



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 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 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 remains hot and humid. We have seen very little of the crisp, dry weather that heralds the coming of autumn. The growing degree days (GDD-base 50) are still accumulating along with some plant development. One highly anticipated plant development is the ripening of apples! The harvest of some early season apple cultivars such as Zestar!® is already beginning in the southern part of the state.

Aberdeen	2,120
Beresford	2,600
Chamberlain	2,650
Rapid City	2,280
Sioux Falls	2,190

The Drought Monitor map for South Dakota looks the same from last week. Most of the state except the northeastern quarter is under either abnormally dry or moderate drought. The area west of Pierre along the Cheyenne and the counties at the southeastern corner of the state are still classified as severe or extreme drought.

Treatments to Begin Now

Locust borer

Locust borers (*Megacyllene robiniae*) began emerging at about 2,300 GDD and continues to 2,800 GDD. I am starting to see the adult borers land on locust trees in the southern part of the state. The adults are hard to miss. They are about an inch long with long antennae. The body is almost black but with bright yellow stripes running across their back. Some of the stripes form a large W – that does not stand for wasp though they look like one!



You can also find these colorful adults on goldenrod flowers where they feed on pollen. But they are also laying eggs on the locust, as in the picture, and these will soon hatch to become larvae. The larvae tunnel through the inner bark and sapwood during their lives and become an inch long at maturity. The tunneling by the larvae weakens the trunk and may cause the infested branch or trunk to snap.

The locust borer only attacks locust (*Robinia*), not honeylocust (*Gleditsia*). Many black locusts survive the attacks and continue to grow though there may be a few broken limbs and knotty swelling on the trunks as signs the insect has called the tree home. Once the tree is about ten years old, it is rarely attacked.

But good luck keeping the Purple Robe locust (*R. pseudoacacia* 'Purple Robe') alive that long. While this cultivar has attractive chains of purple pea-like flowers, it is borer candy. I rarely find one that lives even five years before being killed by locust borer.

Treatment is usually a saw to remove the dead, infested (and often snapped) tree but the trunks can be sprayed now with an insecticide to kill the insect. These bark sprays contain Bifenthrin, Carbaryl, or Permethrin as the active ingredient and must be labelled for control of this insect. Most injectable products are ineffective against this insect.

Timely Topics

Emerald ash borer update

We are continuing to monitor the development of the larvae beneath the bark. They are feeding in the inner bark (the phloem), the tissue that transports the sugars through the tree. The 1st and 2nd instar larvae, the youngest, can fit within this layer of tissue. The 3rd instar larvae are larger and wider, so they are also etching the sapwood where the water is conducted as they wind back and forth in the inner bark and outer sapwood.



We are seeing more 3rd instar larvae now. Infested trees are presenting with small, brownish leaves at the tops of canopies since water is being restricted by the tunneling of the 3rd instar larvae.

Pine looper

The pine loopers are continuing to defoliate ponderosa pines in an area just east and north of Pringle. The devastation is dramatic when viewing Beaver Valley from Hwy 385. An entire ridge of gray trees, as the caterpillars have devoured all the needles of these trees along the hills.



The insects are also quite a nuisance as they crawl up houses and patios in search of more trees to defoliate. The looper caterpillars are also beginning to drop to the ground to enter their pupal stage. Landowners have mentioned the annoyance of walking through the defoliated forest and being hit by the falling larvae coming down like a light rain!



The good side to this rain of loopers is this means the end of the defoliation is near. There is also the hope that this might be the only appearance of the insect. Next year we may not witness this defoliation as outbreaks are exceedingly rare, often occurring once every two or three decades, and short duration, one or two years.

E-samples

Hackberry nipple gall

I receive pictures of the hackberry nipple gall every mid-summer. These numerous warty growths on hackberry leaves are easy to spot now and the tree owners are certain these must be harmful to the tree. These galls, as with most leaf galls, are not a concern to the host's health.

The hackberry nipple galls are created by a small cicada-like insect known as a psyllid and specifically the hackberry nipple gall maker (*Pachypsylla celtidismamma*). The adults overwinter in bark cracks and crevices along the warty bark of the hackberry tree. They move out to the expanding leaves in the spring to lay eggs. The nymphs hatch in about 10 days and begin feeding on the underside of the leaf. This causes the leaf tissue to form a pouch around the insect as they feed. At this time of the year, the insects are beginning to leave their gall homes and move back to the trunks.



If you look closely at the leaf galls, you will notice an array of shapes from knobby to mushroom-like and some with hairs and others none. It is now thought that there are several different species of *Pachypsylla* making these galls rather than a single species.

Pear scab

These pears are presenting the common symptoms of an infection with pear scab. This disease is caused by the pathogen *Venturia pyrina* and is related to the similar disease that occurs on apples known as apple scab.

Pear scab infection results in the lesions along the leaf margin and spots within the leaf which may expand to cover most of the leaf by midseason. These infected leaves will hang for a brief time then fall prematurely. The symptoms differ from fireblight in that the blackened leaves will still be moist to the touch while the leaves on fire blighted branches will often be curled, shriveled and dry.



There will also be lesions on the twigs and fruit with pear scab. Fruit lesions may be more common than those on the leaves. The fruit lesions start as small brown to black spots near the base of the fruit that may enlarge. Spots will also appear by midseason along the side of the infected pears. The lesions may turn black.

Pear scab treatments for home orchards are limited. Bordeaux mixture (a mixture of copper, sulfate, and lime) and other copper fungicide can be used from bud swell to bloom on a 10-to-14-day schedule. These should not be used after bloom as copper may cause russetting, a chemical burn, of the fruit.

