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Vector Control and Foliar Nutrition for Management of Huanglongbing in Florida Citrus

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Huanglongbing (HLB) or citrus greening is a bacterial disease vectored by the Asian citrus psyllid (ACP) and causing mottled leaves, tree decline, and yield loss. Vector control and foliar nutrition are widely employed in Florida and elsewhere to respectively slow the spread of HLB and mitigate debilitating effects of the disease. A replicated field study was conducted in a 5.4-ha commercial block of young ‘Valencia’ orange trees through four harvests employing a factorial design to evaluate individual and compound effects of a popular foliar nutrient program and threshold-based vector management.

ACP populations were maintained at contrasting levels in insecticide-treated and untreated plots despite proximity. Nevertheless, incidence of HLB, estimated by PCR at nearly 30% at the beginning of the study, rose to almost 95% early in the third year without measurable reduction from vector control. However, insecticide treatments did result in higher threshold cycle (Ct) values, indicating reduced disease intensity. Vector control significantly improved yields all but year one, while the nutrition only treatment made a significant contribution to yield only in year four. Combined foliar nutrition and vector control was the best treatment all 4 years, and provided yields close to the pre-HLB regional average in the 4th year. Although the combined treatment was not profitable at current juice prices, this shortcoming could be remedied by reducing costs of the nutrient package and/or the insecticide regime.

Here finally is evidence for salutatory effects of both nutrient enhancement and vector control on HLB-infected trees. Further research is necessary to establish economic thresholds for both insecticide and nutrient application under different market and environmental conditions.