ECONOMIC IMPACT OF FRESH AND PROCESSED PRODUCTION COSTS[1]

Introduction

The 1990s have become known as the decade of the manager. As we entered an era of expected lower prices, growers are having to work harder and manage more efficiently to maintain acceptable profit levels. Renewed emphasis has been placed on cost containment. Less attention will be devoted to maximizing output and more will be focused on maximizing profits. Growers will need to approach purchase, planting and cultural practices with one eye on cost-efficient management decisions and the other on the bottom line of profit maximization. Therefore, the most important thing for a grower is to know his grove and determine potential yield responses to changing inputs.

Since every management decision impacts profits, each decision must be examined. While the citrus grower is faced with many management decisions with respect to fruit production and marketing, a critical decision is the choice between the fresh and processed market. Given that a grower's decision to allocate fruit between the fresh and processed market can substantially affect net returns, it becomes critical that the decision be both economically rational and based on objective information to the extent possible.

Market Allocation

A grower has two market options -- fresh fruit market and processed fruit market. There are basically two decision times when the grower can choose to allocate, or sell, his crop to either market. The first time is prior to the production season where expectations of prices, yield, packout percentages, weather, etc., enter into the decision. A grower should also consider that historically less than 10% of all oranges and 40% of all white grapefruit are marketed fresh. The second decision time is at harvest when it must be decided to route the fruit into either the fresh or processed market. The outcome of this decision will greatly depend on the cultural practices followed in the first decision.

Figure 1 shows the above sequential decision making process in schematic form where decision node 1 indicates the first decision prior to the production season and decision node 2 indicates the second decision at harvest time. When the first decision is being considered, the grower has the greatest flexibility in controlling the number and type of production practices. The cultural program for fresh fruit production will cost more (primarily for pest management) in order to produce fruit with the external qualities valued by the fresh fruit buyers. In contrast, a decision to produce fruit for the processed market requires a less intensive cultural program since exterior fruit characteristics are of less importance. Therefore, the time when a grower should decide on a

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spray/cultural program is before the production season begins and based on the market for which the fruit is to be grown.

