

Summary of 2011-2012 Citrus Budget for the Central Florida (Ridge) Production Region

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Citrus budgets are tabulated annually for the Central, Southwest and Indian River citrus production regions of Florida. The attached budget costs are for the Central Florida (Ridge) citrus production region. These costs may not represent your particular grove situation. However, they represent the most current comparative cost estimates for Florida citrus. The budget costs items for the **Central Florida (Ridge)** represent a **custom managed operation**.

Budget analysis provides the basis for many grower decisions. Budgets can be used to calculate potential profits, determine cash requirements and determine break-even prices. The budget costs presented will serve as a format for growers to analyze their own individual records. The cost data were developed by surveying custom operators, suppliers, growers, colleagues with UF/IFAS and County Extension Agents in each production region.

There were changes in the prices of fertilizer (8.2% increase) and chemical inputs (2.7% increase) and application costs (2.6% increase). Total average cultural production costs per acre increased about 6% between 2010-2011 and 2011-2012. Growers have increased their focus on controlling the Asian citrus psyllid that transmits HLB-greening disease incorporating more aerial and low-volume ground spray applications to reduce total spray costs. To reduce the total materials applied by 15% to 20% and reduce total cultural-production costs, growers are using electronic sensors on their fertilizer spreaders and herbicide and PTO sprayers. Also, growers have begun including calcium with at least one-half of their fertilizer applications.

The 2011-2012 comparative budget is for a processed orange cultural program. There are two scenarios presented for the budget costs: 1) **Traditional HLB Management Program** and 2) **Cultural Program With an Enhanced Foliar Nutrient Program**. Scenario one represents costs of traditional HLB grove practices which include HLB scouting and removal of symptomatic trees but does not include an enhanced foliar nutrient program. Scenario two is the same cultural program for scenario one without HLB scouting and removal of symptomatic trees but includes the costs of an enhanced foliar nutrient program that most growers are now using to maintain and improve the health and yield of their citrus trees. The enhanced foliar spray program consists of five foliar nutrient applications of which three are included with other spray applications and two additional PTO applications. Each budget scenario shows a Total Cost Per Acre **without** and **with resetting-tree replacement**.

With the introduction of citrus greening in 2005, Florida citrus growers have had to develop new management strategies such as to identify and remove infected trees along with adding new spray programs to control the insect vector, the Asian citrus psyllid. During the past couple of years, many growers have decided not to remove HLB symptomatic trees and have begun adding a foliar nutritional formulation to their air-blast ground spray applications. Likewise, with the end of the citrus canker eradication program in 2006, to reduce the impact of canker infestations on new tree flushes and reduce fruit drop, copper spray material is being added with each spray tank mix. For fruit grown for the fresh fruit market, additional costs are incurred by

growers to assure that the blocks and fruit can be certified “canker free” for shipments to the U.S. domestic and European markets. The estimated additional costs required to manage citrus greening and canker were based on the cultural programs being implemented in UF/IFAS CREC research groves and information from citrus growers. These costs were incorporated into Tables 1 and 2.

The budgets shown in Table 1 list the costs of individual grove care practices normally performed in a citrus grove. These costs reflect current grove practices being performed by growers. The estimated costs are for a mature grove (10+ years old); the grove care costs for a specific grove site may differ depending upon the tree age; tree density and the actual grove practices performed. For example, tree losses due to blight, tristeza or citrus greening could increase the tree replacement costs by double or more. Travel and set-up costs may vary due to the size of a citrus grove and the distance from the grove equipment barn. Citrus canker and greening control costs will also vary between individual blocks due to variety and fresh or processed market destination.

In previous citrus budgets, the traditional citrus psyllid HLB-greening management included a soil-applied Temik treatment in January along with five ground spray applications. With the use of Temik discontinued, the 2011-12 spray programs (refer to Table 1) include a total of seven applications; 125 GPA ground sprays, ultra low-volume ground sprays and aerial sprays. Also, the additional spray costs for citrus black spot would be about \$83.48 per acre.

