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# Marketing Orders and Market Segmentation: Matching Product Characteristics to Consumer Preferences\*

by

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## Abstract

A proposed amendment to the federal marketing order for Florida fresh citrus would eliminate Canada from the domestic market definition and include it in the export market category. Adoption of this amendment would permit smaller sized grapefruit to enter the Canadian market while maintaining more rigid minimum size restrictions in the domestic U.S. market. This variation in minimum size standards recognizes the perceived preference for smaller-sized grapefruit among Canadian consumers. Using market order definitions to separate identifiable market segments facilitates the matching of product characteristics to consumer preferences. This paper evaluates the impacts of the proposed marketing order amendment.

## Introduction

Federal marketing orders are important to many segments of U.S. agriculture, particularly milk, fruits, vegetables, nuts and other specialty commodities. As recently as 1984, such orders accounted for more than one-half of U.S. fruit and nut production and about one-seventh of U.S. vegetable production as measured by farm-level value (Polopolus, Carman, Jessie and Shaffer). Over half a century has passed since the enactment of the original Agricultural Adjustment Act (AAA) of 1933, as well as the amended version of the AAA in 1935 and the reenactment known as the Agricultural Market-

ing Agreement (AMAA) of 1937. The AMAA, as amended over the years, continues as the statutory basis for federal marketing orders.

## *Quality Restrictions*

While marketing orders authorize both quantity and quality restrictions, promotion and research, they are perhaps best known for their restrictive features. Even though quantity restrictions tend to receive the majority of critical attention, minimum quality standards for grade, size and maturity are currently a part of nearly all Federal Marketing Orders for fruits and vegetables.

Polopolus, et al., note that minimum quality standards can increase the retail demand for a product resulting in higher prices and/or increased quantities sold (p. 35). Furthermore, a marketing order allows producers to exert some control over the marketing function by controlling product dimensions such as size, quality, grade, maturity and packaging (Polopolus, et al., p. 36). The well established and accepted marketing approach or concept (Rhodes; Branson and Norvell) which emphasizes the satisfaction of consumer demand suggests the importance of consumer preferences being accurately reflected in the quality standards of marketing orders.

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## *Consumer Preferences*

While minimum quality standards are associated with a number of marketing issues, this paper focuses on the problem of matching product characteristics to consumer demand. Artificial or institutional barriers to the optimal matching of products to preferences may be created by the very mechanisms designed to facilitate such optimal couplings. As suggested by Polopolus, et al., marketing orders provide a framework within which agricultural producers can tailor product characteristics to consumer demand (p. 37). However, a lack of information on consumer preferences or changes in tastes and preferences over time can contribute to a failure to match product characteristics to consumer demand. Given that many fruit and vegetable marketing orders have been in effect for fifty years or more, the monitoring of consumer purchasing behavior relative to product characteristics gains added importance.

## *Market Segmentation*

Marketing orders can also serve as tools for geographically segmenting markets through definitions of shipping destinations or receiving regions such as "domestic market" and "export market." As such, market segmentation through marketing orders offers producers an opportunity to control further the marketing function.

Within the body of economic theory, the concept of market segmentation is well recognized and finds application in the marketing of agricultural commodities. Market segmentation is the process of identifying and focusing on target submarkets within the total market (Rhodes). Furthermore, market segmentation consists of dividing a heterogeneous market into a number of smaller, more homogeneous submarkets (Zikmund and d'Amico).

Market segmentation is concerned with the identification of demand for products. Since demand tends to vary among consumers and among different geographic regions, grades and standards have significant impacts on the demand for agricultural commodities. The concept of market segmentation underlies the grade and size standards for many agricultural commodities.

Branson and Norvell suggest that for a market segment to be meaningful, three conditions are thought to be necessary. First, it must be readily identifiable in terms of some measurable characteristic, such as geographic location. Second, the market segment should be accessible

through some promotional or educational medium. Third, the market segment should respond favorably to the product and associated marketing efforts. Thus, the generally accepted concept of market segmentation suggests that the ability to identify successfully market segments with varying demand characteristics within the total market produces a situation favorable to increasing both demand and revenue.

## *The Canadian Fresh Grapefruit Market*

The proposal to separate Canada from the U.S. domestic market allows the market order to recognize differences in fresh citrus demand characteristics which may exist between U.S. and Canadian consumers. As noted, product standards such as grades and sizes have significant impacts on the demand for agricultural commodities. These impacts are enhanced when variations in demand can be identified and fulfilled through the process of market segmentation. Variation in size preference for fresh grapefruit between U.S. and Canadian consumers appears to be a valid example.

