

Pest Update (November 6-13, 2019)

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Note: samples containing living tissue may only be accepted from South Dakota. Please do not send samples of dying plants or insects from other states. If you live outside of South Dakota and have a question, instead please send a digital picture of the pest or problem.

Available on the net at:

<http://sdda.sd.gov/conservation-forestry/forest-health/tree-pest-alerts/>

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 and the label is the final authority for a product's use on a particular 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.

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Plant development for the growing season

Winter is starting and with that, the annual harvest of the Capitol Christmas tree. It's a 30-foot tall, 26-year old Colorado blue spruce from Pierre and we had the perfect day to cut it. Time to start thinking about your Christmas tree.

Timely Topics



A Christmas tree lot will be a common sight by next week.

Real or Plastic? Christmas tree lots are already beginning to spring up around the state and Thanksgiving marks the start of the Christmas tree season with more than 30 million trees being sold between Thanksgiving and Christmas. Another 60 million homes use artificial trees either for convenience or environmental concerns.

However, the traditional Christmas tree can be the environmentally friendly way to celebrate the holidays. Real

Christmas trees can come as close as the nearest choose-and-cut while the journey to your home for artificial trees may start in Asia. The real tree is made of wood (obviously), a renewable resource, while the artificial is plastic. And while you don't have to buy an artificial tree every year, the average artificial Christmas tree may have a life span of ten years before it ends up in a landfill and it will remain there for a long, long time. The real Christmas tree, while used for only one season, can become valuable mulch, a winter bird feeder, or even used as a fish habitat after the holidays.

Here are some tips on picking out the perfect real tree. The best way to obtain the freshest tree is to harvest it yourself at a nearby choose-and-cut Christmas tree farm or obtaining a Christmas tree permit from the Black Hills National Forest.

If cutting your own tree is not possible, here are some tips for checking freshness of a tree at a Christmas tree sales lot. First, give the tree a light, but vigorous, shake. If it is fresh, only a few interior needles should fall out of the tree. If a pile of brown needles appears on the ground after shaking, it is not a fresh tree. Next, reach into a branch and pull the needles *gently* through your hand as you move out towards the tip.



The needles should bend, not break, as your fingers run across them and the branch should only slightly bend to the touch. If the needles break off completely this is another indicator that the tree has already dried out too much. Likewise, if the branch does not bend slightly but seem more like a wooden stick, the tree has already dried out and is not worth buying



The stand should hold at least a half-gallon of water and the tree trunk.

Regardless of whether you buy a tree from a lot or cut it yourself, once you get the tree home leave it outside in the shade while you set the stand up indoors. The choice of a stand is probably the most critical factor in maintaining the freshness of the tree once in the home. The stand should be able to hold one-half to one gallon of water as the new tree may absorb this much water on the first day. A good rule-of-thumb is a tree will use 1 quart of water per day for every inch trunk diameter at the base. If you have a tree with a 3-inch base, it may use 3 quarts per day.



Just before you bring the tree in the house cut the base between a half and one inch from the bottom. This will open the sap-filled pores that transport water through the tree. The base cut does not have to be slanted. The angle makes little difference in the amount of water absorbed so cutting perpendicular to the trunk is fine. Do not drill holes into the trunk or whittle the trunk smaller, neither will improve water uptake.

Also brush off any debris or dirt on the base before placing it in the stand. And start out with a clean stand. Wash it out with a solution of about a capful of bleach to a cup of water, rinse and let it dry before using. A clean stand does not increase the life of the tree but does eliminate the mushy odor from an old, dirty stand.

Once the tree is in the stand add water and then *never* let the stand become empty. If the stand becomes empty for more than six to eight hours, the tree's pores plug up again. Water uptake will be significantly reduced, the tree will dry out sooner than expected and the needles will soon begin to fall. If the tree stand does dry up for half a day or more there is nothing that can be done other than pull the tree out of the stand and recut the base – not a pleasant task once the lights and ornaments are already up.

Nothing needs to be added to the water in the stand to improve needle retention. The commercial “tree fresher” products do not significantly increase the life of the tree. The home remedies such as aspirin, sugar, soft drinks and vodka do not work and may be harmful to pets (or partyers) that may drink from the stand.

Place the tree in a spot that receives only indirect light from the windows and not near any heat duct, fireplace, or your attempt to deep fry the turkey. Also keep the house at about 40% humidity or higher, lower will dry out the tree faster. And use

lights that emit less heat, such as the LED (light-emitting diode) Christmas lights. This will reduce water loss from the tree and prolong its freshness.

