



PENNSYLVANIA'S CHRISTMAS TREE SCOUTING REPORT

FRIDAY, MAY 27, 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, 5/25/16:

LOCATION	GDD TOTAL
Indiana, Indiana Co.	358
Montoursville, Lycoming Co.	345
Elizabethtown, Lancaster Co.	441
New Cumberland, York Co.	477
New Ringgold, Schuylkill Co.	438

* Figures courtesy of www.accuweather.com.

CRYPTOMERIA SCALE

Cryptomeria scale, the invasive hard scale pest of true firs, spruces and occasionally other conifers, can be very damaging in the span of one



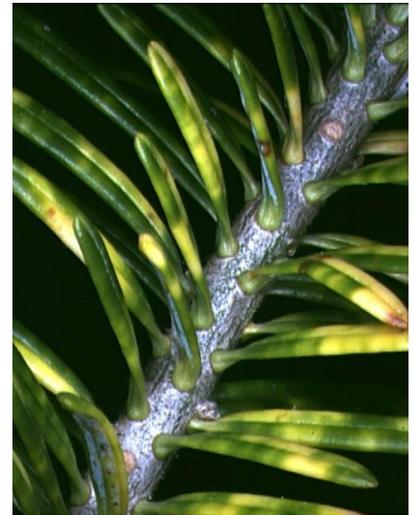
Uncovered female *Cryptomeria* scale with eggs [S. Gardosik, PDA]

generation. It can be difficult to control this pest, which has two generations each growing season, because there is only one life stage susceptible to contact insecticides. This critical life stage is the first stage nymphs, or crawlers. These are the only stage which is mobile and unprotected by the characteristic protective covering. Crawlers hatch from eggs within a range of 600-800 GDD, which typically falls in early to mid-June.

In *Cryptomeria* scale populations observed this Tuesday in northern York County, eggs were found under one female of many in only one location. After samples collected Tuesday sat until Thursday morning, about 50% of females were found with

eggs. In samples collected from Lancaster County on Wednesday, only about 1% of females observed had eggs. In samples collected from northern Dauphin County and observations reported from Schuylkill County, no eggs were found in these locations yet. After females lay eggs underneath their white scale coverings, crawlers will hatch in about 2 weeks.

Similar to elongate hemlock scale, *Cryptomeria* scale can be found first on the lower, interior branches of host trees on branches with yellow speckling on the upper needle surfaces. On the underside of these symptomatic needles, scales will be found with oval-shaped white and yellow coverings. A hand lens is necessary to observe these.



Cryptomeria scale damage [S. Pickel, PDA]

To see if eggs have been laid yet, growers will need to scrape the scale coverings away using a finger nail or a pin. Underneath, the female scales will be round, bright yellow and plump. Eggs will be much smaller and will look like tiny yellow jelly beans. When eggs are first observed, growers can plan to begin control in about two weeks after crawlers are seen.

BAGWORM



Young bagworm larva [C. Thomas, PDA]

This week, evergreen bagworm larvae were increasing in size as they fed on Scotch pine foliage in York County. Meanwhile, in areas previously infested with bagworms in Schuylkill County, larvae still have not hatched from the overwintering eggs inside last year's casings. These

caterpillar pests can be found feeding on all conifers. While the larvae are very tiny when they first emerge and can be difficult to see, it is often easier to see the fine, silk strands that the larvae exit use to exit the casings. The silk strands blow in the wind and allow the larvae to move to other trees or other areas of the tree. Growers may also find young bagworms by looking for the feeding damage they cause. This begins as browned and tattered needles, with small chunks eaten out of the needles. As the bagworms grow, they will be able to strip whole needles completely from the branches.

There are a few control options for management of a bagworm infestation. Before larvae hatch inside

the bags or exit the bags, growers can hand pick the bags from an individual tree or small area of trees. For larger populations, growers could use either an insecticidal soap, *Bt* or insecticide application. The microbial insecticide *Bacillus thuringiensis* (*Bt*), which is safer on beneficial insects because it specifically attacks caterpillars, is only effective while the larvae are still



Bagworm casing on Scotch pine [S. Pickel, PDA]

very small. (Some *Bt* trade names are Javelin and DiPel.) A broad spectrum insecticide will kill larvae of any size. In a small, isolated infestation, growers can spot spray individual infested trees. Where there has been a larger problem with bagworms, growers may want to treat entire blocks of trees.

ELONGATE HEMLOCK SCALE

For areas in central Pennsylvania where elongate hemlock scale is found, the time of crawler emergence is underway. In populations observed on host trees (most commonly true firs, Hemlocks and Douglas-fir) in Dauphin, Schuylkill and York Counties there were tiny, bright yellow crawlers found moving on the foliage and also settled crawlers. This activity will be seen on the underside of speckled needles, typically found on the lower braches of the trees. The crawlers will be found



Female elongate hemlock scales with crawler (circled) [S. Pickel, PDA]

among the smooth, brown female scales and the white, flocked male scales. At this time (or when crawlers have begun moving about the foliage) growers should think about employing their control strategy. An insecticide program needs to be somewhat long term because the elongate hemlock scale life cycle is staggered throughout much of the growing season.

According to the recommendations by Penn State research, growers can make several applications of insecticide, with either 3 applications spaced with 4 weeks between each application, or 4 applications with spaced with 3 weeks between each application. Some Pennsylvania growers have found a single application of the systemic chemical spirotetramat (Movento, Kontos) to be effective.

SPRUCE NEEDLE RUST

For those wondering if it is necessary to continue to apply fungicides for spruce needle rust, 50% of rust lesions on Serbian spruce checked in Schuylkill County this week still appeared to be active. Active lesions of spruce needle rust (yellow bands surrounding the needles) have telia (spore producing structures) that are bright orange and plump. At the end of sporulation, telia



Sporulating spruce needle rust [T. Olson, PDA]

turn brown in color and shrivel, before the needles containing these lesions actually drop from the tree. Since rust is actively sporulating, this means that infection causing spores are being released to potentially infect the new spruce needles. For this reason, growers may want to consider continuing

their fungicide applications for host trees of Spruce needle rust (Colorado blue, Serbian and Sitka spruces).

ERIOPHYID MITES

Again this week in both Schuylkill and York Counties, Eriophyid (rust) mite activity was observed on foliage of susceptible hosts. These were seen specifically on hemlocks and Concolor fir. Growers may have some difficulty seeing these mites because of their tiny size. If control was not achieved earlier in the season and growers are finding active populations, it may be beneficial to apply a miticide or insecticide at this time. Make sure that rust mites or eriophyid mites are listed on the product label, as not all miticides are effective on these mites.

LOOKING AT SOME BENEFICIAL INSECTS

Some of the beneficial insects mentioned in last week's report were seen moving on Christmas tree foliage this week looking for prey, specifically Balsam twig aphid prey. The first was a green lacewing adult. These delicate, pale green, winged insects will mate and lay eggs in early spring, which hatch into brown larvae, which are nicknamed aphid lions because of their voracity for feeding on aphids. Another beneficial found this week is the larva of a Syrphid or Hover fly. Adults resemble honey bees, and their tiny, pale green, slug-like larvae are also very efficient aphid hunters. Understanding who these other insects in their Christmas tree fields are could perhaps make growers consider pest management strategies that can conserve these helpful insects, such as planting hedgerows of flowering plants



*Green lacewing [B. Schildt, PDA];
Syrphid fly larva [S. Pickel, PDA]*



next to tree blocks to serve as habitat for beneficials and considering insecticide options which target specific pests groups over broad spectrum choices.

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 Friday, June 3, 2016.