

# Cost of Production for Processed Oranges Grown in Central Florida (Ridge), 2015/16<sup>1</sup>

Ariel Singerman<sup>2</sup>

## Introduction

This article presents the cost of production per acre for processed oranges in central Florida during 2015/16. The cost estimates below do not represent any individual operation. Instead, their purpose is to serve as a benchmark for the Florida citrus industry. Typical users of these estimates include growers, consultants, property appraisers, and researchers. By surveying growers regarding the costs of their caretaking programs, we ensured that the estimates reported in this article closely reflect growers' expenditures.

## Data

The data were collected by mail in May 2016. Five growers participated in the survey. The questionnaire asked growers to provide annual, per-acre costs by program for a "typical" irrigated, mature grove (10+ years old), including resets.

The number of acres managed by the five growers' combined operations accounts for approximately 29,000 acres. The acreage for oranges in the central Florida region in 2015 was estimated at 137,154 (USDA-NASS 2015). Thus, the sample of growers represented 21% of the acreage devoted to oranges in that region. The estimates below were obtained by averaging the responses submitted by the group of participating growers.



Credit: USDA

Table 1 shows the costs of production by program. The estimates include both the cost of materials and the cost associated with their application. The total cost for weed management, which includes chemical and mechanical mowing as well as herbicides, was \$228.24 per acre. At \$489.99 per acre, foliar sprays were the largest expense in grove caretaking. Fertilizer was the second largest expense at \$454.85 per acre. Citrus Health Management Areas (CHMA) sprays accounted for \$34.49 per acre. The expense for pruning was \$56.93 per acre, while that for irrigation was \$208.74 per acre. Adding all the costs listed above, the cultural cost of growing oranges for processing during 2015/16 without tree replacement was \$1,473.24 per acre.

1. This is EDIS document FE1006, a publication of the Food and Resource Economics Department, UF/IFAS Extension. Published January 2017. Visit the EDIS website at <http://edis.ifas.ufl.edu>
2. Ariel Singerman, assistant professor, Food and Resource Economics Department, UF/IFAS Extension, Citrus Research and Education Center, Lake Alfred, FL.

Growers were also asked to provide details regarding their reset practices, including the number of trees replaced in their groves. On average, growers replaced eight trees per acre during 2015/16. The total cost of tree replacement, including tree removal, site preparation, and care of young trees for those eight trees was estimated at \$390.83 per acre. Adding this cost yields a total production cost with tree replacement of \$1,864.07 per acre.

Figure 1 depicts a double pie chart. The larger pie shows the cost of each program as well as the percentage relative to the cultural production costs with tree replacement. The smaller pie in Figure 1 provides greater detail regarding the individual components included in the foliar spray category. The expense of \$489.99 per acre was divided as follows: insecticides totaled \$184.88 per acre, (representing 10% of the cultural cost of production); fungicides accounted for \$67.08 per acre (4%); foliar nutritional for \$107.74 per acre (6%); aerial application for \$7.17 per acre (0.4%); and ground application of materials for \$123.13 per acre (7%).

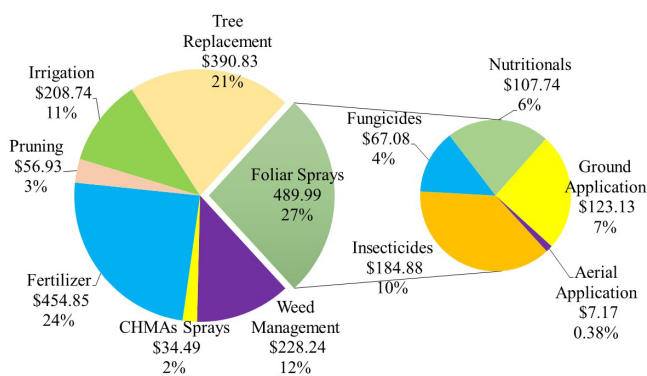


Figure 1. Cultural costs of production for processed oranges grown in central Florida (Ridge), 2015/16

Figure 2 shows a comparison of the cost of the main production programs in 2015/16 relative to the previous season. The cost of the tree replacement program increased by the largest amount (\$160). Such change is due to the increase in the number of replaced trees. On average, growers replaced 6 trees per acre in 2014/15 and 8 trees per acre in 2015/16. The largest reduction was in the application of foliar materials; growers spent, on average, \$207 per acre in 2014/15 and \$130 per acre in 2015/16. While all foliar program (fungicides, nutritional, and insecticides) expenses decreased, irrigation expenses increased.

