

# Handling and Processing Section

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## SYMPOSIUM: CITRUS EXPORTS FROM FLORIDA CITRUS EXPORTS: IMPACT ON GROWER RETURNS<sup>1</sup>

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**Abstract.** Development of citrus export markets has had a substantial impact on the revenue of the Florida citrus industry. Citrus exports have two separate effects on grower revenues. First, export sales contribute directly to industry revenue. Second, export demand enhances domestic market prices. The export market may become even more important in the future as Florida grapefruit production is projected to continue to increase. This report presents a discussion of the value of Florida citrus export markets.

### Importance of Florida Citrus Production

Florida accounts for more than 75% of the oranges and grapefruit produced in the U. S. (Figures 1 and 2). Furthermore, the U. S. produces more than any other country in the world. In the 1979-80 season, U. S. production represented over 30% of the world orange production and almost 74% of the world grapefruit production (Figures 3 and 4).

Over the last five seasons, 5% of Florida's orange production and 33% of Florida's grapefruit production have

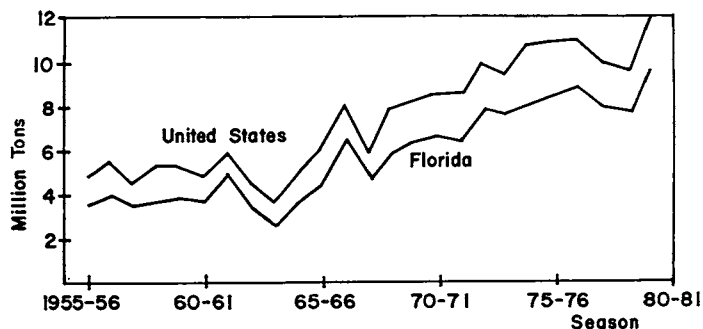


Fig. 1. Oranges: production for United States and Florida, crop years 1955-56 through 1979-80 (6).

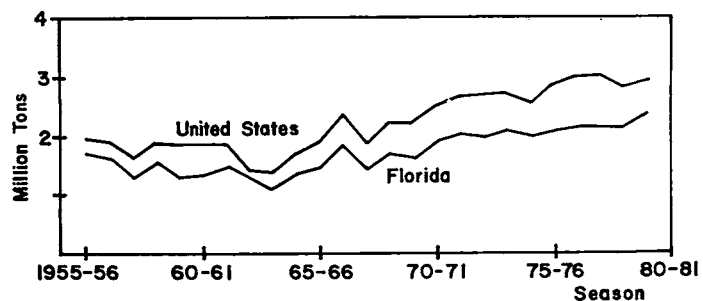


Fig. 2. Grapefruit: production for United States and Florida, crop years 1955-56 through 1979-80 (6).

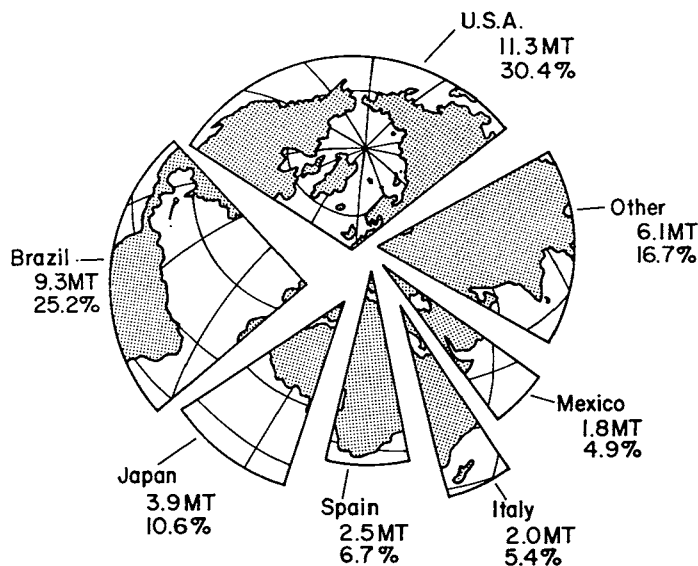


Fig. 3. World orange and tangerine production (million metric tons) for major producing countries, 1979-80 (6).

