

Summary of 2009-2010 Citrus Budget for the Indian River 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 Indian River 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 **Indian River** 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.

Although there were changes in the prices of fertilizer (16% decrease) and chemical (3% decrease) inputs and application costs (2% increase), there were no significant changes in total average cultural production costs per acre between 2008-2009 and 2009-2010. This was the result that growers have increased their focus on controlling the Asian citrus psyllid that transmits the citrus HLB-greening disease. Total spray applications have increased along with the total costs of the entire spray program. However, more growers are incorporating aerial and low-volume ground spray applications to reduce total spray costs.

The 2009-2010 summary comparative budgets summary for a fresh market cultural program are shown in Table 1. Two scenarios are presented: 1) Traditional/Historic Fresh Cultural Program **Without Citrus Canker and Greening** and 2) Fresh Fruit Cultural Program **With Citrus Canker and Greening**. Scenario one represents costs of traditional grove practices which have been performed for citrus grown for the fresh fruit market, but does not include citrus canker and greening management control programs. Scenario two is the same fresh fruit 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 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. 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, 2, 3 and 4.

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 without resetting/tree replacement are shown as an expanded “**delivered-in**” format in Table 2. The delivered-in costs include cultural/production, management, regulatory and harvesting costs. The costs are presented in per acre, per box and per packed carton cost units. The per acre yields used in Tables 2 and 3 represent above average production for grapefruit in the Indian River production region. The decreased yield per acre 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.

In previous citrus budgets, the traditional citrus psyllid-greening management has included a soil-applied Temik treatment in January along with five ground spray applications. With the use of Temik scheduled to be discontinued, the 2009-10 spray programs (refer to Table 1) include a total of ten applications including both ground and aerial sprays; but no Temik application. Also, the spray and material costs for citrus black spot (CBS) control would add at least \$76.15 per acre.

Break-even prices for fresh market grapefruit are shown in Table 4 for yields ranging from 350 to 650 boxes per acre and are presented **with** and **without** the additional citrus greening cultural management costs as well as no resetting and resetting. **Without** the additional cultural management costs for citrus canker and greening and **no resetting**, the delivered-in break-even price ranged from \$7.66 to \$5.32 per box; **with resetting** the break-even prices ranged from \$18.07 to \$5.54 per box. **With** the additional citrus canker and greening costs and **no resetting**, the delivered-in break-even prices ranged from \$9.28 to \$6.19 per box; **with resetting** these break-even prices ranged from \$10.10 to \$6.64 per box.

In Table 6, the total estimated F.O.B. costs for fresh packed grapefruit are shown. The F.O.B. costs are presented for “fresh fruit packout percentage rates” ranging from 25% to 100%.

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 – 2009-10 Season." UF/IFAS CREC Website: www.crec.ifas.ufl.edu/Extension/Economics September 2010. 2 pages.
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Table 1. A Listing of Estimated Comparative **Indian River** Production Costs Per Acre for **Fresh Market Grapefruit**, 2009-2010^z

