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Considerations Regarding Establishment of a Regional Fresh Fruit and Vegetable Distribution Market in Memphis, Tennessee

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Dept. of Ag. Economics
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CONSIDERATIONS REGARDING ESTABLISHMENT OF A REGIONAL
FRESH FRUIT AND VEGETABLE DISTRIBUTION
MARKET IN MEMPHIS, TENNESSEE

by

John R. Brooker and Virgil P. Culver

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Summary

This study was undertaken in response to requests from the Shelby County Commission and the Tennessee Department of Agriculture. The purpose was to assess the fresh fruit and vegetable receiving-distribution system within the Memphis area, focusing on the facilities of wholesale handlers and direct sales outlets. A total of 105 counties in Tennessee and the five adjacent states of Alabama, Arkansas, Kentucky, Missouri and Mississippi comprised the study area, referred to as the mid-south region.

Questionnaires were completed by 101 fruit or vegetable growers in the mid-south region. The survey was designed to obtain information regarding acreages and crops planted in 1983, market outlets utilized, relative importance of on-farm and off-farm sales, use of farmers' markets, perceptions about these markets, and attitudes regarding future fruit or vegetable production. Some highlights of the grower survey results are:

- The average acreage of fruits and vegetables produced by the surveyed growers in 1983 was 43.8 acres.
- One-third of the growers produced fruits and vegetables on fewer than 10 acres.
- Peaches was the only fruit crop produced by more than 25 percent of the surveyed growers. A total of seven fruit products were listed.
- Seven vegetable products were reported by more than 25 percent of the growers--southern peas, sweet corn, snap beans, tomatoes, leafy greens, squash, and watermelons. A total of 16 vegetable products were listed.

- One-half of the growers made retail type sales from on-farm outlets--pick-your-own, roadside stands, and the farmhouse.
- On-farm wholesale type sales were reported by 19.8 percent of the growers. Most of this was contracted production.
- Off-farm retail type sales were reported by 53.5 percent of the growers--farmers' markets, peddling door-to-door, and roadside stands.
- Off-farm wholesale type sales were reported by 61.5 percent of the growers--brokers, retail stores, other growers, farmers' markets, and packinghouses or processors.
- Nearly two-thirds of the growers, 62.4 percent, were satisfied with their present marketing outlet.
- The farmers' market operated by the Shelby County Growers Association was reported by 82.2 percent of the 45 growers that reported sales on a farmers' market in 1983. The number one problem with farmers' markets was the inadequate number of shoppers, reported by 44.4 percent of the growers.
- The three most frequently reported reasons for not selling on a farmers' market, or only selling a small volume, were: inadequate space, 32.8 percent; too few shoppers, 31.0 percent; and distance to market, 17.2 percent.
- Nearly two-thirds, 60.8 percent, of the growers said they would produce more fruits and/or vegetables if more customers shopped at farmers' markets.
- One-half of the growers reported market outlets as a major limitation to their fruit or vegetable production.

All of the fruit and vegetable wholesale handlers in the Memphis area were interviewed. Information was obtained regarding facilities, volumes handled, types and locations of customers, and attitudes regarding their facilities and future expansion. Some highlights of the wholesaler survey are:

- A total of 15 wholesale handlers were identified and interviewed in 1983, compared to 10 in 1973.
- The total volume of fresh fruits and vegetables handled by these 15 firms was estimated at 172,337 tons in 1983. Approximately two-thirds of this volume was handled by Malone and Hyde, Inc. and the Kroger Company.
- Eight of the firms own their facilities, while the other seven firms are tenants.
- Total operating space (excluding Malone and Hyde, Inc. and the Kroger Company) was reported to be 133,866 square feet.
- One-half (51.6 percent) of the fresh fruits and vegetables handled by the wholesalers was delivered to customers outside of the Memphis metropolitan area in 1983, compared to 61.9 percent in 1973.
- Retailers were the primary customer category reported by the wholesalers, followed by institutions and restaurants, other independent wholesalers, and full-line distributors.
- Slightly more than three-fourths of the wholesalers' sales (excluding Malone and Hyde, Inc. and the Kroger Company) were made without the customers' personal inspection of the product prior to delivery. Regarding the sales volumes to institutions, restaurants, and independent wholesalers, the proportion was nearly equal as to customer inspection prior to sales.

- Among all of the customer categories, responsibility for transportation of the product was fairly evenly distributed between the wholesalers and their customers.
- Twelve products were identified by the wholesalers as being purchased on some occasions from mid-south growers. Tomatoes and apples were the leading vegetable and fruit products listed.
- Three of the seven renters and 2 of the 4 owners reported a willingness to consider relocation. Of course, ultimate consideration by each firm regarding relocation will be based upon facility cost and other operational factors.

Based on the information provided by the surveyed growers in the mid-south region and the insight obtained from personal interviews with the wholesalers, the following recommendations were presented:

- Construct a farmers' market shed with approximately 25,000 square feet to provide space for growers to use to sell their products to retail consumers.
- Construct multiple-occupancy wholesale buildings with 36,000 square feet to accommodate the fresh fruit and vegetable wholesalers designated as being prime candidates for immediate relocation.
- Obtain approximately 50 acres of land, of which 22 acres would be used for the farmers' market and the wholesalers' facilities. The remaining acreage would be reserved for future expansion.
- Site selection and detailed financing plans should be handled by a steering committee composed of appropriate county and state personnel.

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John R. Brooker and Virgil P. Culver*

Introduction

Food distribution within a particular geographic area is a vital agribusiness function that ultimately benefits the general public [10, p. 5]. Yet this distribution activity is probably taken for granted by most consumers. Only a shortage of food supplies or rapidly rising prices seem to generate consumer concern about the food production-marketing system [1, p. 40]. As long as the food supply system works satisfactorily, the general public has little concern (and understandably so) with this sector of our total economic system.

The participants in this food distribution system who consistently are concerned with its proficiency includes the growers and the middlemen, because their incomes depend on this system. Middlemen represent the agribusiness firms that perform essential services, such as--assembling, processing or packing, transporting, storing, wholesaling, and retailing. The efficiency with which these services are performed is directly associated with the level of competition. And the willingness of middlemen

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to strive for cost saving improvements and willingness to pass cost savings on to customers depends upon the extent of competition among these firms [6, p. 10]. The efficiency of these middlemen should be of concern to the general public because, eventually, the consumer must pay for all costs.

Growers are concerned about their ability to sell their products, i.e., a problem of market access [4, p. 5]. Used in this context, market access means the grower has a reasonable opportunity to sell his product. While there may be markets and options available to larger scale producers, limited access growers often are constrained to direct marketing outlets, e.g., roadside stands, peddling, pick-your-own type outlets, and farmers' markets [8, p. 18]. Each of these direct marketing outlets has particular advantages and disadvantages, but the farmers' market outlets are the only outlets that comprise an organized group exchange facility for direct sales from growers to consumers and is available to all growers who choose to sell on such markets. Farmers' markets range from tailgate markets on streets or church parking lots to permanent facilities that also provide operating space for wholesalers and year-round mini-retailers.

