Farmer to Consumer Direct Marketing of Tomatoes in Florida: PRODUCER AND CONSUMER BENEFITS
ABSTRACT

Tomatoes are Florida's leading commercial vegetable crop, and are important in direct marketing, as well. Three case studies of growers' pick-your-own operations showed returns per hour of family labor from $0.81 to $7.60. Consumers bought an average of 17 pounds of tomatoes at average purchase of $2.85. Consumers' average savings, compared with retail food store prices for tomatoes, were $3.50 per purchase. Consumers cited low prices, freshness and quality of tomatoes and recreation as advantages for patronizing pick-your-own outlets.

Key words: Marketing, direct marketing, tomatoes.
FARMER TO CONSUMER DIRECT MARKETING OF TOMATOES IN FLORIDA:
PRODUCER AND CONSUMER BENEFITS

a report by
Robert L. Degner, Lance W. Rodan, and
Kary Mathis

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The Florida Agricultural Market Research Center
a part of
The Food and Resource Economics Department
Institute of Food and Agricultural Sciences
University of Florida, Gainesville 32611
The Florida Agricultural Market Research Center

A Service of
The Food and Resource Economics Department
of the
Institute of Food and Agricultural Sciences

The purpose of this Center is to provide timely, applied research on current and emerging marketing problems affecting Florida's agricultural and marine industries. The Center seeks to provide research and information to production, marketing, and processing firms, groups and organizations concerned with improving and expanding markets for Florida agricultural and marine products.

The Center is staffed by a basic group of economists trained in agriculture and marketing. In addition, cooperating personnel from other IFAS units provide a wide range of expertise which can be applied as determined by the requirements of individual projects.
FOREWORD

Inflationary trends in prices paid by consumers and input prices paid by farmers have resulted in increased interest in farmer-to-consumer direct marketing as a means of reducing food costs to consumers and increasing financial returns to farmers. This increased interest resulted in the passage of the Farmer to Consumer Direct Marketing Act of 1976 (PL 94-463). The purpose of this act is to promote the development and expansion of direct marketing of agricultural commodities from farmers to consumers on an economically sustainable basis. The act required evaluation of direct marketing activities through a series of research activities.

In 1978, the Florida Agricultural Market Research Center was selected by USDA-ESCS to conduct case studies of representative direct marketing methods employed by farmers in Florida and of consumers patronizing these outlets. Nine agricultural commodities commonly marketed directly by producers to consumers were selected for the series of case studies. The commodities included blueberries, grapes, citrus, tomatoes, snap beans (including pole beans), strawberries, watermelons, honey, and eggs. Case study findings for each commodity are reported in separate publications to allow for greater efficiency in disseminating the results.
ACKNOWLEDGEMENTS

This research was initiated by a request from the United States Department of Agriculture, Economics, Statistics, and Cooperative Service, National Economic Analysis Division (now Economic Research Service. National Economics Division). A substantial portion of the funding was provided by USDA-ESCS. Peter L. Henderson, Agricultural Economist, was particularly helpful in formulating and guiding the project, and is due our sincere appreciation.

Our appreciation is also expressed to Mr. Gervasio Cubenas, research assistant, Mr. Scott Woolley and Miss Judith King, statisticians, for their help in conducting and analyzing grower and consumer interviews. We also express our thanks to Ms. Patricia Beville, Mrs. Lois Schoen and Ms. Alice Bliss for typing this manuscript.
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SUMMARY

Tomatoes for fresh market are Florida’s leading vegetable crop. State acreage in 1978-79 was 41,800 acres and value of production was $219 million. Nearly all commercial acreage is in the southern half of the state, and is harvested from October through June. Some growers plant tomatoes especially for pick-your-own (PYO) sales and some commercial growers open PYO outlets after commercial harvest.

Three case studies of tomato PYO and roadside stand operations are discussed. Growers' tomato plantings ranged from two-thirds acre to 30 acres, and total tomato sales from 15,000 to 123,000 pounds. Revenues from direct sales were from $3,060 to $21,500.

Growers' net returns to direct marketing were from $830 to $4,800, and returned from $0.81 to $7.60 per hour of family labor. All producers felt they received higher returns from marketing directly to consumers than through the commercial market.

A sample of 32 patrons was interviewed at PYO outlets. The patrons tended to be older, better educated, and had relatively high incomes. No patrons under 25 years of age were encountered; over half were over 50. All patrons except one had twelve or more years of education. About 65 percent reported incomes over $15,000 per year and nearly 45 percent had incomes in excess of $25,000 per year. Nearly one-third of the patrons were retired, and over 40 percent were temporary winter visitors.

Nearly 60 percent of the patrons had been attracted to the outlet through roadside signs, and almost all of the remainder had learned of the outlet through word-of-mouth. Nearly half were repeat customers. Over two-thirds had shopping companions; for many shoppers, the excursion to the tomato PYO outlet appeared to be a social, recreational event.

All those interviewed had planned to patronize a tomato PYO outlet whenever they left their residences. Slightly over half made special trips from their residences to the outlet and the remainder combined their patronage of the tomato PYO outlet with other activities. Those that made special trips drove an average round trip distance of 22 miles requiring slightly over half-an-hour driving time. Those making combination trips required only 8 miles of additional driving and approximately 15 minutes.
On the average, the PYO patrons bought nearly 17 pounds of tomatoes at a weighted average price of slightly over 17 cents per pound. The average expenditure was $2.85. Prices observed at PYO outlets ranged from 10 to 20 cents per pound, but the most prevalent was 15 cents.

Customers tended to overestimate their savings. On the average, they thought they were saving nearly $8 per transaction, but compared with prevailing prices at area grocery stores, they saved about $3.50 per transaction.

Patrons rated freshness and overall quality of the tomatoes obtained at PYO outlets significantly higher than tomatoes available at area grocery stores. Customers cited low prices, freshness, quality, and recreation as the major advantages gained by patronizing the tomato PYO outlets.

Only one customer in five mentioned disadvantages associated with patronizing the PYO outlet. The most frequent disadvantage was inconvenient location, i.e., the travel distance and time required.
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INTRODUCTION

Tomatoes are one of Florida's most important vegetable crops. The statewide acreage during the 1978-79 season was 41,800 which constituted about 10.5 percent of the state's total vegetable acreage. Virtually all commercial production occurs in the fall, winter, and spring quarters of the year. Quarterly acreages were 12,800, 12,300, and 15,700, respectively.

Practically all of Florida's tomato acreage is planted for the fresh market, although approximately 5 percent is salvaged for or diverted to processing plants. The total value of Florida's tomatoes for the fresh market approached $219 million in 1978-79 (Florida Crop and Livestock Reporting Service).

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Most commercial acreage is in the southern half of Florida. The Palmetto-Ruskin area, in the west central part of the state, accounted for about 41 percent of the reported acreage; Dade County, in south Florida, had 20 percent; Immokalee-Bonita Springs-Naples had 26 percent; and the Fort Pierce-Pompano area, in the southeast portion of the state, had slightly over 10 percent. Only 2.6 percent of the state's commercial tomato production was in the north-central and Panhandle regions (Florida Crop and Livestock Reporting Service).

Tomatoes are harvested in Florida from October through June, the time of the year when many tourists visit areas of the state where tomatoes are produced. Direct marketing opportunities for producers are thus enhanced.