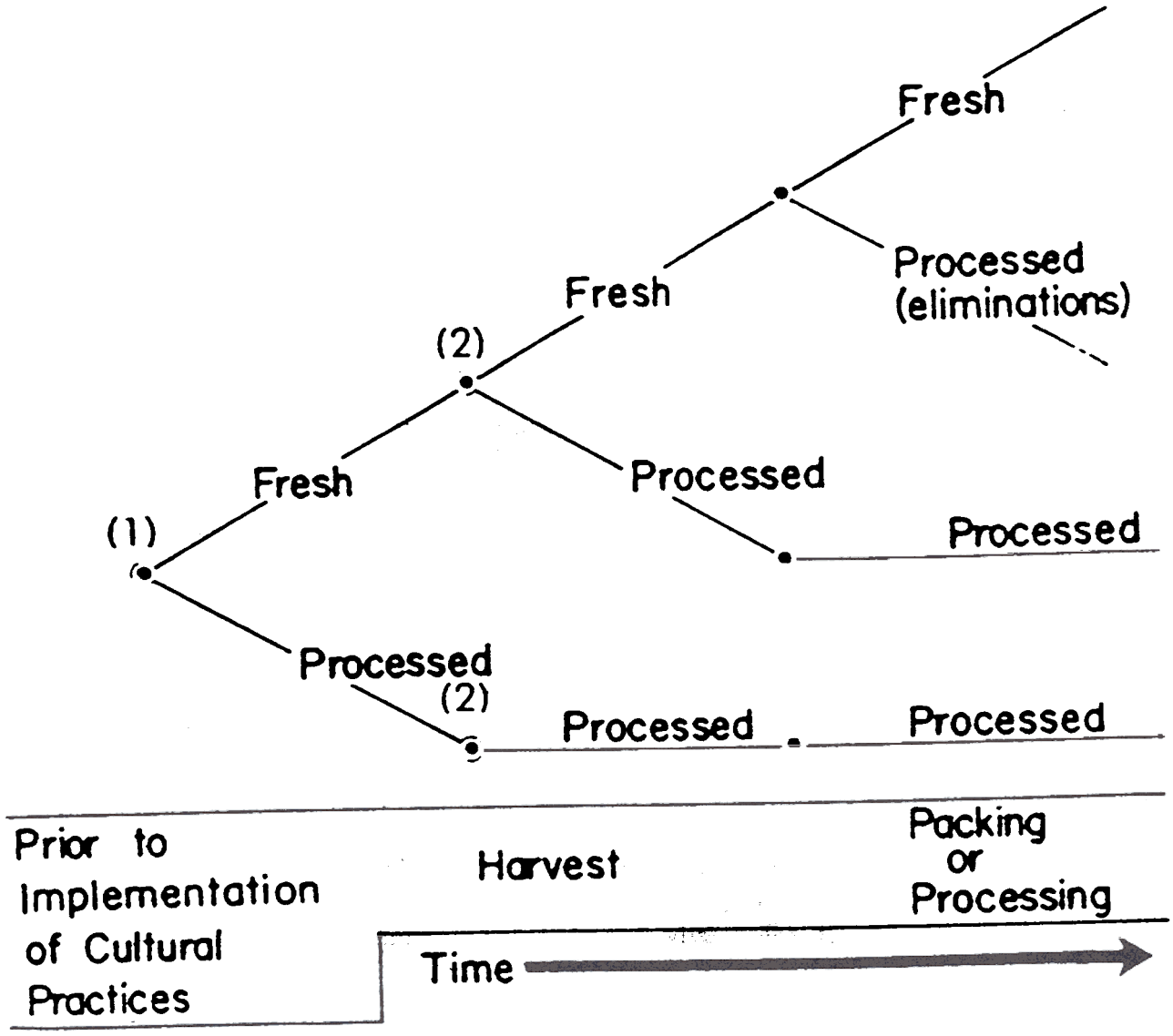

Figure 1. Decision tree for grower fruit allocation decisions.

The second decision is made at harvest time (decision node 2) with an evaluation of alternatives based upon the outcome of the first situation. If the decision was made to go processing at decision node 1, then the decision at node 2 has already been made. The fruit will go directly to processing. However, if the decision at node 1 was to go fresh, then a further decision of routing the fruit to the fresh or processed channels must be made. Thus, the decision at node 2 is made under conditions of reduced uncertainty. At this time, the fruit characteristics, yield, prices, and costs are less uncertain. Cultural costs have been spent and are not relevant to the decision. The objective now is to maximize returns, comparing fresh and processed returns.

Several types of information are needed to provide economic input into making the decision prior to the implementation of cultural practices. Factors to consider are:

Expected cost differential in cultural program

-- Expected price differential

Expected pounds solids yield

Chances of getting desired external fruit characteristics (i.e., probabilities of grade-lowering occurrences)

-- Expected packout of fresh fruit given the first and last factors listed above.

With declining prices, citrus growers will need to look at reducing costs and developing a more profit oriented approach to managing their citrus operation. Decisions to reduce spray/cultural costs will depend upon the market channel chosen – fresh or processed, the specific needs of the citrus planting being managed as well as the evaluation of the cultural program from fruitset to harvest. Therefore, a grower must develop a decision-making process designed to develop a program for "profit maximization" rather than "production maximization."

Fresh F.O.B. and Processed Delivered-in Prices

Florida's citrus industry has rebounded from the freezes of the 1980s with record number of trees planted and higher projected future fruit production. The 1996 tree inventory survey reported a total of 84.2 million orange trees planted on 656.6 thousand acres. There were a total 15.1 million grapefruit trees planted on 144.4 thousand acres. The alarming part is that 60% of the orange trees and 53% of the grapefruit trees are 8 years of age or younger. Orange production in other countries, especially Brazil, and grapefruit production in Cuba have increased the supply of citrus products in the international markets. The effect of the increased Florida and world citrus production is expected lower grower returns in the foreseeable future.

