



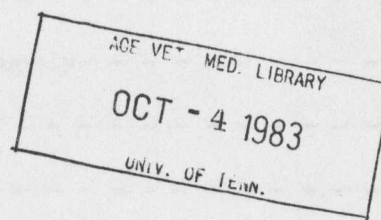
University of Tennessee Agricultural Experiment Station

E11-1215-00-004-83

STACKS

Purchasing Practices of Wholesale Produce Handlers in Tennessee

RR. No. 83-03



March, 1983

John R. Brooker



Dept. of Ag. Economics and Rural Sociology

TABLE OF CONTENTS

	Page
INTRODUCTION - - - - -	1
OBJECTIVES - - - - -	2
SOURCE OF DATA - - - - -	2
SURVEY RESULTS - - - - -	3
Number of Produce Handlers- - - - -	4
Years in Produce Business - - - - -	4
Produce Products Handled- - - - -	6
Southeastern Products Handled - - - - -	6
Comments Regarding New Sources of Supply- - - - -	10
Marketing Activities- - - - -	14
Produce Supply Sources- - - - -	17
Method of Receiving Produce - - - - -	19
Distribution Outlets- - - - -	19
Specifications for Produce Supplies - - - - -	22
CONCLUSIONS AND IMPLICATIONS - - - - -	24
REFERENCES - - - - -	28

PURCHASING PRACTICES OF WHOLESALE PRODUCE HANDLERS IN TENNESSEE

By John R. Brooker^{*}

INTRODUCTION

Marketing of fruits and vegetables evolved over the past 40 years from a centralized to a decentralized system [5]. This change was largely due to improvements in post-harvest handling and refrigeration techniques, development of transportation and communication systems, and economies of scale realized by retail grocery chains. The role of central terminal markets declined as purchases made in major production areas by chain store buyers or brokers representing retailers or wholesalers increased [3]. Development of the decentralized marketing system encouraged buyers to deal directly with sellers in major production areas and likewise encouraged sellers to expand in size to fulfill the large volume purchase requirements of these buyers. Fruit and vegetable growers outside major production regions who are attempting to enter the commercial fresh marketing channel are confronted with a formidable access barrier.

Recent changes in the cost of labor, water, and energy, coupled with the increased cost of transportation, have encouraged growers in several southeastern states to consider the viability of an expanded role in supplying fresh fruits and vegetables during the summer months. Because of market limitations confronting small quantity producers, an immediate concern was to identify the magnitude of access

^{*}Professor, Department of Agricultural Economics and Rural Sociology, University of Tennessee, Knoxville.

barriers restricting sales of Tennessee produce to wholesale buyers. While production and sales to consumers can be increased through several direct marketing channels, the greater potential for long-term growth is with the wholesale markets [4].

OBJECTIVES

The overall purpose of this study was to examine the wholesale produce handlers in the fresh fruit and vegetable marketing subsector in order to focus on market access problems of small quantity growers. Specific objectives were to 1) identify and describe wholesale produce handlers operating in Tennessee, 2) determine operational characteristics and procedures of these produce handlers regarding product procurement, and 3) evaluate the potential for expanded sales of Tennessee grown produce to Tennessee wholesale handlers.

SOURCE OF DATA

Personal interviews were conducted with every wholesale produce handler in Tennessee. A list of these handlers was developed from "The Blue Book" [6] and from telephone directories for each County Seat in Tennessee. This list was modified as the survey progressed to account for recent deletions and additions which continually occur in such a dynamic industry. During the summer of 1981, interviews were conducted with 128 produce handlers. An additional five produce handlers were contacted but preferred not to participate in the survey. As anticipated, produce handlers were concentrated in Tennessee's four major metropolitan areas (Figure 1).

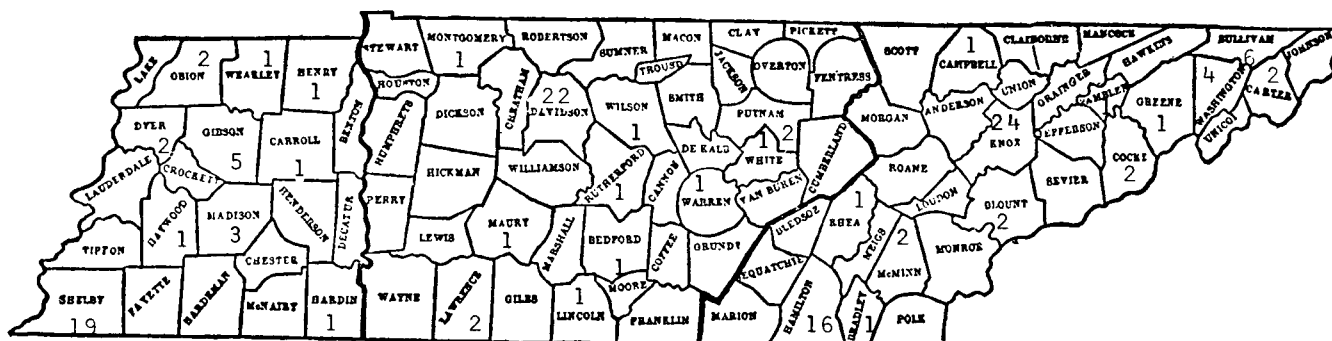


Figure 1. County location of 133 wholesale produce handlers identified in Tennessee, 1981.

