



PENNSYLVANIA'S CHRISTMAS TREE SCOUTING REPORT

FRIDAY, JUNE 3, 2016

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

GROWING DEGREE DAY TOTALS, 6/2/16:

LOCATION	GDD TOTAL
Indiana, Indiana Co.	510
Montoursville, Lycoming Co.	504.5
Elizabethtown, Lancaster Co.	630
New Cumberland, York Co.	662.5
New Ringgold, Schuylkill Co.	

* Figures courtesy of www.accuweather.com.

CRYPTOMERIA SCALE

In true firs inspected this week in Dauphin, Schuylkill and York Counties, female *Cryptomeria* scales had begun laying eggs. In York County, eggs were found underneath every scale checked, however in northern Dauphin County, about 75% of female scales checked had laid eggs. For those who are looking to control this hard scale pest of numerous conifer species (especially true firs, spruces, and hemlocks), observing the beginning of egg laying is significant because it signals that the first stage nymphs, or crawlers will begin emerging in approximately 2 weeks. These crawlers are the only life stage that is not



Above: *Cryptomeria* scales [B. Schildt, PDA]; Below: Scale cover pulled back on female with eggs [S. Pickel, PDA]

protected by the scale coverings, and is therefore the stage that is most vulnerable to contact insecticides.

Because *Cryptomeria* scales are extracting plant juices from permanent locations on the underside

of host tree needles, the damage from this feeding appears as chlorotic, or yellowed, blotches on the upper surfaces of those needles.

Growers can observe the tiny, oval-shaped scale coverings, which are off-white/gray with a yellow center, using a hand lens. Scrape these scale coverings away using a finger nail or a pin to determine if there are tiny, yellow, bean-shaped eggs alongside the larger, yellow and round female scales. Bright yellow, oval-shaped crawlers will emerge from underneath the covering two weeks after eggs have been laid, typically within a growing degree day range of 600-800 GDD. When this emergence begins, growers can plan to make an application of an insecticide. Because the crawler emergence can be stretched out over a few weeks, it is suggested that growers plan to make at least a second application of an insecticide 7-10 days after the first application.



Cryptomeria scale damage [S. Pickel, PDA]

There are two generations of this pest in one growing season. The second generation occurs typically in the beginning of August. If the control window is missed with the first generation, growers can attempt to get the population under control during the second generation. (Although, growers should aim for control of the first generation, as the damage from just one generation can be extreme.)

BAGWORM

In Schuylkill County this week, bagworm larvae were just beginning to emerge from last year's cases. Look for evidence of this caterpillar pest on the new growth of trees that had casings last

season. The feeding from small, newly emerged larvae will give this season's needles a tattered and



Young bagworm damaging new growth of Douglas-fir [PDA]

brown appearance. Growers may find areas where the twigs from this year's buds are stripped of their needles, as the bagworms increase in size. The bagworms worm can actually be seen moving along needles while they feed. As the larvae grow, so

do their cone-like protective casings, which are constructed from plant debris and silk. A registered insecticide can be used at this time to control the feeding bagworms. Newly hatched larvae exit last season's casings on silk strands. This allows them to move to nearby trees. For this reason, growers may want to treat not only trees where last year's casings were found, but also surrounding trees. If the population is heavy enough, treatment of an entire block of trees may be warranted.

ELONGATE HEMLOCK SCALE

In Schuylkill County this week, settled crawlers of elongate hemlock scale were found on the new growth of hemlocks. These crawlers have begun to form their scale coverings. This covering is light at the beginning, and will either be white, in the case of males, or light amber in color, in the case of females. In areas where the tiny, bright yellow crawlers have been on the



Settled elongate hemlock scale crawlers [S. Pickel, PDA]

move, growers should have begun their control strategies. As per Penn State's recommendations, growers can make a series of insecticide applications to achieve the best control. The series

can consist of 3 applications spaced with 4 weeks between each application, or 4 applications 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.

