

Update on use of imidacloprid and Dinotefuran for control of HWA Provided by Mark Dalusky, August 16, 2012

Greetings from the Forest Entomology operational control project at UGA! We have been refining our soil injection strategy since the first injections back in 2005. Partly through my own fault and partly through the nature of the Internet, much of the older treatment information still exists even though it has been supplanted by information based on the latest research and trial applications. I have reviewed a large portion of the existing recommendations and have found nothing that is wrong or that won't work. However, we do have new recommendations that will make your injections more efficacious and efficient and give you more windows of opportunity for treatments. Following is the most up-to-date info for Georgia. Cheers.

- **Amount of water to use:** Imidacloprid – We once recommended options for soil types and level of drought; now we recommend mixing the product with as little water as possible. For Imidacloprid, that means one 1.6 ounce pack with 360 ml (12 oz) of water, which gives you 0.5 grams active ingredient per pump when set to deliver 5ml per pump. (This is the same as the wet soil mixing ratio.) The earlier mixing rates are not wrong but are less efficient than this new rate, especially since the number of hemlocks you can treat per injector-full is significantly increased!

With Dinotefuran, much progress has been made in application technique here. The new recommended mixing ratio is a stock solution containing 2 grams of product per 5 ml of water (3.5 oz of product with 8 oz of water). A bit of slurry will settle out at this ratio, but none of this is active ingredient; it consists of the “other” or “inert” ingredients. Then since you've basically reduced the amount of water to ¼ what was previously recommended, you have to reduce the number of pumps per inch too.

Remember that both products stay in suspension best in warm water; normal agitation by carrying the soil injector is usually enough to suspend these “other” ingredients. Never leave unused solution in injectors overnight. Do so at your own peril!

- **Injection depth and site:** Imidacloprid – 2 to 4 inch depth is still good, making sure you're in the root mat; the new recommendation for injection site is as close to the main trunk as possible, even right up against the large roots of the root flare and certainly in the sinuses between these roots. Try to keep injections within 12” of main trunk regardless. It appears that the thin bark in the root flare area is quite conducive to the uptake of systemic products.

Dinotefuran – The recommendations are the same as the above only more so; keep depth on the high side (2” deep) remembering to take into account the litter layer (twigs, branches, needles, leaves). It is actually OK to apply solution directly to the side of the large roots in the root flare area.

- **Time of year:** Anytime is OK as long as the soil isn't frozen or saturated. You may sacrifice a few months residual protection, but when time is a limiting element, then go ahead and inject; Dinotefuran actually gives reasonably fast results (depending on tree health) with summer applications while imidacloprid will lag behind; injection in a severe drought is still not recommended, but testing does suggest that the active ingredient will persist for several years until normal rainfall returns
- **Residual Efficacy:** We have now seen 6 years residual protection for Imidacloprid. We suggest monitoring after 5 years, but if you don't have the resources to monitor, then treat on the sixth year post-application. Depending on reinfestation pressure in your area, residual could be longer!
- **Label Restrictions on Stream-bank Hemlocks:** Initially before there was a full EPA forestry label for Dinotefuran, there was a 25' set-back from the stream-bank in which you could not treat hemlocks. This no longer exists; the only restriction is for no direct application into water. For label, see <http://www.valent.com/Data/Labels/2011-SAF-0012.XCANY%20Safari%2020%20SG%20Forestry.86203-11.pdf>.

Notes from Save Georgia's Hemlocks:

1. The treatment instructions on the [Resources](#) page have been updated to reflect the above recommendations. 10/24/12
2. Even though there is no longer a set-back on the Safari label, we continue to recommend applying Safari by trunk spray rather than soil injection for stream-bank hemlocks, just to err on the side of caution as Safari is more soluble than Imidacloprid.