

OHIO TABLE GRAPE STUDY:

An Analysis of Consumer Acceptance in  
Ashtabula and Geauga Counties, Ohio  
1983

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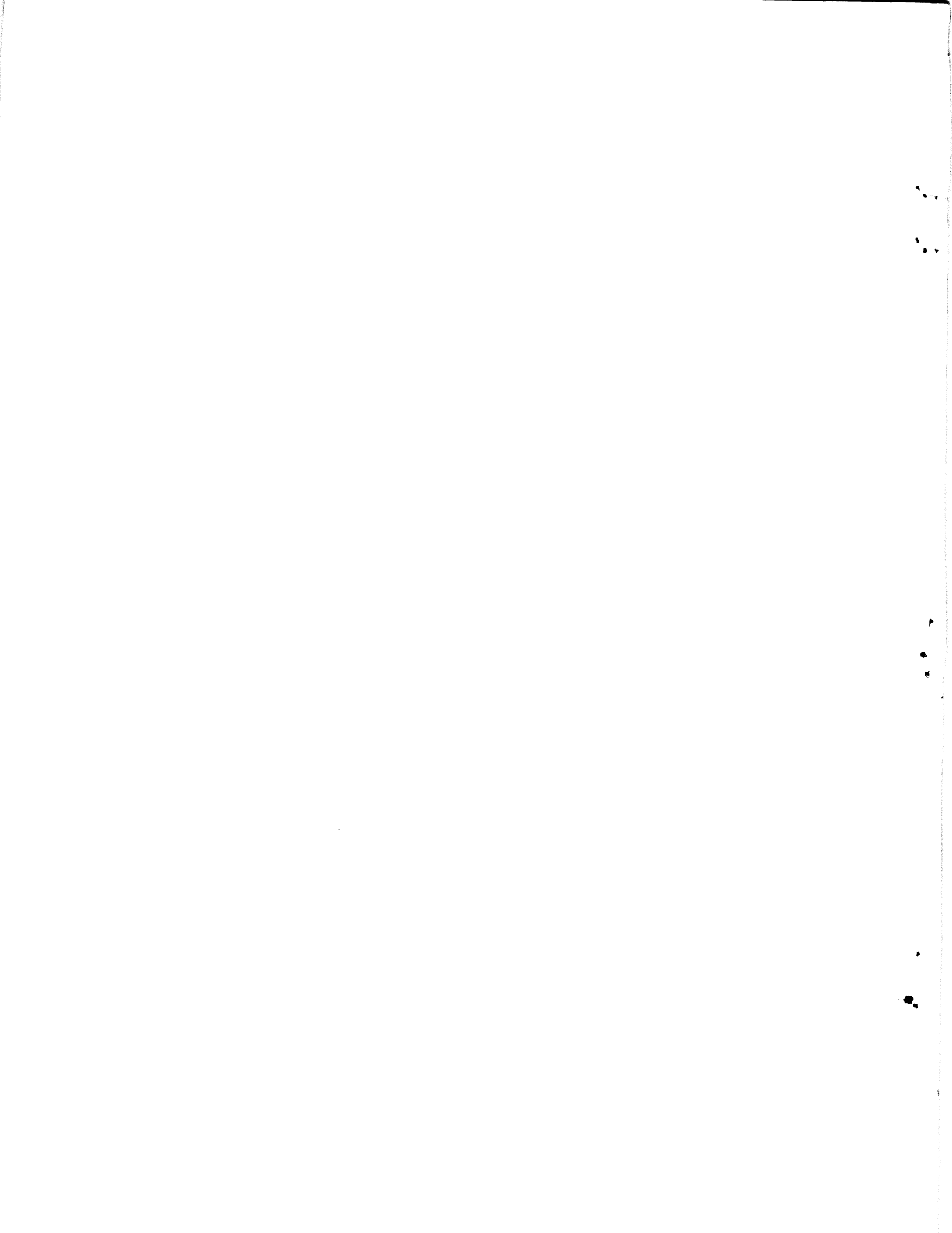
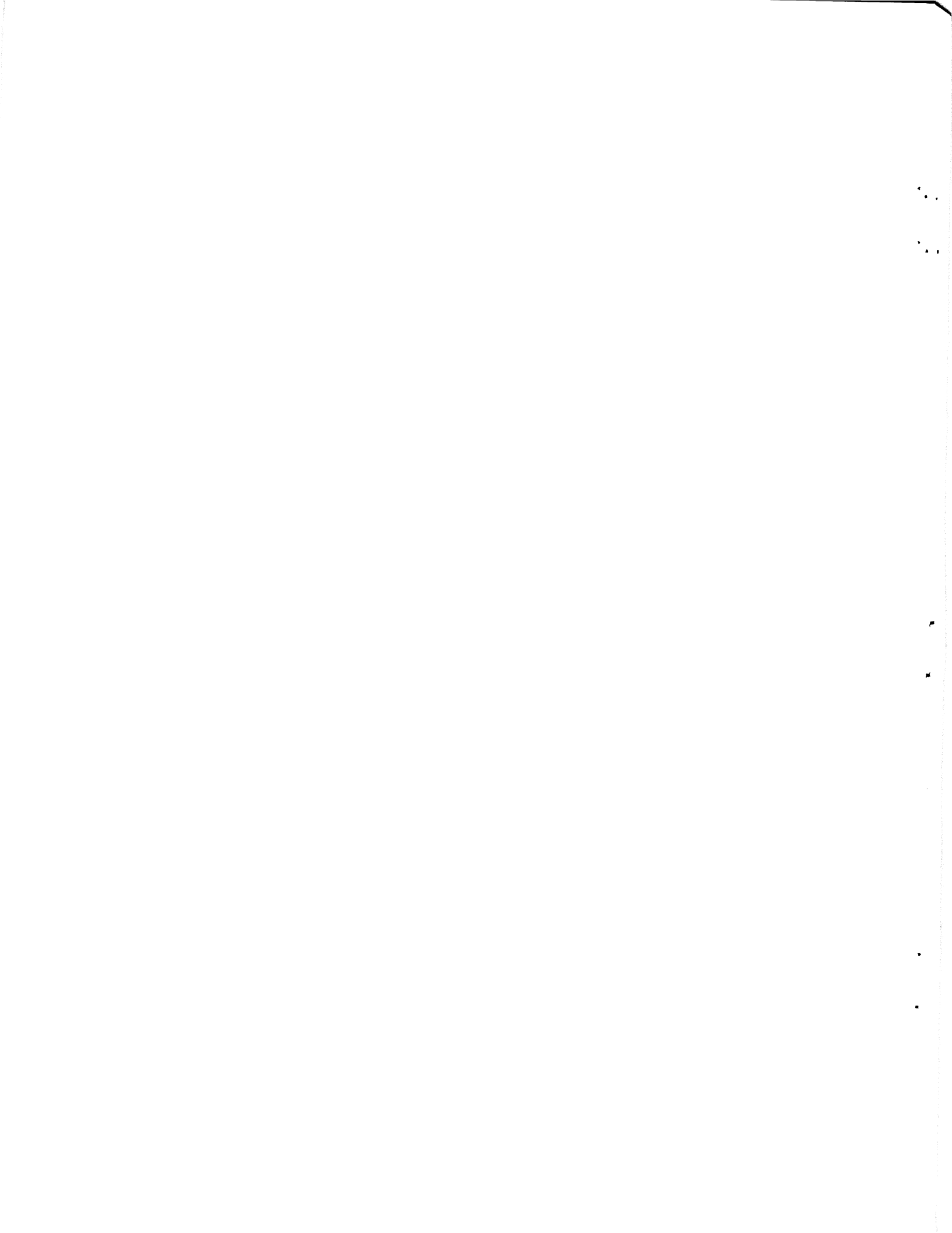