Questionnaires were completed during personal interviews with the managers or sales representatives in each organization. The questionnaire was designed to permit categorizing the handlers according to services provided and product groups handled. Also, descriptive information was recorded regarding years in business, produce handled from all sources, southeastern produce handled, relative importance of each type supplier, and relative importance of each type outlet as a sales destination. The interviewees were asked to express company policies, procedures, and specifications for receiving produce from new suppliers and small quantity suppliers.

SURVEY RESULTS

The diversity and individuality of the fresh fruit and vegetable handlers is illustrated by the number of different products handled and services rendered. To facilitate examination of market access problems of small quantity producers, the wholesale handlers were placed into one

of four categories. The first category, independent wholesalers, included all produce handlers who take possession and title to more than 50 percent of the products handled and who are not affiliated through ownership or contractual agreement with a retail grocery chain. The second category included wholesalers who are affiliated with a retail grocery chain. Brokers, the third category, were identified as produce handlers who do not take title or possession of the products handled. The fourth group, shippers, included produce handlers who primarily sell products to other wholesalers at distant receiving points. Excluded from this report were the buyers for processors and the brokers representing growers at the first handler (packinghouse) level of the marketing chain.

Number of Produce Handlers

The survey results presented in this report are based on the responses of 128 produce handlers out of 133 known to operate in Tennessee in 1981. Of the 128, 100 were identified as independent wholesalers (Table 1). Three-fourths of these independent wholesalers handled a full line of produce products, while the other one-fourth specialized in just one or a few products. All of the handlers categorized as chain wholesalers were full line handlers.

With respect to ownership, 29 independent wholesalers were owned by an individual, 56 were organized and owned as corporations, 14 were owned as a partnership, and only one was owned cooperatively. One chain wholesale operation was owned by an individual.

Years in Produce Business

Several independent wholesalers, 18%, reported that their firm had been in the produce business less than 10 years and another 10% between 10 and 20 years (Table 2). During the 1950's and 60's, this industry was

Table 1. Number of wholesale produce handlers interviewed in Tennessee during the summer of 1981, distributed by product line and type of firm ownership

Product line and firm ownership	Produce handlers				Total
	Independent wholesaler	Chain wholesaler	Broker	Shipper	
Product line:					
Full line	77	13	8	2	100
Limited line	<u>23</u>	<u>0</u>	<u>2</u>	<u>3</u>	<u>28</u>
Totals	100	13	10	5	128
Firm ownership:					
Corporation	56	12	7	3	78
Individual	29	1	3	1	34
Partnership	14	0	0	0	14
Cooperative	<u>1</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>2</u>
Totals	100	13	10	5	128

Table 2. Number of years 128 Tennessee produce wholesalers have been handling fruits and vegetables, 1981

Years	Produce handlers			
	Independent wholesaler (n=100)	Chain wholesaler (n=13)	Broker (n=10)	Shipper (n=5)
	percent			
1-9	18	17	22	0
10-19	10	8	11	0
20-29	23	17	11	40
30-39	20	0	22	0
40-49	18	25	0	20
50 or more	<u>11</u>	<u>33</u>	<u>33</u>	<u>40</u>
Totals ^a	100	100	99 ^b	100
No response (number)	2	1	1	0

^aPercentages based on number of respondents to a particular question.

^bDoes not equal 100 due to rounding error.

by steadily declining numbers [5]. Perhaps the continual stream of firms entering and exiting the fresh produce handling business exemplifies the dynamic character of the industry. On the other hand, the stability of a sizable proportion of the independent wholesalers is exhibited in the 49% with 30 or more years of continuous operation.

Produce Products Handled

Rather than attempting to list all of the products handled by the surveyed firms, each firm manager or sales agent was asked to identify their firm's three most important products. The three major products for independent wholesalers were tomatoes, potatoes, and lettuce (Table 3). Chain wholesalers reported potatoes as the most important product handled, followed by lettuce and then bananas. Apples were the fourth most frequently reported product by the chain wholesalers. Potatoes, cabbage and apples were listed as the top three products by produce brokers. The shippers' three most important products were pepper, tomato, and cabbage, which are of major importance to Tennessee producers.