OBJECTIVES

The basic objective of this study was to determine the nature and extent of benefits of direct marketing to tomato producers and to the customers who purchase tomatoes directly from producers. Specific objectives were to 1) identify marketing inputs required by the predominant method of direct marketing; 2) determine marketing costs associated with the prevailing direct marketing activity; 3) determine farmer net returns obtained through direct marketing and 4) estimate returns associated with each input, with particular emphasis on family labor.
Specific consumer-oriented objectives were to 1) determine prices paid by consumers for tomatoes at representative direct marketing outlets and compare these prices with those paid at supermarkets; 2) determine consumers' perception of tomato quality at direct marketing outlets as compared to that obtainable at supermarkets; 3) identify additional benefits of direct marketing perceived by consumers patronizing direct marketing outlets and 4) determine demographic characteristics of direct marketing outlet patrons.

PROCEDURE

The case study approach was utilized to determine producer benefits. Tomato producers were identified and located with the assistance of county agricultural extension agents and state horticultural extension specialists. Specific growers were then selected to reflect a broad spectrum of direct marketing activity, particularly with respect to size and type of operation. Producers were personally interviewed by the Florida Agricultural Market Research Center staff during March and April of 1979, the peak of the harvest season.

Production cost data were obtained from secondary sources and slightly modified to reflect general production practices used by most growers (Brooke). Considerable similarity was discovered with respect to cultural practices for growers producing ground tomatoes, so it was assumed that production costs were similar. In some cases, total revenues and costs of marketing inputs were estimated and used to determine
financial returns whenever growers could not or would not provide primary data. Growers were also questioned about nonmonetary benefits derived from direct marketing activities.

Consumer benefits were ascertained through personal interviews at direct marketing outlets. Consumers were selected on a non-probability, convenience basis, at typical pick-your-own (PYO) outlets. The customer flow at all PYO outlets was sufficiently slow to allow all patrons to be interviewed during surveillance periods. Information relating to consumers' purchases, demographic characteristics, shopping patterns, and transportation were obtained in the interviews. Consumers' monetary savings were determined by comparing prices paid for tomatoes at PYO outlets with prices prevailing at local grocery stores.

FINDINGS

Producer Benefits of Direct Marketing

Pick-your-own (PYO) operations were found to be the predominant form of direct marketing for tomatoes. Producer-PYO operator interviews for tomatoes were conducted in three of the four major growing areas. The mode of operation and financial returns were found to be similar in areas where interviews were conducted. The three case studies summarized below are typical of the PYO outlets identified and interviewed. Their marketing activities were similar, but their production activities were quite different.

The first was a small-scale "ground tomato" operation planted
specifically for the PYO market. The term "ground tomatoes" refers to the prevailing cultivation method used by most commercial growers. Tomato plants are not staked, but are planted on beds, usually on black plastic mulch. The second PYO outlet grew staked tomatoes, and the third was a salvage operation of a large-scale commercial grower.

Case A

Grower A had 23 acres of assorted vegetables specifically for his combination PYO outlet and roadside stand. His farm was several miles from a city of approximately 20,000 in Dade County. Vegetables grown by Producer A included tomatoes, peas, collards, cabbage, and several varieties of bush beans. Tomatoes were the most important crop, and were grown on 6.5 acres.

Revenues

Yields in 1978-79 was estimated at 630 30-pound carton equivalents per acre, similar to commercial yields in the area. An estimated 75 percent of Grower A's tomatoes were sold through the PYO operation, and the remainder at his roadside stand. Tomatoes sold to PYO patrons brought 15 cents per pound, and those sold to roadside stand customers bought 25 cents per pound. Grower A's gross revenue from tomatoes was estimated to be approximately $21,500 (Table 1).
Table 1.--Annual costs and returns for Grower A's pick-your-own and roadside tomato operation.

<table>
<thead>
<tr>
<th>Item</th>
<th>Costs or returns</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$</td>
</tr>
<tr>
<td><strong>Revenue</strong></td>
<td></td>
</tr>
<tr>
<td>PYO sales 92,137 pounds @ $0.15</td>
<td>13,821</td>
</tr>
<tr>
<td>Roadside sales 30,713 pounds @ $0.25</td>
<td>7,678</td>
</tr>
<tr>
<td>Total revenue</td>
<td>21,499</td>
</tr>
<tr>
<td><strong>Costs</strong></td>
<td></td>
</tr>
<tr>
<td>Production costs 6.5 acres @ $1.921</td>
<td>12,487</td>
</tr>
<tr>
<td><strong>Marketing costs</strong></td>
<td></td>
</tr>
<tr>
<td>Equipment</td>
<td></td>
</tr>
<tr>
<td>Truck 1,400 miles @ $0.20</td>
<td>280</td>
</tr>
<tr>
<td>Scales</td>
<td>15</td>
</tr>
<tr>
<td>Pails</td>
<td>15</td>
</tr>
<tr>
<td>Signs</td>
<td>16</td>
</tr>
<tr>
<td>Table</td>
<td>3</td>
</tr>
<tr>
<td>Interest on capital 42</td>
<td></td>
</tr>
<tr>
<td>Total, equipment</td>
<td>371</td>
</tr>
<tr>
<td>Supplies</td>
<td></td>
</tr>
<tr>
<td>Bags</td>
<td>200</td>
</tr>
<tr>
<td><strong>Total marketing costs</strong></td>
<td>571</td>
</tr>
<tr>
<td><strong>Net revenue</strong></td>
<td>8,441</td>
</tr>
<tr>
<td>Net return if tomatoes sold commercially (Table 3)</td>
<td>3,640</td>
</tr>
<tr>
<td>Net return due to direct marketing</td>
<td>4,801</td>
</tr>
<tr>
<td><strong>Family labor</strong></td>
<td></td>
</tr>
<tr>
<td>Marketing 633 hours</td>
<td></td>
</tr>
<tr>
<td><strong>Net return per hour of family labor due to direct marketing</strong></td>
<td>7.95</td>
</tr>
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</table>
Costs

Grower A’s production costs were estimated at $1,921 per acre, for a total of $12,487 (Table 1). These included fertilizer, pesticides, cultural labor and other expenses, listed in detail in Appendix Table 1.

Marketing costs totaled $571, made up of $371 for equipment and $200 for supplies (Table 1). The major portion of equipment costs were mileage charges for the pickup truck used as sales headquarters and for checking on fields, carrying supplies, etc. The only other equipment Grower A used were scales for weighing purchases, pails for customers’ picking, two roadside signs and a table (Table 2).

Net Returns

After all expenses, Grower A netted $8,441 from PYO and roadside tomato sales (Table 1). If Grower A had sold his tomatoes commercially, his net return would have been $3,640 (Table 3). Grower A would have had difficulty in obtaining commercial picking crews because of his small acreage. However, assuming that he could have sold his tomatoes commercially, his estimated return due to direct marketing would have been $4,801 (Table 1).

When the time spent at the stand is prorated among the various items grown and sold, Grower A and his family spent 633 hours selling their tomatoes through their PYO and roadside stand. On an hourly basis, Grower A and his family earned $7.59 for their direct marketing efforts (Table 1).
Table 2.—Equipment requirements for Grower A's pick-your-own and roadside tomato operation.

