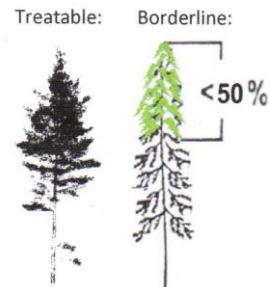


Hemlock Soil Drench Instructions

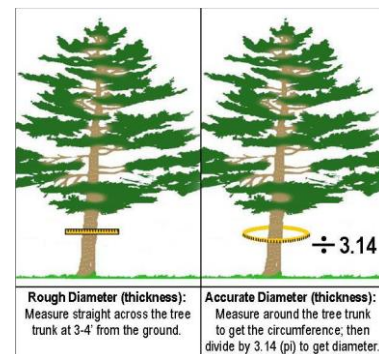
for imidacloprid 75WSP & 2F products

(Revised May 2023)



The use of brand names and any mention of commercial products or services in this publication does not imply endorsement nor discrimination against similar products or services not mentioned by the HRI or NCDA&CS.

1. Look up: Is it a hemlock? Is it alive and worth treating? **Rule of Thumb:** Tree must have $\geq 50\%$ of its crown intact, moderately dense foliage, and low levels of HWA to use imidacloprid products by themselves!
2. **Always be sure to follow the product's current label and state regulations when applying pesticides.**
3. Treatments work best during the spring or fall, when hemlocks are most active. Soil should be moist, but not saturated or frozen. Do not apply directly to water or near roots of flowering trees. Do not treat during drought conditions.
4. Use a rake or your foot to remove any leaves and loose duff away from the trunk of the tree and expose soil 1-2 feet from trunk. (If the soil is compacted, pre-moisten with water and poke holes in the ground to facilitate absorption.)
5. If using imidacloprid 75WSP products:
 - a. Put one 1.6 oz packet of imidacloprid 75WSP in a 48 oz designated container with a secure lid. **Do not open packet!**
 - b. Fill with water to form a final volume of 34 fl oz, seal, and shake until packet and contents have completely dissolved.
6. If using imidacloprid 2F products:
 - a. Pour 4.5 oz concentrate of imidacloprid 2F in a 48 oz designated container with a secure lid.
 - b. Add a couple drops of a de-foamer to reduce foam.
 - c. Fill with water to form a final volume of 32 fl oz, seal, and shake until fully mixed.
7. Measure DBH of tree to nearest inch and record:
 - a. DBH = diameter in inches at breast height; breast height is 4.5 ft off ground.
 - b. Measure from upslope side of tree; round to nearest inch.
 - c. Be sure to use correct side of DBH tape or stick; trees $> 26"$ in DBH are uncommon.
 - d. If you don't have a DBH tape or stick, measure the circumference of the tree with a regular tape measure and divide the inches by 3.14 to get the diameter in inches.
 - e. If trunk splits below breast height, measure all living stems and add for total DBH.
8. Follow chart below to determine appropriate number of ounces of solution to apply.
9. Pour appropriate ounces of solution into a measuring cup.
10. Pour solution from measuring cup to distribute chemical evenly on soil around base of tree (if tree is on a slope, focus application on uphill side of tree).
11. Once soil has absorbed chemical, rake the duff back towards the base of the tree to cover area.
12. Mark tree with paint or tag, as appropriate; move on to next tree.



Optimized Dosage Application Chart for Imidacloprid 2F and 75WSP Products*

DBH (inches)	Ounces to Apply	DBH (inches)	Ounces to Apply	DBH (inches)	Ounces to Apply	DBH (inches)	Ounces to Apply
1	0.5	11	7	21	18	31	30
2	1	12	8	22	19	32	32
3	1	13	9	23	20	33	33
4	1.5	14	10	24	21	34	34
5	2	15	11	25	22	35	36
6	2.5	16	12	26	24	36	37
7	3.5	17	13	27	25	37	38
8	4	18	14	28	26	38	40
9	5	19	15	29	28	39	41
10	6	20	16	30	29	40	43

* Application rates based on Benton, E. P. and R. S. Cowles. 2016. Optimized Insecticide Dosage for Hemlock Woolly Adelgid Control in Hemlock Trees. The University of Georgia Warnell School of Forestry and Natural Resources, Tifton, GA, WSFNR-17-01.

