



# PENNSYLVANIA'S CHRISTMAS TREE SCOUTING REPORT

## FRIDAY, APRIL 15, 2016

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, 4/13/16:

LOCATION	GDD TOTAL
Indiana, Indiana Co.	86
Montoursville, Lycoming Co.	76
Elizabethtown, Lancaster Co.	118.5
New Cumberland, York Co.	126
New Ringgold, Schuylkill Co.	81.5

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

### SPIDER MITES

This week in Schuylkill County, spruce spider mite populations observed on arborvitae were still only about 10% hatched.



Spruce spider mite [S. Pickel, PDA]

On firs being monitored for spruce spider mite, however, the majority of mites had hatched from these overwintering eggs. In York County, on Fraser fir, there were almost no eggs unhatched. If overwintering eggs (which are dark red, round and glossy) were

still present, they would be found on the twigs or lower parts of the needles. The typical period of initial hatch for these eggs is between 50-121 GDD. Newly hatched nymphs are red-orange, but their bodies will darken quickly to dark brown as they mature.

Scout for these mites on trees with discolored (tan or yellowed) interior foliage, concentrated specifically at the base of the needles. They can be found on almost any conifer, but some of the preferred hosts are spruce, true firs, arborvitae and cedar. If 10 or more mites are found per branch (or

with each tap of a branch over a paper plate), control could be warranted. Applications of horticultural oil, miticide or insecticide should be made before the new foliage has broken to prevent damage to the new needles.

*Note for growers of arborvitae:* This week in Schuylkill County, twospotted spider mite, a close relative of the spruce spider mite, was also active on arborvitae. This mite is slightly smaller than the spruce spider mite and is also greenish with a dark spot on each side of the body. Treat this mite as you would spruce spider mite.



Twospotted spider mite [Frank Peairs, Colorado State University, Bugwood.org]

### DOUGLAS-FIR NEEDLE MIDGE



Douglas-fir needle midge trap [S. Pickel (top) & S. Gardosik (bottom)]

As the buds of Douglas-fir get closer to breaking, growers who have had issues with Douglas-fir needle midge should be preparing to combat this tiny, fly-like pest. The midge adults emerge from their overwintering sites in the ground underneath previously infected trees typically within a GDD range of 200-400. A homemade emergence trap (constructed from a box with a clear jar on the side) set underneath a previously infested tree will help to determine when the adult midges have become active. As bud break approaches, these traps should be checked daily. Traps being

monitored in two York County locations have not yet had any midges.

Douglas-fir needle midges have yellow-orange bodies and delicate transparent wings. After



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

emerging, they will mate and within a few days will lay eggs inside the newly developing Douglas-fir buds. This can occur at the very beginning of bud break, when the tips of the buds have just started to crack. The eggs laid inside the buds will hatch into larvae which burrow into the developing needles. As the larvae feed inside the maturing needles, a

yellow gall will form within the needle. The galls will cause the needle to bend or kink and will eventually brown. At the end of the year (typically in December) the larvae will be ready to drop from the needles and move into the soil to overwinter and pupate. After the midges escape from the needles, the damaged needle will be cast from the tree, resulting in noticeable bare areas on the tree.

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

### **NEEDLE CASTS OF DOUGLAS-FIR**

Everyone growing Douglas-fir should be aware of the potential damage that can occur from the two needle cast diseases affecting these trees: Swiss Needle Cast and Rhabdocline needle cast. Of the two diseases, Swiss is the more prevalent. Trees infected with Swiss needle cast may resemble trees with winter burn. Last year's growth will brown from the tips of the needles down. To determine if Swiss needle cast is



*Swiss needle cast* [T. Olson, PDA]

present, look at the underside of the needles with a hand lens for the presence of black fruiting bodies lined up, pushing through the needle stomates.



*Rhabdocline* [S. Pickel, PDA]

Rhabdocline needle cast is less prominent than Swiss, but it can still be found. The symptom for this disease resembles rusty-orange paint splotches on last season's needles. As bud break approaches, the splotches or lesions swell and break open when wet conditions are present. This is the signal that sporulation (or spore release) is beginning. This sporulation begins at or just before the start of Douglas-fir bud break.

The spores released into the air in moist conditions can land on and infect the delicate new needles of the expanding buds. It is important that growers be ready to apply their fungicide product (chlorothalonil) when the buds begin to open.

The traditionally accepted control regimen for needle cast is to make the 1<sup>st</sup> application at the start of bud break, make the 2<sup>nd</sup> application 1 week after the 1<sup>st</sup>, apply the 3<sup>rd</sup> 2 weeks after the 2<sup>nd</sup> and then follow with a 4<sup>th</sup> application 3 weeks after the 3<sup>rd</sup>. More recently, a control series of 5 applications each with 7-10 days between has been suggested by former PSU extension agent and Christmas tree farm owner Paul Shealer as a solution to getting the more aggressive Swiss needle cast under control.

### **SPRUCE NEEDLE RUST**

Spruce trees monitored in Cumberland, Lancaster, Schuylkill and York Counties are not yet ready to break bud, however, one of the disease affecting Colorado blue and Serbian spruces is ready to infect the new buds as soon as they would open. Spruce needle rust is actively sporulating in York County. This fungal



*Spruce needle rust* [S. Pickel, PDA]

disease causes yellow and orange banding around the most recent season's needles. These fruiting bodies will swell and orange spore structure will break the surface of the needle to sporulate (releasing spores). When sporulation is over for the season, the needles will drop off. In Schuylkill County, the rust bands have swollen, but have not yet cracked the surface for the needle. When the spruce buds are breaking, growers should be beginning their fungicide applications to prevent the disease from infecting the new buds. Applications can be made weekly after this first application and should continue until the new needles harden off or the old infected needles are cast.

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

This week in York County, nymphs of balsam twig aphid have continued to emerge. There was still no sign as of yet in Schuylkill County. This tiny, pale green-gray pest of true firs should be found on the needles of the most recent year's growth. They will be found on twigs that are close to those twigs showing the typical needle-twisting damage associated with this pest.

They will hatch from overwintering eggs when GDD totals fall within the range of 30-100. The same



*Balsam twig aphid [S. Pickel, PDA]*

paper plate technique used to find spruce spider mites can be used when scouting from balsam twig aphid. (See the report's first section.) If aphids are being found on nearly every branch or tap, that would indicate that control measures should be taken.

Damage to the season's new growth can be prevented by making an application of horticultural oil, insecticidal soap or insecticide before bud break.

### ***CONIFER WEEVILS***

I would recommend that growers continue to monitor their white pine weevil traps. Although there were some trap catches it is possible that weevils were inactive during the stretches of cold weather we've seen this month. If white pine weevils are found in the traps or seen feeding on

leaders, growers who have not made an insecticide application may want to make one

Pales weevils can also show up in the emergence traps set for white pine weevil. If enough of these weevils show up in a farm's emergence traps or if damage is noticeable (flagging or dieback of lateral branches in pines or Douglas-firs), growers may want to make an insecticide application to affected blocks of trees. To prevent the laying of the next generation of eggs, an insecticide application should be made to freshly cut pine stumps.

### ***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, April 21, 2016.