

ABSTRACT

An Economic Assessment of the Potential Impact of Invasive Alien Species: The Case of Huanglongbing (HLB) In Belize

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Huanglongbing (Citrus Greening Disease) is a deadly bacterial disease that affects all citrus varieties. It is rated by most national and international research institutions as the most destructive citrus disease and has been responsible for drastic reductions in production throughout the world. Citrus greening disease has been known internationally from its first description in China, as Huanglongbing (HLB), translated as “yellow shoot disease”. The disease was confirmed in Brazil in 2004. Since then it has been confirmed in several other major citrus producing countries in the western hemisphere including Florida, in the United States of America in 2005, Cuba in 2007 and Mexico, Jamaica and Belize in 2009.

Economic losses resulting from HLB are extremely acute for Belize, the Caribbean Community (CARICOM) leading producer of citrus. HLB has the potential to significantly reduce the production of oranges and consequently decrease the production of Frozen Concentrate Orange Juice (FCOJ), a primary export commodity for Belize. Belize is described as the most citrus dependent country within CARICOM. Hence, any demise in the citrus industry may result in unfavourable economic conditions for stakeholders of the citrus industry value chain and the Belize economy in general.

In this regard, the study assessed the economic impact of HLB management interventions on Belize’s FCOJ trade. In order to do so, the study estimated a supply function for Belize FCOJ, forecasted international FCOJ prices, evaluated quantity and financial economic effects and conducted Benefit / Cost Analysis to evaluate the economic suitability of management interventions.

The study found that if HLB persists unabated, the Belize citrus industry would incur revenue losses of US\$55,431,605 during the period 2013 – 2015. Management interventions however, could result in avoided losses of US\$20,208,821 or net benefits of up to US\$64,358,425 within the same period. The study also found that the moderate and optimal management interventions had positive benefit cost ratios (6.15 and 5.77 respectively). Most importantly, the cost associated with these interventions represented a small fraction (< 20%) of the overall net benefits to the Belize citrus industry.

Keywords: Huanglongbing, Belize, Frozen Concentrate Orange Juice; Management Interventions; Supply Function; Forecasted International Prices; Benefit / Cost Analysis.