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EXTENSION

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Economic Impact of Florida's Fruit and Vegetable Industries¹

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Introduction

Florida agriculture is perhaps best known for its fruit and vegetable products. This is the largest sector of the state's agricultural and natural resource industries. Florida growers supply the majority of winter vegetables in the eastern United States, and the state is the leading national producer of citrus fruit and fruit juices. The fruit and vegetable sector is part of a complex and integrated network of agricultural enterprises associated with the production, transportation, processing, and shipment of fruit and vegetable products. As these products progress through these different market channels, value is added from labor, capital, and management, which significantly impact the economy.

The rapid rate of urbanization in the state has left consumers and political leaders with a limited understanding of where food such as fruit and vegetable products grow and the issues surrounding their management. The fruit and vegetable industries stimulate Florida's economy in three ways. First, as direct effects, industries generate output and value-added, and provide employment and wages to employees. Second, as indirect effects, the purchase of goods and services such as inputs from other

industries supports additional economic activity in these industries. Third, as induced effects, earnings by industry employees boost the local economy through personal consumption expenditures. The total economic impact is the sum of the direct, indirect, and induced effects. Since exported goods introduce new money into the region, commodity sales outside the region are associated with greater economic impacts than sales to regional customers. Also, inputs obtained from regional firms, rather than imports from outside the region, are associated with greater economic impacts because money is retained and circulated within the region. This factsheet is intended to facilitate a better understanding of Florida's fruit and vegetable sectors by reviewing historical economic trends, and evaluating the economic impacts associated with this industry.

Methodology

The economic impacts of the fruit and vegetable industries in Florida were estimated based on economic multipliers developed using *IMPLAN PRO*TM (*IMPLAN*) software and associated databases for Florida. The *IMPLAN* system enables the construction of regional input-output models for any county, group of counties, or state in the United

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States based on a combination of county-level and national economic data. Industries are classified into 528 sectors, corresponding to the U.S. Department of Commerce's four-digit Standard Industrial Classification (SIC) System. Multipliers for each sector are available from *IMPLAN* for the economic indicators of output, value added, employment, employee compensation, labor income, other proprietary income, and indirect business taxes. Furthermore, the multipliers are provided for direct, indirect, and induced effects. The multipliers for output, value-added, and labor income represent dollars-per-dollar of sales to final demand, while the employment multiplier represents jobs-per-million-dollars of sales to final demand.

Total economic impacts were computed by applying the economic multipliers as follows:

$$T_{(\text{Output, VA, Emp})} = E \times M_{T(\text{Output, VA, Emp})} + (\text{LFD} + \text{ID}) \times M_{D(\text{Output, VA, Emp})}$$

where

$T_{(\text{Output, VA, Emp})}$ = total economic impacts

E = export demand (sales)

LFD = local final demand (total final demand less exports)

ID = intermediate industry demand from non-agricultural sectors

$M_{T(\text{Output, VA, Emp})}$ = total effects multiplier (direct + indirect + induced effects) for output, value-added, employment

$M_{D(\text{Output, VA, Emp})}$ = direct effects multiplier for output, value-added, and employment.

The expression for total final demand less exports represents local (Florida) final demand. The base information on output and exports for each industry, as well as the multipliers, were provided by the *IMPLAN* system for 1998.

In addition to supplying information on the economic impacts associated with the fruit and

vegetable sectors of Florida, this factsheet also reviews historical economic information on bearing acreage, number of farms, employment, production value, and processing value of fruit and vegetable production in Florida. This information was obtained from secondary data sources such as the Census of Agriculture, the United States Department of Agriculture, and the Florida Department of Citrus. Note that any data discrepancies between the *IMPLAN* database and other secondary data sources featured in this report are primarily due to differences in industry classifications and accounting measures.

Results

Economic Impacts

The direct and total economic impacts of the fruit and vegetable industries are summarized in Table 1. The sector had direct employment of nearly 48,000 persons, industry output of \$5.7 billion (B), and value added of \$2.2B. Total economic impacts included \$11.5B in output; \$6.0B in value added; and 135,000 jobs, with \$3.8B in labor income to employees. Farm production of fresh fruits, vegetables, and tree nuts accounted for total impacts of over 88,000 jobs; \$6.6B in industry output; and \$3.5B in value added. The fruit and vegetable processing industries, including frozen concentrate and fresh citrus juice products, had over 11,000 employees (direct effects); with total impacts of \$4.8B output; \$2.3B value added; and employment of nearly 44,000 persons.