A United States Department of Agriculture (USDA) report entitled, "Food Distribution Facilities For Memphis, Tennessee 1976-2000," was released in 1979 [11]. This USDA report, referred to hereafter as Taylor's report, presented a plan for developing a wholesale distribution center for all types of food handlers in the Memphis area, and was based on 1973 survey data. In response to requests from the Shelby County Commission and the Tennessee Department of Agriculture, a partial up-date of Taylor's study was undertaken in 1983.

Objectives

The purpose of this new study was to assess the fresh fruit and vegetable receiving-distribution system within the Memphis area, focusing on wholesale handlers and direct sales outlets. The specific objectives were:

1. To identify the number of fruit and vegetable growers in the study area and the crop acreages produced.
2. To determine the market outlets used by these growers and the relative importance of each outlet.
3. To identify the number of fresh fruit and vegetable wholesalers in the Memphis area and determine their purchasing and selling practices.
4. To evaluate the fresh fruit and vegetable wholesaling activity and make recommendations regarding facilities.
5. To evaluate the current access of growers to direct market outlets in the Memphis area and make recommendations regarding facilities.

Mid-South Region

The study area covered in this report is referred to as the mid-south region and includes 105 counties in Tennessee, Kentucky, Missouri, Arkansas, Mississippi, and Alabama combined (Figure 1). Memphis is the only major city within this area and is the core of the Standard Metropolitan Statistical Area that is comprised of four counties, De Soto in Mississippi, Crittenden in Arkansas, and Shelby and Tipton in Tennessee.

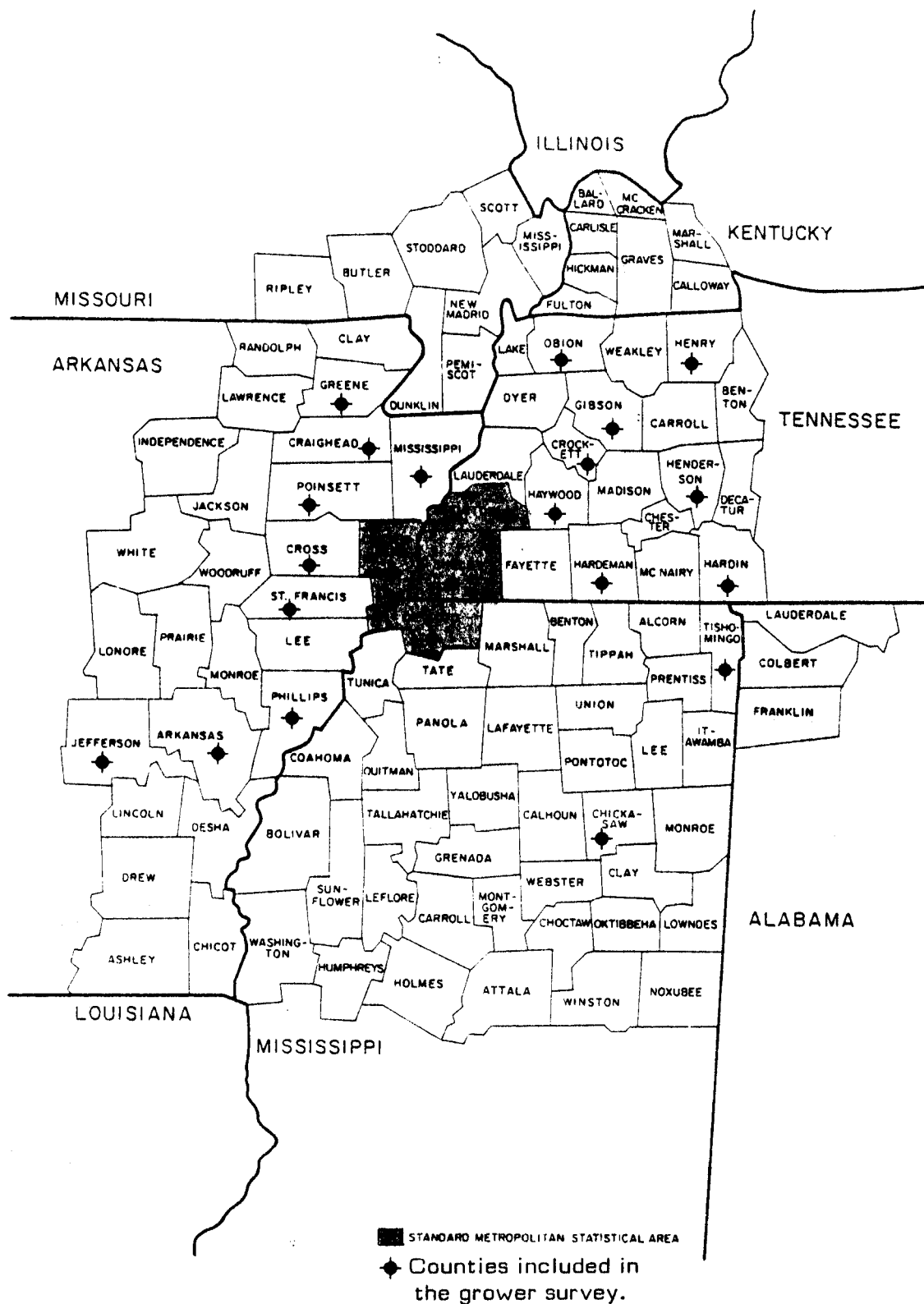


Figure 1. Area referred to as the mid-south region and the counties included in the Memphis Standard Metropolitan Statistical Area.

According to the 1982 Census of Agriculture, the total number of farms in the mid-south region was 66,356 (Table 1). This amounted to a 8.4 percent reduction in the total number of farms since 1978. Total acreage in farms and total cropland also declined over the 1978 to 1982 period. The number of farms producing fruits or vegetables in 1982 was 1,387 and 1,570, respectively. A total of 39,640 acres were used in the production of fruits and vegetables in 1982. Per acre farm sales in 1982 was reported at \$255 for fruits and at \$555 for vegetables. The per farm income in nominal dollars from the sale of both fruits and vegetables increased from \$4,831 in 1978 to \$5,554 in 1982.

Table 1. Total number of farms, acreage in farms, cropland acreages, and sales of fruits and vegetables by farmers in the 105-county Memphis trade area (mid-south region) in 1978 and 1982

Item	Census year	
	1978	1982 ^a
Number of farms	72,467	66,356
Acres in farms (1,000's)	23,999	22,788
Acres in cropland (1,000's)	18,488	17,940
Number of farms producing:		
Fruits	1,409	1,387
Vegetables	1,780	1,570
Acres in production of:		
Fruits	19,544	17,950
Vegetables	24,115	21,690
Total farm sales from:		
Fruits (\$1,000's)	4,558	4,537
Vegetables (\$1,000's)	10,848	11,887

^aExcludes three counties in Alabama.

Fruit and Vegetable Growers

Survey Participants

Considerations regarding potential supplies of fruits and vegetables for existing and/or new farmers' markets constructed to serve the mid-south region should include area growers. Under the direction of the Shelby County Extension Office, extension leaders working in selected counties within the mid-south region were asked to contact fruit or vegetable growers in their county and complete a brief questionnaire.¹ This questionnaire was designed to obtain the basic data needed to assess the present and potential supply of fresh fruits and vegetables available to support a regional farmers' market located in Shelby County, Tennessee.

