

# Cost of Production for Processed Oranges Grown in Southwest Florida, 2015/16<sup>1</sup>

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## Introduction

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

A total of thirteen growers participated in the data-collection process by attending either of the two meetings at the UF/IFAS SWREC or Arcadia Extension office in May and June 2016, respectively. 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.

The data collection process was anonymous and confidential. During the meeting, each grower used a "clicker" or remote device to enter the costs for each caretaking program. The figures below were obtained by computing the weighted average of the responses by the acreage of each of the participating growers. The number of acres managed by their combined operations accounts for approximately



Figure 3. USDA

41,000 acres. The acreage for oranges in southwest Florida during 2015 was estimated at 257,298 (USDA-NASS 2015). Thus, the sample of growers represented 16% of the acreage devoted to oranges in that region.

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 for weed management, which includes chemical and mechanical mowing as well as herbicides, was \$210.09 per acre. At \$611.62 per acre, foliar sprays were the largest expense in grove caretaking. Fertilizer was the second largest expense at \$454.18 per acre. Citrus Health Management Areas (CHMA) sprays accounted for \$17.96 per acre. The expense for pruning was

1. This is EDIS document FE1007, a publication of the Food and Resource Economics Department, UF/IFAS Extension. Published January 2017. Reviewed March 2020. Visit the EDIS website at <https://edis.ifas.ufl.edu>.

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\$49.83 per acre, while that for irrigation was \$180.88 per acre. Adding all the costs listed above, the cultural cost of growing oranges for processing during 2015/16 without tree replacement was \$1,524.55 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 2015/16. The total cost of tree replacement, including tree removal, site preparation, and care of young trees for those nine trees was estimated at \$385.70 per acre. Adding this cost yields a total production cost with tree replacement of \$1,910.25 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 \$611.62 was divided as follows: insecticides totaled \$183.95 per acre, (representing 10% of the cultural cost of production); fungicides accounted for \$99.73 per acre (5%); foliar nutritionals for \$165.91 per acre (9%); aerial application for \$28.92 per acre (1%); and ground application of materials for \$133.11 per acre (7%).

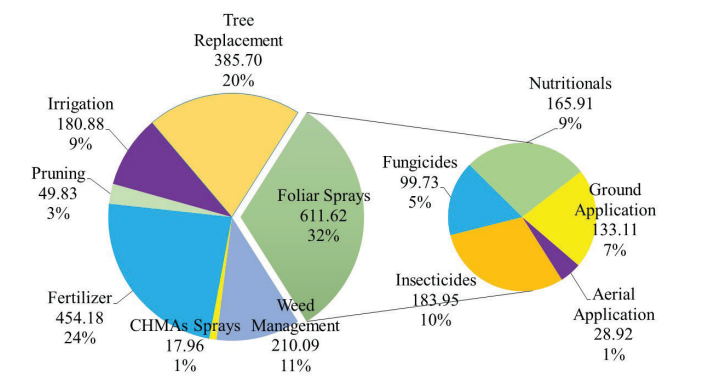


Figure 1. Cultural costs of production for processed oranges grown in southwest Florida, 2015/16

Figure 2 shows a comparison of the cost of the main production programs in 2015/16 relative to 2014/15. The greatest change was the reduction in insecticide spending by \$50 per acre in 2015/16 compared to 2014/15. Weed management and fertilizer expenses were reduced by \$38 and \$33 per acre while tree replacement expense increased by \$39 compared to 2014/15.