Citrus

Florida is the leading state for U.S. citrus production. Between 1999 and 2000, the value of fresh citrus shipments in Florida totaled \$493.2 million, and the value of processed citrus products was \$3,792.2 million. The most important Florida citrus crops are oranges and grapefruits, which together account for about 93 percent of total value. Other citrus fruits produced commercially include K-early and temple oranges, tangerines, tangelos, limes, and lemons. Following the disastrous freezes in the mid-1980s, the citrus industry expanded in value and bearing acreage, while decreasing in farm numbers. In inflation-adjusted terms, the value of citrus production increased by 30 percent between 1994-99 (Figure 1). The bearing acreage of Florida

citrus groves rose in the mid-1990s, then declined to about 775 thousand acres in 1999. Similarly, the number of citrus farms increased in 1992, then dropped to 7,676 in 1997.

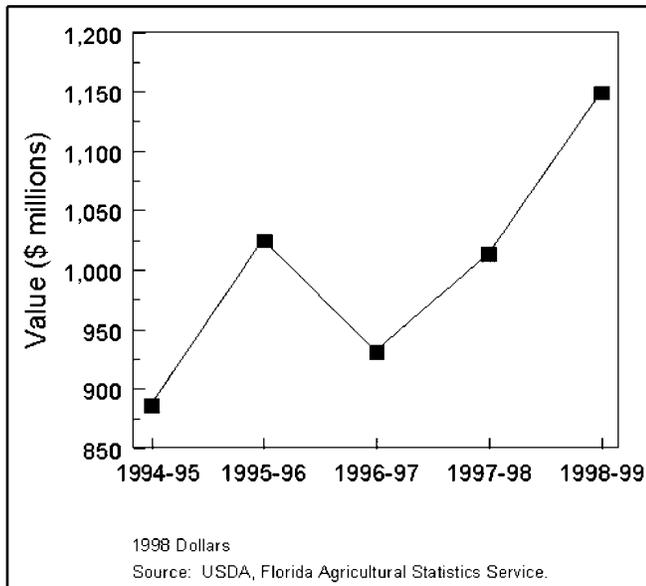


Figure 1. Cash receipts for Florida citrus fruit, 1994-99.

A large share of Florida's citrus fruit is processed into frozen concentrate and reconstituted juice products. During the 1990's, processed citrus accounted for 86 percent of total citrus value, while fresh citrus fruit shipped to retailers represented 14 percent of total citrus value.

The value of processed citrus grew 38 percent between 1990-98 to \$3.3 billion. The value of fresh citrus shipments to U.S. and international markets reached \$364 million in 1997, a 63 percent increase from 1985.

Grapefruit is the dominant fresh citrus product, accounting for about 71 percent of total shipment value. Both grapefruit and processed citrus shipments experienced modest increases during the mid-to-late 1980s, dramatic swings during the early 1990s, and modest increases in the latter 1990s. An all-time high of \$455 million in value was reached in 1990. These changes in values were largely due to fluctuations in commodity prices rather than production volumes.

Vegetables and Melons

Florida produces a wide variety of vegetable and melon crops, and is an important supplier of winter

vegetables to the eastern United States and Canada. The total value of vegetables and melons was \$1.54 billion in 1998. Tomatoes were the largest vegetable crop, at \$507 million, followed by green peppers (\$246M), snap beans (\$130M), potatoes (\$123M), and sweet corn (\$103M). The value of vegetables and melons decreased by 10 percent between 1993 and 1998 (Figure 2). The value of tomatoes increased moderately during this time, as did cabbages. Sales of green peppers increased markedly, and other minor crops also increased in value, including snap beans, escarole, and squash; however, lettuce and radishes decreased in value. While production values declined during the 1990s, both the number of farms and harvested acreage increased between 1987 and 1997. The number of Florida vegetable and melon farms grew thirty-three percent to 2,053, and harvested area grew 25 percent to 311,000 acres. Employment in the fruit and vegetable processing sector varied from 10,400 persons in 1989 to 9,300 in 1996.

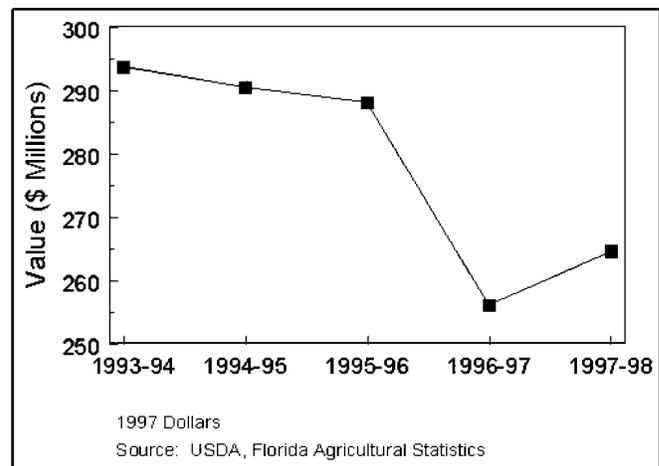


Figure 2. Cash receipts for Florida vegetables and melons, 1993-98.

