8.4 The Production and Price Effects of Citrus Greening in Sao Paulo and Florida on the World Orange Juice Market

Spreen T.H.¹, Brown M.G.², Jauregui C.¹

¹Food and Resource Economics Department, University of Florida, Gainesville, FL; ²Florida Department of Citrus, Gainesville, FL

Sao Paulo, Brazil and Florida, United States are dominant suppliers of orange juice to the world market. Collectively, these two regions account for over 80 percent of world orange juice production. Citrus greening (aka Huanglongbing) has recently been discovered into both states. Citrus greening is a particularly devastating disease which has had profound effect on commercial citrus production in parts of Asia and Africa. The purpose of this paper is to assess the possible consequences of citrus greening on future citrus production in Sao Paulo and Florida with particular interest on processed orange production. Given the importance of these two regions to world orange juice supply, supply shocks resulting from citrus greening will have implications for world orange juice prices.

The analysis will be conducted using a model of the world orange juice market that has been jointly developed by the University of Florida and the Florida Department of Citrus. The model includes endogenous production of oranges in Sao Paulo and Florida and delineates the United States, the European Union, Canada, and the rest of the world as major demand regions. Differentiated demand equations for not-from-concentrate and from concentrate orange juice in the United States and Canada have been estimated. The model is cast as a spatial equilibrium model that also encompasses tariffs and transportation costs across supply and demand regions. The impact of citrus greening is incorporated into the model through increased tree mortality. As the actual effect of the presence of greening on tree mortality in Sao Paulo and Florida is not yet known, several alternative scenarios are considered.

Given that the price impact of citrus greening may be large, discussion is also provided on the plausibility of new supply areas for orange juice.