What do you want from a real Christmas tree? There are three main qualities, 1) pleasant fragrance (we all love the Christmas tree smell), 2) stiff branches to hold all those ornaments, and 3) long needle retention so we do not have a 'Charlie Brown' tree before Christmas.



attractive display.

Which is the best tree? Each species has its good points, but the Fraser fir (pictured to the left) is probably one of the top favorites. The tree has a very pleasant fragrance, excellent needle retention - they will last the entire holiday season - and the branches are stiff enough to hold most ornaments (however, if heavy ornaments are to be placed on the tree go with a spruce). The bright green needles are white on the underside and this makes a very

Balsam fir is another good choice though the needles do not last quite as long, and the branches are not as stiff. Canaan fir, another popular fir appears to have qualities like the Fraser fir, and it is another popular Christmas tree.



Pines are very popular as trees with Scotch pine, pictured to the left, probably the most popular Christmas tree in the country. It has a pleasant fragrance; excellent needle retention and the branches are stiff enough to hold heavy ornaments.

Eastern white pine is another pine commonly sold at Christmas tree lots. The needle retention is not quite as good as Scotch pine and the branches are very flexible meaning heavy ornaments may fall off. White pines do have very soft needles and if you are going to run into the Christmas tree in the middle of the night, this is the softest one!



Spruces are not as popular of Christmas trees due to their relatively poor needle retention. If you want to have a Colorado blue spruce as your Christmas tree, you probably should wait until a couple of weeks before Christmas to set it up. The needles may only last that long. Once the needles begin to fall, blue spruce are about the worst tree in the house as the fallen needles are sharp and seem to find their way into socks and slippers.

The branches are very stiff, however, and can support the heaviest ornaments. On a positive note – cats do not seem to like to climb blue spruce trees!

White spruce, or Black Hills spruce is not a commonly available Christmas tree at lots though it can be cut from the National Forest (with a permit). It does make a nice tree, particularly when cut fresh, though needle retention is poor. The tree also does not have much of a fragrance and occasionally Black Hills spruce trees can produce a slight musky odor when the foliage is bruised.

E-samples

Not too many e-samples at this time of year. The trees have gone dormant, the pests are taking a nap, and everyone is rushing around in the cold rather than looking at their trees.



Now the pest problems are in the house. They were taking a nap in that firewood until you brought it in the house and warmed them up. One of the most common insects that emerges from cut firewood in the home is the **banded ash borer** (*Neoclytus caprea*). During its larval stage, this beetle makes its home in dead and dying trees (that still have bark), mostly ash but it will also live in elms and occasional oak. The adults lay eggs on

these declining trees in the spring – I have seen swarms of this insect in dying ash belts – and the larvae borer into the sapwood where they live all summer and sometime into the following summer if the tree is dead. However, by the end of summer they pupate and wait out the winter cold before emerging as adults in the warm spring.

Bringing the wood in the house can fool them into thinking it is spring. They will happily buzz away hitting sunny windows and walls until you smack them, or they die. The adults look a little like a wasp. The 1/2 to 1 inch long black beetles have four yellowish bands with the first two jointed along the midline to form two loops.



I also received a picture of a rotted stem of a tree, the concern was whether the hole was from the emerald ash borer. Thank goodness the beetles are not this large! That would be scene out of “*The Birds*” and we would not be injecting tree but shooting the borers out of the sky with shotguns. The soft, decayed wood in dead and dying trees makes for the perfect habitat for many birds. The **red-headed woodpecker** will carve out a home in

these decayed trees often a foot or more deep but with an entrance hole only about 2 inches in diameter.

Samples received/site visits

Hughes County

Why are my Austrian pines dying?



A row of the belt surrounding the home had several dead pine trees, only a few gray needles were still hanging from them. Apparently, they were fine last year according to the homeowner. There were also several Austrian pines in another row that had discolored and wilting needles on many of their branches.

The most likely agent for these symptoms is the pinewood nematode (*Bursaphelenchus xylophilus*), and the disease is pine wilt. This is a lethal disease of Austrian, Mugo and Scotch pines, our native ponderosa and lodgepole pines are tolerant to this disease. The nematode is carried from an infected to a healthy tree by sawyer beetles that either transfer the nematodes while feeding on young shoots or while nipping the bark to create a site for their eggs.

The nematodes are introduced in the spring, but symptoms -yellowing, wilting needles – do not appear until mid to late summer and by fall the tree is dead. This is the case with Scotch pines, their preferred host, but on Austrian pine the wilting may be restricted to a few branches at first and sometimes the tree does not die until the following year.

