South Dakota State University Extension

Tree Pest Alert

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In This Issue

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 remained mild last week with day temperatures in the 60s and nights in the 40s. There were some humid days with rain. Other days had that crisp spring weather that makes you find any excuse to stay outside.

This is our current growing degree day (GDD-base 50) accumulation for communities around the state. We are still ahead of last year.

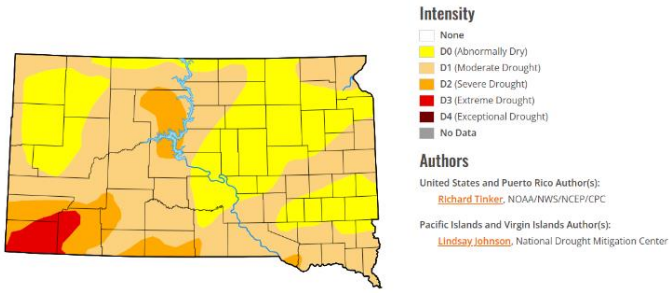
Aberdeen	227
Beresford	360
Chamberlain	365
Rapid City	271
Sioux Falls	321

The serviceberries (*Amelanchier*) are in bloom across the southern part of the state. The flowering coincides with the soil being warm enough to work. Time to get out to do a little gardening!

Drought monitor

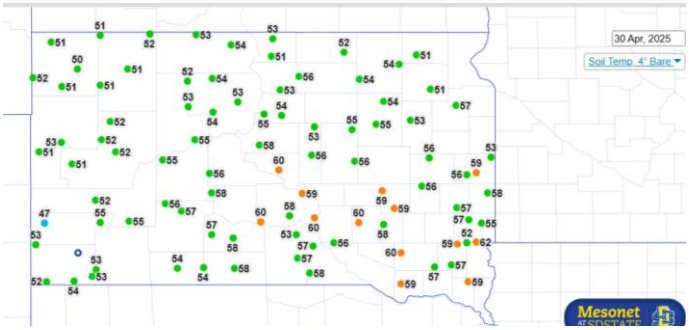
We have had some nice soaking rains crossing the state with many areas receiving an inch or more. The drought map is now showing large swaths of "Abnormally Dry" drought intensity which is a vast improvement! No part of the state is yet out of drought, but the trend is encouraging.

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



Soil temperatures are now in the 50s across the state

The soil temperatures are in the 50s at the 4-inch depth in bare soil. We are in the tree planting season. Now the concern is just how long the mild weather will continue. We still need rain.



Treatments to Begin Soon

Diplodia tip blight

Diplodia tip blight (*Diplodia*) is a disfiguring fungal disease of 2- and 3-needled pines in South Dakota. It is a common disease of Austrian (*Pinus nigra*) and ponderosa (*P. ponderosa*) pines. We rarely see it on Scotch pine (*P. sylvestris*).

The disease can be managed with fungicides. The treatment is foliage applications with a fungicide containing Thiophanate-methyl, Propiconazole, or Chlorothalonil (and labeled for treatment of this disease). The first application is applied just before the bud sheaths have opened. This is happening across the southern half of the state. We are not there yet for areas north of Highway 14.

Timing is critical. Once the bud sheaths have opened and the candle begins to form, it is a little late to begin the first application. This is the application that provides most of the protection. A second application is made about two weeks later.

Emerald ash borer

The injection season starts as the ash tree begins to leaf out. Ash creates a new plumbing system each spring. The water pipes need to be built and working before the leaves can begin to expand.

Ash leaves are unfolding in the southeastern part of the state. The optimum period for injection is between leaf out and early June. The pesticide will be carried throughout the tree as the leaves begin to force water up the tree through transpiration. It will be in the leaves when the adults emerge. Since mom needs to feed on leaves for a week or so before laying eggs, having the insecticide in the foliage will reduce the number of eggs.

