Citrus acreage attrition by county in Florida

By Ariel Singerman

Citrus greening (HLB) has significantly impacted the Florida citrus industry. The disease has caused tree health, yield and fruit quality to decrease significantly over time. In 2022–23, due to the combined impact of HLB, Hurricane Ian and a freeze in December 2022, the statewide average yield for both Valencia and non-Valencia oranges was estimated to be approximately 50 boxes per acre, down from 389 and 473 boxes per acre in 2003–04, respectively.

The decline has also been very significant for grapefruit. The statewide average yields for red and white grapefruit were 490 and 508 boxes per acre in 2003–04, whereas in 2022–23 they were estimated at 136 and 153 boxes per acre, respectively.

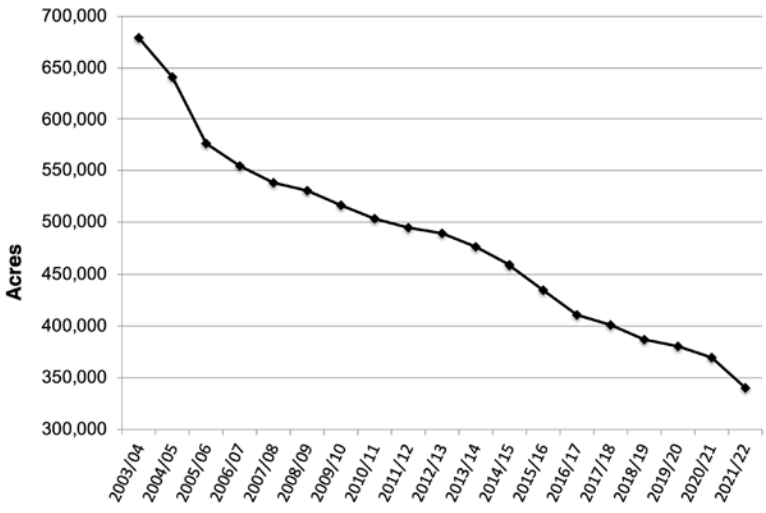


Figure 1. Citrus-bearing acreage in Florida

The significant decrease in Florida's citrus yield has occurred despite growers' multiple efforts to adopt different practices each year in an attempt to deal with the disease. This has caused the cost of production to increase significantly, particularly on a per box basis (see citrusindustry.net/2019/07/30/the-real-cost-of-hlb-in-florida). Therefore, growers have (on average) been facing losses for several seasons, forcing many to exit the industry. One of the consequences of the downsizing of the industry is the attrition of citrus acreage statewide, which is the focus of the analysis in this article. Given the extent and the rate of the decline, this article may be of interest to both stakeholders and policymakers.

STATE FIGURES

Figure 1 shows that citrus-bearing acreage in Florida was 679,000 in 2003–04. But it has been declining every season since. In 2021–22, citrus-bearing acreage statewide was estimated at 340,200 acres, which approximately represents a 50% decline since 2003–04. The decline in citrus acreage statewide, however, had started a few years before HLB was found. It was the result of the combined impact of the implementation of the state's canker eradication program in the late 1990s, hurricanes, the increase in real estate development and

changing consumer preferences for orange juice.

