

Pest Update (March 21, 2018)

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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

Will winter ever end! Much of the state is enduring another snow storm, a common occurrence in March during basketball season. Fortunately, we have not received too many days of warm weather prior to this brief period of cold and snow so our trees and shrubs have remained dormant rather than breaking bud prematurely and being killed back by the cold.

Timely Topics

Herbicide carryover: caution when planting new windbreaks

The planting season will be upon us in another month or two so now is a good time to remind producers and planters to be aware of herbicide carryover. Every year we have a few new tree belts fail or do poorly because of high residue concentrations of herbicides in the soil. The most common herbicide active issues in South Dakota are with Atrazine (Atrazine) and Picloram (Tordon[®]). Metsulfuron (Ally[®] or Escort[®]) and Dicamba (Banvel[®] or Clarity[®]) have also been linked in other states to tree failure and I occasionally see it here as well.



Why residue can be a problem in one planting and not another can be related to when the herbicide was applied the year before (spring or summer), the amount of precipitation, soil texture, and soil pH. The later the application during a growing season the more likely the residue may cause injury the following year. Rainfall and soil texture influence persistence with a low rainfall and clay loam soil combination resulting in longer

persistence of harmful residues as the chemical does not leach quickly. Soil organic matter and clay also increases soil absorption because of their chemical reactivity. This binding does reduce the potential amount that might be taken up by the plant, but also results in more persistence so may harm plants in future planting. Soil pH also plays a role and the more alkaline the soils (above 7.3) the longer an herbicide may persist in the soil. The chemical break-down of an herbicide occurs when it reacts with soil water and the rate decreases with higher pHs. Microbial breakdown is also slower in alkaline soils due to lower populations in these environments. Microbial breakdown is fastest in slightly acid soils that are warm and well-aerated.

The soils where herbicides persist the longest are those that are clay loams to clay with a soil organic content greater than 3 percent and a pH greater than 7.5. The soils that will have the shortest carryover are sandy soils with low soil organic matter (2 or less) and are slightly acid (pH less than 6.8). South Dakota has more in the former than the latter.

Atrazine is commonly used in corn while picloram is often used in pastures. Atrazine and picloram have half-lives (the time for half the dissipation of an amount of active ingredient) of about two to three months which can double if the soils are clay with high organic matter (and freezing weather does not count).

These two herbicides can have residue concentration too high for planting tree seedlings the following year particularly during dry years and I have seen carryover of atrazine for two years in clay soils and three for picloram. The two greatest influences for these herbicides are precipitation and soil texture, pH less so. Conifers seem to be the most sensitive and you might see the seedling hackberry doing just fine and the adjacent cedar row completely brown. Do not plant trees the year following an application of either herbicide and even avoid the second year if the herbicide was made during the summer and the soils are clay loams.

Metsulfuron's half-life can be as short as one month and as long as six depending on soil and climatic conditions. The greatest influence is soil pH and texture (alkaline and clay most persistent), precipitation less so. Ally and related herbicides have a potential for carryover injury, but see less of this land (wheat and oats) converted to belts.

Dicamba half-life can be less than two weeks and generally after four months tree planting can be done in treated soils. If dicamba was applied in the spring or early summer, the following spring most likely trees can be safely planted. The most common problem I see with dicamba as a soil application is when someone sprays around established conifers for weed control and assumes that if you spray outside of the edge of the canopies (the dripline), then you are outside of the root zone. The roots of a tree typically extend out a distance equal to their height so dicamba should never be applied closer than this distance.

E-samples

While it may look white out your windows, it's a black day for the *Update* – the two e-samples are about two diseases that begin with the word black. Ozzy would approve.



Black knot (*Apiosporina morbosa*) is a disease that really stands out on a bare tree. The cylindrical, black, rough textured galls on the branches are hard to miss and go by many descriptive names from “dead man’s finger” to “dog poop on a stick.” The disease is not only unsightly; it eventually girdles the attached branch through this often takes years. The disease is common on many cherries, particularly the ‘Schubert’ chokecherries and some plums.

