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Small Produce Growers' Marketing Behaviors: A Case Study of Tennessee

David B. Eastwood, John R. Brooker, Charles R. Hall, and Alice Rhea

Produce growers in Tennessee were surveyed during the first six months of 2002. Information about their operations, production decisions, and their marketing activities were obtained. Results of the survey permit an overview of small growers' choices about what to plant, post-harvest handling, current marketing activity, and anticipated changes in the industry.

As part of an Initiative for Future Agriculture and Food Systems research project, produce growers in Tennessee were surveyed during the first six months of 2002. The survey provided an opportunity to examine the behaviors of small-volume produce operations in a rapidly changing market channel. Questions focusing on decisions about what to plant, post-harvest handling, current marketing activity, and anticipated changes in the produce industry were included in the survey.

Produce growers in the state were identified with the help of County Extension Agents, resulting in 1483 operations in the target population. The survey was conducted in two ways. One was through personal interviews. County Extension agents, in addition to providing lists of growers, were also asked to suggest growers to be interviewed. This led to 22 personal interviews, plus 9 additional interviews at county grower meetings. The remaining producers on the county lists received the questionnaire in the mail and were asked to complete it and to return the form in the provided postage-paid envelope. Altogether, 189 questionnaires were returned, a total response rate of roughly 12 percent, and nearly 11 percent among those who received the mail-out. There were approximately 7136 acres of fruit and vegetable production among the growers in the sample.

Eastwood, Brooker, and Hall are professors and Rhea is a former research associate, Department of Agricultural Economics, University of Tennessee, Knoxville.

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Grower Characteristics

The types of information and categories of responses included in the survey instrument did not provide the opportunity for many comparisons with the 1997 Census of Agriculture. Those comparisons that can be made are provided below.

Approximately 31 percent fell in the 41–50 age range, and 31.5 percent fell in the over-60 age range. The majority of Tennessee fruit and vegetable growers were over age 41, and it appears that few younger producers had entered into production. Two comparisons suggest the two age distributions are comparable. The 50-54 year old group comprised 25 percent of the Census distribution, and 26 percent of the survey population. Those 70 and older comprised 39 percent of the Census distribution and 32 percent of the survey distribution. Farm experience had a similar distribution, with 38 percent of the sample and 33 percent of the Census reporting 9 years or less.

Fruit and vegetable growers tended to have diversified operations, as reflected by over 42 percent raising livestock, 29 percent planting row crops, and over 24 percent producing tobacco (Table 1). Several Tennessee producers are also involved in ornamentals, entertainment farming, and timber.

Comparison of the census and sample distributions of farms on the basis of total sales suggests the sample had a lower proportion of very small operations on the basis of sales, as only two-thirds of the respondents reported sales of \$49,000 or less, whereas the Census reported 92 percent. One interpretation is that the target sample of commercial growers generated by Extension agents did result in smaller enterprises but tended to omit farmers who had extremely small (part-time) operations.

Only 33 percent of the respondents reported less than five acres, whereas 64 percent of the Census re-

Table 1. Other Farm Enterprises of Survey Respondents.

Enterprises	Fruit and Vegetable Growers (n=189)	
	number	percent
Livestock	80	42.6
Row crops	55	29.3
Tobacco	46	24.5
Ornamentals	15	8.0
Entertainment farming	1	0.5
Timber	1	0.5

spondents fell in this acreage category. In addition, the sample appears to be more representative of the commercial growers in the state with fewer respondents in the 5-acres-or-less category. This suggests grower lists received from Extension agents were a more accurate reflection of commercial farmers across the state.

Production Decision Making

Just over half (52 percent) of respondents indicated interest in expanding their produce operations. The questionnaire provided a list of factors that could be limitations and asked respondents to indicate the extent to which each was a constraint (1 = not limiting to 5 = very limiting). Limiting factors are listed in Table 2 in descending order of their average scores. The percentages of the respondents who indicated

not and very limiting are also shown and suggest divergent situations for some of the factors. With respect to weather, disease control, insect control, equipment, transportation, and credit availability, the not-limiting percentages are much larger than those for very limiting. However, the sample seems to be divided with respect to harvest labor, market outlets, prices received, labor management, labor housing, irrigation, and cooling, for which at least 10 percent indicated the respective factor was a serious constraint.