Southeastern Products Handled

An important consideration regarding the access barrier of Tennessee growers to Tennessee wholesalers is the source of products presently handled by these wholesalers. To identify the products, the surveyed handlers were asked to report all products purchased from southeastern growers. Among the independent wholesalers the following eight products listed in descending order, were reported by 40% or more of these wholesalers—tomato, pepper, potato, cabbage, green bean, peach, watermelon, and cucumber (Table 4). The products listed by 50% or more of the chain

Table 3. Frequency with which various fruits and vegetables reported as one of three most important products handled by 128 produce wholesalers in Tennessee, 1981

Products	Produce handlers				Total (n=128)
	Independent wholesaler (n=100)	Chain wholesaler (n=13)	Broker (n=10)	Shipper (n=5)	
	percent				
Potatoes, white	58 ^a	100	50 ^b	0	59
Lettuce	54	85	30	0	53
Tomatoes	59 ^a	8	0	40	48
Bananas	25 ^a	69	0	0	27
Cabbage	19 ^a	0	40	40	20
Onions	17	8	30	0	16
Apples	8	31	40	0	13
Citrus fruits	4	0	30	20 ^c	6
Cantaloupe	4	0	10	0	4
Strawberries	4	0	0	0	4
Watermelon	4	0	10	0	4
Pepper, bell	0	0	10	60	3
Carrots	2	0	0	0	2
Cucumbers	0	0	10	20	2
Green beans	2	0	0	0	2
Okra	1	0	0	20	2
Peaches	2	0	10	0	2
Peas, southern	1	0	0	20	2
Corn, sweet	1	0	0	0	1
Pineapple	1	0	0	0	1

^aThirteen independent wholesalers specialized in one product--9 handled tomatoes, 2 potatoes, 1 cabbage, and 1 bananas.

^bOne broker specialized in one product--potatoes.

^cOne shipper specialized in one product--citrus.

Table 4. Number of wholesale handlers in Tennessee that obtained produce from southeastern growers, 1981

Products	Produce handlers			
	Independent	Chain	Broker	Shipper
	wholesaler (n=100)	wholesaler (n=13)	(n=10)	(n=5)
	percent			
Apples	15	27	12	0
Blackberries	8	9	12	0
Blueberries	9	9	12	0
Broccoli	24	27	38	0
Butter beans	34	45	38	0
Cabbage	43	55	62	67
Cantaloupe	34	36	12	0
Carrots	26	27	38	0
Collards	23	27	38	0
Corn, sweet	30	55	75	0
Cranberry	32	27	25	0
Cucumbers	40	73	62	67
Eggplant	23	27	25	0
Grapes	7	9	0	0
Green beans	41	55	50	0
Greens	28	45	38	0
Honeydew melons	19	36	12	0
Lettuce	25	45	25	0
Okra	27	36	62	33
Onions, dry and green	22	36	62	0
Peaches	41	64	12	0
Peanuts	6	9	12	0
Peas, southern	26	45	38	33
Peppers, bell	48	64	50	100
Plums	8	18	0	0
Potatoes, white	45	45	88	0
Radish	25	36	38	0
Scuppernong	8	9	25	0
Spinach	24	27	38	0
Squash	34	64	62	0
Strawberries	9	9	0	0
Sugar cane	7	9	0	0
Sweet potatoes	22	27	25	67
Tomatoes	75	73	50	33
Turnips	22	27	38	0
Watermelons	41	55	38	0
No response (number)	12	2	2	2

^aPercentages based on number of respondents to a particular question.

wholesalers were—tomato, cucumber, peach, pepper, squash, cabbage, sweet corn, green bean, and watermelon. The contrast of interest between the brokers and shippers was shown by the two most frequently reported products of the brokers (potato and sweet corn) not even being reported by any of the responding shippers.

To determine the relative importance of southeastern produce to the surveyed handlers, they were asked to estimate the share of total annual volumes accounted for by products at least partially obtained from southeastern growers. For all the independent wholesalers, chain wholesalers, and brokers, slightly more than one-third of their total annual volumes were accounted for by products available from southeastern growers (Table 5). However, 20 of the independent wholesalers reported 75% or

Table 5. Proportion of total annual volumes accounted for by products identified by 128 Tennessee wholesale produce handlers as being at least partially obtained from southeastern producers, 1981

Share of total annual volume	Produce handlers							
	Independent wholesaler		Chain wholesaler		Broker		Shipper	
	no.	avg. %	no.	avg. %	no.	avg. %	no.	avg. %
1-24 percent	20	13.0	2	12.5	1	12.0	0	--
25-49 percent	28	30.9	4	28.8	0	--	0	--
50-74 percent	20	56.5	5	57.0	0	--	1	65.0
75-99 percent	12	75.3	0	--	3	82.7	0	--
100 percent	8	10.0	0	--	0	--	2	100.0
Totals	100	36.8 ^b	13	38.6 ^b	10	38.5 ^b	5	88.3 ^b

^aIncludes wholesalers that did not handle any produce from southeastern growers.

^bWeighted average percent for respondents in this group.

more of total annual volumes were accounted for by the products at least partially purchased from southeastern growers. The brokers that responded to this question seemed to reveal a tendency to either specialize in southeastern products or nonsoutheastern products, but not to blend origins as readily as the independent wholesalers. This was expected since the very nature of the broker's job is to find buyers for a product usually located at the packinghouse or first handler stage of the marketing channel. Thus, the brokerage marketing channel emphasizes the importance of sales "contacts." This tends to institutionalize product flows which serve as an access barrier to suppliers desiring to enter the market.

