



# PENNSYLVANIA'S CHRISTMAS TREE SCOUTING REPORT

## FRIDAY, APRIL 29, 2016

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

### GROWING DEGREE DAY TOTALS, 4/27/16:

LOCATION	GDD TOTAL
Indiana, Indiana Co.	196
Montoursville, Lycoming Co.	164.5
Elizabethtown, Lancaster Co.	230
New Cumberland, York Co.	256.5
New Ringgold, Schuylkill Co.	211.5

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

### BUD BREAK

Bud break continues to advance in Central PA. In Lancaster and York Counties, about 50% of the Douglas-fir have broken bud. In northern Dauphin County, buds have broken on about 25% of the Douglas-fir. In Schuylkill County bud break is only at about 10%.

As for spruce, about 20% of Colorado blue spruce have broken bud in Lancaster and York Counties. In northern Dauphin County, the percentage is a little less than 10%. In Schuylkill County, only around 1% of blue spruce are breaking. For Serbian spruce, in York County, just the first few buds have broken. In Schuylkill County, buds are just swelling, but not breaking.

Fraser fir buds are swollen and just the first few buds have begun to crack open. In Schuylkill, Fraser buds are swelling, but show no sign of breaking.

### NEEDLE CASTS OF DOUGLAS-FIR

Growers have begun making their fungicide applications to Douglas-fir for Rhabdocline and Swiss needle casts in York and Schuylkill Counties. The idea is to protect the newly exposed needles from the spores of these diseases by covering the needle surface with a thin layer of fungicide. These needle cast diseases have formed fruiting bodies in last season's needles which release spores, or

infection causing particles. In wet conditions, the fungus will grow from the spores and penetrate the tender new needle surface. The fungicide can prevent that from happening. This treatment protects against both diseases despite the fact that they have different symptoms and characteristics.

Rhabdocline fruiting bodies arise from rust colored splotchy lesions on the needles. On the underside of the needles, these lesions will be ruptured at this point in the season, signaling spore release. When these fruiting bodies are dried up and done releasing spores, they will turn black, and then the needle will be cast.



In the presence of Swiss needle cast, infected needles will begin to brown from the tip down. The fruiting bodies are visible as tiny, black specks lined up along and pushing through the needle stomates. The spore release period is longer than that of Rhabdocline. These needles can stay on the tree two or three seasons before they are cast.



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

## **DOUGLAS-FIR NEEDLE MIDGE**

Douglas-fir needle midges were seen flying around needles of Douglas-fir in York County this week, although emergence traps in the county



*Douglas-fir needle midge damage [above - S. Pickel, PDA] and adult [below - USDA Forest Service, Northern and Intermountain Region, USDA Forest Service, Bugwood.org]*

only held a few midges. The tiny, yellow-orange, gnat-like pests emerge from the soil as flying adults within a GDD range of 200-400, which typically coincides with bud break. As soon as Douglas-fir buds begin to crack, the new needles are vulnerable to midge infestation. The midges will begin to mate soon after emergence and then will lay eggs inside the new buds a few days later. Those eggs will

hatch into larvae which burrow into the developing needles. As the larvae feed inside the maturing needles, they will form yellow, swollen galls within the needles which cause the needles to kink. Damaged needles will drop from the tree around the end of the year, resulting in noticeable bare areas on the tree.

To prevent damage, growers should apply an insecticide as soon as midges are found in emergence traps, which could occur prior to bud break. Growers not using emergence traps should be ready to make an insecticide application at the first sign of bud break.

## **SPRUCE DISEASES**

This is the time when growers should also be considering when to treat for diseases affecting several spruce species. Spruce needle rust, which is actively sporulating in York (on 100% of infested trees) and in Schuylkill County (on about 50% of infested trees), can affect Colorado blue spruce and Serbian spruce. Look for symptoms of yellow and



orange banding around the most recent season's needles. On the underside of those bands, the needle surfaces will rupture and orange spore releasing structures (telia) will emerge to sporulate (release spores).

The needle cast diseases of spruce, *Rhizosphaera* and *Stigmina*, will also be ready to release spores to infect the newly emerging buds. *Rhizosphaera* affects Colorado blue spruce and Engelmann spruce and *Stigmina* infects Colorado blue spruce, black spruce and Serbian spruce. Growers should check the lower branches of host trees, for infected needles, which may be brown (but not always) and will exhibit tiny, black fruiting bodies on the undersides of the needles, pushed out through the stomates. Under a hand lens, symptoms of both needle casts look the same. The diseases are different microscopically, but that doesn't affect how they should be treated.

Growers dealing with rust should begin fungicide applications to the spruce foliage when the new buds have begun to break. Additional applications can be made weekly and should continue until the new needles harden off or the old infected needles are cast. This should also be followed if both rust and needle cast diseases are present. The recommendations for needle cast suggest a 2-3 week interval between applications, although if the season is rainy, that interval can be shortened.

## **PINE BARK ADELGID**

Nymphs of pine bark adelgid continued to move up the expanding candles of Eastern white pine in Cumberland, Dauphin and Lancaster Counties this week. These nymphs, which appear as tiny black oval-shaped dots on the new growth, have hatched from clusters of peach-colored eggs protected by white, woolly wax at the base of the candles. This is generally not a pest of concern because the damage is typically minimal and the most notable sign of this pest is limited to white, woolly clusters of wax at the base of new growth. Infestations can occasionally



become severe when these adelgids are also found to be clustered along the main trunk of hosts. These severe infestations weaken the host. For growers who have a problem with this pest, an insecticide may be applied when the majority of eggs have hatched, but before the new nymphs are completely covered in a new waxy covering.

### ***ELONGATE HEMLOCK SCALE***

In Dauphin and Schuylkill Counties this week, an increased activity of the white male scales was noticed. This is signaled by an increased build up of wax. When these scales were turned over, several males with wings were found ready to emerge. These males will fly to nearby brown female scales to mate. When male activity begins, female scales will soon be laying eggs within their coverings. Crawler emergence can begin about 2 weeks after that, which signals the time for taking control action. Growers should plan on beginning their scouting activity for this pest earlier than usual. While crawler activity typically begins in the final weeks of May, this could take place earlier this season since GDD accumulation this year is ahead of the typical accumulation.

### ***BALSAM TWIG APHIDS***

The window for preventing damage from Balsam twig aphids is soon closing as true fir buds are just beginning to open. Once the buds open, aphids will move inside and begin their damaging feeding on the new needles. A control application of horticultural oil, insecticidal soap or insecticide can still be effective before the buds break.

### ***SPRUCE SPIDER MITES***

On Fraser fir in Schuylkill County this week, spider mites were about 90% hatched. In Lancaster and York Counties, they were nearly 100% hatched on Canaan and Fraser firs. The preferred hosts of these orange and brown mites are spruces; Fraser, Canaan and Balsam firs; juniper and arborvitae. Look for mites on the undersides of twigs with needle browning or yellowing close to the stems. If 10 or more mites are found per branch, growers should definitely consider making an application of miticide, insecticide or horticultural oil after the majority of eggs have hatched. (Warning - Horticultural oil could remove the blue bloom from Colorado blue spruce.)

### ***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 5, 2016.