8.5 The Economics of Management Strategies to Mitigate the Impact of Citrus Greening in Florida Citrus

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Citrus Greening (aka *Huanglongbing*) is a particularly difficult disease to manage. Because infected trees may not exhibit symptoms for up to two years, a policy of removing symptomatic trees will likely never be successful in eradicating the disease from a particular production block or grove. Another strategy is to aggressively control the Asiatic psyllid, the vector of the disease. Through a combination of both removal of symptomatic trees and effective psyllid control, it may be possible to limit the spread of the disease to manageable levels.

Once infected trees are removed, one strategy is to immediately reset trees that were removed. However, since psyllids are attracted to new growth and young trees flush more frequently than mature trees, young trees in a block with mature trees supporting psyllids are at greater risk than solid set young trees in a newly-planted block. Another strategy is not to immediately reset trees, but continue to remove infected trees until reduced tree numbers make the block economically unproductive. Once the block is economically unproductive, the remaining trees are removed and the entire block is replanted. If resets can be cost-effectively grown to maturity, under what conditions is resetting economically preferable to replanting solid-set trees in an entire block? If the entire block is replanted, what is the optimum density of trees to reduce or delay the impact on production of future potential greening infections?

The purpose of this paper is to first identify alternative management strategies for citrus greening and estimate the costs and returns associated with each strategy. Net present value analysis is used for the economic analysis given the perennial nature of citrus production. A model that incorporates the tree age distribution of a particular block along with a yield curve that reflects the age-dependence of orange production has been developed and is modified for use in this analysis.

The results of the paper will enable better understanding of the economic implications of strategies aimed at mitigating the impact of citrus greening.