



**SOUTH DAKOTA STATE
UNIVERSITY EXTENSION**

Tree Pest Alert



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In This Issue

Plant Development.....	1
Treatments to start now	2
Water.....	2
Timely topic.....	2
Emerald ash borer updates	2
Diplodia needle blight and hail.....	2
Pine beetle updates.....	3
E-samples	3
Codling moth larvae in apples and pears.....	3
Death by staking	4
Pine wilt disease in Scotch pine.....	4
Sample received/site visits.....	5
Custer County (Pine engraver beetle in fallen trees).....	5
Fall River County (Herbicide injury in linden)	5
Fall River County (Diplodia tip blight in ponderosa pine).....	5
Minnehaha County (Willow cone gall)	6
Pennington County (Hornails on dying white spruce).....	6
Pennington County (Spruce needles killing lawn?)	6

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

This past week's weather has gone back to Florida weather; hot and humid. The outlook for the next week is more of the same.

The growing degree days (GDD-base 50) accumulation was another 140 to 170 GDDs during the past week. Here are the total GDDs for communities across the state.

Aberdeen	2,494
Beresford	2,978
Chamberlain	3,011
Rapid City	2,712
Sioux Falls	2,968

The monarch butterflies are appearing in larger numbers in flower beds – zinnia and blazing star are a favorite in Brookings. Many of these butterflies have just recently emerged from their chrysalides – the resting stage between caterpillars and adults.



These will be the monarchs that make the long flight south to their winter home. The urge to head south is driven by cooler temperatures and shorter days. While the temperatures have not cooled yet, the day lengths – a more reliable indicator to migrate – are become noticeably shorter.

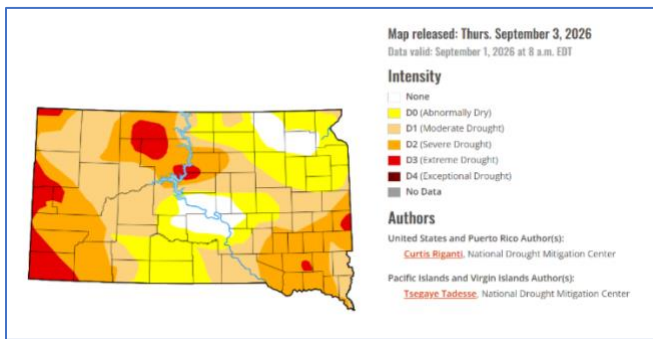
They do not leave all at once. The flights start at the end of August with a few already flying south. The peak migration is mid-September. Right now, most of these monarchs are storing up fats to have the energy for this several thousand-mile flight to central Mexico.

Drought monitor

There is bad news and good news in this week's drought report. First the bad news. Only about 7% of the state is classified as drought free. The drought free area in the northeastern corner of the state has shrunk to just Brown and Day counties. The center of the state, around Pierre, is also drought free.

The good news. The areas of the state under "Extreme Drought" have also shrunk to about 7%. Extreme drought intensity is dotting the state rather than appearing in only one area.

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



Treatments to Start Now

Water

While we have seen some good rains recently in South Dakota, many are just dotting the landscape. One location will receive an inch but a half mile away nothing.

Water now is critical for winter survival of trees. Maples and birch are vulnerable to winter desiccation injury if they do not receive adequate water between August and October. Evergreens are prone to winter-burn if they do not receive water during this period.

Ideally trees receive an inch of precipitation a week during this period. Supplemental watering at once a week will be necessary in many areas of the state.

Timely Topics

Emerald ash borer update

The long, powder-filled galleries of emerald ash borers are visible beneath the bark of infested trees. There will be a flat cream-colored larva with bell-shaped segments

at the end of these winding tunnels. Most of these EAB larvae are little less than inch long.

There are some of the 4th instar larvae present now. These are about 1 ¼ inch long. They are the final larval stage. These larvae feed until mid-October when they begin to burrow in the sapwood to survive the winter.