The value of vegetable exports shipped internationally from Florida ports has decreased dramatically in recent years, from \$93 million in 1995 to \$33 million in 1998. The Caribbean region remained the top export destination of vegetables shipped from Florida ports, accounting for about 54 percent of total vegetable export values between 1994-98, followed by Africa (21%), and South America (8%). Exports to the Caribbean increased 59 percent between 1994-98, while exports to Africa and South America decreased 86 percent.

Other Fruits, Nuts, and Berries

In addition to citrus, Florida produces an array of fruit, nut, and berry crops, including avocados, mangos, pecans, blueberries, and strawberries. These crops were collectively valued at \$209 million in 1997. Strawberries, by far, are the most valuable commodity in this category (\$146 million), followed by avocados (\$14 million) and blueberries (\$6 million). Due to climatic constraints, tropical fruits such as avocados and mangos are grown only in South Florida and California within the continental United States.

The value of Florida fruit, nut, and berry commodities increased consistently from \$126 million in 1993 to \$209 million in 1997 (Figure 3). Both the number of farms and harvested acreage decreased between 1987 and 1992, then subsequently increased in 1997. Approximately 9,500 fruit, nut, and berry farms were present in Florida in 1997. Harvested acreage decreased between 1987 and 1992, then returned to about 762,000 acres in 1997. The Asian, European, and South American markets were the top international export destinations for fruit, nut, and berry products from Florida. The Asian market represented 49 percent of exports, followed by Europe (14%) and South America (11%). Export values in all three regions declined between 1994-98. The value of fruit, nut, and berry crops, including citrus, leaving Florida's ports steadily decreased from \$179 million in 1994 to \$116 million in 1998.

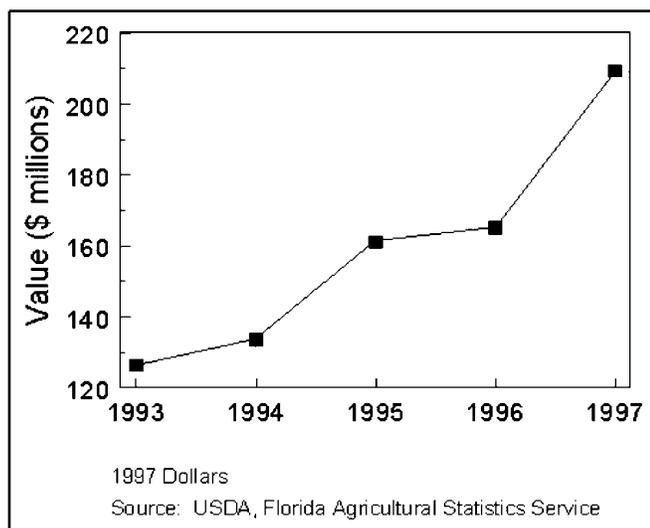


Figure 3. Cash receipts for Florida fruit, nut, and berry crops, 1993-97.

Table 1. Economic impacts of Florida's fruit and vegetable industry, 1997.

Sector Description	Direct Impacts				Total Impacts			
	Employment (jobs)	Industry Output (\$M)	Value Added (\$M)	Labor Income (\$M)	Employment Total Impacts (jobs)**	Total Output Impacts (\$M)**	Value Added Total Impacts (\$M)**	Labor Income Total Impacts (\$M)**
Fruits	22,854	1,794.0	634.9	415.7	48,089	3,321.7	1,690.6	1,067.7
Vegetables	14,296	1,536.4	856.5	571.9	40,162	3,027.7	1,827.0	1,136.4
Frozen fruits, juices, and vegetables	5,682	1,224.2	317.0	210.5	24,691	2,648.7	1,201.8	803.5
Canned fruits and vegetables	4,121	976.9	355.9	195.3	19,208	2,123.8	1,060.2	664.0
Pickles, sauces, and salad dressings	434	118.0	38.2	12.7	1,610	20.7.2	93.5	50.2
Frozen specialties	281	57.8	20.1	10.2	935	105.1	48.3	30.5
Dehydrated food products	173	25.5	8.3	5.0	460	47.6	22.9	14.4
Canned specialties	26	10.9	2.3	0.8	157	20.9	8.3	4.9
Tree nuts	27	1.0	0.7	0.5	37	2.0	1.3	0.9
Total	47,893	5,744.6	2,234.0	1,422.7	135,348	11,504.5	4,953.9	3,772.5

* Total impacts represent exports times total effects multiplier plus local final demand and local intermediate demand from nonagricultural sectors times direct effects multiplier.

** All values in millions U.S. dollars (1997), except employment impacts (jobs).

Source: Minnesota Implan Group, 1999.