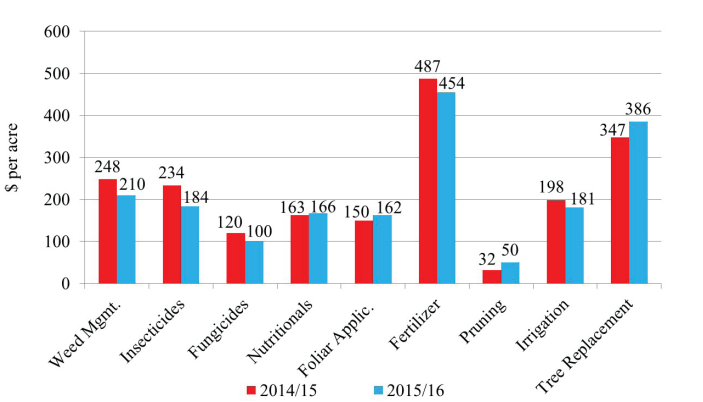


Figure 2. Cost of production by program for processed oranges grown in southwest Florida, 2014/15 vs. 2015/16

In addition to cultural costs, growers typically incur other costs when managing their groves; these other costs include management, regulatory, and opportunity costs. Table 2 shows the total cost of production for processed oranges in southwest Florida during 2015/16 was \$2,327.98 per acre. Using 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 Florida Department of Citrus (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 \$1.59 and \$2.18 per pound solids.

## Summary

This article presents a summary of the 2015/16 costs of production for processed oranges in southwest Florida. 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 2015/16 was \$2,327.98 per acre, down \$87.86 per acre from last season.

## 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 southwest Florida, 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)	6	1.08	58.41	55.49
	Herbicides	3	103.09	47.51	150.59
	Total weed management costs				210.09
Foliar sprays					
	Insecticides		183.95		
	Fungicides		99.73		449.59
	Nutritionals		165.91		
	Application				
	Ground	5		133.11	133.11
	Aerial	3		28.92	28.92
	Total foliar sprays costs				611.62
	CHMAs sprays	3		17.96	17.96
	Total CHMAs sprays costs				17.96
Fertilizer					
	Ground/dry fertilizer	3	326.45	26.84	353.29
	Fertigation/liquid fertilizer	6	73.12	27.76	100.89
	Total fertilizer costs				454.18
Pruning					
	Topping and hedging	1		29.63	29.63
	Chop/mow brush	1		20.20	20.20
	Total pruning costs				49.83
Irrigation					
	Irrigation system <sup>1</sup>				130.31
	Fuel for pump				50.57
	Total irrigation costs				180.88
Total cultural costs without tree replacement					1524.55
Tree replacement (9 trees):					
	Tree removal (clip-shear; use front-end loader)				60.66
	Site preparation and plant tree (includes reset trees)				96.84
	Supplemental fertilizer, sprays, sprout, etc. (trees 1–3 years old)				228.20
	Total tree replacement costs				385.70
Total cultural costs with tree replacement					1910.25

<sup>1</sup> Irrigation system includes maintenance and repairs to emitters, clean ditches, ditch and canal maintenance, and water control.

Table 2. Total costs of production per acre for processed oranges in southwest Florida, 2015/16

Total Cultural Costs with Tree Replacement	1910.25
Other costs	
Interest on operating (cultural) costs	95.51
Management cost	131.24
Property tax/water management assessment	28.73
Interest on average capital investment	162.25
Total other costs	417.73
Total costs	2327.98

Table 3. Breakeven price per box for processed oranges in southwest Florida, 2015/16

	Yield (boxes per acre)								
	175	200	225	250	275	300	325	350	375
	dollars per acre								
Cost of production per acre	2328	2328	2328	2328	2328	2328	2328	2328	2328
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	2932	3018	3104	3190	3277	3363	3449	3535	3622
Breakeven price	\$ per box								
On-tree	13.30	11.64	10.35	9.31	8.47	7.76	7.16	6.65	6.21
Delivered-in	16.75	15.09	13.80	12.76	11.92	11.21	10.61	10.10	9.66
Breakeven price <sup>1</sup>	\$ per pound solids								
On-tree	2.27	1.99	1.77	1.59	1.44	1.32	1.22	1.14	1.06
Delivered-in	2.86	2.58	2.35	2.18	2.03	1.91	1.81	1.72	1.65

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