Completed questionnaires were obtained from 101 growers in 24 counties within the mid-south region (Figure 1). In Tennessee, 70 growers in ten counties were included in the survey. Only four growers in Mississippi completed questionnaires; however, 27 growers in Arkansas participated in the survey by filling out a questionnaire.

Acreages and Products

Among the 101 surveyed growers, 13.4 percent produced 100 or more acres of fruits and vegetables in 1983 (Table 2). The average acreage for the 97 growers who responded to this particular question was 43.8 acres. One-third of the growers produced fruits and vegetables on fewer than 10 acres.

¹All of the invited extension leaders did not participate in this voluntary survey. The growers included in the survey do represent, in most cases, the larger or more progressive growers in that county and were selected by the extension leaders.

Table 2. Total acreage of fruits and vegetables produced by 101 growers in the mid-south region, 1983

Acreage	Growers ^a		Acreage	
	number	percent ^b	Total acres	Average per grower
1-9 acres	33	34.0	160	4.8
10-19 acres	22	22.7	310	14.1
20-29 acres	13	13.4	298	22.9
30-49 acres	11	11.3	411	37.4
50-99 acres	5	5.2	352	70.4
100 or more acres	13	13.4	2,720	209.2
No response	4	--	--	--
Total	101	100.0	4,251	43.8 ^b

^aSee Figure 1 for a presentation of the counties included in the survey.

^bPercentages based on number of respondents to this question.

Source: Survey conducted by the Tennessee Agricultural Extension Service.

In total, 16 vegetable crops and 7 fruit crops were reported by the surveyed growers. The most frequently grown product among the surveyed growers was southern peas, produced by 41.4 percent of the growers on an average acreage of 24.7 acres (Table 3). Second to southern peas in grower frequency was sweet corn, which was produced by 31.3 percent of the surveyed growers. In total, 7 of the 16 vegetables were produced by more than one-fourth of the growers.

The only fruit crop reported by more than one-fourth of the surveyed growers was peaches, produced by 26.3 percent of the growers on an average acreage of 36.1 acres. Apples were second in frequency, followed by strawberries.

Table 3. Number of growers and acreages reported for each fruit or vegetable crop produced by 101 growers in the mid-south region, 1983

Product	Growers ^a		Acreage	
	number ^b	percent ^b	Range	Average
Fruits:				
Peaches	26	26.3	1-140	36.1
Apples	18	18.2	1-200	21.0
Strawberries	10	10.1	1-30	7.1
Pecans	6	6.1	1-20	9.7
Grapes	3	3.0	1-2	1.0
Blackberries	2	2.0	3-10	6.5
Blueberries	1	1.0	1	1.0
Vegetables:				
Southern peas	41	41.4	1-320	22.4
Sweet corn	31	31.3	1-30	7.4
Snap beans	27	27.3	1-10	2.4
Tomatoes	27	27.3	1-25	3.3
Leafy greens	26	26.2	1-150	10.7
Squash	25	25.3	1-40	3.8
Watermelons	25	25.3	1-100	18.9
Butter beans	23	23.2	1-10	3.1
Canteloupes	23	23.2	1-20	3.4
Cucumbers	19	19.2	1-10	2.6
Sweet potatoes	18	18.2	1-40	7.1
Peppers	17	17.2	1-80	7.8
Okra	10	10.1	1-8	2.1
Cabbage	9	9.1	1-40	9.1
Irish potatoes	8	8.1	1-25	8.4
Broccoli	2	2.0	1	1.0

^aSee Figure 1 for a presentation of the counties included in the survey.

^bPercentages based on 99 respondents to this question.

Source: Survey conducted by the Tennessee Agricultural Extension Service.

Market Outlets

The surveyed growers were asked to first categorize their sales of fruits and/or vegetables as retail or wholesale type sales. This distinction separated the sales according to the types of customers. The retail category included those sales to final consumers, which is frequently referred to as "direct marketing." Other sales that a grower makes to customers who resell the products to final consumers were specified as being wholesale transactions. In many situations one grower may be selling the product to buyers in both categories at the same per bushel price. The classification as to whether the sale is retail or wholesale is based on the type of buyer, not the price obtained.

Among the 101 surveyed growers, 51.5 percent reported retail sales on-the-farm (Table 4). Direct sales to retail customers involved the use of pick-your-own type operations by 65.4 percent and roadside stands by 46.2 percent of these growers. Also, 36.5 percent of the growers reporting retail sales on-the-farm said they sold products to customers at their farmhouse. In other words, they harvested the crops and did not operate a roadside stand, yet customers drove to the farmers' house or orchard to make purchases. Nearly half of the growers making retail sales on the farm used two marketing outlets.

On-farm sales classified as wholesale involved a smaller proportion of the surveyed growers, 19.8 percent (Table 5). Of this group, 85 percent had sales to buyers that picked up the product for resale to the final consumers. The importance of wholesale on-the-farm sales was quite dispersed with respect to the shares of total production sold through these outlets.

Table 4. On-farm retail sales of fruits and vegetables by 101 growers in the mid-south region, 1983

Market outlets	Growers ^a	
	number	percent
On-farm retail sales:		
Yes	52	51.5
No	<u>49</u>	<u>48.5</u>
Total	101	100.0
Marketing outlets used:		
Pick-your-own	34	65.4
Roadside stand	24	46.2
Farmhouse	19	36.5
Number of outlets used:		
Two outlets	25	48.1
One outlet	<u>27</u>	<u>51.9</u>
Total	52	100.0
Share of total production sold through on-farm market outlets:		
25% or less	16	32.0
26-50%	11	22.0
51-75%	8	16.0
76-100%	15	30.0
No response	<u>2</u>	<u>--</u>
Total	52	100.0

^aSee Figure 1 for presentation of the counties included in the survey.

^bPercentages based on number of respondents to this question.

Source: Survey conducted by the Tennessee Agricultural Extension Service.

Table 5. On-farm wholesale sales of fruits and vegetables by 101 growers in the mid-south region, 1983

Market outlets	Growers ^a	
	number	percent ^b
On-farm wholesale sales:		
Yes	20	19.8
No	<u>81</u>	<u>80.2</u>
Total	101	100.0
Marketing outlets used:		
Picked up by customer	17	85.0
Contract	5	25.0
Number of outlets used:		
Two outlets	2	10.0
One outlet	<u>18</u>	<u>90.0</u>
Total	20	100.0
Share of total production sold through on-farm market outlets:		
25% or less	7	35.0
26-50%	5	25.0
51-75%	4	20.0
76-100%	<u>4</u>	<u>20.0</u>
Total	20	100.0

^aSee Figure 1 for a presentation of the counties included in the survey.

^bPercentages based on number of respondents to this question.

Source: Survey conducted by the Tennessee Agricultural Extension Service.

