South Dakota State University Extension

Tree Pest Alert

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Samples

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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.

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 listing 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.

Reviewed by Master Gardeners: Carrie Moore and Dawnee Lebeau

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Plant development for the growing season

The weather has been warm for much of the past week. Then days were in the 80s and 90s with the nights dipping to the 60s and 70s. This is typical summer weather – hot days and mild nights – perfect for evening walks (if it were not for the mosquitoes).

The warm weather has accelerated the growing degree day (GDD-base 50) accumulation. Many sites added another 150 GDD or more during the past week. Here is the current GDD for communities across the state.

Aberdeen	980
Beresford	1247
Chamberlain	1210
Rapid City	925
Sioux Falls	1200

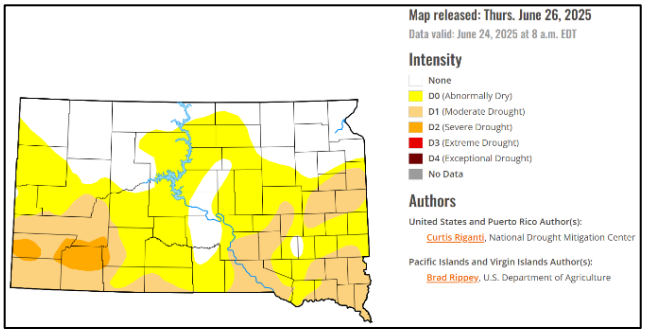
The summer flowering shrubs are now in full bloom. The falsespireas (*Sorbaria sorbifolia*) are covered in their long white panicle. The cultivar Sem is an excellent choice for a small (about three feet tall) shrub but a reminder that it suckers profusely and will expand into the surrounding space.

Drought monitoring

Many areas of the state received rain during the past week but some of the southeast was skipped. The light rains during the past week have continued to reduce the drought intensity. About 30% of the state is no longer classified as drought. Another 43% of the state is classified as "Abnormally Dry." About 24% of South Dakota is classified as "Moderate Drought" and only 3%

of the state, Custer and Oglala Lakota Counties, is classified as “Severe Drought.”

Here is the current map from the National Drought Mitigation Center at the University of Nebraska-Lincoln.



Treatments to Begin Now or Soon

Apple maggot, Dutch elm disease and more

Apple maggot treatments should continue (see *Tree Pest Alert* June 18 issue). Fungicide injections to protect American elms from Dutch elm disease should be started or repeated (they are done every three years (more information on Dutch elm disease is in this *Tree Pest Alert*).

The second generation of pine needle scale will be hatching in another week or two. Treatments will be covered in the next *Tree Pest Alert*.

Timely Topics

Emerald ash borer updates

Adult emerald ash borers (EABs) are still emerging from their ash hosts from Union to Grant Counties. Peak emergence – where half have emerged for the season – is at 1000 GDD. Littleleaf lindens (*Tilia cordata*) bloom about that time. These trees are blooming now.

Since the beetles can live several weeks, this means there will be plenty of adult insects laying eggs for a while. It is still a good time to protect trees from becoming infested by EAB.

EAB management workshops in Milbank tonight (June 30)

The recent confirmation of EAB in Milbank has generated many questions from ash tree owners in the community. There will be a public information meeting on the insect and its management to help people make decisions on what to do with their ash trees.

Foresters from the South Dakota Department of Agriculture and Natural Resources and the South Dakota Cooperative Extension will discuss how to identify infested trees along with management options.

The state quarantine will also be addressed and the restrictions on the movement of ash wood and all hardwood firewood out of the county. There will be time for questions after the presentations.

Monday, June 30, 6:30 p.m. Milbank
The meeting will be held at the Visitor Center, 1001 East 4th Ave in Milbank.

A reminder on deciding whether an ash is a good candidate for EAB treatment

The recent storms that swept through eastern South Dakota have left a wake of damaged trees in the northeast part of the state. The strong wind gusts torn branches from trees and split others in two. Much of this damage occurred in trees that were already structurally unsound.