Comments Regarding New Sources of Supply

Produce handlers reported having both good and bad experiences while dealing with new sources of produce supplies (Table 6). Nearly one-fourth

Table 6. Comments presented by 128 Tennessee wholesale produce handlers regarding experience in dealing with new sources of supplies, 1981

Comment	Produce handlers			
	Independent wholesaler (n=100)	Chain wholesaler (n=13)	Broker (n=10)	Shipper (n=5)
	percent			
Have had good and bad experiences	53	78	43	40
Do not deal with new supply sources	24	0	29	20
New supply sources too often undependable	18	0	0	40
Local suppliers have enhanced freshness	5	22	29	0
Totals	100	100	101 ^b	100
No response (number)	9	4	3	0

^a Percentages based on number of respondents to a particular question.

^b Does not equal 100 due to rounding error.

of the independent wholesalers reported that they do not deal with new supply sources. None of the chain wholesalers were this adamant about new suppliers. Independent wholesalers, 18%, also expressed the view that new supply sources were too undependable. The chain wholesalers and brokers, 22% and 29% respectively, did feel that local suppliers have enhanced the freshness of their produce.

Forty-six of the produce handlers reported that their firm had a policy for locating new suppliers. The most common procedure expressed by the wholesalers was to check the supplier's references in either of two available sources, "The Red Book" or "The Blue Book" (Table 7).

Table 7. Bases given by 46 Tennessee wholesale handlers regarding a policy for locating new produce suppliers, 1981

Policy	Produce handlers			
	Independent wholesaler (n=37) ^a	Chain wholesaler (n=3)	Broker (n=4)	Shipper (n=2)
	percent			
Check references in blue or red book	61	100	50	50
Wait for new supplier to make contact	28	0	50	50
Must meet buyer's requirements	6	0	0	0
Seek new suppliers only in major supply areas	3	0	0	0
Inspect new supplier's operation	3	0	0	0
Totals	101 ^b	100	100	100

^aOnly one of the 46 produce handlers (out of 128 interviewed) who reported having a set policy for locating new suppliers did not reveal this policy.

^bDoes not equal 100 due to rounding error.

Both of these credit references are used and recognized in the fruit and vegetable industry throughout the nation [6]. Slightly more than one-fourth of the independent wholesalers reported waiting for the new supplier to make contact or take the initiative, since as buyers they already receive ample supplies. Therefore, new suppliers can gain entrance to a market only by forcing another supplier out of that market, unless total consumption of the specified product increases. Consumption increases are unlikely in most cases.

Many of the potential new suppliers for a given set of wholesalers will be small quantity suppliers. Because of this, many handlers have special requirements. Eighteen percent of the responding independent wholesalers reported that the supplier must meet volume requirements, while another 18% said they would not deal with small quantity suppliers (Table 8). All of the chain wholesalers and 59% of the independent wholesalers generalized their response by reporting that the small supplier must meet the same basic requirements as any other supplier. This led to asking all of the surveyed produce handlers to specify requirements for buying produce from any supplier, large or small. Consistent good quality was noted the greatest number of times, by 82% of the independent wholesalers, 91% of the chain wholesalers, 75% of the brokers, and 67% of the shippers (Table 9). Competent grading, which obviously is associated with consistent quality, was reported by 24% of the independent and 55% of the chain wholesalers. Packaging was more important to the chain wholesalers than independent wholesalers, possibly because many independent wholesalers do considerable repacking. Notably, price and service were less important to all wholesalers than quality, but even less important to the independents than the chain wholesalers.

Table 8. Bases given by 36 Tennessee wholesale handlers regarding a policy for dealing with small suppliers of produce, 1981

Policy	Produce handlers ^a			
	Independent wholesaler (n=24)	Chain wholesaler (n=9)	Broker (n=1)	Shipper (n=2)
	- - - - - percent - - - - -			
Must meet wholesaler's requirements	59	100	0	0
Must have sufficient volume	18	0	100	0
Will not deal with small suppliers	18	0	0	0
Purchase small amounts on a trial basis	5	0	0	0
Totals	100	100	100	0
No response (number)	2	6	0	2

^aWhile 36 out of 128 interviewed produce handlers reported the existence of a set policy for dealing with small suppliers, 10 of these did not reveal this policy.

Table 9. Specifications identified by 128 Tennessee wholesale produce handlers for buying southeastern fruits and vegetables, 1981

Item	Produce handlers			
	Independent wholesaler (n=100)	Chain wholesaler (n=13)	Broker (n=10)	Shipper (n=5)
	- - - - - percent ^a - - - - -			
Consistent good quality	82	91	75	67
Competent grading	24	55	12	0
Competitive price	17	36	12	0
Reasonable service	11	18	0	33
Adequate packaging	8	36	12	0
Precooled products	1	9	12	0
Adequate supply	14	0	0	33
No response (number)	12	2	2	2

^aSeveral wholesale handlers reported more than one requirement.

Regarding possible purchases from a new supply area, the wholesalers, excluding brokers and shippers, were asked to rank a number of factors that might influence their firm's decisions. Because of the large number of products handled by independent and chain wholesalers, presentation of the results is limited to five products (Table 10). The most important factor, regardless of product, is consistent quality. A dependable supply over a specified period of time was listed by more than half of the wholesalers for all five products, although the importance rankings were slightly lower than those for quality. While only one-fifth of the wholesalers reported price as an important factor affecting product purchase decisions, it was judged fairly important by those wholesalers.