Canada represents a significant part of the domestic fresh citrus market as currently defined. During the five seasons from 1982-83 through 1986-87, total fresh citrus shipments to Canada accounted for 8.6 percent of the combined U.S. and Canadian markets. More importantly, Florida shipments of fresh grapefruit to Canada represented 11.5 percent of Florida grapefruit shipments to the combined U.S./Canadian market (Florida Department of Citrus). Thus, Canada represents a significant and geographically separable market area.

## **Problem and Objectives**

Under Federal Marketing Order No. 905, the domestic market for Florida fresh oranges, grapefruit, tangerines and tangelos is defined to include the continental United States, Canada and Mexico (U.S.D.A.). The geographic definitions of domestic and export markets and the variance of minimum size restrictions between the domestic and export market have combined to produce a situation yielding a less-than-optimal matching of product characteristics and consumer preferences. In the case of Florida fresh grapefruit, minimum size standards permit smaller fruit to enter the export (off-shore) market compared to the domestic market. This variance recognizes the consumer preference for smaller-sized grapefruit in certain export mar-

kets such as France, relative to the larger sizes preferred by U.S. consumers.

Market intelligence suggests that Canadian consumers may have a stronger preference for smaller-sized grapefruit. As such, the Canadian market for fresh grapefruit may be more appropriately designated as an export market than as a part of the domestic market. Thus, a proposed amendment to the marketing order is being considered which would separate Canada from the domestic market and designate it as an export market. Adoption of this amendment would permit smaller sized grapefruit to enter the Canadian market while maintaining more rigid minimum size standards in the domestic U.S. market. The purpose of this paper is to evaluate the potential impacts of the proposed marketing order amendment on the growers and handlers of fresh Florida grapefruit.

### Grapefruit Size Preferences

Canadian consumers tend to prefer smaller fresh citrus sizes than do U.S. consumers. The strong demand for small sizes is particularly evident in the grapefruit market. The demand for smaller grapefruit sizes is not unique to Canada, as France also represents a strong market for smaller grapefruit (48 and 56 grapefruit per 4/5 bushel carton). Traditionally, size 56 Florida fresh grapefruit has been restricted from the domestic market, including Canada, until late in the shipping season. The primary motivation for this restriction is concern that the availability of size 56 will have a price-depressing effect on other grapefruit sizes, particularly size 48 grapefruit. Separating Canada from the U.S. domestic market provides the opportunity to take advantage of differences in consumer demand by selling size 56 grapefruit in Canada without adversely affecting the price structure in the U.S. market.

The preference for smaller grapefruit sizes among Canadian consumers is supported by market participants actively involved with the Canadian wholesale and retail trade as well as by fresh grapefruit market data. Toronto and Montreal represent two important markets for Florida grapefruit, ranking second and sixth in sales among U.S. and Canadian markets, respectively, in the 1986-87 season. These two markets accounted for 2.238 million 4/5 bushel cartons or 8.7 percent of Florida fresh grapefruit sales in U.S. and Canadian markets. Florida Department of Citrus (FDOC) merchandising and promotion specialists located in Toronto and Montreal, as well as the FDOC Atlantic Region merchandising and promotion

manager, confirm the strong support for size 56 grapefruit in these markets (DuBois; Roberts; Darr). In addition to inherent consumer preferences for smaller fruit sizes, the adverse exchange rate between the U.S. and Canadian dollars results in a higher retail price structure.

Florida Department of Citrus merchandising and promotion specialists in both Toronto and Montreal indicate that the Canadian wholesale/retail trade believes marketing opportunities would be enhanced by the certainty of the availability of size 56 throughout the entire shipping season (DuBois; Roberts). The October release of size 56 colored (pink and red) grapefruit during the 1987-88 season has been well received and supported by advertising and promotions featuring the smaller grapefruit sizes. Informal surveys of Florida fresh grapefruit ads and promotions in both Toronto and Montreal indicate that the majority featured smaller fruit sizes in the 1987-88 season. Furthermore, smaller sizes offer the possibility of expanded sales. Consumers who resist purchasing size 23s at 98 cents each or size 32s at 2 for \$1.38 may respond favorably to size 48s or 56s at 4 or 5 for 99 cents. Comments from the trade also indicate potential market opportunities for size 56 white grapefruit based on the somewhat lower price structure for white grapefruit.

An analysis of Florida fresh colored grapefruit shipments to both the U.S. and Canadian markets before and after the release of size 56 reveals distinct differences between the two markets. In the 1986-87 season, size 56 colored seedless grapefruit were released for shipment to the domestic market, including the United States and Canada, on March 23, 1987. Prior to the release of size 56 colored grapefruit, Canada accounted for 10.3 percent of total domestic (U.S. and Canada) Florida colored seedless grapefruit shipments and 26.1 percent of size 48 (smallest size available) colored seedless shipments (Table 1). After the release of size 56 colored grapefruit, Canada represented 11 percent of the total domestic Florida colored seedless grapefruit market, continued to account for 26 percent of size 48 shipments, and dominated the size 56 colored seedless market with 59 percent of shipments. During the period when size 56 was available, size 56 colored seedless grapefruit represented 1.8 percent of Florida colored seedless grapefruit shipments in the U.S. market compared to 21.8 percent in the Canadian market.

