



Soil Injection: How to Mix and Apply Insecticides for Hemlock Woolly Adelgid

1. Always follow the label when mixing the product. Mix product thoroughly before pouring into injector. The initial mixing is best done in a wide mouth container with a lid. *Always leave the screen in place when pouring the product into the injector. Pulling the screen out slightly will allow for an easier fill.* Stick injector into the ground at an angle to facilitate the pouring process. **See mixing and application instructions below.**
2. Products are mixed and applications are made per inch of tree diameter at breast height (DBH). DBH is measured at 4.5 feet above the ground which is chest high on most adults. Just a reminder that diameter is the distance through the tree not the distance around the tree. A handy conversion formula is (distance around tree/ 3.14 = diameter).
3. The injector can be adjusted to apply different amounts of solution per pump. The numbers on the dial are for cc's. The maximum output per stroke is 5 cc. Roughly 6 pumps on the injector at maximum output will apply 1 ounce of solution. Leave the setting at the maximum output to minimize the number of pumps needed to treat a tree. The plunger should be struck with the heel of the hand in a rapid motion. *It is recommended that you calibrate the injector each day using 10 ounces of water in the injector and counting how many pumps it takes to empty it. Divide the number of pumps by 10 to determine the number of pumps per ounce. Make sure water is coming out of all 4 holes during this process.*
4. Evenly space one injection site per inch DBH, within 1 foot of the tree's base. Inject the solution in the upper 2 to 5 inches of soil where feeder roots are located. Clear needles, leaves and twigs from injection area if necessary. Avoid rocks and large roots when inserting injector into the ground. *Don't use the depth gauge for foot leverage.*
5. After using, triple rinse with clean water and inject around treated tree. Don't allow chemical to stand in injector over night.



Fill cap. Pour solution in here. Always pour the solution through the screen to prevent clogging.

Do not place foot pressure on disk, as it will break. This is a gauge used to control injection depth.

Mixing & Application Instructions for Imidacloprid 75 WSB/WSP

A 1.6 ounce packet of 75% imidacloprid contains 36 grams of active ingredient. The amount of water you use to deliver the active ingredient depends on soil moisture. Determining soil moisture is a judgment call. If in doubt, use the recommendation for drier soil.

Moist soil

Mix 1.6 ounce packet in 12 ounces of water (3 grams active ingredient per ounce). Apply at the following rate.

DBH* in inches	Pumps per inch	Grams of active ingredient/inch
1-11	1	.5
12-18	1.5	.75
19-22	2	1
23 or greater	3	1.5

(Trees 28" DBH or greater should be treated 2 consecutive years) For 1.5 pumps per inch, alternate 1 pump and 2 pumps in the injection holes around entire circumference.

Drier soil (avoid application during drought)

Mix 1.6 ounce packet in 24 ounces of water (1.5 grams active ingredient per ounce). Apply at the following rate.

DBH* in inches	Pumps per inch	Grams of active ingredient/inch
1-11	2	.5
12-18	3	.75
19-22	4	1
23 or greater	6	1.5

(Trees 28" DBH or greater should be treated 2 consecutive years)

Note: Do not apply more than 182 grams of active ingredient per acre.

Apply imidacloprid any time of year (don't apply during extremely dry periods). Imidacloprid is slower to take effect but offers a longer period of control. Adelgid control will begin 6 months to 1 year after treatment. Peak amounts of imidacloprid are found at the growing tips two years after treatment. Imidacloprid residues are found in plant tissue 5 years after treatment. Retreat at the first sign of adelgids. A period of 5+ of years between treatments could be expected.

Mixing & Application Instructions for Safari @20SG

Safari 20SG comes in a 3 pound container and contains 272.7 grams of active ingredient.

Mix 10.5 ounces of product with 96 fluid ounces (3 quarts) of water. Use the plastic measuring device that is sold with Safari 20 SG to measure required amount of product. The numbers printed on measuring device refer to weight of Safari 20 SG in ounces, and NOT the volume of water in fl oz. Apply at the following rate.

DBH* in inches	Pumps per inch	Grams of active ingredient per inch
1-15	6	.6
16 – 19	8	.8
20 – 23	10	1
24 – 27	12	1.2
28 – 31	14	1.4
32 – 35	16	1.6
36 – 39	18	1.8
40 – 43	20	2
44 – 47	22	2.2
48 inches or greater	24	2.4

Note: Do not apply more than 2.7 lbs. (245.4 grams active ingredient) per acre per year.

Apply Safari@ 20SG from February 1 to November 15 (don't apply during extremely dry periods). Safari@ 20SG is very fast to act but offers a shorter span of control. Adelgid control will begin 6 weeks or less after treatment. Trials detected dinotefuron in the tree as long as 8 months after treatment. Retreat once HWA populations begin to build. A period of 2+ of years between treatments could be expected.