

Summary of 2007-2008 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 was developed by surveying custom operators, suppliers, growers, colleagues with UF/IFAS and County Extension Agents in each production region.

Average cultural production costs increased 26% between 2006-2007 and 2007-2008 seasons. The high cost of fuel and energy increased equipment application costs 11% over the 2006-2007 season. Overall increase in chemical prices average 8%. However, fertilizer prices had the greatest impact on costs in 2007-2008 increasing an average of 80% over 2006-2007. High demand for plant nutrients throughout the developing world, especially Brazil, China and India, along with the increases in transportation costs were the causes for the increase in fertilizer costs.

The 2007-2008 summary comparative budgets summary for a fresh market cultural program are shown in Table 1. Two scenarios are presented: 1) Typical/Historic Processed Orange Cultural Program **Without Citrus Canker and Greening** and 2) Processed Orange Cultural Program **With Citrus Canker and Greening**. Scenario one represents costs of typical grove practices which have been performed for citrus grown for the processed juice market, but does not include citrus canker and greening management control programs. Scenario two is the same processed market cultural program for scenario one but expanded to include the additional costs for managing citrus canker and greening. Each budget scenario shows a Total 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 to identify and remove infected trees along with adding new spray programs to control the insect vector, the Asian citrus psyllid. 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, based on the cultural programs being implemented in UF/IFAS CREC research groves and information from citrus growers and were incorporated into Tables 1, 2 and 3.

The budgets shown in Table 1 lists 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 double, if not increase more, the tree replacement costs. 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.

The comparative budget costs are shown as an expanded “**delivered-in**” format in Table 2 and are presented **with** and **without** the additional citrus greening cultural management costs as well as no resetting and resetting. The delivered-in costs include cultural/production, management, regulatory and harvesting costs. The costs are presented in per acre, per box and per pound solids cost units. The per acre yields used in Table 2 represent above average production for Valencias in the Central Florida (Ridge) production region. The decreased yield per acre are for the “with greening” expanded budget reflects an additional 2.3% average annual tree loss for all age trees. Table 3 shows the delivered-in costs with resetting.

Break-even prices for processed Valencia oranges are shown in Table 4 for yields ranging from 300 to 600 boxes per acre. **Without** the additional cultural management costs for citrus canker and greening and **no resetting**, the delivered-in break-even price ranged from \$1.192 to \$0.797 per pound solids; **with resetting** the breakeven prices ranged from \$1.248 to \$0.825 per pound solids. **With** the additional citrus canker and greening costs and **no resetting**, the delivered-in break-even prices ranged from \$1.380 to \$0.891 per pound solids; **with resetting** these breakeven prices ranged from \$1.485 to \$0.944 per pounds 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. “Summary of 2008 Ridge and Indian River-South Florida Citrus Caretaker Custom Rate Charges.” UF/IFAS CREC Website: www.crec.ifas.ufl.edu/Extension/Economics September 2008. 5 pages.
- Muraro, Ronald P. “Average Packing Charges for Florida Fresh Citrus – 2007-08 Season.” UF/IFAS CREC Website: www.crec.ifas.ufl.edu/Extension/Economics September 2008. 2 pages.
- Muraro, Ronald P. “Estimated Average Picking, Roadsiding and Hauling Charges for Florida Fresh Citrus – 2007-08 Season.” UF/IFAS CREC Website: www.crec.ifas.ufl.edu/Extension/Economics September 2008. 2 pages.
- Muraro, Ronald P. “Summary of 2007-2008 Citrus Budgets for the Indian River Citrus Production Region.” UF/IFAS CREC Website: www.crec.ifas.ufl.edu/Extension/Economics September 2008. 10 pages.
- Muraro, Ronald P. “Summary of 2007-2008 Citrus Budgets for the Southwest Florida Citrus Production Region.” UF/IFAS CREC Website: www.crec.ifas.ufl.edu/Extension/Economics September 2008. 13 pages.