In the 1987-88 season, size 56 colored seedless grapefruit was released for shipment to the domestic market on October 22, 1987. The

**Table 1**

**Florida Fresh Colored Seedless Grapefruit Shipments to the U.S. Market and The Canadian Market Before and After the Release of Size 56, 1986-87 Season<sup>1</sup>**

Fruit Size	U.S. Market				Canadian Market			
	Before Size 56 Release		After Size 56 Release		Before Size 56 Release		After Size 56 Release	
	4/5 bu. - ctn. -	- % -	4/5 bu. - ctn. -	- % -	4/5 bu. - ctn. -	- % -	4/5 bu. - ctn. -	- % -
14	1,058	0	225	0	0	0	0	0
18	34,766	0.3	18,830	0.4	1,634	0.1	1,687	0.3
23	433,177	3.3	225,199	4.7	29,643	2.0	19,262	3.2
27	1,171,739	9.1	647,638	13.4	31,323	2.1	14,449	2.4
32	2,214,325	17.1	1,002,347	20.8	290,863	19.5	133,715	22.5
36	3,184,212	24.6	1,136,700	23.6	109,373	7.4	44,759	7.5
40	3,212,511	24.8	1,055,567	21.9	81,488	5.5	24,439	4.1
48	2,671,390	20.7	648,216	13.4	943,569	63.4	227,571	38.2
56	8,512	0.1	88,835	1.8	0	0	129,968	21.8
Total	12,931,690	100	4,823,557	100	1,487,893	100	595,850	100

SOURCE: Unpublished data from the Florida Department of Agriculture and Consumer Services, Division of Fruit and Vegetable Inspection, compiled by Carolyn Brown, Florida Department of Citrus.

<sup>1</sup>Size 56 Pink grapefruit released for shipment to domestic market, including the United States and Canada, on March 23, 1987.

evidence of identifiable demand differences between the U.S. and Canadian markets gleaned from the 1986-87 season is further strengthened by market activity in the 1987-88 season (Table 2). In the 1987-88 season, prior to the release of size 56, Canada accounted for 11.4 percent of Florida domestic colored seedless grapefruit shipments and 24.7 percent of size 48 (smallest size available) domestic Florida colored seedless shipments. After the release of size 56 colored seedless grapefruit, the Canadian market accounted for 13 percent of Florida domestic colored seedless grapefruit shipments, 29.4 percent of size 48 colored seedless shipments and 62.2 percent of size 56 colored seedless shipments. Following the release of size 56 colored seedless grapefruit, size 56 represented 1.6 percent of Florida colored seedless shipments to the U.S. market compared to 18.5 percent of shipments to Canada.

With the early release of size 56 grapefruit in the 1987-88 season, it is interesting to note differences between changes in white and colored grapefruit shipments to the United States and Canada from the previous season. Florida white and colored seedless grapefruit availability in 1987-88 increased 8.6 percent and 9.5 percent, respectively, over the 1986-87 season. In the month following the release of size 56 colored seedless grapefruit on October 22, 1987, Florida shipments of white grapefruit to the U.S. market were down 9 percent compared to the same month the previous season, while colored grapefruit shipments were up 3 percent. Although Florida white grapefruit shipments to Canada in the month following the release of size 56 colored were down 4 percent from the same month last season, shipments of colored grapefruit to Canada increased 34 percent over the same month the previous season. While this particular evidence is somewhat anecdotal in nature, as other factors may have influenced shipments during the month in question, it is supportive of the evidence presented in Tables 1 and 2.

Based on the foregoing analysis of Florida colored seedless grapefruit shipments by size to the U.S. and Canadian markets, it appears that the preference for smaller sizes of Florida grapefruit is considerably stronger in the Canadian market compared to the U.S. market. As such, separating the two markets in terms of size regulations permits the release of smaller sizes of grapefruit for shipment to Canada while restricting shipments to larger sizes in the U.S. domestic market. Thus, the markets can be

segmented to accommodate differences in demand characteristics.

In recent seasons, size 56 grapefruit has accounted for approximately 5 percent of total Florida interstate shipments of colored grapefruit. Size 56 white grapefruit represented a lower share of total white shipments due to tighter restrictions. However, the potential to increase shipments of size 56 grapefruit appears to exist. In the 1986-87 season, approximately one-half of Florida's fresh grapefruit shipments to Canada occurred between late November and mid-March. During the past decade, an average of 12.8 percent and 21.3 percent of the Florida colored seedless grapefruit crop is estimated to have been size 56 and size 48, respectively, based on December fruit size surveys (Florida Agricultural Statistics Service, January Citrus Forecasts). Based on these surveys, about one-third of the colored seedless grapefruit crop qualifies for the smaller sizes preferred by many Canadian consumers.