The F.O.B. price per carton and delivered-in price received per pound solids for the 1993-94, 1994-95 and 1995-96 seasons are shown in Table 1. The smaller fruit supply and preferred quality of Valencia oranges is reflected in both the fresh F.O.B price and the processed delivered-in price. In each of the three seasons shown, Valencia prices were much higher than the early/mid-season oranges, especially with respect to the processed prices. Although the fresh F.O.B. price for both white and red grapefruit improved for the 1995-96 season, the over supply of grapefruit has generally kept the fresh fruit prices flat. However, the over supply of red grapefruit is reflected in the substantially lower delivered-in processed prices. The average delivered-in price per pound solids for red grapefruit was more than $0.40 lower that white grapefruit often resulting in negative returns.

Table 1. Average F.O.B. fresh fruit price per carton and processed delivered-in price received per pound solids, 1993-94, 1994-95 and 1995-96 seasons.

Variety	Average F.O.B. price per 4/5 bushel carton			Variety	Average delivered-in price received per pound solids		
	93-94	94-95	95-96		93-94	94-95	95-96
	---------- $ ----------				---------- $ ----------		
Early/Mid-Season Oranges	5.73	5.50	6.48	Early/Mid-Season Oranges	0.88	0.78	0.90
Valencia Oranges	6.12	6.32	7.40	Valencia Oranges	1.04	1.04	1.21
Indian River				All Oranges	0.93	0.88	1.01
White Grapefruit	5.77	5.31	5.59				
Red Grapefruit	6.10	5.36	5.90	White Grapefruit	0.75	0.65	0.70
				Red Grapefruit	0.40	0.22	0.28
Florida Sunridge				All Grapefruit	0.65	0.48	0.58
White Grapefruit	5.48	5.14	5.60				
Red Grapefruit	5.67	5.10	5.31				

SOURCE: F.O.B. prices reported by Market Information Division, Florida Citrus Mutual, Lakeland, Florida and delivered-in prices by Florida Citrus Processors Association, Winter Haven, Florida.

Fresh and Processed Production Costs for Florida Citrus

The primary difference between a fresh citrus and a processed citrus production/cultural program is the pest management spray program. In order to produce fruit with an external quality desired by the fresh fruit buyers an additional two to three sprays are usually required each year. Fertilization practices may also vary for different varieties -- such as oranges and grapefruit. However, the remaining cultural practices (weed control, pruning, etc.) usually remain the same for both the fresh and processed production program.

Comparative per acre production costs for fresh and processed oranges and grapefruit are presented in Table 2. The comparative costs are a weighted average of the three major citrus production regions in Florida -- Central Florida Ridge, Southwest Florida and the Indian River. The per acre costs represent a weighted average cost based on the percentage the 1996 citrus acreage reported in each production region. Central Florida costs which represent about 50% of Florida's

orange acreage had the greatest impact on the weighted average per acre costs for oranges. Indian River costs, where over 60% of the total grapefruit acreage is located, had the greatest influence on the weighted average costs for grapefruit. These average production costs are representative of a mature citrus grove which is 10+ years of age.

Table 2. Estimated comparative production costs per acre for 1995-96.[a]

	Oranges		Grapefruit	
	Fresh Program	Processed Program	Fresh Program	Processed Program
Production/Cultural Costs		---------- $ ----------		
Weed Management/Control	202.73	202.73	208.69	208.69
Spray: Fresh Fruit Program				
a. Oranges - 4 spray applications	244.23	–	–	–
b. Grapefruit - 5 spray applications	–	–	321.89	–
Processed Fruit Program (2 spray applications)	–	148.85	–	143.75
Fertilizer (Bulk): 3 applications (16-0-16-4MgO)				
Oranges @ 204 lbs N/acre	138.52	138.52	–	–
Grapefruit @ 162 lbs N/acre	–	–	116.75	116.75
Dolomite (one ton applied every 3 yrs)	9.10	9.10	10.52	10.52
Pruning (Topping, Hedging and Brush Removal)	45.78	45.78	50.86	50.86
Tree Replacement (1 thru 3 years of age; 3 trees/acre)	77.24	77.24	79.43	79.43
Irrigation (Microsprinkler System and Ditch Maintenance)	147.51	147.51	159.78	159.78
Total Production/Cultural Costs	865.11	769.72	947.91	769.77

[a]The estimated average production costs represents a weighted cost per acre based on the total citrus acreage in the Indian River, South Florida and Central (Ridge) production areas.

SOURCE Economic Information Reports 96-2, 96-3 and 96-4, Food and Resource Economics Department, University of Florida, IFAS.