Off-farm retail sales included three marketing outlets--farmers' markets, roadside stands, and door-to-door or street peddling. Slightly more than half of the surveyed growers, 53.5 percent, reported making off-farm retail sales in 1983 (Table 6). Of these 54 growers, 72.2 percent sold fruits or vegetables at a farmers' market. A few growers, 16.7 percent,

Table 6. Off-farm retail sales of fruits and vegetables by 101 growers in the mid-south region, 1983

Market outlets	Growers ^a	
	number	percent ^b
Off-farm retail sales:		
Yes	54	53.5
No	<u>47</u>	<u>46.5</u>
Total	101	100.0
Marketing outlets used:		
Farmers' market	39	72.2
Peddle door-to-door	21	38.9
Roadside stand	9	16.7
Number of outlets used:		
Three outlets	2	3.7
Two outlets	11	20.4
One outlet	<u>41</u>	<u>75.9</u>
Total	54	100.0
Share of total production sold through off-farm market outlets:		
25% or less	11	21.6
26-50%	10	19.6
51-75%	10	19.6
76-100%	20	39.2
No response	<u>3</u>	<u>--</u>
Total	54	100.0

^aSee Figure 1 for a presentation of the counties included in the survey.

^bPercentages based on number of respondents to this question.

Source: Survey conducted by the Tennessee Agricultural Extension Service.

sold products at a roadside stand located away from the farm itself. Peddling or door-to-door type sales were made by 38.9 percent of the growers selling via off-farm retail. The importance of these marketing outlets was emphasized by 39.2 percent of the growers who reported that off-farm retail outlets accounted for 76-100 percent of their total sales.

Off-farm wholesale sales were reported by 61.4 percent of the surveyed growers (Table 7). Close to three-fourths of the growers reported retail stores as a sales outlet. Less than one-third of the growers making off-farm wholesale sales reported farmers' markets as an outlet. This reflects the fact that most growers selling on farmers' markets are selling in smaller units to retail customers. Very few of these growers, 4.8 percent, reported sales to packinghouses or processors. However, 17.7 percent did report sales through a broker, which implies larger volume type sales. One-fourth of the growers utilized two off-farm marketing outlets. Nearly 40 percent of the growers reported that off-farm wholesale sales accounted for 76-100 percent of their total production.

The surveyed growers were asked if they were satisfied with their present marketing outlet--37.6 percent said no (Table 8). The major dissatisfaction noted was the need for a new or improved farmers' market, which was reported by 57.2 percent of the 35 dissatisfied growers. Second in frequency was a comment regarding the lack of adequate numbers of shoppers at farmers' markets.

Farmers' Markets

Among the 101 surveyed growers, 45 reported selling produce on a farmers' market. Of these 45 growers, 37 reported Memphis as the location

Table 7. Off-farm wholesale sales of fruits and vegetables by 101 growers in the mid-south region, 1983

Market outlets	Growers ^a	
	number	percent ^b
Off-farm wholesale sales:		
Yes	62	61.4
No	<u>39</u>	<u>38.6</u>
Total	101	100.0
Marketing outlets used:		
Retail store	44	71.0
Farmers' market	19	30.6
Broker	11	17.7
Packinghouse or processor	3	4.8
Other grower	3	4.8
Other	6	9.7
Number of outlets used:		
Three outlets	4	6.5
Two outlets	16	25.8
One outlet	<u>42</u>	<u>67.7</u>
Total	62	100.0
Share of total production sold through off-farm market outlets:		
25% or less	16	26.2
26-50%	11	18.0
51-75%	10	16.4
76-100%	24	39.4
No response	<u>1</u>	<u>--</u>
Total	62	100.0

^aSee Figure 1 for a presentation of the counties included in this survey.

^bPercentages based on number of respondents to this question.

Source: Survey conducted by the Tennessee Agricultural Extension Service.

Table 8. Number of growers satisfied with present marketing outlets and reasons reported for dissatisfaction, 101 fruit and vegetable growers in the mid-south region, 1983

Item	Growers ^a	
	number	percent ^b
Satisfied with present marketing outlets:		
Yes	58	62.4
No	35	37.6
No response	8	--
Total	101	100.0
Comments regarding dissatisfaction:		
Need new or improved farmers' markets	20	57.2
Not enough customers at markets	11	31.4
Distance or travel to markets a problem	2	5.7
Need coordination of planting to prevent gluts on markets	2	5.7
Total	35	100.0

^aSee Figure 1 for a presentation of the counties included in this survey.

^bPercentages based on number of respondents to this question.

Source: Survey conducted by the Tennessee Agricultural Extension Service.

of the farmers' market where they sold produce (Table 9). A total of 11 other cities were identified, but one grower listed six cities and two growers listed two cities. Since Memphis is the largest city in the study area and situated in the center of the counties included in the survey, the emphasis on Memphis was expected.

An inadequate number of shoppers was the major weakness identified by 44.4 percent of the growers regarding the farmers' markets they presently used (Table 10). Second, reported by 27.8 percent, was a feeling of unfair competition from the mini-retailers (pin hookers). Overcrowded conditions and poor location were the only other issues listed by more than one grower.

Table 9. Location of farmers' markets where 45 growers in the mid-south region sold fruits and vegetables, 1983

City and state	Growers ^a number	City and state	Growers number
Memphis, Tennessee	37 ^b	Houston, Texas	1 ^c
Pine Bluff, Arkansas	4 ^{c,d,e}	Jonesboro, Arkansas	1 ^c
Jackson, Tennessee	2	Little Rock, Arkansas	1 ^c
Savannah, Tennessee	2	Oklahoma City, Oklahoma	1 ^c
Belmont, Mississippi	1 ^b	Sheridan, Arkansas	1 ^c
Dallas, Texas	1 ^c	St. Louis, Missouri	1 ^d

^aSee Figure 1 for a presentation of the counties included in this survey.

^bOne grower sold on these two markets.

^cOne grower sold on these six markets.

^dOne grower sold on these two markets.

^eOne grower sold on these two markets.

Source: Survey conducted by the Tennessee Agricultural Extension Service.

Table 10. Perceived weaknesses of current farmers' markets used by 45 growers of fruits and vegetables in the mid-south region, 1983

Major weakness of current farmers' market	Growers ^a	
	number	percent ^b
Inadequate number of shoppers	16	44.4
Mini-retailers provide unfair competition	10	27.8
Overcrowded	4	11.1
Poor location	3	8.3
Too time consuming	1	2.8
Lack of adequate shelter	1	2.8
Gate fees for shoppers	1	2.8
No response	9	--
Total	45	100.0

^aSee Figure 1 for a presentation of the counties included in this survey.

^bPercentages based on number of respondents to this question.

Source: Survey conducted by the Tennessee Agricultural Extension Service.

Most of the growers using farmers' markets as a sales outlet used the markets in July and August (Table 11). The level of participation obviously parallels the fruit and vegetable harvest period in the mid-south region. The only selling day of the week that was substantially lower in use than the others was Sunday.

