

Elongate Hemlock Scale: It's Not the End of the World

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When elongate hemlock scale first became a problem a few years ago, I was worried. We've never had a serious scale problem in Fraser fir in western North Carolina, and for that I was glad. Scales are hard to control. With their protective outer covering, scales are not easy to control with insecticides, and this scale had the reputation of being particularly difficult.

This pest, introduced from Asia in 1908, has become more widespread in western North Carolina in the last few years. On hemlocks, it's widely found in Buncombe and Henderson Counties and it appears to be killing trees. On Fraser fir, it's found in Yancey, Watauga and Ashe Counties with the most found in the Foscoe-Blowing Rock area, and although it doesn't



The needles that appear white on top are covered with scales underneath.

kill Frasers, it causes large yellow spots on the foliage. The white woolly covering of the male scale and sooty mold also cause discoloration of the tree. This is one of those pests that might slip up on you — you might not notice it until quite a few trees have it.

What makes this little scale so intimidating is that it's found in about every stage of growth through the year. Go out there any time through the growing season and you'll find males, females with eggs, females without eggs, crawlers and nymphs. Eggs are found under the scale of the female, completely protected from pesticide treatments.

Research from Pennsylvania indicated that it would take multiple applications with an insecticide to effectively control this pest. Growers in western North Carolina have treated with dimethoate or Lindane in the summer, making two applications with a high-pressure sprayer two weeks apart with good success.

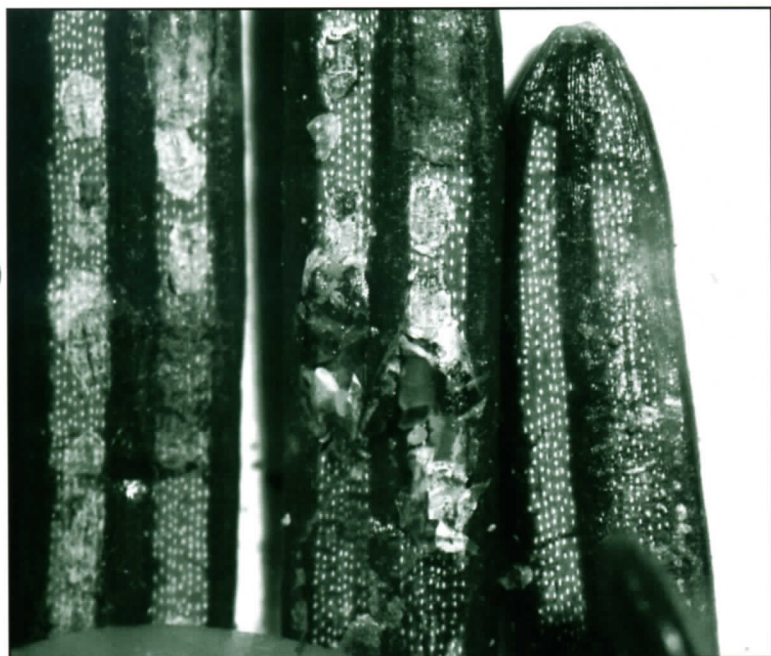
From observations I made in 2003, it appeared that the best time to treat for this pest would be in June and July — just as soon as the new scales started to get on the new growth.

In 2004, I looked more closely at scale control. A new product, Talus 70 WP (buprofezin), is an insect growth regulator labeled for Christmas trees and marketed by SePro. It disrupts the molting of immature insects by blocking formation of chitin, which is the primary substance of an insect's outer covering. SePro was interested to learn if their product would control this scale in the field. I also looked at horticultural oil and dimethoate.

At one farm in Watauga County, trees were treated with a high-pressure sprayer on July 1 and August 2, 2004. Due to the rainy weather in July, the second application was delayed from two or three weeks to four. Scale mortality was evaluated on August 23. At another farm in Yancey County, trees were treated with a backpack sprayer on August 20 and September 3, 2004. Scale mortality was evaluated on October 5.

Evaluating scale mortality isn't easy. I pick apart the scales under a microscope to determine which are dead and which aren't. The real test will be this year when the trees grow again and we learn if the scale moves out onto the new growth or not.

The results? Dimethoate was the best and most consistent control of elongate hemlock scale, giving more than 95% control, and horticultural oil the poorest with only about 65% control. The funny thing was that Talus worked as well as Dimethoate in Watauga County and as poorly as horticultural oil in Yancey County. What was the difference? There were two major differences between the applications at the two sites: the method of application and the timing. In Watauga County, materials were applied with a high pressure sprayer and trees thoroughly soaked. Treatments began earlier in the summer, and there were four weeks not two between applications.



A closeup of elongate hemlock scale showing the smaller nymphs and the larger brown females. One of these has been prized apart to show the eggs inside

Other interesting observations were made. One grower got good control of the scale with a single application of Asana + Dimethoate. However, I worry that broad-spectrum materials such as Asana are making scale problems worse. You see, there are predators and parasitic wasps that attack the scale. You can see where these wasps have worked because there will be a small round hole in the scale which is where the adult wasp emerged. Using broad-spectrum insecticides will kill off the predators as well as the scale. That's why we're interested in other products such as Talus. Another insect growth regulator – Distance – is also showing some activity against scale in other states. I hope to work with these and other products further in 2005.

Where does that leave you the grower? First, be sure you know what the scale looks like so that if it appears in your trees you know what it is. Second, only use insecticides – especially those for balsam woolly adelgid control – when you need them. Third, if you have elongate scale, treat only the areas of the field where it's found in June and July with a high pressure sprayer with one of the products mentioned in this article. Let your county extension agent know you have this problem so that we can keep track of where it is in the state and how well controls are working.

Recommendations for the use of chemicals are included in this publication as a convenience to the reader. The use of brand names and any mention of commercial products or services in this publication does not imply endorsement by the North Carolina Cooperative Extension Service nor discrimination against similar products or services not mentioned. Individuals who use chemicals are responsible for ensuring that the intended use complies with current regulations and conforms to the product label. Be sure to obtain current information about usage and examine a current product label before applying any chemical. For assistance, contact an agent of the North Carolina Cooperative Extension Service in your county. 🌲