



PENNSYLVANIA'S CHRISTMAS TREE SCOUTING REPORT

FRIDAY, MAY 13, 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, 5/11/16:

| LOCATION | GDD TOTAL |
|------------------------------|-----------|
| Indiana, Indiana Co. | 268 |
| Montoursville, Lycoming Co. | 215 |
| Elizabethtown, Lancaster Co. | 292 |
| New Cumberland, York Co. | 325 |
| New Ringgold, Schuylkill Co. | 277 |

* Figures courtesy of www.weather.com.

BUD BREAK

In much of the areas scouted in Central and Southern Pennsylvania, Douglas-fir is a 100% bud break this week. Progress continues for spruce species. In York County, about 90% of Colorado blue spruce have broken bud, while 15-50% of blue spruce have broken in Schuylkill County. For Serbian spruce, about 10% are breaking, in Schuylkill County. In York County, about 50-75% of Fraser and Canaan fir are starting to break bud. This is a little slower in Schuylkill County, where only 15-50% are breaking.

NEEDLE CASTS OF DOUGLAS-FIR

A question was posed to me this week about whether the cool temperatures we've been experiencing recently (50's in the day time, 40's at night) would hinder the disease progression of Rhabdocline and Swiss needle cast diseases of Douglas-fir. Unfortunately, this cool spring weather is perfect for sporulation and growth of needle casts. Research conducted in Canada has shown that Rhabdocline can begin spore formation as low as 33°F and the optimum temperature for this is 50°F. The other condition that is necessary for spore production and fungal growth is very high humidity, which we've seen this past week in Central PA. Since the conditions have been so perfect for needle cast sporulation and growth, it's important for growers to be ready to apply their

fungicide when a dry day is available that closely follows the accepted spray regimen. The fungicide regimen for both Rhabdocline and Swiss needle casts begins the same way. 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. Because Swiss needle cast is believed to sporulate a little longer than Rhabdocline, 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.

SPRUCE DISEASES

The yellow-orange bands of Spruce needle rust are ruptured and actively sporulating in Schuylkill and York Counties. The newly opening buds of Colorado Blue and Serbian Spruces, the hosts of this disease, will need to be protected with regular fungicide



Lesions of spruce needle rust sporulating [S. Pickel, PDA]

applications. That is also the case for Rhizosphaera (affecting Colorado blue and Engelmann spruces) and Stigmina (Colorado blue, black and Serbian spruces) needle cast diseases, both of which release spores through tiny, black fruiting bodies emerging through the stomates of infected needles.

For both disease types, growers should begin fungicide applications to the spruce foliage as bud break begins. For cases of spruce needle rust, additional applications can be made weekly and should continue until the new needles harden off or the old infected needles are cast. If only needle cast is present, recommendations suggest a 2-3 week interval

between applications, although that interval could be shortened if the season is especially rainy.

EUROPEAN PINE SAWFLIES

In northern Dauphin and York Counties this week, larvae of European pine sawflies were found



Above: european sawfly larvae; Below: young sawfly damage [S. Pickel, PDA]

feeding on the foliage of Austrian and Scotch pines. Although they resemble caterpillars, these are the immatures of a fly insect. The larvae are gray-green with black heads and will feed on hard pines. Larvae can hatch from mid-April through May. They will feed in groups, often with several larvae on one needle, eating last year's needles. The young larvae will only strip away the outer surface of the needles leaving behind twisted, brown needles. As the larvae mature, they will eat whole needles. For management of this pest, depending on the population size, branches with clusters of feeding larvae could be clipped out and removed from the field. If the infestation is too large to be manually removed, spot treatments of an insecticide could be made, or a treatment could be made to the whole block if most of the trees are infested.

ELONGATE HEMLOCK SCALE

A few bright yellow crawlers of elongate hemlock scale were seen moving around on foliage of Canaan and Fraser firs in Schuylkill and Dauphin Counties this week. Also, male scales were seen moving among the female scales and there were

female scales with eggs inside their casings. Rather than taking place in distinctly timed generations, the life cycle of elongate hemlock scale is staggered throughout the growing season. This can make control challenging.