Acreage

Respondents were asked to list any produce commodities for which they planned to increase production in 2002, along with the planned acreage. Surveyed growers planned to expand by a total of

Table 2. Factors Limiting Growers' Abilities to Expand their Produce Operations.

Factor	Average ^a	Percent Not Limiting	Percent Very Limiting	Factor	Average ^a	Percent Not Limiting	Percent Very Limiting
Harvest labor availability	2.96	31.7	24.9	Irrigation	2.16	52.4	14.3
Market outlets	2.78	33.9	22.2	Insect control	2.07	47.1	5.8
Prices received	2.76	31.8	18.0	Cooling	2.05	61.4	13.2
Weather	2.45	34.9	9.0	Land	2.00	61.4	12.7
Labor management	2.41	43.9	16.4	Equipment	1.75	59.3	4.2
Disease control	2.35	38.1	6.9	Transportation	1.65	67.7	3.7

522.3 acres in the next year. Seven growers planned to add 19.2 acres of strawberries, 11 growers expected to produce 264.5 more acres of pumpkins, 3 growers planned to increase corn by 76 acres, and 3 growers planned to add 70 acres of winter squash. Six growers also planned additions of 8.3 acres of grapes.

Operators were also asked to indicate any produce that was grown organically. Five Tennessee growers were involved in organic production, with acreage totaling 26.0 acres. Sweet corn accounted for the highest acreage, 6.1 acres. Approximately 5.3 acres of tomatoes were grown organically in the state.

Information Sources

A related question asked survey participants to check factors they used in deciding what to grow. The responses suggest that they sought information

from different sources when producing crops (Table 3). The sources varied from state personnel to no one. Extension was a source of information for 78.9 percent of the sample. Other growers accounted for 61.6 percent, followed by the State Department of Agriculture at 34 percent. Only 7 percent of survey respondents did not ask anyone for information about growing new crops.

Growers ranked the usefulness of selected agencies and organizations in the state in terms of the usefulness in their produce operations. Response categories ranged from 1 to 5, with 1 = not useful and 5 = very useful. Agencies included the Farm Credit Bureau, which supplies initial capital needed to plant crops, to the State Department of Agriculture's marketing programs, which help to market locally grown products. Survey results indicate that growers regarded University Extension Area Agents as the most useful, with an average of 3.89 (Table 4). University Branch Stations with an

Table 3. Sources of Information for Growing New Crops.

Source	Fruit and Vegetable Growers (n=185)	
	number	percent
Extension	146	78.9
Another grower	114	61.6
State Department of Agriculture	63	34.0
Buyer	60	32.4
Internet	51	27.6
Grower organization	34	18.4
Farm Service Agency	25	13.5
Input supplier	22	11.9
Farm Bureau	18	9.7
No one	13	7.0

Table 4. Average Grower Ratings of Selected Agencies as Useful in their Produce Operations.

Agency	Average ^a
University Extension Area Agents	3.89
University Branch Stations	2.62
State Department of Agriculture Marketing Programs	2.35
Input suppliers	2.31
Farm Credit Bureau	1.86
State Department of Agriculture Regulatory Programs	1.79

average of 2.62 were second. Farm Credit Bureau and State Department of Agriculture Regulatory Programs were the least useful with average ratings of 1.86 and 1.79, respectively.

A list of factors related to decision making about what to grow was included, and respondents were asked to check all that applied. Most growers (72 percent) used experience to determine planting choices. Approximately 54 percent consulted with State Department of Agriculture personnel. Price (37 percent), production expertise (29.3 percent), equipment needs (28.7 percent), labor timing and availability (27.1 percent), and lastly risk (16 percent) were used by smaller proportions of the sample.

Since labor has been frequently cited in the media as a production constraint, a question asked respondents if they used a service to find workers. Approximately 8 percent of survey respondents used a service to find workers to hire. This is less than the percentages of respondents who indicated labor management, harvest labor availability, and labor housing were limiting factors. It suggests that these respondents did not have access to those services or felt they were not worthwhile for their operations.

Production Practices

Respondents were asked to indicate whether four production activities would increase, stay the same, or decrease. Table 5 presents the results, with the four activities listed in descending order of the number of respondents who expected increases. Most did not anticipate any change in the activities, and relatively few planned reductions as reflected in more than 70 percent of the sample having chosen "stay the same." Participation in cooperatives was expected to increase by 5.3 percent for the sample. Few growers (4.2 percent) felt traceback was a

source of change in their operations.

