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PRODUCTION AND SHIPPING OF FLORIDA WATERMELONS

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Abstract. **This paper presents a concise description of the Florida watermelon market and offers several explanations for the depressed levels of prices experienced by some producing areas. The influences of competing domestic and foreign areas and the role of locational advantage is covered.**

Florida is a major supplier of watermelons to the U.S. market during late spring and early summer. Between 1972 and 1976 Florida averaged over 50% of the total domestic shipments for a seven week period beginning the first week of April. In 1975 Florida produced 76% of the U.S. spring production and 33% of total U.S. production (1, 2). Yields per acre for Florida producers are consistently greater than the weighted average of U.S. spring producers and second only to the desert-producing areas of California, although they are highly variable. The lack of irrigation may be a reasonable explanation for yield variations in some parts of the state while erratic and/or improperly applied chemical agents and fertilizer may well be another. Acreage planted in Florida has shown considerable variation, ranging from 65,000 acres in 1976 to 47,000 acres in 1974 as shown in Table 1. When the acreage data is compared with value per hundredweight[2] (Table 2) an interesting pattern becomes apparent. Starting in 1971, Florida watermelon acreage increased in 1972, then fell each year through 1975; at which point it rose sharply from 47 to 65 thousand acres in 1976. From Table 1 the hundredweight value fell from 1971 to 1972, rose each year through 1975 and fell substantially in 1976.

In each of the 6 years shown, the average value per hundredweight for Florida watermelons was below the weighted average of other spring producers (Table 1). This is in spite of the fact that Florida enters the market first with the associated higher early season prices. In every year, except 1971, Florida growers received the lowest reported price for the 6 states.

Table 1. Planted acreage and value per hundredweight of spring watermelons.[z]

State	Crop year 1971	1972	1973	1974	1975	1976
	Acres					
Alabama	700	3500	600	2900	2900	3700
Arizona	1900	3300	—	900	100	1300
Calif. desert	2500	4300	3800	2700	1800	3000
Florida	52200	61200	54700	50000	47000	65000
Georgia	3000	5000	500	3400	4200	4500
Texas	34500	48000	31000	30000	30000	28000
	Dollar value per hundredweight					
Alabama	2.30	2.80	4.90	4.50	5.40	3.90
Arizona	4.15	2.90	—	5.50	7.90	5.40
Calif. desert	4.01	2.62	4.61	5.48	7.50	6.51
Florida	2.72	2.42	3.07	3.28	4.36	2.61
Georgia	2.50	2.51	4.00	3.70	5.00	2.70
Texas	3.35	3.61	3.58	4.60	5.77	5.62
Wt. Avg.	2.97	2.79	3.29	3.79	4.73	3.28

[z]Source: Marketing Watermelons (1).

Table 2. Abandoned acreage of spring watermelons.[z, y]

State	Crop year 1971	1972	1973	1974	1975	1976
	Percentage of total plantings					
Florida	4.02	8.33	10.97	11.00	7.23	15.38
Georgia	33.00	14.00	20.00	5.88	19.04	11.11
Texas	7.83	6.67	3.23	10.09	20.00	10.71

[z]Alabama, Arizona, and California desert, reported no abandonment.
[y]Source: Marketing Watermelons (1).

Intra-Florida Production

There has been relatively little change in production shares between various producing areas of Florida. The largest change is an 8% decrease in production in the north central area, which encompasses Citrus, Hernando, Lake, Pasco, and Sumter counties. The southwest area has experienced a slight decrease in production of approximately 3%. Increases have been recorded in both the north and west areas of the state to the point where these 2 areas produce 63% of the total Florida crop. In terms of actual acres planted, the northern area has experienced a decline from over 33,000 acres to approximately 28,300 acres from 1960 to 1976. It appears that while the state as a whole is planting fewer watermelons the northern and panhandle areas are becoming more of a dominant factor in the market. The larger percentage of plantings in these areas are in part an explanation for the less than average F.O.B. prices paid to Florida growers. While the southern end of the peninsula has suffered a decline, both in absolute and percentage terms, in watermelon production, their early season advantage ensures them the highest per season value. In the more northern areas of the state, the increased plantings and the partial loss of the temporary market advantage works to reduce grower prices.

Price and Shipping Pattern

As previously mentioned, one explanation for the low F.O.B. prices paid to Florida growers is the large planted acreage. As the more northern counties of the state begin production, the increased supplies work to lower the F.O.B. prices and from this, the price decline is aggravated by the production of the Gulf Coast States with which Florida competes. Florida remains, however, the industry giant in terms of reported unloads at the major terminal markets. This is shown quite readily in Table 3, which also indicates market growth in the 10 years between 1965-66 and 1975-76. In the eastern markets Florida's average market share is 52% in 1975-76 versus 49 percent in 1965-66. Mexico's market share in eastern markets has grown from less than 1% to 5.1%.

