

Cost of Production for Processed Oranges in Central Florida (Ridge), 2014/15¹

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Introduction

This article presents the cost of production per acre for processed oranges in central Florida during 2014/15. 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.

The Survey

The data were collected during a meeting at the Highlands County Extension office in May of 2015. Five growers participated in the survey. The number of acres managed by their combined operations is approximately 25,000. The acreage for oranges in the central Florida region in 2014 was estimated at 138,750 acres (USDA/NASS 2014). Thus, the sample of growers represented 18% of the acreage devoted to oranges in that region.

Growers brought a completed survey form to the meeting that had been distributed to them beforehand. The questionnaire asked growers to provide annual, per-acre costs by program for a typical irrigated, mature grove (10+ years old), including resets. By surveying growers regarding the costs of their caretaking programs—as opposed to surveying chemical companies to obtain the retail cost of materials—the figures reported here better reflect growers’



costs growers typically get discounts for bulk purchases that would not be accounted for otherwise.

The data collection process was completely anonymous and confidential. During the meeting, growers operated a remote control device that allowed them to “click in” the costs for each caretaking activity included in the survey. One of the main advantages of this surveying methodology was that growers were not required to submit their completed forms, which was useful to reassure their anonymity and to ensure that it would not be possible to trace data back to any individual operation. The estimates below were

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obtained by averaging the responses submitted by the group of participating growers.

Table 1 shows the costs of production by program. The estimates included both the cost of materials and the cost associated with their application. The total for weed management—which included chemical and mechanical mowing as well as herbicides—was \$246.31 per acre. At \$648.66 per acre, foliar sprays were the largest expense in grove caretaking. Fertilizer was the second largest expense at \$469.80 per acre. Citrus Health Management Area (CHMA) sprays accounted for \$56.65 per acre. The expense for pruning was \$63.01 per acre, while that for irrigation was \$104.14 per acre. Adding all the costs listed above, the cultural cost of growing oranges for processing during 2014/15 without tree replacement was \$1,588.56 per acre.

Growers were also asked to provide details regarding their reset practices, including the number of trees replaced in their groves. On average, growers replaced six trees per acre during 2014/15. The total cost of tree replacement, including tree removal, site preparation, and care of the young trees that replaced those six trees was estimated at \$231.18 per acre. Adding the reset cost to the cultural cost yields a total production cost with tree replacement of \$1,819.74 per acre.

The Florida citrus industry currently faces the challenges imposed by Huanglongbing (HLB, citrus greening); growers have responded to the disease by adjusting their inputs to varying degrees. Thus, there are currently different levels of spending in grove caretaking. To provide a range for those levels without disclosing individual grower data, we performed the computations presented in Table 2. This table shows the average cost of production per acre and standard deviation for the two largest expenses: foliar sprays and fertilizer. All other costs included in Table 1 are listed under *Other program costs*. Column 1 shows the average costs while columns 2 and 3 are obtained by subtracting and adding the value of the standard deviation from column 1, respectively. As shown at the bottom of Table 2, a low (high) level of caretaking for processed oranges totals \$1,451.55 (\$2,217.85).

Table 3 shows the total costs growers incurred during 2014/15; 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 total cost of production for processed oranges adds up to \$2,282.19 per acre. Based on this estimate, the break-even prices per box for different levels of yield are presented in Table 4. Break-even prices are calculated on an on-tree and

delivered-in basis. The latter assumes harvesting costs per box are \$2.55, which is based on the results of the survey entitled *2014/15 Picking, Roadsiding, and Hauling Charges for Florida Citrus*. The calculations in Table 4 also include the FDOC assessment of \$0.20 per box for the 2014/15 season. Thus, for example, the on-tree and delivered-in break-even prices for covering the total costs of production with yield at 250 boxes per acre are \$1.49 and \$1.94 per pound solids, respectively.

Summary

This article presented a summary of the 2014/15 costs of production for processed oranges in central Florida (Ridge). The methodology chosen to collect the data was different from that used in previous years and consists of surveying growers directly. The current approach closely reflected growers' costs in the era of HLB, thereby introducing more variation and levels of spending in caretaking practices across citrus growers. The total cost of production for processed oranges with tree replacement in 2014/15 was \$2,282.19 per acre.