Marketing

Several questions in the survey were designed to learn about producers' marketing activities and their sources of information about outlets. The goal was to gather information on the extent of the use of marketing strategies in their enterprises.

Information Sources

Information sources included in the survey are listed in Table 6 in descending order of frequency. Sixty percent of the respondents indicated they obtained information from other growers, and over half used Extension. Less-frequently cited sources were the State Department of Agriculture, grower organizations, no one, input supplier, and Farm Bureau. Approximately 12 percent of the sample did not seek information from any source listed on the survey.

Marketing Practices

Changes were expected in the area of marketing crops, with 26.5 percent of growers anticipating increased direct marketing of their products and only 2.6 percent expecting decreased direct marketing (Table 7). More than 12 percent of growers planned to increase wholesale/broker marketing and on-farm cooling, whereas 6.9 percent expected to decrease these activities.

Respondents were asked to indicate how important several factors were when considering a new crop. A scale of 1 = not important to 5 = very important was used. Table 8 presents the results in descending order of the average rating. The table also provides the percentages of the sample giving "not important" and "very important" ratings. The first three factors have large proportions of respon-

Table 5. Expected Changes in Farming Operation During the Next Year (n=189).

Activity	Increase		Decrease	
	<u>number</u>	<u>percent</u>	<u>number</u>	<u>percent</u>
Use of irrigation	41	21.7	4	2.1
Change crops	29	15.3	6	3.2
Organic production	17	9.0	4	2.1
Participation in cooperative	10	4.2	5	3.2

Table 6. Sources of Information for Marketing a New Commodity.

Source	Fruit and Vegetable Growers (n=178)	
	<u>number</u>	<u>percent</u>
Another grower	107	60.1
Extension	93	52.2
Buyer	63	35.4
State Department of Agriculture	44	24.7
Grower organization	33	18.5
No one	22	12.4
Co-op	16	9.0
Input supplier	12	6.7
Farm Bureau	10	5.6

Table 7. Expected Changes in Farming Operation During the Next Year (n=189).

Item	Increase		Decrease	
	<u>number</u>	<u>percent</u>	<u>number</u>	<u>percent</u>
Direct marketing	50	26.5	5	2.6
On-farm cooling	23	12.2	7	3.7
Wholesale/broker marketing	23	12.2	13	6.9
Value-added processing	19	10.0	5	2.6
On-farm packing/grading	16	8.5	5	2.6
Branding	10	5.3	6	3.2
Traceback	8	4.2	5	2.6
Use of irrigation	4	21.7	4	2.1

Table 8. Importance of Factors When Considering a New Crop.

Item	Fruit and Vegetable Growers (189)		
	<u>Average</u> ^a	<u>Percent</u>	
		<u>Not Important</u>	<u>Very Important</u>
Buyer-seller relationship	3.23	35.4	41.8
Market location	3.08	35.4	32.8
Meeting buyer standards	3.08	38.1	37.6
Volume requirements	2.66	48.5	23.8
Transportation	2.46	48.7	20.1
Grading	2.37	52.3	19.6
Cooling	2.32	54.5	19.0
Contracting	2.08	61.4	14.3
Insurance	1.95	58.7	9.5

dents at the extremes, and these refer to interactions with the commercial distribution system. There was much more agreement within the sample that factors which were more mechanical- or processing-oriented were not important.

Just over one-third (65 of 189) considered themselves to be grower-shippers. These enterprises grow commodities and transport them to other stages in the distribution system. Most growers packed their produce themselves rather than send it off to a packing shed. About one-quarter (26.5 percent) indicated they did not pack themselves. Approximately 18.6 percent paid someone else to sell their products, while 15.4 percent paid to have them packed. Grading services were purchased by 12.2 percent, and only 1.1 percent of growers paid to have products cooled.

If a grower did not use a broker or a wholesaler,

he was asked to indicate which two problem areas were the most important factors in the decision not to use a broker or wholesaler. One hundred thirty-two growers (69.8 percent) answered the question; Table 9 shows the distribution of responses. Volume requirements was the most frequently selected reason (65 percent of those answering). More than 34 percent chose fees as a reason they do not use a broker. Broker availability came in as the third choice, at 31.8 percent, followed by payment practices, pre-cooling, grading, and packing.

