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FE1011

Cost of Production for Fresh Grapefruit Grown in Indian River, 2015/16[1]

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Introduction

This article presents the cost of production per acre for growing fresh grapefruit in the Indian River region during 2015/16. It is worth noting that the cost estimates below do not represent any individual operation; their purpose is to serve as a benchmark for the industry.

Grower Survey

The data were collected during a production committee meeting at the Indian River Citrus League in mid-July 2016. Seven grapefruit growers participated in the survey. Survey forms were distributed to growers, who completed the forms and brought them to the meeting. The questionnaire asked growers to provide annual, per-acre costs by program for a "typical" irrigated, mature grapefruit grove (10+ years old) with the fruit marketed to the fresh market, including resets. Because we surveyed growers about the costs of their caretaking programs—as opposed to surveying chemical companies to obtain the retail costs of the materials—the estimates reported in this article closely reflect growers' actual costs.

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 21,000 acres. The acreage for grapefruit in the Indian River region in 2015 was estimated at 32,401 (USDA-NASS 2015). Thus, the sample of growers represented 65% of the acreage devoted to grapefruit in that region.

Credit: USDA

Production Costs

Table 1 shows the costs of production by program. Such estimates include both the costs of materials and their application. From Table 1, the total for weed management (includes chemical and mechanical mowing, and

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herbicides) was $198.59 per acre. At $1,168.09 per acre, foliar sprays represented the largest production cost. Ground-applied fertilizer was the second largest expense at $406.06 per acre. Coordinated sprays accounted for $18.62 per acre. The expense for pruning was $70.29 per acre, while that for irrigation was $209.34 per acre. The cost of canker control was $67.00 per acre. Adding all the costs listed above, the cultural cost of growing fresh grapefruit in the Indian River during 2015/16 without tree replacement was $2,137.99 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 2 trees per acre during 2015/16. The total cost of tree replacement, including tree removal, site preparation, and care of young trees for those trees was estimated at $98.93 per acre. Adding tree reset costs to the cultural cost yields a total production cost with tree replacement of $2,236.92 per acre.

Breakdown of Cultural Costs

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 sprays category. The expense of $1,168.09 per acre was divided as follows: ground application of materials totaled $374.59 per acre (or 17% of the cultural cost of production); followed by insecticides at $335.24 per acre (15%); fungicides at $249.35 per acre (11%); foliar nutritionals at $202.18 per acre (9%); and aerial application at $6.73 per acre (0.3%).

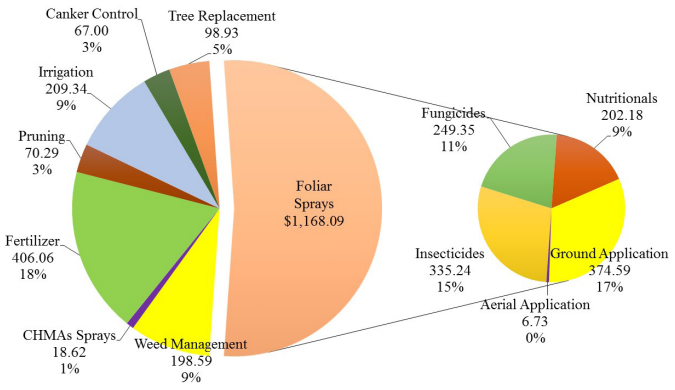

Figure 1. Cultural costs of production for fresh grapefruit grown in Indian River, Florida, 2015/16

Comparison of Cultural Costs

Figure 2 shows a comparison of the cost of the main production programs in 2015/16 relative to the previous season. The cost of the tree replacement program decreased not only by the largest amount ($132), but also by the largest percentage (57%) due to the reduction in the number of replaced trees. On average, growers replaced 6 trees per acre in 2014/15 but only replaced 2 trees per acre in 2015/16. The second largest reduction was in the foliar nutrition program; on average, growers spent $330 per acre in 2014/15 and $202 per acre in 2015/16. However, the expenses for insecticides, fungicides, and irrigation increased in 2015/16 compared to 2014/15. Overall, the cultural cost of production decreased by $241.69 per acre with respect to 2014/15.