Table 2 shows the total costs growers incurred during 2015/16. That is, the cultural cost of production with tree replacement presented in Table 1 plus other costs such as management, regulatory, and opportunity costs. The

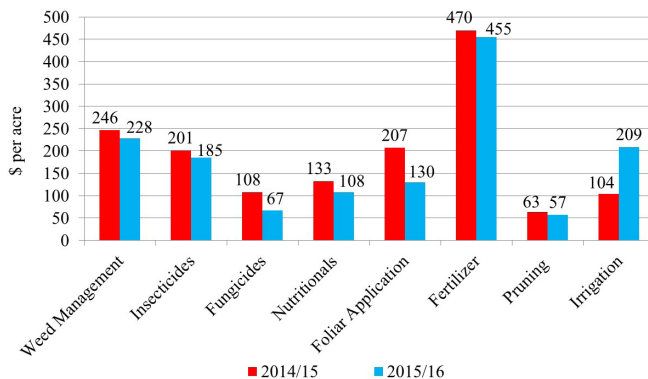


Figure 2. Cost of production by program for processed oranges grown in central Florida (Ridge), 2014/15 vs. 2015/16

total cost of production for processed oranges adds up to \$2,235.76 per acre. Based on this estimate, the breakeven prices per box for different levels of yield are presented in Table 3. Breakeven prices were calculated on an on-tree and delivered-in basis. The latter assumes harvesting costs per box were \$3.22, which is based on the results of the 2015/16 *Picking, Roadsiding, and Hauling Charges for Florida Citrus* survey (FE1005). The calculations in Table 3 also include the FDOC assessment of \$0.23 per box for the 2015/16 season. Thus, for example, the on-tree and delivered-in breakeven prices for covering the total costs of production with yields at 250 boxes per acre were \$1.53 and \$2.11 per pound solids, respectively.

## Summary

This article presents a summary of the 2015/16 costs of production for processed oranges in central Florida (Ridge). The methodology chosen to collect the data consisted of surveying growers directly to closely reflect growers' costs in the era of citrus greening (HLB). The total cost of production for processed oranges in central Florida in 2015/16 was \$2,235.76 per acre, down \$46.43 per acre from 2014/15.

## References

United States Department of Agriculture, National Agricultural Statistics Service (USDA-NASS). 2015. *Commercial Citrus Inventory: Preliminary Report*. Florida Department of Agricultural Services, Maitland, FL.

Table 1. Cultural costs of production per acre for processed oranges in central Florida (Ridge), 2015/16

Costs represent a mature grove (10+ years old) including resets		Number of Applications	Materials Cost Per Acre (\$)	Application Cost Per Acre (\$)	Total Cost Per Acre (\$)
Cultural Costs					
Weed management					
	Mowing (chemical and mechanical)	5		64.33	64.33
	Herbicides	3	118.60	45.31	163.91
	Total weed management costs				228.24
Foliar sprays					
	Insecticides		184.88		
	Fungicides		67.08		359.70
	Nutritionals		107.74		
Application					
	Ground	5		123.13	123.13
	Aerial	1		7.17	7.17
	Total foliar sprays costs				489.99
CHMAs sprays					
	Total CHMAs sprays costs	5		34.49	34.49
Fertilizer					
	Ground/dry fertilizer	3	164.77	37.31	202.08
	Fertigation/liquid fertilizer	10	220.41	32.37	252.78
	Total fertilizer costs				454.85
Pruning					
	Topping and hedging	1		34.68	34.68
	Chop/mow brush	1		22.25	22.25
	Total pruning costs				56.93
Irrigation					
	Irrigation system <sup>1</sup>				108.25
	Fuel for pump				100.49
	Total irrigation costs				208.74
Total cultural costs without tree replacement					1473.24
Tree replacement (8 trees)					
	Tree removal (clip-shear; use front-end loader)				79.85
	Site preparation and plant tree (includes reset trees)				98.18
	Supplemental fertilizer, sprays, sprout, etc. (trees 1–3 years old)				212.80
	Total tree replacement costs				390.83
Total cultural costs with tree replacement					1864.07

<sup>1</sup> Irrigation system includes maintenance and repairs to emitters.

Table 2. Total costs of production per acre for processed oranges in central Florida (Ridge), 2015/16

Total Cultural Costs with Tree Replacement		1864.07
Other costs		
	Interest on operating (cultural) costs	93.20
	Management cost	80.87
	Property tax/water-management assessment	35.37
	Interest on average capital investment	162.25
	Total other costs	371.69
Total costs		2235.76

Table 3. Breakeven price per box for processed oranges in central Florida (Ridge), 2015/16

		Yield (boxes per acre)								
		175	200	225	250	275	300	325	350	375
		dollars per acre								
Cost of production per acre		2236	2236	2236	2236	2236	2236	2236	2236	2236
	Pick and haul per acre	564	644	725	805	886	966	1047	1127	1208
	FDOC assessment	40	46	52	58	63	69	75	81	86
	Total delivered-in cost per acre	2840	2926	3012	3098	3185	3271	3357	3443	3530
Breakeven price		\$ per box								
	On-tree	12.78	11.18	9.94	8.94	8.13	7.45	6.88	6.39	5.96
	Delivered-in	16.23	14.63	13.39	12.39	11.58	10.90	10.33	9.84	9.41
Breakeven price <sup>1</sup>		\$ per pound solids								
	On-tree	2.18	1.91	1.70	1.53	1.39	1.27	1.17	1.09	1.02
	Delivered-in	2.77	2.50	2.28	2.11	1.98	1.86	1.76	1.68	1.61

<sup>1</sup> Assumes 5.86 pounds solids per box based on FDOC Processor Statistical Report for 2015/16 season.