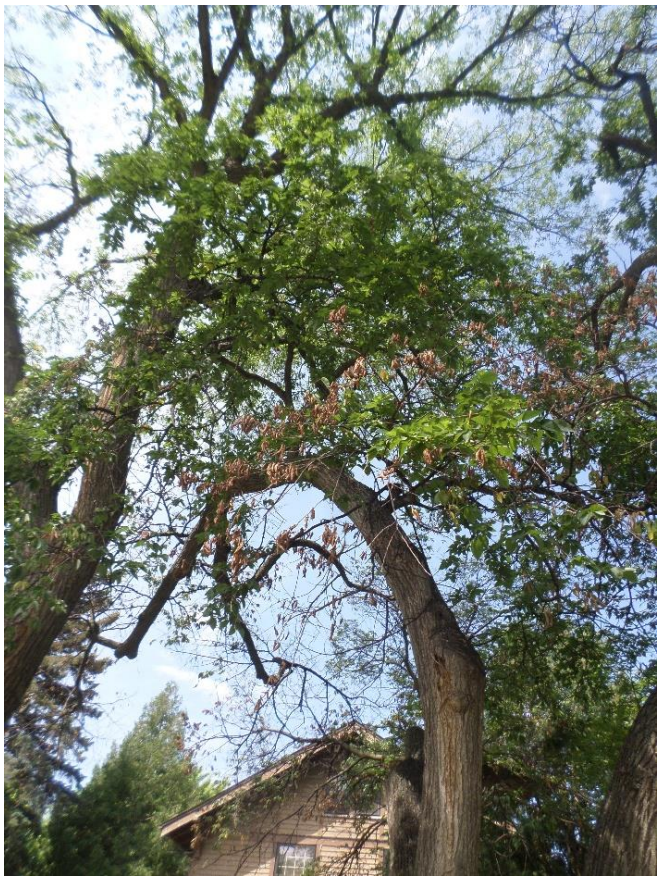
It also occurred on trees that were being treated for emerald ash borer. This is a good reminder that trees should be inspected by a professional arborist before beginning preventative EAB treatments. There is little point investing in treatments if the tree is susceptible to wind damage due to poor structure.

While it is impossible to prevent all types of storm damage, it is possible to predict which trees are more likely to fail due to defects such as co-dominant leaders or decayed cavities. Some structural defects can be mitigated by pruning but others cannot be corrected.

If the tree is structurally unsound, it may be best to remove the ash tree rather than invested in a decade or more in treatments to protect it from EAB.

Dutch elm disease is beginning to show up across the state

The most visible symptoms of Dutch elm disease (DED)(*Ophiostoma*) are yellowing and wilting leaves that begin to drop during the summer. Oftentimes these symptoms are restricted to an individual branch or limb but other times they appear throughout the entire canopy. The trees presenting with symptoms throughout the canopy now were infected last year or even several years ago, sometimes via root grafts with nearby DED-infested trees that were not promptly removed.



These symptoms are not usually due to new infections carried in by beetles. The symptoms of new infections started by beetle-carried spores occur in July and are often limited, at least initially to the leaves at the tips of branches turning yellow and wilting.

Obviously, wilting and yellowing can be due to other stressors (see the last two issues of the *Tree Pest Alert* on scales) but bark beetles and root grafts are how the fungus spread from host to host. The most effective community-wide effort for DED management is to quickly identify and remove infested trees.

The sooner infested trees are removed, the less likely the surrounding healthy elms will become infected. Individual healthy trees can be protected from the disease by root-flare injections of either Arbortect or Alamo fungicides though these must be repeated every two to three years. The injections must be done by commercial tree companies.

E-samples

Hawthorn mealybug

The small, fuzzy, white insects on the twig of this hawthorn (*Crataegus*) are hawthorn mealybugs (*Phenacoccus dearnessi*). These insects are about 1/8-inch long, round and covered with a white, waxy layer.

They feed on the twigs and small branches of hawthorns but can sometimes be found on serviceberries (*Amelanchier*) and mountainash (*Sorbus*). They also feed on the foliage during midsummer. Mealybugs are sucking insects. As they feed from twigs and leaves, they excrete a sticky fluid called honeydew.

Infestations are rarely dense enough to warrant treatment. If treatments are necessary, Malathion or Insecticidal soup can be applied in the spring, but it is difficult for these insecticides to penetrate the waxy covering. Insecticides containing Imidacloprid as the active ingredient can be used as a soil drench in the spring, just after leaves come out. However, this insecticide is carried to the flowers and will also kill pollinators.

Imazapyr injury to trees

This is a tree in Aberdeen that GroundClear herbicide was used on the ground beneath the canopy. GroundClear Weed and Grass Killer contains the active ingredient Imazapyr. The label states it should only be applied in areas where no vegetation is desired for a year. It also states not to apply it to the soil beneath the canopy of trees. Unfortunately, few people read the labels.

Imazapyr herbicides have come into the landscape market during the past few years as a glyphosate replacement. It is a non-selective and kill a wide range of vegetation, including trees. Unlike glyphosate, imazapyr can move into the soil and be absorbed into the roots. It can also remain in the soil for more than a year.