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## Foreword

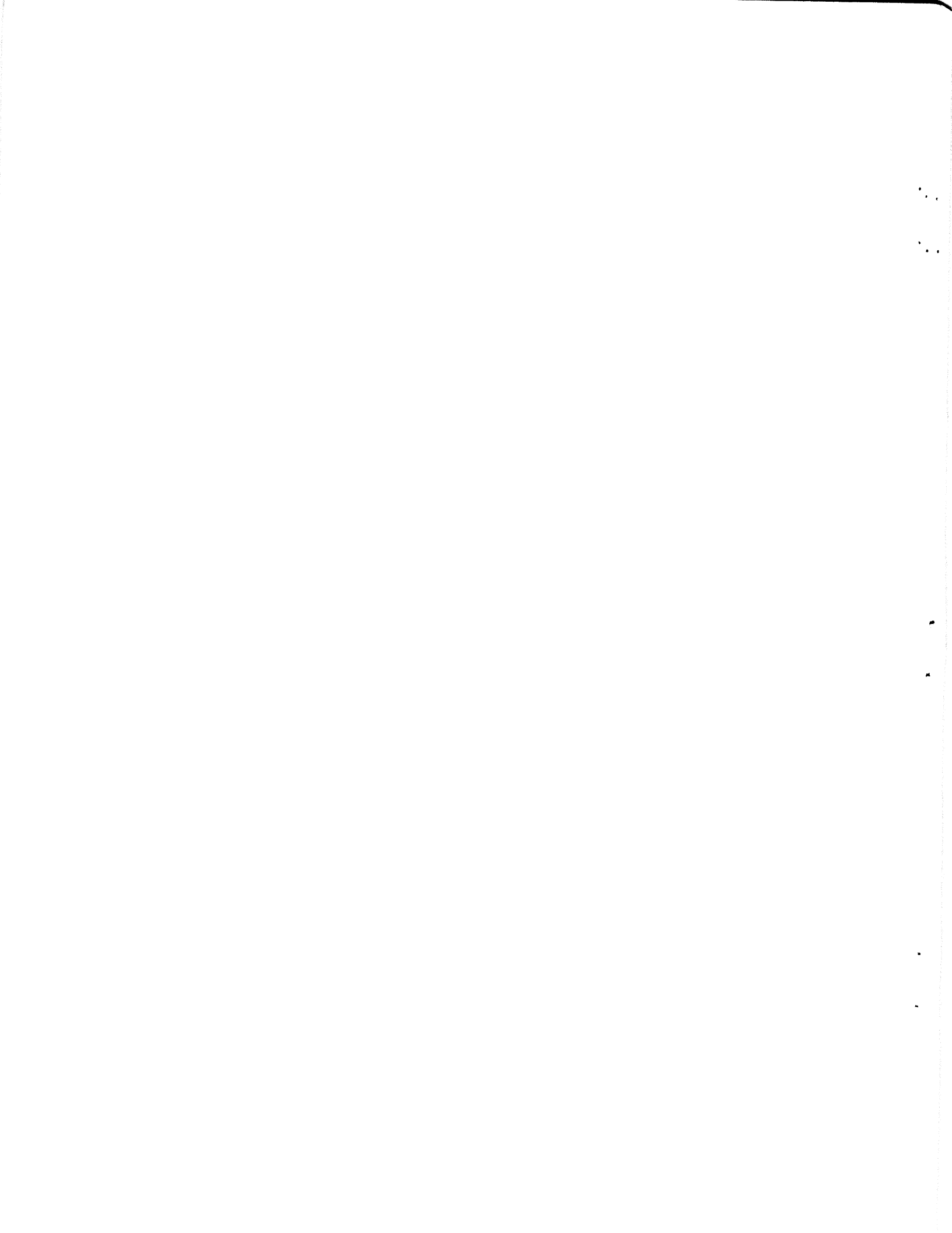
This report is submitted in partial fulfillment of the requirements for Agricultural Economics 693.02, and the degree Master of Science in Agricultural Economics (Agribusiness Management) at The Ohio State University.

This internship project is a pilot study which looks at several aspects of marketing table grapes grown in Ashtabula County, Ohio. It is part of a larger project which is attempting to identify the production and marketing opportunities available to growers of grapes in Ohio.

I would like to express my thanks to the following people at The Ohio State University: Dr. David Hahn, my advisor, for all his patient help and guidance; Dr. Reed Taylor for his helpful suggestions; Dr. Francis Walker for his help on data analysis; and to Mitchell Dysart for his assistance in setting up the computer analysis. I would also like to express my gratitude to Greg Passewitz, Canfield Area Extension Agent, and to all the other persons in Ashtabula and Geauga counties who contributed to this project. A special thanks goes to Ray Gruber, Sr. for allowing his resources to be used for this project.

It is my sincere wish that the information contained in this report will be of great use to all interested in the future of the Ohio grape industry.

Columbus, Ohio  
January, 1984



## EXECUTIVE SUMMARY

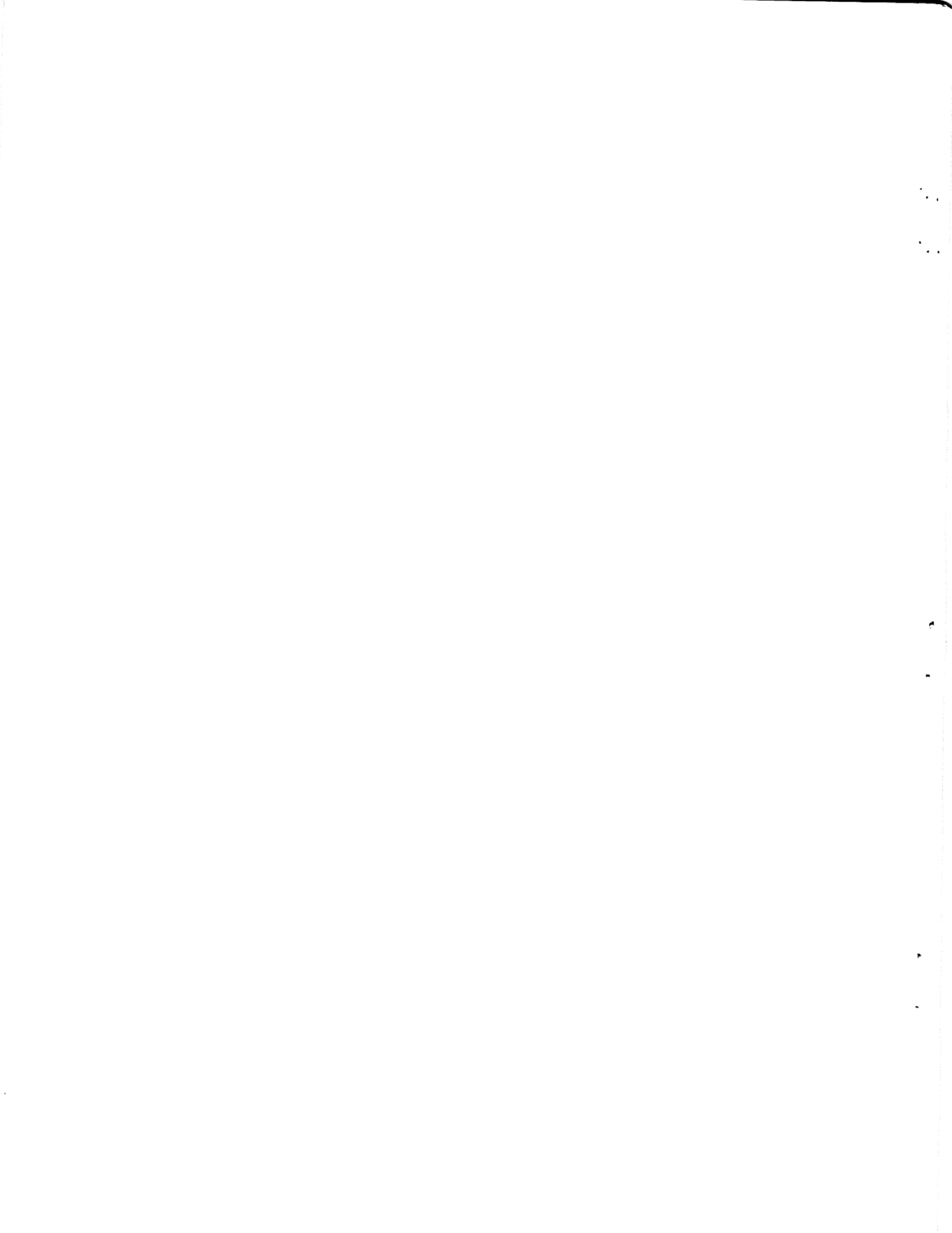
Many grape producers in Northeast Ohio face a serious dilemma. The price per ton offered by processing firms such as Welch and Coca Cola has been falling in recent years. The current price does not permit many growers producing grapes for processing to receive an adequate return on their investment. These growers, therefore, are seeking alternatives to growing grapes for processing.

