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 ocynin 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 week started with crisp fall weather and ended with the hot, humid weather of summer. The weather will turn cooler, and wetter, during the next week. We will see a few more switches back and forth between summer and fall weather during the next few weeks.

The mild temperatures nudged the accumulated GDD (base-50) by about 100 DD during the past week. Here is the current GDD accumulation for communities across the state.

Aberdeen	2440
Beresford	2900
Chamberlain	2960
Rapid City	2425
Sioux Falls	2880

Fall foliage color change is just around the corner. The longer nights are a trigger for trees to begin to prepare for winter. The day length as well as a gradual decrease in sunlight intensity slows the production of chlorophyll in the leaves – the green pigment. This allows the yellow pigments that are always present to be unmasked.

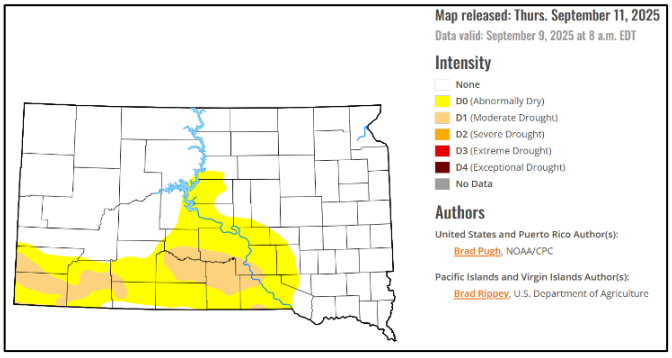
This gives the clear yellow color in the cottonwood that we will see in the coming weeks. The red of the maples is created by a buildup of anthocyanins – the red pigments – to appear.

There is just a hint or two of the reds and yellows in leaves right now. But if the fall weather turns dry and crisp, we will have the conditions for a brilliant display. Rainy, cloudy weather will reduce the intensity of fall color.

Drought monitoring

We did not see rain during the past week. The drought intensity has moved slightly with the lack of precipitation. About 73 percent of the state is drought free. Another 19 percent of the state is classified as “Abnormally Dry.” About eight percent of South Dakota is classified as “Moderate Drought.” This is concentrated in the southwestern part of the state but now extends east to Aurora and Douglas counties.

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



Treatments to Begin Soon

Spruce spider mite

The spruce spider mite is a cool season mite, so it is active in the spring and fall. The damage is most noticeable during the summer heat and that is when the calls start coming into our offices. However, the time to treat is coming very soon, not during the past summer.

Spruce spider mites have needle-like piecing mouthparts and injure the tree by sucking the fluids from cells in the needles. This damage appears as stippling and flecking of the needles and when infestations are heavy the entire needle will turn yellow or bronze. The mites also produce very fine webbing.

The best clues that mites might be the problem is to look at last year’s shoots and needles and inspect for stippling, fine webbing, and a small dark gray dust spots that are the cast skins to the mites. Occasionally I can even find a dead mite stuck onto a resin drop. Spider mites rarely kill trees, but their feeding can result in the loss of the older needles and interior browning.

Spruce spider mites overwinter as eggs and in the spring enter a larva then nymph stage before becoming an adult. This cycle does not take very long and can be completed in less than a week. This is the reason for the common spray recommendation for two treatments 10 days apart. Many pesticides do not kill the eggs. A single application of the pesticide may reduce the adult population but once the eggs hatch the population quickly rebounds.

The populations develop the quickest during the cooler spring and fall weather. During much of the summer the mite is dormant and easy prey to other mites and insects. Treatment options are very limited for homeowners, horticultural oils and insecticidal soaps being the two most common since these are the least likely to harm the many beneficial insects and mites that provide most of the control. These products, however, can turn a blue spruce green so use with caution unless the color change is not an issue.

There are foliage applied insecticides available to the public that provide some management of these mites, Malathion is a common active ingredient. It is a suppression treatment, not eradication, and are only mildly effective. They should be applied in about a week and then another treatment about a week later.

Commercial applicators have more effective chemicals available, such as Forbid (Spiromesifen) and Lucid (Abamectin) that are applied to the foliage when the mites are active in the spring and fall. Commercial applicators can also apply Lepitect (Acephate) as a soil treatment in the spring. I recommend tree owners contact a professional if tall trees (15 feet or more) need to be treated.

Timely Topics

Emerald ash borer update

We continue to monitor larval development of emerald ash borer (EAB) from Dakota Dunes to Milbank. Many larvae are in their 3rd instar, but we see more 4th instars. The 4th instar will feed into October then begin to burrow into the sapwood to spend the winter.

If a tree has not yet been treated for emerald ash borer, it is better to wait until next May. Any insecticide injected into a tree now is not likely to kill many larvae yet this fall.

