Florida Citrus Advanced Technology Program

QUARTERLY & FINAL REPORTS: Control of Citrus Greening, Canker & Emerging Diseases of Citrus

Instructions Complete the fields based on your project specs. When finished, save the form to your local disk using a unique name. Then, go to **http://research.fcprac.com**, and log in with your user name and password using Researcher Login in the lower left. Find this project title and click on **Submit a Report**. Update your profile information if needed, then upload this report as directed.

2009-2010 REPORT	CATEGORY (drop-down)	TODAY'S DATE (m/d/yr)
○ *Quarterly Report* ○ *Annual Report* ◉ *Final*	Management	6/15/10

WHAT IS THE "HEADLINE" FOR THIS REPORT (e.g. a one-sentence "newspaper headline" describing what you accomplished)

Remedy Ultra is effective in controlling sprout formation when applied to the remaining stump after tree removal

TITLE and CONTACT INFORMATION

Proposal Title Treatment of Citrus Stumps with Herbicides to Minimize Sprout Formation and Determine Greening Status of Citrus Sprouts

Principal Investigator Stephen H. Futch	*PI Last Name* Futch
Email shf@crec.ifas.ufl.edu	*FDACS Contract Number*
Phone 863-956-1151	*Project Duration (years)* 1 *Year of Project* 1
Organization UF, CREC	*Total Direct Funds (current year)* 16000

REPORT UPDATE (650 words; provide details about your headline)

The objectives of these studies were to determine the appropriate rates of Remedy Ultra (triclopyr) to apply to citrus stumps and if delaying herbicide application would have an impact on subsequent sprout development.

Two studies have been conducted during 2008-10 to determine appropriate rates and timing of applications to control citrus stump sprouting. The first study examined various application rates (25, 50 and 75% Remedy mixed with diesel) consisting of 15 replications per treatment. The second study looked at the impact of delaying application of the herbicide on the control of sprout formation and utilized 7 replications per treatment. Studies were conducted using a randomized complete block design in groves near Lake Placid, a typical ridge site and Arcadia, a typical flatwoods site. Stumps were treated with a spray volume that consisted of approximately 1 to 2 fluid ounces of spray mixture per stump applied with a compression pump sprayer. Larger stumps received more spray volume than smaller stumps. Herbicide applications were direct the to the outer stump area to completely wet the cambium area while minimizing runoff to the soil. In all studies, observations were made on 30-day intervals over an 8-month period after clipping or shearing the tree as the removal method.

During the first year of the study in the grove near Arcadia, 12 of the 15 (80%) untreated stumps sprouted. Sprouts were noted over the study period with 0, 5, 3, 1 and 3 of the 15 stumps sprouting at 29, 56, 85, 113 and 141 days after tree removal, respectively. The number of sprouts per untreated stump ranged from 2 to 26 and averaged 8 per stump at the end of the study. Ten stumps with sufficient sprouts were tested for HLB and 80% had one or more sprout testing positive. The percentage of HLB positive sprouts recovered from a positive stump ranged from 33% to 100%. All treated stumps, regardless of the treatment rate remained sprout free during the study period.

During the second year, studies were conducted at Lake Placid and Arcadia. Treatments of Remedy Ultra were applied in a 25 or 50% solution mixed with diesel fuel at time of clipping, 24, 48 and 72 hours later. At the Lake Placid site, 2, 2, 1, 1, and 1 of the 7 (100%) untreated stumps sprouted at 30, 60, 90, 120 and 150 days after tree removal, respectively. At this site, 4 stumps within the 56 treated stumps had root sprouts but not on the treated stump. All of the root sprouts occurred on trees originally grown on rough lemon rootstock, whereas, none of the other rootstocks sprouted at this site. Remedy Ultra was slightly less effective in controlling sprouts when applied at the 25% Remedy/75% diesel than at the 50% rate, especially on rough lemon stumps. Delaying application using the lower rate also had a slight negative impact on sprout control. At the Arcadia site, 5 of the 7 untreated stumps sprouted at 60 days after removal with one additional stump sprouting by 90 days. At this site, 86% of the untreated stumps sprouted within 90 days of clipping. In addition to the untreated stumps, one additional stump developed sprouts which had been treated with a 50% spray solution at time of clipping. Only one stump exhibited root sprouts which occurred within 60 days after treatment regardless of the time of application of the herbicide. The number of sprouts per untreated stump ranged from 1 to 8.

In this experiment, rootstock and trunk diameter had an impact on root and/or stump sprouting. Trees with larger trunk diameter supports greater incidence of sprouting compared to smaller trunks. It has been previously reported that rough lemon and Cleopatra mandarin are more prone to sprouting than other rootstocks.

In these studies, no problems were associated with Remedy Ultra damaging adjacent trees. Remedy Ultra was effective in controlling citrus sprouts at 25% Remedy mixed with diesel fuel with larger stumps of rough lemon being more difficult to control sprouting.