The insecticide will also be carried throughout the vascular tissue of the tree. Any larvae that do hatch from eggs will be killed in the phloem before they do much damage.

Timely Topics

Emerald ash borer update

Emerald ash borer pupae are beginning to form in ash trees south of Sioux Falls. During the last few weeks, the J-shaped overwinter larva shrunk and straightened to become pre-pupae. These are now formed into pupae. I do not find any larvae.

The pupal stage can take three weeks or so to develop. They will gradually develop recognizable features and eye spots. They will also darken and harden to become adults.

If the development trend continues at the current rate, adults may begin flying before Memorial Day from Sioux Falls to Dakota Dunes. Development is a little farther behind north of Sioux Falls. Adults will begin emerging in Brookings just after Memorial Day.

Oak and mulberry pollen allergies

Every spring some unlucky people greet the warm weather with a sneeze rather than a sigh of relief that the winter is over. The spring pollen problems are different from the summer when hay fever becomes the issue. Hay fever is not related to hay, but ragweed, a common weed that flowers during late summer. This weed and many grasses are responsible for most of the plant pollen problems for people living in South Dakota.

What do grass and ragweed have in common? First, they are wind pollinated. The pollen from these plants is light and small enough that it is easily carried by the wind to distance plants. They also release pollen grains in the billons!

Plants that have colorful flowers are attractive to bees and other pollinators. They are rarely the source of pollen for allergies. The pollen in attractive flowers is too sticky to be carried by the wind; it is designed to be stuck on an insect (like a post-it note). So, unless you are sticking your nose into these flowers, you are not likely to pick up much pollen.

There are lots of plants that are blamed for itchy noses and running eyes that are not an allergy problem. The best-known example is lilac (*Syringa*) which is just beginning to flower. The flowers on common lilac are very fragrant, but there is a low frequency of sensitivity to the pollen. Lilacs are insect-pollinated but not especially attractive to most insects so there is some transfer via wind. But lilac pollen is large (22-28 micrometers vs 0.4-4.5 micrometers for ragweed) so only travels a short distance.

Some people are sensitive to the fragrance of lilacs (not pollen) but for this reaction they need to be standing next to cut blossoms in a vase rather than viewing outside.

Two trees that produce pollen that can cause allergic reactions in sensitive people are mulberries (*Morus*) and oaks (*Quercus*). These two trees wind pollinated. The light and abundant pollen produced by these trees is responsible for many of the allergy symptoms in late May. The oaks are flowering now. The mulberries will begin in another week.

Many of these trees are dioecious, meaning they have either male or female flowers on a tree. Only the males produce pollen, so it is the guys that are the problem.

One last note. Ash, the males again, also produce a light pollen that can cause allergies. Since no one likes ash seeds, most of our ash cultivars are males. Sioux Falls was home to about 85,000 ash trees before 2018.

The emerald ash borer infested trees being removed along with the planned ash removed by the city has significantly dropped this number. Some Sioux Falls residents have noticed their allergies are not as bad anymore since the amount of ash pollen in the air has diminished along with the ash.

Irrigation requirements bare-root seedlings

In the perfect world we would receive one inch of rain every week during the growing season – a soft rain that falls overnight. We are not going to see that in South Dakota, so for bare-roots seedlings the best practice is adding a quart of water per day for the first two weeks, then a quart of water three times a week for the next three months.

This best practice may be hard to meet so what is acceptable if we do not receive adequate rain this summer? Here may be the most practical compromise for this year.

Water immediately at planting, one quart of water per seedling. Then water once a week, one gallon of water per seedling, for the remainder of the growing season. If the air temperatures are above 86ºF during the day for a week, change once a week to watering the seedlings twice a week with a half gallon each watering. If it stays dry, and this irrigation schedule is not followed, do not be surprised if seedling mortality is high.

There is no substitute for water. Fertilizer at planting will not help and may be a detriment. There is research showing hydrogels can significantly improve survival and increase biomass so it may be worth adding but these should be used in concert with irrigation, not as a replacement.

