

Cost of Production for Processed Oranges in Southwest Florida in 2021/22

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This article presents estimates for the cost of production per acre for processed oranges grown in southwest Florida in 2021/22. The estimates were obtained by surveying growers by mail regarding the actual costs of their production programs, which allows reporting representative estimates of the current grove caretaking practices, input combinations, and costs in commercial operations. This is important because, since the outbreak of HLB, growers have been changing their practices from season to season in an attempt to cope with the disease. Thus, surveying growers allows not only to report estimates that closely reflect their cost but also to track the changes they make to their cultural practices. However, the cost estimates below do not represent any individual operation. Instead, their purpose is to serve as a benchmark for the Florida citrus industry.

The number of acres managed by the combined operations of the sample of participating growers accounted for approximately 41,900 acres; representing 18% of the acreage devoted to oranges in Southwest Florida, which was estimated at 234,763 by the USDA-NASS (2022). The questionnaire asked growers to provide annual, per acre costs by program for a “typical” irrigated, mature grove (10+ years old), including costs related to their tree replacement program. The figures below were obtained by computing the weighted average of the responses by the acreage of each of the growers.

Table 1 shows the cultural cost 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 \$287.43 per acre. At \$491.10 per acre, foliar sprays represented the largest cost. Fertilizer was the second-largest expense at \$424.37 per acre. The expense for pruning was \$30.04 per acre, while that for irrigation was \$132.03 per acre. Adding all the costs listed above, the cultural cost of growing oranges for processing without tree replacement was \$1,364.98 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 2021/22. The total cost of tree replacement, including tree removal, site preparation, and supplemental care of those six young trees was estimated at \$148.66 per acre. Adding such figure to the total cost above adds up to a total production cost with tree replacement of \$1,513.64 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 total cultural production costs with tree replacement. The smaller pie in Figure 1 provides greater detail regarding the individual components included in foliar sprays. Insecticides accounted for \$186 per acre (which represented 12% of the cultural cost of production); fungicides accounted for \$96 per acre (6%); foliar nutritionals for \$103 per acre (7%); ground application totaled \$106 per acre (7%).

Figure 2 shows a comparison of the cost of the caretaking programs in 2021/22 relative to 2020/21. The main changes in practices in 2020/21 compared to the previous season are as follows. The largest change was the increase in spending for weed management, which increased by \$71 relative to last season. The second-largest change was the reduction in spending for irrigation, which was cutback, on average, by \$65 per acre. The third-largest change was a reduction in spending for tree replacement. On average, growers cut back that program by \$45 per acre.

In addition to cultural costs, growers typically have to incur in other costs when managing their groves; those costs include management, regulatory, and opportunity costs. Table 2 shows the total cost of production for processed oranges grown in southwest Florida during 2021/22 was \$1,859.90 per acre, down \$23 per acre compared to the previous season. Based on this estimate, the break-even prices per box and per pound solids for different levels of yield are presented in Table 3. Break-even prices were calculated on an on-tree and delivered-in basis. The latter assumes harvesting costs per box were \$3.69 for early and mid-season and \$3.72 for Valencias. The calculations in Table 3 also include the Florida Department of Citrus (FDOC) assessment of \$0.12 per box for the 2021/22 season. Thus, for example, the on-tree and delivered-in break-even prices for early and mid-season for covering the total costs of production with yield at 125 boxes per acre were \$3.04 and \$3.82 per pound solids, respectively. For Valencias, the on-tree and delivered-in break-even prices for covering the total costs of production with yield at 125 boxes per acre were \$2.86 and \$3.60 per pound solids, respectively.

Summary

This article presents a summary of the 2021/22 costs of production for processed oranges grown in southwest Florida. The methodology chosen to collect the data consisted of surveying growers directly so as to reflect their costs. The cultural cost and total cost of production for processed oranges this season were \$1,513.64 per acre and \$1,859.90 per acre, respectively. Typical users of these estimates include growers and consultants, who use them as a benchmark; property appraisers, who use them to compute the taxes for property owners; and researchers, who use the estimates to evaluate the economic feasibility of potential new technologies.

References:

USDA-NASS. 2022. Florida Citrus Statistics 2020/21.

Table 1. Cultural Costs of Production per Acre for Processed Oranges Grown in Southwest Florida, 2021/22

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	0.57	125.58	126.16
Herbicides	3	112.51	48.77	161.28
Total Weed Management Costs				287.43
<u>Foliar Sprays</u>				
Insecticides		185.54		
Fungicides		96.28		385.13
Nutritionals		103.32		
Application:				
Ground	5		105.97	105.97
Total Foliar Sprays Costs				491.10
<u>Fertilizer</u>				
Ground/Dry Fertilizer	3	225.06	22.23	247.29
Fertigation/Liquid Fertilizer	10	175.68	1.40	177.08
Total Fertilizer Costs				424.37
<u>Pruning</u>				
Topping & Hedging	1		29.71	29.71
Chop/Mow Brush	1		0.32	0.32
Total Pruning Costs				30.04
<u>Irrigation</u>				
Irrigation System ¹				72.90
Fuel for pump				59.12
Total Irrigation Costs				132.03
Total Cultural Production Costs without Tree Replacement				1,364.98
<u>Tree Replacement (6 trees):</u>				
Tree Removal (Clip-shear; use front-end loader)				20.00
Site Preparation and Plant Tree (Includes reset trees)				30.00
Supplemental Fertilizer, Sprays, Sprout, etc. (Trees 1-3 years old)				98.66
Total Tree Replacement Costs				148.66
Total Cultural Costs with Tree Replacement				1,513.64

¹ Irrigation system includes: maintenance and repairs to emitters, clean ditches, ditch and canal maintenance, water control