#### Implications of Market Segmentation

Separate grades and standards tailored to meet clearly identifiable demand characteristics in different markets would certainly be one of the benefits of separating Canada from the domestic U.S. market. The size 56 grapefruit is a case in point. Theoretically, one would expect the identification of meaningful market segments and actions to meet the varying needs and preferences of these segments to result in demand expansion. While, in the case of size 56 grapefruit, it is difficult to estimate precisely the potential impact of separating Canada from the domestic U.S. market, two possible scenarios are suggested.

In the first (best case) scenario, separation of Canada from the domestic U.S. market would result in both increased Florida shipments of size 56 grapefruit to Canada and increased total Florida grapefruit shipments to Canada. The release of size 56 grapefruit to Canada would not be expected to adversely affect the grapefruit price structure in the U.S. or Canadian market. This would be equivalent to a positive shift in the demand for Florida grapefruit and consistent with the theory of market segmentation.

In the second (worst case) scenario, designating Canada as an export market would result in an increase in size 56 shipments to Canada, but these increased shipments would be partially or completely offset by decreased shipments of larger sizes to Canada. Thus, total shipments to

Table 2

Florida Fresh Colored Seedless Grapefruit Shipments to the U.S. Market and The Canadian Market Before and After the Release of Size 56, 1987-88 Season<sup>1</sup>

Fruit Size	U.S. Market				Canadian Market			
	Before Size 56 Release		After Size 56 Release		Before Size 56 Release		After Size 56 Release	
	4/5 bu. - ctn. -	- % -	4/5 bu. - ctn. -	- % -	4/5 bu. - ctn. -	- % -	4/5 bu. - ctn. -	- % -
14	0	0	170	0	0	0	0	0
18	41	0	58,953	0.4	0	0	2,573	0.1
23	2,415	0.5	511,402	3.0	3	0	43,085	1.8
27	14,252	3.3	1,768,728	10.5	821	1.4	65,520	2.7
32	40,768	9.3	3,306,237	19.7	4,263	7.6	426,275	17.7
36	85,508	19.6	3,833,642	22.9	1,098	2.0	154,275	6.4
40	144,761	33.2	4,223,224	25.2	1,319	2.3	103,205	4.3
48	148,294	34.0	2,797,300	16.7	48,734	86.7	1,164,991	48.5
56	571	0.1	270,400	1.6	0	0	444,955	18.5
63	0	0	380	0	0	0	0	0
Total	436,610	100	16,770,436	100	56,238	100	2,404,879	100

SOURCE: Unpublished data from the Florida Department of Agriculture and Consumer Services, Division of Fruit and Vegetable Inspection, compiled by Carolyn Brown, Florida Department of Citrus.

<sup>1</sup>Size 56 Pink grapefruit released for shipment to domestic market, including the United States and Canada, on October 22, 1987.

Canada could increase less than in the first scenario or remain constant. If Canadian shipments of larger sized grapefruit were reduced, these shipments could be diverted to the U.S. market where larger sizes are generally preferred. Given U.S. consumers' preference for larger sized grapefruit, the potential exists for increased demand for Florida grapefruit in the U.S. market. This assumes that the increase in larger size sales exceeds the decrease in smaller size sales in the United States.

There exists a potential for increased revenue under both scenarios. An increase in the absolute volume of fresh utilization will usually represent an improved situation for the Florida grapefruit grower (given that fresh returns exceed processed returns). During the past decade, the average nominal on-tree price per box for Florida grapefruit sold in the processed products market has been 52 percent of the on-tree price for fresh grapefruit (Florida Agricultural Statistics Service, Citrus Summary). Variations in this price relationship exist between white and colored seedless grapefruit. The on-tree price for white and colored grapefruit used for processed products is 65 percent and 37 percent, respectively, of the price for fresh grapefruit. Thus, expanding the demand for fresh grapefruit, particularly colored grapefruit, would be economically beneficial to the Florida grapefruit growers.

#### Concluding Remarks

Marketing orders are powerful tools which can influence the marketing of agricultural products in a variety of ways. The example provided in this paper illustrates the possible impact of a simple definition change such as the classification of Canada as an export market for fresh citrus. The linking of an identifiable (grapefruit size) and separable (Canada) market segment with minimum product quality standards has the potential of better matching product characteristics to consumer preferences. Marketing orders, due to rigid administrative review procedures, have become somewhat institutionalized over the past half-century. However, markets are dynamic in terms of consumer wants and needs, products, competition and structure.

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