Marketing Activities

The independent wholesalers, chain wholesalers, brokers, and shippers were asked to answer questions regarding their firm's marketing activities. These responses are presented for the handlers who listed potato, lettuce, tomato, cabbage, or apple as being among their three most important products. A major point of interest was to identify operational activities of the produce handlers and examine any differences in those activities associated with vegetables produced in Tennessee (potato, tomato, and cabbage) and a vegetable not produced extensively in Tennessee (lettuce). Apples were included for comparison of the vegetables with a fruit product. There was little difference among the responses to the various marketing activities associated with specific products, except for the obvious differences with respect to repacking and product storage (Table 11). The importance of repacking is apparent from the number of

Table 10. Scale ranking of factors reported by independent and chain wholesale produce handlers as affecting decisions to purchase selected products from a new supply area, 1981

Factors influencing firm's decisions	Product				
	Potato (n=72)	Lettuce (n=65)	Tomato (n=60)	Cabbage (n=19)	Apple (n=12)
	average ^a				
	(number of respondents)				
Consistent quality	1.2 (63)	1.2 (57)	1.2 (52)	1.1 (18)	1.5 (10)
Adequate volume	3.0 (41)	2.8 (40)	2.7 (39)	2.4 (14)	2.6 (5)
Dependable supply over a period of time	2.4 (46)	2.5 (44)	2.4 (45)	2.9 (13)	2.5 (6)
Provide a prepacker product	4.4 (39)	2.4 (42)	4.5 (35)	4.5 (13)	3.8 (6)
Proximity to other estab- lished supply areas	4.5 (33)	4.3 (35)	4.7 (31)	4.5 (13)	5.0 (5)
Only source of supply	4.9 (32)	4.9 (34)	4.6 (33)	3.7 (13)	5.5 (4)
Product price	1.9 (13)	2.1 (10)	1.8 (8)	2.0 (6)	1.8 (4)
Transportation cost	3.0 (2)	3.0 (2)	3.0 (1)	-- --	-- --
Service	2.8 (5)	3.0 (4)	3.0 (4)	2.7 (3)	2.0 (1)
Past experience with supplier	2.5 (2)	2.5 (2)	2.0 (2)	-- --	-- --

^aFactors ranked from 1 to 7, with 1 = the most important.

Table 11. Marketing activities of wholesale produce handlers and the extent of this activity for five products, Tennessee, 1981

Wholesale produce firm's activities	Share of total annual volume				
	Potato (n=76) ^a	Lettuce (n=68) ^a	Tomato (n=62) ^a	Cabbage (n=25) ^a	Apple (n=10) ^a
	percent				
	(number of respondents)				
Handled as broker:					
average	100.0	96.7	25.0	96.2	75.0
standard deviation	0.0	5.8	0.0	4.8	38.7
respondents	(4)	(3)	(2)	(4)	(6)
Take possession and ownership:					
average	99.1	99.8	98.9	94.5	95.0
standard deviation	6.1	1.4	4.9	20.5	9.8
respondents	(70)	(64)	(60)	(22)	(12)
Take possession but not ownership:					
average	21.7	8.3	71.7	11.7	10.0
standard deviation	24.7	2.9	49.1	7.6	--
respondents	(3)	(3)	(3)	(3)	(1)
Repack the product:					
yes (number)	(28)	(11)	(39)	(5)	(4)
Share of product repacked:					
average	38.8	58.3	63.6	100.0	40.0
standard deviation	35.9	45.5	35.3	0.0	42.6
respondents	(25)	(8)	(37)	(4)	(9)
Store the produce:					
yes (number)	(45)	(31)	(35)	(14)	(8)
Number of days stored:					
average	20.9	5.4	9.6	8.9	19.5
standard deviation	35.2	5.8	5.9	15.5	9.3
respondents	(44)	(31)	(34)	(13)	(8)

^aNumber of wholesale handlers out of 128 interviewed who reported handling this particular product.

handlers who reported repacking tomatoes and potatoes. On the average, about one-third of the potatoes and two-thirds of the tomatoes handled by these wholesalers are repacked.

Produce Supply Sources

Knowledge of the various sources of produce supplies currently being used by Tennessee produce handlers is essential to understanding the access problems of local growers supplying local wholesalers. Produce handlers were asked to report the proportions of total annual product volumes obtained from six different sources. Many of the produce handlers obtained products directly from growers (Table 12). Nearly half of the produce handlers that dealt with tomatoes purchased an average of 48% of their tomatoes from growers. The location of these growers and the size of these growers' operations were not ascertained.

A relatively small number of produce handlers purchased products from a selling agent, commission merchant, or shipping point wholesaler. However, other independent wholesalers were a major supply source for 29% of the tomato handlers. Tomatoes and the other products that are purchased by wholesale produce handlers from other wholesale produce handlers include both inter- and intra-city transfers. The intra-city transfers emphasize one of the complementary effects of wholesale produce handlers operating in close proximity with each other, e.g., within the same food-oriented industrial park [1,7].