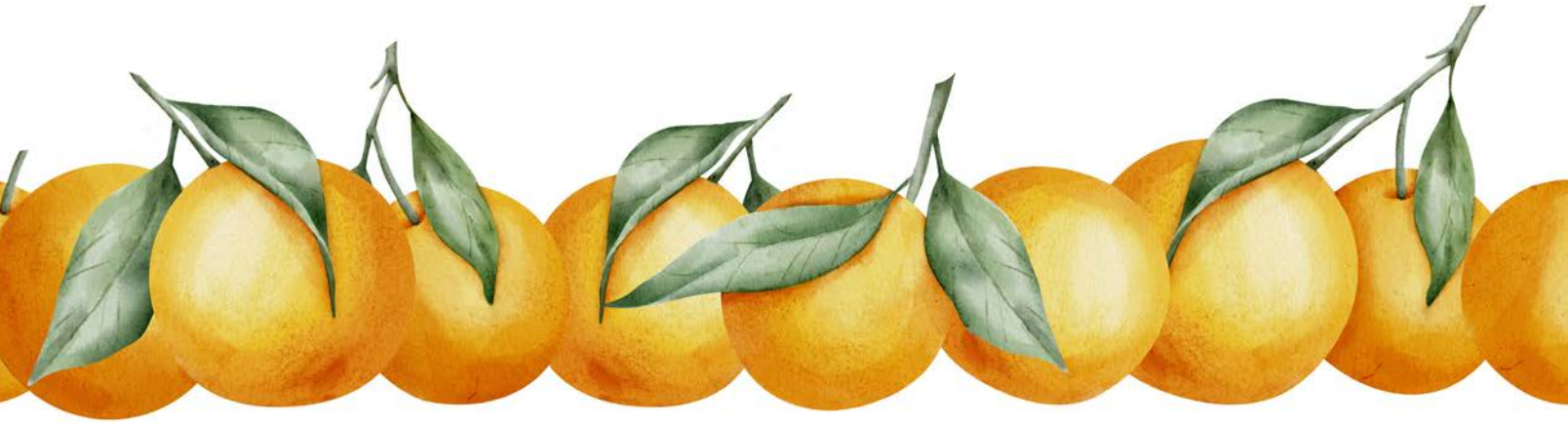
The outbreak of HLB made citrus production much more challenging than it used to be. In the past, an initial capital investment for the establishment of a grove and an annual standard caretaking program consisting of three sprays a year would generally suffice. But HLB requires implementing intensive grove management and adaptive caretaking practices each season. Many growers have not been able to keep up with the increase in expenses associated with those practices. The continuous lack of profitability season after season has forced many out of business, resulting in much of the citrus acreage across the state to be converted to other uses.

COUNTY NUMBERS

The conversion of land out of citrus has varied across citrus-producing counties. Figure 2 (page 23) shows citrus acreage by county in Florida in 2003–04. As denoted by the graph's colored scale, the darker the color of the county, the higher the citrus acreage. Thus, Polk, Hendry, St. Lucie and Highlands counties all had over 70,000 acres devoted to citrus production in 2003–04. Even counties with large urban centers had some acreage devoted to citrus production. For example, Sarasota and Orange counties had almost 1,700 and 5,600 citrus acres, respectively. Hillsborough County had close to 20,000 acres devoted to citrus production in 2003–04.

As shown in Figure 3 (page 23), by 2021–22, citrus acreage had declined in all citrus-producing counties. In fact, in some counties, citrus acreage has almost vanished. This trend can be more easily observed by looking at Figure 4 (page 23), which shows citrus acreage attrition from 2003–04 to 2021–22. Figure 4 denotes that St. Lucie was the county in which citrus acreage decreased the most, with a decline of over 60,000 acres from 2003–04 to 2021–22. In Hendry, Indian River and Polk counties, citrus acreage decreased by 42,000, 36,000 and 33,000 acres, respectively.

In some of the counties that did not have such a large acreage devoted to citrus in 2003–04, the decrease in percentage terms was even higher compared to that of the counties listed



above. Figure 5 (page 23) shows the percent of citrus acreage attrition by county from 2003–04 to 2021–22. It can be seen from Figure 5 that Brevard, Hernando, Hillsborough, Orange and Pasco counties had a decrease in citrus acreage equal to or greater than 90%. The number of acres devoted to citrus in those five counties combined was less than 3,000 in 2021–22.

PRESSURE FROM POPULATION GROWTH

Despite the significant percentage decrease of citrus acreage in those counties, such a trend is hardly surprising. According to data from the U.S. Census Bureau, the population in Florida increased by 3.4 million from 2010 to 2022, which represents an 18% increase during such a period. Florida is currently the third most populous state in the country — with a population estimated at 22.2 million — and was the fastest-growing state in 2022. From 2021 to 2022, almost 417,000 people moved to Florida. Such an increase translates into over 1,100 people moving into the state each day, requiring additional housing and infrastructure to be built to accommodate them.