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Depreciable life&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Price/unit</th>
<th>Total investment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Years&lt;sup&gt;b&lt;/sup&gt;</td>
<td>Dollars</td>
<td></td>
</tr>
<tr>
<td>Truck, one-half ton</td>
<td>1</td>
<td>----&lt;sup&gt;b&lt;/sup&gt;</td>
<td>3,000</td>
<td>250&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td>Scales</td>
<td>1</td>
<td>5</td>
<td>75</td>
<td>75</td>
</tr>
<tr>
<td>Pails</td>
<td>10</td>
<td>2</td>
<td>3</td>
<td>30</td>
</tr>
<tr>
<td>Signs</td>
<td>2</td>
<td>3</td>
<td>24</td>
<td>48</td>
</tr>
<tr>
<td>Table</td>
<td>1</td>
<td>5</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Total investment</td>
<td></td>
<td></td>
<td></td>
<td>418</td>
</tr>
<tr>
<td>Interest on capital &amp; 10 percent per annum</td>
<td></td>
<td></td>
<td></td>
<td>42</td>
</tr>
</tbody>
</table>

<sup>a</sup>Straight line depreciation is calculated for all items, assuming no salvage value.

<sup>b</sup>All operating expenses, including depreciation, are reflected in the 20 cent-per-mile charge (Table 1).

<sup>c</sup>The truck was used one month for direct marketing of tomatoes.
Table 3.--Commercial marketing alternative for Grower A's tomato operation.

<table>
<thead>
<tr>
<th>Item</th>
<th>Costs or returns</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Revenue</strong></td>
<td></td>
</tr>
<tr>
<td>Tomato sales</td>
<td>122,050 pounds @ $0.22</td>
</tr>
<tr>
<td><strong>Costs</strong></td>
<td></td>
</tr>
<tr>
<td>Production</td>
<td>6.5 acres @ $1,921</td>
</tr>
<tr>
<td>Marketing</td>
<td>6.5 acres @ $1,677</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
</tr>
<tr>
<td>Net return, commercial alternative</td>
<td>3,640</td>
</tr>
</tbody>
</table>

Case B

Grower B grew two acres of staked tomatoes in the same general locale as Grower A. His crop averaged 750 30-pound carton equivalents per acre, or 45,000 pounds. Two-thirds of his production was sold to local restaurants and food retailers, and one-third directly to consumers.

Revenue

Grower B estimated that he sold 15,000 pounds directly to consumers, 90 percent through his PYO outlet, and the remaining 10 percent at his roadside stand. The 13,500 pounds sold to PYO outlet
patrons brought 20 cents per pound, and the 1,500 pounds sold through the roadside stand brought 32 cents. Grower B's total revenue from direct tomato sales amounted to $3,180 (Table 4).

Costs

Production costs for Grower B's staked tomato operation were nearly $2,600 per acre, substantially more than ground tomato production costs (Appendix Table 2). However, his yields were higher and he could charge higher prices than producers with ground tomatoes. Grower B's prorata production costs for the one-third of his acreage (two-thirds of an acre total) were $1,734. Grower B used an attractive portable shed for his combination PYO outlet headquarters and roadside stand (Table 5). Total costs for the structure and PYO outlet equipment, such as his scale, picking pails, and signs, were $324. Supplies and services such as bags for customers' purchases, liability insurance, and advertising added an additional $253 in costs (Table 4).

Net Returns

After deducting production and marketing costs, Grower B was left with $869. If he had been able to sell his tomatoes through the conventional commercial market, he would have netted only $41 (Table 6). His return from direct marketing was $828. It is very unlikely that Grower B could have sold his production through the commercial market, however, because of his relatively small acreage.
Table 4.--Annual costs and returns for Grower B's pick-your-own and roadside tomato operation.

<table>
<thead>
<tr>
<th>Item</th>
<th>Costs or returns</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>---- Dollars ----</td>
</tr>
<tr>
<td><strong>Revenue</strong></td>
<td></td>
</tr>
<tr>
<td>PYO sales</td>
<td>2,700</td>
</tr>
<tr>
<td>13,500 pounds @ $0.20</td>
<td></td>
</tr>
<tr>
<td>Roadside sales</td>
<td>480</td>
</tr>
<tr>
<td>1,500 pounds @ $0.32</td>
<td></td>
</tr>
<tr>
<td>Total revenue</td>
<td>3,180</td>
</tr>
<tr>
<td><strong>Costs</strong></td>
<td></td>
</tr>
<tr>
<td>Production costs</td>
<td>1,734</td>
</tr>
<tr>
<td>0.67 acres @ $2,588</td>
<td></td>
</tr>
<tr>
<td><strong>Marketing costs</strong></td>
<td></td>
</tr>
<tr>
<td>Structures and equipment</td>
<td></td>
</tr>
<tr>
<td>Portable shed</td>
<td>100</td>
</tr>
<tr>
<td>Scale</td>
<td>3</td>
</tr>
<tr>
<td>Pails</td>
<td>4</td>
</tr>
<tr>
<td>Signs</td>
<td>10</td>
</tr>
<tr>
<td>Interest on capital</td>
<td>207</td>
</tr>
<tr>
<td>Total, structures and equipment</td>
<td>324</td>
</tr>
<tr>
<td>Supplies and services</td>
<td></td>
</tr>
<tr>
<td>Insurance</td>
<td>120</td>
</tr>
<tr>
<td>Advertising</td>
<td>100</td>
</tr>
<tr>
<td>Bags</td>
<td>30</td>
</tr>
<tr>
<td>Twine</td>
<td>2</td>
</tr>
<tr>
<td>Flags</td>
<td>1</td>
</tr>
<tr>
<td>Total, supplies and services</td>
<td>253</td>
</tr>
<tr>
<td><strong>Total marketing cost</strong></td>
<td>577</td>
</tr>
<tr>
<td>Net revenue</td>
<td>869</td>
</tr>
<tr>
<td>Net return if tomatoes sold commercially (Table 6)</td>
<td>41</td>
</tr>
<tr>
<td>Net return due to direct marketing</td>
<td>828</td>
</tr>
<tr>
<td><strong>Family labor</strong></td>
<td></td>
</tr>
<tr>
<td>Marketing</td>
<td>1,020 hours</td>
</tr>
<tr>
<td>Net return due to direct marketing per hour of family labor</td>
<td>0.81</td>
</tr>
</tbody>
</table>
Table 5.--Structure and equipment requirements for Grower B's pick-your-own and roadside tomato operation.

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Depreciable life&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Price/unit</th>
<th>Total investment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Years</td>
<td>Dollars</td>
<td></td>
</tr>
<tr>
<td>Portable shed</td>
<td>1</td>
<td>20</td>
<td>2,000</td>
<td>2,000</td>
</tr>
<tr>
<td>Scale</td>
<td>1</td>
<td>5</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Pails</td>
<td>20</td>
<td>5</td>
<td>1</td>
<td>20</td>
</tr>
<tr>
<td>Signs</td>
<td>6</td>
<td>3</td>
<td>5</td>
<td>30</td>
</tr>
<tr>
<td>Total investment</td>
<td></td>
<td></td>
<td></td>
<td>2,065</td>
</tr>
<tr>
<td>Interest on capital @ 10 percent per annum</td>
<td></td>
<td></td>
<td></td>
<td>207</td>
</tr>
</tbody>
</table>

<sup>a</sup>Straight line depreciation is calculated for all items, assuming no salvage value.

Table 6.--Commercial marketing alternative for Grower B's tomato operation.

<table>
<thead>
<tr>
<th>Item</th>
<th>Costs or returns</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>---- Dollars ----</td>
</tr>
<tr>
<td>Revenue</td>
<td></td>
</tr>
<tr>
<td>Tomato sales</td>
<td>15,000 pounds @ $0.22</td>
</tr>
<tr>
<td>Costs&lt;sup&gt;a&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td>Production</td>
<td>0.67 acres @ $2,588</td>
</tr>
<tr>
<td>Marketing</td>
<td>0.67 acres @ $2.276</td>
</tr>
<tr>
<td>Total cost</td>
<td></td>
</tr>
<tr>
<td>Net return, commercial alternative</td>
<td>41</td>
</tr>
</tbody>
</table>

<sup>a</sup>Costs are prorated to reflect one-third of the total production, i.e., the proportion sold through the PYO outlet and the roadside stand.