The difference in the total costs for the fresh and processed production programs of both oranges and grapefruit is in the spray/pest management application practices. Only two spray applications are included with both processed fruit programs. However, the total spray applications for the orange and grapefruit fresh programs are four and five applications, respectively. The total weighted costs for the processed programs were $769.72 per acre and $769.77 per acre for oranges and grapefruit, respectively. Likewise, the total weighted costs for the fresh orange and grapefruit programs were $865.11 per acre and $947.91 per acre, respectively.

F.O.B. Cost for Fresh Florida Oranges and Grapefruit

In order to estimate the breakeven cost for both fresh and processed citrus production, the total F.O.B. cost for fresh fruit and the total delivered-in cost for processed fruit was calculated. In addition to the production/cultural costs presented in Table 2, a citrus grower incurs other expenditures such as harvesting, taxes/assessments, interest, and management fees. With respect to fresh market fruit a cost for both packing and selling and cannery fruit eliminations are included in the total F.O.B. cost.

Note that a "net eliminations cost" is included in the total F.O.B. cost for fresh fruit. The "net eliminations cost" is the total amount which the grower receives from the eliminated/non-packed fruit after the packinghouse handling costs and hauling charges to the juice processor are subtracted. Therefore, if the grower receives a positive return from the eliminations, then the net amount received is subtracted from (credited to) all the other costs incurred. A negative return from eliminations would result in adding an additional cost to all the other costs.

The estimated F.O.B. cost for fresh market oranges are shown in Table 3. Two per acre yield scenarios are presented (400 boxes per acre and 500 boxes per acre) and three percent packout situations (50%, 75% and 100% packout). All costs are charged to the actual fruit packed according to the percent packout. At a yield of 400 boxes per acre, the total F.O.B. costs were $6.94, $6.41 and $6.15 per carton at the 50%, 75% and 100% packout rates, respectively. If the per acre yield was 500 boxes per acre, then the total F.O.B. would be reduced to $6.21, $5.93 and $5.79 per carton for the three packout percentages, respectively.

The total F.O.B. costs per carton for fresh grapefruit are presented in Table 4. Two yield scenarios were assumed (450 boxes and 600 boxes per acre) along with the same three percent packout rates (50%, 75% and 100%). The F.O.B. costs at 450 boxes per acre yield were $8.03, $6.48 and $5.70 per carton at the 50%, 75% and 100% packout rates, respectively. At a per acre yield of 600 boxes per acre, the total F.O.B. costs for grapefruit were reduced to $7.17, $5.90 and $5.27 per carton at the three packout rates, respectively. The eliminations credit for oranges was over three times greater than for grapefruit. However, the packing and selling costs for oranges was higher than grapefruit.