References

United States Department of Agriculture, National Agricultural Statistics Service (USDA/NASS). 2014. *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), 2014/15

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				
<u>Weed Management</u>				
Mowing (chemical & mechanical)	8	11.04	62.31	73.35
Herbicides	3	135.82	37.14	172.96
Total Weed Management Costs				246.31
<u>Foliar Sprays</u>				
Insecticides		201.33		201.33
Fungicides		107.65		107.65
Nutritionals		132.78		132.78
Application:				
Ground	7		192.52	192.52
Aerial	1		14.38	14.38
Total Foliar Sprays Costs				648.66
CHMAs Sprays	6		56.65	56.65
Total CHMAs Sprays Costs				56.65
<u>Fertilizer</u>				
Ground/Dry Fertilizer	3	210.87	33.77	244.64
Fertigation/Liquid Fertilizer	15	183.19	41.97	225.16
Total Fertilizer Costs				469.80
<u>Pruning</u>				
Topping & Hedging	1		39.87	39.87
Chop/Mow Brush	1		23.14	23.14
Total Pruning Costs				63.01
<u>Irrigation</u>				
Irrigation System ¹				47.56
Fuel for Pump				56.58
Total Irrigation Costs				104.14
Total Cultural Costs without Tree Replacement				1588.56
<u>Tree Replacement (6 trees):</u>				
Tree Removal (clip-shear; use front-end loader)				40.80
Site Preparation and Plant Tree (includes reset trees)				73.68
Supplemental Fertilizer, Sprays, Sprout, etc. (trees 1–3 years old)				116.70
Total Tree Replacement Costs				231.18
Total Cultural Costs with Tree Replacement				1819.74

¹ Irrigation system includes maintenance and repairs to emitters.

Table 2. Different levels of caretaking for processed oranges in Central Florida (Ridge), 2014/15

	(1)	(2)	(3)
	Average Cost	Low	High
		-1 SD	+1 SD
	\$/acre		
Foliar Sprays			
Insecticides	201.33	126.57	276.09
Fungicides	107.65	44.60	170.69
Nutritionals	132.78	104.96	160.60
Ground Application	192.52	153.59	231.45
Aerial Application	14.38	0.00	58.68
Total Foliar Sprays Costs	648.66	429.73	897.52
Fertilizer			
Ground/Dry Fertilizer	210.87	175.12	246.62
Application Cost	33.77	24.14	43.41
Fertigation/Liquid Fertilizer	183.19	95.06	271.32
Application Cost	41.97	26.23	57.72
Total Fertilizer Costs	469.80	320.55	619.06
Other cost (weed management, pruning, etc.) ¹	701.28	701.28	701.28
Total Production Cost with Tree Replacement	1819.74	1451.56	2217.86

¹ This refers to the costs of programs included in Table 1, excluding foliar sprays and fertilizer.

Table 3. Total costs of production per acre for processed oranges in Central Florida (Ridge), 2014/15

Total Cultural Costs with Tree Replacement	1819.75
Other Costs	
Interest on Operating (Cultural) Costs	90.99
Management Cost	81.75
Property Tax/Water Management Assessment	35.37
Interest on Average Capital Investment	254.34
Total Other Costs	462.45
Total Costs	2282.20

Table 4. Break-even price per box for processed oranges in Central Florida (Ridge), 2014/15

	Yield (boxes per acre)								
	175	200	225	250	275	300	325	350	375
	<i>dollars per acre</i>								
Cost of Production per Acre	2282	2282	2282	2282	2282	2282	2282	2282	2282
Pick and Haul (\$2.55/box)	446	510	574	638	701	765	829	893	956
FDOC Assessment (\$0.20/box)	35	40	45	50	55	60	65	70	75
Total Delivered-in Cost Per Acre	2763	2832	2901	2970	3038	3107	3176	3245	3313
	<i>dollars per box</i>								
Break-even Price:									
On-tree	13.04	11.41	10.14	9.13	8.30	7.61	7.02	6.52	6.09
Delivered-in	15.79	14.16	12.89	11.88	11.05	10.36	9.77	9.27	8.84
	<i>dollars per pound solids</i>								
Break-even Price:¹									
On-tree	2.13	1.87	1.66	1.49	1.36	1.25	1.15	1.07	1.00
Delivered-in	2.58	2.32	2.11	1.94	1.81	1.70	1.60	1.52	1.45

¹ Assumes 6.11 pounds solids per box based on Florida Department of Citrus (FDOC) Processor Statistical Report for the 2014/15 season.