Spores are released from these knots in the spring and infection can occur from the time the buds are just beginning to expand (April) until shoot growth is completed (early June). Infections can start during

this time period whenever the tissue is wet (after a rain) and the air temperature is above 60°F.

The disease is not easy to manage and I tend to lean towards killing infected plants – basal pruning – rather than attempt to cut out the knots. First, one susceptible, always susceptible. There is some resistance to this disease among cherries and plums and some trees will never get the disease and others will always have it (or become infected again after pruning). However, if you have a lot of time on your hands or the tree is really important to you, prune out and destroy all the knots now, this weekend. Prune away infected branches back to a healthy branch or limb. If the disease has progressed to the trunk (as shown in the picture), just kill the whole tree. And if you have enough time on your hands to cut the knots out of this tree, remove all the knots on any other cherry or plum within a couple of hundred feet of this tree.

Second, even after you prune, you'll see new knots the following year. The shoots infected last year only have a slight swelling to them at this time and are easily missed while pruning. The larger, blacken galls will not form from these swollen areas until this summer.

After all the knots are removed, fungicides can be applied to reduce future infections. Fungicides containing chlorothanil that are labelled for stone fruits such as cherries and plums (the trees with the most problem with black knot) can be used to help manage this disease. The first application should be made just before bud-break and then continue on a 10-day interval until shoot growth has stopped (late May or early June). The treatments are to prevent the tender new shoots from becoming infected by the spores being released from the knots. Fungicides containing chlorothanil should not be tank mixed with oils or applied within two weeks before or after an oil spray as plant injury may occur. Chlorothanil application must stop at blooming for any tree you intend to harvest fruit for human consumption. The first applications are the most important so if flowering occurs before shoot growth ends (and expect this on cherries and plum) forgoing the last sprays will probably be okay.



Black rot and Frogeye leaf spot of apple (*Botryosphaeria obtusa*) are phases of a common disease of old or stressed apple and crabapple trees. An infection of the fruit results in black and brown concentric bands around the base of the apple and eventually encompassing the entire fruit. The rotted, leathery fruit may hang from the tree for a year or even longer – this is the black rot phase.

The leaves on infected trees will develop small purple specks that enlarge as the season progresses. The spots have a light brown to gray center surrounded by a dark brown ring with a purple margin – the frog-eye.

The limbs and trunks of infected trees will develop slightly sunken, reddish-brown patches that form a dark, almost powdery, sunken canker. These cankers crack as they age and the bark at the margins peels away. Not the most pleasant disease as it attacks almost every part of the tree.

Management of the disease may be as simple as removing the old, neglected trees. Other tactics include removal of all the mummified, hanging apples and destroy them before spring. This also applies to infected branches and limbs. Prune these out and destroy them whenever possible. Unfortunately, there is not much that can be done if the cankers are appearing on the trunk. Attempting to excise, prune out, just the cankers on a trunk rarely works.

The other tactic is to maintain the tree so it is healthy and growing vigorously. This is essential to managing the canker phase of the disease. Provide irrigation during dry spells (apple trees need about 1-inch of rain a week during the summer, water if your area is receiving less), apply a circle of coarse wood chips and shredded leaves mulch (material out of a wood chipper is best), and fertilize the tree.

Samples received/Site visits

Clay County

These arborvitae have dead spots, mostly on the south side.



A common problem with arborvitae (*Thuja occidentalis*) in South Dakota is winter-burn. The drying winds and frozen soils are a perfect combination to desiccate foliage of tender evergreens. Arborvitae seem to be especially sensitive to this environmental disorder and it is common to see these columnar plants with brown foliage at this time of year. They are also not very tolerant of salt and will brown if exposed to de-icing salt drift (even dog urine will brown the foliage). There are also a few pest problems that will cause browning, most commonly scale insects, but none were found on the sample. It appears this is winter-burn and my advice would be to prune out the dead tissue a little later this year. Wait a little longer to do this as some of the lighter brown tissue may turn green again once the growing season begins. The brown, brittle tissue is dead and can be removed now.

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