Figure 6 (page 23) shows the population density in citrus-growing counties in 2020. It should be readily apparent that the darker colored counties in Figure 6 (mostly) coincide with those in Figure 5. Brevard, Hillsborough, Orange and Pasco counties — which, as mentioned above, experienced a decrease of 90% or more in citrus acres since 2003–04 — are some of the counties where most people already live and new residents want to move to. Other counties with high population density (see Figure 6) that also experienced a significant percentage decrease in citrus acreage include Seminole, St. Lucie and Volusia (see Figure 5). Therefore, taken together, Figures 5 and 6 denote the pressure on citrus acreage resulting from population growth.

LAND-USE CONCERNS

Due to the lack of profitability of citrus production driven by the impact of HLB, solar panel installations have been replacing some citrus groves in Florida. In the third quarter of 2023, Florida ranked as the state with the highest number of solar panel installations, according to the U.S. Solar Market Insight report. Hence, the lack of profitability of citrus production due to the impact of HLB, the pressure generated by population growth, and the increasing interest in solar project developments have been key drivers behind the significant decrease in citrus acreage across the state since 2003–04.

Land-use change is of particular concern because as the state's population continues to grow, more land will be allocated to real estate development. Without protection or financial incentives, there is a potential for a substantial future loss of natural and rural agricultural land.

The technical report Florida 2070 compares alternative population distribution scenarios across the state by the year 2070. The report's most important finding is that modest increases in development densities can result in substantial natural and agricultural land prevented from being converted out of its current use, thereby contributing to ensure the survival of ecosystem services on which