One alternative is the production and marketing of fresh table grapes in Ohio. This report deals with the level of consumer acceptance of eight trial varieties of grapes sold in three retail outlets in Northeast Ohio. A questionnaire was used to investigate how the Ohio grown varieties compared with California grown table grapes on a number of different characteristics, as well as how the Ohio varieties compared with each other.

The study undertaken here found evidence that consumers in two nonmetropolitan areas of Northeast Ohio would be willing to purchase Ohio grown table grapes. Questionnaire respondents ranked flavor, seedlessness, and freshness as characteristics that were most important to them. Flavor was ranked first or second in importance by 48 percent of respondents, seedlessness by 34 percent and freshness by 30 percent. Price and appearance, with 14.7 percent and 6.8 percent, respectively, were considered much less important by respondents.

Below is a summary of how well each variety performed, based on consumer responses.

ALDEN: This variety received high marks on flavor but did not do quite as well on freshness, appearance, and keeping quality. All of the respondents said they would purchase the Alden grape again if priced





the same as the California variety. The majority of respondents said that what they like most about Alden was the flavor. "Seeds" was what respondents disliked most about Alden. Even though some disliked the seeds, all respondents indicated they would purchase Alden grapes again at the same price.

ARKANSAS: This variety ranked high on flavor and freshness, but not as high on keeping quality and appearance. Most respondents indicated they would purchase Arkansas again if it were priced the same as the California variety. Flavor was the attribute respondents liked most about Arkansas while "tough skins" was disliked most. Most respondents indicated they would purchase Arkansas again at the same price.

CANADICE: Canadice performed well on flavor, appearance and freshness, but did less well on keeping quality. Most respondents said they would purchase Canadice again compared to the California variety, and also if it were sold at the same price (\$0.69/lb.). Flavor was mentioned most often as the thing liked most about Canadice, although seedlessness and freshness were also mentioned. Some respondents disliked the small size of the Canadice variety.

HIMROD: Himrod received very favorable responses on flavor and freshness, but did less well on keeping quality and appearance. Respondents liked flavor most while nearly half disliked the small size. Even though almost all respondents indicated they would purchase Himrod again at the same price, several indicated they would not purchase Himrod if it were priced the same as the California variety.

LAKEMONT: Lakemont performed highest on freshness, less well on flavor, and least well on keeping quality and appearance. The majority of respondents said they would purchase Lakemont again at the same price. Although flavor was identified as the attribute liked most

about Lakemont, the percentage was quite low compared to the other varieties. "Freshness" also was identified as a favorable characteristic. Nearly half responded that they disliked the small size.

PRICE: More than two-thirds of the respondents indicated that they thought Price was better on flavor than the California variety. One-half also thought Price was better on appearance and freshness. On keeping quality, however, Price performed rather poorly. Eighty-one percent of the respondents said they would purchase Price again if it were priced the same as the California variety, and 95 percent said they would purchase it again if Price were offered at \$0.69/lb. Flavor was by far the characteristic most liked by respondents, while the "dislike" responses were spread evenly between "seeds," "short season", and "other". Nearly half did not respond to the "dislike" question for Price.

RELIANCE: Reliance performed best on flavor, less well on appearance and freshness, and least well on keeping quality. In fact, there were four respondents who thought it did not do as well as the California variety on keeping quality. More than 90 percent responded that they would purchase Reliance again at the same price. Flavor was what respondents liked most about Reliance, although several mentioned "freshness" and "seedlessness". "Small size" was by far the most disliked characteristic but six respondents also mentioned "tough skins." Twenty-three percent of the respondents had no "dislike" about Reliance.

VENUS: Venus compared very favorably with the California variety on flavor, but did not rank nearly as well on keeping quality and appearance. If priced the same as the California variety, 90 percent said they would purchase Venus again. Also, 90 percent indicated they would

purchase Venus again if it were priced at \$0.69/lb. Flavor was again the most liked characteristic of Venus, but 12.5 percent also mentioned "freshness". Ten percent identified the small size of the grape as the most disliked characteristic, although nearly one-third had no "dislikes" about Venus.

Although the previous information may look promising for Ohio grape growers, some caution needs to be taken in forming conclusions. One thing that must be remembered is that a great deal of support for the Ohio or local economy was expressed. Many of the "additional comments" expressed approval of the project on the grounds that it was local in nature.

Another important aspect of this project was the relatively low number of questionnaires returned for Alden, Arkansas, and Price. Even though these varieties did quite well overall on a percentage basis, each variety had less than twenty questionnaires returned. If and when this study is repeated, a way to increase the number of responses for these varieties should be found.

The present Ohio Table Grape Study inquiry is just one small part of a much greater body of knowledge needed before major marketing decisions can be made. As previously mentioned, there are many other investigative questions that must be addressed. The current pilot project discussed in this paper has helped to identify areas for future research. These areas are discussed below, along with specific suggestions for how to deal with some of the problems presently encountered.

First, the present study needs to be replicated with some changes. It will be necessary to inquire into how consumers in areas outside the immediate grape-producing region feel about the Ohio grown varieties. It will also be necessary to find out if the Ohio varieties will be acceptable to consumers in large metropolitan areas, areas which may hold great opportunities for marketing.

It is recommended, therefore, that a questionnaire similar to the one used in this study be administered in conjunction with a taste test. Such a taste test should be undertaken in a supermarket in a metropolitan area outside Northeast Ohio. The taste test could involve comparing the taste of a California variety grape with that of an Ohio variety. The identity of each variety of grape could be concealed in order to minimize the possibility of bias. A taste test might also better utilize the grapes that are harvested, since there is currently a relatively small number of vines in production.

It is also recommended that more grape vines be planted each year for the next several years. This would provide more grapes for test marketing in the future.

The questionnaire itself should be changed somewhat. In trying to determine which grape characteristics are important to the consumer, it might be better to rate the characteristics rather than rank them. This would provide insight into which characteristics are NOT important to the consumer. A Likert scale might be one possibility for accomplishing this.

## Introduction

Northeast Ohio contains many growers who contract with grape processors to provide Concord grapes at a specified price. Recently, the price offered by processors has fallen to a level at which many growers cannot make a profit.<sup>1</sup> What alternatives are available to these growers? One alternative might be to continue producing and selling grapes for processing but change certain marketing or production practices that would result in higher revenues and/or lower costs. Another alternative would be to produce a different agricultural product. Still another alternative would be to grow grapes for wine production. While there are many other alternatives, this study deals only with one of them, namely, the production of grapes for fresh table use. More specifically, it looks at possible consumer acceptance to these table grapes and attempts to delineate those areas of research needed in the future.

### Project Background

The current table grape project is a cooperative effort involving extension personnel, the Department of Horticulture at The Ohio State University, specialists at The Ohio Agricultural Research and Development Center in Wooster, Ray Gruber, Sr. in Geneva, and retail market operators in Northeast Ohio.