Table 11. Months and days that 45 fruit and vegetable growers reported selling produce on a farmers' market, mid-south region, 1983

Months	Growers ^a		Days	Growers ^a	
	number	percent ^b		number	percent
March	2	5.6	Monday	30	75.0
April	3	8.3	Tuesday	33	82.5
May	6	16.7	Wednesday	31	77.5
June	25	69.4	Thursday	29	72.5
July	34	94.4	Friday	33	82.5
August	34	94.4	Saturday	29	72.5
September	22	61.1	Sunday	16	40.0
October	8	22.2	No response	5	--
No response	9	--			

^aSee Figure 1 for a presentation of the counties included in this survey.

^bPercentages based on number of respondents to this question.

Source: Survey conducted by the Tennessee Agricultural Extension Service.

The total number of days the growers spent on a farmers' market selling produce in 1983 was obtained from 37 of the 45 growers who reported farmers' market sales. Of these, 56.8 percent reported spending 30 or more selling days on farmers' markets (Table 12). Regarding nights spent on a farmers' market in order to be able to continue selling the next day, 75 percent said they did not spend any nights on the market. A few, 8.3 percent, reported spending 20 or more nights on a farmers' market in 1983.

Table 12. Total number of days and nights spent on a farmers' market by 45 fruit and vegetable growers in the mid-south region, 1983

Time	Growers ^a	
	number	percent ^b
Days spent on market to sell produce:		
Less than 10	6	16.2
10-19	3	8.1
20-29	7	18.9
30 more more	21	56.8
No response	<u>8</u>	<u>--</u>
Total	45	100.0
Nights spent on market to continue selling the next day:		
None	27	75.0
Less than 5	4	11.1
5-19	2	5.6
20 more more	3	8.3
No response	<u>9</u>	<u>--</u>
Total	45	100.0

^aSee Figure 1 for a presentation of the counties included in this survey.

^bPercentages based on number of respondents to this question.

Source: Survey conducted by the Tennessee Agricultural Extension Service.

When asked their preferred selling day on a farmers' market, the responses were quite similar to the actual selling days reported (Table 13). The principal reason given for listing a particular day was--when the product is ready for market, by 65.7 percent of these growers. Several growers, 17.1 percent, said they selected days they knew would have the most customers present on the market.

When asked about expectations regarding future sales on farmers' markets, 58.5 percent reported they expected to sell more frequently on farmers' markets and 68.4 percent expected to sell a larger volume. Only

Table 13. Selling days preferred on farmers' markets and reasons for preference by 45 fruit and vegetable growers in the mid-south region, 1983

Items	Growers ^a	
	number	percent ^b
Selling days preferred:		
Monday	34	82.9
Tuesday	36	87.8
Wednesday	33	80.5
Thursday	36	87.8
Friday	36	87.8
Saturday	34	82.9
Sunday	22	53.6
No response	4	--
Reasons for selling on a particular day:		
When product ready for market	23	65.7
Days with most customers present	6	17.1
Only days that market is open	4	11.4
Weekend preferred	1	2.9
Available labor	1	2.9
No response	<u>10</u>	<u>--</u>
Total	45	100.0
Expectations regarding future sales:		
Frequency - less often	3	7.3
- more often	24	58.5
- about the same	14	34.2
- no response	<u>4</u>	<u>--</u>
Total	45	100.0
Volume - less	4	10.5
- more	26	68.4
- about the same	8	21.1
- no response	<u>7</u>	<u>--</u>
Total	45	100.0

^aSee Figure 1 for a presentation of the counties included in this survey.

^bPercentages based on number of respondents to this question.

Source: Survey conducted by the Tennessee Agricultural Extension Service.

10.5 percent expected to sell a smaller volume on farmers' markets in the future.

All of the surveyed growers were asked to give a reason for not selling produce on a farmers' market outlet. Inadequate space was noted by 32.8 percent of the responding growers (Table 14). Too few shoppers was listed by 31 percent of the growers. The only other factor listed by more than ten percent of these responding growers was distance to market, listed by 17.2 percent.

Table 14. Reasons reported by 101 fruit and vegetable growers in the mid-south region for low sales volumes or not selling produce on a farmers' market and their willingness to consider selling on a new facility in Memphis, 1983

Item	Growers ^a	
	number	percent ^b
Reason for low volumes or not selling produce on a farmers' market:		
Inadequate space	19	32.8
Too few shoppers	18	31.0
Distance to market	10	17.2
Satisfied with current outlet	6	10.3
Market location (security)	6	10.3
Time required	6	10.3
Selling fees	6	10.3
Low prices	4	6.9
Traffic congestion	3	5.2
No response	43	--
Would you consider selling on a new regional farmers' market in Memphis?		
Yes	72	80.0
No	18	20.0
No response	<u>11</u>	<u>--</u>
Total	101	100.0

^aSee Figure 1 for a presentation of the counties included in this survey.

^bPercentages based on number of respondents to this question.

Source: Survey conducted by the Tennessee Agricultural Extension Service.

When asked if they would consider selling on a new regional farmers' market in Memphis, 80 percent said yes. The potential for greater sales volumes was the main reason given as to why they would consider sales on a new regional farmers market.

When asked if they would grow more produce if more customers shopped at the farmers' markets, 60.8 percent reported they would (Table 15).

Table 15. Limitation on fruit and vegetable production and additional production possible should shoppers numbers be increased at farmers' markets, 101 growers in the mid-south region, 1983

Item	Growers ^a	
	number	percent ^b
Would you grow more produce if more customers shopped at farmers' market?		
Yes	48 ^c	60.8
No	31	39.2
No response	<u>22</u>	<u>--</u>
Total	101	100.0
How much more?		
1-9 acres	13	34.2
10-19 acres	15	39.5
20-29 acres	2	5.3
30 or more acres	8	21.0
No response	<u>10</u>	<u>--</u>
Total	48	100.0
What limits your fruit or vegetable proudction?		
Labor	52	58.4
Market outlets	44	49.4
Land	14	15.7
Capital	7	7.9
Other	1	1.1
No response	12	--

^aSee Figure 1 for a presentation of the counties included in this survey.

^bPercentages based on number of respondents to this question.

^cNine of this 48 did not sell produce on farmers' markets in 1983.

Just to obtain an approximation of potential expansion, these 60.8 percent of the growers were asked how much they would expand production. Twenty-one percent said they would increase production by 30 or more acres. Another 34.2 percent said they would increase production by less than 10 acres.

Land does not seem to be a critical limitation to fruit and vegetable production. However, some 15.7 percent of the growers identified land as the limiting factor. The two dominant factors reported were labor and market outlets, by 58.4 and 49.4 percent, respectively.

Fruit and Vegetable Wholesalers

Number and Size

Within the metropolitan area of Memphis, Tennessee, the number of fresh fruit and vegetable wholesalers increased 50 percent in 10 years (Table 16). In 1973, there were 10 firms identified as wholesale distributors of fresh produce. This number had increased to 15 in 1983. The

Table 16. Number of fresh fruit and vegetable wholesale firms and quantities handled in Memphis, Tennessee, 1973 and 1983

Year	Number of firms number	Quantities handled tons
1973 ^a	10	208,417
1983 ^b	15	172,337

^aSource: U.S. Department of Agriculture [11].

