



What's UP?

CoreTect 1-08

News from the Bayer Environmental Science Development Team

Managing the Hemlock Woolly Adelgid

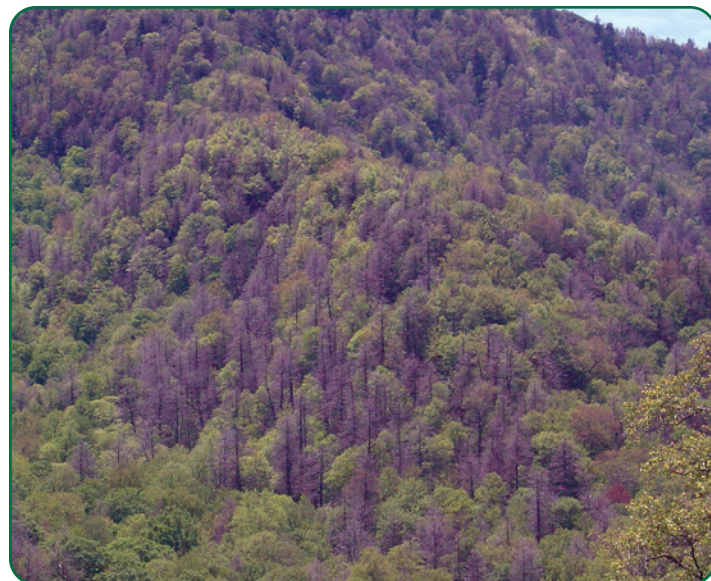
Hemlock woolly adelgid (HWA) is one of the most devastating invasive tree pests in the eastern United States. HWA was first introduced into Virginia in the 1950s, and has spread as far north as Maine, as far south as Georgia, and westward across the Appalachian Mountains into Tennessee, Kentucky, and Ohio. Over the past ten years HWA has killed tens of thousands of hemlocks. The two predominant eastern hemlock species, eastern hemlock and Carolina hemlock, have no tolerance to the lethal effects of HWA feeding. A heavy infestation of HWA will kill even the largest trees of these two species in as little as two to three years.

HWA feed on the sap of needles. Infested needles turn from the normal deep green to a grayish-olive color. As feeding progresses, the needles yellow and eventually die. The feeding of just a few adelgids will

slow or stop the growth of the infested twig completely; stunted growth is a distinguishing characteristic of an advanced HWA infestation.

Despite the speed at which they kill even the largest hemlocks, adelgids are difficult to see. They are small aphid-like insects, less than a millimeter in length. Infested trees are

most easily identified by the presence of white woolly masses at the bases of the needles. The adelgids secrete this wool for protection and to create a



Hemlocks killed by the hemlock woolly adelgid stand in sharp contrast to the living green trees. (Photo by Nate Royalty)

favorable microhabitat. When crushed, the insects are purplish-red or orange-yellow, depending on the time of year and the environmental conditions. The eggs are brownish-orange, but are extremely tiny and almost impossible to see. More noticeable are the large white egg sacs, which contain several hundred eggs. The nymphs do not produce wool; they appear as tiny dark specks on or near the base of the needles.

Treatment Options

Systemic insecticides are the most effective management tool. Merit® insecticide (imidacloprid) is the product proven most effective in research trials, and is the most widely used product by arborists and other tree-care professionals.

Soil treatments with Merit eliminate existing infestations and provide long residual control. Merit is applied by simply mixing the insecticide with water,



Hemlock woolly adelgid larvae feed on the sap of needles. (Photo by Rich Cowles, Connecticut State Agricultural Experiment Station)

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and then applying to the soil by drenching or by a subsurface soil injection around the base of the tree. Soil injection is preferable because the product can be applied directly to the soil next to the fine absorptive hemlock roots. These absorptive roots are typically no more than 1-2 inches below the soil surface.

University research data and real-world use by arborists who specialize in management of HWA show that Merit is effective, and that even heavily infested trees can recover from the deleterious effects of HWA. The U.S. Forest Service and the foresters who manage national and state parks rely almost exclusively on imidacloprid to protect hemlocks on public lands.

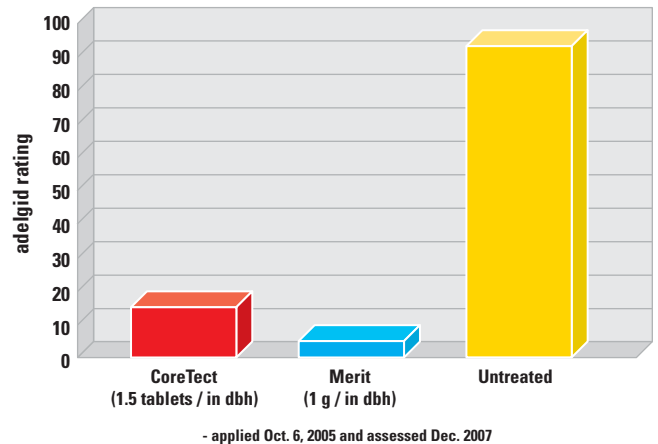
New Product Available

Recently, Bayer Environmental Science introduced another soil-applied imidacloprid product - the CoreTect™ tablet. Unlike Merit, no water is required when applying CoreTect; this makes CoreTect the ideal product for HWA management in areas where it is difficult to carry water to the trees. The dosing is simple; apply 2-3 tablets per inch of trunk diameter. The tablets are inserted into the soil by poking holes at the base of the tree, and placing 1-4 tablets per hole. These holes should be evenly spaced around the base of the tree, 1-2" below the soil surface. Imidacloprid is released from the tablet and absorbed by the roots gradually over time.

Because no water is used during the application process, the formulation relies on soil moisture to release active ingredient. So maintaining adequate soil moisture will optimize the performance of the product.

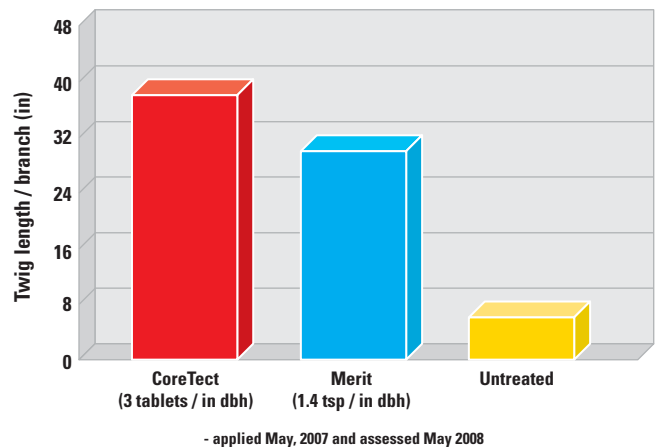
Author: Nate Royalty, Ph.D.

CoreTect™ Tablets and Merit® 75 WP vs. Hemlock Woolly Adelgid 8-14" dbh (Pennsylvania)



Both Merit insecticide and CoreTect tablets provided control of hemlock woolly adelgid two years after application in this Pennsylvania study.

CoreTect™ Tablets and Merit® 75 WP vs. Hemlock Woolly Adelgid Growth of Twigs, 18-36" dbh (Georgia)



Even heavily infested trees can recover from the effects of hemlock woolly adelgid feeding after an application of Merit or CoreTect tablets, as shown by the growth of twigs in this Georgia study.



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