In short, it appears that while Florida growers, especially in the northern end of the peninsula, have faced several years of relatively depressed prices they still retain a dominant share of the U.S. domestic market. Mexico's gain

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[2]One hundredweight (cwt) = 100 lbs = 45.4 kg. For other metric conversions see table at front of this volume. Ed.

Table 3. Percent of market unloads at select terminal markets for major producing regions for 10 year span, 1965-66 through 1975-76.

Regions and Cities	Shipping points: Florida 75-76	Florida 65-66	Mexico 75-76	Mexico 65-66	Georgia 75-76	Georgia 65-66	Texas 75-76	Texas 65-66	South Carolina 75-76	South Carolina 65-66	California 75-76	California 65-66
Eastern												
Albany, N.Y.	61	55	2	2	10	5	0	0	8	4	0	0
Baltimore, MD	51	34	1	0	12	20	0	0	9	15	1	0
Boston, MA	42	42	7	0	11	3	2	0	13	22	0	0
New York, N.Y.	43	43	8	1	6	9	7	0	14	17	0	0
Philadelphia, PA	36	40	6	1	13	13	0	0	10	15	0	0
Pittsburg, PA	58	37	4	1	2	14	0	4	13	13	0	0
Providence, R.I.	36	52	3	1	1	4	0	0	48	13	4	0
Montreal, Quebec	65	62	9	1	3	3	0	0	7	16	0	0
Ottawa, Ontario	77	63	3	0	10	11	0	0	0	13	0	0
Toronto, Ontario	46	59	8	0	9	10	1	0	5	16	0	0
Average change	1.8		4.6		−1.5		.6		−2.7		.5	
Midwestern												
Chicago, IL	29	31	10	2	8	2	27	17	2	0	0	0
Cincinnati, OH	68	47	3	0	14	22	1	0	0	2	0	0
Cleveland, OH	44	43	5	1	9	0	7	18	8	3	0	0
Detroit, MI	50	41	5	2	6	10	10	10	4	2	0	0
Indianapolis, IN	60	37	7	0	2	27	3	0	0	0	1	0
Kansas City, MO	16	16	3	1	0	0	32	47	0	0	0	0
Louisville, KY	57	33	0	0	17	17	0	1	0	0	0	0
Milwaukee, WI	36	45	6	0	17	6	6	16	0	0	0	0
Minneapolis, MN	11	30	4	1	0	1	70	55	0	0	0	0
St. Louis, MO	21	24	4	1	1	1	12	31	0	0	0	0
Winnipeg, Man.	9	34	20	0	0	0	69	64	0	0	0	0
Average change	.9		3.5		−1.63		2.7		.6		—	
Southern												
Atlanta, GA	40	32	1	0	54	67	1	0	1	0	1	0
Birmingham, AL	40	35	0	0	4	0	0	0	0	0	0	0
Columbia, SC	49	51	0	0	2	7	0	0	48	41	0	0
Dallas, TX	5	6	9	2	0	0	86	92	0	0	0	0
Ft. Worth, TX	0	2	15	1	0	0	83	97	0	0	0	0
Houston, TX	38	13	12	7	0	0	37	78	2	0	0	0
Memphis, TN	70	37	10	1	2	6	2	1	0	0	0	0
Miami, FL	45	72	6	1	14	13	19	0	7	6	1	0
Nashville, TN	64	23	0	0	6	33	1	5	0	0	0	0
New Orleans, LA	40	38	4	0	0	1	10	7	0	0	0	0
Average change	7.6		1.4		−3.5		−4.0		.7		—	
Western												
Denver, CO	0	2	19	13	0	0	48	63	0	0	7	3
Los Angeles, CA	4	1	19	15	0	0	15	10	0	0	49	65
Portland, OR	0	0	14	7	0	0	5	2	0	0	71	60
Salt Lake City, UT	0	0	12	10	0	0	2	4	0	0	85	69
San Francisco, CA	0	0	23	14	0	0	4	8	0	0	71	74
Seattle, WA	0	0	20	6	0	0	11	6	0	0	60	68
Vancouver, BC	0	0	43	5	0	0	2	0	0	0	51	94
Average change	.1		11.4		—		2.0		—		−5.6	

zSource: USDA unload statistics by region, 1967 and 1977.

in the U.S. market appears to have been made at the expense of Georgia and South Carolina in the eastern markets, Georgia in the midwestern markets, Georgia and Texas in the southern markets, and California in the western markets.