It can take 30 days for insecticides injected into the trunk to be carried throughout the tree. This means any insecticides injected now may not kill many larvae yet this fall. It may be better to wait until next May to inject ash for protection from the emerald ash borer.

Diplodia and hail

Driving south out of Rapid City it is hard to miss the large pockets of ponderosa pines (*Pinus ponderosa*) with their canopies covered with tan needles. A closer look shows the shoot tips are either dead or have stunted needles at the tips. The ground beneath these trees is covered with shoot tips that broke off the trees.



The trees are infected with the fungal disease diplodia tip blight (*Diplodia pinea*). These infected trees have wounds created by recent hailstorms. The wounds allow the infection to enter the tree as the protective bark is missing. The stress from the mechanical injury of hail

stones allows a latent infection to flare up. The pathogen can remain dormant for years in its host. Many pines infected by this disease do not show symptoms until they are stressed.

The disease is a slow killer of trees with hosts often surviving decades of infection. The pathogen can cause the tree to become disfigured as shoots become stunted or die. Infected trees are also more susceptible to attack by the pine engraver beetles.

The impact of the disease on a tree can be reduced by spraying fungicide labelled for treatment of tip blight and containing the active ingredient chlorothalonil, copper, or thiophanate methyl. The first application is made just as the buds are swelling in the spring with a second application made about two weeks later as the new shoots are expanding.

Pine beetle updates

The pine engraver beetles (*Ips pini*) found in fallen trees and branches are mostly adults now. This is the stage that will overwinter in the litter layer beneath pines in the forest. The adults are about 1/8 to 3/16 inch long, reddish brown with four points on the rear of their body.



The fall dispersal is often when we catch the most beetles in our funnel traps. The traps have more of an attractant to the beetles than the down trees or branches during fall. The catch data can help us determine where the highest concentration of beetles may be next spring.

The summer flights of pine engraver beetles are typically the ones that move from down trees and branches to live trees. The spring flight goes to down green material (including slash). The fall flights may go to stressed trees, down green material or just move to the duff layer.

One problem is moving fresh pine firewood into a stand of pine trees. The firewood could have been infested with the engraver beetles which emerge to attack the standing trees. The scent of fresh pine firewood can also attract beetles to the location. These beetles will find the standing trees a better host than the firewood.

Tony, the SDDAR forest health forester, took this picture of pine firewood stacked among ponderosa pine trees.

The trees are infested with pine engraver beetles. Do not stack fresh pine firewood next to standing pines. Not only will the odor from the fresh firewood attract pine engraver beetles, but it can also attract its bigger cousin the red turpentine beetle (*Dendroctonus valens*).



E-samples

Codling moth in apples and pears

I received some pictures of apples and pears from the same orchards. The fruits had large holes on their sides or bottoms. The holes were also covered with reddish-brown granular debris. The pictures of the sliced fruit showed the tunnels created by a worm. The worm is the codling moth (*Cydia pomonella*).



The worm is gone now but the pinkish larvae (with a brown or black head) are found in or near the center of the apple or pear. They feed on the seeds, not the flesh of the fruit but do a lot of damage to the flesh as they tunnel through the fruit. Notice in the pictures many of the seeds are missing.

There are two generations per year of this insect in eastern South Dakota. These may be larvae from the second generation. The first-generation larvae appeared in June, as did most of the damage.

There is not much that can be done at this time. Once the larvae are in the fruit there are no insecticides that can be used. The best approach now is to remove and destroy any infested fruit.

Death by staking

Staking newly planted trees is a requirement in windy South Dakota. Our wind gusts can snap or uproot recently planted trees that do not have an established root system.

But staking can also be a problem if the “2” are followed; too high, too tight, or too long. The trunk guy from the stakes should be set at about one half to two-thirds the height of the tree. The guying material should not be so tight that it prevents some movement of the trunk. The guys should not be left on for more than a year.