Table 1. A Listing of Estimated Comparative **Central Florida (Ridge)** Production Costs Per Acre for **Processed Oranges, 2007-2008^z**

Costs represent a mature (10+ years old) Central Florida (Ridge) Orange Grove.	Processed Cultural Program	
	Without Canker-Greening	With Canker-Greening
PRODUCTION/CULTURAL COSTS^y		
<u>Weed Management/Control:</u>		
Mechanical Mow Middles (4 times per year)	\$ 49.34	\$ 49.34
Chemical Mow Middles (2 times per year)	18.24	18.24
General Grove Work (2 labor hours per acre)	31.30	31.30
Herbicide (1/2 tree acre treated): (See Addenda Table 1 - Herbicide Programs #1, #2 & #3)	<u>144.58</u>	<u>144.58</u>
Total Weed Management Costs	243.46	243.46
<u>Spray/Pest Management:</u> (See Addenda Table 2)	210.52	482.64
Without Greening: Spray Programs #5 and #7		
With Greening: Spray Programs #1, #2 @ 2, #3, #4 and #6		
Fertilizer (Bulk): 4 Applications (See Addenda Table 3 - Fert Prog #1; 16-0-16-4MgO @ 200 lbs N)	419.54	419.54
Dolomite (one ton applied every 3 years) (Material/Application)	14.76	14.76
<u>Pruning^x:</u> Topping (\$30.00/A ÷ 2 yrs)	15.00	15.00
Hedging (\$30.37/A ÷ 2 yrs)	15.33	15.33
Chop/Mow Brush after Hedging (\$15.60/A ÷ 2 yrs)	<u>7.80</u>	<u>7.80</u>
Total Pruning Cost	38.13	38.13
<u>Irrigation:</u> Microsprinkler System ^w	210.32	210.32
Mandatory Citrus Canker Decontamination Costs	31.67	31.67
Field Inspections for Citrus Greening (4 inspections @ \$25.99)	—	<u>103.96</u>
TOTAL PROCESSED PRODUCTION COSTS WITHOUT TREE REPLACEMENT-RESET COSTS	<u>1,168.40</u>	<u>1,548.48</u>
Tree Replacement – 1 thru 3 years of age (3 trees/acre without greening; 6 trees/acre with greening)		
Remove Trees: Pull, Stack & Burn (Clip-Shear & Front End Loader)	20.49	34.14
Prepare Site and Plant Tree (includes reset trees)	45.84	85.62
Supplemental Fertilizer, Sprays, Sprout, etc. (Trees 1-3 years old)	<u>51.69</u>	<u>120.24</u>
Total Tree Replacement Cost	<u>118.02</u>	<u>240.00</u>
TOTAL PROCESSED PRODUCTION COSTS WITH TREE REPLACEMENT-RESET COSTS	<u>1,286.42</u>	<u>1,784.48</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, University of Florida-IFAS, Citrus Research and Education Center, Lake Alfred, FL, September 2008.

^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 percent 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 expended 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 \$18.69 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 \$40.05 per acre; etc.

^xPer acre costs shown in parenthesis are for 2008.

^wIrrigation Expense includes the following:

	<u>Microsprinkler</u>
Variable Operating Expense (Diesel)*	\$ 93.16
Fixed-Variable Expense (annual maintenance repairs to system)	<u>60.60</u>
Total Cash Expenses	\$142.96
Fixed-Depreciation Expense	<u>56.56</u>
Total Cash and Fixed Expense	<u><u>\$210.32</u></u>

*Reflects the higher fuel costs.

Source: Ronald P. Muraro, Extension Farm Management Economist, University of Florida, IFAS, CREC, Lake Alfred, FL, September 2008.

Table 2. Estimated Total Delivered-in Cost for Central Florida (Ridge) Valencia Oranges Grown for the Processed Juice Market **Without** and **With** Citrus Canker and Greening, 2007-08