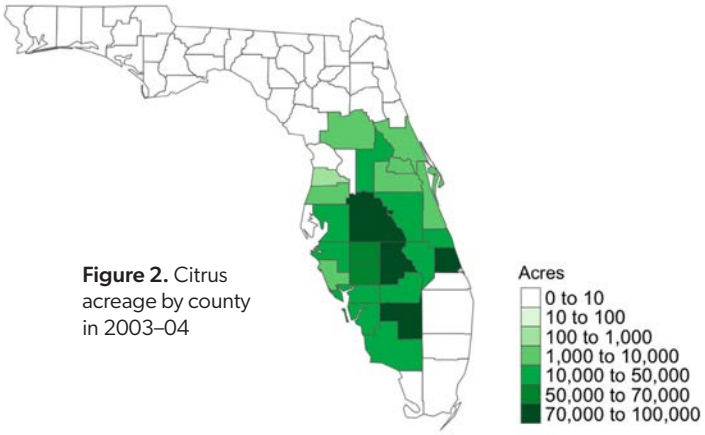


Figure 2. Citrus acreage by county in 2003–04

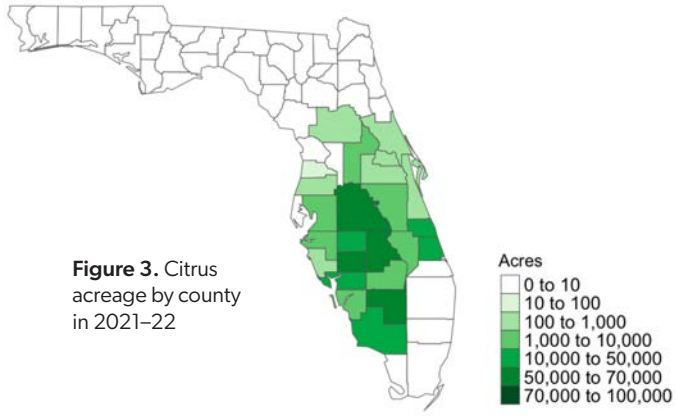


Figure 3. Citrus acreage by county in 2021–22

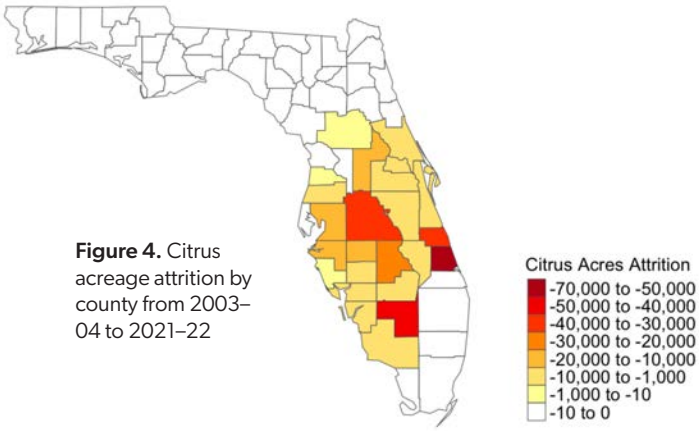


Figure 4. Citrus acreage attrition by county from 2003–04 to 2021–22

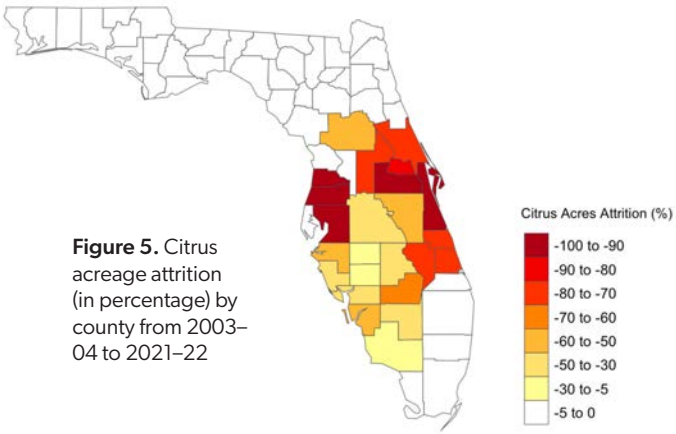


Figure 5. Citrus acreage attrition (in percentage) by county from 2003–04 to 2021–22

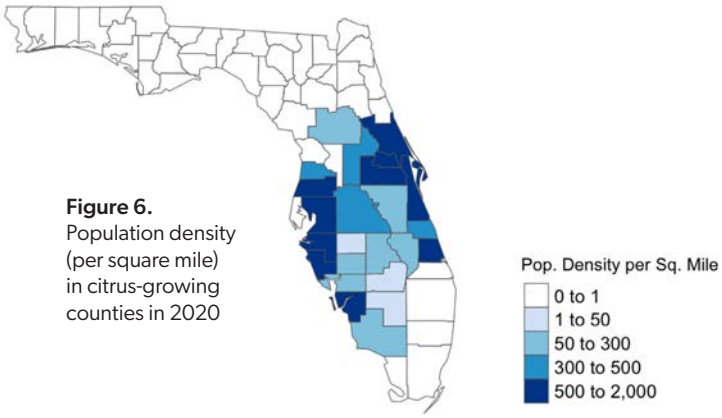


Figure 6. Population density (per square mile) in citrus-growing counties in 2020

humans depend. Conservation easements can be an option to prevent land use change for areas that are a target for conversion. Those easements are voluntary agreements between a landowner and a conservation organization or government agency by which landowners continue to own their property but donate or sell specific land-use rights to achieve a mutually agreed conservation objective in exchange for tax benefits or direct payments.

SUMMARY

Citrus-bearing acreage in Florida has decreased by approximately 50% since 2003–04. Such a decline has been driven by the combination of the lack of profitability of citrus production due to the impact of HLB, the pressure generated by the state's population growth, and (more recently) the increase in the number of solar project developments. Protection or financial incentives, such as those provided by conservation easements, are needed to prevent further future loss of natural and rural agricultural land and ensure the survival of ecosystem services on which humans rely.

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