While glyphosate could often be used in the pea gravel beneath trees as a weed killer, imazapyr can also kill the tree. Common symptoms of injury include stunted shoots, twisted or stretched new leaves, defoliation, and – if the concentration is high enough – tree mortality.

Tinkerbelle lilac, a cautionary fairy tale

I received pictures of a small tree in Aberdeen with a tuft of lilac flowers in the center. This is one of the Fairy Tale series of lilacs, the Tinkerbelle® dwarf lilac (*Syringa* 'Bailbelle'). This compact lilac is a cross between *Syringa meyeri* 'Palibin' and *Syringa microphylla* 'Superba.' It has a spring wine-red flower bud that opens pink. The flowers also have a spicy fragrance.

This compact shrub is often grafted on a Japanese tree lilac (*Syringa reticulata*) standard. This creates a living lollypop, a compact, rounded top (the Tinkerbelle lilac) placed on a four-foot-tall straight stem (the Japanese tree lilac).

If a watersprout arises on the Japanese tree lilac stem is not promptly removed, it can grow through the Tinkerbelle canopy. If several of these shoots push through the canopy, they will eventually choke out the Tinkerelle shrubs and all the owner is left with is a Japanese tree lilac.

Peter Pan said that fairies such as Tinker Bell do not live very long. This grafted plant follows the same lifespan. Many of these trees eventually become Japanese tree lilacs as the Tinkerbelle crown is choked out and forgotten (just as Peter forgot Tinker Bell).

Samples received/Site visits

Brookings County, Pine wilt disease

There are many Scotch pines (*Pinus sylvestris*) in the state that are "suddenly" with needles that are turning tan and falling. When these trees are felled and bucked, the wood is dry and light – no sticky sap. The cross-sections of the logs also show rings or streaks of discolored wood called bluestain.

These are also indicators of the lethal pine disease called pine wilt. The causal agent for the disease is a microscopic pine wood nematode (*Bursaphelenchus xylophilus*). This nematode and its associated endophytic bacteria disrupt water transport and resin defenses. Infected trees usually die within month.

The nematodes are carried from their now-dead host to health pines on sawyer beetles. These flights begin in early spring and continue for a month or so. The best means of slowing the spread of pine wilt is removing infected trees and destroying the wood before the sawyer beetles emerge. Pine trees dying between May and October should be immediately destroyed. Trees that die after October 1 should be removed and destroyed by April 1 of the following year.

The disease only affected our exotic pines, Austrian pine (*Pinus nigra*), Scotch pine and mugo pines (*Pinus mugo*) if they are more than ten feet tall. Smaller, younger trees are not affected nor are ponderosa pine (*Pinus ponderosa*) of any height.

Brookings County, Diplodia tip blight

While we do not lose ponderosa pines to pine wilt disease, we do have them disfigured by diplodia tip blight (*Diplodia pinea*). This fungal pathogen kills the expanding needles and shoots on 2- and 3-needled pines. It does not affect the 5-needled pines such as eastern white pine (*Pinus strobus*).

Diplodia tip blight is not usually a tree killer as the disease cannot invade older shoots. Mature branches and even the trunk can sometimes be killed by the disease if wounded by hail or other injury. They can also invade older tissue if the tree is stressed. The infection can also remain dormant for years in host tissue until stress weakens the tree's defenses. one to three years.

The most common symptoms are new shoot are stunted with their needles turning straw-colored. These needles may be covered with sap (resin) causing them to be stuck together. The affected needles turn gray by the end of the year and may hang down for another season before falling.

The disease usually affects the lower 2/3s of the canopy. One common indicator of the disease is the lower branches are covered in straw- and gray-colored needles while the top of the canopy has normal color needles.

Fungicides treatments are conducted in the spring. This was covered in the April issues of the *Pest Alert*.

Brown County, Cytopsora canker on Colorado spruce

This was a long row of mature Colorado spruce (*Picea pungens*). The trees are about 25 to 30 years old. Most still look nice but the lower branches on many are beginning to thin with needle loss. The affected branches also have thick layers of bluish-white resin near their bases.

The sunken, resin canker is called cytospora canker. It is caused by the fungal pathogen *Leucostoma kunzei*. The fungal cankers girdle the branches. These girdled branches die, and the needles turn purplish brown before falling.

The disease rarely grows into the trunk, but infected branches start in the lower canopy and gradually the lower third or half of the canopy is affected. This means the nice row of spruce that provided privacy are now open for the lower five or six feet – just where you want the screening. Once the trees have their branches overlap, we typically see the canker killing branches.

