



Economic Impact of the Texas A&M University – Kingsville Citrus Center

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Introduction

The Texas A&M University–Kingsville Citrus Center (KCC) is located in the heart of the Rio Grande Valley of Texas. The Citrus Center originated in the mid-1940's when a group of local citizens and citrus growers approached the then Texas College of Arts & Industries, Kingsville, with the idea of establishing a research and training facility specializing in citriculture for the Lower Rio Grande Valley. In 1948 the KCC began operations, and 69 years later it keeps working on critical issues facing 21st century citrus and agriculture in general.

The KCC receives around \$600 thousand as a state line item and brings an average of \$3 million a year in grants and contracts, which is a return of 5:1. The KCC employs 41 people, 21 state-funded and 20 grant-funded, and has a payroll of \$1.7 million. All KCC employees work and live in the LRGV, a four-county area of Cameron, Hidalgo, Starr and Willacy. The KCC's payroll and employee expenditures account for about 0.01 percent of employee compensation of the state government, non-education sector in the four-county region. Each state employee in the four-county region contributes an additional \$13,060 over and above their salary to the overall economy of the LRGV. The sectors experiencing the largest impact in terms of labor and wages due to the presence of the KCC are: real estate, health care, wholesale/retail sales, finance/insurance, accounting, architecture and legal services, maintenance/repair services, food services/beverage sales, state/local government services, telecommunications, transportation, and scientific/technical services.

The KCC serves both commercial and residential citrus production in Texas. The value of the commercial citrus production was \$94 million in the 2016/17 marketing year. Production is located in the Lower Rio Grande Valley, with Hidalgo county accounting for about 83 percent of Texas bearing acres in 2016. Texas is the third largest citrus producing state behind Florida and California.

Among the service programs offered by the KCC are outreach and education to growers and homeowners, statewide surveys for invasive species, and a USDA-Certified Disease Diagnostic Lab where first detections in Texas of citrus greening, sweet orange scab and canker occurred. KCC also manages the mandatory TDA-Certified Budwood Program which supplies an average of 250,000 disease-free buds annually to citrus nurseries statewide. The Center also trains graduate students, several of whom are hired by the industry and related agencies. Moreover, they train federal, state and industry scouts for pest and disease identification.

On the research front, KCC has bred new and improved citrus varieties that are more pest resistant, as well as new planting designs that produce water savings, quicker tree growth, earlier fruiting, and improved control of pest, diseases and weeds. KCC has developed IPM strategies against a wide range of insects and mites, and is developing alternative methods to control *Phytophthora* and new strategies against Mexican fruit fly. KCC also has a state of the art integrated multi-pest management program for chemical and biocontrol of citrus pests which has

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slowed down the devastating citrus greening. It can be argued that the economic impact of the KCC is the total value of citrus production given all the work that they do in terms of research and service programs. However, this study will concentrate on something more specific, which is the effectiveness of the work that the KCC does on citrus greening using Florida as a benchmark.

Citrus greening is caused by a bacterium that is spread by the Asian citrus psyllid, which was found in Florida in 1998, and in Texas in 2001 by the KCC. Greening was discovered in Florida in 2005 and Texas in 2012. Greening renders infected trees useless and reduces the marketability of citrus because the fruit is small, misshapen and remains green, and the juice is bitter. Trees can die within 3-5 years after infection is detected. There is currently no known cure for greening, and the only treatment is control of the citrus psyllid or removal of infected trees.

Greening is believed to be the main contributor for the steep reduction in citrus production in Florida, a 73 percent reduction from 2004, before greening was found, to 2017. In Texas, citrus production has gone down by 20 percent from 2011, before greening was found, to 2017. Although part of that reduction in Texas was related to the reduction of citrus acreage due to urbanization, the decrease in production is considerably lower as well as the spread of greening. This is likely the result of an area-wide management program for psyllid control implemented in 2010 and developed by the KCC together with USDA and the industry that resulted in a significant drop in psyllid populations. Therefore, when comparing the reduction in citrus production during the first 7 years from the discovery of greening, 2004 to 2010 in Florida and 2011 to 2017 in Texas, the production decrease was 45 and 20 percent, respectively.

The economic impacts of the KCC on reducing the effects of greening on the Texas commercial citrus industry were estimated using IMPLAN. Economic multipliers for each sector of the economy were used to estimate how a change in one sector affects business activity, income and employment in other sectors of the economy that supply inputs and services to the citrus industry. Baseline economic impacts were estimated for the value of annual average Texas citrus production for the crop year 2016/17.

Current Situation and Economic Baseline

IMPLAN estimates indicate that total business activity required to support the Texas citrus industry was \$180 million annually. This includes farm level business activity of \$94 million and off farm business activity of \$86 million. Farm and related sector income associated with the citrus industry was \$77.1 million, which was generated by citrus production with \$48.5 million and off farm income of \$28.6 million from the purchasing of inputs, transportation, handling, processing and marketing. Total employment associated with the Texas citrus industry was estimated to be 2,413 jobs. Farm employment represented 1,785 of those jobs. The balance of employment, 628 jobs, is located in non-farm sectors of the Texas economy. The most important non-farm sectors are: agriculture support services such as sorting, grading, cleaning and packing, 149 jobs; restaurants, 38 jobs; real estate, 22 jobs; and wholesale trade, 20 jobs.

Significant indirect spending associated with the Texas citrus industry is dispersed over numerous sectors supplying goods and services required to support the production and marketing of fresh and processed citrus in Texas. Business activity associated with the most important supporting sectors is: agriculture support activities, \$8.5 million; wholesale trade and warehousing, \$6.2 million; fertilizers, pesticides and agricultural chemicals, \$3.2 million; transportation services, \$2.8 million, power generation including natural gas distribution, \$2.5 million and maintenance and repairs, \$1.9 million. Financial services at \$9.6 million, real estate at \$9.4 million, business services at \$6.6 million, health care at \$6.5 million, retail sales at \$3.8 million, and food services at \$3.6 million are supported by input provider purchases and household incomes generated from economic activity associated with the Texas citrus industry.

Potential Economic Impacts of Reducing the Effect of Greening

The potential impact of the KCC's work on citrus greening is a reduction of 25 percent in production losses compared to Florida. A 25 percent reduction of losses to the citrus industry would be valued at \$44.9 million. Of this total, \$23.5 million would have been losses of farm level economic activity supporting citrus production. An additional \$21.4 million in business activity would have been lost in associated non-farm activities. Total income losses would have been \$19.2 million, with \$12.1 million in losses occurring in farming and related activities and another \$7.1 million in non-farm activities. Total jobs that would have been lost are estimated to reach 603, with farm job losses of 449 and non-farm job losses of 154.

Non-farm losses of business activity would have been substantial and would be due to reduced income associated with lost employment. About \$800 thousand in lost sales would have occurred throughout the fertilizer, pesticides and agricultural chemicals sector and \$475 thousand in the maintenance and repair sector. Real estate losses would have reached \$2.35 million, while losses to financial services would have exceeded \$2.4 million and losses to business services would be \$1.65 million. Health care losses would have been about \$1.6 million. Losses in business activity attributable to reduced citrus sales by farmers would be largest in agriculture support activities, \$2.1 million. Losses in wholesale trade and warehousing would be about \$1.6 million.

Conclusion

These potential economic impacts on the Texas citrus industry represent what could have occurred if the KCC did not have a successful program to control greening. Greening could still result in a complete loss of citrus trees and associated acreage resulting in specialized infrastructure and leading to the decline of the entire industry. If the programs led by the KCC stop, the economic impact would be more severe, leading to greater losses in business activity, income and employment.



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