^bSource: Survey conducted by Tennessee Agricultural Experiment Station.

increase from 10 to 15 firms was not a simple addition of five new firms, but the net effect from the elimination of two firms and the addition of seven firms. Three firms also changed their name during the ten year period. Any adjustments in ownership associated with the name changes were not determined. The total volume of fresh fruits and vegetables handled by these wholesale firms declined from 208,417 tons in 1973 to 172,337 tons in 1983.

Eight of the fresh fruit and vegetable wholesalers in Memphis own their operating facilities, while the other seven are tenants (Table 17). Ten years earlier, less than half of the wholesalers owned their operating facility. Five of the seven wholesalers that are currently renting space are located on the Scott Street Market, which also provides space to farmers for direct sales and is owned and managed by the Scott Street Growers Association [7, 11].

Table 17. Tenure status of facilities used by wholesale handlers of fresh fruits and vegetables, Memphis, Tennessee, 1973 and 1983

Year	Tenure status		Total
	Rent	Own	
	number		
1973 ^a	6	4	10
1983 ^b	7	8	15

^aSource: U.S. Department of Agriculture [11].

^bSource: Survey conducted by Tennessee Agricultural Experiment Station.

The reported operating space of the wholesalers was considerably higher in 1983 than in 1973 (Table 18). Total square feet of operating space was determined to be 133,866 in 1983, an increase of 56,766 square

feet over that reported for 1973. On a per firm basis, the average refrigerated operating space reported by the 13 independent wholesalers in 1983 was 5,024 square feet, an increase from an average 4,505 square feet reported in 1973.

Table 18. Square footage of operating space in facilities used by wholesale handlers for fresh fruits and vegetables, Memphis, Tennessee, 1973 and 1983

Year	Operating facilities ^a		Total
	Unrefrigerated	Refrigerated	
	- - - - - sq. ft. - - - - -		
1973 ^b (n=8)	41,068	36,032	77,100
1983 ^c (n=13)	68,550	65,316	133,866

^aExcluding Malone and Hyde, Inc. and the Kroger Company.

^bSource: U.S. Department of Agriculture [11].

^cSource: Survey conducted by Tennessee Agricultural Experiment Station.

In both years the two largest wholesalers, Malone and Hyde, Inc. and the Kroger Company, were excluded from the operating space figures presented in Table 18. Both of these organizations are full-line distributors and substantially larger than the independent, specialized fruit and vegetable wholesalers. These two firms accounted for 38 percent of the total volume handled by Memphis produce wholesalers in 1973 and 68 percent in 1983.

The level of market concentration in the Memphis metropolitan area is quite high, considering the fact that the two largest firms account for 68 percent of the wholesale fruit and vegetable market. Studies of the food industry have shown that when the four firm concentration ratio reaches the 60 percent level that prices are often higher than prices in

a market area with a lower concentration ratio [9].² Hence, there is the possibility of higher prices to Memphis consumers resulting from the use of existing market power. The exercise of this market power depends upon the goals and attitudes of the dominant firms' management. Large sized firms can also be evidence of the presence of economies of scale, which may allow these firms to operate more efficiently than smaller firms. The concern is whether or not these potential cost savings are realized and, that at least part of these savings are passed on to consumers. The profit motive in our market oriented economy is beneficial to the general welfare of consumers as long as "effective competition" is maintained.

Market Outlets

An important consideration regarding the market area served by the produce wholesalers is the proportion of total sales made to customers outside the Memphis metropolitan area. In 1983, the percentages of the total volume shipped to customers within and outside the Memphis metropolitan area were nearly equal, 48.4 and 51.6 percent, respectively (Table 19). This proportion reveals a weakening in sales to customers outside the Memphis area, because in 1973 nearly 62 percent of the total volume handled was to customers in the more distant market. In fact, two-thirds of the sales to customers outside of the Memphis area in 1973 were to customers located outside of Tennessee [11]. Responses to a question regarding the most distant point supplied identified Detroit, Michigan to the north, Savannah, Tennessee to the east, Tupelo, Mississippi to the south, and Little Rock, Arkansas to the west.

²A concentration ratio is a measure of the share of the total market accounted for by the x number of largest firms in a particular industry, usually expressed as 4 firm, 8 firm, etc. concentration ratios.

Table 19. Destination of fresh fruits and vegetables sold by wholesale handlers, Memphis, Tennessee, 1973 and 1983

Year	Memphis metropolitan area ^a	Outside Memphis metropolitan area	Total
		percent	
1973 ^b	38.1	61.9	100.0
1983 ^c	48.4	51.6	100.0

^aIncludes Shelby, Tipton, De Soto, and Crittenden counties

^bSource: U.S. Department of Agriculture [11].

^cSource: Survey conducted by Tennessee Agricultural Experiment Station.

The sale of products from one Memphis based wholesaler to another is referred to as interwholesaler transfers. This type of transaction accounted for two percent of the total volume handled in 1973 and slightly more than one percent in 1983 (Table 20).

Table 20. Estimated annual volumes handled by fresh fruit and vegetable wholesalers, Memphis, Tennessee, 1973 and 1983

Year	Total direct receipts	Interwholesaler transfers ^a	Total volume handled ^b
	percent		
1973 ^c (n=8)	98.0	2.0	100.0
1983 ^d (n=13)	98.8	1.2	100.0

^aProducts transferred among wholesalers.

^bExcluding Malone and Hyde, Inc. and the Kroger Company.

^cSource: U.S. Department of Agriculture [11].

^dSource: Survey conducted by Tennessee Agricultural Experiment Station.

Most of the fresh fruits and vegetables handled by the wholesalers was purchased from suppliers outside of Tennessee. In 1983, 95.2 percent of the total volume of produce handled by these wholesalers originated outside of Tennessee (Table 21). The small percentage, 1.2, reported as being obtained from within the Memphis metropolitan area was a reduction from the 3.8 percent reported in 1973. This probably reflects the continued urbanization of these four counties (Shelby, Tipton, De Soto, and Crittenden) and the reduction of farming activity, or at least the reduction of fruits and vegetables produced and sold to local wholesalers.

Table 21. Source and percentage share of fresh fruits and vegetables received by wholesale handlers, Memphis, Tennessee, 1973 and 1983

Year	Source of supply			Total volume handled ^b
	Metropolitan area	State of Tennessee ^a	Outside Tennessee	
	----- percent -----			
1973 ^c (n=8)	3.8	2.9	98.3	100.0
1983 ^d (n=13)	1.2	3.6	95.2	100.0

^aWithin Tennessee but outside Memphis area.

^bExcluding Malone and Hyde, Inc. and the Kroger Company.

^cSource: U.S. Department of Agriculture [11].

^dSource: Survey conducted by Tennessee Agricultural Experiment Station.

Types of customers reported by the wholesalers were arranged into five categories. The first category is the chain store wholesalers--with a chain defined as an organization with 10 or more retail stores. Full-line distributors are wholesale food suppliers that handle a complete

food product line. The third category, independent wholesalers, are other wholesalers that specialize in handling fresh fruits and vegetables.