Source: Appendix Table 2.
Grower B's direct marketing operation required a great deal of family labor. He indicated that it was open 8 1/2 hours per day, six days per week for about 5 months, December through April. A total of 1,020 hours of family labor were required. The resulting net return attributable to Grower B's direct marketing efforts was only $0.81 per hour. However, the return is probably understated because the family member or members manning the operation occasionally assisted with production and with marketing to restaurants and grocery stores. Another consideration is that much of the direct marketing labor was provided by children after school hours and on weekends. These children had virtually no employment opportunities other than the family's direct marketing operation.

Case C

Producer C was a large-scale tomato grower in Dade County. His total tomato acreage was estimated at 700 acres but only 30 acres adjacent to a heavily traveled highway was opened as a PYO outlet. After several commercial pickings two of Grower C's family members operated the PYO outlet for about three weeks. The 30 acre block was opened to PYO patrons gradually, so that patrons had access to "fresh" picking every few days.

Revenue

Grower C's family sold an estimated 20,400 pounds of tomatoes from the 30 acre field, or about 23 30-pound carton equivalents per
The price for the duration of the PYO activity was 15 cents per pound, resulting in gross revenue of $3,060 (Table 7).

Costs

No production costs were allocated to the PYO operation because it was strictly a salvage venture. Marketing costs amounted to only $236. The major expense was for the pickup truck which was used for transportation to and from the field and as PYO headquarters. Kitchen scales, picking pails, and a hand painted plywood sign were the only other equipment (Table 8). Expenditures for paper bags for customers' purchases totaled $36.

Net Returns

After deducting marketing costs, Grower C had a net revenue of over $2,800. The PYO activity required a considerable amount of labor, however, all provided by Producer C's family. Two persons manned the outlet for 8 1/2 hours per day, for the entire 24-day period that it was open. Grower C's net return per hour for the 408 hours of family labor expended was nearly $7 (Table 7).
Table 7.--Annual costs and returns for Grower C's pick-your-own tomato operation.

<table>
<thead>
<tr>
<th>Item</th>
<th>Costs or returns</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$</td>
</tr>
<tr>
<td><strong>Revenue</strong></td>
<td></td>
</tr>
<tr>
<td>PYO sales</td>
<td>20,400 pounds @ $0.15</td>
</tr>
<tr>
<td><strong>Costs</strong></td>
<td></td>
</tr>
<tr>
<td>Production cost</td>
<td>Salvage</td>
</tr>
<tr>
<td><strong>Marketing costs</strong></td>
<td></td>
</tr>
<tr>
<td>Equipment</td>
<td></td>
</tr>
<tr>
<td>Truck</td>
<td>530 miles @ $0.20</td>
</tr>
<tr>
<td>Scale</td>
<td></td>
</tr>
<tr>
<td>Pails</td>
<td></td>
</tr>
<tr>
<td>Sign</td>
<td></td>
</tr>
<tr>
<td>Interest on capital</td>
<td></td>
</tr>
<tr>
<td>Total, equipment</td>
<td></td>
</tr>
<tr>
<td><strong>Supplies and services</strong></td>
<td></td>
</tr>
<tr>
<td>Bags</td>
<td></td>
</tr>
<tr>
<td><strong>Total marketing costs</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Net revenue</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Family labor</strong></td>
<td></td>
</tr>
<tr>
<td>Marketing</td>
<td>408 hours</td>
</tr>
<tr>
<td><strong>Net return per hour of family labor due to direct marketing</strong></td>
<td>6.92</td>
</tr>
</tbody>
</table>
Table 8.--Equipment requirements for Grower C's pick-your-own tomato operation.

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Depreciable life(^a)</th>
<th>Price/ unit</th>
<th>total investment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Years</td>
<td>Dollars</td>
<td></td>
</tr>
<tr>
<td>Truck, one-half ton</td>
<td>1</td>
<td>--</td>
<td>6,000</td>
<td>500(^c)</td>
</tr>
<tr>
<td>Scale</td>
<td>1</td>
<td>10</td>
<td>130</td>
<td>130</td>
</tr>
<tr>
<td>Pails</td>
<td>30</td>
<td>5</td>
<td>1</td>
<td>30</td>
</tr>
<tr>
<td>Sign</td>
<td>1</td>
<td>3</td>
<td>21</td>
<td>21</td>
</tr>
<tr>
<td>Total investment</td>
<td></td>
<td></td>
<td></td>
<td>681</td>
</tr>
<tr>
<td>Interest on capital @ 10 percent per annum</td>
<td></td>
<td></td>
<td></td>
<td>68</td>
</tr>
</tbody>
</table>

\(^a\) Straight line depreciation is calculated for all items, assuming no salvage value.

\(^b\) All operating expenses, including depreciation, are reflected in the 20 cent-per-mile charge (Table 7).

\(^c\) One-twelfth of the truck's use was for tomatoes.

Other Advantages and Disadvantages of Direct Marketing

The growers all said the primary advantage of selling their produce directly to consumers was the improved financial return, either due to higher prices received or to reduced marketing expenses. In the case of Grower C, the return from the salvage PYO was income that would not have been realized if the PYO outlet had not been operated. One producer mentioned lack of labor problems as a significant advantage.
All growers mentioned problems in dealing with people as the biggest disadvantage. They said some customers were never pleased; they were dissatisfied whenever they were restricted to certain picking areas, and frequently complained that tomatoes were too ripe, too green, etc. The only other disadvantage, mentioned by two of the growers, was the amount of time required.

**Consumer Benefits**

Time and resource constraints precluded obtaining a large, random sample of tomato farm patrons. In keeping with the case study approach prescribed by USDA-ESCS, a relatively small number of customers was interviewed. A non-probability, convenience sample of 32 patrons was interviewed at the three farms described previously. All interviews were obtained during weekdays, between the hours of 9:00 A.M. and 6:00 P.M. In most cases, the customer traffic flow was sufficiently slow and the questionnaire brief enough so that all customers could be interviewed during the surveillance periods.

Despite the sample's limitations, it is felt that the interviews provide a reasonable representation of customers typically patronizing this type of outlet. The sample is thought to yield a valid assessment of the qualitative and quantitative benefits accruing to customers of tomato PYO outlets.

The following sections describe the demographic composition of the sample, and patrons' transportation and shopping patterns. Customers' monetary benefits and other perceived shopping advantages and disadvantages are also discussed, along with customers' suggestions for improving the PYO outlets.
The Patrons

Thirty-two tomato purchasers were interviewed at PYO outlets. Only PYO outlet patrons were interviewed because relatively few customers bought tomatoes from roadside stands.

Slightly over half of the patrons interviewed were male. Relatively few young people were interviewed at the tomato outlets; only 16 percent of the customers were under 35 years of age (Table 9). About 28 percent of the customers had attended college, compared with about 30 percent of the population of Florida, and 9 percent had attended college four or more years, compared with 14 percent statewide (Thompson). Only three percent of the respondents had completed less than twelve years of schooling.

Most PYO customers came from small households. Over 40 percent came from one-or-two-person households and 22 percent came from three-person households. Slightly under one-third of the interviewees were retired. Only two of the respondents were not married (Table 9).

