

# Testing and Adjusting Nu-Arbor 1-Two Root Injector Calibration

1. Visually inspect injector for any damaged or missing parts. Make sure all the components are properly assembled and the hose connections are secure.  
*Note: A photo of the assembled injector and photos of the parts are included at the end of this instruction.*
2. Before putting any treatment mixture in the tank, put a gallon of plain water into the 1-Two Root Injector tank to test it for proper functioning. **DO NOT USE THE BACK PACK PUMP HANDLE!** The product in the tank will reach the injector by simply lowering the injector below the back pack. Open the front Air Vent Valve just enough to release all air locked in the device; then close the valve securely.  
*Note: For video instructions on operating the device, see <http://www.youtube.com/watch?v=4HJnES3TP-U>.*
3. Strike the 1-Two Injector knob several times until water starts squirting from the injector tip. It should squirt 4 to 6 feet in all four directions, and no fluid should leak from any other part of the device. If any of the emitter jets in the tip is clogged, clean them carefully with a long safety pin or metal paperclip. Don't use a toothpick or anything that could break off in the nozzle tip.
4. To test the calibration, place the injector tip into a heavy duty measuring cup and strike the 1-Two Injector knob smartly 12 times and see how many ounces of fluid it dispenses.  
*Hint: It's a good idea to use a metal bottle cap in the bottom of the measuring cup to prevent the sharp metal tip from puncturing or shattering the cup.*
5. Since each strike of the injector knob dispenses approximately ¼ ounce of fluid, 12 strikes should produce 3 ounces.
  - a. If you get **exactly 3 ounces** of liquid from 12 pumps, the injector is working properly.
  - b. If it puts out **less than 3 ounces**, you will need to adjust the mixing proportions of chemical and water to achieve the correct concentration of active ingredient per ounce of output. See the "Alternate Mixing Instructions for Nu-Arbor 1-Two Root Injector" that begin on the next page.



# Alternate Mixing Instructions for Nu-Arbor 1-Two Root Injector

These instructions are for use ONLY with the Nu-Arbor 1-Two Root Injector, which should dispense a standard 3 ounces of liquid for 12 strikes of the injector knob. The Mixing ratios have been adjusted to achieve the correct concentration of active ingredient per ounce of output. The Dosing instructions remain the same.

## **To use these instructions:**

1. Select the page for the amount of liquid the injector is putting out for 12 pumps of the handle.  
Your choices are 2.75 oz, 2.5 oz, 2.25 oz, and 2 oz.
2. Then select the chart for the chemical you are using.  
Your choices are Imidacloprid or Safari 20 SG.
3. Note that in the Mixing section on the Imidacloprid charts, you also need to choose the formulation you are using.  
Your choices are 22.6% 2F or 21.4% 2L liquid products or 75% WSP or WSB powdered products.

**If you have questions, please call the Hemlock Help Line 706-429-8010.**

**For a Nu-Arbor injector dispensing 2.75 oz of liquid for 12 strikes of the injector knob:**



**QUICK REFERENCE IMIDACLOPRID CHART**  
**FOR THIS NU-ARBOR INJECTOR ONLY – 2.75 oz Output for 12 Strokes**

It is the user's responsibility to read and follow the label instructions when using pesticide materials

| MIXING                   |  |  |
|--------------------------|--|--|
| Imidacloprid Product     | Ratio of Water & Product for Moderate to Wet Soil                                | Ratio of Water & Product for Dry to Normal Soil                                |
| 22.6% 2F or 21.4% 2L     | 32 fl oz water with 14 1/2 fl oz product   | 32 fl oz water with 6 fl oz product  |
| 75% WSP (1.6 oz)         | 15 1/2 fl oz water per 1.6 oz packet   | 31 fl oz water per 1.6 oz packet   |
| DOSING                   |  |  |
| Inches in Diameter (DBH) | Dosage per Inch DBH for Moderate to Wet Soil<br>Pumps per Inch of Trunk Diameter | Dosage per Inch DBH for Dry to Normal Soil<br>Pumps per Inch of Trunk Diameter |
| 1-11                     | 1 pump   | 2 pumps  |
| 12-18                    | 1.5* pumps   | 3 pumps  |
| 19-22                    | 2 pumps  | 4 pumps  |
| >22                      | 3 pumps  | 6 pumps  |

If in doubt about soil moisture, default to the Moderate to Wet ratio for soil injection, per Mark Dalusky, UGA.

