



# PENNSYLVANIA'S CHRISTMAS TREE SCOUTING REPORT

## THURSDAY, MAY 7, 2015

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, Brian Schildt (PDA), and Cathy Thomas (PDA).

### GROWING DEGREE DAY TOTALS, 5/6/15:

LOCATION	GDD TOTAL
Indiana, Indiana Co.*	170.5
Montoursville, Lycoming Co.*	170
Mount Joy Twp, Elizabethtown (NE), Lancaster Co.	232.5
New Cumberland, York Co.	226
New Ringgold, Schuylkill Co.	249.5

\* Figure courtesy of [www.weather.com](http://www.weather.com).

### BUD BREAK

This week, bud break of Douglas-fir increased dramatically around the mid-state. In western Lancaster County, bud break of Douglas-fir, bud break is nearly 100%. In Dauphin, Lebanon and York Counties, most fields showed 90+% bud break. Oddly in some blocks, the buds had just begun to swell. For blocks of small trees, nearly 100% had broken.

For Colorado blue spruce, progress is still slow. In Dauphin, Lebanon and York county, some have broken, but most trees are just showing swollen buds.

In Dauphin and Lebanon Counties, the buds of Fraser fir are swollen and lighter in color, but a low percentage (<10%) have broken bud. In York County, the buds are a little farther along. About 20% are showing broken buds.

On Eastern white pine, the candles are elongating in Cumberland, northern Dauphin, Lancaster, Lebanon, and York County.

Bud break is important to observe because control/preventative treatments for many pests depends on the progress of breaking buds.

### PINE BARK ADELGID

In Dauphin, Lancaster and York Counties, the nymphs of Pine bark adelgid began to move up the elongating candles of Eastern white pine. However, in Schuylkill County, only eggs were found in the white waxy tufts at the bases of Eastern white pine candles. Pine bark adelgids are small, black, soft-bodied insects that will move up to the expanding new growth, where they will find a place to settle. Usually they settle at the base of a developing twig and then begin to form a protective covering of white fuzzy wax.



Figure 1: Pine bark adelgid nymphs on Eastern white pine [S. Pickel, PDA]

The adelgids can be found on Austrian, Scotch and Eastern white pine (the most common host). While they are not often a serious pest (i.e. when occasional white waxy clusters are found at the bases of outer growth), in some cases, adelgids can be found clustered on the main stem of the tree. This can hinder the growth of a tree. If growers are concerned and want to treat for this pest, the time to apply controls is after most of the eggs in the waxy covering have hatched, but before the nymphs on the new growth have waxed over. A single application of an insecticide should be sufficient.

### DOUGLAS-FIR NEEDLE MIDGE

For growers who have found the orange-bodied, fly-like Douglas-fir needle midge in emergence traps this week, it is important that they get control applications on their Douglas-fir as soon as possible after the midge are first found. The insecticide should be on the buds when the tiny adult flies land to mate. Because emergence can be staggered, it is recommended to make an

application at the first sign of adult emergence (or at the beginning of bud break) and a second application a week to 10 days later. (Consult labels for application intervals). Egg laying will quickly follow mating and the eggs will be protected when they are laid tucked between the newly developing needles thanks to the long, thin ovipositor of the females. Soon after the eggs are laid, the larvae will hatch in a few days and bore into the needles. These larvae will form the galls in the needles and damage will be irreversible.

### NEEDLE CASTS AND RUST OF SPRUCE

A few important diseases of spruce are becoming active at this time. Despite the fact that the types of diseases affect the needles differently, the two needle cast diseases, *Rhizosphaera* and *Stigmina* needle casts, and Spruce needle rust are all ready to release infectious spores that will infect newly exposed needles with the help of moisture in the air and wind at this time. Spruce needle rust affects Colorado blue spruce and Serbian spruce and symptoms are yellow orange bands which surround the needles. At this time in York County, the bands have ruptured to release a blister-like mass (telia) which releases spores into the air. In Schuylkill county the bands have swollen and some have split, but the telia are not yet pushing through. To prevent the spread of this disease, growers should protect the new needles with fungicide applications applied weekly until the new needles harden off, or the old infected needles are cast from the tree.



Figure 2: Spruce needle rust on Colorado blue spruce [S. Pickel, PDA]



Figure 3: *Stigmina* needle cast [Paul Bachj, UK Research and Ed. Center, Bugwood.org]

*Rhizosphaera* and *Stigmina* needle casts are very similar. They will typically be found at the base of the tree. Infected needles are often, but not always, brown and exhibit black fruiting bodies on the undersides of the needles, pushed out through the stomates. With *Rhizosphaera*,

the fruiting bodies are smooth and round, and with *Stigmina*, the 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.

### NEEDLE CASTS OF DOUGLAS-FIR

This week in northern Dauphin County, the lesions of *Rhabdocline* needle cast were open and swollen on last season's needles of Douglas-fir. This means that moisture in the air and on the needles has caused these lesions to begin releasing spores which all have the potential to infect the tender new needles that are now exposed on the majority of Douglas-fir trees. The fruiting bodies of Swiss needle cast may also be soon releasing their spores, although with this disease, it's visible in the field.



Figure 4: *Rhabdocline* needle cast lesions sporulating [S. Pickel, PDA]

Although these two diseases behave similarly, they have different symptoms. The rusty orange lesions of *Rhabdocline* resemble paint splotches along the needles. Swiss needle cast causes the ends of infected needles to brown and tiny black fruiting bodies are visible pushing through the rows of stomates on the undersides of infected needles. To prevent the spread of these diseases, it is important to protect the new needles with multiple applications of a fungicide. The standard recommendations are as follows:

- 1<sup>st</sup> application at the early signs of bud break
- 2<sup>nd</sup> application made a week later
- 3<sup>rd</sup> application made 2 weeks after the 2<sup>nd</sup>
- 4<sup>th</sup> application made 3 weeks after the 3<sup>rd</sup>

Growers who have had problem preventing this disease in the past may want to shorten the length of the intervals between sprays and add an additional one or two sprays depending on how wet and cool the season continues to be.

## ***SPRUCE SPIDER MITES***

Nearly all the overwintering eggs of spruce spider mites on Fraser fir in York County have hatched.



Figure 5: Spruce spider mite [S. Pickel, PDA]

The orange and brown mites may be laying next generation eggs at this time. In Schuylkill County, adults and eggs are found on arborvitae. Scout for these mites on true firs, spruce and arborvitae on the underside of twigs showing yellow or brown stippling close to the stems. The best time for

applying controls (miticide, insecticide or horticultural oil) is after 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. Also, applying an oil product to Colorado blue spruce could cause the foliage to lose its blue color or bloom.

## ***BALSAM TWIG APHID***

The nymphs of balsam twig aphids were found on true firs in Schuylkill County this week. These aphids will damage the new needles with their feeding when they are able to enter the buds. To prevent the curling and stunting of the new needles, controls should be applied before the new buds of the true firs open. If growers are having a difficult time finding this pest, use of a paper plate or hard surface to be held underneath branches which can be tapped to dislodge the pale green nymphs on to the paper/hard surface. If this pest has caused damage for growers in previous years and several aphids per tree have been observed this spring, growers can apply a horticultural oil or insecticide before the buds have opened.

## ***ADDITIONAL RESOURCE***

For a list of control options for insect and mite pests, the most recently updated list of Insecticides & Miticides for PA Christmas Tree Pests can be found at the following link:

<http://ento.psu.edu/extension/christmas-trees/publications/2013%20Christmas%20Tree%20Insecticides-Miticides.pdf>.

The next scouting report will be available Thursday, May 14, 2015.