For the four vegetables (potato, lettuce, tomato, and cabbage) the most frequently identified source of supply was the produce broker. Slightly more than half of the produce handlers that purchased tomatoes

Table 12. Supply sources of five produce products purchased by Tennessee wholesale handlers, 1981

Source of supply	Share of total annual volume				
	Potato (n=76) ^a	Lettuce (n=68) ^a	Tomato (n=62) ^a	Cabbage (n=25) ^a	Apple (n=16) ^a
	percent				
	(number of respondents)				
Grower:					
average	47.9	73.3	48.0	43.7	71.4
standard deviation	34.1	27.6	35.1	31.2	35.3
respondents	(32)	(15)	(30)	(15)	(7)
Selling agent:					
average	55.2	76.4	65.6	48.8	78.0
standard deviation	35.1	32.2	29.7	24.1	25.9
respondents	(11)	(10)	(8)	(5)	(5)
Broker:					
average	84.5	89.1	77.4	67.9	63.0
standard deviation	25.1	25.1	28.8	29.5	42.7
respondents	(51)	(45)	(33)	(17)	(5)
Commission merchant:					
average	--	--	--	25.0	--
standard deviation	--	--	--	--	--
respondents	--	--	--	(1)	--
Shipping point wholesaler:					
average	66.7	100.0	60.8	36.3	75.0
standard deviation	36.2	--	30.7	37.0	--
respondents	(3)	(1)	(6)	(4)	(1)
Independent wholesaler:					
average	52.2	59.1	62.5	55.2	60.0
standard deviation	43.6	49.1	37.2	44.4	--
respondents	(12)	(14)	(18)	(5)	(2)

^aNumber of wholesale handlers out of 128 interviewed who reported handling this particular product.

obtained them through a broker. These handlers estimated that 77% of their tomatoes were obtained through brokers. As anticipated, the dependence upon brokers was even greater for lettuce than tomatoes. Two-thirds of the produce handlers received 89% of their lettuce supplies via produce brokers. This was expected because of the relatively greater distance to major lettuce supply areas and the relatively greater concentration of lettuce production compared to the other vegetables.

Method of Receiving Produce

The wholesale handlers were asked about the various methods used to receive produce. Besides wanting to identify the most common methods, another point of interest was variations in receiving methods associated with particular products. The most frequently used method among the surveyed handlers was delivered by a transportation broker (Table 13). Second in frequency of use was pick-up by the purchaser in his own truck. The notable point here is the smaller proportion of total volume for potatoes versus the other four products in Table 13. This was expected because of product density and the distance potatoes are hauled. Also, rail delivery was used more often with potatoes than with the other products.

Distribution Outlets

The surveyed produce handlers were asked to identify the various types of outlets they supplied. Retail grocery stores and food service (institutions and restaurants) outlets were the most frequent destination (Table 14). A small number of handlers sold produce to truckers,

Table 13. Method of receiving supplies of five produce products purchased by wholesale handlers in Tennessee, 1981

Method of receiving produce	Share of total annual volume				
	Potato (n=76) ^a	Lettuce (n=68) ^a	Tomato (n=62) ^a	Cabbage (n=25) ^a	Apple (n=10) ^a
	percent (number of respondents)				
Delivered by transportation broker:					
average	85.4	94.4	88.4	86.0	82.5
standard deviation	25.6	13.6	22.9	23.8	29.0
respondents	(48)	(36)	(24)	(10)	(8)
Picked up in your truck:					
average	47.5	72.2	72.3	62.8	87.3
standard deviation	41.6	38.4	36.9	40.6	20.8
respondents	(21)	(18)	(30)	(6)	(6)
Delivered by sellers' trucks:					
average	64.8	84.6	74.7	91.1	50.5
standard deviation	37.7	31.5	41.5	15.6	70.0
respondents	(18)	(14)	(17)	(11)	(2)
Delivered by independent trucker:					
average	54.4	68.3	66.8	60.0	38.3
standard deviation	38.4	37.6	39.2	56.6	20.2
respondents	(8)	(6)	(8)	(2)	(3)
Delivered by seller by rail:					
average	70.0	33.7	5.0	1.0	95.0
standard deviation	44.8	53.2	--	--	--
respondents	(6)	(3)	(1)	(1)	(1)
Delivered by produce broker:					
average	100.0	100.0	100.0	--	--
standard deviation	--	--	--	--	--
respondents	(1)	(2)	(1)	--	--

^aNumber of wholesale handlers out of 128 interviewed who reported handling this particular product.