Table 3. Estimated F.O.B. costs for fresh market Florida oranges, 1995-96

	Percent Packout Box Yield/Acre		50.00% 400	Percent Packout Box Yield/Acre		75.00% 400	Percent Packout Box Yield/Acre		100.00% 400
	Per Acre	Per Box	Per Carton	Per Acre	Per Box	Per Carton	Per Acre	Per Box	Per Carton
Total Production/ Cultural Costs	$ 865.11	$4.326	$2.1628	$865.11	$2.884	$1.4418	$865.11	$2.163	$1.0814
Interest on Operating (Cultural) Costs	43.26	0.216	0.1081	43.26	0.144	0.0721	43.26	0.108	0.0541
Management	48.00	0.240	0.1200	48.00	0.160	0.0800	48.00	0.120	0.0600
Taxes/Regulatory	88.67	0.443	0.2217	88.67	0.296	0.1478	88.67	0.222	0.1108
Interest on Average Capital Investment	395.76	.979	0.9894	395.76	1.319	0.6596	395.76	0.989	0.4947
Harvesting (Pick, Haul, etc.) & DOC Assessment	824.00	4.120	2.0600	824.00	2.747	1.3733	824.00	2.060	1.0300
Total Delivered-in Cost	$2,264.80	$11.324	$5.6620	$2,264.80	$7.549	$3.7747	$2,264.80	$5.662	$2.8310
Packing and Selling	1,494.00	6.640	3.3200	2,241.00	6.640	3.3200	2,988.00	6.640	3.3200
Fresh Eliminations Cost (Credit)*	(818.08)	(4.090)	(2.0452)	(409.04)	(1.363)	(0.6817)	0.00	0.000	0.0000
Total F.O.B. Costs	$2,940.72	$13.874	$6.9368	$4,096.76	$12.826	$6.4129	$5,252.80	$12.302	$6.1510
	Percent Packout Box Yield/Acre		**50.00% 500**	**Percent Packout Box Yield/Acre**		**75.00% 500**	**Percent Packout Box Yield/Acre**		**100.00% 500**
	Per Acre	Per Box	Per Carton	Per Acre	Per Box	Per Carton	Per Acre	Per Box	Per Carton
Total Production/ Cultural Costs	$851.11	$3.460	$1.7302	$865.11	$2.307	$1.1535	$865.11	$1.730	$0.8651
Interest on Operating (Cultural) Costs	43.26	0.173	0.0865	43.26	0.115	0.0577	43.26	0.087	0.0433
Management	48.00	0.192	.0960	48.00	0.128	0.0640	48.00	0.096	0.0480
Taxes/Regulatory	88.67	0.355	773	88.67	0.236	0.1182	88.67	0.177	0.0887
Interest on Average Capital Investment	395.76	.583	0.7915	395.76	1.055	0.5277	395.76	0.792	0.3958
Harvesting (Pick, Haul, etc.) & DOC Assessment	1,030.00	4.120	2.0600	1,030.00	2.747	1.3733	1,030.00	2.060	1.0300
Total Delivered-in Cost	$2,470.80	$9.883	$4.9416	$2,470.80	$6.589	$3.2944	$2,470.80	$4.942	$2.4708
Packing and Selling	1,992.00	6.640	3.3200	2,988.00	6.640	3.3200	3,984.00	6.640	3.3200
Fresh Eliminations Cost (Credit)*	(1,022.60)	(4.090)	(2.0452)	(511.30)	(1.363)	(0.6817	0.00	0.000	0.0000
Total F.O.B. Costs	$3,440.20	$12.433	$6.2164	$4,947.50	$11.865	$5.9327	$6,454.80	$11.582	$5.7908

*Represents a "net eliminations cost"; i.e., average yield of 6.30 pound solids per box times $1.01 per pound solids less a 20.00% elimination price discount and less a packinghouse elimination and cannery hauling charge of $1.00 per box or $0.16 per pound solids. The parenthesis ( ) indicates a negative value; i.e., a positive return/credit received from eliminations sent to the cannery which offsets/reduces the total F.O.B. fresh fruit cost.

Table 4. Estimated F.O.B. costs for fresh market Florida grapefruit, 1995-96.

	Percent Packout Box Yield/Acre	50.00% 450		Percent Packout Box Yield/Acre	75.00% 450		Percent Packout Box Yield/Acre	100.00% 450	
	Per Acre	Per Box	Per Carton	Per Acre	Per Box	Per Carton	Per Acre	Per Box	Per Carton
Total Production/ Cultural Costs	$947.91	$4.213	$2.1065	$947.91	$2.809	$1.4043	$947.91	$2.106	$1.0532
Interest on Operating (Cultural) Costs	47.40	0.211	0.1053	47.40	0.140	0.0702	47.40	0.105	0.0527
Management	48.00	0.213	0.1067	48.00	0.142	0.0711	48.00	0.107	0.0533
Taxes/Regulatory	109.35	0.486	0.2430	109.35	0.324	0.1620	109.35	0.243	0.1215
Interest on Average Capital Investment	410.60	.825	0.9124	410.60	1.217	0.6083	410.60	0.912	0.4562
Harvesting (Pick, Haul, etc.) & DOC Assessment	1,026.00	4.560	2.2800	1,026.00	3.040	1.5200	1,026.00	2.280	1.1400
Total Delivered-in Cost	$2,589.26	$11.508	5.7539	2,589.26	$7.672	$3.8359	$2,589.26	$5.754	$2.8770
Packing and Selling	1,271.25	5.650	2.8250	1,906.88	5.650	2.8250	2,542.50	5.650	2.8250
Fresh Eliminations Cost (Credit)*	(244.80)	(1.088)	(0.5440)	(122.40)	(0.363)	(0.1813)	0.00	0.000	0.0000
Total F.O.B. Costs	$3,615.71	$16.070	$8.0349	$4,373.73	$12.959	$6.4796	$5,131.76	$11.404	$5.7020

