9.3 Application of Insecticidal Sprays to Citrus in Winter Provides Significant Reduction in Asian Citrus Psyllid *Diaphorina citri* Populations and Opportunity for Additional Suppression Through Conservative and Augmentative Biological Control

Qureshi, J.A., Stansly, P.A. UF-IFAS, Department of Entomology and Nematology, Southwest Florida Research and Education Center, Immokalee, FL, USA, E-mail: jawwadq@ufl.edu

Diaphorina citri is an economically important pest of citrus mainly because it vectors *Candidatus* Liberibacter asiaticus, causal organism of the Asian "huanglongbing" or citrus greening disease. Mature citrus trees in Florida are dormant in winter and produce most new shoots in spring, followed by sporadic growth in summer and fall. Young shoots are required for oviposition and nymphal development, but adults can survive and overwinter on hardened leaves. Therefore, foliar sprays of broad-spectrum insecticides applied to mature trees in winter were evaluated in a commercial citrus orchard as a tactic to reduce pest populations and insecticide use in spring and summer when beneficial insects are most active. Single sprays (AI/ha) of chlorpyrifos (2.8 kg) in January 2007 and chlorpyrifos, fenpropathrin (0.34 kg), and oxamyl (1.12 kg) in January 2008 reduced adult psyllids an average of 10- to 15-fold over 5-6 months compared to untreated trees, respectively, without additional sprays. Spiders, lacewings, and ladybeetles were equally abundant during the growing season in both treated and untreated trees both years. This tactic has been adopted area-wide to manage psyllid in Florida and to establish Citrus Health Management Areas to reduce the spread of HLB. For additional suppression of psyllid, we are mass producing and releasing *Tamarixia radiata*, an ectoparasitoid of *D. citri* that we imported from Pakistan, South China, and North Vietnam in 2008, and an already established strain imported from Taiwan and South Vietnam in 1999. The repeated releases of these parasitoids in citrus groves are contributing to overall reduction in psyllid population.