Pennsylvania's Christmas Tree Scouting Report

Friday, April 28, 2017

Weekly newsletter compiled by Sarah Pickel, PA Department of Agriculture. This week's scouting data contributors: Jim Fogarty (Halabura Tree Farm), Karen Najda (PDA), Sarah Pickel and Cathy Thomas (PDA).

Growing Degree Day Totals from 4/27/17:

Location	GDD Total
Elizabethtown, Lancaster Co.	262
Indiana, Indiana Co.	247
Montoursville, Lycoming Co.	204.5
New Cumberland, York Co.	316
New Ringgold, Schuylkill Co.	231

** Figures courtesy of www.accuweather.com.*

Bud Break

The status of Douglas-fir bud break progressed rapidly over the last week. In Dauphin and York Counties, nearly 100% of Douglas-fir trees have broken bud, where the previous week, only 50% of trees had buds that were swelling. In Schuylkill County, farms have begun the process of applying fungicides for needle cast diseases.

In northern Dauphin County, about 25% of Colorado blue spruce have broken bud. In Schuylkill County, blue spruce buds are swollen, but not broken.

The buds of Serbian spruce in both Dauphin and Schuylkill Counties are swelling and lightening in color. The buds will soon be cracking.

Fraser fir buds are also swelling and lightening in Dauphin and Schuylkill Counties with the first few buds just beginning to crack.

Needle Casts of Douglas-fir

Growers that have not begun the process of treating Douglas-fir buds with fungicide for needle cast disease prevention should soon be prepared to do so. In damp climate conditions, the lesions of Rhabdocline and fruiting bodies of Swiss needle cast can release spores to infect the new needles of Douglas-fir. The lesions of Rhabdocline needle cast will be found on last season's needles and are visible as rust orange colored splotches on both the upper and lower surface of those needles. When they are actively sporulating (releasing spores), the lesions crack open on the underside of the needles to release the spores. After the new needles have hardened off, the Rhabdocline lesions will dry up (turn black) and needles containing these will be cast.

Rhabdocline needle cast [S. Pickel, PDA]

Swiss needle cast also infects last season's needles, but infected needles from previous seasons may also remain on the tree. This disease causes the needles to brown from the tips back and tiny, black fruiting bodies will be found on the undersides of the needles (these line up with the stomates).

To prevent the spread of both these diseases, it is important to protect the new needles with multiple


Swiss needle cast [Tracey Olson, PDA]

applications of a fungicide. As for the fungicide regimen, growers should make the 1st application of chlorothalonil at the start of bud break. A 2nd application should follow 1 week after the 1st. Traditionally, the 3rd application would be made 2 weeks after the 2nd and then a 4th application could be made 3 weeks after the 3rd. A newer suggestion for those struggling to control Swiss needle cast is to make the 3rd, 4th and even a 5th application with only 7-10 days between each application.

Douglas-fir Needle Midge

Douglas-fir needle midge is an insect pest which infests the new needles of the Douglas-fir buds. The damage from last season's growth would have been swollen, yellowed and bent areas in infested needles. Those infested needles would have been cast in late December or early January, so now the foliage of previously infested trees may be sparse. The pest is likely to be found when the earliest buds have broken. Growers in areas where buds are just starting to break should take time to look carefully at previously infested trees. Adult midges may be found flying around swollen or just opened buds. The midges emerge from the soil under previously infested trees. This typically occurs within a range of 200 – 400 GDD.


Douglas-fir needle midge damage [T. Olson, PDA]

The adults are tiny, delicate, gnat-like insects (common name for several small fly genera) with a yellow-orange body and white wings. When midges emerge, they will immediately begin to mate and within a few days, lay eggs inside the buds. The eggs hatch into larvae which move inside the new needles. Because the adults use a very long, fine ovipositor to deposit the eggs, they only need the smallest crack in the bud tip to lay those eggs. An insecticide application made when adult midges are present can prevent them from laying the eggs. This may be before trees are ready for the first application of needle cast treatment! In locations which have had serious damage may want to make a second insecticide application a week to 10 days later. For information on Douglas-fir needle midge, visit: http://extension.psu.edu/ipm/program/christmas-tree/pest-fact-sheets/needle-discoloration-and-injury/Douglas-fir.pdf/view.