Trees >22" dbh should be treated 2 years in a row.

\*To get the equivalent of 1.5 pumps per hole, do 1 pump in half the holes and 2 pumps in the other half, distributing these two levels evenly around the tree. For more information, please call the Hemlock Help Line<sup>SM</sup> 706-429-8010 or visit [www.savegeorgiashemlocks.org](http://www.savegeorgiashemlocks.org).

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**QUICK REFERENCE SAFARI 20 SG CHART**  
**FOR THIS NU-ARBOR INJECTOR ONLY – 2.75 oz Output for 12 Strokes**

It is the user's responsibility to read and follow the label instructions when using pesticide materials.

| MIXING   |   |   |
|--|---|---|
| <b>Master Batch for Nu-Arbor Injector</b><br><br>10 oz. product with 32 oz. water (1 qt)<br>20 oz. product with 64 oz. water (2 qts)<br>29 oz. product with 96 oz. water (3 qts) |   | Use the plastic measuring device that comes with Safari 20 SG to measure the required amount of product and a regular measuring cup to measure the water. |
| DOSING   |   |   |
| Inches DBH   | Soil Injection (Nu-Arbor):<br>HANDLE PUMPS per Inch DBH | Be sure the calibration ring is set on the red 5.   |
| 1 – 15   | 1.5 pumps   | Do 1 pump in half the holes and 2 pumps in the other half.  |
| 16 – 19  | 2 pumps   |   |
| 20 – 23  | 2.5 pumps   | Do 2 pumps in half the holes and 3 pumps in the other half.   |
| 24 - 27  | 3 pumps   |   |
| 28 – 31  | 3.5 pumps   | Do 3 pumps in half the holes and 4 pumps in the other half.   |
| 32 – 35  | 4 pumps   |   |
| 36 – 39  | 4.5 pumps   | Do 4 pumps in half the holes and 5 pumps in the other half.   |
| 40 - 43  | 5 pumps   |   |
| 44 – 47  | 5.5 pumps   | Do 5 pumps in half the holes and 6 pumps in the other half.   |
| 48 +   | 6 pumps   |   |

Note: Apply Safari® 20SG from Feb 1 to Nov15. For more information, call 706-429-8010 or visit [www.savegeorgiashemlocks.org](http://www.savegeorgiashemlocks.org).

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**For aNu-Arbor injector dispensing 2.5 oz of liquid for 12 strikes of the injector knob:**



**QUICK REFERENCE IMIDACLOPRID CHART**  
**FOR THIS NU-ARBOR INJECTOR ONLY – 2.5 oz Output for 12 Strokes**

It is the user's responsibility to read and follow the label instructions when using pesticide materials

| MIXING                   |  |  |
|--------------------------|--|--|
| Imidacloprid Product     | Ratio of Water & Product for Moderate to Wet Soil                                | Ratio of Water & Product for Dry to Normal Soil                                |
| 22.6% 2F or 21.4% 2L     | 32 fl oz water with 16 2/3 fl oz product   | 32 fl oz water with 7 fl oz product  |
| 75% WSP (1.6 oz)         | 14 fl oz water per 1.6 oz packet   | 28 fl oz water per 1.6 oz packet   |
| DOSING                   |  |  |
| Inches in Diameter (DBH) | Dosage per Inch DBH for Moderate to Wet Soil<br>Pumps per Inch of Trunk Diameter | Dosage per Inch DBH for Dry to Normal Soil<br>Pumps per Inch of Trunk Diameter |
| 1-11                     | 1 pump   | 2 pumps  |
| 12-18                    | 1.5* pumps   | 3 pumps  |
| 19-22                    | 2 pumps  | 4 pumps  |
| >22                      | 3 pumps  | 6 pumps  |

If in doubt about soil moisture, default to the Moderate to Wet ratio for soil injection, per Mark Dalusky, UGA.

Trees >22" dbh should be treated 2 years in a row.

