

The Real Cost of HLB in Florida

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In this article, I summarize the major changes in the cost of production for processed oranges since the outbreak of Huanglongbing (HLB). To deal with the disease, growers have significantly changed their cultural practices. Those changes have had a considerable impact on the cost of production per acre. However, given that inflation also causes the overall level of prices to increase over time, economists use the terms *nominal* and *real* dollars to refer to the current dollar value and the constant dollar value, respectively. The difference between the two is that the *real* dollar value denotes an amount that has been adjusted for inflation. So, by taking inflation into account, I am able to provide estimates of the *real* increase in the cost of production per acre to deal with HLB.

Figure 1 shows the annual *nominal* and *real* cultural cost of production for processed oranges in Southwest Florida on a per acre basis. That figure shows that the *nominal* cost of production per acre (denoted by blue bars) increased from \$880 in 2003/04 to \$1,875 in 2017/18; that is a \$995 per acre increase during that period. While such an increase was mainly driven by growers using more foliar sprays and fertilizer, part of the increase was due to inflation. So, to quantify the increase in cost due to the change in cultural practices alone, I focus instead on the *real* cost of production (denoted by orange bars in figure 1), which increased from \$1,212 in 2003/04 to \$1,875 in 2017/18. Thus, the *real* increase in cost of production per acre during that period was \$663; most of which can be attributed to growers' efforts to manage HLB.

Interestingly, however, the maximum increase in the *real* cost of production per acre relative to 2003/04 occurred in 2014/15, for a total of \$908. But, since 2015/16 growers have been spending less, in *real* terms, in their groves (as denoted by the increasingly smaller orange bars in figure 1). So, why has the *real* cost of production per acre been decreasing lately? The

intuition for such finding can be explained by examining what has been happening with yield. Figure 2 shows the average yield statewide for Valencia oranges. It is clear from that figure that despite the (average) high level of growers' spending, yield has been decreasing; particularly since 2015/16. According to economic theory, a grower will choose the optimal amount of an input so as to make the benefit of using one additional unit equal to its cost. But the yield trend shows that the additional units of input did not translate into an increase in yield. Therefore, the decision of growers to decrease their expense on inputs is a rational economic choice.