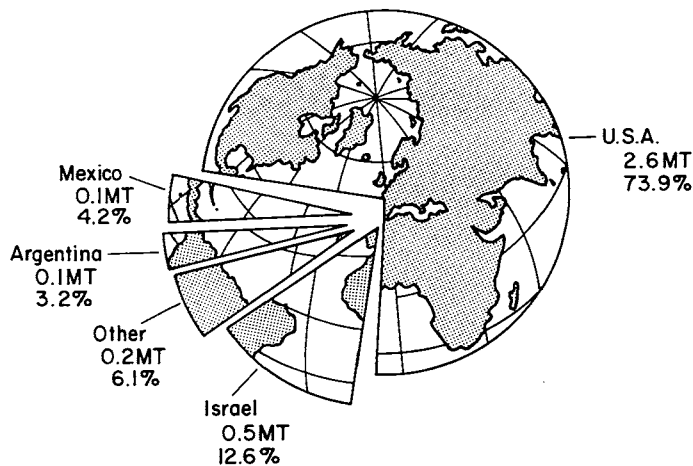


Fig. 4. World grapefruit production (million metric tons) for major producing countries, 1979-80 (6).

been utilized fresh (Table 1). During the same period less than 3% of Florida's fresh orange shipments were offshore exports, while 27% of Florida's fresh grapefruit was exported. Fresh orange exports are so small relative to total shipments that they do not have a measurable effect on orange prices. Thus, the remainder of this report is focused on the Florida grapefruit industry and the impact of the fresh export market.

### Value of Florida Grapefruit Exports

During the past five seasons an annual average of 34.3 million cartons of grapefruit have been shipped fresh. Of that amount, 9.2 million cartons were exported (Table 2).

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Table 1. Florida orange and grapefruit production and fresh shipments.

Season	Production		Fresh shipments <sup>z</sup>		Fresh exports <sup>y</sup>	
	Oranges	Grapefruit	Oranges	Grapefruit	Oranges	Grapefruit
	----- 1,000 boxes -----		----- 1,000 4/5-bu. cartons -----			
1976-77	186,800	51,500	15,418	30,965	372	8,512
1977-78	167,800	51,400	17,764	34,456	396	6,604
1978-79	164,000	50,000	20,952	37,454	1,024	10,530
1979-80	206,700	54,800	19,618	36,710	300	9,974
1980-81	172,400	50,300	14,442	32,160	304	10,240
Average	179,540	51,600	17,639	34,349	479	9,172

<sup>z</sup>Certified.

<sup>y</sup>Offshore only. Shipments to Canada and Mexico are included with domestic shipments.

Source: Citrus Administrative Committee (1).

Using industry average FOB prices, fresh grapefruit shipments generated over \$130 million annually at the FOB level during the past five seasons, and fresh exports accounted for almost \$36 million of that amount.

On-tree revenues reflect FOB revenue less picking, hauling, packing and selling costs (7, 8). Over the last five seasons, fresh exports generated an average of \$16.4 million annually at the grower level.

The export market value is even greater than the sales revenue generated by export shipments. Exports impact on grower revenues in two distinct ways. Revenue from export sales represents only one part of the market value. Exports also have a "price effect" in the domestic market. That is, domestic market prices are enhanced by the export demand.

Suppose, for example, that line  $D_D$   $D_D$  in Figure 5 represent the domestic market demand for grapefruit. That is,  $D_D$   $D_D$  shows the quantity that domestic market consumers are willing and able to buy at alternative prices. Likewise,  $D_{D+E}$   $D_{D+E}$  shows the quantity that domestic plus export market consumers are willing and able to buy at alternative prices.  $S$  represents the fixed supply of fresh grapefruit for any given season.

The market equilibrium price is represented by  $P_1$  and the market equilibrium quantity is  $Q_1$ . Without the existence of the export market, the price would have to be reduced to  $P_1'$  in order to sell  $Q_1$  quantity in the domestic market. Thus, a part of the \$4.79 FOB price in the 1980-81 season, for example, is due to the positive impact of the export market.

Table 2. Florida grapefruit production, fresh shipments and value.