In the spring of 1980, an experimental table grape plot was created at the farm of Ray Gruber, Sr., a grape producer in Ashtabula County, Ohio.<sup>2</sup> One of the purposes in setting up the one-acre plot was to test grow ten varieties of table grapes. Also, the plot was designed to gather information on what costs would be incurred in growing the grapes.

A second part of the project deals with investigation of the marketing potential of the Ohio grown table grapes. This marketing study began on a significant scale in August, 1983, when the first good crop of table grapes

began to be harvested. In all, about six tons of grapes were harvested between mid-August and mid-October, and were marketed at three retail outlets in Northeast Ohio. One of the outlets, Johnson's Golden Dawn in Geneva, is a retail grocery. The Ray Gruber, Jr.'s farm market in Geneva has historically specialized in selling fresh Concord grapes. Sage's Farm Market in Chardon, Ohio is a roadside market selling a variety of Agricultural produce.

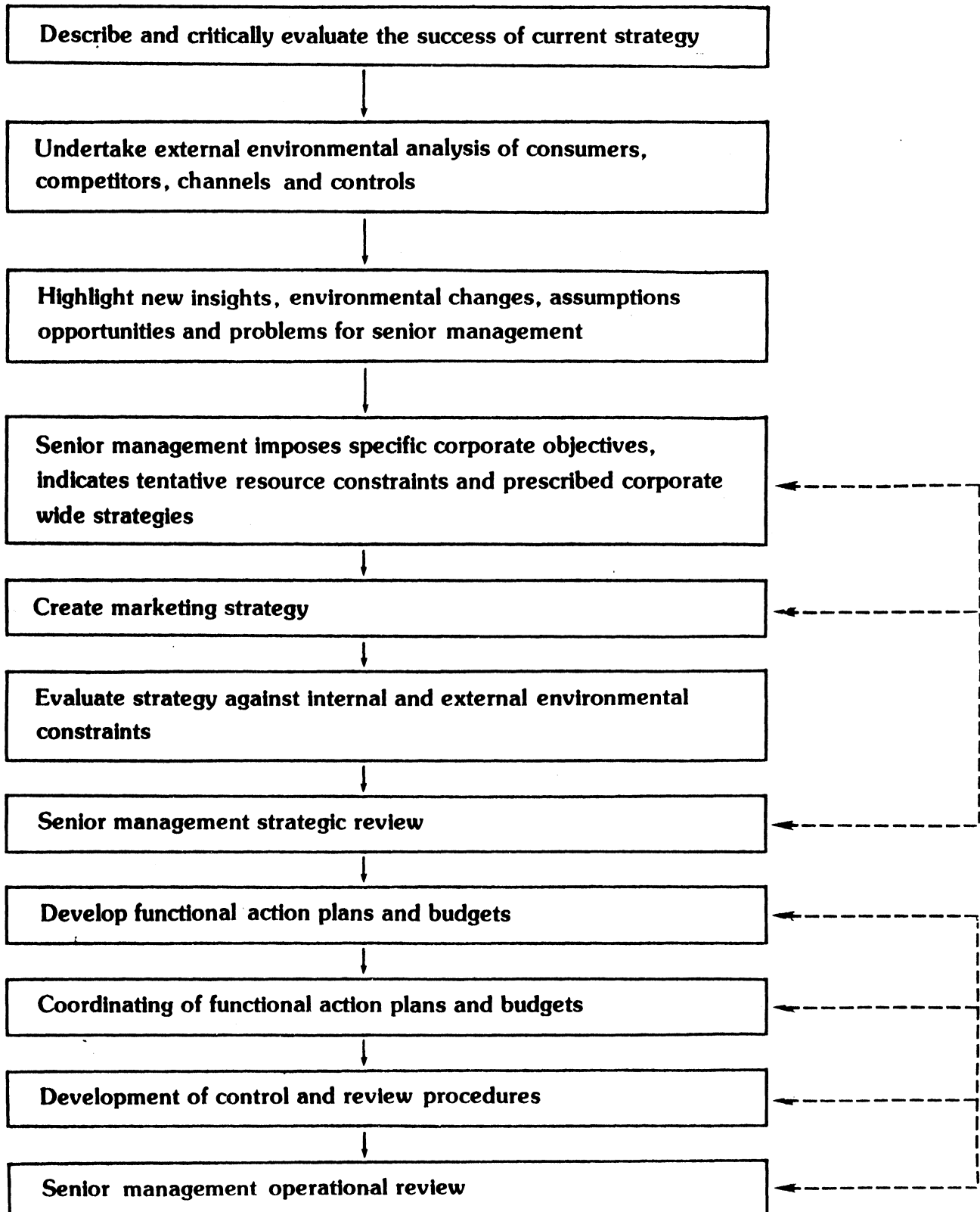
## Objectives of the Current Marketing Phase

Any marketing plan should begin with the assessment of current strategy (see Figure A, next page).<sup>3</sup> The current strategy is evaluated in view of a general environmental analysis. Should the strategy appear to be deficient in meeting the needs of a changing environment, then a new or modified strategy should be drafted. First, however, it is necessary to identify certain internal constraints that must be dealt with. The internal constraints are primarily those that are imposed by the individual growers who would be producing the table grapes. These constraints might include a required return on investment, acreage constraints, possible cash flow problems, managerial ability, and degree of risk aversion, to name just a few. It is after these constraints are identified that a new marketing strategy can be created (Figure A). It is not the purpose of this study to begin to formulate a formal marketing strategy. The main objectives of the current phase are several. First, it is hoped that some insight can be gained into the characteristics and preferences of Ohio grape consumers. Second, that any new opportunities for marketing Ohio grown table grapes can be identified. Finally, that any problems that may result from consumer preferences be identified and understood. In short, this endeavor attempts to identify those constraints and possibilities that deal with consumers.

The approach taken here was to start with the basic management problem faced by Northeast Ohio grape producers, and to break this problem down into research questions dealing with either the production or marketing of table grapes in Ohio. It is with one part of the marketing research question that this report deals with. More specifically, it is first necessary to find out what kind of a market the table grape producer would be facing, and which

FIGURE A\*

**Marketing Plan Flow Chart**



\* Dickson, Peter, Assistant Professor of Marketing, The Ohio State University. Used by Permission.



varieties would be most acceptable to consumers. The breakdown of inquiry from the management question to the investigative questions are shown below:<sup>4</sup>

Management Problem--Question:

The present low price to the grower of grapes for processing has resulted in an inadequate return on investment for many growers in Northeast Ohio. Do alternatives exist that would result in a greater return on investment for these growers?

Research Questions:

- I. Can Northeast Ohio grape growers successfully produce table grapes on their land?
- II. Can Northeast Ohio grape growers successfully market the table grapes that they would produce?

Investigative Questions:

- I. A. Which varieties are most economical to produce in the area?
- B. What changes in production techniques are needed in moving from growing grapes for processing to growing table grapes?
- II. A. What type of market would the producer of table grapes face? Would the consumer perceive a difference between Ohio grown grapes and California grown table grapes?
- B. How large would the market be (actual and potential)?
- C. What channels are available to market these grapes?
- D. What competition (actual and potential) would there be?
- E. How elastic is the demand for Ohio table grapes?
- F. What type of demand is there for table grapes in general?
- G. Which varieties are perceived by consumers as offering the best value for their money?

It is primarily with investigative questions II.A. and II.G. that this study concerns itself. Can Ohio table grapes be differentiated, and on which characteristics can the differentiation be accomplished? Also, which varieties stand the best chance of being accepted by consumers?

## Methodology

A questionnaire survey (see Figure B) was drawn up which attempted to determine the following things:

1. On which characteristics is it possible to differentiate Ohio table grapes from California grapes?
2. Which varieties show the most promise of being accepted by consumers?
3. What additional information is needed to follow-up with in subsequent studies?
4. What are some of the characteristics of consumers who purchase grapes at the three retail locations used in this study?