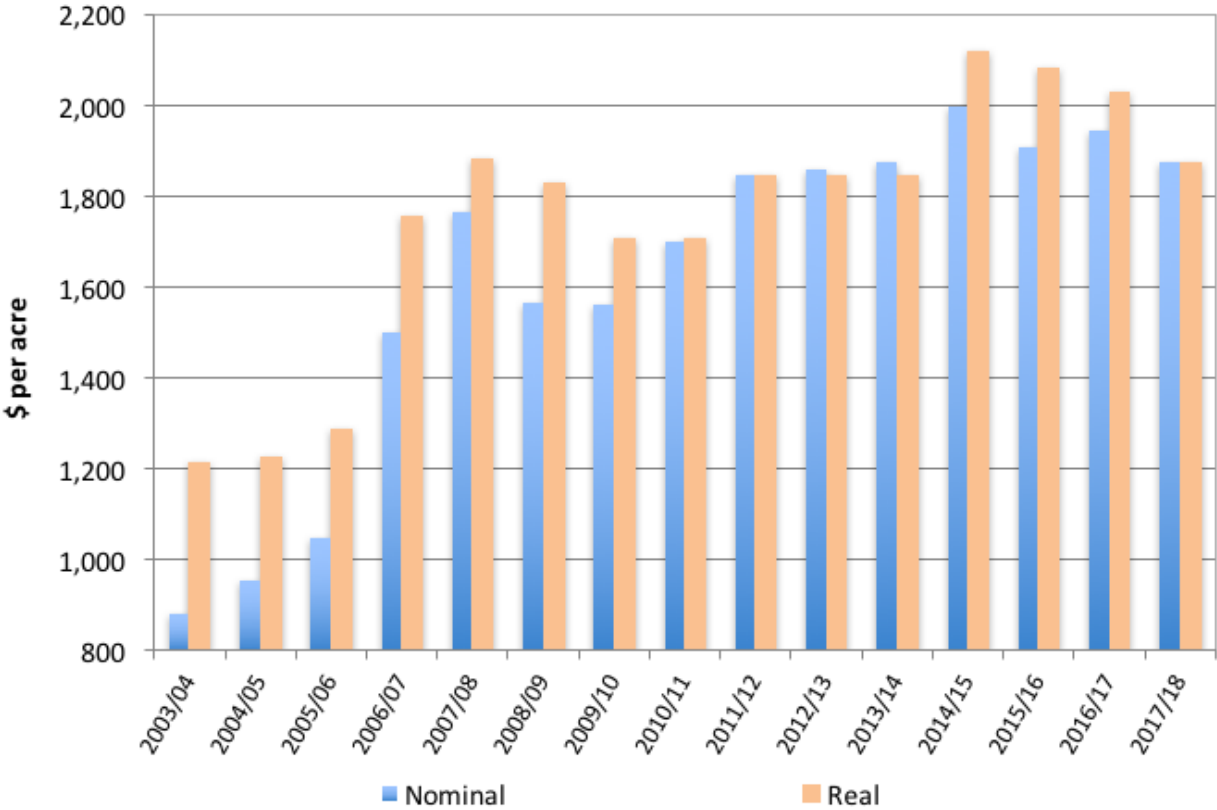
It is also interesting to note that even though the increase in the cost of production per acre has been significant, the increase in the cost of production per box has been even higher. Figure 3 shows that the *real* cultural cost of production, on a per box basis, went up from \$2.83 in 2003/04 to \$15.37 in 2017/18, which represents a 443% increase. Given that hurricane Irma impacted yield in 2017/18, a more appropriate comparison is to 2016/17; that season the *real* cost of production per box was \$10.85, which still represents a 283% increase relative to 2003/04. The reason for the higher percentage increase in the cost of production per box relative to per acre is due to the simultaneous increase in cost per acre and decrease in yield per acre. And while during the same period on-tree prices per box did increase (due to the decrease in supply), they did so by a smaller percentage. Thus, the greater increase in cost per box relative to price has resulted in a lack of profitability for the average grower, particularly during the last few seasons.

As a consequence of the challenges the industry has been facing, it is not surprising that citrus bearing acres in Florida have decreased from 679,000 in 2003/04 to 402,000 in 2017/18. The decrease in area also denotes the reduction in the number of citrus growers across the state, which went down from 7,389 in 2002 to 2,775 in 2017 (Figure 4). The downsizing has occurred not only at the grower level but also at the industry level. Figure 5 shows the number of juice processing facilities decreased from 41 in 2003/04 to 14 in 2016/17, whereas the number of packinghouses decreased from 79 to 26 during the same period.