The comparative budget costs are shown as an expanded “**total grower costs**” format in Table 2 and are presented **with** and **without** an enhanced foliar nutrient program as well as no resetting and resetting. The total grower costs include cultural/production, management, regulatory and a charge on the initial investment costs. The costs are presented on a per acre unit basis.

Break-even prices for processed Valencia oranges are shown in Table 3 for yields ranging from 250 to 600 boxes per acre and for the 2011-12 state average yield of 302 boxes per acre. Under a traditional HLB management program and **without** the enhanced foliar nutrient program and **no resetting**, the delivered-in break-even price ranged from \$1.55 to \$0.89 per pound solids and at the state average yield \$1.35 per pound solids; **with resetting** the break-even prices ranged from \$1.66 to \$0.93 per pound solids and at the state average yield \$1.45 per pound solids. Under a no HLB scouting and symptomatic tree removal program but **with** an enhanced foliar nutrient program and **no resetting**, the delivered-in break-even prices ranged from \$1.66 to \$0.93 per pound solids and at the state average yield \$1.45 per pound solids; **with resetting** these break-even prices ranged from \$1.75 to \$0.97 per pounds solids and at the state average yield \$1.52 per pound solids.

The three ADDENDA tables provide the detailed information on the herbicide, spray and fertilizer programs used in the comparative budgets.

Additional information on budgeting and cost analysis can be obtained by contacting the author, your County Extension Citrus Agent, or going to the Lake Alfred UF/IFAS CREC **Extension-Economics** website: <http://www.crec.ifas.ufl.edu/extension/economics>.

Reference-Source Information

- Muraro, Ronald P. "Average Packing Charges for Florida Fresh Citrus – 2011-12 Season." UF/IFAS CREC Website: www.crec.ifas.ufl.edu/extension/economics September 2012. 3 pages.
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- Muraro, Ronald P. "Planting and Annual Cultural Maintenance Costs for Reset- Replacement Trees in a Florida Citrus Grove – 2012." UF/IFAS CREC Website: www.crec.ifas.ufl.edu/extension/economics September 2012. 3 pages.
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- Muraro, Ronald P. "Summary of 2011-2012 Citrus Budgets for the Southwest Florida Citrus Production Region." UF/IFAS CREC Website: www.crec.ifas.ufl.edu/extension/economics September 2012. 11 pages.

Table 1. A Listing of Estimated Comparative **Central Florida (Ridge)** Production Costs per Acre for **Processed Oranges**, 2011-2012^z