The first item on the questionnaire, 'Variety', was filled in by the retail market personnel. The questionnaires were marked by location and were placed in each bag of grapes sold. The retail outlets chosen were Johnson's Golden Dawn in Geneva, Ohio, the Ray Gruber, Jr. farm market in Geneva, and Sage's farm market in Chardon, Ohio. Sage's market was not one of the original locations but was included in September, after all of the variety "Himrod" had been sold.

Each location had a small display and an area reserved for the Ohio table grape study. Samples of each variety were offered to potential customers. Upon purchase of the grapes, each consumer was given a questionnaire for each bag purchased. The questionnaire could be returned, postage paid, to the Canfield area extension office. The questionnaires were compiled through October at the extension office, after which they were taken to The Ohio State University in Columbus for computer tabulation and analysis.

FIGURE B

OHIO TABLE GRAPE SURVEY

You have just purchased a new Ohio Table Grape. We want to know how this Ohio variety compares with the California Table Grapes you usually purchase. Your responses are very important. All information received will be considered confidential. Thank you very much for your cooperation.

- I. 1. Please rank the following grape characteristics (from 1 to 5) in terms of importance to you in buying a particular variety of table grape. (1 = most important, 5 = least important)

Seedlessness                       Freshness                       Price  
 Flavor                                       Appearance

2. What caused you to purchase the Ohio Variety?

\_\_\_\_\_

- II. 1. Having tasted the Ohio Variety, how does it compare with the table grapes you usually buy? (B = Better, S = Same, W = Worse)

Flavor                                       Keeping Quality  
 Appearance                                       Freshness when Purchased

2. If the Ohio Variety were priced the same as the variety you usually purchase, would you still buy the Ohio Variety?

Yes                                       No

3. What do you like most about the Ohio Variety?

\_\_\_\_\_

4. What do you dislike most about the Ohio Variety?

\_\_\_\_\_

5. Would you purchase the Ohio Variety again at the same price ?

Yes                                       No

6. Additional Comments:

\_\_\_\_\_

\_\_\_\_\_

- III. 1. Sex:  Male                                       Female

2. Number of people in your family: \_\_\_\_\_

3. How many times per month do you purchase grapes? \_\_\_\_\_ times.

4. About how far did you have to travel to get to the market where you purchased these grapes?

\_\_\_\_\_ Miles

5. Age:  under 18,  18-25,  26-33,  34-41,  
 42-49 ,  50-57,  57-65,  over 65

It was agreed by all parties that a retail price of \$0.69/lb. would be assigned to all grapes sold. This uniform price helps to simplify the analysis, since any possible effects due to price differentials are eliminated.

#### The Survey Instrument

In August, 1983, a call was received from Greg Passewitz, Canfield area extension agent, requesting that a questionnaire be drafted that would provide some information about marketing Ohio grown table grapes.<sup>5</sup> What follows is a general breakdown of the questionnaire itself and some of the rationale for each questionnaire item.

The questionnaire was divided into three sections. The first section was designed to gain information on which characteristics were important to the consumer in buying grapes, and also to tell the researcher something about how those who bought the Ohio grapes made their decision to purchase them.

The second section was designed to gain knowledge of what consumers thought of the grapes after having bought and tasted them. Item 1. in Section II allowed for a direct comparison with the California varieties on the dimensions of flavor, keeping quality, appearance, and freshness. Item 2., "If the Ohio variety were priced the same as the variety you usually purchase, would you still buy the Ohio variety?," was designed to determine if the consumer would choose the Ohio variety over the California variety while controlling for price. Questions 4. and 5. of Section II were attempts to determine both the strong points and the weak points of each variety. This information might in turn shed some light on why consumers said they would or would not purchase the variety again. Question 5. of Section II attempted to determine if the consumer would repeat the purchase of the Ohio variety at \$0.69/lb. Item 6, "Additional Comments," was designed primarily to shed additional light on other items on the questionnaire.

Section III asks a number of questions dealing with either the actual consumer (sex, age, number of family members), or with events associated with the actual purchase (miles traveled, purchases per month).

Before any actual analysis was done on the data, it was first necessary to transform the data into codes that could be submitted to the computer. Open-ended questions posed a particular problem since it would be cumbersome to include all responses. Categories were, therefore, chosen for each open-ended question. This was accomplished first by tallying all responses to a question, and then choosing those categories of responses which appeared most frequently (see Appendix II). An "other" category was included for each open-ended question so that all categories would be exhaustive. A list of all codes used for each question appears in Appendix III.

Item II. 6., "Additional Comments," was not categorized due to the very large number of unique responses. This item, therefore, was not fed into the computer but was used to highlight and enlarge upon information found in other parts of the questionnaire.

Once all codes had been decided on, they were then typed into the computer. Variable names were assigned to each variable on the questionnaire (see Figure B, next page, and Appendix I). The computer programs Wylbur and S.A.S. were combined to feed data into the Amdahl V/8 computer at The Ohio State University.

## Data Analysis

The first step taken in analyzing the data was to run a frequency count which yielded frequency and percentage figures for each variable in the questionnaire. These figures appear in Appendix IV.

The first item, which asks the respondent to rank grape characteristics in terms of importance, shows a high preference for seedlessness, flavor and freshness (see Table 1). Table 1 lists the cumulative frequencies for each ranking. If we consider just the first rank, then 'Flavor' has the highest percentage of respondents ranking it first (25.9%), with 'Seedlessness' (24.5%), a close second. 'Freshness' (9.4%), 'Price' (6.0%), and 'Appearance' (1.9%), are considered relatively unimportant. If we take the percentage who ranked the characteristics as being either first or second in importance, the picture changes somewhat. 'Flavor' is still considered most important, but now its percentage (48.1) is considerably higher than 'Seedlessness' which, at 34%, is still second. 'Freshness' also does quite well with 29.7%, but 'Price' and 'Appearance' do least well with 14.7% and 6.8%, respectively.

The second item, "What Caused You to Purchase the Ohio Variety?", is somewhat difficult to analyze. Several observations can be made, however (see Table 2 and Appendix IV for results). There is a strong indication that many people bought the Ohio grapes because they were grown in Ohio. Almost 12% of questionnaire respondents stated that their decision to purchase was based on the fact that the grapes were locally or Ohio grown. There is also an indication that flavor played an important role in deciding whether to purchase the grapes. Six percent mentioned flavor as their reason for making the purchase. Finally, about 8% indicated that they had already heard about the survey before seeing the product at the market.

Table 1. TABLE GRAPE CHARACTERISTICS, RANKED BY CONSUMERS,  
AUG.-OCT., 1983\*

Rank/Characteristic	Cumulative Percentages (to nearest tenth)				
	Seedlessness	Freshness	Price	Flavor	Appearance
Ranked First	24.5	9.4	6.0	25.9	1.9
Ranked First or Second	34.0	29.7	14.7	48.1	6.8

Source: Original Data

\* Partial Table. Complete table in Appendix IV.

Table 2. REASONS GIVEN BY CONSUMERS FOR PURCHASING OHIO GROWN TABLE  
GRAPES, AUG.-OCT., 1983.

	Frequency	Percentage
Appearance	11	4.14
Curiosity	21	7.89
Heard of Survey	20	7.52
Local Support	19	7.14
Ohio Support	12	4.51
Price	6	2.26
Seedlessness	10	3.76
Tasted First	17	6.39
Other	61	22.93
Don't Know	1	0.38
No Response	88	33.08

Source: Original Data



A few problems occur in trying to analyze the second question. First, 88 of 266 questionnaire respondents did not answer this question. Second, there were many responses (61) which did not lend themselves to any particular category. Finally, a number of respondents (21) listed curiosity as a reason for purchasing the Ohio variety. It is often difficult to determine exactly what is meant by "curiosity," and no other responses on the questionnaire shed much light on this problem.