Summary

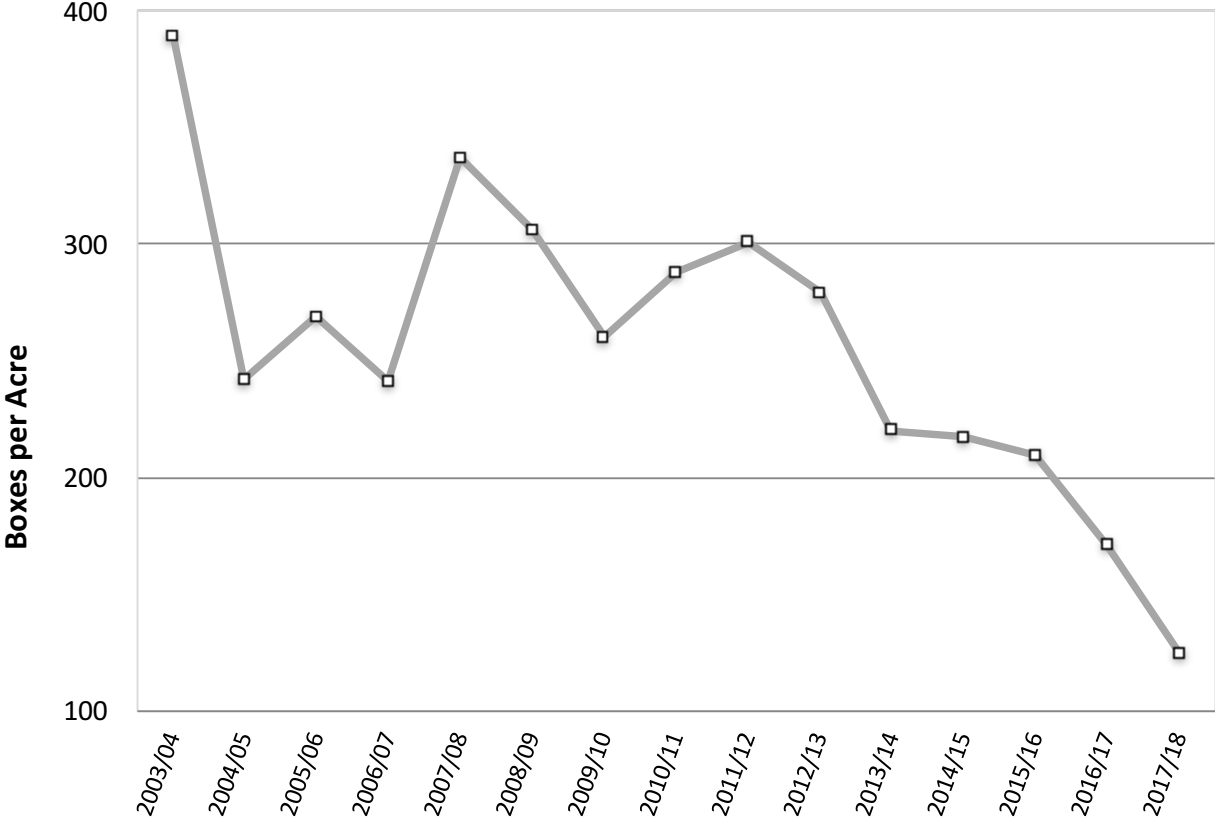
I estimated the *real* cultural cost to manage HLB in processed oranges citrus groves in Florida to be \$663 per acre, which represents a 67% increase compared to pre-HLB levels. However, and perhaps more importantly, the *real* cultural cost of production per box increased by 283%. As a consequence of the multiple challenges growers have been facing (chiefly, those imposed by HLB), their number decreased from 7,389 in 2002 to 2,775 in 2017. While it is good news that citrus production in Florida is expected to be up this season not only relative to last season (in which Hurricane Irma hit) but also relative to 2016/17, issues such as the decreasing trend in pound solids per box, evidence that the challenges posed by HLB continue.

Figure 1. Nominal and Real Cultural Cost of Production per Acre for Processed Oranges in Southwest Florida. Real cultural costs of production are computed by using the Producer Price Index (PPI) for 2018 as a basis.



