

THE ECONOMIC IMPACT OF HLB ON THE FLORIDA CITRUS INDUSTRY

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Overview of the World Orange Juice Market

- ▣ Sao Paulo, Brazil and Florida, United States remain the world's two largest regions for orange juice production.
- ▣ These two regions account for over 80 percent of world orange juice supply.
- ▣ This is despite the presence of *Huanglongbing* (HLB), also known as citrus greening in both locations.
- ▣ HLB is a bacterial disease spread by the Asian Citrus Psyllid for which there is no known cure.

- ▣ The strategy suggested by most plant pathologists to deal with HLB is to
 1. Aggressively scout for the disease,
 2. Immediately remove all symptomatic trees,
 3. Implement measures to reduce psyllid populations.
- ▣ This approach has been, for the most part, adopted by growers in Sao Paulo.
- ▣ In Florida, however, many growers have adopted an alternative strategy known as enhanced foliar nutrition.

- ▣ In the enhanced foliar nutritional management strategy, growers no longer pursue an aggressive scouting and tree removal program. They still attempt to reduce psyllid populations. They use a foliar nutritional program in an attempt to mask the symptoms of the disease. UF/IFAS estimates that this approach increases per acre grove maintenance costs by \$200 to \$600 per acre per year.
- ▣ Variations of this approach are being used by most growers in Florida.

Economic Impact of HLB

- Last fall, the Food and Resource Economics Department at the University of Florida was approached by leaders in the citrus industry to conduct a study of the economic impact of HLB.
- The Department, through its Economic Impact Center, has previously conducted several studies in which the economic impact of Florida citrus on the economy of Florida was estimated.
- The last published study, which considered the 2007-08 season, placed the total economic impact of the industry at \$9.1 billion.

- ▣ The Economic Impact Center in the Food and Resource Economics Department is led by Dr. Alan Hodges. He and I conducted the study to be presented here.
- ▣ The economic impact of an industry include its direct sales plus indirect effects. Indirect effects include the purchases made by that industry of inputs necessary to allow the industry to operate. For Florida citrus, these inputs include farm-level inputs such as fertilizer and pesticides. Trucking services are used to haul fruit to processing and packing plants and haul juice and packed fruit to retail outlets.

- ▣ The other indirect effect is the wages paid to employees of an industry. Those wages are spent on a wide variety of goods and service that in turn create additional economic activity.
- ▣ The Economic Impact Center purchases data which has facilitated the development of what is called an Input-Output model of the economy of Florida which can be disaggregated to county level. This model allows the estimation of the economic impact of particular industries as well as address what-if questions.

Data Considerations

- ▣ To estimate the economic impact of HLB, we need to develop a scenario of what would have happened if HLB had not become established in Florida.
- ▣ In 2006, the Food and Resource Economics Department published a study in which several scenarios related to Florida citrus were considered.
- ▣ The timing of this study is significant because this is after the hurricanes of 2004 and 2005 and just as HLB was beginning to spread across the state.

- ▣ In the 2006 study, one scenario considered was no HLB. The actual volume of fruit produced represents the with-HLB scenario.
- ▣ The next step is to estimate the prices that would have prevailed under a no HLB scenario. This was accomplished by using FOB OJ demand relationships developed by the FDOC.
- ▣ Once prices and quantities are estimated, estimated revenue can be incorporated into the input-output model and economic impacts calculated.

Florida and Sao Paulo Processed Utilization

Season	FL. Prod. no HLB	FL. Prod. w/HLB	SP Prod.
	-----million boxes-----		
2006-07	196	129	316
2007-08	194	170.2	325
2008-09	191	162.5	276
2009-10	187	133.6	274
2010-11	183	139	242

Florida Processed Revenue Estimates with and without HLB

Season	Proc. Rev. no HLB	Proc. Rev. w/HLB	Difference
	-----million dollars-----		
2006-07	2014	1593	421
2007-08	1949	1841	108
2008-09	2271	2053	218
2009-10	2215	1730	485
2010-11	2463	1987	476

Summary of Economic Impacts of Citrus Greening (HLB) in Florida, 2006-07 to 2010-11

Impact Type	Employment (average permanent jobs)	Employment (job-years)	Labor Income (Mn\$)	Value Added (Mn\$)	Output (Mn\$)
Without HLB Scenario					
Direct Effect	16,840	84,201	\$3,572	\$5,717	\$10,514
Indirect Effect	10,843	54,213	\$1,731	\$2,258	\$3,715
Induced Effect	24,711	123,556	\$5,822	\$9,268	\$14,587
Total Effect	52,394	261,970	\$11,125	\$17,243	\$28,816
With HLB Scenario					
Direct Effect	14,186	70,932	\$3,009	\$4,816	\$8,857
Indirect Effect	9,134	45,669	\$1,458	\$1,902	\$3,130
Induced Effect	20,817	104,085	\$4,905	\$7,808	\$12,288
Total Effect	44,137	220,686	\$9,372	\$14,526	\$24,275
Change: With - Without HLB					
Direct Effect	-2,654	-13,269	-\$563	-\$901	-\$1,657
Indirect Effect	-1,709	-8,543	-\$273	-\$356	-\$585
Induced Effect	-3,894	-19,471	-\$918	-\$1,461	-\$2,299
Total Effect	-8,257	-41,284	-\$1,753	-\$2,717	-\$4,541

Values expressed in 2011 dollars.

Employment impacts represent fulltime and part-time jobs.

Conclusions:

Economic Impacts of HLB in Florida

- **Direct output (revenue impact) loss to growers of \$1.66 billion over 5 years, or \$331 million annually, representing 19% of average grower revenues.**
- **Total output loss, including indirect/induced effects in other sectors, of \$4.54 billion over 5 years, or \$908 million annually.**
- **Total employment loss over 5 year period of 41,284 job-years, representing an average permanent employment impact 8,257 jobs (fulltime and part-time).**

- **Total value added loss of \$2.72 billion over 5 years, or \$543 million annually to GDP of Florida.**
- **Study did not estimate impacts of HLB on fresh fruit market.**
- **The published study can be found at <http://edis.ifas.ufl.edu/FE903>**

Thank you !

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