Season	Total fresh shipments <sup>z</sup>	Fresh export shipments <sup>y</sup>	Average FOB price <sup>x</sup>	FOB value of total fresh shipments	FOB value of export shipments	Pick and haul cost <sup>w</sup>	Packing and selling cost <sup>w</sup>	On-tree value per box	On-tree value of total fresh shipments	On-tree value of export shipments
	----- 1,000 4/5-bu. carton -----	----- 1,000 4/5-bu. carton -----	\$/ carton	----- \$1,000 -----	----- \$1,000 -----	----- \$/1-3/5 bu. -----	----- \$/1-3/5 bu. -----	----- \$1,000 -----	----- \$1,000 -----	----- \$1,000 -----
1976-77	30,965	8,512	3.08	95,372	26,217	.91	2.81	2.44	37,777	10,385
1977-78	34,456	6,604	3.03	104,402	20,010	1.00	2.75	2.31	39,797	7,628
1978-79	37,454	10,530	3.77	141,202	39,698	1.10	3.01	3.43	64,234	18,059
1979-80	36,710	9,974	4.31	158,220	42,988	1.15	3.20	4.27	78,376	21,294
1980-81	32,160	10,240	4.79	154,046	49,050	1.30 <sup>v</sup>	3.50 <sup>v</sup>	4.78 <sup>v</sup>	76,862	24,474
Average	34,349	9,172		130,648	35,593				59,409	16,368

<sup>z</sup>Certified. Source: Citrus Administrative Committee.

<sup>y</sup>Offshore exports only. Shipments to Canada and Mexico are included with domestic shipments. Source: Citrus Administrative Committee.

<sup>x</sup>Weighted average for all varieties and production areas. Source: Citrus Administrative Committee.

<sup>w</sup>References 7 and 8.

<sup>v</sup>ERD estimate.

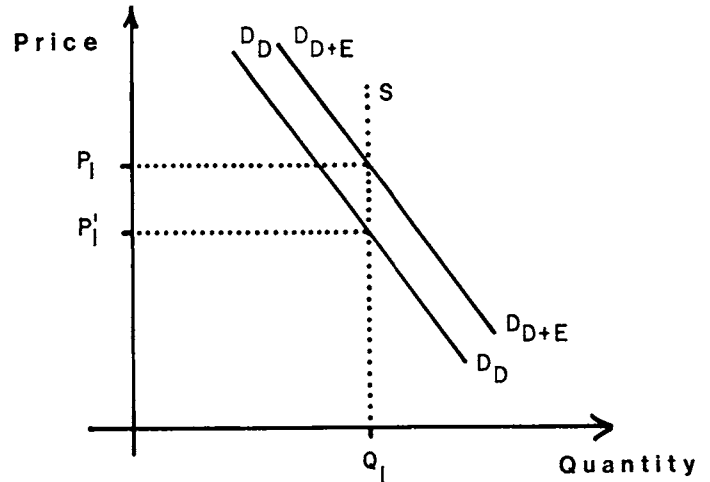


Fig. 5. Grapefruit supply and demand (9).

The level of the "price effect" depends upon the volume of shipments in a particular season and in a particular week within the season. In order to evaluate the "price effects," a weekly Florida grapefruit demand equation was estimated (3). The estimated "price effects" range from 9.0¢ per carton in 1977-78 to 19.3¢ in 1980-81 (Table 3). This means that, depending on the season, in the absence of the export market the grapefruit price would have been 9.0¢ to 19.3¢ per carton lower than observed, or conversely, that prices are from 9.0¢ to 19.3¢ higher because of the export market. The additional revenue generated ranges from \$2.4 million in 1976-77 to a high of \$4.6 million in the 1979-80 season.

Table 3. Domestic fresh grapefruit shipments, portion of domestic price due to exports, and increased domestic revenue resulting from exports.

Season	Domestic movement	"Price effects" <sup>z</sup>	Increased revenue due to "price effects"
	1,000 cartons	cents	dollars
1976-77	22,453	10.7	2,402,471
1977-78	27,852	9.0	2,506,680
1978-79	26,924	15.9	4,280,916
1979-80	26,736	17.1	4,571,856
1980-81	21,920	19.3	4,230,560

<sup>z</sup>"Price effects" refer to the amount of the FOB price per carton which resulted from reduction in domestic supplies due to exports.

The value of the export market is the sum of the revenue from direct export sales and the revenue generated in the domestic market through the "price effects" (Table 4). While the revenue from export sales is the major component of the market value, exports have also added 3 to 4% to the average FOB price. During the past three seasons, 1978-79 through 1980-81, the total value of the grapefruit export market has averaged \$48.3 million. The magnitude of these values emphasize the importance of the grapefruit export market to the Florida grapefruit industry. As grapefruit production increases, the grapefruit export market is expected to become even more valuable.

Table 4. FOB value of the grapefruit export market.