The wood of a dead, infected tree is very light – its complete desiccated as water movement is blocked by the nematode and a blue stain fungus that is also carried by the sawyer beetle.

There are no effective treatments for the disease once the nematodes have entered the tree. The only chemicals (abamectin and emamectin benzoate) are preventative treatments. These are injected into the tree every other year, though annual provides the greatest protection. However, the cost is relatively high, and most opt for every two years. The treatments may be only 60 to 80% effective so a treated tree can still become infected. The larger the tree (and it's the large one's people want to save), the less effective the treatments.

Lincoln County

Is this emerald ash borer?



I receive an email from a local arborist about an ash tree he suspected was infested by emerald ash borer (*Agrilus planipennis*). I inspected the almost dead green ash and my initial impression was that this was a possibility based on the exit holes and the galleries. The tree did have some blanding – removal of the outer bark layers – but there were only few woodpecker pecks in the blanded bark. Also, there were no surrounding ash trees that were presenting any symptoms or signs associated with emerald ash borer, i.e. blanding, woodpecker pecks, vertical splits, watersprouts.

Since the suspect tree had exit holes along the lower trunk and much of the trunk was dead, this increased the likelihood that the tree was not infested by emerald ash borer. Trees that are presenting exit holes of emerald ash borer along the lower trunk have usually been infested for four or more year, long enough that nearby ash trees would also have become infested from migration.

However, the exit holes appeared D-shaped and the galleries were frass-filled and curved along the inner bark. There was enough suspicion that I needed to return and collect some branches from the upper canopy as well as debark some of the trunk.

The property owner gave permission to take samples and mentioned the tree had been standing 'half dead' for several years. I was able to obtain some of the upper branches as well as debark some areas of the lower trunk.

The exit holes that extended throughout the tree were larger (2-5 mm) than emerald ash borer (2-3 mm) and deeper into the wood. They appeared D-shaped as they were sometimes at a slant as they came through the bark.

The frass-filled galleries were more meandering, than serpentine, and were slightly wider than typically found for emerald ash borer. Emerald ash borer galleries do become meandering as the tree's health declines so the gallery pattern was not entirely inconsistent with emerald ash borer. However, the galleries were also descending into the sapwood which is a characteristic of the redheaded (*Neoclytus acuminatus*) and banded ash borer rather than emerald ash borer.

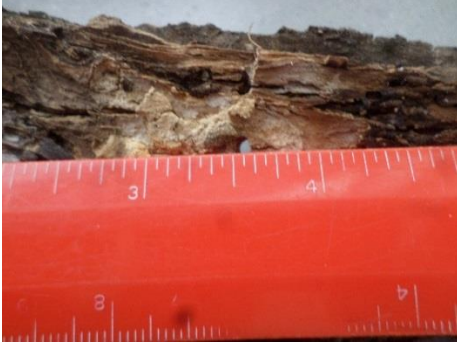


The upper canopy had extensive exit holes and galleries of the eastern ash bark beetle (*Hylesinus aculeatus*). These typically attack branches in dying ash and in trees that had recently died. There were also some wider frass-filled galleries on the sapwood, but the width was that made by the redheaded or banded ash borer.

I was able to find only two larvae, both *Neoclytus*, the larval descriptions of the redheaded and banded ash borers are similar and until they become adults, I cannot tell which. However, when we find a tree that appears to be emerald ash borer but instead is due to one of these two insects, generally it is the redheaded ash borer.

This was a good “find” by the arborist and I appreciate him reporting it. We are probably going to continue to have trees infested by redheaded and banded ash borer submitted as emerald ash borer infested trees.

The best means of separating these trees is that emerald ash borer trees generally have extensive blanding with many woodpecker pecks in this wood while trees infested by our native borers have far fewer (the reason is that these native borers soon move deeper into the sapwood out of the reach of woodpeckers).



The exit holes may appear similar, D-shaped, but if the holes appear slanted and much larger than 2 mm (1/8-inch), they are more likely the native borers rather than emerald ash borer.

The galleries will also be wider with the native borer, 4-6 mm, rather than 1-2 mm that are found with the

emerald ash borer and the native borer galleries will eventually penetrate deeper into the wood. The galleries will generally be more meandering with the native borers while emerald ash borer galleries are serpentine.



There is always the possibility that a tree infested by emerald ash borer will become more attractive to our native borers so you can find both hence investigating these suspect trees must rule out emerald ash borer rather than stop at just finding native borers.

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