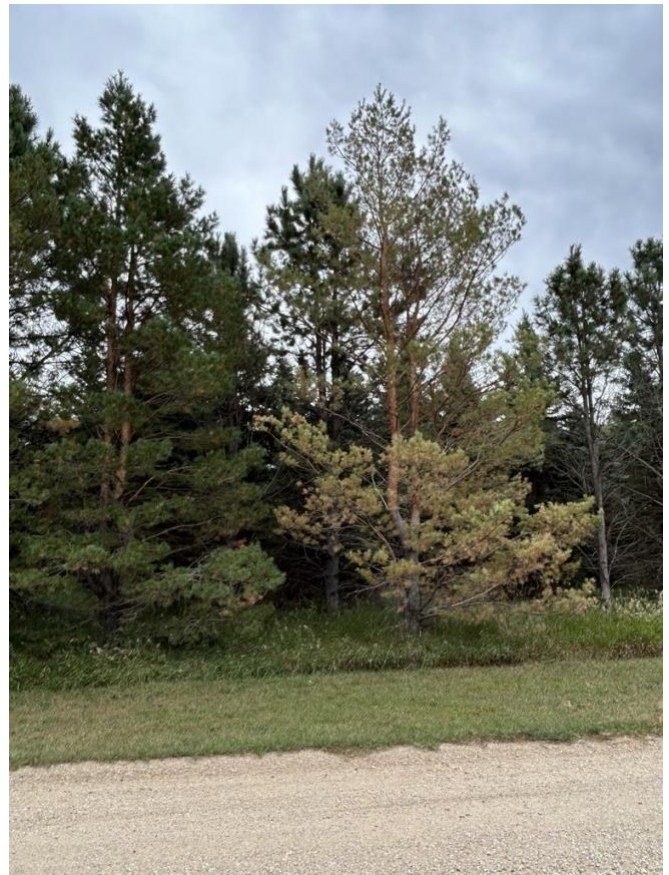
If the “2s” are not avoided, expect trunk cracking as seen in this picture.

Pine wilt disease in Scotch pine

When I receive an email at this time of year about pine trees that are quickly dying, I know it is going to be Scotch pine (*Pinus sylvestris*) and the problem is pine wilt.

This disease is caused by a small nematode and its associated pathogen, the blue stain fungus. They are carried from a dead pine to a healthy pine in the spring by a sawyer beetle.

Scotch pine is the most common host. The tree can be easily identified the bluish-green needles that are attached in bundles of two. The bark near the top of the tree is also orange. While this is the most common host, pine wilt disease can also kill Austrian pines. Our native ponderosa pine is not affected by the disease.



The infection occurs in the spring, but the symptoms do not show until mid to late summer. Infected Scotch pines die by fall. The only treatment is remove and destroy infected trees before April 1 of next year. The sawyer beetles usually begin emerging from these dead trees in April. They can carry the nematode and blue stain fungus to nearby healthy pines.

Samples received/Site visits

Custer County, Pine engraver beetles in fallen trees

This call was to answer the question why the trees that fell during the winter windstorms are peppered with tiny holes and small piles of reddish-brown dust.

The fallen trees were surprisingly still green and sappy under the bark despite having fallen nine months ago. I was able to pull adult engraver beetles out from the tunnels constructed beneath the bark. None of the surrounding ponderosa pine has been attacked by the pine engraver beetle. There was enough down green material the beetles had been content to feed in this material rather than attack the trees.



Fall River County, Herbicide exposure cupping leaves of a linden tree

This linden tree (*Tilia*) has many of the leaves on the lower branches cupped and on curled petioles. This is a common symptom pattern for exposure to growth-regulatory herbicides.



The lawn beneath the tree had been treated with a “weed and feed” product by a commercial company. The

“feed” is a lawn fertilizer but the “weed” is typically one or more herbicides. Many of these herbicides carry a caution against using the product around trees and shrubs.