Season	Export sales revenue	Revenue due to "price effects"	Total export market value
	1,000 dollars		
1976-77	26,217	2,402	28,619
1977-78	20,010	2,507	22,517
1978-79	39,698	4,281	43,979
1979-80	42,988	4,572	47,560
1980-81	49,050	4,231	53,281

### Long-Range Trends in Grapefruit Production

Long-range production estimates indicate that grapefruit production will increase by 50% during the next 20 years (5). These estimates are based on five factors: tree numbers, tree ages, fruit yield possibilities per tree, estimated future tree loss rates, and estimated future tree planting rates (4). Actual production can vary considerably from year to year due to general growing conditions and specific climate impacts which cannot be anticipated. Therefore, the estimating technique utilized is intended to provide estimates of long-range production trends rather than precise projections for a given season.

Based on the long-range projections, total Florida grapefruit production is expected to trend upward over the next two decades to a level of about 65 million boxes by 1990 and 74 million boxes by the year 2000 (Figure 6). This upward trend is accounted for almost completely by the expected growth in pink seedless grapefruit. Pink seedless grapefruit production may increase by one-third in the next five years, increase by 50% in the next decade, and double by the end of the century. During the next 20 years, white seedless grapefruit production is projected to increase by less than five million boxes. Thus, by 1999-2000 pink seedless production will just about equal white seedless production if recently observed planting levels are maintained.

It should be noted that knowledge of these estimated production trends and accompanying implications may have an impact on future grapefruit plantings. For example, growers could shift to white seedless plantings from the now-dominant planting of pink seedless trees, or reduce planting rates of all grapefruit varieties in the future, thus moderating the currently projected production trends.

### Marketing Implications

If the estimated production levels are realized, Florida will have a significantly larger volume of grapefruit to market in the years ahead. Furthermore, the distribution of varieties is expected to change considerably over the projection period considered. These estimated production trends, in terms of both volume increases and the shift toward pink

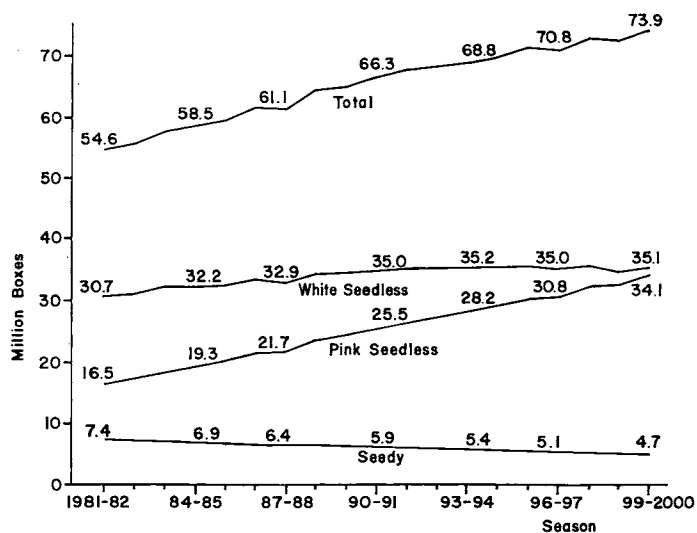


Fig. 6. Average Florida grapefruit production estimates by variety: seedy, white seedless, pink seedless and total.

seedless production, have important implications for both the export and domestic markets.

Fruit color tends to be an important product characteristic in the export market. Most of the shipments to Japan are the white variety, while Florida's competitive advantage in Europe is with the pink variety.

During the 1980-81 season, Japan and Europe accounted for about 63% and 36% of Florida fresh grapefruit exports, respectively (Table 5). Japan was the destination of 98% of the white grapefruit exports, with European countries receiving 84% of the pink grapefruit exports. Pink grapefruit accounted for about 29% of the 1980-81 production, 53% of the fresh utilization and 42% of the fresh grapefruit exports. The projected dramatic increases in pink grapefruit production emphasize the importance of continued market development efforts in Europe, as well as other export markets (Figure 6). Export markets such as Japan will also need to be maintained and expanded to help absorb the estimated 5 million box increase in white seedless grapefruit over the next decade. Domestic per capita fresh grapefruit consumption has remained virtually unchanged over the past twenty years. From 1961-1980 average annual per capita consumption of fresh grapefruit was 8.3 pounds, ranging from a high of 9.8 pounds in 1961 to a low of 6.4 pounds in 1963. Per capita consumption averaged 8.25 pounds per year during the 1961-1970 period and 8.35 pounds per year from 1971

Table 5. Florida grapefruit exports by destination, 1980-81.