If scouting for this scale, which growers should begin at this time, look on the lower branches of host trees (hemlocks, true firs and Douglas-fir) with yellow speckling on the upper surface of the needles. These needles may also have a gray cast to them, which develops because of a waxy build-up produced by the male scales. The stubby, white male scales will be seen on the underside of damaged needles. There will also be longer brown



Above: Female elongate hemlock scale with crawlers [S. Gardosik, PDA]; Below: EHS damage [C. Thomas, PDA]

These are oblong and smooth. Tiny, yellow, oval-shaped crawlers (1st stage nymphs) will be seen moving among the adult scales or settled in one location.

When the crawlers are seen moving around, growers can start thinking about control options. The standard control application recommended by Penn State research is either a series of 3 applications with 4 weeks between each application, or 4 applications with 3 weeks between each application (trials suggest Dimethoate). Some growers have also found that a single application of the chemical spirotetramat (Movento, Kontos) has been effective.

BAGWORM

Inside bagworm casings on Scotch pine in York County this week, there were still eggs found, but there were also some newly hatched larvae moving around. The larvae had not yet left the casings, but

will be doing so soon. Bagworms are a caterpillar pest of nearly every conifer. Their recognizable



Above: Bagworm casings on Douglas-fir [S. Pickel, PDA]; Below: larva inside bagworm casing [S. Gardosik, PDA]

casings, made up of needle debris and silk, often resemble pine cones. The newly hatched larvae exit last year's casings usually in mid-May and begin feeding on this season's new needles. The larvae are black and brown, but quickly begin forming their casings. When young, the larvae will just damage the needles, but as they grow, they will be able to eat entire needles and a bagworm population can actually cause significant needle loss to a tree. The larvae will continue to feed and grow throughout the summer. In late August/early September, the male

larvae will pupate and then exit their casings as moths. The males fly to fertilize the females in their casings. The females will then lay eggs which will remain inside the casings to emerge as larvae the following spring.

Management options include removing casings by hand for very small populations, spot spraying individually infested trees with insecticidal soap/*Bt*/insecticide, or, in heavier infestations, spraying entire blocks with an insecticide option. While the larvae are very tiny, *Bacillus thuringiensis* (*Bt*), a microbial insecticide which specifically targets caterpillars (trade names: Javelin, DiPel and others), can be effective. As the larvae grow and become heartier, a broader spectrum insecticide is needed to effectively kill larvae.

PINE SPITTLEBUG

For the past few weeks, growers may have noticed the presence of white, frothy masses at the bases of new shoots on a number of their conifers. These masses are produced by the feeding nymphs of the Pine spittlebug. This true bug pest of many

conifer species feeds on tree sap, and then excretes a clear liquid, which it fills with air bubbles, forming a protective mound of "spittle". Pine spittlebug is generally considered a minor pest of conifers and not requiring control action, however, on scotch pines, spittlebug feeding wounds could be a gateway for the pine disease *Diplodia*. If growers notice a heavy presence of spittle masses in blocks of pines that had



Pine spittlebug nymph and spittle mass [S. Pickel, PDA]

Diplodia infections last season, they may want to treat for pine spittlebug this season. The time to treat for this pest is in mid-summer (typically early July) when the adults emerge from spittle masses. At the end of June, growers can scrape away spittle masses to see if nymphs have gone. When the majority of masses are empty, a single application of an insecticide should be efficient for control.

BALSAM TWIG APHIDS

Damage caused by balsam twig aphid was



Balsam twig aphids feeding in new buds of Canean fir [S. Pickel, PDA]

beginning to be evident on Canean fir in northern Dauphin County this week. Once the damage shows up, there's really nothing that can be done. Also, an application of a horticultural oil at this time could potentially cause a phytotoxic reaction to the new needles. Even an insecticide has the potential to damage the tender new growth. If the

population is heavy, growers could make an insecticide application after needles begin to

harden off to knock back the population level. Alternatively, an insecticide application made in the fall after the aphids have laid the overwintering eggs can also be effective for aphid control.

PINE BARK ADELGIDS

In Schuylkill County this week, the black nymphs of pine bark adelgid were found settled on the expanding candles of Eastern white pine. While the nymphs are small and not completely covered by their typical white waxy covering, they can be treated with an insecticide. A horticultural oil should be used with caution as it can cause a phytotoxic reaction to occur on the new growth.

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 19, 2016.