Costs represent a mature (10+ years old) Indian River White Grapefruit Grove.	Fresh Market Cultural Program	
	Without Canker-Greening	With Canker-Greening
PRODUCTION/CULTURAL COSTS^y		
Weed Management/Control:		
Mechanical Mow Middles (3 times per year)	\$ 41.28	\$ 41.28
Chemical Mow Middles (3 times per year)	17.61	17.61
General Grove Work (2 labor hours per acre)	31.94	31.94
Herbicide (1/2 tree acre treated): (See Supplemental Table 1 - Herbicide Programs #1, #2 and #3)	<u>125.01</u>	<u>125.01</u>
Total Weed Management Costs	215.84	215.84
Spray/Pest Management: (See Supplemental Table 3)		
Without Greening: Spray Programs #4, #9, #10, #13 & #20 @ 2	383.29	
With Greening: Spray Programs #1, #2, #3, #4, #5, #6, #7, #8, #11 & #14		728.99
Fertilizer (Bulk): 4 Applications (See Supplemental Table 2 - Fert Prog #4; 16-2-16-3MgO @ 160 lbs N)	245.56	245.56
Dolomite (one ton applied every 3 years) (Material/Application)	16.10	16.10
Pruning^x: Topping (\$27.71/A ÷ 2 yrs)	13.86	13.86
Hedging (\$27.31/A ÷ 2 yrs)	13.66	13.66
Chop/Mow Brush after Hedging (\$14.66/A ÷ 2 yrs)	7.33	7.33
Raise Skirts of Trees (\$23.29/A ÷ 2 yrs)	<u>11.65</u>	<u>11.65</u>
Total Pruning Cost	46.50	46.50
Irrigation: Microsprinkler System ^w	177.88	177.88
Clean Ditches (Weed Control)	16.90	16.90
Ditch and Canal Maintenance	15.92	15.92
Water Control (Pump water in/out of Ditches and Canals)	<u>14.07</u>	<u>14.07</u>
Total Irrigation Cost	224.77	224.77
Field Inspections for Citrus Greening (4 inspections @ \$26.81)	—	107.24
Clean Blocks Before Certification and Harvesting	—	33.96
Inspections Before “Canker Free” Certification (2 inspections @ \$26.81)	—	53.62
Mandatory Citrus Canker Decontamination Costs	<u>29.85</u>	<u>29.85</u>
TOTAL PROCESSED PRODUCTION COSTS WITHOUT TREE REPLACEMENT-RESET COSTS	<u>1,161.91</u>	<u>1,702.43</u>
Tree Replacement – 1 thru 3 years of age (4 trees/acre without greening; 7 trees/acre with greening)		
Remove Trees: Pull, Stack & Burn (Clip-Shear & Front End Loader)	27.28	39.76
Prepare Site and Plant Tree (includes reset trees)	59.16	96.39
Supplemental Fertilizer, Sprays, Sprout, etc. (Trees 1-3 years old)	<u>50.28</u>	<u>139.93</u>
Total Tree Replacement Cost	<u>136.72</u>	<u>276.08</u>
TOTAL PROCESSED PRODUCTION COSTS WITH TREE REPLACEMENT-RESET COSTS	<u>1,298.63</u>	<u>1,978.51</u>

^zThe listed estimated comparative costs are for the example grove situation and may not represent your particular grove situation in the Indian River Production Area.

Source: Ronald P. Muraro, University of Florida-IFAS, Citrus Research and Education Center, Lake Alfred, FL, September 2010.

Footnotes Refer to Table 1.

^yIndian River production area refers to the citrus producing counties on Florida's east coast.

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 Tables 2 and 3.

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 \$19.98 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 2010.

^wIrrigation Expense includes the following:

	<u>Microsprinkler</u>	<u>Drip</u>
Variable Operating Expense (Diesel)*	\$ 64.60	\$ 61.81
Fixed-Variable Expense (annual maintenance repairs to system)	<u>56.72</u>	<u>50.37</u>
Total Cash Expenses**	\$121.32	\$112.19
Fixed-Depreciation Expense	<u>56.56</u>	<u>45.25</u>
Total Cash and Fixed Expense	<u>\$177.88</u>	<u>\$157.25</u>

* Reflects higher fuel costs.

** Where applies, there may be an additional cost of \$14.07 per acre for water control in/out of ditches and canals plus \$15.92 per acre for ditch and canal maintenance plus \$16.90 for weed control in ditches and canals.

Source: Ronald P. Muraro, Extension Farm Management Economist, University of Florida, IFAS, CREC, Lake Alfred, FL, September 2010.

Table 2. Estimated Total Delivered-in Cost for **Indian River Grapefruit** Grown for the **Fresh Fruit Market** **Without** and **With** Citrus Greening-Canker, 2009-10

