CITRUS ADVANCED TECHNOLOGY PROGRAM

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

▶ SELECT PERIOD June 2011 ○ Quarterly Report ◉ Final

Proposal Title

Coupling citrus flush management and dormant chemical spray as a strategy to control populations of Asian citrus psyllid

Today's Date

Sponsoring Organization (drop-down)

Citrus Research and Development Foundation

Category (drop down)

Infection Consequences

REPORT UPDATE (500 words-It is not necessary in this public report to disclose your institution's proprietary information or intellectual property.)

For the second year of this project, we evaluated the impact of an insecticide spray application in combination to the two main objectives i.e., effect of harvest date and fertilization regimes on the population densities of the Asian citrus psyllid. The two evaluated hedging dates in 2010 were hedging during the dormant season before the first flush of the year in January and hedging in April after the first flush but before the second major flush. Three nitrogen fertilization regimes (no fertilization, one full application of 100 N lb/acre in February, and a split application of 50 N lb/ac each in mid-February and in mid-June, respectively) were tested in a factorial design in a mature 'Marrs' sweet orange block. These blocks were subsequently split in two, and half the block received insecticide spray applications at the beginning of each major flush cycle.

All three main factors (hedging, fertilization and spraying) and their interactions significantly affected D. citri adult populations. Similarly, D. citri densities varied with sampling date and this variation correlated with flush cycle. Although late hedging in mid-April produced a spike in D. citri population in mid-May due the new flush growth on these hedged trees, its overall impact on total psyllid counts throughout the year was not different from the non-hedged treatment because the traditional June flush cycle in Texas was very light to absent on the late hedging treatment in contrast to the no-hedging treatment. The early hedging had the lowest overall psyllid count mainly due to the fact that trees that were hedged in January had profuse flush shoot production in February when psyllid populations were very low. Consequently, mean psyllid numbers in the no-hedging and late hedging treatments were twice as high as the one recorded in the early hedging during the dormant season. Based on these observations, we can recommend early hedging when possible, as a strategy to reduce D. citri populations.

D. citri numbers were affected with nitrogen application with significantly more psyllids recorded in the one-time application of 100 lb of N per acre. Consequently, all plots receiving this single dose harbored more psyllids than the split and fertilization treatments that were not different. Application of nitrogen as single dose is a common practice in Texas, but the present results showed that this practice has the potential to significantly increase psyllid population in groves. As expected the sub-plots that received insecticide sprays had lower psyllid counts than the unsprayed ones within each block. However, there were significant interactions between spray application and hedging and fertilization.

Our study demonstrated that that growth care practices including nitrogen fertilization and tree canopy management can significantly affect D. citri densities in citrus groves. To ensure that these practices do not negatively affect our psyllid control efforts with insecticides, late hedging (in April or May) and one single rate application of 100 lb N/ac should be avoided at least be followed with a spray application at the beginning of the subsequent flush cycle.

PI First Name Mamoudou

PI Last Name Setamou

Email mamoudou.setamou@tamuk.edu

Phone 9564473370

Organization TAMUK Citrus Center

Project Number 196

Project Duration (years) 2 *Year of Project* 2

Total Funds (current year) $56,000.00

Form PR-12 Quarterly Reports **SUBMIT REPORT**