\*To get the equivalent of 1.5 pumps per hole, do 1 pump in half the holes and 2 pumps in the other half, distributing these two levels evenly around the tree. For more information, please call the Hemlock Help Line<sup>SM</sup> 706-429-8010 or visit [www.savegeorgiashemlocks.org](http://www.savegeorgiashemlocks.org).

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**QUICK REFERENCE SAFARI 20 SG CHART**  
**FOR THIS NU-ARBOR INJECTOR ONLY – 2.5 oz Output for 12 Strokes**

It is the user's responsibility to read and follow the label instructions when using pesticide materials.

| MIXING                                   |   |   |
|--|---|---|
| Master Batch for Nu-Arbor Injector       |   | Use the plastic measuring device that comes with Safari 20 SG to measure the required amount of product and a regular measuring cup to measure the water. |
| 11 oz. product with 32 oz. water (1 qt)  |   |   |
| 22 oz. product with 64 oz. water (2 qts) |   |   |
| 32 oz. product with 96 oz. water (3 qts) |   |   |
| DOSING                                   |   |   |
| Inches DBH                               | Soil Injection (Nu-Arbor):<br>HANDLE PUMPS per Inch DBH | Be sure the calibration ring is set on the red 5.   |
| 1 – 15                                   | 1.5 pumps   | Do 1 pump in half the holes and 2 pumps in the other half.  |
| 16 – 19                                  | 2 pumps   |   |
| 20 – 23                                  | 2.5 pumps   | Do 2 pumps in half the holes and 3 pumps in the other half.   |
| 24 - 27                                  | 3 pumps   |   |
| 28 – 31                                  | 3.5 pumps   | Do 3 pumps in half the holes and 4 pumps in the other half.   |
| 32 – 35                                  | 4 pumps   |   |
| 36 – 39                                  | 4.5 pumps   | Do 4 pumps in half the holes and 5 pumps in the other half.   |
| 40 - 43                                  | 5 pumps   |   |
| 44 – 47                                  | 5.5 pumps   | Do 5 pumps in half the holes and 6 pumps in the other half.   |
| 48 +                                     | 6 pumps   |   |

Note: Apply Safari® 20SG from Feb 1 to Nov15. For more information, call 706-429-8010 or visit [www.savegeorgiashemlocks.org](http://www.savegeorgiashemlocks.org).

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**For a Nu-Arbor injector dispensing 2.25 oz of liquid for 12 strikes of the injector knob:**



**QUICK REFERENCE IMIDACLOPRID CHART**  
**FOR THIS NU-ARBOR INJECTOR ONLY – 2.25 oz Output for 12 Strokes**

It is the user's responsibility to read and follow the label instructions when using pesticide materials

| MIXING                   |  |  |
|--------------------------|--|--|
| Imidacloprid Product     | Ratio of Water & Product for Moderate to Wet Soil                                | Ratio of Water & Product for Dry to Normal Soil                                |
| 22.6% 2F or 21.4% 2L     | 32 fl oz water with 19 2/3 fl oz product   | 32 fl oz water with 7 1/2 fl oz product  |
| 75% WSP (1.6 oz)         | 12 3/4 fl oz water per 1.6 oz packet   | 25 1/2 fl oz water per 1.6 oz packet   |
| DOSING                   |  |  |
| Inches in Diameter (DBH) | Dosage per Inch DBH for Moderate to Wet Soil<br>Pumps per Inch of Trunk Diameter | Dosage per Inch DBH for Dry to Normal Soil<br>Pumps per Inch of Trunk Diameter |
| 1-11                     | 1 pump   | 2 pumps  |
| 12-18                    | 1.5* pumps   | 3 pumps  |
| 19-22                    | 2 pumps  | 4 pumps  |
| >22                      | 3 pumps  | 6 pumps  |

If in doubt about soil moisture, default to the Moderate to Wet ratio for soil injection, per Mark Dalusky, UGA.

Trees >22" dbh should be treated 2 years in a row.

\*To get the equivalent of 1.5 pumps per hole, do 1 pump in half the holes and 2 pumps in the other half, distributing these two levels evenly around the tree. For more information, please call the Hemlock Help Line<sup>SM</sup> 706-429-8010 or visit [www.savegeorgiashemlocks.org](http://www.savegeorgiashemlocks.org).