One of the best means of managing the disease is through spacing. Colorado spruce should be planted no

closer than sixteen feet apart. More is even better but with wider spacing trees will take longer to provide the screen. Sixteen feet is a good compromise.

Cambistat, a growth regulator containing paclobutrazol, has been shown to slow the symptom progression of the disease. It is best applied before the symptoms appear as a preventive treatment but can work if symptoms are mild. This needs to be applied about every two years. It is applied by a commercial applicator.

Brown County, Spruce needleminer adults are flying

The spruce needleminer (*Taniva albolineana*) gets its name because the young larvae are so tiny they can live inside the needle, mining it as they feed. They eventually outgrow their home and then create a nest of webbed, detached needles to live in. The larvae usually feed on the lower, exterior needles, almost stripping the shoot tips of needles. They can also be found in the interior of the tree and even the tops of young trees.

The adults are small moths, about a ½-inch wingspan with three irregular gray-white bands on the forewings. They fly during June, beginning at 800 GDD, depositing eggs on the needles. The treatment is usually with a pesticide containing Carbaryl as the active ingredient and labeled for this use.

Brown County, Poplar borer in cottonwoods

We typically find cottonwood borer (*Plectrodera scalator*) in cottonwoods (*Populus deltoides*) and poplar borer (*Saperda calcarata*) in aspens (*Populus tremuloides)* and other poplars. But poplar borer will infest young cottonwood windbreaks.

Both insects are longhorned beetles, so called for their long antennae which extend more than half the body's length. The larvae are called roundheaded wood borers for their round cross-section and round holes they create while tunneling through the tree.

Early symptoms of a tree being attacked by poplar borer are rust-colored sap stains on the lower trunk. At the top of each stain, you can find a large – almost pencil-size hole -with large amount of coarse frass extruding from the opening.

These symptoms indicate that larvae are tunneling beneath the bark. The legless, cylindrical, yellow-white larvae plug the hole entrance with the coarse, fibrous frass. The galleries tunnel into the sapwood for a short distance then curve upward for a foot or so. The larvae may feed for several years before pupation and becoming an adult.

The borer rarely kills larger trees but can become added stress. The insect can be controlled with a bark application of an insecticide containing carbaryl or permethrin that is labeled for this use. The treatments are applied around June 1st with a second about five weeks later.

These treatments are targeted to kill the adults as they lay eggs. Since the larvae – who are protected from the spray – can live for several year, treatments must continue for a few years to rid the borer from its host.

Walworth County, Cone worm in ponderosa pine

This was an interesting find. The new cones on these ponderosa pines were oozing sap and the older cones were hollow. This was the work of the cone worm (*Dioryctria auranticella*).

The tunnelling larvae were found inside the cones. They are large (about 1 inch long) green to purple caterpillars with dark brown heads. They feed in the cones during

June and July, cutting winding tunnels that completely hollow out the cones.

The larvae also make one or more holes to the surface of the cones. These holes may drip sap and are surrounded by reddish frass.

The loss of cones and seeds are only a concern to seed collectors. The cone worm does not attack the trunk or branches. There is another *Dioryctria*, the Zimmerman pine moth, that attack tree resulting in broken branches and disfigured trunks.

Walworth County, Pine needle scale

The white bumps on pine needles are the immobile stage of the insect called pine needle scale (*Chionaspis pinifoliae*). This is a common pest of pines and occasionally even spruce.

All the scales seen on the needles are now dead. But the scales that were on last year's needles had eggs beneath the shell of the dead mom. The mobile nymph stage called crawlers hatched a while ago and are out on the new needles. is mobile, a common characteristic of armored scales.

These nymphs are pinkish red, turning a tannish brown as they settle and begin to feed. The nymphs feed with their piecing-sucking mouthparts by sucking the contents of ruptured cells.

The crawlers hatched at 300 GDD, about the time common lilac were in bloom. They are almost finished with their mobile stage. The sessile adult females will soon be settling on the new needles and forming their white shells.

The most common treatment is a foliage spray of horticultural oil when the spring hatch occur. The oil will suffocate the young crawlers but have a minimal impact on the many insects that feed on the scale. Oils can damage needles if misapplied so read and follow label directions exactly! Do not apply oils during periods of high humidity or temperatures over 85ºF.

The other option is a foliage spray, lower trunk spray, or soil drench with an insecticide containing dinotefuran as the active ingredient and labeled for this use.