Represents a mature (10+ years old) Indian River Grapefruit Grove	Fresh Market Cultural Program Without Canker-Greening and NO Resetting - Tree Replacement			Fresh Market Cultural Program With Canker-Greening and NO Resetting - Tree Replacement		
	\$/Acre	\$/Box	\$/Carton	\$/Acre	\$/Box	\$/Carton
Total Production/Cultural Costs	\$1,161.91	\$2.357	\$1.1784	\$1,702.43	\$3.968	\$1.9842
Interest on Operating (Cultural) Costs	58.10	0.118	0.0589	85.12	0.198	0.992
Management Costs	48.00	0.097	0.0487	48.00	0.112	0.0559
Taxes/Regulatory Costs:						
Property Tax/Water Management Tax	61.00	0.124	0.0619	61.00	0.142	0.0711
Fly Protocol Cost	56.65	0.115	0.0574	56.65	0.132	0.0660
Water Drainage District Tax	<u>65.21</u>	<u>0.132</u>	<u>0.0661</u>	<u>65.21</u>	<u>0.152</u>	<u>0.0760</u>
Total Direct Grower Costs	\$1,450.86	\$2.943	\$1.4715	\$2,018.41	\$4.705	\$2.3525
Interest on Average Capital Investment Costs	<u>321.22</u>	<u>0.652</u>	<u>0.3258</u>	<u>321.22</u>	<u>0.749</u>	<u>0.3744</u>
Total Grower Costs	\$1,772.07	\$3.594	\$1.7972	\$2,339.62	\$5.454	\$2.7268
Harvesting and Assessment Costs:						
Pick/Spot Pick, Roadside & Haul and Canker Decontamination	1,105.31	2.242	1.1210	961.82	2.242	1.1210
DOC Assessment	<u>172.55</u>	<u>0.350</u>	<u>0.1750</u>	<u>150.15</u>	<u>0.350</u>	<u>0.1750</u>
Total Harvesting and Assessment Costs	1,277.86	2.592	1.2960	1,111.97	2.592	1.2960
Total Delivered-In Cost	<u>\$3,049.93</u>	<u>\$6.186</u>	<u>\$3.0932</u>	<u>\$3,451.59</u>	<u>\$8.046</u>	<u>\$4.0228</u>
119 trees per acre	Refer to cultural program shown in Table 2.			Refer to cultural program shown in Table 2.		
Two cartons per box	Assumes 100% packout Yield: 493 boxes/acre			Assumes 100% packout Yield: 429 boxes/acre		

Source: Ronald P. Muraro, Extension Farm Management Economist, University of Florida, IFAS, CREC, Lake Alfred, FL, September 2010.

Table 3. Estimated Total Delivered-in Cost for **Indian River Grapefruit** Grown for the **Fresh Fruit Market Without** and **With** Citrus Greening-Canker, 2009-10

Represents a mature (10+ years old) Indian River Grapefruit Grove	Fresh Market Cultural Program Without Canker-Greening and WITH Resetting - Tree Replacement			Fresh Market Cultural Program With Canker-Greening and WITH Resetting - Tree Replacement		
	\$/Acre	\$/Box	\$/Carton	\$/Acre	\$/Box	\$/Carton
TOTAL PRODUCTION/CULTURAL COSTS	\$1,298.63	\$2.634	\$1.3171	\$1,978.51	\$4.612	\$2.3060
Other Grower Costs	<u>617.00</u>	<u>1.252</u>	<u>0.6258</u>	<u>650.99</u>	<u>1.517</u>	<u>0.7587</u>
TOTAL GROWER COSTS	\$1,915.63	\$3.886	\$1.9428	\$2,629.50	\$6.129	\$3.0647
TOTAL HARVESTING & ASSESSMENT COSTS	1,277.86	2.592	1.2960	1,111.97	2.592	1.2960
TOTAL DELIVERED-IN COST	<u>\$3,193.48</u>	<u>\$6.478</u>	<u>\$3.2388</u>	<u>\$3,741.47</u>	<u>\$8.721</u>	<u>\$4.3607</u>

Source: Ronald P. Muraro, Extension Farm Management Economist, University of Florida, IFAS, CREC, Lake Alfred, FL, September 2010.