The third item dealt with comparing the Ohio varieties with the California varieties on four dimensions: flavor, keeping quality, appearance, and freshness (see Table 3). Overall, the results show that consumers tended to rate the Ohio varieties better on flavor and freshness, but on keeping quality and appearance, more people said the two types of grapes were the same. One finding was that very few of the respondents rated the Ohio varieties as being worse than the California grapes.

\*Table 3. COMPARISON OF OHIO TABLE GRAPES WITH GRAPES CONSUMERS  
USUALLY PURCHASE, AUG.-OCT., 1983.

Characteristic	Frequency	Percentage
Flavor		
Better	182	68.4
No Response	19	7.1
Same	54	20.3
Worse	11	4.1
Keeping Quality		
Better	79	29.7
Don't Know	15	5.6
No Response	34	12.8
Same	120	45.1
Worse	18	6.8
Appearance		
Better	87	32.7
No Response	18	6.8
Same	144	54.1
Worse	17	6.4
Freshness		
Better	160	60.2
No Response	20	7.5
Same	82	30.8
Worse	4	1.5

Source: Original Data

The next question, "If the Ohio variety were priced the same as the variety you usually purchase, would you still buy the Ohio variety?" indicates that, overall, 86% of respondents said they would buy the Ohio variety again if it were priced the same as the California grape (Table 4).

Table 4. DECISION TO REPURCHASE OHIO GRAPES OVER GRAPES USUALLY PURCHASED, AT THE SAME PRICE, AUG.-OCT., 1983.

	Frequency	Percentage
No	27	10.15
Yes	230	86.47
Don't Know	2	0.75
No Response	7	2.63

Source: Original Data

The next two questions, asking what the consumer liked and disliked about the grapes, showed that flavor was the characteristic most often mentioned for the "like" question (see Table 5), while small size was most often mentioned for the "dislike" question (Table 6).

Table 5. CHARACTERISTICS MOST LIKED ABOUT OHIO TABLE GRAPES AUG.-OCT., 1983.\*

	Frequency	Percentage
Flavor	120	45.1
Freshness	29	10.9
Locally Grown	8	3.0
Ohio Grown	26	9.8
Price	4	1.5
Seedlessness	21	7.9
Sweetness	35	13.2
Other	26	9.8

Source: Original Data

\* Partial table. Complete table in Appendix IV.

Table 6. CHARACTERISTICS MOST DISLIKED ABOUT OHIO TABLE GRAPES,  
AUG.-OCT., 1983.

	Frequency	Percentage
Small Size	69	25.9
Seeds	11	4.1
Short Season	11	4.1
Tough Skins	18	6.8
Price	6	2.3
Other	46	17.3

Source: Original Data. Complete table in Appendix IV.

The question, "Would you purchase the Ohio variety again at the same price?", brought an overwhelming affirmative response from more than 90% of respondents (Table 7).

Table 7. DECISION TO REPURCHASE OHIO VARIETY AGAIN AT THE SAME PRICE,  
AUG.-OCT., 1983.

	Frequency	Percentage
No	15	5.64
Yes	246	92.48
Don't Know	2	0.75
No Response	3	1.13

Source: Original Data

#### Demographic Information

Section III of the questionnaire dealt with gaining information about the respondents themselves (see Appendix IV). The first item in Section III, "Sex," indicated that about 75% of all respondents were female. The item, "... number of people in your family," received responses that ranged from one

family member to nine family members. The most common responses were two members with twenty-nine percent, and four members with twenty-two percent.

The first part of Section III, item 3, the number of times per month that grapes were purchased by the respondent, showed that most respondents (91%) purchased grapes less than five times per month. The second part of item 3, the number of pounds of grapes purchased, was omitted from the analysis by the researcher since it was not made clear what the time interval was.

Section III, item 4 shows that 69% responded that they had to travel ten miles or less to purchase the grapes. This indicates that the majority of respondents reside in Northeast Ohio.

The last item, "Age," showed that very few young adults, (those under 26 years of age), purchased the Ohio variety. The "under 18" and "18-25" age groups accounted for only 9% of those responding to this item. On the other hand, 39% were between 25 and 42 years of age. The "over 65" group was also fairly well represented with 15%.

Some overall preferences have been ascertained from the frequencies and percentages. Yet in order to answer the original investigative questions, some two-way cross-tabulations were needed. In other words, which varieties are perceived as being the best in the eyes of the respondents, and on which dimensions?

#### Two-Way Tabulation Analysis

It was argued earlier that, among those responding to the questionnaire, most felt that the Ohio varieties performed better than the California table grapes on the dimensions of flavor and freshness. This, however, was an overall analysis across all varieties. The present study goes further in that it attempts to determine how each variety compares with the California grapes on the above dimensions. Also, it attempts to determine if the comparison dimensions rank high in importance to the consumer.

A two-way cross-tabulation was conducted for each variety versus each of the variables in Section II, item 1., (Having tasted the Ohio variety, how does it compare with the table grapes you usually buy?). The analysis which follows is broken down by each of the variables (see Table 8).

Table 8. CONSUMER EVALUATION OF THE FLAVOR DIMENSION OF OHIO VARIETIES VERSUS TRADITIONALLY PURCHASED TABLE GRAPES, AUG.-OCT., 1983.

Variety	Flavor	
	Better	Worse
Alden	83.33	0.00
Arkansas	57.89	10.53
Canadice	75.00	2.78
Himrod	70.00	5.00
Lakemont	42.86	7.14
Price	68.75	6.25
Reliance	78.69	0.00
Venus	72.50	5.00

\* Complete table in Appendix V.

Source: Original Data

Table 8 shows that, on the dimension of flavor, the varieties Alden, Canadice, Himrod, Price, Reliance, and Venus were ranked highest. More than two-thirds of the respondents thought these varieties tasted better than the California grapes. Arkansas also performed well (58% thought it tasted better). Even so, there were 10% who felt that Arkansas tasted worse, the highest percentage of all varieties. Only 43% thought Lakemont tasted better than

the California grapes, but 43% also thought Lakemont tasted equally as good as the California grapes.

All the varieties, therefore, compared well against the California grapes on flavor, with Alden, Canadice, and Reliance doing especially well.

Table 9. CONSUMER EVALUATION OF THE KEEPING QUALITY DIMENSION OF OHIO VARIETIES VERSUS TRADITIONALLY PURCHASED TABLE GRAPES, AUG.-OCT., 1983.

Variety	Better	Worse	Same
Alden	33.33	8.33	33.33
Arkansas	26.32	5.26	52.63
Canadice	25.00	8.33	47.22
Himrod	25.00	2.50	55.00
Lakemont	35.71	4.76	45.24
Price	12.50	12.50	37.50
Reliance	32.79	6.56	39.34
Venus	35.00	10.00	45.00

\*Complete Table in Appendix V.

Source: Original Data

A two-way analysis was done for 'Variety' against 'Keeping' (quality), (See Table 9). This table, first of all, shows that there were many "no responses" to the question "Is the Ohio variety better, same or worse than the California variety in terms of keeping quality." Even so, it can be seen that most respondents do not consider any of the Ohio varieties as being better on the characteristic of keeping quality. The "S," or "Same" column indicates that many respondents thought that on this characteristic the Ohio varieties

were competitive with the California ones. The somewhat high response for "Same" may be due to the fact that many people perceived no real difference between the two types of grapes. Or, it may be due to the fact that many people simply didn't know how the variety performed on keeping quality and chose a middle ground. Therefore, this analysis considers only the "Better" and "Worse" columns. The "Better" column, although containing less than one-third of the total responses, nevertheless shows that Alden, Lakemont, Reliance, and Venus were rated higher than the others. "Price" seemed to be the worst performer on keeping quality, having only 2 of the 16 respondents saying it was better than California-grown grapes.