GYPSEY MOTHS

On arborvitae in Schuylkill County this week, small, hairy gypsy moth larvae were being found in

arborvitae in areas adjacent to infested blocks of shade trees. Although hardwood species are considered to be the preferred hosts, they can feed on over 300 species, including conifer species. If the population is high in areas next to



Gypsy moth larva [John H. Ghent, USDA Forest Service, Bugwood.org]

Christmas tree blocks, growers may potentially see some feeding damage. The caterpillars go through several larvae stages, all of which are hairy and range from tan to dark coloration. After feeding for over a month, the caterpillars will pupate and then turn into mottled tan (male) or cream-colored (female) moths. These mate and lay tan egg cases (typically on the trunks of host trees) to start the overwintering process. Growers who find feeding damage on their conifers (or to deciduous ornamentals growing next to their conifers), can make an application of a Bt (*Bacillus thuringiensis* subsp. *kurstaki*) insecticide or other insecticide product where caterpillars are actively feeding.

This pest can be more of a concern for nursery growers who ship trees out of state. Those growers will need a compliance agreement to move trees from counties/states inside the quarantine area to states outside of the quarantine area. Quarantine areas for European gypsy moth include all the northeastern and mid-Atlantic states, as well as parts of the Midwest. View the map on this link to see what counties/states are quarantined for gypsy moth:

http://www.aphis.usda.gov/plant_health/plant_pest_info/gypsy_moth/downloads/gypmoth.pdf

Growers who would like to find more information about compliance agreements can contact their PDA plant inspector, or if they would like more information on gypsy moth and the federal regulations, visit:

http://www.aphis.usda.gov/wps/portal/aphis/ourfocus/importexport?url=wc:path:/aphis_content_library/sa_our_focus/sa_plant_health/sa_domestic_pests_and_diseases/sa_pests_and_diseases/sa_insects/sa_gypsy_moth/ct_gypsy_moth

EUROPEAN PINE SAWFLIES

Damage from European pine sawflies has been noticeable on Scotch pine in some areas of the



Sawfly damage [Steven Katovich, USDA Forest Service, Bugwood.org]

state. Branches where the larvae had been feeding can be stripped clean of needles, except for a few brown, curled needles. Sawflies cause this curling damage while they are tiny and can only eat the outer layers of the needle tissue. Although the damage may be noticeable now, the time for

control is coming to a close. In Dauphin County, no larvae were found where the damage was located. Larval feeding usually ends in early June. The mature larvae drop to the ground at this time to pupate.

SPRUCE NEEDLE RUST

In Schuylkill County, less than 10% of rust lesions on Serbian spruce checked in Schuylkill County this week appeared to still be sporulating. If growers are wondering how to determine this, rust lesions (yellow bands surrounding the needles) on Colorado blue, Serbian or Sitka spruces that are actively sporulating have telia (spore producing structures) that are bright orange and plump. When they are done sporulating, the telia will turn brown in color and shrivel. The needles that are done sporulating will actually be cast from the tree. In Schuylkill County, about 50% of lesions have

turned brown and about 25% of the needles have already cast. Samples brought into PDA from Wayne County this week were still actively sporulating. If lesions are still sporulating in an area, growers may want to consider continuing with their fungicide applications.

SPRUCE SPIDER MITES

In areas across the state, hot spots of spruce spider mite are being found at this time. The life cycle of this pest is greatly sped up as temperatures climb. A cycle that can take 21 days to replicate in cool temperatures can take place in 7 days in hot weather. 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.

BENEFICIAL INSECT HIGHLIGHTS

The following are some beneficial insects that



growers may be seeing on their trees at this time. Young nymphs of Chinese praying mantids were found moving on foliage of Fraser fir. These nymphs were less than $\frac{3}{4}$ of an inch, which is still relatively small for an insect that can be several inches in length when full grown. This common beneficial is often found feeding on the multiple pests. Growers are often concerned about praying mantis egg cases on trees at the time of harvest, but the egg cases can be removed from trees at that time and

placed back in the field. The second insect is the goldenrod soldier beetle. The larva of this species is actually the beneficial insect. It will feed on a variety of pests, including aphids. The adults feed on pollen, but do not cause damage to trees.

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 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 10, 2016.