Patrons' incomes were relatively high compared to those reported for the population of the counties in which the tomato farms were located. The sample contained a disproportionately small number of low income households, that is under $8,000 per year, and substantially more households with incomes in excess of $25,000 (Sales and Marketing Management).

With respect to race, patrons in the sample were all white. Although blacks and other races constitute approximately 16 percent of the population in the counties where the tomato PYO operations
Table 9.--Demographic and socioeconomic characteristics of tomato PYO patrons.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Number</th>
<th>Percenta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex of purchaser</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>18</td>
<td>56</td>
</tr>
<tr>
<td>Female</td>
<td>14</td>
<td>44</td>
</tr>
<tr>
<td>Totals</td>
<td>32</td>
<td>100</td>
</tr>
<tr>
<td>Age of purchaser</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-24</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>25-34</td>
<td>5</td>
<td>16</td>
</tr>
<tr>
<td>35-49</td>
<td>10</td>
<td>31</td>
</tr>
<tr>
<td>50-64</td>
<td>9</td>
<td>28</td>
</tr>
<tr>
<td>65 and over</td>
<td>8</td>
<td>25</td>
</tr>
<tr>
<td>Totals</td>
<td>32</td>
<td>100</td>
</tr>
<tr>
<td>Years of education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 12</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>12</td>
<td>22</td>
<td>69</td>
</tr>
<tr>
<td>13-15</td>
<td>6</td>
<td>19</td>
</tr>
<tr>
<td>16 or more</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>Totals</td>
<td>32</td>
<td>100</td>
</tr>
<tr>
<td>Number of adults in household</td>
<td></td>
<td></td>
</tr>
<tr>
<td>One</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Two</td>
<td>12</td>
<td>38</td>
</tr>
<tr>
<td>Three</td>
<td>7</td>
<td>22</td>
</tr>
<tr>
<td>Four</td>
<td>6</td>
<td>19</td>
</tr>
<tr>
<td>More than four</td>
<td>6</td>
<td>19</td>
</tr>
<tr>
<td>Totals</td>
<td>32</td>
<td>100</td>
</tr>
<tr>
<td>Employment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employed</td>
<td>21</td>
<td>66</td>
</tr>
<tr>
<td>Retired</td>
<td>10</td>
<td>31</td>
</tr>
<tr>
<td>Unemployed</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Totals</td>
<td>32</td>
<td>100</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>30</td>
<td>94</td>
</tr>
<tr>
<td>Single</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Totals</td>
<td>32</td>
<td>100</td>
</tr>
</tbody>
</table>
Table 9.--Demographic and socioeconomic characteristics of tomato PYO patrons--Continued.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Number</th>
<th>Percent&lt;sup&gt;a&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under $8,000</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>$8,000-9,900</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>$10,000-14,999</td>
<td>8</td>
<td>25</td>
</tr>
<tr>
<td>$15,000-24,999</td>
<td>7</td>
<td>22</td>
</tr>
<tr>
<td>$25,000 and over</td>
<td>14</td>
<td>44</td>
</tr>
<tr>
<td>Totals</td>
<td>32</td>
<td>100</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White (non-Hispanic)</td>
<td>31</td>
<td>97</td>
</tr>
<tr>
<td>White (Hispanic)</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Black (non-Hispanic)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Totals</td>
<td>32</td>
<td>100</td>
</tr>
<tr>
<td>Residency</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Permanent</td>
<td>16</td>
<td>57</td>
</tr>
<tr>
<td>Temporary</td>
<td>12</td>
<td>43</td>
</tr>
<tr>
<td>Totals</td>
<td>28</td>
<td>100</td>
</tr>
</tbody>
</table>

<sup>a</sup>Percentages may not sum to 100 due to rounding.

were located, none of the 32 customers was black. Over half of the customers were Florida residents, with 12 persons, or 43 percent, visitors or temporary residents (Table 9).
Transportation

Personal automobiles were the only means of transportation used by tomato PYO patrons. Over half of the customers, 18 of the 32 who responded, indicated that the trip to the PYO outlet was a special trip from their residence; no other activities were conducted in conjunction with the trip. Fourteen customers combined other activities with their trip to the PYO outlet. Customers that made a special trip traveled an average round trip distance of 22 miles. The minimum round trip distance was 2 miles, and the maximum 100 miles (Table 10).

For those customers that combined other activities with their trip to the PYO outlet, their marginal expenditures of mileage and driving time attributable to the PYO activity were determined. Additional round trip distance ranged from none to 60 miles, requiring driving time of up to 80 minutes. The average round trip distance traveled by all customers was 0 miles, requiring an average of 10 minutes.

Patrons' Shopping Patterns

Over half of the customers, 58 percent, discovered the outlet through roadside signs, while nearly all of the remainder had learned of the outlet through word-of-mouth. One of the outlets where interviews were conducted engaged in limited newspaper advertising, but only one of the customers said they discovered the outlet this way. One person could not recall how the outlet was discovered (Table 11).
Table 10.--Travel distances and times for tomato PYO patrons.

<table>
<thead>
<tr>
<th>Type of trip/distance, time required</th>
<th>Number of observations</th>
<th>Distance or time</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Average</td>
<td>Minimum</td>
</tr>
<tr>
<td>Special trip from residence to PYO outlet</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Miles traveled</td>
<td>18</td>
<td>22</td>
<td>2</td>
</tr>
<tr>
<td>Driving time</td>
<td>18</td>
<td>36</td>
<td>4</td>
</tr>
<tr>
<td>Combination trip^a</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Miles traveled</td>
<td>14</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>Driving time</td>
<td>14</td>
<td>13</td>
<td>0</td>
</tr>
</tbody>
</table>

^aCombination trips included activities in addition to the PYO visit. The figures reflect patrons' marginal expenditure of mileage and driving time attributable to the PYO activity.

Nearly half of the interviewees had previously patronized the PYO outlet where contacted. Twelve of those 15 customers said they patronized the outlet more than once each year. All of the 25 customers responding to another question said they typically visit at least one other tomato PYO operation during the harvest season, and 64 percent visited three or more.

Nearly one-third of the shoppers came to the tomato PYO outlet alone, while 59 percent came with one other shopper, only 10 percent brought three or more additional customers with them. Thus, it appears that the trip to the PYO outlet was a social activity for most patrons. Furthermore, the trip was planned, and not an impulse activity (Table 11).
Table 11.--Shopping patterns of tomato PYO patrons.

<table>
<thead>
<tr>
<th>Question/responses</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>How did you discover this outlet?</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roadsigns</td>
<td>18</td>
<td>58</td>
</tr>
<tr>
<td>Newspaper ads</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Word-of-mouth</td>
<td>11</td>
<td>35</td>
</tr>
<tr>
<td>Do not recall</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>31</td>
<td>100</td>
</tr>
<tr>
<td><strong>Have you patronized this outlet before?</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>15</td>
<td>47</td>
</tr>
<tr>
<td>No</td>
<td>17</td>
<td>53</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>32</td>
<td>100</td>
</tr>
<tr>
<td><strong>How often do you patronize this outlet each year?</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Once</td>
<td>3</td>
<td>20</td>
</tr>
<tr>
<td>Twice</td>
<td>4</td>
<td>27</td>
</tr>
<tr>
<td>Three</td>
<td>4</td>
<td>27</td>
</tr>
<tr>
<td>More than three</td>
<td>4</td>
<td>27</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>15</td>
<td>100</td>
</tr>
<tr>
<td><strong>How many similar outlets have you patronized during the past year?</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>One</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Two</td>
<td>8</td>
<td>32</td>
</tr>
<tr>
<td>Three</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td>More than three</td>
<td>12</td>
<td>48</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>25</td>
<td>100</td>
</tr>
<tr>
<td><strong>How many shoppers in your party?</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>One</td>
<td>9</td>
<td>31</td>
</tr>
<tr>
<td>Two</td>
<td>17</td>
<td>59</td>
</tr>
<tr>
<td>Three</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>More than three</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>29</td>
<td>100</td>
</tr>
</tbody>
</table>
Table 11.--Shopping patterns of tomato PYO patrons.--Continued.