Buckeyes, not chestnuts, are falling from trees

This is a picture of fruit sent this week. The question was how to roast these chestnuts. First, these are not chestnuts. The American chestnut (*Castanea dentata*) is not adapted to our state's growing conditions. The furthest west I have found them growing is in the Hodgson Arboretum at the University of Minnesota Experiment Station in Waseca, Minnesota. There is a small chestnut orchard near Worthington.

There is a small American chestnut at the Mary Jo Wegner Arboretum in Sioux Falls. I found another one in Brookings County this summer, but it only manages to grow a foot or two each summer before dying to the ground in the winter.

What people bring or send in as chestnuts are the nuts from the buckeye tree (*Aesculus glabra*). This is a common tree in our region since the squirrels plant them for free in every garden. The nut contains poisonous glycosides aesculin and fraxin. Ingesting the raw seed will result in muscle twitching, vomiting and abdominal pain, diarrhea, and death – that should convince you not to eat them!

The raw nuts, tender shoots and leaves, particularly wilted leaves, are also toxic to horses and cattle (rabbits too but they are smart enough not to eat them). Squirrels seem to do just fine eating raw nuts and they contain a sweetener that (at least to a squirrel) is sweeter than sugar. The nut can be made safe for human consumption by roasting and leaching. They were used as a starchy food by Native American, but I do not recommend even trying to do this. Go buy a Snickers bar instead.

Hackberry leaves turning yellow - squirrels gone wild

Mature hackberry trees presenting with flagging – leaves on branches that are turning yellow, wilting, and falling. These branches are randomly scattered through the tree's canopy.

The flagging appears random but there is a single reason for this presentation. If you trace along the flagging back from the tips, you will notice the bark has been completely removed from the branch. This injury has been occurring over several seasons as the injured branches show repeated callusing around the chewed patches.

The cause of this girdling is the eastern fox squirrel. These rodents seem to feed on anything in a tree – bird eggs and young birds, tree buds, insect galls and, a favorite, the sweet inner bark of specific tree species – most commonly hackberry, along with elm and maples.

There is not much that can be done about this rodent, or its damage, in urban areas. They have their preferred trees and return to feed on them every summer. You can find past girdling in these trees and usually they do not completely cut around a branch, so it survives. The flagging branches are the ones completely girdled, and these die from this injury.

Hedgeapples as spider control

Yellow grapefruit size fruit is appearing in grocery stores. These are hedgeapples, another name for Osage-orange (*Maclura pomifera*). This is a seasonal appearance in the stores, as with many fruits, but this is not one you should plan on eating!

The fruit is sold as a spider killer. It does work – hit a spider with the fruit you will kill it. But placing the fruit, either whole or split, in the basement to repel insects or spiders does not work.

The milky latex-like sap in a ripe hedgeapple can cause skin irritation so avoid contact – and do not eat it! So, what does eat the fruit (or at least seeds)? Not much apparently. Deer and squirrels will occasionally feed on the fruit and disperse the seeds, but it is not a preferred food for anything alive today.

Alive today is the key phrase. The Osage-orange is considered anachronistic (something out of place) because it has no known seed disperser – they died out about 10,000 years ago. The mammoths, ground sloths, and other large mammals that lumbered across the plains fed upon them, but they are gone now. Maybe they did not like the taste either. Perhaps the fruit should be sold as mammoth killers!

If you want to see the fruit on a tree, there is one in Mitchell and New Ulm Minn. They are not hardy in our region. These trees are more common in Iowa and Nebraska.

E-samples

Carpenterworm in West River ash

I received a picture of large holes near the center of an ash tree. These galleries are usually the worm of the carpenterworm (*Prionoxystus robinae*). This insect is a common borer of ash, cottonwood, elms, and poplars. It is common in declining West River ash trees. The extensive tunneling by this insect can also further the decline of its host and infested trees frequently have branches break off.

The adult is a heavy bodied mottled gray moth. It flies in early summer and lays eggs in bark crevices or wounds. The eggs hatch in about two weeks. The red to pink larvae are about 1/4-inch long. The larvae crawls on the bark surface for a few hours before burrowing into the wood. This leaves a mass of sawdust at the entrance hole. The entrance holes are often found along the lower trunk or in a branch crotch.

The larvae can continue to tunnel for three years so it can be a long process to rid a tree of the insect since systemic treatments are not effective. The best treatment is treating the trunk with a pesticide containing permethrin in late May. It may take three years of annual treatments to eliminate an infestation.

Cottonwood rust

I received another picture from a tree owner that noticed these tiny spots appearing on their cottonwood “almost overnight.” This is melampsora rust of poplars (Melampsora), which includes cottonwood as a host.

The disease first appears as small yellow spots on the leaves along with orange pustules on the undersides. Infected leaves may brown as the season progresses and fall prematurely.