Another two-way cross-tabulation was done between 'Variety' and 'Appearance' (How each variety compared with the California variety on the dimension of appearance (see Table 10).

Table 10. CONSUMER EVALUATION OF THE APPEARANCE DIMENSION OF OHIO VARIETIES VERSUS TRADITIONALLY PURCHASED TABLE GRAPES, AUG.-OCT., 1983.

Variety	Better	Worse	Same
Alden	25.00	0.00	66.67
Arkansas	31.58	5.26	63.16
Canadice	44.44	2.78	44.44
Himrod	17.50	17.50	60.00
Lakemont	26.19	11.90	54.76
Price	50.00	0.00	37.50
Reliance	37.70	4.92	49.18
Venus	32.50	0.00	62.50

\* Complete table in Appendix V.

Source: Original Data



Table 10 shows several things. First, there are relatively few "no responses." The vast majority of questionnaire respondents answered this question. Second, there was a high number of respondents who chose "Same" as their response. Third, the variety "Price" stands out as having performed better in appearance than the other varieties, when compared with the California varieties. Canadice also did well with 44% of those responding saying it was better.

A fourth two-way tabulation, comparing the Ohio variety with the California variety on the dimension of freshness, appears in Table 11.

Table 11. CONSUMER EVALUATION OF THE FRESHNESS DIMENSION OF OHIO VARIETIES VERSUS TRADITIONALLY PURCHASED TABLE GRAPES, AUG.-OCT., 1983.

Variety	Better	Worse
Alden	33.33	8.33
Arkansas	57.89	5.26
Canadice	58.33	5.56
Himrod	55.00	0.00
Lakemont	69.05	0.00
Price	50.00	0.00
Reliance	67.21	0.00
Venus	60.00	0.00

\*Complete table in Appendix V.  
Source: Original Data

This last table of Section II., item 1. illustrates a wide variation in the percentages of respondents who felt the different varieties were "better"

on the dimension of freshness. Lakemont and Reliance, for example, do best with more than two-thirds stating they are "better." Alden, on the other hand, performs much worse on this dimension, having only one-third stating it is better than the California variety.

Other two-way analyses were done. One was 'Variety' against 'Ohiosme' (If the Ohio variety were priced the same as the variety you usually purchase, would you still purchase the Ohio variety?) (Table 12).

Table 12. DECISION TO REPURCHASE OHIO GRAPES OVER GRAPES USUALLY PURCHASED, AT THE SAME PRICE, BY VARIETY, AUG.,-OCT., 1983.

Variety	No	Yes
Alden	0.00 (0)	100.00 (12)
Arkansas	15.79 (3)	78.95 (15)
Canadice	8.33 (3)	88.89 (32)
Himrod	17.50 (7)	77.50 (31)
Lakemont	14.29 (6)	83.33 (35)
Price	12.50 (2)	81.25 (13)
Reliance	6.56 (4)	91.80 (56)
Venus	5.00 (2)	90.00 (36)

\* Complete table in Appendix V  
Source: Original Data

Table 12 shows that each variety performed well on this question. The range was from 77 percent to 100 percent saying "yes" to the question. The highest "no" percentages were for Himrod and Lakemont, but even these percentages were less than 20 percent in each case.

Table 13 shows a two-way tabulation for 'Variety' versus 'Purchase' (Would you purchase the Ohio variety again at the same price?). Again, there was an overwhelming number of respondents who answered "yes" to this question. There is, however, a difference in the percentage saying "yes" to this question, and the percentage saying they would buy the Ohio variety if it were priced the same as the California variety. Upon closer observation, this difference

TABLE 13. DECISION TO REPURCHASE OHIO TABLE GRAPES AT THE SAME PRICE, BY VARIETY, AUGUST-OCTOBER, 1983

Variety	No	Yes
Alden	0.00 (0)	100.00 (12)
Arkansas	15.79 (3)	84.21 (16)
Canadice	5.56 (2)	94.44 (34)
Himrod	2.50 (1)	97.50 (39)
Lakemont	7.14 (3)	88.10 (37)
Price	12.50 (2)	87.50 (14)
Reliance	3.28 (2)	95.08 (58)
Venus	5.00 (2)	90.00 (36)

\*Complete table in Appendix V.

Source: Original data.

is mainly attributable to the variety Himrod. Apparently, there were about a half dozen consumers who felt that they would purchase Himrod again at the same price (\$0.69/lb.) only if the California variety were priced somewhere above Himrod.

Two-way tabulations were also done between 'Variety' and 'Like,' and 'Variety' and 'Dislike' (see Tables 14 and 15 on next two pages). When asked what they liked most about the Ohio varieties, nearly half (45%) responded with "flavor" (If one adds "sweetness" to this, the percentage is well over 50%). Even though flavor was mentioned more times overall, there was great variation in this characteristic across all varieties. For example, Lakemont had only 28.5% responding with "flavor" while Alden had 75%. Another aspect of this data is the relatively high percentage (37%) that listed "sweetness" as what they liked most about Himrod. This means that 77% mentioned either flavor or sweetness as the thing they liked most about Himrod, more than any other variety.

Looking at the relationship between 'Variety' and 'Dislike' (Table 15), (what the respondent disliked most about the Ohio variety), by far the most frequent response was "small size." Himrod and Lakemont were by far the largest targets on this dimension with 47% for each variety. Reliance was also fairly high with 29% saying it was too small.

A two-way tabulation was also done between location and age so that the various locations could have some idea of what age groups were best represented at their market (Table 16). Table 16 shows that, at the Gruber Farm Market, the most represented age groups were the 26-33 and the 34-41 categories. For Golden Dawn the largest categories were the 34-41 age group and the "over 65" age group. Finally, Sage's Market had the largest representation from the 26-33 age group with no respondents under the age of 26.

Table 14. CHARACTERISTICS MOST LIKED ABOUT OHIO TABLE GRAPES BY VARIETY, AUG.-OCT., 1983.

Variety	Characteristic						
	Flavor	Freshness	Locally Grown	Ohio Grown	Price	Seedlessness	Sweetness
Alden	75.00 (9)	8.33 (1)	0.00 (0)	0.00 (0)	0.00 (0)	0.00 (0)	0.00 (0)
Arkansas	57.89 (11)	0.00 (0)	5.26 (1)	5.26 (1)	0.00 (0)	10.53 (2)	0.00 (0)
Canadice	41.67 (15)	13.89 (5)	0.00 (0)	0.00 (0)	0.00 (0)	16.67 (6)	16.67 (6)
Himrod	45.00 (18)	5.00 (2)	5.00 (2)	0.00 (0)	2.50 (1)	5.00 (2)	32.50 (13)
Lakemont	28.57 (12)	16.67 (7)	7.14 (3)	4.76 (2)	4.76 (2)	4.76 (2)	9.52 (4)
Price	43.75 (7)	12.50 (2)	0.00 (0)	0.00 (0)	0.00 (0)	0.00 (0)	18.75 (3)
Reliance	44.26 (27)	11.48 (7)	1.64 (1)	0.00 (0)	1.64 (1)	11.48 (7)	13.11 (8)
Venus	52.50 (21)	12.50 (5)	2.50 (1)	0.00 (0)	0.00 (0)	5.00 (2)	2.50 (1)

\* Complete table in Appendix V.

Source: Original Data

Table 15. CHARACTERISTICS MOST DISLIKED ABOUT OHIO TABLE GRAPES, BY VARIETY, AUG.-OCT., 1983.