	Percent Packout Box Yield/Acre	50.00% 600		Percent Packout Box Yield/Acre	75.00% 600		Percent Packout Box Yield/Acre	100.00% 600	
	Per Acre	Per Box	Per Carton	Per Acre	Per Box	Per Carton	Per Acre	Per Box	Per Carton
Total Production/ Cultural Costs	$947.91	$3.160	$1.5799	$947.91	$2.106	$1.0532	$947.91	$1.580	$0.7899
Interest on Operating (Cultural) Costs	47.40	0.158	0.0790	47.40	0.105	0.0527	47.40	0.079	0.0395
Management	48.00	0.160	0.0800	48.00	0.107	0.0533	48.00	0.080	0.0400
Taxes/Regulatory	109.35	0.364	0.1822	109.35	0.243	0.1215	109.35	0.182	0.0911
Interest on Average Capital Investment	410.60	1.369	0.6843	410.60	0.912	0.4562	410.60	0.684	0.3422
Harvesting (Pick, Haul, etc.) & DOC Assessment	1,368.00	4.560	2.2800	1,368.00	3.040	1.5200	1,368.00	2.280	1.1400
Total Delivered-in Cost	$2,931.26	$9.771	$4.8854	$2,931.26	$6.514	$3.2570	$2,931.26	$4.885	$2.4427
Packing and Selling	,695.00	5.650	2.8250	2,542.50	5.650	2.8250	3,390.00	5.650	2.8250
Fresh Eliminations Cost (Credit)*	(326.40)	(1.088)	(0.5440)	(163.20)	(0.363)	(0.1813)	0.00	0.000	0.0000
Total F.O.B. Costs	$4,299.86	$14.333	$7.1664	$5,310.56	$11.801	$5.9006	$6,321.26	$10.535	$5.2677

*Represents a "net eliminations cost"; i.e., average yield of 4.50 pound solids per box times $0.58 per pound solids less a 20.00% elimination price discount and less a packinghouse elimination and cannery hauling charge of $1.00 per box or $0.22 per pound solids. The parenthesis ( ) indicates a negative value; i.e., a positive return/credit received from eliminations sent to the cannery which offsets/reduces the total F.O.B. fresh fruit cost.

Delivered-in Cost for Processed Fresh Florida Oranges and Grapefruit

The total delivered-in costs per pound solids was calculated for both oranges and grapefruit. The same yield scenarios used for calculating the total F.O.B. per carton costs were used for the delivered-in costs per pound solids. Along with the cost per pound solids under a processed fruit program, the cost per pound solids was also calculated assuming that the fruit grown under a fresh fruit cultural program was sent directly to the cannery.

The estimated delivered-in costs for processed oranges are shown in Table 5. A 6.3 average pounds solids yield per box was used to calculate the orange processed costs. At 400 boxes per acre, the total delivered-in cost for oranges was $0.86 per pound solids. If the same fruit had been grown using the fresh fruit cultural program, then the delivered-in costs would have increased to $0.90 per pound solids. If the yield increased to 500 boxes per acre, then the delivered-in costs would have decreased to $0.75 per pound solids. At the higher 500 boxes per acre yield, oranges grown under the fresh fruit program would have a delivered-in cost of $0.78 per pound solids.

Table 5. Estimated delivered-in cost for processed market Florida oranges, 1995-96