<table>
<thead>
<tr>
<th>Question/responses(^a)</th>
<th>Number</th>
<th>Percent(^b)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Was your tomato purchase planned?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>32</td>
<td>100</td>
</tr>
<tr>
<td>No</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Totals</td>
<td>32</td>
<td>100</td>
</tr>
</tbody>
</table>

\(^a\)Questions about some aspects of shopping behavior have been abbreviated or paraphrased for inclusion here. See questionnaire in Appendix.

\(^b\)Percentages may not sum to 100 due to rounding.

**Monetary Benefits**

The 32 PYO customers purchased an average of 16.6 pounds of tomatoes. The minimum purchase was two pounds and the maximum 62. Prices at PYO outlets ranged from 10 to 20 cents per pound, and averaged 15 cents. Consumer purchases ranged from 0.40 to 9.30 with the average expenditure $2.85 (Table 12).

The PYO customers were asked to estimate retail prices of tomatoes. The 21 respondents who did, expected to pay an average of $0.50 per pound for them. Expected prices ranged from $0.25 to $0.99 per pound. Retail prices observed in stores of two leading super market chains during the interview period ranged from 19 to 39 cents, averaging 35 cents per pound in all stores (Table 11). Thus, PYO customers tended to overestimate their dollar savings.
Table 12--Consumer expenditures and savings associated with tomatoes purchased at PYO outlets.

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit</th>
<th>Number of observations</th>
<th>Average</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantity purchased</td>
<td>Pounds</td>
<td>32</td>
<td>16.6</td>
<td>2</td>
<td>62</td>
</tr>
<tr>
<td>Total expenditure</td>
<td>Dollars</td>
<td>32</td>
<td>2.85</td>
<td>0.40</td>
<td>9.30</td>
</tr>
<tr>
<td>Price per pound at PYO outlets</td>
<td></td>
<td>6</td>
<td>0.15</td>
<td>0.10</td>
<td>0.20</td>
</tr>
<tr>
<td>Expected retail price</td>
<td></td>
<td>21</td>
<td>0.50</td>
<td>0.25</td>
<td>0.99</td>
</tr>
<tr>
<td>Observed retail price</td>
<td></td>
<td>34</td>
<td>0.35</td>
<td>0.19</td>
<td>0.39</td>
</tr>
<tr>
<td>Expected savings per transaction</td>
<td></td>
<td>21</td>
<td>7.85</td>
<td>0.70</td>
<td>50.40</td>
</tr>
<tr>
<td>Actual savings per transaction</td>
<td></td>
<td>21</td>
<td>3.56</td>
<td>0.80</td>
<td>12.40</td>
</tr>
<tr>
<td>Hypothetical savings per transaction&lt;sup&gt;a&lt;/sup&gt;</td>
<td></td>
<td>--</td>
<td>3.32</td>
<td>4.15</td>
<td>2.49</td>
</tr>
</tbody>
</table>

<sup>a</sup>Hypothetical savings per transaction are based upon the average quantity purchased by the 32 customers at average, minimum, and maximum prices observed at PYO outlets compared with average observed retail prices.
On the average, the patrons estimated that they saved $7.85 per transaction. But, compared with prevailing prices they saved an average of $3.56 per transaction. These "actual" savings ranged from $0.80 to $12.40 per transaction. The average difference between the PYO outlet price and the prevailing retail price for all 32 customers amounted to hypothetical savings of $3.32 per transaction (Table 12). It is important to note, however, that the "actual" or hypothetical "savings" discussed here do not take into account transportation expenditures or time spent in driving to the PYO outlet and in picking tomatoes.

Freshness and Quality Comparisons

PYO outlet customers were asked to rate freshness and overall quality of the tomatoes obtained at the PYO outlet and tomatoes usually found at retail grocery stores. Ratings were based on a nine-point rating scale where one represented "excellent" and nine represented "extremely poor". The average ratings for both freshness and overall quality were 1.4 for the tomatoes purchased at the PYO outlets, but only 6.3 and 6.0, respectively, for tomatoes typically purchased at retail grocery stores. A paired t-test indicated that the freshness and overall quality rating differences were statistically significant (Table 13).
Table 13.--Consumers' comparison of freshness and quality of tomatoes bought at PYO outlets and retail food stores

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Rating by source(^a)</th>
<th>t-statistic(^b)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshness</td>
<td>1.4</td>
<td>6.3</td>
</tr>
<tr>
<td>Overall quality</td>
<td>1.4</td>
<td>6.0</td>
</tr>
</tbody>
</table>

\(^a\)Ratings were based on a nine point scale where 1 = excellent and 9 = extremely poor. There were 23 observations for both attributes.

\(^b\)A paired t-test was used to determine whether or not rating by source were significantly different. Both were statistically significant at the 0.01 probability level.

Other Advantages and Disadvantages

Customers were also asked to enumerate the advantages and disadvantages associated with patronizing tomato PYO outlets. Price was the primary advantage mentioned first by 44 percent of the respondents; in total, 72 percent of those interviewed cited price as an advantage. Freshness and quality were the next most frequently mentioned advantages, each cited in a total of 59 percent of all responses. Recreation and "helping the farmer" were advantages mentioned by a total 28 and three percent of the respondents, respectively (Table 14).

Over three-fourths of the respondents cited no disadvantages associated with patronizing the tomato PYO operation. Thirteen percent mentioned the travel distance and time as disadvantages, six percent said picking tomatoes was hard work and one customer each cited other disadvantages (Table 14).
Table 14.--Respondents' perceived advantages and disadvantages associated with patronizing tomato PYO outlets.

<table>
<thead>
<tr>
<th>Advantages/disadvantages</th>
<th>First response</th>
<th>All responses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Percent (^a)</td>
<td></td>
</tr>
<tr>
<td><strong>Advantages</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Price</td>
<td>44</td>
<td>72</td>
</tr>
<tr>
<td>Freshness</td>
<td>31</td>
<td>59</td>
</tr>
<tr>
<td>Quality</td>
<td>19</td>
<td>59</td>
</tr>
<tr>
<td>Recreation</td>
<td>6</td>
<td>28</td>
</tr>
<tr>
<td>Help the farmer</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>--</td>
</tr>
<tr>
<td><strong>Disadvantages</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>78</td>
<td>78</td>
</tr>
<tr>
<td>Driving distance and time required</td>
<td>9</td>
<td>13</td>
</tr>
<tr>
<td>Hard work</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Lack of tomato varieties</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Can't bring children</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Poor general conditions</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>--</td>
</tr>
</tbody>
</table>

\(^a\)Percentages were based on 32 observations.

\(^b\)Percentages were not summed because of multiple responses.

\(^c\)Percentages may not sum to 100 due to rounding.