Costs represent a mature (10+ years old) Central Florida (Ridge) Orange Grove.	Processed Cultural Program	
	With Canker-Greening (WITHOUT Enhanced Foliar Nutrient Spray)	With Canker-Greening (WITH Enhanced Foliar Nutrient Spray)
PRODUCTION/CULTURAL COSTS^y		
Weed Management/Control:		
Mechanical Mow Middles (4 times per year)	\$ 52.84	\$ 52.84
Chemical Mow Middles (2 times per year)	12.79	12.79
General Grove Work (2 labor hours per acre)	33.60	33.60
Herbicide (1/2 tree acre treated): (See Supplemental Table 1 - Herbicide Programs #1, #2 and #3)	<u>135.68</u>	<u>135.68</u>
Total Weed Management Costs	234.91	234.91
Spray/Pest Management: (See Supplemental Table 3)		
With Greening: Spray Programs #1, #2, #3, #4, #5, #6, and #7	418.74	418.74
Enhanced Foliar Nutrient Spray^x		265.98
Fertilizer (Bulk): 4 Applications – 200 lbs/acre (See Supplemental Table 2)	406.32	406.32
Fert Prog. #2 – 2 Applications: 15-2-15-2.4MgO-5Ca @ 100 lbs N		
Fert.Prog. #3 – 2 Applications: 16-0-16-4MgO @ 100 lbs N		
Dolomite (one ton applied every 4 years) (Material/Application)	14.05	14.05
Pruning: ^w Topping (\$29.20/A ÷ 2 yrs)	14.55	14.55
Hedging (\$28.19/A ÷ 2 yrs)	14.09	14.09
Chop/Mow Brush after Hedging (\$15.48/A ÷ 2 yrs)	<u>7.74</u>	<u>7.74</u>
Total Pruning Cost	36.38	36.38
Irrigation: Microsprinkler System ^v	165.15	165.15
Tree Removal & Site Cleanup-Preparation (Remove Trees: Pull, Stack & Burn; Clip-Shear and/or Front End Loader)		
(6 trees/acre with HLB-greening; 4 trees/acre with enhanced foliar nutrients)	57.48	52.62
Mandatory Citrus Canker Decontamination Costs	31.77	31.77
Field Inspections for Citrus Greening (4 inspections @ \$27.74) or for Scouting for Psyllids	<u>110.96</u>	<u>55.48</u>
TOTAL PROCESSED PRODUCTION COSTS WITHOUT		
TREE REPLACEMENT-RESET COSTS	<u>1,475.76</u>	<u>1,681.40</u>
Tree Replacement – 1 thru 3 years of age (6 trees/acre with HLB-greening; 4 trees/acre with enhanced foliar nutrients)		
Prepare Site and Plant Tree (includes reset trees)	59.70	41.20
Supplemental Fertilizer, Sprays, Sprout, etc. (Trees 1-3 years old)	<u>127.68</u>	<u>94.60</u>
Total Tree Replacement Cost	<u>187.38</u>	<u>135.80</u>
TOTAL PROCESSED PRODUCTION COSTS WITH		
TREE REPLACEMENT-RESET COSTS	<u>\$1,663.14</u>	<u>\$1,817.20</u>

^zThe listed estimated comparative costs are for the example grove situation and may not represent your particular grove situation in Central Florida.

Source: Ronald P. Muraro, Extension Farm Management Economics, University of Florida, IFAS, CREC, Lake Alfred, FL, September 2012.

Footnotes Refer to Table 1.

^yCentral Florida production area refers to Polk and Highlands counties. However, the costs presented in this report are applicable to other counties such as Hardee, Hillsborough, Lake-Orange, Osceola and Pasco counties.

Where **equipment use** or **application** is listed (discing, hedging, spray application, etc.), an **average custom charge** (cost) is used which includes a charge for equipment repairs, maintenance, labor and overhead management charges/costs. A **management charge** for equipment supervision and fruit marketing is **not included**. Management charges/costs could be based on a monthly charge (\$3 to \$6/acre) or percentage of gross sales. In addition to these charges, a harvesting supervision cost (10¢ to 20¢/box) for overseeing and coordinating harvesting may be charged. Other cost items which are not included in the budget are ad valorem taxes and interest on grove investment. In addition to these cost items, overhead and administrative costs, such as water drainage/district taxes, crop insurance, and other grower assessments, can add up to 12% to the total grove care costs. These costs vary from grove to grove depending on age, location, and time of purchase or establishment and are estimated in the expanded Table 2.

Included in the materials expense is a supervision (or handling) charge of 10% of cost/price of the materials.

The budget cost items have been revised to reflect current grove practices being used by growers—e.g., chemical mowing, different spray materials, and rates of fertilization, microsprinkler irrigation, more reset trees, hedging and topping practices, etc. Therefore, the revised costs for each grove practice shown may be higher, or lower, than previously reported.

Although the estimated annual per acre grove costs listed are representative for a mature citrus grove (10+ years old), the grove care costs for a specific grove site may differ depending upon the tree age, tree density and the grove practices performed; e.g., spot herbicide for grass/brush regrowth under trees could add an additional \$20.53 per acre; extensive tree loss due to blight, tristeza, or citrus greening could substantially increase the tree replacement and care costs; travel and set-up costs may vary due to size of the citrus grove and distance from grove equipment barn and could add \$62.50 per trip.