Table 14. Distribution of total shipments of five produce products among various outlets by wholesale handlers in Tennessee, 1981

Distribution	Share of total annual volume				
	Potato (n=76) ^a	Lettuce (n=68) ^a	Tomato (n=62) ^a	Cabbage (n=25) ^a	Apple (n=16) ^a
	percent				
	(number of respondents)				
Independent wholesaler:					
average	35.8	37.5	54.3	60.2	59.2
standard deviation	25.9	26.6	32.9	21.6	14.3
respondents	(13)	(10)	(14)	(8)	(6)
Chain store wholesaler:					
average	48.1	51.6	37.4	49.8	52.6
standard deviation	33.2	34.1	22.6	33.4	29.7
respondents	(27)	(25)	(21)	(10)	(9)
Retail stores:					
average	57.9	53.6	47.1	38.9	62.5
standard deviation	34.3	34.3	30.9	30.1	41.2
respondents	(48)	(40)	(38)	(9)	(8)
Institutions and restaurants:					
average	40.1	59.6	55.5	63.8	36.0
standard deviation	33.3	32.1	32.8	38.0	--
respondents	(46)	(44)	(39)	(12)	(2)
Processors:					
average	50.0	--	--	--	--
standard deviation	--	--	--	--	--
respondents	(2)	--	--	--	--
Trucker:					
average	75.0	10.0	35.0	42.5	25.0
standard deviation	--	--	30.9	46.0	--
respondents	(1)	(1)	(4)	(2)	(1)
Specialty produce stand:					
average	36.4	18.7	57.5	20.0	58.3
standard deviation	30.7	15.5	37.7	--	38.2
respondents	(7)	(3)	(8)	(1)	(3)

^aNumber of wholesale handlers out of 128 interviewed who reported handling the particular product.

operators of specialty produce stores, and even processors. However, a notable finding is the extent wholesalers sell to one another. For tomatoes, 14 produce handlers reported that independent wholesalers accounted for 54% of their total tomato sales and 21 handlers reported chain store wholesalers as the outlet for 37% of their tomato sales. This is surprising since chain store operations supposedly by-pass terminal markets for most produce supplies. The number of produce handlers for potatoes and lettuce involved with interwholesaler sales is similar to that of tomatoes, except that the estimated share of total sales to the chain store wholesalers was higher, 48% and 51%, respectively.

Specifications for Produce Supplies

As noted earlier, new suppliers must satisfy certain minimum specifications to sell produce to wholesale handlers. For the five products—potato, tomato, lettuce, cabbage and apple—wholesale handlers reported the minimum qualities they would accept, minimum volume per delivery, total volume they handle per week, packaging requirements, and minimum season per supplier.

Most of the tomato handlers, 36 out of 53, required U.S. No. 1 tomatoes (Table 15). Eleven handlers were willing to receive U.S. No. 2's and six handlers said they could receive U.S. No. 3's. The minimum acceptable volume of tomatoes per delivery ranged from 750 pounds to 50,000 pounds, with an average of 19,177 pounds. This should be encouraging to smaller quantity suppliers since at least some handlers do not require a full carlot load to meet minimum delivery volume.

Table 15. Specifications reported by Tennessee produce handlers regarding purchase requirements of five selected products, 1981

Item	Potato	Lettuce	Tomato pounds	Cabbage	Apple
Minimum volume per delivery:					
average	33,362	16,003	19,177	20,774	22,367
range	600-100,000	500-100,000	750-50,000	500-40,000	2,000-40,000
Total volume handled per week:					
average	60,106	34,522	56,556	38,421	78,236
range	600-700,000	500-200,000	1,200-280,000	1,000-280,000	3,000-280,000
----- number of handlers -----					
Minimum quality:					
U.S. No.1	68	56	36	21	8
U.S. No.2	8	3	11	2	1
U.S. No.3	--	--	6	--	--
Packaging requirements:					
10 lb. sack	7	--	--	--	--
20 lb. carton	--	--	27	--	--
30 lb. carton	--	--	14	--	--
40 lb. carton	--	--	--	--	7
50 lb. carton	15	--	--	18	--
24 head carton	--	37	--	--	--
100 lb. sack	25	--	--	--	4
Bushel container	--	--	--	--	--
Bulk container	--	5	--	1	--
Minimum season per supplier:					
1 month	3	4	5	6	1
2-3 months	6	6	9	3	1
4-6 months	6	1	5	1	1
7-11 months	3	--	7	--	1
12 months	18	20	9	3	3

Packaging requirements included the two carton sizes prevalent in the industry today—20 and 30 pounds. Two-thirds of the handlers preferred the 20-pound carton.

For potato, lettuce, cabbage, and apple, none of the handlers reported a willingness to purchase less than a U.S. No. 2 product. and, only slightly more than 10% reported a willingness to accept U.S. No. 2's. The minimum delivery requirements were similar to those of tomatoes. Potatoes was the only product to be received in retail sized packages.

It appears that local and other southeastern suppliers are eliminated from consideration by a sizable number of produce handlers because they cannot supply the product for an entire year. This was more frequent with potatoes and lettuce than tomatoes, cabbage, or apples. Of course, these handlers who purchase the produce from the same supplier all year are purchasing from another wholesaler who in turn may purchase from many suppliers from different production regions during the course of a year. Notably, the least amount of time over which handlers were willing to purchase from a supplier was one month. Virtually every responding wholesale handler expressed the view that it was not worth the effort to disrupt regular suppliers for the sake of receiving only one or two loads from a new supplier.