Table 4. Break-even Price for Fresh Market Grapefruit in Indian River Florida, 2009-10

Boxes Per Acre						
350	400	450	500	550	600	650
Delivered-in Price Per Box						
<u>Without Canker-Greening</u>						
<u>NO Resetting-Tree Replacement</u>						
\$7.66	\$7.02	\$6.53	\$6.14	\$5.81	\$5.55	\$5.32
<u>WITH Resetting-Tree Replacement</u>						
\$8.07	\$7.38	\$6.85	\$6.42	\$6.07	\$5.78	\$5.54
<u>With Canker-Greening and NO Resetting-Tree Replacement</u>						
<u>Greening Spray Program - NO Temik</u>						
\$9.28	\$8.44	\$7.79	\$7.27	\$6.85	\$6.49	\$6.19
<u>Greening Spray Program - NO Temik and NO Med-Fly Bait^a</u>						
\$9.13	\$8.32	\$7.68	\$7.17	\$6.75	\$6.41	\$6.11
<u>With Canker-Greening and With Resetting-Tree Replacement</u>						
<u>Greening Spray Program - NO Temik</u>						
\$10.10	\$9.17	\$8.44	\$7.85	\$7.37	\$6.97	\$6.64
<u>Greening Spray Program - NO Temik and NO Med-Fly Bait^a</u>						
\$9.96	\$9.04	\$8.32	\$7.75	\$7.28	\$6.89	\$6.56

^aAssumes that the October-November and February aerial psyllid spray will control Mediterranean fruit fly.

Table 5. Estimated F.O.B. Cost for Fresh Market Indian River Grapefruit, 2009-10 – **with Citrus Canker and Greening and Resetting**

	Percent Packout 25%			Percent Packout 40%			Percent Packout 55%		
	Box Yield Per Acre 429			Box Yield Per Acre 429			Box Yield Per Acre 429		
	Per Acre	Per Box	Per Carton	Per Acre	Per Box	Per Carton	Per Acre	Per Box	Per Carton
Total Production/Cultural Costs	\$1,978.51	\$18.448	\$9.2238	\$1,978.51	\$11.530	\$5.7649	\$1,978.51	\$8.385	\$4.1927
Interest on Operating (Cultural) Costs	98.93	0.922	0.4612	98.93	0.576	0.2882	98.93	0.419	0.2096
Management	48.00	0.448	0.2238	48.00	0.280	0.1399	48.00	0.203	0.1017
Taxes/Regulatory	182.85	1.705	0.8525	182.85	1.066	0.5328	182.85	0.775	0.3875
Interest on Average Capital Investment	321.22	2.995	1.4975	321.22	1.872	0.9359	321.22	1.361	0.6807
Harvesting (Pick/Spot Pick, Haul, DOC Tax, Etc.)	<u>1,111.97</u>	<u>10.368</u>	<u>5.1840</u>	<u>1,111.97</u>	<u>6.480</u>	<u>3.2400</u>	<u>1,111.97</u>	<u>4.713</u>	<u>2.3564</u>
Total Delivered-In Cost	\$3,741.47	\$34.886	\$17.4428	\$3,741.47	\$21.803	\$10.9017	\$3,741.47	\$15.857	\$7.9285
Packing & Selling	1,017.37	9.486	4.7430	0.00	9.486	4.7430	0.00	9.486	4.7430
Net Fresh Eliminations Costs ^a	<u>-1,463.96</u>	<u>-13.650</u>	<u>-6.8250</u>	<u>-1,171.17</u>	<u>-6.825</u>	<u>-3.4125</u>	<u>-878.38</u>	<u>-3.723</u>	<u>-1.8614</u>
Total F.O.B. Costs	<u>\$3,294.88</u>	<u>\$30.722</u>	<u>\$15.3608</u>	<u>\$2,570.30</u>	<u>\$24.464</u>	<u>\$12.2322</u>	<u>\$2,863.09</u>	<u>\$21.620</u>	<u>\$10.8102</u>
	Percent Packout 70%			Percent Packout 85%			Percent Packout 100%		
	Box Yield Per Acre 429			Box Yield Per Acre 429			Box Yield Per Acre 429		
	Per Acre	Per Box	Per Carton	Per Acre	Per Box	Per Carton	Per Acre	Per Box	Per Carton
Total Production/Cultural Costs	\$1,978.51	\$6.588	\$3.2942	\$1,978.51	\$5.426	\$2.7129	\$1,978.51	\$4.612	\$2.3060
Interest on Operating (Cultural) Costs	98.93	0.329	0.1647	98.93	0.271	0.1356	98.93	0.231	0.1153
Management	48.00	0.160	0.0799	48.00	0.132	0.0658	48.00	0.112	0.0559
Taxes/Regulatory	182.85	0.609	0.3044	182.85	0.501	0.2507	182.85	0.426	0.2131
Interest on Average Capital Investment	321.22	1.070	0.5348	321.22	0.881	0.4404	321.22	0.749	0.3744
Harvesting (Pick/Spot Pick, Haul, DOC Tax, Etc.)	<u>1,111.97</u>	<u>3.703</u>	<u>1.8514</u>	<u>1,111.97</u>	<u>3.049</u>	<u>1.5247</u>	<u>1,111.97</u>	<u>2.592</u>	<u>1.2960</u>
Total Delivered-In Cost	\$3,741.47	\$12.459	\$6.2296	\$3,741.47	\$10.260	\$5.1302	\$3,741.47	\$8.721	\$4.3607
Packing & Selling	2,848.65	9.486	4.7430	3,459.07	9.486	4.7430	4,069.49	9.486	4.7430
Net Fresh Eliminations Costs ^a	<u>-585.59</u>	<u>-1.950</u>	<u>-0.9750</u>	<u>-292.79</u>	<u>-0.803</u>	<u>-0.4015</u>	<u>0.00</u>	<u>0.000</u>	<u>0.0000</u>
Total F.O.B. Costs	<u>\$6,004.53</u>	<u>\$19.995</u>	<u>\$9.9976</u>	<u>\$6,907.75</u>	<u>\$18.944</u>	<u>\$9.4718</u>	<u>\$7,810.97</u>	<u>\$18.207</u>	<u>\$9.1037</u>

