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Benefit-cost analysis of Huanglongbing management in Sao Paulo, Brazil

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The Brazilian citrus history is marked by several phytosanitary outbreaks due to entry of new pests, frequently with high potential to generate economic losses. Some of these pests have threatened even the viability of citrus in Sao Paulo State, like Huanglongbing (HLB) that was responsible for eradicating 18 million plants between January 2005 and July 2012. This requires development of new methods to control the disease and ensure the economic viability of the activity. This study aimed to analyze costs and benefits of a broad control of HLB in the state (66 % of orchards are inspected and have HLB-symptomatic trees eradicated) and compare this scenario to another one representing a lower level of control (reference scenario, considering that only 26% of orchards manage HLB and proceed the eradication). We chose the Benefit-Cost Analysis to evaluate the differences between scenarios. Losses caused by HLB comprised a reduction in productivity, elimination of infected plants and increase in production costs (due to inspections, insecticide applications, tree elimination and replanting). Costs and benefits were calculated according to state's phytosanitary status in 2010. The epidemiological model proposed by Bassanezi & Bassanezi (2008) was used to project the disease progress, crop loss damage, the citrus orchard size, orange production and producers' costs of production to control the disease over 20 years. The ratio B/C was estimated at 4.07 accumulated for the whole period. This result shows that each R\$ 1.00 invested by producers to manage the HLB, prevents them from losing R\$ 4.07 in gross revenues.

References

Bassanezi, R.B.; Bassanezi, R.C. An approach to model the impact of Huanglongbing on citrus yield. *Proceedings of the International Research Conference on Huanglongbing*, Orlando, p.263-264, 2008.