Represents a mature (10+ years old) Central Florida (Ridge) Orange Grove	Processed Cultural Program Without Canker-Greening and NO Resetting - Tree Replacement*			Processed Cultural Program With Canker-Greening and NO Resetting - Tree Replacement**		
	\$/Acre	\$/Box	\$/P.S.	\$/Acre	\$/Box	\$/P.S.
Total Production/Cultural Costs	\$1,168.40	\$2.608	\$0.3726	\$1,544.48	\$4.197	\$0.5996
Interest on Operating (Cultural) Costs	58.16	0.130	0.0185	78.70	0.214	0.0306
Management Costs	48.00	0.107	0.0153	48.00	0.130	0.0186
Taxes/Regulatory Costs:						
Property Tax/Water Management Tax	<u>61.00</u>	<u>0.136</u>	<u>0.0195</u>	<u>61.00</u>	<u>0.166</u>	<u>0.0237</u>
Total Direct Grower Costs	\$1,335.82	\$2.982	\$0.4260	\$1,730.70	\$4.703	\$0.6719
Interest on Average Capital Investment Costs	<u>321.22</u>	<u>0.717</u>	<u>0.1024</u>	<u>321.22</u>	<u>0.768</u>	<u>0.1130</u>
Total Grower Costs	\$1,657.04	\$3.699	\$0.5284	\$2,051.92	\$5.471	\$0.7849
Harvesting and Assessment Costs:						
Pick/Spot Pick, Roadside & Haul and Canker Decontamination	1,118.66	2.497	0.3672	918.90	2.497	0.3672
DOC Assessment	<u>107.52</u>	<u>0.240</u>	<u>0.0353</u>	<u>88.32</u>	<u>0.240</u>	<u>0.0353</u>
Total Harvesting and Assessment Costs	1,226.18	2.737	0.4025	1,007.22	2.737	0.4025
Total Delivered-In Cost	<u>\$2,883.21</u>	<u>\$6.436</u>	<u>\$0.9309</u>	<u>\$3,059.14</u>	<u>\$8.208</u>	<u>\$1.1874</u>
120 trees per acre	Refer to cultural program shown in Table 1.*			Refer to cultural program shown in Table 1.**		
P.S. = Pound Solids	Yield: 448 boxes/acre; 7.0 P.S./box			Yield: 368 boxes/acre; 7.0 P.S./box		

Source: Ronald P. Muraro, Extension Farm Management Economist, University of Florida, IFAS, CREC, Lake Alfred, FL, September 2008.

Table 3. Estimated Total Delivered-in Cost for Central Florida (Ridge) Valencia Oranges Grown for the Processed Juice Market **Without** and **With** Citrus Canker and Greening, 2007-08

Represents a mature (10+ years old) Central Florida (Ridge) Orange Grove	Processed Cultural Program Without Canker-Greening and WITH Resetting - Tree Replacement			Processed Cultural Program With Canker-Greening and WITH Resetting - Tree Replacement		
	\$/Acre	\$/Box	\$/P.S.	\$/Acre	\$/Box	\$/P.S.
Total Production/Cultural Costs	\$1,286.42	\$2.871	\$0.4102	\$1,784.48	\$4.849	\$0.6927
Other Grower Costs	<u>488.37</u>	<u>1.090</u>	<u>0.1557</u>	<u>488.37</u>	<u>1.327</u>	<u>0.1896</u>
Total Grower Costs	\$1,775.06	\$3.961	\$0.5659	\$2,273.12	\$6.176	\$0.8823
Total Harvesting and Assessment Costs	<u>1,226.18</u>	<u>2.737</u>	<u>0.4025</u>	<u>1,007.22</u>	<u>2.737</u>	<u>0.4025</u>
Total Delivered-In Cost	<u>\$3,001.23</u>	<u>\$6.698</u>	<u>\$0.9684</u>	<u>\$3,280.33</u>	<u>\$8.913</u>	<u>\$1.2848</u>

Source: Ronald P. Muraro, Extension Farm Management Economist, University of Florida, IFAS, CREC, Lake Alfred, FL, September 2008.

Table 4. Break-even Price for Processed Valencia Oranges in Central Florida (Ridge), 2007-08

Boxes Per Acre						
300	350	400	450	500	550	600
Delivered-in Price Per Pound Solids ^a						
<u>Without Canker-Greening</u>						
NO Resetting-Tree Replacement						
\$1.192	\$1.079	\$0.994	\$0.929	\$0.876	\$0.833	\$0.797
WITH Resetting-Tree Replacement						
\$1.248	\$1.127	\$1.036	\$0.966	\$0.910	\$0.864	\$0.825
<u>With Canker-Greening</u>						
NO Resetting-Tree Replacement						
\$1.380	\$1.240	\$1.135	\$1.054	\$0.989	\$0.935	\$0.891
WITH Resetting-Tree Replacement						
\$1.485	\$1.330	\$1.214	\$1.124	\$1.052	\$0.993	\$0.944

^aAssumes 7.0 pounds solids per box.

Addenda Table 1. Herbicide programs used in the Central Florida citrus production budgets – 2007-2008.

