

Cost of Production for Fresh Grapefruit in East Florida (Indian River), 2014/15¹

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Introduction

This article presents the cost of production per acre for growing fresh grapefruit in the Indian River region during 2014/15. The cost estimates do not represent any individual operation. Their purpose is to serve as a benchmark for the industry. Typical users of these estimates include growers, consultants, property appraisers, and researchers.

The Survey

The data were collected during a production committee meeting at the Indian River Citrus League in March 2015. Five grapefruit growers participated in the survey. The number of acres managed by their combined operations accounted for about 15,000 acres. Acreage for grapefruit in the Indian River region in 2014 was estimated at 33,979 (USDA/NASS 2014). The sample of growers represented 44% of the acreage devoted to grapefruit in that region.

Growers brought completed survey forms to the production committee meeting. The questionnaire asked growers to provide annual, per-acre costs by program for a typical irrigated, mature grove (10+ years old), including resets. Since we surveyed growers about the costs of their caretaking programs—as opposed to surveying chemical companies to obtain 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 in surveys of chemical companies).



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 trace data back to any individual operation. The estimates below were obtained by averaging the responses submitted by the group of participating growers.

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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 \$196.60 per acre. At \$1,300.40 per acre, foliar sprays were the largest expense in grove caretaking. Fertilizer was the second largest expense at \$452.55 per acre. Coordinated sprays accounted for \$14.75 per acre; this category is likely to become more important (i.e., larger) next year, when Citrus Health Management Areas (CHMA) are organized in the Indian River region. The expense for pruning was \$78.90 per acre, while that for irrigation was \$117.83 per acre. The cost of canker control was \$86.40 per acre. Adding all the costs listed above, the cultural cost of growing fresh grapefruit during 2014/15 without tree replacement was \$2,247.43 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 \$2,478.61 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 programs 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 fresh grapefruit totals \$1,920.01 (\$3,037.01).

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 fresh grapefruit totals \$3,073.38 per acre. Based on this estimate, and assuming a hypothetical pack-out rate of 100%, 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 \$2.20, 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 \$0.27 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 350 boxes per acre are \$8.78 and \$11.25 per box, respectively.

Summary

This article presented a summary of the 2014/15 costs of production for fresh grapefruit in the Indian River region. The methodology chosen to collect the data was different from that used in previous years and consisted 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 fresh grapefruit with tree replacement in 2014/15 was \$3,073.38 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 fresh market grapefruit in Indian River region, 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 (\$)
Cultural Costs				
<u>Weed Management</u>				
Mowing (chemical & mechanical)	7	10.40	57.40	67.80
Herbicides	4	74.20	54.60	128.80
Total Weed Management Costs				196.60
<u>Foliar Sprays</u>				
Insecticides		299.60		299.60
Fungicides		240.00		240.00
Nutritionals		330.40		330.40
Application:				
Ground	11		413.40	413.40
Aerial	1		17.00	17.00
Total Foliar Sprays Costs				1300.40
Coordinated Sprays Aerial	2		14.75	14.75
Total Coordinated Sprays Costs				14.75
<u>Fertilizer</u>				
Ground/Dry Fertilizer	2	267.00	20.60	287.60
Fertigation/Liquid Fertilizer	20	151.20	13.75	164.95
Total Fertilizer Costs				452.55
<u>Pruning</u>				
Topping & Hedging	1		52.40	52.40
Raise Skirts of Trees	1		26.50	26.50
Total Pruning Costs				78.90
<u>Irrigation</u>				
Irrigation System ¹				75.00
Fuel for Pump				42.83
Total Irrigation Costs				117.83
Canker Control Costs ²				86.40
Total Cultural Costs without Tree Replacement				2247.43
<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				2478.61

¹ Irrigation system includes maintenance and repairs to emitters.

² Canker control includes clean blocks before certification and harvesting, inspections before canker-free certification, and mandatory citrus canker decontamination costs.

Table 2. Different levels of caretaking for fresh market grapefruit in Indian River region, Florida, 2014/15

	(1)	(2)	(3)
	Average Cost	Low	High
		-1 SD	+1 SD
		\$/acre	
<u>Foliar Sprays</u>			
Insecticides	299.60	209.40	389.80
Fungicides	240.00	192.95	287.05
Nutritionals	330.40	238.63	422.17
Ground Application	413.40	361.65	465.15
Aerial Application	17.00	11.90	22.10
Total Foliar Sprays Costs	1300.40	1014.52	1586.28
<u>Fertilizer</u>			
Ground/Dry Fertilizer	267.00	86.31	447.69
Application Cost	20.60	14.42	26.78
Fertigation/Liquid Fertilizer	151.20	74.10	228.30
Application Cost	13.75	5.00	22.50
Total Fertilizer Costs	452.55	179.82	725.28
<u>Other costs</u> (weed management, pruning, etc.) ¹	725.66	725.66	725.66
Total Production Cost with Tree Replacement	2478.61	1920.01	3037.21
¹ This refers to the costs of programs included in Table 1, excluding foliar sprays and fertilizer.			

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Table 3. Total costs of production per acre for fresh market grapefruit in Indian River region, Florida, 2014/15

Total Cultural Costs with Tree Replacement	2478.61
<u>Other Costs</u>	
Interest on Operating (Cultural) Costs	123.93
Management Cost	75.00
Property Tax/Water Management Assessment	18.50
Fly Protocol	16.00
Water Drainage District Assessment	107.00
Interest on Average Capital Investment	107.00
Total Other Costs	594.99
Total Costs	3073.38

Table 4. Break-even price per box for fresh market grapefruit in Indian River region, Florida, 2014/15¹

	Yield (boxes per acre)								
	250	275	300	325	350	375	400	425	450
	<i>dollars per acre</i>								
Cost of Production per Acre	3073	3073	3073	3073	3073	3073	3073	3073	3073
Pick and Haul (\$2.20/box)	550	605	660	715	770	825	880	935	990
FDOC Assessment (\$0.20/box)	68	74	81	88	95	101	108	115	122
Total Delivered-in Cost Per Acre	3691	3753	3814	3876	3938	4000	4061	4123	4185
<u>Break-even Price:</u>	<i>dollars per box</i>								
On-tree	12.29	11.18	10.24	9.46	8.78	8.20	7.68	7.23	6.83
Delivered-in	14.76	13.65	12.71	11.93	11.25	10.67	10.15	9.70	9.30

¹ The calculations assume an hypothetical pack-out rate of 100%