Notes: **1)** For trees $> 40"$, add an additional 3 oz solution per additional inch. **2)** Do not apply more than 0.4 lb of active ingredient per acre per year--8.53 oz of 75WSP (5 & 1/3 packets) or 25.6 fl oz of 2F--equivalent to 181 fl oz of solution. **3)** For more immediate protection of larger trees with heavy HWA or elongate hemlock scale infestations, consider an additional application of dinotefuran.



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Hemlock Soil Drench Instructions for Use with Dinotefuran Products:

1. Use a rake or your foot to remove any leaves & loose duff 1-2 feet away from the trunk of the tree.
2. Measure diameter in inches at breast height (DBH) of tree to nearest inch and record.
3. If using dinotefuran 20SG products:
 - a. Put ~10 oz of water into a 48 oz designated container with a secure lid.
 - b. Add a couple drops of a de-foamer to reduce foam.
 - c. Use measuring cup provided with product to measure 4 oz of product (by weight).
 - d. Slowly add water to form a total solution of 40 oz, seal, and shake until completely dissolved.
4. If using dinotefuran 70WSP products:
 - a. Put two 0.6 oz packets into a 48 oz designated container with a secure lid. **Do not open packets!**
 - b. Fill with water to form a final volume of 34 fl oz, seal, and shake until packets and contents have completely dissolved.
5. For trees < 24" DBH, pour within a range of 1 to 4 fl oz solution for every inch DBH.
6. For trees ≥ 24" DBH, pour within a range of 2 to 4 fl oz solution for every inch DBH.
7. For trees with heavy HWA infestations or declining health, use middle to higher end of range.
8. Pour appropriate ounces of solution into a measuring cup.
9. Pour solution from measuring cup to distribute chemical evenly on soil around base of tree.
(If tree is on a slope, focus application on uphill side of tree.)
10. Once soil has absorbed chemical, rake the duff back towards the base of the tree to cover area.
11. Mark tree with paint or tag, as appropriate; move on to next tree.



From Safari Label: One level tsp. contains 2.4 grams, and 1 cup (8 fl oz) contains 4.0 oz by weight of Safari 20 SG Insecticide.
From Transtect Label: 0.75 lb Transtect 70WSP is equivalent to 20 0.6 oz WSP packets. Do not apply more than 0.54 lb a.i. per acre of nursery or landscape per year (which is equivalent to 2.7 lb of Safari 20SG or 0.77 lb of Transtect 70 WSP).

Hemlock Soil Application Instructions for Use with CoreTect Tablets:

1. Measure diameter in inches at breast height (DBH) of tree to nearest inch and record.
2. Use chart below to determine number of tablets needed based on DBH. For trees larger than 40" DBH, add 3 additional tablets for every additional inch of diameter.
3. Use a stick, dibbler or other device to make holes 2-5" deep in ground around base of tree. For large trees, 2-3 tablets can be placed in same hole, as long as all tablets are in the 2-5" depth range.
4. Cover holes after tablets have been inserted.
5. Mark tree with paint or tag, as appropriate; move on to next tree.



CoreTect Optimized Dosage Application Chart*		Place tablets in soil 2-5" deep at base of tree. Maximum tablets per acre = 1080 (or 450 within 15' of water)					
DBH (inches)	Tablets to Apply	DBH (inches)	Tablets to Apply	DBH (inches)	Tablets to Apply	DBH (inches)	Tablets to Apply
≤ 1	1	11	13	21	34	31	60
2	1	12	15	22	37	32	62
3	2	13	17	23	39	33	65
4	3	14	19	24	42	34	68
5	4	15	21	25	44	35	71
6	5	16	23	26	47	36	74
7	7	17	25	27	49	37	77
8	8	18	27	28	52	38	80
9	10	19	30	29	54	39	82
10	11	20	32	30	57	40	85

* Application rates based on Benton, E. P. and R. S. Cowles. 2016. Optimized Insecticide Dosage for Hemlock Woolly Adelgid Control in Hemlock Trees. The University of Georgia Warnell School of Forestry and Natural Resources, Tifton, GA, WSNR-17-01.