This is a good time to remind everyone that if trees are in a lawn, it might be best to apply just a lawn fertilizer this fall and use spot applications of a herbicide to control broadleaf weeds. The other possibility is to use a weed and feed product but not applying the product beneath the canopy of the trees or better, not within a distance equal the tree's height. In this zone only a feed product should be applied.

Fall River County, Diplodia tip blight on ponderosa pine

This stop was to look at some pockets of declining pines. The tree owner was wondering if the problem was pine engraver beetles.



The stressor here was diplodia tip blight, not pine engraver beetles. The pines had browning and tanning needles concentrated along the lower two-thirds of the canopies. The tips of the branches had stunted needles and sap oozing from the shoot tips. These are common symptoms of diplodia tip blight.



Pine engraver beetle infested trees usually have canopies that turn yellow in late summer. Also, beneath the branch bark there will be tunnels carved by the beetles. No tunnels were found in any branch examined for the presence of the beetles.

Minnehaha County, Willow cone gall

An interesting gall that I get at least two or three calls every year is the willow cone gall - also known as the pinecone gall - created by the willow cone gall midge (*Rhabdophaga strobiloides*). The adult midge lays an egg on the expanding terminal bud in the spring. Once the larva hatches, it feeds on the bud. This feeding causes the bud to form this pinecone shaped growth around the insect.



A single midge larva is inside each cone gall. It will form a pupa next spring and then emerge as an adult fly. There is no effective treatment, nor does there need to be as the galls usually only result in some distorted branches. Think of them as early Christmas ornaments.

Pennington County, Horntails on dying white spruce

The question was if these struck insects were responsible for killing their white spruce (*Picea glauca*). These are horntails. They are laying eggs in the wood by jabbing their ovipositor (the horntail) into the tree. Often, they cannot extract the ovipositor and just die so a trunk can be covered with dead horntails.

The adults are wasp-like, but more cylindrical, with a long projection at the end of the abdomen, hence the name horntail.

Spruces are not known for their drought resistance. They prefer cool, moist climates. These conditions have been absent in South Dakota during the past few years. Drought stressed spruce are vulnerable horntails.

Horntails are woodborers that look like wasps as adults. The long, rigid "stinger" (which is used to lay eggs) on the adults is responsible for the common name.



Horntails are also secondary insects. Many, such as the pigeon tremex (*Tremex columba*) are found in deciduous trees. Others, such as *Urocetus* are found in conifers, including spruce. Horntails, regardless of host, do not attack healthy trees.

When we find them in a declining spruce, they are merely taking advantage of a stressed tree. They are not the cause of the decline and dieback. Horntails create tunnels that burrow deep into the wood.

The adult female horntail does contribute to the decay by introducing a fungus that further degrades the wood. But the solution is not a spray to kill the insects but keeping the tree healthy. Once horntails are found in a tree, particularly a large spruce, the tree should be removed before it falls on its own.

Pennington County, Are the spruce needles killing the lawn?

This was an interesting stop. The concern was whether the spruce needles that fell off the trees from the winter windstorm were killing the lawn. Spruce gets blamed for a lot of lawn problems.

If the turfgrass beneath or near spruce trees look thin and brown, the problem is rarely the fallen spruce needles. They do not acidify the soil as many people believe, nor do they produce any chemicals that poison the lawn. Spruce needles do not degrade very quickly so occasionally they can smother the lawn. But it takes a thick layer of needles to do this.

The most common problem is the shallow root system of the spruces is concentrated near the soil surface, even into the thatch layer. This means a large spruce, or a row of spruce, is competing with the grass for water.



The other problem is large spruces can reduce the light intensity and quality of sunlight reaching the turfgrass. The grass beneath or near dense spruce canopies is not only receiving less light, but also the wrong light. The trees are absorbing the red and blue wavelengths which also turf also needs for photosynthesis. Shaded turfgrasses become spindly and tufted due to the deficiency in the wavelengths of light needed for growth.

The best solution is to separate the two. Place a mulch layer beneath the spruce and grow the grass away from the tree.