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**QUICK REFERENCE SAFARI 20 SG CHART**  
**FOR THIS NU-ARBOR INJECTOR ONLY – 2.25 oz Output for 12 Strokes**

It is the user's responsibility to read and follow the label instructions when using pesticide materials.

| MIXING   |   |   |
|--|---|---|
| <b>Master Batch for Nu-Arbor Injector</b><br><br>12 oz. product with 32 oz. water (1 qt)<br>24 oz. product with 64 oz. water (2 qts)<br>36 oz. product with 96 oz. water (3 qts) |   | Use the plastic measuring device that comes with Safari 20 SG to measure the required amount of product and a regular measuring cup to measure the water. |
| DOSING   |   |   |
| Inches DBH   | Soil Injection (Nu-Arbor):<br>HANDLE PUMPS per Inch DBH | Be sure the calibration ring is set on the red 5.   |
| 1 – 15   | 1.5 pumps   | Do 1 pump in half the holes and 2 pumps in the other half.  |
| 16 – 19  | 2 pumps   |   |
| 20 – 23  | 2.5 pumps   | Do 2 pumps in half the holes and 3 pumps in the other half.   |
| 24 - 27  | 3 pumps   |   |
| 28 – 31  | 3.5 pumps   | Do 3 pumps in half the holes and 4 pumps in the other half.   |
| 32 – 35  | 4 pumps   |   |
| 36 – 39  | 4.5 pumps   | Do 4 pumps in half the holes and 5 pumps in the other half.   |
| 40 - 43  | 5 pumps   |   |
| 44 – 47  | 5.5 pumps   | Do 5 pumps in half the holes and 6 pumps in the other half.   |
| 48 +   | 6 pumps   |   |

Note: Apply Safari® 20SG from Feb 1 to Nov15. For more information, call 706-429-8010 or visit [www.savegeorgiashemlocks.org](http://www.savegeorgiashemlocks.org).

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**For a Nu-Arbor injector dispensing 2.0 oz of liquid for 12 strikes of the injector knob:**



**QUICK REFERENCE IMIDACLOPRID CHART**  
**FOR THIS NU-ARBOR INJECTOR ONLY – 2.0 oz Output for 12 Strokes**

It is the user's responsibility to read and follow the label instructions when using pesticide materials

| MIXING                   |  |  |
|--------------------------|--|--|
| Imidacloprid Product     | Ratio of Water & Product for Moderate to Wet Soil                                | Ratio of Water & Product for Dry to Normal Soil                                |
| 22.6% 2F or 21.4% 2L     | 32 fl oz water with 24 fl oz product   | 32 fl oz water with 8 2/3 fl oz product  |
| 75% WSP (1.6 oz)         | 11 1/3 fl oz water per 1.6 oz packet   | 22 2/3 fl oz water per 1.6 oz packet   |
| DOSING                   |  |  |
| Inches in Diameter (DBH) | Dosage per Inch DBH for Moderate to Wet Soil<br>Pumps per Inch of Trunk Diameter | Dosage per Inch DBH for Dry to Normal Soil<br>Pumps per Inch of Trunk Diameter |
| 1-11                     | 1 pump   | 2 pumps  |
| 12-18                    | 1.5* pumps   | 3 pumps  |
| 19-22                    | 2 pumps  | 4 pumps  |
| >22                      | 3 pumps  | 6 pumps  |

If in doubt about soil moisture, default to the Moderate to Wet ratio for soil injection, per Mark Dalusky, UGA.

Trees >22" dbh should be treated 2 years in a row.

\*To get the equivalent of 1.5 pumps per hole, do 1 pump in half the holes and 2 pumps in the other half, distributing these two levels evenly around the tree. For more information, please call the Hemlock Help Line<sup>SM</sup> 706-429-8010 or visit [www.savegeorgiashemlocks.org](http://www.savegeorgiashemlocks.org).