^a “Net Eliminations Cost” equals the average yield of 5.00 pound solids per box times \$1.14 per pound solids less packinghouse elimination charge and cannery hauling charge of \$1.15 per box.

Supplemental Table 1. Herbicide programs used in the Indian River citrus production budgets 2009-2010

Program	Materials/Ingredients	Amount treated acre	Price/unit	Cost/acre ^a
#1	Solicam 80 DF	3 lbs	\$22.77	\$34.16
	Karmex WP	4 lbs	5.42	10.85
	RangerRoundup	4 pts	2.34	<u>4.68</u>
	Total Materials Cost			\$49.68
	Application Cost/Acre	1 time	\$14.73	<u>14.73</u>
Total Cost/Application Program #1				<u>\$64.41</u>
#2	Prowl H ₂ O	4 pts	\$ 4.79	\$ 9.57
	Simazine 4L	8 pts	3.06	12.22
	RangerRoundup	4 pts	2.34	<u>4.68</u>
	Total Materials Cost			\$26.47
	Application Cost/Acre	1 time	\$14.73	<u>14.73</u>
Total Cost/Application Program #2				<u>\$41.20</u>
#3	RangerRoundup	4 pts	\$ 2.34	\$ 4.68
	Application Cost/Acre	1 time	\$14.73	<u>14.73</u>
	Total Cost/Application Program #3			
#4	RangerRoundup (chemical mow)	1 pt	\$2.34	\$1.17
	Application Cost/Acre	1 time	\$4.70	<u>4.70</u>
	Total Cost/Application Program #4			

^aHerbicide applied to 50% of grove area.

Supplemental Table 2. Fertilizer programs used in the Indian River citrus production budgets 2009-2010