	Pound Solids/Box		6.30	Fresh Fruit Program Sent Direct to Cannery	Pound Solids/Box		6.30	Fresh Fruit Program Sent Direct to Cannery
	Box Yield/Acre		400		Box Yield/Acre		500	
	Pound Solids/Acre		2,520		Pound Solids/Acre		3,150	
	Per Acre	Per Box	Per P.S.	Per P.S.	Per Acre	Per Box	Per P.S.	Per P.S.
Total Production/Cultural Costs	$769.72	$1.924	$0.3054	$0.3433	$769.72	$1.539	$0.2444	$0.2746
Interest on Operating (Cultural) Costs	38.49	0.096	0.0153	0.0172	38.49	0.077	0.0122	0.0137
Management	48.00	0.120	0.0190	0.0190	48.00	0.096	0.0152	0.0152
Taxes/Regulatory	88.67	0.222	0.0352	0.0352	88.67	0.177	0.0281	0.0281
Interest on Average Capital Investment	395.76	0.989	0.1570	0.1570	395.76	0.792	0.1256	0.1256
Harvesting (Pick, Haul, etc.) and DOC Assessment	822.00	2.055	0.3262	0.3270	1,027.50	2.055	0.3262	0.3270
Total Delivered-in Cost	$2,162.64	$5.407	$0.8582	$0.8987	$2,368.14	$4.736	$0.7518	$0.7844

SOURCE: Ronald P. Muraro, CREC, University of Florida, IFAS, Lake Alfred, Florida.

The grapefruit delivered-in costs are presented in Table 6. An average pound solids yield of 4.5 per box was used for the grapefruit calculations. The per acre yields were the same as the two fresh fruit scenarios discussed above. With a 450 boxes per acre yield, the total delivered-in cost was $1.08 per pound solids if the grapefruit was grown under a processed cultural program. Assuming the same yield per acre, the delivered-in cost increased to $1.18 per pound solids if the grapefruit from a fresh fruit program was sent directly to the cannery. Increasing the yield to 600 boxes per acre would have decreased the cost to $0.91 per pound solids and $0.98 per pound solids for grapefruit grown under a processed and fresh fruit cultural program, respectively. Although the per acre box yields were higher for the grapefruit, the 4.5 pound solids per box grapefruit yield was almost two pounds solids per box less than for oranges resulting in higher costs per pound solids.

Table 6. Estimated delivered-in cost for processed market Florida grapefruit, 1995-96

	Pound Solids/Box 4.50 Box Yield/Acre 450 Pound Solids/Acre 2,025			Fresh Fruit Program Sent Direct to Cannery	Pound Solids/Box 4.50 Box Yield/Acre 600 Pound Solids/Acre 2,700			Fresh Fruit Program Sent Direct to Cannery
	Per Acre	Per Box	Per P.S.	Per P.S.	Per Acre	Per Box	Per P.S.	Per P.S.
Total Production/Cultural Costs	$769.77	$1.711	$0.3801	$0.4681	$769.77	$1.283	$0.2851	$0.3511
Interest on Operating (Cultural) Costs	38.49	0.086	0.0190	0.0234	38.49	0.064	0.0143	0.0176
Management	48.00	0.107	0.0237	0.0237	48.00	0.080	0.0178	0.0178
Taxes/Regulatory	109.35	0.243	0.0540	0.0540	109.35	0.182	0.0405	0.0405
Interest on Average Capital Investment	410.60	0.912	0.2028	0.2028	410.60	0.684	0.1521	0.1521
Harvesting (Pick, Haul, etc.) and DOC Assessment	819.00	1.820	0.4044	0.4044	1,092.00	1.820	0.4044	0.4044
Total Delivered-in Cost	$2,195.21	$4.878	$1.0841	$1.1764	$2,468.21	$4.114	$0.9142	$0.9834

SOURCE: Ronald P. Muraro, CREC, University of Florida, IFAS, Lake Alfred, Florida.

Comparison of Fresh F.O.B. and Process Delivered-in Prices with the F.O.B. and Delivered-in Costs

In Table 7, the fresh F.O.B. per carton prices are compared with the total F.O.B. per carton costs. Except for the 50% packout rate at 400 boxes per acre, the 1995-96 season average F.O.B. per carton price for early/mid-season oranges would have resulted in a positive return. All packout rates situations under both per acre yield scenarios would have provided a positive return for Valencia oranges.

Table 7. Comparison of average F.O.B. fresh fruit price per carton with F.O.B. delivered-in cost per carton, 1995-96-season.

