

2014/15 Southwest Florida Cost of Production for Processed Oranges

Ariel Singerman, Extension Economist
University of Florida, IFAS, CREC, Lake Alfred, FL

This article presents the cost of production per acre for processed oranges in Southwest 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.

A total of twelve growers participated in the data collection process. Eight growers attended a meeting at the Hendry County Extension office in June 2015, while another four growers submitted their responses by mail. The number of acres managed by their combined operations accounts for approximately 32,400 acres. The acreage for oranges in Southwest Florida during 2014 was estimated at 265,927 (USDA-NASS, 2014). Thus, the sample of growers represented 12% 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’ cost. This is so because growers typically get discounts for bulk purchases that would not be accounted for otherwise.

The data collection process at the Hendry County Extension office was completely anonymous and confidential. During the meeting each grower was distributed a “clicker” or remote control. In this way, growers “clicked-in” what their costs were for each caretaking program included in the survey. One of the main advantages of this surveying methodology is that growers do not need to submit their completed forms, which is useful to reassure their anonymity and the fact that there is no possible tracing back to any individual operation. The estimates below were obtained by averaging the responses submitted by the group of participating growers.

Table 1 shows the costs of production by program. The estimates include both the costs of materials and the cost associated with their application. The total for weed management – which includes chemical and mechanical mowing as well as herbicides – was \$248.19 per acre. At \$666.00 per acre, foliar sprays were the largest expense in grove caretaking. Fertilizer was the second largest expense at \$486.96 per acre. CHMAs sprays accounted for \$20.55 per acre. The expense for pruning was \$31.50 per acre, while that for irrigation was \$198.14 per acre. Adding

all the costs listed above, the cultural cost of growing oranges for processing during 2014/15 without tree replacement was \$1,651.33 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 nine trees per acre during 2014/15. The total cost of tree replacement, including tree removal, site preparation, and care of young trees for those nine trees was estimated at \$346.77 per acre. Adding such figure to the total cost above yields a total production cost with tree replacement of \$1,998.10 per acre.

The Florida citrus industry currently faces the challenges imposed by Huanglongbing (HLB, citrus greening), and growers have responded to it by adjusting their inputs to various 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. Such 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 programs costs". Column 1 shows the average costs while Column 2 presents the value of the standard deviation for each listed program. Columns 3 and 4 were obtained by subtracting and adding column 2 from column 1, respectively. As shown at the bottom of Table 2, a low (high) level of caretaking for Processed Oranges totaled \$1,465.91 (\$2,579.14).

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 \$2,444.41 per acre. Based on such estimate, the break-even prices per box for different levels of yield are presented in Table 4. Break-even prices were calculated on an on-tree and delivered-in basis. The later assumes harvesting costs per box were \$2.55, which is based on the results of the survey "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 were \$1.60 and \$2.05 per pound solids.

Summary

This article presents a summary of the 2014/15 costs of production for Processed Oranges in Southwest Florida. The methodology chosen to collect the data was different from that used in previous years and consisted of surveying growers directly. The current approach intends to closely reflect growers' costs in the era of HLB, which has introduced 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 \$2,444.41 per acre.

References:

USDA-NASS. 2014. Commercial Citrus Inventory: Preliminary Report.

Table 1. Cultural Costs of Production per Acre for Processed Oranges in Southwest Florida, 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 (\$)
Production/Cultural Costs				
<u>Weed Management</u>				
Mowing (Chemical & mechanical)	5	3.82	57.55	61.37
Herbicides	3	114.64	72.17	186.81
Total Weed Management Costs				248.19
<u>Foliar Sprays</u>				
Insecticides		233.87		
Fungicides		119.73		516.11
Nutritionals		162.51		
Application:				
Ground	5		122.43	122.43
Aerial	3		27.46	27.46
Total Foliar Sprays Costs				666.00
CHMAs Sprays	3		20.55	20.55
Total CHMAs Sprays Costs				20.55
<u>Fertilizer</u>				
Ground/Dry Fertilizer	3	338.55	31.06	369.61
Fertigation/Liquid Fertilizer	4	89.24	28.11	117.35
Total Fertilizer Costs				486.96
<u>Pruning</u>				
Topping & Hedging	1		31.50	31.50
Total Pruning Costs				31.50
<u>Irrigation</u>				
Irrigation System ¹				76.14
Fuel for pump				122.00
Total Irrigation Costs				198.14
Total Cultural Production Costs without Tree Replacement				1651.33
<u>Tree Replacement (9 trees):</u>				
Tree Removal (Clip-shear; use front-end loader)				61.20
Site Preparation and Plant Tree (includes reset trees)				110.52
Supplemental Fertilizer, Sprays, Sprout, etc. (Trees 1-3 years old)				175.05
Total Tree Replacement Costs				346.77
Total Cultural Costs with Tree Replacement				1998.10

¹ Irrigation System Includes: Maintenance and Repairs to Emitters, Clean Ditches, Ditch and Canal Maintenance, Water Control

Table 2. Different Levels of Caretaking for Processed Oranges in Southwest Florida, 2014/15

	(1) Average Cost	(2)	(3)	(4)
		Standard deviation (std dev.)		
		value	-1 std dev.	+1 std dev.
<u>Foliar Sprays</u>	\$/acre	\$/acre		
Insecticides	233.87	39.84	194.03	273.71
Fungicides	119.73	50.77	68.97	170.50
Nutritionals	162.51	61.56	100.94	224.07
Ground Application	122.43	28.51	93.92	150.94
Aerial Application	27.46	17.98	9.48	45.44
Total Foliar Sprays Costs	666.00		467.33	864.66
<u>Fertilizer</u>				
Ground/Dry Fertilizer	338.55	199.89	138.66	538.44
Application Cost	31.06	16.28	14.77	47.34
Fertigation/Liquid Fertilizer	89.24	114.61	0.00	203.85
Application Cost	28.11	51.59	0.00	79.70
Total Fertilizer Costs	486.96		153.43	869.33
Other cost (Weed Mgmt, Pruning, etc.) ¹	845.14		845.14	845.14
Total Cultural Cost with Tree Replacement	1998.10		1465.91	2579.14

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 Southwest Florida, 2014/15

Total Cultural Costs	1998.10
<u>Other Costs</u>	
Interest on Operating (Cultural) Costs	99.91
Management Cost	63.34
Property Tax/Water Management Assessment	28.73
Interest on Average Capital Investment	254.34
Total Other Costs	446.31
Total Costs	2444.41

Table 4. Break-Even Price per box for Processed Oranges in Southwest Florida, 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	2444.41	2444.41	2444.41	2444.41	2444.41	2444.41	2444.41	2444.41	2444.41
Pick and Haul per acre (\$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	2926	2994	3063	3132	3201	3269	3338	3407	3476

	Break-even Price: \$ per box								
On-tree	13.97	12.22	10.86	9.78	8.89	8.15	7.52	6.98	6.52
Delivered-in	16.72	14.97	13.61	12.53	11.64	10.90	10.27	9.73	9.27

	Break-even Price: ¹ \$ per pound solids								
On-tree	2.29	2.00	1.78	1.60	1.45	1.33	1.23	1.14	1.07
Delivered-in	2.74	2.45	2.23	2.05	1.90	1.78	1.68	1.59	1.52

¹ Assumes pound solids per box: 6.11