PENNSYLVANIA'S CHRISTMAS TREE SCOUTING REPORT
JUNE 13, 2012

Weekly newsletter compiled by Sarah Pickel, PA Department of Agriculture.

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GDD TOTALS AS OF TUESDAY, 6/12/12:

LOCATION	GDD TOTAL
Elizabethtown, Lancaster County	1054.5
New Cumberland, York County	1091
New Ringgold, Schuylkill County	995

CRYPTOMERIA SCALE

Last Friday in Schuylkill County, Cryptomeria scale crawlers were found moving in fields where there were no crawlers last Wednesday. Crawlers were found moving on branches in every field that was scouted. When growers find crawlers in their fields, they should begin with a series of two insecticide applications, with 7 to 10 days in between. In some heavy infestations, a third application may be necessary. Before making additional applications, look for new crawlers moving on the needles a few days after the 2nd application. Finding these new crawlers doesn't mean that sprays weren't effective! These are simply crawlers that had not yet emerged and were protected under the impenetrable adult scale covering.

Figure 1: Cryptomeria scale adults and crawlers (circled) [C. Thomas, PDA]

When trying to determine if sprays were effective, look for crawlers that have darkened in color and appear flattened. With crawlers that had already begun to wax over, the coverings will be slightly lifted around the edge, instead of sealed tightly to the needle surface, if the scale was killed by the insecticide.

In Lancaster and York Counties, several growers have made at least one insecticide application targeting Cryptomeria crawlers. Though the majority of crawlers have emerged from underneath adult scale coverings in these counties, there are still a few crawlers remaining underneath these scale coverings. For more information on Cryptomeria scale, visit: http://extension.psu.edu/ipm/program/christmas-tree/pest-fact-sheets/needle-discoloration-and-injury/cryptomeria-scale.pdf.

ELONGATE HEMLOCK SCALE

In Schuylkill and York Counties, crawlers of Elongate Hemlock Scale were still found moving on the foliage of host trees. Because this scale has overlapping generations, the activity period for crawlers may be drawn out over several months. For this reason, the insecticide treatments are spread out over 8 or 9 weeks (3 sprays with 4 wks between sprays or 4 sprays with 3 wks between sprays). For more info, visit: http://extension.psu.edu/ipm/program/christmas-tree/pest-fact-sheets/needle-discoloration-and-injury/elongate-hemlock-scale.pdf/view.

Figure 2: Elongate hemlock scale [PDA]

FLETCHER SCALE

On tree farms that are raising ornamental conifers such as arborvitae, cedar, juniper and yew, the

Figure 3: Fletcher scale [W. Cranshaw, CSU, Bugwood.org]

soft scale pest Fletcher scale may be of concern. In Schuylkill County this week, crawlers were found underneath the dome-shaped, amber-brown adult scales. These crawlers may be moving along the foliage next week. When the crawlers are exposed, growers could treat for this pest with a horticultural oil or insecticide. For more information on Fletcher scale, visit: http://ento.psu.edu/extension/factsheets/fletcher-scale.

Needle Cast Update

In New Ringgold, Schuylkill County, growers are making an additional application of fungicide on Douglas-fir for Swiss needle cast. The possible infection period for this pest may run until the Douglas-fir new growth has hardened off or until previous seasons' infected needles begin dropping off. For more info on Swiss NC, visit: http://extension.psu.edu/ipm/program/christmas-tree/pest-fact-sheets/needle-discoloration-and-injury/swiss-needle-cast.pdf/view.

Needle Rust of Concolor Fir caused by Uredinopsis *spp.*

There are over 20 species of rusts that attack true firs (*Abies* spp.) and alternate to woody plants like willow (*Salix* spp.) and blueberry (*Vaccinium* spp.) and herbaceous plants like mouse-ear chickweed and various ferns. Although these alternate hosts are quite common in PA, often growing in windrows or as weeds in plantations, the disease on true firs is rare, seldom causes significant damage, and likely goes undetected. Symptoms of true fir rusts include witches'-broom (Broom rust) and needle discoloration and defoliation (ex. fir-blueberry rust, fir-fern rust). Recently, a sample of concolor fir was submitted to the Pennsylvania Department of Agriculture Plant Disease Diagnostic Laboratory exhibiting symptoms and signs of fir-fern rust (fig. 4 and 5). Without examining the alternate host (fern) in this plantation it is impossible to determine a species of the rust. Newly emerging needles of fir become infected in early spring from spores liberated from diseased ferns. The spores from the fir are only capable of re-infecting the ferns and will do so when the fruiting structure (aecia) mature and sporulation begins. As you can see in the photos below, that has begun. Later in the summer, the infected needles will cast and lead to a sparse appearing tree. Christmas tree growers of true firs should scout now for this disease, and if found, consider eliminating from their fields possible sources of these fungi – ferns, blueberries, willows. Spraying fungicides on fir trees now for this disease will have no impact.

- *Contributed by Tracey Olson, PDA plant pathologist*

Figure 4 & 5: Needle rust of Concolor fir, undetermined alternate host, 6/13/2012 [T. Olson, PDA]

Beneficial Insects

There are some insects found in Christmas tree fields that are not considered pests, but rather welcome guests. Several species of lady beetle can be seen on trees at this time. These beetles

are predators which feed on many Christmas tree pests. Some of these beetles, such as the multi-colored Asian lady beetle or seven spotted lady beetle (red with black dots) are generalist feeders, which may feed on aphids, mites, scales, adelgids, etc. The twice stabbed lady beetle (black with two red dots) feed specifically on scale pests. Because these and other beneficial insects (Syrphid flies, lacewings and praying mantises) are present in fields during the summer, growers should only make insecticide applications when they've scouted and are certain they have a pest issue. Unnecessary applications of insecticides will kill the predators that may help to keep "small" pest populations in check. Also, using newer, biorational pesticides (naturally derived or modeled chemicals which are targeted to specific pest orders [ex. Movento for scales & aphids, Envidor for mites, Dipel for caterpillars]) can help preserve many beneficial insects.

Figure 6: Multi-colored Asian lady beetles [S. Pickel, PDA]

Figure 7 & 8: Twice-stabbed lady beetle adult (above) and larvae (below) [D. Bortner, Springfield Tree Farm; S. Pickel, PDA]

A list of Pennsylvania's registered miticides and insecticides, entitled *2011 Insecticides and Miticides for Christmas Tree Pests,* can be found at the Penn State Christmas tree Website, http://ento.psu.edu/extension/christmas-trees,.

The next scouting report will be available June 20, 2012.