CONCLUSIONS AND IMPLICATIONS

Based on the responses of the surveyed produce handlers, consistent high quality, which includes proper packaging, is a major access barrier confronting Tennessee fruit and vegetable growers regarding sales to

wholesale handlers. Associated with this quality factor is the expressed need of wholesalers to receive at least a certain minimum volume over a minimum season. While the minimum acceptable volumes listed by several of the wholesale handlers seems reasonably obtainable, it must be noted that that volume was for a particular grade and size. For instance, what acreage and assumed yield per acre would be required to supply 20,000 pounds of U.S. No. 1 tomatoes? Where will the accompanying U.S. Nos. 2 and 3 grade tomatoes be sold? A handler may want only one grade or size. While 20,000 pounds of tomatoes per acre is certainly obtainable, not all of that yield will be U.S. No. 1 and not all of that yield will be ready for harvest at one time. The surveyed handlers also emphasized the need to receive produce from one supplier for more than just one or two shipments.

The hesitancy expressed by many of the wholesale handlers regarding produce purchases from new suppliers and small quantity suppliers emphasizes the necessity of entering this commercial market cautiously. A buyer's first experience with a new supplier may set the attitude of that buyer regarding a whole group of potential suppliers in a particular production area. The eagerness of a grower-supplier to make a sale to a buyer can often create a short-sightedness that damages the reputation of all growers in the region if that sale contains fraudulently labeled produce, regardless of intent [2].

Apparently most of the wholesale handlers expect the potential new supplier to take the initiative. As far as the wholesaler is concerned he is already receiving all of the produce he needs. His concern is with quality, price, and dependability. New suppliers will have to

convince the buyer of product quality and dependability and may have to accept a discounted price in the short run to entice the buyer to accept the inherent risk of purchasing from a new supplier.

The importance of brokers and wholesalers as a source of supply was emphasized by the surveyed produce handlers. This supports the contention regarding the institutionalized nature of product and informational flows within the commercial fresh fruit and vegetable marketing channel. For potential new suppliers, this insight reveals the importance of using or employing selling brokers who have established contacts. However, this again emphasizes the need for adequate volume and quality to meet commercial buyers' requirements. On the other hand, the number of wholesale handlers who reported buying produce directly from growers reveals another marketing channel that growers may pursue. This approach would obviously require more input from the grower since he would be performing the selling function himself rather than paying a broker.

While not explicitly addressed in this study, the emphasis placed by the wholesale handlers on receiving a product from any supplier that meets established requirements supports the implication that growers in potential supply areas must supply that product. If the wholesale handlers are presently handling mature green tomatoes, then to enter this market it may be more prudent to grow tomatoes for this mature green market rather than attempting to persuade the wholesalers to handle vine-ripe tomatoes. In other words, the new supplier attempting to enter a market should supply the product the buyer presently handles,

not the product the grower feels the buyer should handle. If a grower, or group of growers, consider a product they produce to be a premium product, then special marketing effort will need to be devoted to enter the particular markets desiring this premium product.

Tennessee fruit and vegetable growers can expect to enter and supply a portion of this wholesale market if the quantity and quality requirements can be satisfied at a competitive price. The feasibility of producing a particular product and/or the competitive position of Tennessee producers with respect to other producers is beyond the scope of this report. Growth expectations and even industry survival in the commercial wholesale markets depends upon a number of economic factors and political forces often outside the control or influence of growers and concerned individuals in public agencies.

REFERENCES

1. Brooker, John R. and Robert P. Jenkins. Wholesale Produce Marketing in Knoxville, Tennessee. Special Report No. 3, Univ. of Tennessee, Agricultural Experiment Station, Knoxville, January 1980.
2. French, Ben C. "Fruit and Vegetable Marketing Orders: A Critique of the Issues and State of Analysis", American Journal of Agricultural Economics. American Ag. Econ. Assoc., Vol. 64, No. 5, Dec. 1982, p. 916-923.
3. Hayenga, Marvin L. (editor). Pricing Problems in the Food Industry. Monograph No. 7, North Central Regional Research Project Nc-117, College of Agriculture and Life Sciences, University of Wisconsin-Madison, February 1979.
4. LeVeon, E. P. and M. R. Gustafson. The Potential Impact of Direct Marketing Policies on the Economic Viability of Small Fruit and Vegetable Farms in California. Giannini Foundation Res. Rept. 327, Div. of Agri. Sciences, Univ. of California, 1978.
5. National Commission on Food Marketing. Organization and Competition in the Fruit and Vegetable Industry. Technical Study No. 4, U.S. Government Printing Office, Washington, D.C., June 1966.
6. Produce Reporter Company. Credit and Marketing Service: Fruit and Vegetable, Spring 1981. 80th year, Wheaton, Illinois.
7. Taylor, Earl G., James N. Morris, John R. Brooker, and et. al., Food Distribution Facilities for Memphis, Tennessee 1975-2000. Mkt. Res. Rpt. No. 1099, Science and Education Administration, U.S.D.A., May 1979.