The disease has a complex life cycle, as do many rust diseases, traveling between poplars (aspens, poplars, and cottonwoods) and conifers. The disease appears on the poplars when we have some summer rains – which we have had in some areas of the state – but we do not see the disease every year on the same trees.

Cottonwoods are rarely harmed by the infection and late season defoliation. The most common control is to rake up and dispose of the fallen leaves, but this is rarely effective in a landscape setting. High-value cottonwood may be sprayed with a preventative fungicide in the spring. A common active ingredient for these treatments is Propiconazole.

One more time – leaf spot on common lilac

The calls and visits continue for lilacs defoliated by leaf spot diseases. Leaf spot diseases, pseudocercospora and septoria among others, on lilacs are causing concern in eastern South Dakota. These leaf spot diseases begin as brown spots starting at the margins and progressing to blotches and eventually defoliation.

Most of the calls and visits are for lilacs in windbreaks though I have seen in in landscape as well. I have looked at some windbreaks this past week where every lilac in a row is bare except for a few leaves at the tips. These diseases require warm, humid conditions to flourish, and it has been wet and humid this year.

These leaf spot diseases are not a threat to otherwise healthy shrubs. Lilacs can withstand a year of defoliation, so no control is always necessary. If the lilacs were affected last year and again this year, a fungicide application of Chlorothalonil (labeled for this use) can be made just as the leaves are opening next spring to reduce the severity of the disease.

Samples received/Site visits

Brooking County, Alder leaf miner

The blotches on these European alder leaves (*Alnus glutinosa*) are the work of a leaf miner, the European alder leaf minor (*Fenusa dohrnii*). The small light-colored larvae feed within the leaf – hence the name leaf miner. They create these irregular blotches in the leaves.

The larvae feed for a few weeks before cutting a hole in the leaf, dropping to the ground, and forming a cocoon. The adults are small, black sawflies. Pupae are the overwintering stage but there are two or three generations per year.

This is not a common insect, mainly since we have few alders used in the landscape. I can find this insect in European alders in southern Minnesota and eastern South Dakota but not the Prairie Horizon alder (*Alnus hirsuta* ‘Harbin’) despite these trees planted near each other.

Lawrence County, Mountain pine beetle

Mountain pine beetle (*Dendroctonus ponderosae*) is a localize concern in the Black Hills. We are not seeing the large-scale epidemic in the 2000s, but small pockets of infected trees scattered in the Northern Hills. The pockets of infested trees are between two and thirty trees, but they are not expanding from one year to the next.

Instead, the emerging beetles are dispersing to form other pockets. Oftentimes this results in unsuccessful attacks – called pitchouts – where the attacked tree is healthy enough to produce sufficient resin to push the beetles out as they attempt to burrow into the tree.

Minnehaha County, Maple bladder galls

Maple bladder galls are continuing to appear on silver maple (*Acer saccharinum*) and freeman maple (*A. x freemanii*) leaves. The galls are from the feeding of a small eriophyid mite called (you guessed it) the maple bladder gall mite (*Vasates quadripedes*). The mites overwinter under the scaly bark of the trunk then move to the expanding leaves in the spring.

The mites feed on the underside of the leaves causing a pouch or bladder to form. Eggs are laid in the bladder galls. The young mites live and feed within this protective structure. The galls turn color during the season from green to red to black and usually the color is what catches the eye of the tree's owner.

The mites and the galls do not harm the trees, the leaves are still able to manufacture food, so no management is needed. Besides, once the galls are noticed, it is too late for any treatment as nothing can remove the bumps.

Walworth County, European elm scale, not Dutch elm disease

The leaves on a large American elm (*Ulmus americana*) were turning yellow. Yellowing leaves are a symptom of Dutch elm disease, but the yellowing leaves associated with DED fall crisp and dry. They are turning color and falling due to the fungus plugging up the water-transporting vessels int the tree.

These leaves were turning yellow but remained attached. The leaves and twigs also had sticky black powdery film. This was the work, not of a fungus, but a scale insect, the European elm scale (*Eriococcus spurius*).

The adult scale is oval, brown with a white fringe. They are about 5/16 inches long. The adults and their young produce honeydew, so infested trees are often covered with a sticky film. This film becomes infected with sooty mold so develops a dark appearance.

The near invisible young, called crawlers, feed on the leaves until fall when they will return to the twigs and settle down for the winter. Next spring, they will mature to become adults.

Soil treatments of insecticide containing Imidacloprid as the active ingredient can control European elm scale. Foliage-applied insecticides can also be used to control the crawlers after they hatch. These are insecticides containing Acephate, Bifenthrin, Carbaryl, or Permethrins and labelled for this use. The insect growth regulator Pyriproxyfen can also be sprayed on the foliage. This will disrupt the molting of the crawlers.