Table 2. Total Costs of Production per Acre for Processed Oranges Grown in Southwest Florida, 2021/22

		Total Cost per acre (\$)
<u>Total Cultural Costs</u>		1,513.64
<u>Other Costs</u>	Interest on Operating (Cultural) Costs	75.68
	Management Cost	115.33
	Property Tax/Water Management Assessment	28.73
	Interest on Average Capital Investment	126.52
<u>Total Other Costs</u>		346.27
Total Costs		1,859.90

Table 3. Break-Even Price per Box and per Pound Solids for Processed Oranges Grown in Southwest Florida, 2021/22

A. Early and Mid-Season Oranges

	Yield (boxes per acre)								
	100	125	150	175	200	225	250	275	300
	<i>dollars per acre</i>								
Cost of Production per acre	1860	1860	1860	1860	1860	1860	1860	1860	1860
Pick and Haul per acre (\$3.69/box)	369	461	554	646	738	830	923	1015	1107
FDOC assessment (\$0.12/box)	12	15	18	21	24	27	30	33	36
Total Delivered-in Cost per acre	2241	2336	2431	2527	2622	2717	2812	2908	3003

<u>Break-even Price:</u>	\$ per box								
On-tree	18.60	14.88	12.40	10.63	9.30	8.27	7.44	6.76	6.20
Delivered-in	22.41	18.69	16.21	14.44	13.11	12.08	11.25	10.57	10.01

<u>Break-even Price:</u> ¹	\$ per pound solids								
On-tree	3.80	3.04	2.54	2.17	1.90	1.69	1.52	1.38	1.27
Delivered-in	4.58	3.82	3.31	2.95	2.68	2.47	2.30	2.16	2.05

Assumes 4.89 pound solids per box based on Florida Department of Citrus (FDOC) Processor Statistical Report for the 2021/22 season

B. Valencia Oranges

	Yield (boxes per acre)								
	100	125	150	175	200	225	250	275	300
	<i>dollars per acre</i>								
Cost of Production per acre	1860	1860	1860	1860	1860	1860	1860	1860	1860
Pick and Haul per acre (\$3.72/box)	372	465	558	651	744	837	930	1023	1116
FDOC assessment (\$0.12/box)	12	15	18	21	24	27	30	33	36
Total Delivered-in Cost per acre	2243.9	2340	2436	2532	2628	2724	2820	2916	3012

<u>Break-even Price:</u>	\$ per box								
On-tree	18.60	14.88	12.40	10.63	9.30	8.27	7.44	6.76	6.20
Delivered-in	22.44	18.72	16.24	14.47	13.14	12.11	11.28	10.60	10.04

<u>Break-even Price:</u> ¹	\$ per pound solids								
On-tree	3.58	2.86	2.38	2.04	1.79	1.59	1.43	1.30	1.19
Delivered-in	4.32	3.60	3.12	2.78	2.53	2.33	2.17	2.04	1.93

¹Assumes 5.20 pound solids per box based on Florida Department of Citrus (FDOC) Processor Statistical Report for the 2021/22 season

Figure 1. Cultural Costs of Production (in dollars per acre) for Processed Oranges Grown in Southwest Florida, 2021/22

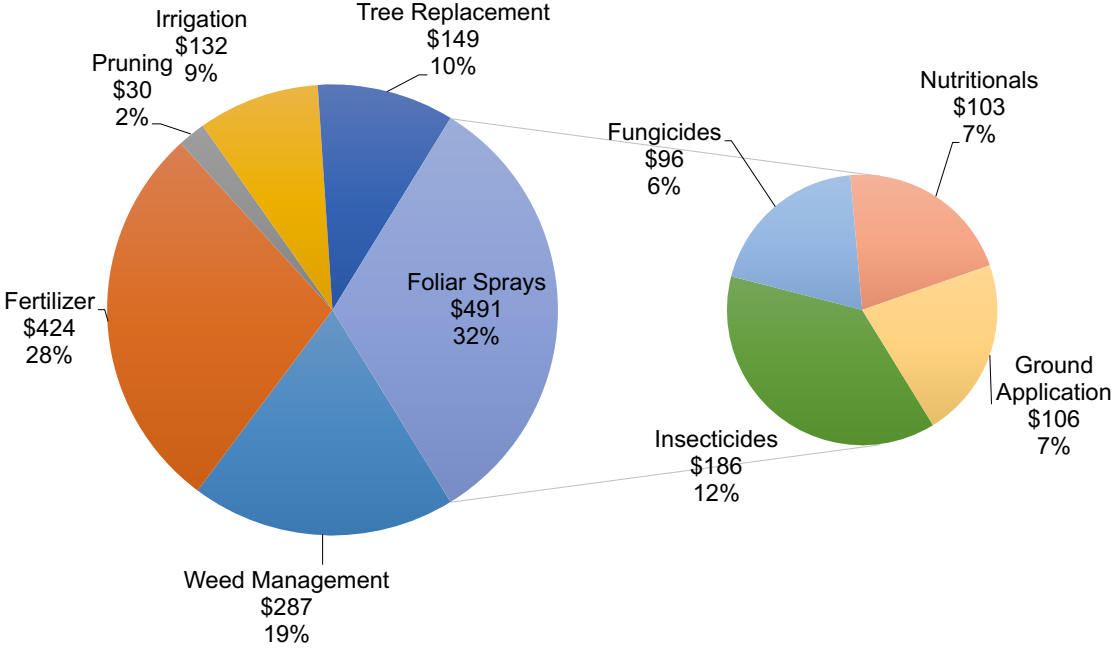


Figure 2. Cost of Production by Program for Processed Oranges Grown in Southwest Florida, 2020/21 vs. 2021/22