Program	Analysis/Material Applied	Amount/Acre (lbs)	Cost/Acre
#1 – 4 applications (180 lbs of nitrogen/ acre)	12-2-12-2.4 MgO	1,250 lbs	\$258.03
	Application Cost		<u>39.42</u>
	Total Fertilizer Costs for Program #1		<u>\$297.45</u>
#2 – 4 applications (180 lbs of nitrogen/ acre)	15-2-15-3 MgO	1,200 lbs	\$235.00
	Application Cost		<u>39.42</u>
	Total Fertilizer Costs for Program #2		<u>\$274.42</u>
#3 – 4 applications (200 lbs of nitrogen/ acre)	16-0-16-4 MgO	1,250 lbs	\$243.41
	Application Cost		<u>39.42</u>
	Total Fertilizer Costs for Program #3		<u>\$282.83</u>
#4 – 4 applications (160 lbs of nitrogen/ acre)	16-2-16-3 MgO	1,000 lbs	\$206.14
	Application Cost		<u>39.42</u>
	Total Fertilizer Costs for Program #4		<u>\$245.56</u>
Dolomite/Lime (one application every 3 years)	Dolomite	2,000 lbs	\$38.00
	Application Cost		<u>10.31</u>
	Total Dolomite Costs/Acre		<u>\$48.30</u>
	Annual Dolomite Costs/Acre		<u>\$16.10</u>

Supplemental Table 3. Spray programs used in the Indian River citrus production budgets 2009-2010

Program	Analysis/Material Applied	Amount/Acre	Cost/Acre
#1 (January)	Sevin XLR	4 pts	\$22.04
	Ground Low Volume Sprayer Every Middle		<u>5.50</u>
	Total Spray Program #1 Cost		<u>\$27.54</u>
#2 (at first Flush or February)	Danitol	1 pt	\$20.37
	Fixed Wing Aerial Spray @ 10 GPA		<u>7.50</u>
	Total Spray Program #2 Cost		<u>\$27.87</u>
#3 (March)	Copper (Kocide 3000)	2.5 lbs	\$21.07
	Headline EC	12 ozs	<u>34.71</u>
	Total Materials Cost		\$55.78
	PTO-Air Blast Sprayer @ 125 GPA		<u>29.69</u>
	Total Spray Program #3 Costs		<u>\$85.47</u>
#4 (April – Post Bloom)	Dimethoate 4EC	1 pt	\$ 6.18
	Copper (Kocide 3000)	2.5 lbs	16.86
	Zn (Zinc)	3 lbs	7.46
	Mn (Manganese)	3 lbs	1.72
	B (Borates)	0.25 lb	0.33
	Adjuvant-Surfactant LI 700	1 pt	<u>3.44</u>
	Total Materials Cost		\$35.99
	PTO-Air Blast Sprayer @ 125 GPA		<u>29.69</u>
Total Spray Program #3 Cost		<u>\$65.68</u>	
#5 (late April or Early May)	Mustang	4.3 ozs	\$ 5.56
	Copper (Kocide 3000)	2.5 lbs	<u>16.86</u>
	Total Materials Cost		\$22.42
	PTO-Air Blast Sprayer @ 125 GPA		<u>29.69</u>
	Total Spray Program #4 Cost		<u>\$52.11</u>
#6 (mid-late May)	Micromite 80 WGS	6.25 ozs	\$ 41.31
	Copper (Kocide 3000)	2.5 lbs	16.86
	Abound EC	14 ozs	25.64
	Spray Oil (97+%)	3 gals	<u>13.04</u>
	Total Materials Cost		\$ 96.85
	PTO-Air Blast Sprayer @ 125 GPA		<u>29.69</u>
	Total Spray Program #6 Cost		<u>\$126.54</u>
#7 (June – 1 st Summer Oil)	Copper (Kocide 3000)	2.5 lbs	\$ 16.86
	Movento	10 ozs	64.16
	Spray Oil (97+%)	5 gals	13.04
	Adjuvant-Surfactant LI 700	1 pt	<u>3.44</u>
	Total Materials Cost		\$106.19
	PTO Air Blast Sprayer @ 125 GPA		<u>29.69</u>
Total Spray Program #7 Cost		<u>\$135.88</u>	

Supplemental Table 3. Spray programs used in the Indian River citrus production budgets 2009-2010 (cont'd.)