There is increasing concern about the long-term use of copper as a fungicide spray as this element can accumulate in the soil and cause harm to microbial soil organisms. Fungicides containing sulfur may be used instead on a similar schedule. Neem oil is also an alternative and is labelled for this use. There are also fungicides containing Mancozeb as the active ingredient that may be used for controlling pear scab.

Since the disease overwinters on the fallen leaves, raking the leaves in the fall or mowing short to hasten decomposition may be helpful for control next year.

Powdery mildew on lilac

Powdery mildew is showing up again this summer as it always does. This is an unusual disease in that mildew does not require wet weather to drive infection. What it needs is warm, humid weather and we have had plenty of that.



I have received several pictures of the disease on lilacs. The disease is characterized by a powdery, almost cloudy, appearance to the leaf surface. Sometimes you can find small black dots in this powder, and these are the cleistothecium (fruiting structures) for the fungi.

There are many different species of powdery mildew fungi, almost one hundred, and they cover several different genera of host plants. These fungi are very specialized and usually a powdery mildew species is limited to a specific plant genus. The one that infects lilacs is different from the ones that infect ninebarks or snowberries.

The simplest management of powdery mildew is to alter the growing environment making it less favorable for the development of the disease. This requires pruning to open planting beds to decrease night humidity and improve air flow. Fungicides may be used to manage the disease but are best applied before the problem appears.

Septoria leaf spot on dogwood

Septoria leaf spot (*Septoria*) appearing on dogwood is a common disease in late summer if we get some rains (and some areas of the state have been receiving above-average precipitation last month – lucky counties).



The spots begin as small, angular brownish purple shaped blotches that are bordered by leaf veins. Eventually the spots enlarge, crossing the veins, and develop light brown to gray centers. The disease usually results in early leaf drop but otherwise is of little concern.

One common treatment recommendation is to rake up the fallen leaves, but all this accomplishes is a stiff back as the spores can come in next spring from miles away. The disease can be treated with spring applications of Chlorothalonil formulations that are labelled for this use. The first treatment is applied at bud break and repeated for at least 3 times about 10 to 14 days apart.

Samples received/Site visits

Marshall County, fall webworm

A tree owner noticed some webbing in the upper branches of an alder tree. The webbing is from the fall webworm (*Hyphantria cunea*). This is a native defoliator that feeds on alders, cottonwood, elms, maples, poplars, and walnuts in our state.

The nests are made at the tips of the canopy, often webbing several slender branches together with long threads of silk. The larvae feed within the webbing, gradually enlarging the nest as the insects become larger. There are some cottonwoods and walnuts out there that already look like they are covered with “cotton-candy.”

The adult moths were out flying a little earlier this year. They laid eggs at the base of leaves and these have now hatched. The larvae are about 1 inch long but will reach about 1 ½ inch long by the time they mature, about another week or two. The larvae have a black head with a greenish body. The body has a dark stripe along the back and long white hairs in tufts along its length. They are hard to see as they are surrounded and covered with the webbing.



The webbing provides protection to the webworm larvae. Lots of other insects find the fall webworm tasty (and birds will nibble on them as well) and the webbing keeps their natural enemies at bay. The webbing also protects the webworms from most insecticide sprays so spraying the nest will have minimal impact unless the spray is gasoline, and you have a match. Obviously, this is NOT a recommended practice and will kill the tree as well as the webworms.

Minnehaha County, Leaf spot on lilac

I have been to several properties in the Sioux Falls area with lilacs presenting with leaves covered with blotches and spots. Not that there are many leaves. The affected shrubs are almost defoliated. The homeowners say the shrubs looked fine until midsummer.



This appears to be pseudocercospora leaf spot (*Pseudocercospora*). This fungal disease causes leaf spots on many different species of lilac including common lilac and Japanese tree lilac. The disease is sometimes confused with bacterial blight (*Pseudomonas*), but the leaf spot disease does not cause the tips of the shoot to blacken and curl like the blight.

Leaf spot disease requires moderate temperatures (upper 70°Fs) and high humidity to develop. Once infection occurs it usually takes about a week for symptoms to appear. I do not usually see the disease until August and then it seems to appear everywhere in eastern South Dakota.

While everyone in eastern South Dakota is aware of the high humidity this year, it is hard to remember any moderate temperatures. It seems like it has been in the 90s all summer. However, we have had (brief) periods of daytime highs between 75 and 82°F in late July and August.

There is no effective treatment at this time, the damage is already done. Fungicides can be applied next year. Another common recommendation is to rake up and destroy any fallen leafy debris. This may be practical in a yard, but not a windbreak. The buds on the affected shrubs are healthy, large, and light green, so I expect the shrubs to recover next year.

Roberts County, Spruce needleminer

The mature white spruce was presenting with loss of interior needles (those that formed two years ago or older). These needles were detached but now spun together in clumps of needle fragments and small brown pellets of frass held together with fine webs.

This is the work of the spruce needleminer (*Endothenia albolineana*). The insect is now a very small larva feeding within the needles, hence the name needleminer. They are so small that several can get a start in a single needle! Eventually they become too large to fit inside the needle and instead wear a clump of them as toga to feed within and as a shelter to survive the winter (they sometimes get together and several will live in a single clump).



While the insect is now a very tiny larva, I was also able to find an old clump of needles with an old pupal skin still within the webbing. The brown moths are usually flying by June and laid eggs in early July. The eggs hatched several weeks ago and now the larvae are inside the needles protected from most natural enemies and pesticides.