Institutions and restaurants comprise the fourth category and independent retailers are the fifth category of customers. Among the 13 wholesalers in Memphis, excluding Malone and Hyde, Inc. and the Kroger Company, 12 wholesalers reported independent retailers as customers (Table 22). Next in frequency were customers in the institution and restaurant category. As anticipated, chain store wholesalers were reported as a customer by fewer of the wholesalers than any of the other customer categories. The proportions of total sales to the five categories of customers were not obtained.

Table 22. Type of customer reported by fresh fruit and vegetable wholesalers, Memphis, Tennessee, 1983

Type of customer	Wholesalers ^a (n=13)	
	number	percent ^b
Chain store wholesaler	5	38
Full-line distributor	7	54
Independent wholesaler	8	62
Institution and restaurant	11	85
Retailer	12	92

^aExcluding Malone and Hyde, Inc. and the Kroger Company.

^bEleven of the thirteen wholesalers sold produce to more than one type of customer.

Source: Survey conducted by Tennessee Agricultural Experiment Station.

Merchandising Considerations

Location of a wholesaler's facility is important to the firm for several reasons. The wholesaler obviously is concerned about access to and from his warehouse for transporting the physical product itself. Another concern may be the convenience for customers if they desire to personally inspect the product before purchase. The institution and restaurant type customer inspect the produce more frequently than the other types of customers (Table 23). These restaurants probably comprise

Table 23. Proportion of sales made by fresh fruit and vegetable wholesalers to buyers who personally inspect the produce before purchase, Memphis, Tennessee, 1983

Type of customer	Sales made without customers' inspection	Sales made with customers' inspection	Total ^a (n=13)
Chain store wholesaler:			
Number of wholesalers	2	3	4
Percentage of volume	60	40	100
Full-line distributor:			
Number of wholesalers	4	3	6
Percentage of volume	70	30	100
Independent wholesaler:			
Number of wholesalers	4	6	7
Percentage of volume	55	45	100
Institution and restaurant:			
Number of wholesalers	5	7	10
Percentage of volume	50	50	100
Retailer:			
Number of wholesalers	7	5	9
Percentage of volume	78	22	100

^aExcluding Malone and Hyde, Inc. and the Kroger Company.

Source: Survey conducted by Tennessee Agricultural Experiment Station.

the smaller or independent restaurants. The same interpretation is probably valid for the sales to independent wholesalers. Most of these wholesaler customers are located in neighboring cities, which in turn supply their local independent retailers and restaurants. These wholesalers would also comprise the customers that provide their own transportation for delivery of the product to their facility (Table 24).

Table 24. Responsibility for produce delivery of fresh fruits and vegetables sold by wholesale handlers to various types of customers, Memphis, Tennessee, 1983

	<u>Delivery transportation provided by:</u>			Total ^a
Type of customer	Wholesaler	Delivery firm	Customer	(n=13)
Chain store wholesaler:				
Number of wholesalers	4	1	3	5
Percentage of volume	74	11	15	100
Full-line distributor:				
Number of wholesalers	5	1	3	7
Percentage of volume	62	8	30	100
Independent wholesaler:				
Number of wholesalers	5	1	6	8
Percentage of volume	54	4	42	100
Institution and restaurant:				
Number of wholesalers	8	1	5	11
Percentage of volume	55	1	44	100
Retailer:				
Number of wholesalers	7	1	7	11
Percentage of volume	52	1	47	100

^aExcluding Malone and Hyde, Inc. and the Kroger Company.

Source: Survey conducted by Tennessee Agricultural Experiment Station.

The relationship between the customers' personal inspection before purchase and the customer providing the delivery transportation is quite evident with the full-line distributor and independent wholesaler categories. Three full-line distributors and six independent wholesalers reported personally inspecting the product and handling the delivery (Tables 23 and 24). The percentage of volume reported for the full-line distributor category, 30 percent, was the same for sales with personal inspection and for customer provided transportation. In the independent wholesaler category these percentages of volumes handled were nearly equal, 45 and 42 percent. The correlation between inspection before sales and customer provided transportation was also evident with the other three categories of customers, but not as high as that for the full-line distributor and independent wholesaler.

In total, the larger proportion of sales are made to customers in all five categories without their personally inspecting the product. The retailer type customer was the least likely to personally inspect the product before purchase.

Handling of Local Products

While a small share of the total volume handled by the wholesalers was reported as being purchased from mid-south growers, the wholesalers did identify a fairly large assortment of products. The 13 wholesalers identified 11 different vegetables and one fruit in this group of products (Table 25). The most frequently identified product was tomatoes, reported by nearly two-thirds of the wholesalers. Tied for second were apples and peppers, which were reported by one-third of the wholesalers. The

Table 25. Products identified by fresh fruit and vegetable wholesalers as being purchased from mid-south growers, Memphis, Tennessee, 1983

Products	Wholesale firms ^a (n=13)	
	number	percent
Tomatoes	8	61.5
Apples	4	30.8
Peppers	4	30.8
Cabbage	3	23.1
Cucumbers	3	23.1
Greens	3	23.1
Sweet potatoes	2	15.4
Squash	2	15.4
Egg plant	1	7.7
Okra	1	7.7
Snap beans	1	7.7
Sweet corn	1	7.7

^aExcluding Malone and Hyde, Inc. and the Kroger Company.

Source: Survey conducted by Tennessee Agricultural Experiment Station.

problems hindering the sale of local produce to local wholesalers are associated with the time period over which the product can be supplied, the quantities that can be supplied per delivery, and quality control regarding grading and packaging [2].

Relocation Considerations

The wholesalers were asked if they would consider relocating their operation if a modern facility was available for occupancy at a competitive rental rate. Out of the 13 wholesalers, five said yes and the other eight said no (Table 26). Three of the seven wholesalers who currently rent their operating facility said they would consider moving and two of the six owners indicated an interest.

Table 26. Relationship of tenure status and expressed willingness to consider relocation with years at present location, volume handled, and operating space of fresh fruit and vegetable wholesalers, Memphis, Tennessee, 1983

Tenure status and other factors	<u>Would consider relocating</u>		Total ^a (n=13)
	Yes	No	
Rent:			
Number of firms	3	4	7
Average years at present location	9.7	12.2	11.1
Percentage of total volume handled	19.3	32.7	52.0
Percentage of total operating space	21.3	20.7	42.0
Own:			
Number of firms	2	4	6
Average years at present location	7.5	13.0	11.2
Percentage of total volume handled	24.5	23.5	48.0
Percentage of total operating space	28.1	29.9	58.0
Total:			
Number of firms	5	8	13
Average years at present location	8.8	12.6	11.1
Percentage of total volume handled	43.8	56.2	100.0
Percentage of total operating space	49.4	50.6	100.0

^aExcluding Malone and Hyde, Inc. and the Kroger Company.

Source: Survey conducted by Tennessee Agricultural Experiment Station.

Among the group of renters, the percentage of total operating space was roughly equal between those indicating a positive attitude regarding possible relocation and those with the negative response. This was also true of the owners' operating space. In total, the five wholesalers expressing a willingness to consider relocating represented almost one-half of the total operating space. They also accounted for 43.8 percent of the total volume handled by these 13 wholesalers. Hence, those five wholesalers expressing a willingness to consider relocating their operation are larger, on the average, than the remaining eight wholesalers with respect to both operating space and volumes handled.