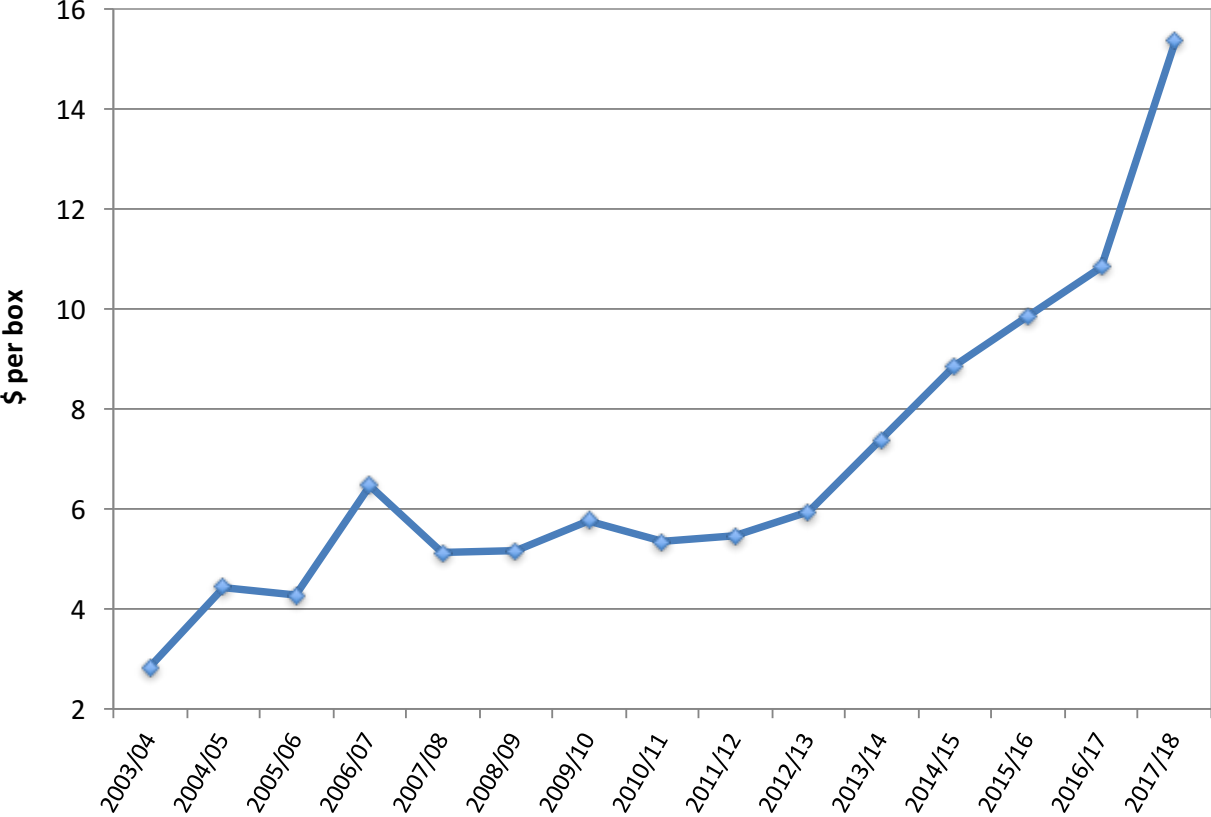
Source: UF/IFAS, Citrus Research and Education Center; Multiple Annual Cost of Production reports.

Figure 2. Valencia Oranges Yield in Florida.



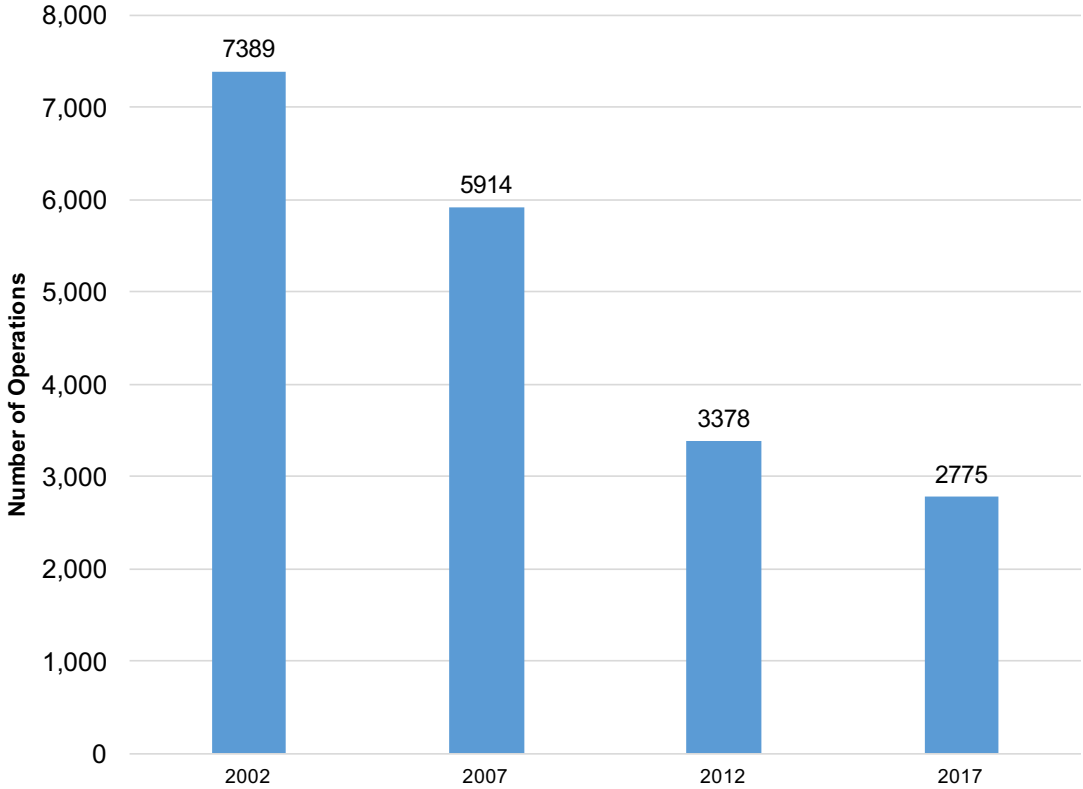
Source: USDA-NASS

Figure 3. Valencia Oranges Real Cost of Production per Box for Processed Oranges in Southwest Florida.



