safari™ (20SG) Transtect™ (70WSP) Zylam <sup>R</sup>

### **Trunk injection**

*Require either annual or biennial application, wider time frame during the season for application, and may be used to protect trees from becoming infested or kill an existing infestation in a tree (depending on label).*

Insecticides can be delivered by directly injecting into the trunk. Trunk injections do create wounds in the tree, but if the injections are done low on the trunk, at the flare and not adjacent to a previous injection site, then the injury is minimal, and the insecticide will be distributed throughout the canopy.



The uptake and distribution of trunk injected insecticide is quicker than that delivered via the soil. The soil should be moist, not dry or wet, to improve uptake of the chemical through the tree. Watering the soil around the tree a day before injection will sufficiently irrigate the soil.

Trunk injections should be made between after the ash tree leaves have opened and before the end of July, though can be made later in the summer if there is adequate soil moisture or the tree is watered the day before the application is made. Autumn applications can also be made with some products for protection the following year, but these need to be completed before the leaves begin to drop.

Emamectin benzoate injections can provide two years of protection for a tree becoming infested. Emamectin benzoate products can be used on trees that are already infested. Trees that have less than 35% canopy decline due to an emerald ash borer infestation can be injected. If the tree has more dieback or decline, then there will be insufficient distribution of the chemical and the tree will continue to decline.

Other active ingredients generally provide only a year of protection and may be better suited for trees that are not infested.

**Trunk insecticides**

<u>Active ingredient</u>	<u>Product</u>	<u>Injection System</u>
Azadirachtin	Azasol™	Arborjet™
Emamectin benzoate	ArborMectin™ Boxer™ TREE-age <sup>R</sup>	Chemject Injectors ArborSystem Direct-Inject Arborjet™
Imidacloprid	Pointer™ Xytect 10%™	ArborSystem Direct-Inject Rainbow Treecare Scientific Advancement M3 injector

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<sup>1</sup> diameter of the tree at 4.5 feet above the ground

<sup>2</sup> available to homeowners

SG – soluble granules

WP – wettable powder

WSP – water-soluble packets

**E-samples**

***Black Knot on Canada Red cherry***



**Black knot** (*Apiosporina morbosa*) is a disease that really stands out on a bare tree. The cylindrical, black, rough textured galls on the branches are hard to miss and go by many descriptive names from “dead man’s finger” to “dog poop on a stick.” The disease is not only unsightly; it eventually girdles the attached branch through this often takes years. The disease is common on many cherries, particularly the ‘Schubert’ and

‘Canada Red’ chokecherries and some plums.

Spores are released from these knots in the spring and infection can occur from the time the buds are just beginning to expand (April) until shoot growth is completed (early June). Infections can start during this time period whenever the tissue is wet (after a rain) and the air temperature is above 60°F.

The disease is not easy to manage, and I tend to lean towards killing infected plants – basal pruning – rather than attempt to cut out the knots. See the April 10<sup>th</sup> issue of the *Update* for more information.



## ***Hail injury on Japanese tree lilac***

Tony, our forest health forester in the Rapid City office of the SD Department of Agriculture, took a picture of what appears to be **hail injury** on a Japanese tree lilac in the Black Hills. The Black Hills seems to be a magnet for hail storms and



its easy to spot students from that area at SDSU by the dimples on their cars.

The hail injury can sometimes be enough to damage or break twigs and shoots. The most likely problem to result from this injury is bacterial blight, *Pseudomonas syringae*. *Pseudomonas* is a common bacterial disease of Japanese tree lilac and other white-flowered lilacs and the disease results in wilting and shoot dieback much like fireblight does to apples and crabapples. Bacteria need an entry way into their host and hails provides the perfect openings for the disease. Hopefully the tree will not become infected but probably worth watching for any wilting tips later this summer. If noticed, these should be pruned

out during dry weather to slow the spread of the disease.

## **Samples received/Site visits**

Meade County

**What is wrong with this pine?**

This is worth a visit, but the tree does have dothistroma needle blight (*Dothistroma pini*). This is a common fungal needle disease of ponderosa pines and I see it in trees throughout the state. It is also a commonly misidentified disease as the most common symptoms are banding on the new needles with infected needles breaking at or near the banding. However, I do not think this is the only problem, or even the biggest problem, so will stop by.

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