^xThe enhanced foliar spray program consists of five foliar nutrient applications of which three are included with other spray applications and two additional PTO applications.

^wPer acre costs shown in parenthesis are for 2012.

^yIrrigation Expense includes the following:

	<u>Microsprinkler</u>
Variable Operating Expense (Diesel)	\$ 77.81
Fixed-Variable Expense (annual maintenance repairs to system)	<u>30.78</u>
Total Cash Expenses	\$108.59
Fixed-Depreciation Expense	<u>56.56</u>
Total Cash and Fixed Expense	<u>\$165.15</u>

Source: Ronald P. Muraro, Extension Farm Management Economist, University of Florida, IFAS, CREC, Lake Alfred, FL, September 2012.

Table 2. Estimated total grower costs for **Central Florida (Ridge)** Valencia oranges grown for the processed juice market **with** citrus canker and HLB-greening, 2011-12

Represents a mature (10+ years old) Central Florida (Ridge) Orange Grove	Traditional HLB Management Processed Cultural Program With Canker and HLB-Greening Without Additional Foliar Nutrient Sprays	Traditional HLB Management Processed Cultural Program With Canker and HLB-Greening With Additional Foliar Nutrient Sprays
<u>NO Resetting-Tree Replacement</u>	\$/Acre	\$/Acre
Total Production/Cultural Costs	\$1,475.76	\$1,681.40
Interest on Operating (Cultural) Costs	73.79	84.07
Management Costs	48.00	48.00
Taxes/Regulatory Costs: Property Tax and Water Management Tax	<u>61.00</u>	<u>61.00</u>
Total Direct Grower Costs	\$1,658.55	\$1,874.47
Interest on Average Capital Investment Costs	<u>321.22</u>	<u>321.22</u>
Total Grower Costs Without Resetting	<u>\$1,979.76</u>	<u>\$2,195.69</u>
<u>WITH Resetting-Tree Replacement</u>	\$/Acre	\$/Acre
Total Production/Cultural Costs	\$1,663.14	\$1,817.20
Other Grower Costs	<u>513.37</u>	<u>521.00</u>
Total Grower Costs With Resetting	<u>\$2,176.51</u>	<u>\$2,338.28</u>

SOURCE: Ronald P. Muraro, University of Florida-IFAS, Citrus Research and Education Center, Lake Alfred, FL, September 2012.

Table 3. Delivered-in Break-even Price for Processed Valencia Oranges in **Central Florida (Ridge)**, 2011-12

Box Yield Per Acre								State Average
250	300	350	400	450	500	550	600	302
With Citrus Canker and HLB-Greening and Without Additional Foliar Nutrient Spray								
Delivered-in Price Per Pound Solids ^a								
<u>NO Resetting-Tree Replacement</u>								
\$1.55	\$1.36	\$1.22	\$1.12	\$1.04	\$0.98	\$0.93	\$0.89	\$1.35
<u>WITH Resetting-Tree Replacement</u>								
\$1.66	\$1.45	\$1.30	\$1.19	\$1.11	\$1.04	\$0.98	\$0.93	\$1.45
With Citrus Canker and HLB-Greening and With Additional Foliar Nutrient Spray								
Delivered-in Price Per Pound Solids ^a								
<u>NO Resetting-Tree Replacement</u>								
\$1.67	\$1.46	\$1.31	\$1.20	\$1.11	\$1.04	\$0.99	\$0.94	\$1.45
<u>WITH Resetting-Tree Replacement</u>								
\$1.75	\$1.53	\$1.37	\$1.25	\$1.16	\$1.08	\$1.02	\$0.97	\$1.52

^aAssumes: \$2.679 per box for harvesting costs (pick & haul); \$0.23 per box for FDOC assessment; 7.0 pounds solids per box.