Douglas-fir needle midge adult [Sandy Gardosik, PDA]

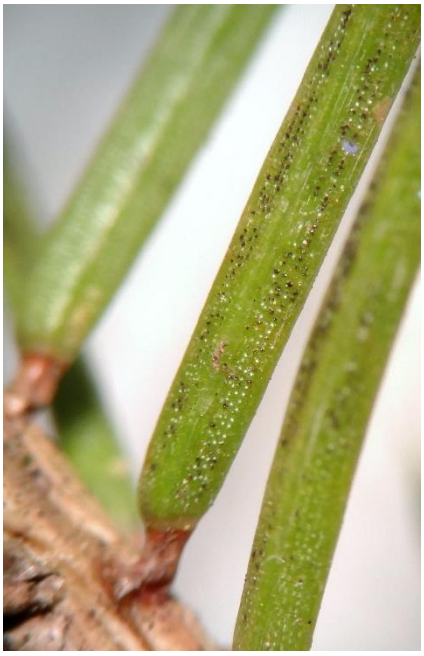
Spruce Needle Diseases

The yellow-orange bands of spruce needle rust on Serbian spruce in Schuylkill County have begun to crack open and the telia, or fruiting bodies, have broken the surface of the needles. It is these fruiting bodies which release the spores to infect the new needles. This disease affects Serbian spruce and Colorado blue spruce. After rust lesions on infested needles (last season's growth)


Spruce needle rust [S. Pickel, PDA]

have dried up, the infested needles will be cast. The disease is more common in the eastern part of PA, but has been found in Central Pa. The control for this disease should begin with fungicide applications at the time of bud break. Fungicide applications should be repeated weekly until the needles have hardened off or until the diseased needles have dropped off the trees. For more information, visit: http://extension.psu.edu/ipm/program/christmas-tree/pest-fact-sheets/needle-discoloration-and-injury/spruce-needle-rust.pdf/view.

Stigmina needle cast, a disease also infecting Serbian and Colorado blue spruces, can be found across much of the state. Symptoms of this include browning needles and thinning foliage beginning at the base of the tree and moving upward. Tiny black fruiting bodies of the disease are found on the underside of the needle, pushing through the stomates. The symptoms are nearly indistinguishable from Rhizosphaera needle cast (which affects only Colorado blue spruce and Englemann spruce). Rhizosphaera fruiting bodies are smooth and round, while with Stigmina, fruiting bodies are fuzzy or hairy. The fruiting bodies will release spores, which will infect the new growth. Fungicide application for both diseases should begin at bud break and continue at 2-3 week intervals (or a shorter time span if the season is rainy) for at least 3 applications. For more info on Rhizosphaera needle cast, visit: http://extension.psu.edu/pests/ipm/program/christmas-tree/pest-fact-sheets/needle-discoloration-and-injury/rhizosphaera-needle-cast.pdf/view.



Stigmina needle cast [S. Pickel, PDA]

Spruce Spider Mites

In Schuylkill County, spruce spider mites have fully emerged from the red overwintering eggs found on the undersides of twig on host trees, which include true firs, spruce and arborvitae. These mites are most likely to hatch within a GDD range of 50-121. They can be found on the underside of twigs showing yellow or brown stippling close to the stems. Spruce spider mites are orange and brown and will be covered with setae (hair-like structures).

If 10 or more mites are found per branch, growers should consider making a control application of either a horticultural oil or miticide. This should be applied after the overwintering eggs have hatched, but before bud break to prevent the mites from damaging the newly developing buds. It should also be noted that new needles are sensitive and more likely to exhibit phytotoxic damage from horticultural oil.

Balsam Twig Aphid

BTA in Fraser cone [S. Gardosik, PDA]

The aphids have been out in Central PA for several weeks, but the window for control is coming to a close as bud break approaches. Once the buds are open, the aphids will move into these buds and begin to damage the new needles. In Schuylkill County, aphids have been found in the cones. They are protected from insecticide sprays in the scales of the cones. If growers have fields where they have had trouble with aphid, they may want

to consider removing cones in that field before making an insecticide application.

Additional Resource

More information on Christmas tree pests and production is available at the PSU Department of Entomology's Christmas tree site: http://ento.psu.edu/extension/christmas-trees.

The next scouting report will be available Friday, May 5, 2017.