Another factor that influences the prices paid to Florida watermelon growers is the loss of locational advantages to the Gulf Coast states during the middle to latter part of the watermelon season. The price paid to the grower is determined at the terminal market and the transportation costs are deducted from this terminal market wholesale price with the grower receiving the balance. Specifically, the Florida F.O.B. price should equal the terminal price minus the transportation costs. Table 4 shows the Baltimore terminal price by date for watermelons produced in various states. It is interesting to note that the terminal market price for watermelons of similar quality is the same regardless of the state of origin. Thus on July 8, with the wholesale prices of $5.25 per hundredweight, South Carolina producers will receive a higher F.O.B. price than Georgia or Florida producers simply because they are closer to the market and transportation costs are less. No buying broker is going to pay a price greater than the terminal price minus transportation cost. Any fluctuation in consumer demand in the receiving markets, such as that caused by unseasonably cool weather, can force down the terminal price which in turn will result in decreased grower prices.

Conclusion

In summary, Florida watermelon growers are their own worse enemies. While the southern areas of the peninsula

Table4 4. Terminal market prices per cwt. for watermelons by state of origin, Baltimore market.[z,y]

Date (1976)		State of origin					
		Florida 20 lb avg. and larger	Georgia 20 lb avg. and larger	South Carolina 20 lb avg. and larger	North Carolina 20 lb avg. and larger	Maryland 20 lb avg. and larger	Virginia 20 lb avg. and larger
April	29	15.00					
May	6	10.00					
	13	7.50					
	20	6.25					
	27	5.00					
June	3	4.50					
	10	6.50					
	17	6.00					
	24	6.00					
July	1	6.37	6.37				
	8	5.25	5.25	5.25			
	15		3.50	3.50	3.50		
	22		5.50	5.50			
	29				5.25		
August	5			5.38	5.38	5.38	5.38
	12				3.62		3.62
	19				3.25	3.25	
	26				3.50	3.50	

[z]Source: Marketing Watermelons, 1976 (1).
[y]Represents stock of good quality, including but not limited to U.S. No. grade, of mix varieties but mostly log grays.

enter the domestic market first with correspondingly high prices, the more northern areas are in direct competition with other Gulf Coast states and do so with a locational disadvantage. As the season progresses and supplies increase, the prices paid to growers decline until they approximate the break-even costs of production. Florida's locational disadvantage explains in part why prices paid to Florida growers are consistently lower than the regional average prices. This in spite of the high early season prices.

It would appear that the interests of Florida growers would be best served by increased or stable plantings in those areas which produce before direct domestic competition becomes a factor and decreased plantings in the areas that must compete directly with such areas.

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PROMOTION OF EARLY YIELDS IN SUMMER SQUASH BY APPLICATION OF ETHEPHON[1]

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Additional index words. Sex expression, *Cucurbita pepo* L.

Abstract. **Two cultivars of summer squash** (Cucurbita pepo L.), **'Seneca Prolific' and 'Dixie' were planted on plastic mulch at Gainesville in 1976 and 1977. In the 1976 experiment, ethephon was applied at concentrations of 0, 100 and 200 ppm in single or double applications. In 1977, ethephon was applied at rates of 0, 50, 125, 250 and 500 ppm in both single and double applications.**

In 1976 early yields of 'Seneca Prolific' were increased slightly by ethephon sprays. However, late and total yields were similar to the control regardless of ethephon concentration. Both early and total yields of 'Dixie' were significantly increased by application of ethephon. Yield differences compared with untreated plants were negligible due to ethephon concentration or the number of chemical applications. Fruit from ethephon treated plants were slightly smaller than fruit from non-treated plants.

In 1977, ethephon had essentially no effect on yields of 'Seneca Prolific,' but early yields of 'Dixie' were significantly increased by double applications of ethephon at 250 or 500 ppm. Total yield of 'Dixie' tended to be improved by a single 500 ppm ethephon application.

The effect of ethephon, a chemical which releases ethylene, on inducing female flowering in cucumber and squash has been well documented (4, 5, 6, 7, 8, 11, 13, 16). McMurray and Miller (9) increased early and total yields of pickling cucumbers by single and multiple applications of ethephon at concentrations of 120, 180, and 240 ppm. Tompkins and Shulteis (14) improved early, but not total yields, of 2 monoecious lines of pickling cucumbers which were multiple harvested. Cantliffe and Omran (2) reported similar results with slicing cucumbers. Ethephon significantly promoted large yield increases in pickling cucumbers which were harvested once-over (3).

Results with ethephon usage on squash have not been

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