Supplemental Table 1. Herbicide programs used in the Central Florida citrus production budgets
– 2011-2012

Program	Materials/Ingredients	Amount treated acre	Price/unit	Cost/acre ^a
#1	Solicam 80 DF	3 lbs	\$23.88	\$35.82
	Karmex WP	4 lbs	6.49	12.98
	Ranger-Pro	4 pts	2.29	4.57
	Adjuvant-Surfactant	1 pt	2.44	<u>1.22</u>
	Total Material Costs			54.59
	Application Cost/Acre	1 time	\$14.74	<u>14.74</u>
	Total Cost/Application Program #1			<u>\$69.33</u>
#2	Prowl H ₂ O	6 pts	\$ 5.45	\$16.36
	Direx 4L	6 pts	3.38	10.15
	Ranger-Pro	4 pts	2.29	4.57
	Adjuvant-Surfactant	1 pt	2.44	<u>1.22</u>
	Total Material Costs			32.30
	Application Cost/Acre	1 time	\$14.74	<u>14.74</u>
	Total Cost/Application Program #2			<u>\$47.04</u>
#3	Ranger-Pro	4 pts	\$ 2.29	\$ 4.57
	Adjuvant-Surfactant	1 pt	2.44	<u>1.22</u>
	Total Material Costs			5.79
	Application Cost/Acre	1 time	\$14.74	<u>14.74</u>
	Total Cost/Application Program #3			<u>\$20.53</u>
#4	Alion	5 oz	\$12.50	\$31.25
	Ranger-Pro	4 pts	2.29	4.57
	Adjuvant-Surfactant	1 pt	2.44	<u>1.22</u>
	Total Material Costs			37.04
	Application Cost/Acre	1 time	\$14.74	<u>14.74</u>
	Total Cost/Application Program #4			<u>\$51.78</u>
#5	Ranger-Pro	1 pt	\$2.29	\$1.14
	Adjuvant-Surfactant	0.5 pt	2.44	<u>0.61</u>
	Total Material Costs			1.75
	Application Cost/Acre (Chemical Mow)	1 time	\$5.25	<u>5.25</u>
		Total Cost/Application Program #5		

^aHerbicide applied to 50% of grove area.

Supplemental Table 2. Fertilizer programs used in the Central Florida citrus production budgets
– 2011-2012

Program	Analysis/Material Applied	Amount/ Acre	Cost/ Acre
#1 – 4 applications	15-2-15-2.4 MgO	1,200 lbs	\$307.05
(180 lbs of nitrogen/acre)	Application Cost		<u>47.40</u>
	Total Fertilizer Costs for Program #1		<u>\$354.45</u>
#2 – 4 applications	15-2-15-2.4 MgO-5 Ca	1,330 lbs	\$390.69
(200 lbs of nitrogen/acre)	Application Cost		<u>47.40</u>
	Total Fertilizer Costs for Program #2		<u>\$438.09</u>
#3 – 4 applications	16-0-16-4 MgO	1,250 lbs	\$298.40
(200 lbs of nitrogen/acre)	Application Cost		<u>47.40</u>
	Total Fertilizer Costs for Program #3		<u>\$345.80</u>
#4 – 4 applications	16-2-16-3 MgO	1,200 lbs	\$326.95
(200 lbs of nitrogen/acre)	Application Cost		<u>47.40</u>
	Total Fertilizer Costs for Program #4		<u>\$374.35</u>
#5 – 4 applications	17-4-17-2.4 MgO	1,300 lbs	\$358.69
(220 lbs of nitrogen/acre)	Application Cost		<u>47.40</u>
	Total Fertilizer Costs for Program #5		<u>\$406.09</u>
Dolomite/Lime	Dolomite	2,000 lbs	\$46.43
(one application every 4 yrs)	Application Cost		<u>9.77</u>
	Total Dolomite Costs/Acre		<u>\$56.20</u>
	Annual Dolomite Costs/Acre		<u>\$14.05</u>

Supplemental Table 3. Spray programs used in the Central Florida citrus production budgets – 2011-2012