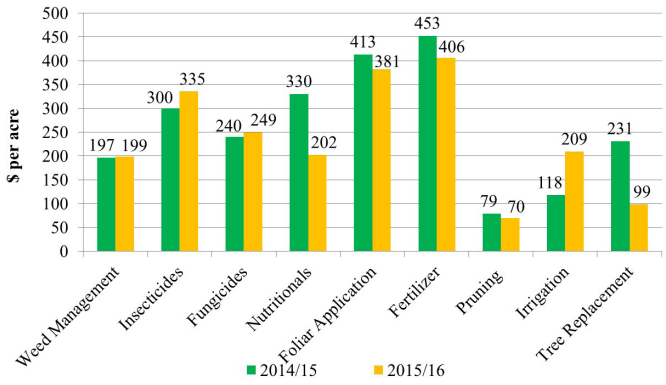

Figure 2. Cost of production by proram for fresh grapefruit grown in Indian River, Florida, 2014/15 vs 2015/16

Other Costs

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 estimated total cost of production for fresh grapefruit growers in Indian River during 2015/16 was $2,723.88 per acre, down 11% compared to 2014/15. Based on 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 for fresh grapefruit were $2.59, which is based on the results of the survey *Harvesting Charges for Florida Citrus: Picking, Roadsiding, and Hauling, 2015/16* (FE1005). The calculations in Table 3 also include the Florida Department of Citrus (FDOC) assessment of $0.19 per box for grapefruit during the 2015/16 season. Thus, for example, the on-tree and delivered-in breakeven prices for covering the total costs of production with yield at 325 boxes per acre were $14.02 and $17.18 per box, respectively.

Summary

This article presents a summary of the costs of production for fresh grapefruit in the Indian River region during 2015/16. The methodology used to collect the data consisted of surveying growers directly to better reflect growers' costs. The total cost of production for fresh grapefruit in Indian River during 2015/16 was $2,723.88 per acre, down $349.50 per acre relative to the previous season. Reductions in tree replacement and foliar nutritionals expenses account for the bulk of the decrease.

Reference

United States Department of Agriculture, National Agricultural Statistics Service (USDA-NASS). 2015. *Commercial Citrus Inventory: Preliminary Report*. Maitland, FL: Florida Department of Agricultural Services.

Table 1. Cultural costs of production per acre for fresh grapefruit grown in Indian River, 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 ($)
Production/Cultural Costs				
Weed Management				
Mowing (Chemical & Mechanical)	8	9.66	75.69	85.36
Herbicides	4	58.35	54.89	113.23
Total Weed Management Costs				198.59
Foliar Sprays				
Insecticides		335.24		335.24
Fungicides		249.35		249.35
Nutritionals		202.18		202.18
Application:				
Ground	9		374.59	374.59
Aerial	1		6.73	6.73
Total Foliar Sprays Costs				1168.09
CHMA Sprays	2		18.62	18.62
Total CHMA Sprays Costs				18.62
Fertilizer				
Ground/Dry Fertilizer	3	287.63	27.30	314.93
Fertigation/Liquid Fertilizer	7	83.23	7.89	91.12
Total Fertilizer Costs				406.06
Pruning				
Topping, Hedging, & Skirting	1		70.29	70.29
Total Pruning Costs				70.29
Irrigation				
Irrigation System[1]				152.34
Fuel for Pump				57.00
Total Irrigation Costs				209.34
Canker Control Costs[2]				67.00
Total Production/Cultural Costs without Tree Replacement				2137.99
Tree Replacement (2 trees)				
Tree Removal (Clip-shear; use front-end loader)				17.86
Site Preparation and Plant Tree (includes reset trees)				26.27
Supplemental Fertilizer, Sprays, Sprout, etc. (Trees 1–3 years old)				54.80
Total Tree Replacement Costs				98.93
Total Production/Cultural Costs with Tree Replacement				2236.92

[1] Irrigation system includes maintenance and repairs to emitters, clean ditches, ditch and canal maintenance, and water control.
[2] Canker control includes clean blocks before certification and harvesting; inspections before "canker-free" certifications; mandatory citrus canker decontamination costs.

Table 2. Total costs of production per acre for fresh market grapefruit grown in Indian River, Florida, 2015/16

	Cost per Acre ($)
Total Cultural Cost of Production	2,236.92
Other Costs	
Interest on Operating (Cultural) Costs	111.85
Management Cost	70.20
Property Tax/Water Management Tax	18.50
Fly protocol	17.17
Water Drainage District Assessment	107.00
Interest on Average Capital Investment	162.25
Total Other Costs	486.96
Total Grower Costs	2,723.88

Table 3. Breakeven price per box for fresh market grapefruit grown in Indian River, Florida, 2015/16

	Yield (boxes per acre)								
	250	275	300	325	350	375	400	425	450
	dollars per acre								
Cost of Production per Acre	2724	2724	2724	2724	2724	2724	2724	2724	2724
Pick and Haul	630	693	756	819	882	945	1008	1071	1134
FDOC Assessment	48	52	57	62	67	71	76	81	86
Total Delivered-in Cost per Acre	3,401	3,469	3,537	3,605	3,672	3,740	3,808	3,875	3,943
Breakeven Price	dollars per box								
On-tree	18.86	16.95	15.37	14.02	12.87	11.87	11.00	10.23	9.55
Delivered-in	22.01	20.11	18.52	17.18	16.03	15.03	14.16	13.39	12.70
Assuming 62% packout, 16% field run, price of eliminations of $4/box and $5.49/box for field run. All estimates are the average of last 3 years.									