Suggestions for Improvement

Almost 60 percent of the patrons indicated that the PYO outlets were satisfactory and offered no suggestions for improvement. However, 19 percent suggested that the owners advertise more in mass media to inform potential customers of product availability and the locations of their outlets (Table 15).
Table 15.--Tomato PYO patrons' suggestions for improving the outlet.

<table>
<thead>
<tr>
<th>Suggestions</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No improvement necessary</td>
<td>10</td>
<td>50</td>
</tr>
<tr>
<td>Advertise more</td>
<td>6</td>
<td>19</td>
</tr>
<tr>
<td>Need greater selection</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Improve the facilities</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Admit children</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Lower the price</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Find a use for wasted tomatoes</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>32</strong></td>
<td><strong>100(^a)</strong></td>
</tr>
</tbody>
</table>

\(^a\)Does not sum to 100 percent due to rounding.
CONCLUSIONS

Direct marketing of tomatoes in Florida was profitable for many producers. Small growers with limited access to commercial marketing channels successfully marketed their tomatoes directly to consumers with limited marketing expense. However, most PYO operations and roadside stands required substantial family labor. Commercial tomato producers also benefited by opening fields as PYO operations upon completion of commercial harvest.

The tomato PYO and roadside operations afforded consumers a number of advantages as well. Product quality and freshness, monetary savings, and recreation were the most important benefits. On the average, consumers saved about $3.50 per transaction, if personal time and transportation are ignored. In general, the PYO operation provided positive experiences for growers and consumers alike.
APPENDIX
Appendix Table 1.—Tomatoes: Costs per acre in the Dade County area for commercial production, 1978-79.

<table>
<thead>
<tr>
<th>Item</th>
<th>Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Growing costs:</strong></td>
<td></td>
</tr>
<tr>
<td>Land rent</td>
<td>$76.12</td>
</tr>
<tr>
<td>Seed</td>
<td>44.01</td>
</tr>
<tr>
<td>Fertilizer</td>
<td>194.28</td>
</tr>
<tr>
<td>Spray and dust</td>
<td>430.61</td>
</tr>
<tr>
<td>Cultural labor</td>
<td>454.49</td>
</tr>
<tr>
<td>Machine hire</td>
<td>25.74</td>
</tr>
<tr>
<td>Gas, oil and grease</td>
<td>65.38</td>
</tr>
<tr>
<td>Repair and maintenance</td>
<td>107.64</td>
</tr>
<tr>
<td>Depreciation</td>
<td>72.19</td>
</tr>
<tr>
<td>Licenses and insurance</td>
<td>76.59</td>
</tr>
<tr>
<td>Interest on production capital (12% - 5 months)</td>
<td>77.35</td>
</tr>
<tr>
<td>Interest on capital invested (other than land)</td>
<td>10.83</td>
</tr>
<tr>
<td>Miscellaneous expense</td>
<td>285.33</td>
</tr>
<tr>
<td><strong>Total growing cost</strong></td>
<td>1,928.56</td>
</tr>
<tr>
<td><strong>Harvesting and marketing costs:</strong></td>
<td></td>
</tr>
<tr>
<td>Picking expense</td>
<td>367.54</td>
</tr>
<tr>
<td>Grading and packing expense</td>
<td>666.38</td>
</tr>
<tr>
<td>Containers</td>
<td>347.37</td>
</tr>
<tr>
<td>Hauling</td>
<td>147.87</td>
</tr>
<tr>
<td>Selling</td>
<td>147.90</td>
</tr>
<tr>
<td><strong>Total harvesting and marketing cost</strong></td>
<td>1,677.06</td>
</tr>
<tr>
<td><strong>Total crop cost</strong></td>
<td>3,597.62</td>
</tr>
</tbody>
</table>

Source: Adapted from Brooke.
Appendix Table 2.--Staked tomatoes: Costs per acre in the Immokalee-Lee area for commercial production, 1978-79a.

<table>
<thead>
<tr>
<th>Item</th>
<th>Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Growing costs:</strong></td>
<td></td>
</tr>
<tr>
<td>Land rent</td>
<td>$ 77.82</td>
</tr>
<tr>
<td>Seed</td>
<td>120.39</td>
</tr>
<tr>
<td>Fertilizer</td>
<td>253.18</td>
</tr>
<tr>
<td>Spray and dust</td>
<td>438.42</td>
</tr>
<tr>
<td>Cultural labor</td>
<td>749.62</td>
</tr>
<tr>
<td>Machine hire</td>
<td>50.80</td>
</tr>
<tr>
<td>Gas, oil and grease</td>
<td>103.19</td>
</tr>
<tr>
<td>Repair and maintenance</td>
<td>179.40</td>
</tr>
<tr>
<td>Depreciation</td>
<td>122.07</td>
</tr>
<tr>
<td>Licenses and insurance</td>
<td>106.99</td>
</tr>
<tr>
<td>Interest on production capital (12% - 5 months)</td>
<td>110.09</td>
</tr>
<tr>
<td>Interest on capital invested (other than land)</td>
<td>18.31</td>
</tr>
<tr>
<td>Miscellaneous expense</td>
<td>257.27</td>
</tr>
<tr>
<td><strong>Total growing cost</strong></td>
<td>2,587.55</td>
</tr>
<tr>
<td><strong>Harvesting and marketing costs:</strong></td>
<td></td>
</tr>
<tr>
<td>Picking expense</td>
<td>570.31</td>
</tr>
<tr>
<td>Grading and packing expense</td>
<td>903.77</td>
</tr>
<tr>
<td>Containers</td>
<td>465.71</td>
</tr>
<tr>
<td>Hauling</td>
<td>171.77</td>
</tr>
<tr>
<td>Selling</td>
<td>164.23</td>
</tr>
<tr>
<td><strong>Total harvesting and marketing cost</strong></td>
<td>2,275.79</td>
</tr>
<tr>
<td><strong>Total crop cost</strong></td>
<td>4,863.34</td>
</tr>
</tbody>
</table>

aCosts for staked tomato production in Dade County were not available, so it was assumed that costs and yields were comparable to the Immokalee-Lee area.

Source: Adapted from Brooke.
Appendix Table 3.--Staked tomatoes: Costs per acre in the Manatee-Ruskin area for commercial production, 1978-79.

<table>
<thead>
<tr>
<th>Item</th>
<th>Average per acre</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Growing costs:</strong></td>
<td></td>
</tr>
<tr>
<td>Land rent</td>
<td>$ 53.24</td>
</tr>
<tr>
<td>Seed</td>
<td>93.58</td>
</tr>
<tr>
<td>Fertilizer</td>
<td>181.44</td>
</tr>
<tr>
<td>Spray and dust</td>
<td>228.75</td>
</tr>
<tr>
<td>Cultural labor</td>
<td>491.31</td>
</tr>
<tr>
<td>Machine hire</td>
<td>37.06</td>
</tr>
<tr>
<td>Gas, oil and grease</td>
<td>99.25</td>
</tr>
<tr>
<td>Repair and maintenance</td>
<td>127.82</td>
</tr>
<tr>
<td>Depreciation</td>
<td>119.44</td>
</tr>
<tr>
<td>Licenses and insurance</td>
<td>111.32</td>
</tr>
<tr>
<td>Interest on production capital (12% - 5 months)</td>
<td>77.16</td>
</tr>
<tr>
<td>Interest on capital invested (other than land)</td>
<td>17.92</td>
</tr>
<tr>
<td>Miscellaneous expense</td>
<td>177.48</td>
</tr>
<tr>
<td><strong>Total growing cost</strong></td>
<td>1,815.76</td>
</tr>
<tr>
<td><strong>Harvesting and marketing costs:</strong></td>
<td></td>
</tr>
<tr>
<td>Picking expense</td>
<td>537.21</td>
</tr>
<tr>
<td>Grading and packing expense</td>
<td>801.46</td>
</tr>
<tr>
<td>Containers</td>
<td>404.60</td>
</tr>
<tr>
<td>Hauling</td>
<td>143.15</td>
</tr>
<tr>
<td>Selling</td>
<td>110.90</td>
</tr>
<tr>
<td><strong>Total harvesting and marketing cost</strong></td>
<td>2,087.32</td>
</tr>
<tr>
<td><strong>Total crop cost</strong></td>
<td>3,903.08</td>
</tr>
</tbody>
</table>

Source: Adapted from Brooke.
Consumer Benefits of Direct Marketing Activities

Section I

Description of Direct Marketing Outlet (complete prior to consumer interview.)
(For office use.)

