



RECTIFY™ for HLB in Florida Citrus

Technical Bulletin No. 44

Rectify™, a 95% oxytetracycline hydrochloride formulation from AgroSource, is approved by Florida Department of Agriculture & Consumer Services (FDACS) under the Special Local Need (SLN) provisions within Section 24(c) of the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) for use as an injection for control or suppression Huanglongbing (HLB, aka citrus greening disease) in Florida citrus.¹

Rectify™ is compatible with a range of third-party tree injection devices and is formulated to be mixed with pre-acidified (pH 2) water and added to an appropriate tree injection device (see label for further instructions and details).

Rectify™ may be added to mix tanks to prepare one of three three recommended concentrations from which injectors are filled:

- 11,000 ppm for bearing citrus trees in “good” health (>75% tree canopy),
- 5,500 ppm for bearing citrus in “poor” health (≤75% tree canopy) and
- 1,100 ppm for non-bearing citrus.

Tank Size	Amount of Rectify™ to Add for		
	11,000 ppm	5,500 ppm	1,100 ppm (non-bearing)
5 gallons	7.3 oz.	3.7 oz.	0.7 oz.
10 gallons	14.7 oz.	7.3 oz.	1.5 oz.
15 gallons	22.0 oz.	11.0 oz.	2.2 oz.
20 gallons	29.4 oz.	14.7 oz.	2.9 oz.
25 gallons	36.7 oz.	18.4 oz.	3.7 oz.
30 gallons	44.0 oz.	22.0 oz.	4.4 oz.
35 gallons	51.4 oz.	25.7 oz.	5.1 oz.

One bag **Rectify™** (2.75 lbs./44 oz.) will make:

- 30 gallons at 11,000 ppm, or
- 60 gallons at 5,500 ppm, or
- 300 gallons at 1,100 ppm.

NOTE: Users must have a copy of the Rectify™ SLN Section 24(c) label in their possession when making applications. Always read and follow label instructions. For more information, email info@AgroSource.net or visit us on the web www.AgroSource.net.

¹ EPA SLN: FL230001.

Rectify is a trademark of AgroSource, Inc.



Best Citriculture Practices for Injection

Technical Bulletin No. 45

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The following recommendations for injection of oxytetracycline hydrochloride [**Rectify™**] into Florida citrus trees are from UF/IFAS Southwest Florida Research & Education Center.

- **Inject after harvest and after the main flowering period to prevent exposure to pollinators.**
- **Uptake and distribution of injected materials are driven by transpiration. Transpiration is the process of evaporation of water vapor on the leaf surface through the stomata. The loss of water vapor pulls water (and therefore injected materials) from the stem and roots upwards. Therefore, A) Inject when leaves are fully expanded (not during leaf flush) to ensure efficient uptake and distribution of injected materials. B) As much as possible, inject during mid- to late morning when trees are actively transpiring. Injections in the afternoon are likely less effective and may also increase the risk of phytotoxicity.**
- **Avoid injecting during the hottest time of the season (and day). There have been reports of phytotoxicity (manifested as leaf bronzing) when injections were conducted in August.**
- **Use a sharp brad-point drill bit for drilling the hole to minimize injury.**
- **Drill the hole no deeper than necessary. The inner (older) wood of the trunk is metabolically less active, and drilling results in more internal damage and dysfunction.**
- **Do not use any wound sealants or plugs/stoppers to seal the injection hole; these inhibit the trees' ability to effectively compartmentalize (heal) the wound.**
- **Remember that trees will become reinfected. OTC-HCl injections are not replacements for psyllid control.**
- **Although the label allows it, it is not advised to inject trees with a trunk diameter of less than 2.5 inches.**
- **Inject trees only once annually and leave a pre-harvest interval of at least 180 days.**
- **Follow label directions. The label is the law.**

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Expected Residues from Injection

Technical Bulletin No. 46

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Tree injection field trials with oxytetracycline hydrochloride conducted at UF/IFAS Southwest Florida Research & Education Center in [2022](#) have shown oxytetracycline residues in whole fruit peaked about 7 days after injection, then followed a steady decline.

Florida citrus growers using **Rectify™** for control of HLB must allocate adequate time to elapse between injection and harvest to ensure residues in fruit do not exceed the EPA tolerance limit for oxytetracycline in all varieties of citrus fruit of 0.01 ppm.

IMPORTANT NOTES:

- **the Pre-Harvest Interval (PHI) for Rectify™ injected into bearing Florida citrus trees is 180 days.**
- **The EPA established tolerance for oxytetracycline in all varieties of citrus fruit is 0.01 ppm.**
- **Users must have a copy of the Rectify™ SLN Section 24(c) label in their possession when making applications.**

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Rectify™ Injection Uptake May Be Slowed by Current Weather Conditions

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As of March 8, 2023, weather conditions across much of the citrus growing regions of Florida can be characterized as:

- **Warm** with average high daily temperatures in the 80s,
- **Wind** conditions above average, and
- **Drought** resulting in soils with very limited water content.

The net effect of these environmental conditions is reduced evapotranspiration, which may temporarily slow uptake, movement and distribution of **Rectify™** within trees. As soil water content is replenished by rains, winds abate and daily temperatures continue to rise, tree transpiration rates that will increase, facilitating more rapid uptake, movement, and distribution of **Rectify™** within trees.

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