Program	Materials/Ingredients	Amount treated acre	Cost/acre*
#1	Solicam 80 DF	3 lbs	\$25.62
	Karmex WP	4 lbs	10.25
	Roundup Weather Max	4 pts	<u>12.99</u>
			\$48.86
	Application Cost/Acre	1 time	<u>\$10.31</u>
	Total Cost/Application		<u>\$59.17</u>
#2	Prowl H20	4 pts	\$ 8.06
	Simazine 4L	8 pts	9.83
	Roundup Weather Max	4 pts	<u>12.99</u>
			\$30.88
	Application Cost/Acre	1 time	<u>\$10.31</u>
	Total Cost/Application		<u>\$41.19</u>
#3	Mandate	2 pts	\$12.81
	Direx 4L	6 pts	8.11
	Roundup Weather Max	4 pts	<u>12.99</u>
			\$33.91
	Application Cost/Acre	1 time	<u>\$10.31</u>
	Total Cost/Application		<u>\$44.22</u>
#4	Roundup Weather Max (chemical mow)	1 pt	<u>\$3.25</u>
			\$3.25
	Application Cost/Acre	1 time	<u>\$5.88</u>
	Total Cost/Application		<u>\$9.13</u>

*Herbicide applied to 50% of grove area.

Addenda Table 2. Spray programs used in the Central Florida citrus production budgets – 2007-2008.

Program	Analysis/Material Applied	Amount/Acre	Cost/Acre
#1 (January)	Temik 15G	33 lbs	\$109.63
	Custom application		<u>15.67</u>
	Total Spray Program #1		<u>\$125.30</u>
#2 (at first Flush or February and/or October)	Danitol	1 pt	\$18.98
	PTO-Air Blast Sprayer @ 125 GPA		<u>30.29</u>
	Total Spray Program #2		<u>\$49.27</u>
#3 (April – Post Bloom and Nutritional)	Lorsban 4EC	5 pts	\$11.84
	Copper (Kocide 3000)	2.5 lbs	16.69
	Zn (Zinc)	3 lbs	6.96
	Mn (Manganese)	3 lbs	2.15
	B (Borates)	0.25 lb	<u>0.21</u>
	Total material costs		37.85
	PTO-Air Blast Sprayer @ 125 GPA		<u>30.29</u>
Total Spray Program #3		<u>\$68.14</u>	

Addenda Table 2. Spray programs used in the Central Florida citrus production budgets – 2007-2008 (cont'd.).

Program	Analysis/Material Applied	Amount/Acre	Cost/Acre
#4 (late May or early June)	Mustang	4.3 ozs	\$ 6.24
	Copper (Kocide 3000)	2.5 lbs	26.71
	Spray Oil (97+%)	5 gals	<u>26.07</u>
	Total material cost		59.02
	PTO-Air Blast Sprayer @ 125 GPA		<u>30.29</u>
	Total Spray Program #4		<u>\$89.31</u>
#5 (early July or mid-August)	Spray Oil (97+%)	5 gals	\$ 26.07
	Copper (Kocide 3000)	4 lbs	26.71
	Agrimek (if no mite resistance)	5 ozs	23.23
	Zn (Zinc)	3 lbs	6.96
	Mn (Manganese)	3 lbs	2.15
	B (Borates)	0.25 lbs	<u>0.21</u>
	Total material cost		\$85.32
	PTO Air Blast Sprayer @ 125 GPA		<u>30.29</u>
Total Spray Program #5		<u>\$115.62</u>	
#6 (late June or July)	Provado	16 ozs	\$28.30
	Copper (Kocide 3000)	2.5 lbs	16.69
	Spray Oil (97+%)	5 gals	<u>26.07</u>
	Total material cost		71.06
	PTO Air Blast Sprayer @ 125 GPA		<u>30.29</u>
	Total Spray Program #6		<u>\$101.35</u>
#7 (late July or August)	Lorsban 4EC	5 pts	\$11.84
	Copper (Kocide 3000)	2.5 lbs	16.69
	Spray Oil (97+%)	5 gals	<u>26.07</u>
	Total materials cost		54.60
	PTO Air Blast Sprayer @125 GPA		<u>30.29</u>
	Total Spray Program #7		<u>\$84.89</u>

Addenda Table 3. Fertilizer programs used in the Central Florida citrus production budgets – 2007-2008.

Program	Analysis/Material Applied	Amount/Acre	Cost/Acre
#1 – 4 applications	16-0-16-4 MgO	200 lbs	\$380.88
	Application cost		<u>38.68</u>
	Total Fertilizer Costs Program #1		<u>\$419.56</u>
#2 – 4 applications	17-4-17-2.4 MgO	220 lbs	\$450.77
	Application cost		<u>38.68</u>
	Total Fertilizer Costs Program #2		<u>\$489.45</u>