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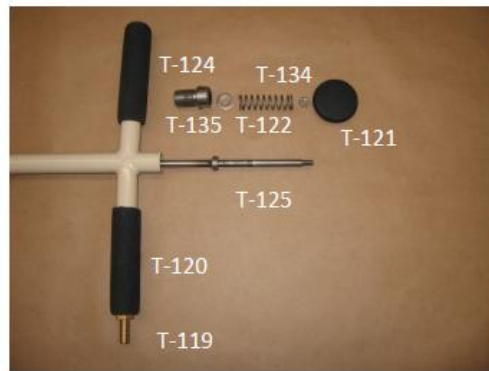
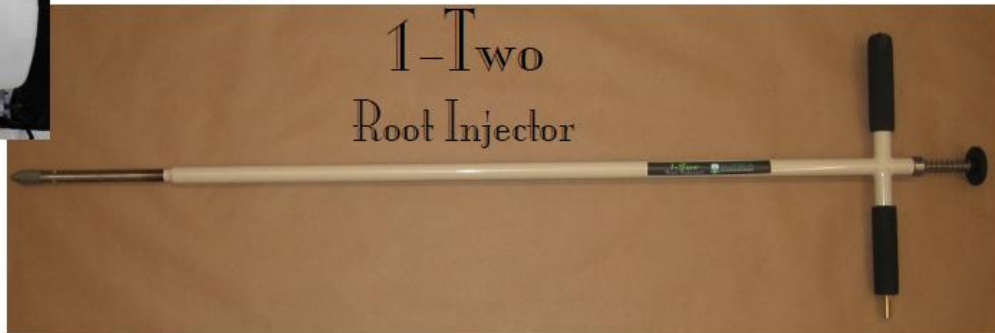
**QUICK REFERENCE SAFARI 20 SG CHART**  
**FOR THIS NU-ARBOR INJECTOR ONLY – 2.0 oz Output for 12 Strokes**

It is the user's responsibility to read and follow the label instructions when using pesticide materials.

| MIXING                                     |   |   |
|--|---|---|
| Master Batch for Nu-Arbor Injector         |   | Be sure the calibration ring is set on the red 5.           |
| 13.5 oz. product with 32 oz. water (1 qt)  | Use the plastic measuring device that comes with Safari 20 SG to measure the required amount of product and a regular measuring cup to measure the water. |   |
| 27 oz. product with 64 oz. water (2 qts)   |   |   |
| 41.5 oz. product with 96 oz. water (3 qts) |   |   |
| DOSING                                     |   |   |
| Inches DBH                                 | Soil Injection (Nu-Arbor):<br>HANDLE PUMPS per Inch DBH   |   |
| 1 – 15                                     | 1.5 pumps   | Do 1 pump in half the holes and 2 pumps in the other half.  |
| 16 – 19                                    | 2 pumps   |   |
| 20 – 23                                    | 2.5 pumps   | Do 2 pumps in half the holes and 3 pumps in the other half. |
| 24 - 27                                    | 3 pumps   |   |
| 28 – 31                                    | 3.5 pumps   | Do 3 pumps in half the holes and 4 pumps in the other half. |
| 32 – 35                                    | 4 pumps   |   |
| 36 – 39                                    | 4.5 pumps   | Do 4 pumps in half the holes and 5 pumps in the other half. |
| 40 - 43                                    | 5 pumps   |   |
| 44 – 47                                    | 5.5 pumps   | Do 5 pumps in half the holes and 6 pumps in the other half. |
| 48 +                                       | 6 pumps   |   |

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**Parts List**

- T-119 Hose Barb
- T-120 Grips
- T-121 Pump Knob
- T-122 Return Spring
- T-123 Rod Seal (inside T-124)
- T-124 Cap
- T-125 Rod
- T-126 Body
- T-127 Piston
- T-128 Pressure Seals
- T-129 Ball Bearings
- T-130 Roll Pin
- T-131 Check Spring
- T-132 Driver
- T-134 Nut
- T-135 Washer

Not Pictured

- T-118 Hose Clamp
- T-117 Hose

Spare Parts Kit

- T-301 Contains 122, 123, 128 (3), 129 (2), 131, 132

Optional Equipment

- T-200 Quick Attach Kit (T-238, 239, 240)
- T-238 Hex Nipple
- T-239 Mail Quick Connect
- T-240 Female Quick Connect
- T-241 Hose Barb



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