Orange Variety	Average F.O.B. price* per 4/5 bushel carton for 1995-96		
Early/Mid-Season	$6.48		
Valencia	$7.40		
All Oranges	F.O.B. cost per carton		
% Packout	50%	75%	100%
@ 400 boxes/acre	$6.94	$6.41	$6.15
@ 500 boxes/acre	$6.22	$5.93	$5.79

Grapefruit Variety	Average F.O.B. price* per 4/5 bushel carton for 1995-96	
	Indian River	Florida Sunridge
White	$5.59	$5.60
Red/Colored	$5.90	$5.31
All Grapefruit	F.O.B. cost per carton	
% Packout	50%	75%	100%
@ 450 boxes/acre	$8.03	$6.48	$5.70
@ 600 boxes/acre	$7.17	$5.90	$5.27

*F.O.B. prices reported by Market Information Division, Florida Citrus Mutual, Lakeland, Florid

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Comparing the grapefruit fresh F.O.B. prices and with the F.O.B. costs, for white grapefruit, only at the 600 boxes per acre and 100% packout situation would have been a positive return in both the Indian River and Sunridge production areas. However, the red grapefruit would have had a positive return in the Indian River at the 450 boxes per acre yield with 100% packout. At the yield of 600 boxes per acre, red grapefruit in the Indian River would have broken-even or made a profit at both a 75% and 100% packout. Sunridge red grapefruit at the 600 box per acre yield with 100% packout was the only scenario/situation where total F.O.B. costs would be covered.

The processed price and cost comparisons are shown in Table 8. At both the 400 boxes per acre and the 500 boxes per acre scenarios, the total delivered-costs per pound solids would have been covered resulting in a profit for both the early/mid-season and Valencia oranges. The 1995-96 average delivered-in price per pound solids for grapefruit would not have covered the total delivered-in costs per pound solids for red or white grapefruit at either the 450 or 600 boxes per acre scenarios. However, referring to Table 6, for white grapefruit, the $0.70 per pound solids price would almost cover total production and harvesting costs ($0.78 per pound solids) at the 450 boxes per acre scenario. At the 600 boxes per acre scenario for white grapefruit, the total production and harvesting costs of $0.69 per pound solids would result in a breakeven situation under the processed fruit program. Even under the fresh fruit program where the white grapefruit is sent directly to the cannery, the total production and harvesting costs ($0.75 per pound solids) would almost be covered.

Table 8. Comparison of average delivered-in price received per pound solids with delivered-in cost per pound solids, 1995-96 season.

Orange Variety	Average delivered-in price* per pound solids for 1995-96		Grapefruit Variety	Average F.O.B. price* per carton for 1995-96	
Early/Mid-Season	$0.90		White	$0.70	
Valencia	$1.21		Red/Colored	$0.28	
All Oranges	$1.01		All Grapefruit	$0.58	
	Delivered-in cost per pound solids			Delivered-in cost per pound solids	
All Oranges	Processed fruit program	Fresh fruit program sent direct to cannery	All Grapefruit	Processed fruit program	Fresh fruit program sent direct to cannery
@ 400 boxes/acre	$0.86	$0.90	@ 450 boxes/acre	$1.08	$1.18
@ 500 boxes/acre	$0.75	$0.78	@ 600 boxes/acre	$0.91	$0.98

*Delivered-in prices reported by Florida Citrus Processors Association, Winter Haven, Florida.

SOURCE: Ronald P. Muraro, CREC, University of Florida, IFAS, Lake Alfred, Florida.

With respect to red grapefruit, none of processed program scenarios would have resulted in a breakeven situation. The current over supply of red grapefruit in Florida along with juice processors preferring white grapefruit over red grapefruit have depressed grower returns for processed grapefruit products. Until the supply and demand for red grapefruit is brought back into balance, lower grower returns will likely continue into the foreseeable future.

Summary Comments

This paper has focussed on the costs of fresh and processed market oranges and grapefruit. The breakeven F.O.B. cost for fresh market citrus and delivered-in cost for processed market citrus were compared to recent fresh F.O.B. and processed delivered-in prices. The cost/price comparisons indicate the importance for cost efficient managed cultural programs.

If the lower grower prices being realized currently due to the world supply-demand conditions for oranges and grapefruit products continues, then management strategies designed to maximize profits will assume increased importance. In an economic environment where growers are working harder and managing more efficiently to maintain acceptable profit levels, every decision must be reviewed as critical. Under this situation, the manager will need to consider devoting more attention to maximizing profits and less to maximizing production.

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