Program	Analysis/Material Applied	Amount/Acre	Cost/Acre
#8 (July-August – 2 nd Summer Oil)	Copper (Kocide 3000)	2.5 lbs	\$16.86
	Actara 25 WG	4 ozs	30.79
	Spray Oil (97+%)	5 gals	21.73
	Adjuvant-Surfactant LI 700	1 pt	<u>3.44</u>
	Total Materials Cost		\$72.82
	PTO-Air Blast Sprayer @ 125 GPA		<u>29.69</u>
	Total Spray Program #8 Cost		<u>\$102.51</u>
#9 (early July or mid- August)	Agrimek (if no mite resistance)	5 ozs	\$11.73
	Copper (Kocide 3000)	2.5 lbs	16.86
	Spray Oil (97+%)	5 gals	<u>21.73</u>
	Total Materials Cost		\$50.32
	PTO-Air Blast Sprayer @ 125 GPA		<u>29.69</u>
	Total Spray Program #9 Cost		<u>\$80.01</u>
#10 (late July or August)	Lorsban 4EC	5 pts	\$23.95
	Copper (Kocide 3000)	2.5 lbs	16.86
	Spray Oil (97+%)	5 gals	<u>21.73</u>
	Total Materials Cost		\$62.54
	PTO-Air Blast Sprayer @ 125 GPA		<u>29.69</u>
	Total Spray Program #10 Cost		<u>\$92.23</u>
#11 (September)	Vendex 50W	2 lbs	\$39.49
	Copper (Kocide 3000)	2.5 lbs	<u>16.86</u>
	Total Materials Cost		\$56.35
	PTO-Air Blast Sprayer @ 125 GPA		<u>29.69</u>
	Total Spray Program #11 Cost		<u>\$86.04</u>
#12 (late September or October)	Danitol	1 pt	\$20.37
	Vendex 50W	2 lbs	<u>39.49</u>
	Total Materials Cost		\$59.86
	Fixed Wing Spraying @ 10 GPA		<u>7.50</u>
	Total Spray Program #12 Cost		<u>\$67.36</u>
#13 (late September or October)	Malathion 5 EC	2 pts	\$ 8.71
	Vendex 50W	2 lbs	<u>39.49</u>
	Total Materials Cost		\$48.20
	Fixed Wing Spraying @ 10 GPA		<u>7.50</u>
	Total Spray Program #13 Cost		<u>\$55.70</u>

Supplemental Table 3. Spray programs used in the Indian River citrus production budgets 2009-2010 (cont'd.)

Program	Analysis/Material Applied	Amount/Acre	Cost/Acre
#14 (mid-October or November)	Imidan 70W	1 lb	\$10.49
	Adjuvant-Surfactant LI 700	1 pt	<u>3.44</u>
	Total Materials Cost		\$13.93
	Aerial LV Fix Wing (+/- 5 GPA)		<u>5.50</u>
	Total Spray Program #14 Cost		<u>\$19.43</u>
#15 (February and/or November)	Danitol	1 pt	\$20.37
	Aerial LV Fix Wing (+/- 5 GPA)		<u>7.50</u>
	Total Spray Program #15 Cost		<u>\$27.87</u>
#16 (February and/or November)	Malathion 5 EC	2 pts	\$ 8.71
	Aerial LV Fix Wing @ 5 GPA		<u>7.50</u>
	Total Spray Program #16 Cost		<u>\$16.21</u>
#17 (February and/or November)	Malathion 5 EC	2 pts	\$ 8.71
	Ground LV Sprayer (every middle)		<u>12.08</u>
	Total Spray Program #17 Cost		<u>\$20.79</u>
#18 (February and/or November)	Sevin XLR	4 pts	\$ 22.04
	Ground LV Sprayer (every middle)		<u>12.08</u>
	Total Spray Program #18 Cost		<u>\$34.12</u>
#19 (April and/or May)	Dimethoate 4EC	1 pt	\$ 6.18
	Adjuvant Surfactant LI 700	1 pt	<u>3.44</u>
	Total Materials Cost		9.62
	Ground LV Sprayer (every other middle)		<u>6.85</u>
	Total Spray Program #19 Cost		<u>\$16.47</u>
#20 (mid-late May)	Copper (Kocide 3000)	2.25 lbs	<u>\$15.17</u>
	PTO-Air Blast Sprayer @ 125 GPA		<u>29.69</u>
	Total Spray Program #20 Cost		<u>\$44.86</u>