The five wholesalers who indicated a willingness to consider relocation are presently operating with 66,116 square feet of floor space (Table 27). Four more wholesalers who said they were not interested in considering a new location for their organizations are renting 27,750 square feet of space and probably heavily influenced by the rather low rental rates at their present location. Obviously, an immediate concern of all the wholesalers would be the cost of operating in a modern facility. Higher rental rates per square foot would need to be offset by improved operational efficiency and larger volumes.

The remaining four wholesalers all own the facility they are using and would not be considered immediate candidates for relocation on a new wholesaling facility. Two of these four wholesalers are in new facilities and the other two have been operating in their present location for over 20 years and expressed a strong opposition to relocation.

Table 2/. Total operating space of fresh fruit and vegetable wholesalers, categorized by candidacy for relocation into a modern facility, Memphis, Tennessee, 1983

Relocation status	Wholesalers ^a (n=13) number	Total operating space sq. ft.
Immediate:		
Interested ^b	5	66,116
Recommended ^c	4	27,750
Future:		
Possibly ^d	2	26,000
Unlikely ^e	<u>2</u>	<u>14,000</u>
Total	13	133,866

^aExcluding Malone and Hyde, Inc. and the Kroger Company.

^bWholesalers who expressed a willingness to consider relocation.

^cWholesalers presently renting space that is not suitable for an efficient, wholesaling operation--based on location and product handling considerations [11].

^dWholesalers who own their operating facility and have moved into these facilities within the past five years.

^eWholesalers who own their operating facility and have been operating in these facilities for more than 20 years and expressed firm opposition to relocation.

Source: Survey conducted by Tennessee Agricultural Experiment Station.

Implications and Concluding Remarks

In Taylor's report, recommendations were presented for a complete wholesale food distribution center [11]. This included 300 acres of land, 120 for the initial construction phase and 180 for future expansion. Single-occupancy and multiple-occupancy facilities were designed to house 27 wholesale food firms requiring immediate relocation. Out of this 27 firms, 8 were fruit and vegetable wholesalers, which included all of the independent produce wholesalers. Taylor's report also included plans for a farmers' market facility for direct sales from growers to consumers [11].

Due to adjustments since 1973 (the data base year for Taylor's report) in the number and location of many food wholesalers, the emphasis in this report is on the fresh fruit and vegetable wholesalers.³ The land area and construction required for development of a regional produce distribution center are discussed next.

Numerous examples could be presented to emphasize the point that many food distribution centers were originally conceived as fruit and vegetable distribution centers [6]. In subsequent years after initial construction, non-produce wholesalers have moved their operations to these "produce" distribution centers to benefit from the complementarity effect that food wholesalers have on one another. Buyers enjoy being able to purchase most, or even all, of their food supplies at one location. Hence, it would seem reasonable to secure, if possible, adequate land space for

³While the survey results are not presented in this report, several of the large non-produce food wholesalers targeted for relocation in Taylor's report have moved to other, improved facilities.

initial development of a regional produce center and space for future expansion with both produce and non-produce wholesalers. Based upon these considerations, the following facilities are recommended (Table 28):

- 1) Land area of approximately 50 acres, roughly half of which would be available for future expansion (Table 29).
- 2) Multiple-occupancy wholesale buildings with 36,000 square feet to accommodate the fruit and vegetable wholesalers designated as being candidates for immediate relocation.
- 3) A farmers' market shed with approximately 25,000 square feet to provide space for growers to use to sell their products to retail consumers and, hopefully, wholesale buyers.

As discussed in much detail in Taylor's report, there can be considerable variation in the total capital investment due to variation in the sources of funds, the interest rates involved, the cost of land at possible sites, and the cost of site preparation.⁴ The cost data presented in this report is intended for use only as a planning guide. Should public agencies and/or private individuals decide to "press-on" with development of a regional produce center, a steering committee (or individual) would need to determine costs associated with construction on a specified site with financing secured as creatively as possible.

⁴The reader is referred to Taylor's report for a full discussion of these issues [11].

Table 28. Approximate investment requirements for proposed fresh fruit and vegetable distribution center, Shelby County, Tennessee, 1984

Item	Investment costs ^a	
	1976	1984
	- - - - dollars - - - -	
Wholesalers' facility:		
Multiple-occupancy building ^b (12 units - 30x100 ft.)	540,000	1,042,200
Other facilities ^c	208,153	401,735
Other costs ^d	239,358	461,961
Land (10 acres) ^e	f	f
Farmers' market facility:		
Shed-type building ^g (70x360 ft.)	73,584	142,017
Other facilities ^c	230,100	444,093
Other costs ^d	89,040	171,847
Land (12 acres) ^h	f	f
Future expansion:		
Land (~28 acres)	f	f

^aTaylor's report used 1976 construction costs which were adjusted to 1984 levels by a construction cost index; 100 in 1976, 158 in 1981, extrapolated to 193 for 1984 [11 & 18].

^bBased on the same ratio of product volume to space as used in Taylor's report, approximately 1.25 tons per square foot [11].

^cIncludes paving and curbing, sewers (sanitary and storm) and street lighting.

^dIncludes architectural and engineering fees (5% of total facility cost); soil boring, foundation analysis, and surveys (1% of total facility cost); financial, legal, and administrative fees (12% of total construction costs); and a contingency allowance (10% of total construction costs).

^eBased on the same ratio of land to building area as used in Taylor's report, approximately 2.78 acres per 10,000 sq. ft. of multiple-occupancy building [11].

^fSee Table 29 regarding land cost at various possible sites.

^gSame building area as that used in Taylor's report [11].

^hSame land area as that used in Taylor's report, except rounded up from 11.38 acres to 12 [11].

Table 29. General location and cost per acre for land considered suitable for development as a fresh fruit and vegetable distribution center, Shelby County, Tennessee, 1984

County location	Number of sites ¹	Cost per acre
Area I: Northeast ²	2	\$7,000
Area II: East ³	2	20,000 to 22,500
Area III: South ⁴	2 (rural)	3,400 to 5,000
	3 (nonrural)	12,000 to 16,000

¹General specifications given for site selection criteria are:

- I. The site should not be located in a designated industrial park.
- II. The site should be presently zoned industrial.
- III. The site should have excellent road access, rail access moderately important.
- IV. The site should be flat with no slopes greater than five percent, not located in a flood plain, good natural drainage, and proper soil suitability.
- V. The site should have water, sewage, and electricity available for normal demand.
- VI. The site should have a minimum of 50 acres, with 50-100 acres desirable.

²Northern portion of county, bounded by Interstates 240 and 40 on the south and east.

³Eastern portion of county, bounded by Interstate 40 on the north, 240 on the west, and the Wolf River on the south.

⁴Southern portion of county, bounded by Interstate 240 and the Wolf River on the north.

Source: Site selection criteria and specific site information provided by the Mississippi-Arkansas-Tennessee Council of Governments' (MATCOG) staff, based on information on file with the Memphis Area Chamber of commerce, April 16, 1984.

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