A list of post-harvest equipment was provided, and respondents were asked to indicate any that they used (Table 10). Nearly two-thirds (65 percent) used boxes. However, the frequency of use of the other types of equipment was much lower. Sorting tables, the second most frequently selected item, had just over half the frequency (36 percent) of boxes.

Table 9. If You Do Not Use a Broker/wholesaler, Which Factors are the Most Important?

Item	Fruit and Vegetable Growers (n=132)	
	<u>number</u>	<u>percent</u>
Volume requirements	85	64.4
Fees	46	34.8
Broker availability	42	31.8
Payment practices	29	22.0
Precooling	23	17.4
Grading	22	16.7
Packing	19	14.4

Table 10. Equipment and Activities Used on the Farm.

Item	Fruit and Vegetable Growers (n=189)	
	<u>number</u>	<u>percent</u>
Boxes	123	65.1
Sorting tables	69	36.5
Washing equipment	57	30.2
Retail packing	50	26.5
Holding coolers	47	24.9
On-farm processing	34	18.0
Sizers	29	15.3
Pre-coolers	17	9.0
PLU labels	13	6.9
Quick cooling	12	6.4

Lower frequencies for the other equipment are consistent with smaller operations not being able to justify the expense. These growers were also more likely to use direct outlets for which retail packing and branding were not necessary.

Outlets

Tennessee producers used an array of outlets to sell their products. Table 11 indicates the number of growers who used each type, the average share of their sales attributed to the respective outlet, and the number of growers who sold at least 90 percent of their production through the respective outlets. Most sold portions of their produce at direct markets (farmers' markets, u-pick, etc.). Eighty of the survey respondents had 90–100 percent of their sales going to direct markets. Wholesale markets accounted for the highest share of produce sales, 44.1 percent; however, only 54 respondents sold through the wholesale market. Retail stores and green grocers received 16.4 percent of the sales of Tennessee produce according to survey results. Sixty-six growers supplied retail stores by way of direct delivery. Other outlets included direct to local restaurants, processors, community-supported agriculture, cooperative/marketing associations, shipper-packers, auctions, and Internet.

Those growers who only sold through direct markets were asked to indicate barriers to shift-

ing completely to wholesaling. Small volume and lower prices were the biggest reasons for growers not shifting to wholesale markets. Approximately 66.7 percent of survey respondents felt that their volumes of production were too small for a wholesale market. Lower prices was a reason for 62.3 percent of growers. Some growers felt they did not have access to wholesalers to do business, while others could not meet requirements such as cooling, grading, and packaging. Other reasons consisted of time delay in receiving payments (26 percent), high brokerage fees (20.3 percent), and high fees charged by the shipper/packer (16.7 percent).

Outlook

Growers were asked to identify fruits and vegetables expected to increase and decrease in market opportunities over the next five years for their region. One-third of the sample listed fruit they expected to have increasing market opportunities, and nearly 40 percent did the same for vegetables. Fewer growers anticipated declines (9.5 percent for fruit and 26.5 percent for vegetables).

The top five vegetables expected to increase include sweet corn, tomatoes, snap beans, pumpkins, and cantaloupes. The top five vegetables expected to decrease include tomatoes, pumpkins, sweet corn, snap beans, and cabbage. These results show varying opinions on what produce varieties will be

Table 11. Distribution of Respondents' Total Produce Sales by Outlet.

Outlet	Growers	Share of weighted produce sales	Growers with 90-100 percent of sales to one outlet category
	<u>number</u>	<u>percent</u>	<u>number</u>
Direct market (farmers' market, u-pick, etc.)	139	32.8	80
Direct to retail store (grocery, green grocer)	66	16.4	10
Wholesale market (non-cooperative)	54	44.1	16
Direct to local restaurant	23	0.6	0
Processor	15	3.0	8
Community-supported agriculture	8	0.4	1
Cooperative/marketing association	5	2.4	1
Shipper, packer (sell via another grower)	5	0.2	2
Auctions	1	<0.1	0
Internet	1	<0.1	1

viable future options. The top five fruits expected to increase include blueberries, apples, grapes, blackberries, and peaches. Decreases were expected for peaches, apples, and strawberries.

References

U. S. Department of Agriculture. 1999. *1997 Census of Agriculture: Tennessee*. GPO.