E-samples

Alcoholic flux in maples

I get a picture or two every spring of foam oozing out of the base of a tree. This happens just after a few nice rains. The foam is called alcoholic flux or white flux. It occurs when microorganisms ferment the sap which increases gas pressure in the affected wood. The fermented sap oozes out from cracks and other bark wounds.

Alcoholic flux is acidic and nearly colorless though can appear as a white froth. It often has a pleasant fermentative odor, almost fruity. This usually persists for only a brief period. It commonly occurs on stressed trees though the stress may be due to any number of agents including the base of the tree being struck by lawnmowers or grass-whips. Maples seem particularly susceptible to this disorder.

Never start with a bad tree

I received this image of a recently purchased bare-root sugar maple. The question accompanying the picture was “Should I plant this tree?” The answer is no. Never start with defective stock.

Samples received/Site visits

Codington County, Diploida tip blight on Austrian pine

The tips of this Austrian pine were discolored and stunted. The tree owner wondered if it was pine wilt disease, but the symptom patterns are different.

Diplodia tip bight kills the shoot tips and terminal needles. The lateral shoots will often grow to replace the dead terminal. These also can become infected so branches often are left with multiple stunted twigs.

The disease symptoms are most noticeable on the lower branches. Usually, the very top of the tree remains unaffected. Diplodia is more a disfiguring disease, than a lethal threat. Trees can survive decades with the disease though their appearance is poor.

Pine wilt disease does not distort individual shoots and twigs. The entire tree, or at least most of the tree presents with brown, hanging needles in mid to late summer. All the shoots become brittle and snap when bent. The tree dies within a season, though as mentioned in the last issue of the *Pest Alert,* we are seeing some lingering into the next spring.

Lawrence County, Spruce beetle

There are many old white spruce trees (*Picea glauca*) along the streams in the northern Black Hills. If the bark is pulled always from the dying tree, there are networks of galleries that look identical to those carved by the mountain pine beetle (MPB) (*Dendroctonus ponderosae*). This is not an MPB that misidentified a host, but may be a related insect, the spruce beetle (*Dendroctonus rufipennis*).

Spruce beetle is a threat to high elevation Englemann spruce (*Picea englemannii*) forests in Colorado. It is also found killing pockets of this spruce in the Bighorns of Wyoming.

It is also found in the white spruce in northern Minnesota. The beetle was recently (2018) found in North Dakota near the Manitoba border. The insect is found in declining white spruce in Minnesota and North Dakota. It is not the serious threat to these white spruce forests as it is to the western Englemann spruce forests.

Union County, Spruce bud scale and male cones

The visit was to look at a Norway spruce (*Picea abies*) that was thinning because of needle loss. Many of the thinning shoots had a sooty appearance to the needles that were still attached. They wondered if the galls that were just popping out were the blame.

The small reddish “galls” clustered on the lower branches are the male cones. Unlike the woody female cones that produce the winged seeds, the male cones only live for a brief period while they disperse the dust-like pollen.

The reason for the soot was an exceedingly small insect, the smaller spruce bud scale (*Physokermes hemicryphus*). This insect, as the name implies, resembles a bud so is easily overlooked. The reddish brown, 1/8-inch globose adult females are at the nodes of the branches.

These are sessile – they do not move. Instead, they settle down after the winter (120 GDD), swell and darken. Eggs develop beneath their shell. The eggs will hatch at about 800 GDD. The mobile young are called crawlers. They move out to the needles to feed until fall when they return to the shoots.

Spruce bud scales pierce the plant tissue and suck out the sap. A by-product of this feeding is honeydew, a sugary substance the insect excretes. This leaves a sticky film on the needles which becomes colonized by a powdery black mold.

The tree can be treated with an insecticide after the eggs hatch. This is a few weeks away. It will be covered in the “Treatments to Begin Now” section of the *Tree Pest Alert* at the appropriate time.