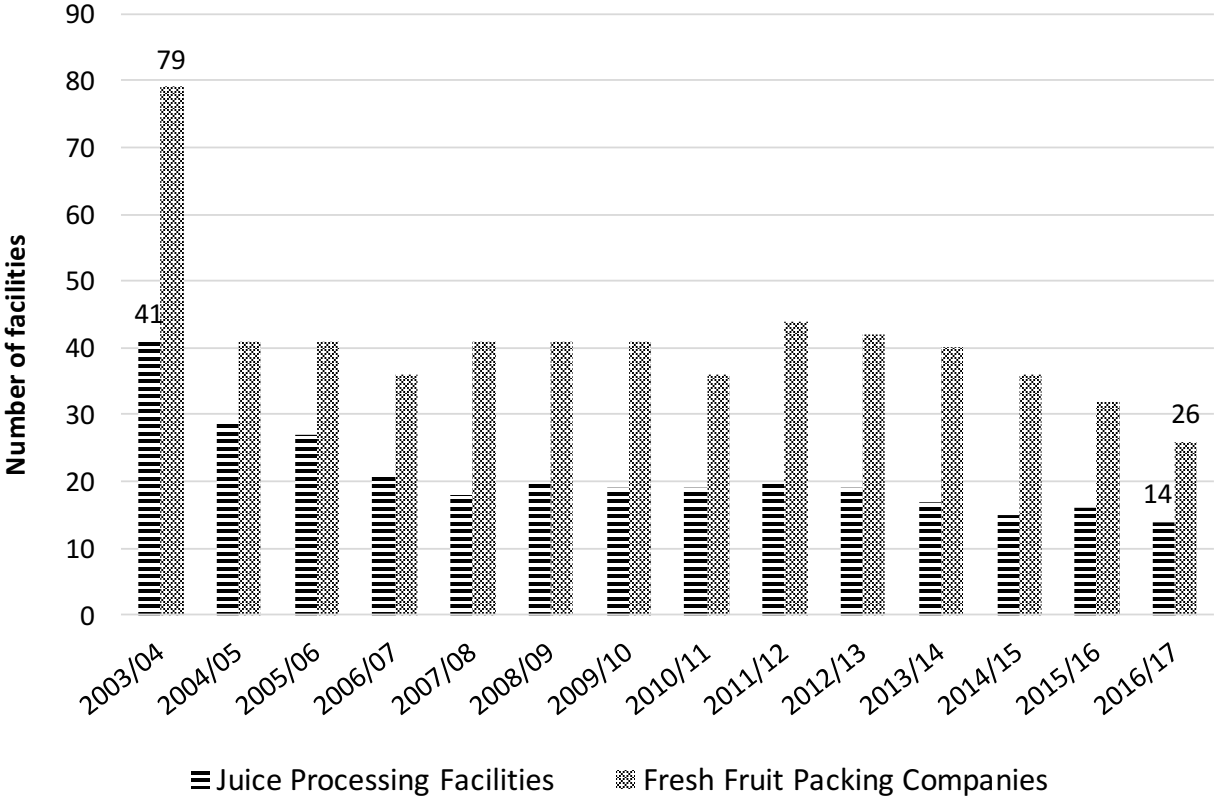
Source: Ariel Singerman, UF/IFAS, Citrus Research and Education Center; Multiple Annual Cost of Production reports.

Figure 4. Number of Citrus Operations in Florida.



Source: USDA-NASS

Figure 5. Number of Juice Processing Facilities and Packinghouses in Florida.



Source: Florida Department of Agriculture and Consumer Services (FDACS)