Hello, I'm __________. I represent the University of Florida Market Research Center. We are conducting a research project on farmer-to-consumer direct marketing. This research is designed to be helpful to both farmers selling directly to consumers and consumers buying directly from farmers. In this respect I would like to interview a sample of consumers patronizing your outlet. Answers to all questions are confidential and will only be used in summarizing data from this survey. No names will appear or be related to the questionnaires in any manner. May I ask you a question or two that will be used in classifying your outlet? Your response is voluntary and not required by law. (Secure following information when obtaining permission to interview customers.)

A. Type of outlet (circle one).
   4. Other (specify) ___________________

B. Commodities or products sold (list, use back if necessary)

__________________________  __________________________
__________________________  __________________________
__________________________  __________________________
__________________________  __________________________

C. Location of above outlet (County) __________ (City) __________

D. Length of time in business at this location __________ (Years) __________
Section II

Direct Marketing Shopping Patterns

Hello I'm __________________. I represent the University of Florida's Market Research Center. We are conducting a research project on farmer-to-consumer direct marketing. May I ask you a few questions about your purchase(s) and your shopping here today? Your response is voluntary and is not required by law. Answers to all questions are confidential and will be used in summarizing data from this survey. Your name will not appear or be related to the questionnaire in any manner. (If yes, proceed, if no, terminate interview).

A. Have you patronized this particular outlet before? (circle one)
   1. Yes (If yes,) how many times in the past year? ________ ________
   2. No (If no, skip to item C)

B. How often, on the average, do you patronize this outlet? (circle one)
   1. Once per year  2. Once per month  3. 2-3 times per month
   4. Once per week  5. More than once per week

C. How many similar outlets, if any, have you patronized during the past year? _________ (number)

D. How did you get to this location? (circle one)
   4. Other (bicycle, motorcycle, etc.) Specify _________

F. Was your visit to this market outlet today (circle one)
   1. A special trip directly from your residence? (if checked, go to F)
   2. Combined with other local shopping or similar activities? (If yes, go to H & I)
   3. Just passing by outlet? (tourist, joy riding, etc.)
   4. Other (specify) ____________________________________________
      (Go to H & I)
F. How many miles is it from here to your residence? ______(mi.)______

G. How much time does it take to come here from your residence? _____(min)_____ (Go to J)

H. How many miles out of your way was your visit here? ______(miles)______

I. How much additional travel time did your visit here require? _____(min)_____

J. From your standpoint, what are the most important advantages to you for buying food products here? (probe for 3)
   1. ________________ 2. ________________ 3. ________________

K. Are there any disadvantages to you for buying food products here? Yes, No (circle one). If yes, specify disadvantages.
   1. ________________ 2. ________________ 3. ________________

L. How could this particular type of outlet be improved? (probe)

Section III

Consumer Purchases of Specific Commodities

(Please use the following codes for the respective fruits, vegetables, and other products. Code from observation whenever possible.)

| Oranges = O | Honey = H | Blueberries = BB |
| Grapefruit = GF | Milk = M | Tomatoes = T |
| Snap beans = B | Strawberries = S | Eggs = E |
| Grapes = G | Watermelons = W | Other (Specify) |

A. I see that you have bought some ______ today, had you planned to buy ______? When you stopped here (code)
   (circle one) 1. Yes
   2. No
B. How many (units) of _____ did you purchase here today?
   
   (specify quantity and units)

C. What was the total amount you spent for _____? $_____
   
   (code)

D. From your standpoint, what are your most important reasons for buying _____ here? (probe for 3)
   
   1. ____________________________

   2. ____________________________

   3. ____________________________

E. Have you bought _____ at a local grocery store or supermarket (code) during this time of the year?
   
   (circle one) 1. Yes 2. No (If no, do not ask F, H, and J)

F. What would you estimate the total cost of these (this) (code) would be if purchased at a local grocery store or supermarket? $_____

G. On a rating scale from 1 to 9, where 1=excellent and 9=poor, how would you rate the freshness of the _____ you bought today?
   
   Rating ________

H. Using the same rating scale (repeat) how would you rate the freshness of _____ bought at the supermarket at this time of the year?
   
   Rating ________

I. Again, using the rating scale from 1 to 9 where 1=excellent and 9=poor, how would you rate the overall quality of the _____ you bought today?
   
   Rating ________
J. Using the same rating scale (repeat) how would you rate the overall quality of [code] purchased at a supermarket at this time of year? 

Rating ________________

(Repeat Section III for each commodity purchased)

Section IV

Consumer Demographics

A. Respondent (circle one) 1. Female 2. Male

B. What is the age of the head of the household? ________________

C. How many people living in your household are 18 years of age or above? Number ________________

D. How many people living in your household are under 18 years of age? Number ________________

E. In school, what is the highest grade you have completed? (circle number of years)

1. Elementary (grade school 01 02 03 04 05 06 )
2. Junior high 07 08
3. High school 09 10 11 12
4. College 13 14 15 16
5. Graduate school 17 18 19 20 21

F. What is the occupation of the head of your household? (circle appropriate classification; if in doubt of proper classification, write answer in Item 6.) (If not employed, skip to G)

1. Administrative, engineering, scientific, teaching and related occupations, including creative artists.

2. Technical, clerical, sale and related occupations.

3. Service occupations including military occupations.

4. Farming, forestry, fishing and hunting occupations.

5. Production occupations including construction, extractive, transport, and related occupations.

6. Other ________________

G. Is the head of the household retired or unemployed? (circle one)
H. Are you married or not married? (circle one)
   If respondent is married and:
   1. Male, ask, Is wife employed? No Yes
   2. Female, ask, Are you employed outside your home? Yes No (circle proper answer)

I. Please tell me which of the following income categories most closely describes your total family income in 1978 before taxes, including wages and all other income. Is it--
   (show card A; circle response)
   1. Under $8,000
   2. $8,000-9,999
   3. $10,000-14,999
   4. $15,000-24,999
   5. $25,000 and over

J. (Complete by observation except when in doubt; then turn the card to side B.) Please tell me how would you classify yourself with the following racial or ethnic groups? (circle one)
   1. White (not Hispanic origin)
   2. White (Hispanic origin)
   3. Black (Not Hispanic origin)
   4. Black (Hispanic origin)
   5. American Indian or Alaskan native
   6. Asian or Pacific Islander

K. How did you learn about this outlet?
   1. Road signs  2. Newspaper  3. Friends or relatives
   4. Known for years  5. Other (specify)

   Number of shoppers in your party?

   Residence:
   1. Permanent area resident.
   2. Temporary or visitor
REFERENCES