Program	Analysis/Material Applied	Amount/Acre	Cost/Acre
#1 (at first Flush or February)	Danitol	4 pts	\$21.75
	Ground Low Volume Sprayer Every Middle		<u>12.64</u>
	Total Spray Program #1 Cost		<u>\$34.39</u>
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#2 (late March or early April – Post Bloom)	Dimethoate 4EC	1 pt	\$ 6.02
	Copper - Kocide 3000	2.5 lbs	19.55
	Zn (Zinc)	3 lbs	3.83
	Mn (Manganese)	3 lbs	2.53
	B (Borates)	0.25 lb	0.31
	Adjuvant-Surfactant	1 pt	<u>2.68</u>
	Total Materials Cost		34.93
	PTO-Air Blast Sprayer @ 125 GPA		<u>30.21</u>
Total Spray Program #2 Cost		<u>\$65.14</u>	
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#3 (late April or early May)	Mustang	4.3 ozs	\$ 5.10
	Copper - Kocide 3000	2 lbs	<u>15.64</u>
	Total Materials Cost		20.74
	PTO-Air Blast Sprayer @ 125 GPA		<u>30.21</u>
	Total Spray Program #3 Cost		<u>\$50.95</u>
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#4 (early-mid June – 1 st summer oil)	Movento	10 ozs	\$ 33.75
	Mustang	4.3 ozs	5.10
	Copper - Kocide 3000	2.5 lbs	19.55
	Spray Oil (97+%)	3 gals	<u>18.11</u>
	Total Materials Cost		76.51
	PTO-Air Blast Sprayer @ 125 GPA		<u>30.21</u>
	Total Spray Program #4 Cost		<u>\$106.72</u>
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#5 (late July or August – 2 nd summer oil)	Provado 1.6F	10 ozs	\$ 9.31
	Spray Oil (97+%)	5 gals	<u>30.18</u>
	Total Materials Cost		39.50
	PTO-Air Blast Sprayer @ 125 GPA		<u>30.21</u>
Total Spray Program #5 Cost		<u>\$69.71</u>	
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#6 (September)	Delegate	4 ozs	\$34.62
	PTO-Air Blast Sprayer @ 125 GPA		<u>30.21</u>
	Total Spray Program #6 Cost		<u>\$64.83</u>
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#7 (late October or November – for Processed Fruit)	Imidan 70W	1 lb	\$11.69
	Adjuvant-Surfactant	1 pt	<u>2.68</u>
	Total Materials Cost		14.37
	Ground Low Volume Sprayer Every Middle		<u>12.64</u>
Total Spray Program #7 Cost		<u>\$27.01</u>	

Supplemental Table 3. Spray programs used in the Central Florida citrus production budgets – 2011-2012 (cont'd.)

Program	Analysis/Material Applied	Amount/Acre	Cost/Acre
#8 (mid-late May)	Copper - Kocide 3000	2 lbs	\$15.64
	Dimethoate 4EC	1 pt	<u>6.02</u>
	Total Materials Cost		21.67
	PTO-Air Blast Sprayer @ 125 GPA		<u>30.21</u>
	Total Spray Program #8 Cost		<u>\$51.88</u>
#9 (February and/or November)	Danitol	1 pt	\$ 21.75
	Ground LV Sprayer Every Other Middle		<u>7.11</u>
	Total Spray Program #9 Cost		<u>\$28.86</u>
#10 (April and/or May)	Dimethoate 4EC	1 pt	\$ 6.02
	Ground LV Sprayer Every Other Middle		<u>7.11</u>
	Total Spray Program #10 Cost		<u>\$13.13</u>
#11 (February and/or November)	Malathion 5 EC	2 pts	\$ 8.93
	Ground Low Volume Sprayer Every Middle		<u>12.64</u>
	Total Spray Program #11 Cost		<u>\$21.57</u>
#12 (February and/or November)	Malathion 5 EC	2 pts	\$ 8.93
	Aerial Low Volume Fix Wing (+/- 5 GPA)		<u>5.25</u>
	Total Spray Program #12 Cost		<u>\$14.18</u>