	White	Pink	Total
	1,000 cartons		
Belgium	1.0	13.0	14.0
England	2.0	87.4	89.4
France	2.0	1,909.4	1,938.4
Germany	8.4	513.8	222.2
Holland	43.1	1,227.9	1,271.0
Italy		108.9	108.9
Japan	5,843.0	594.7	6,437.7
Norway		4.7	4.7
Puerto Rico	29.2	0.5	29.7
Sweden	1.0	9.7	10.7
Switzerland		3.9	3.9
New Zealand	5.0	34.0	39.0
Other	6.1	62.0	68.1
Total	5,967.8	4,269.9	10,237.7

Source: Florida Department of Citrus.

through 1980. Preliminary estimates for 1980 stand at 8.0 pounds of fresh grapefruit per capita (2).

In the absence of increased levels of demand expansion activities, it appears reasonable to assume that the domestic market for fresh grapefruit will increase proportionally with population. Thus, without significantly increased advertising and promotion expenditures, the domestic fresh grapefruit market will probably be unable to absorb the projected increases in grapefruit production without price reductions. Thus, if projected grapefruit production levels for the next twenty years are realized, major changes in the grapefruit export marketing strategy and effort may be needed.

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## FLORIDA CITRUS EXPORTS TO THE PACIFIC BASIN

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It is a great pleasure to submit this paper concerning shipments to the Pacific Basin countries.

We are referring to Japan, South Korea, Indonesia, Malaysia, Taiwan, and Hong Kong. These are the countries we currently refer to which have at least a reasonable population with sufficient disposable income to be able to afford imported Florida citrus. The combined total population of this area, allowing as an estimate of only that portion of the population that can buy, would equate to about 150 million people. Obviously as the standard of living expands, this could easily grow to over 200 million potential consumers over the next five years.

Currently these countries are importing about 25 million cartons of citrus from the United States. This includes oranges, grapefruit, and lemons. This is an estimated c. & f. value (cost and freight) of about 350 million dollars.

At this time, Florida has only about 85 million dollars of this business, with less than one million dollars going to Texas. Currently California has the balance of about 265 million dollars. While our prime concern is how much money is returned to this state, we prefer to show the figures on a delivered basis as we don't grow this fruit to be totally eaten at home.

Florida, at present, has about 7.2 million cartons of this Pacific Basin business and dominates the Japanese grapefruit business. Our share of the grapefruit business in Japan is about 75%; the balance going to California, and a small quantity going to Texas, Mexico, South Africa, and Israel. During the Florida grapefruit season we actually enjoy 98% of the Japanese grapefruit business, with the other supplying areas only in the market during early summer and fall when Florida fruit is not available.

The entrance of Florida grapefruit into the Japanese market was brought about 11 years ago when grapefruit

imports were liberalized by the Japanese government. Prior to that, a very strict license system prevented all but a token import.

The import of grapefruit in a 10 year period is very dramatic when you consider that the per capita consumption is almost half that of North America, which has had grapefruit available for almost 80 years, and at a price of almost half the cost in Japan.

You might be interested to know that prior to liberalization, the Japanese press was a tremendous help in the introduction of grapefruit. The Japanese are great travelers and had been exposed to grapefruit around the world, only to arrive back home and not able to purchase this fruit due to government restrictions on imports. Editorials began to spring up throughout Japan condemning this government action, and intimating that Japan was a backward nation. This helped to pressure the government to remove this obstruction to trade.

The distribution of citrus in Japan differs from our system. The majority of citrus sales are still in the fruit specialty stores and the so-called small "Mom and Pop" type of market. They have very fine modern supermarkets, however, this is in a land where property is so valuable that space for a super market could easily cost 25 million dollars or more. The small independent plays a very important role. The typical distribution is as follows: The shipper sells to the importer; The importer sells to the wholesaler or "seika company" as they are called. He, in turn, sells to the "nagaii," or jobber, as we would call it in this country. The jobber then sells to the retailer. This may sound unnecessary, however, each party plays a necessary role. The importer is really the banker. The wholesaler warehouses and delivers to the jobber. The jobber, in turn, delivers to the retailer, and is the final salesman in the wholesale sequence of distribution. Naturally, this is expensive as each party attempts to obtain a profit on his transaction.

In spite of all these transactions, in the middle of the season grapefruit generally sells, for medium sizes, at about 120 yen, or about 60 cents per fruit. The ridiculously high

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