Variety	Characteristics					
	Nothing	Price	Small Size	Seeds	Short Season	Tough Skins
Alden	8.33 (1)	0.00 (0)	0.00 (0)	33.33 (4)	16.67 (2)	8.33 (1)
Arkansas	26.32 (5)	0.00 (0)	5.26 (1)	5.26 (1)	0.00 (0)	21.05 (4)
Canadice	16.67 (6)	2.78 (1)	19.44 (7)	2.78 (1)	5.56 (2)	5.56 (2)
Himrod	5.00 (2)	5.00 (2)	47.50 (19)	0.00 (0)	0.00 (0)	7.50 (3)
Lakemont	14.29 (6)	0.00 (0)	47.62 (20)	2.38 (1)	4.76 (2)	0.00 (0)
Price	12.50 (2)	0.00 (0)	0.00 (0)	12.50 (2)	12.50 (2)	6.25 (1)
Reliance	22.95 (14)	1.64 (1)	29.51 (18)	0.00 (0)	4.92 (3)	9.84 (6)
Venus	32.50 (13)	5.00 (2)	10.00 (4)	5.00 (2)	0.00 (0)	2.50 (1)

\* Complete table in Appendix V.

Source: Original Data

Table 16. AGES OF RESPONDENTS AT THREE RETAIL OUTLETS, AUG.-OCT., 1983\*

Location	No Response	Under 18	18-25	Age (Percentages of Questionnaire Respondents, Frequencies in Parentheses)					Over 65
				26-33	34-41	42-49	50-57	58-65	
Farm Market	0.38 (1)	0.38 (1)	2.63 (7)	8.27 (22)	7.89 (21)	4.51 (12)	5.64 (15)	4.51 (12)	4.14 (11)
Golden Dawn	3.38 (9)	1.88 (5)	3.76 (10)	4.89 (13)	7.14 (19)	2.63 (7)	4.14 (11)	4.89 (13)	7.14 (19)
Sage's Market	4.14 (11)	0.00 (0)	0.00 (0)	4.51 (12)	3.01 (8)	2.26 (6)	2.63 (7)	2.63 (7)	2.63 (7)

\* Partial table, complete table in Appendix V.

Source: Original Data

In general, all three locations tended to have respondents who were mainly in the 26-41 and the over 65 age groups. This distribution roughly mirrors the distribution of the general population.

Complete tables of all data used in this analysis can be found in Appendix IV and Appendix V.



APPENDIX I



APPENDIX I: VARIABLE NAMES USED IN COMPUTER ANALYSIS

<u>Questionnaire Item</u>	<u>Variable Name</u>
Retail Location	LOCATION
Variety Name	VARIETY
I. 1.	
Seedlessness	SEEDLESS
Freshness	FRESH
Price	PRICE
Flavor	FLAVOR
Appearance	APPEAR
I. 2.	CAUSE
II.1.	
Flavor	FLAVORC
Keeping Quality	KEEPING
Appearance	APPEARC
Freshness When Purchased	FRESHC
II. 2.	OHIOSME
II. 3.	LIKE
II. 4.	DISLIKE
II. 5.	PURCHASE
III. 1.	SEX
III. 2.	FAMSIZE
III. 3.	MONTHLY
III. 4.	MILES
III. 5.	AGE



APPENDIX II



## TALLIED RESPONSES TO THE QUESTION: "What caused you to purchase the Ohio variety?"

<u>RESPONSE</u>	<u>TALLY</u>	<u>RESPONSE</u>	<u>TALLY</u>
Saw sign	1	Recommended	3
Didn't buy them	1	They were on shelf	2
Grower was friend	1	Market loyalty	2
Freshness	1	Bought as gift	2
Were at market	3	Appearance	10
Tinyness	4	It was only kind	1
Promoted	5	First "Concord"	1
Closeness	1	Tasted first	13
Interested	1	Like to try new grapes	2
To see how they taste	1	Local availability	2
In season	1	Relative previously purchased	2
Heard about it	13	Seedlessness	10
Ohio resident	1	On display	7
Support Ohio agriculture	10	Vendor told of grapes	4
Previously purchased	1	Coincidence	1
Family grows grapes	1	Like to try new items	4
Curiosity	20		
To try it	9		
No response	92		
Compare to others	3		
Local support	15		
Price	7		
On a tour	8	Total Tally	266

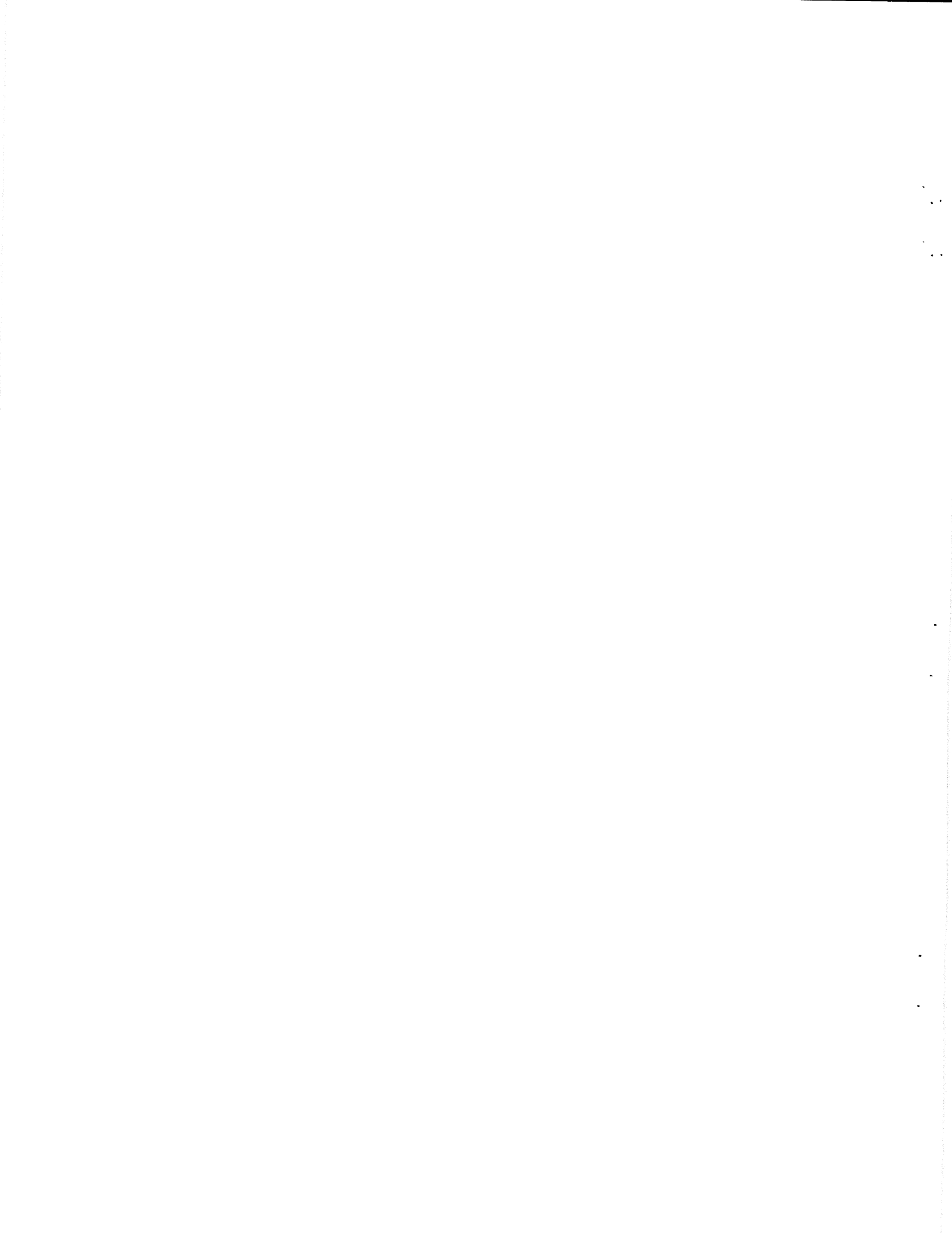
TALLIED RESPONSES TO THE QUESTION: "What do you like most about the Ohio variety?"

<u>RESPONSE</u>	<u>TALLY</u>	<u>RESPONSE</u>	<u>TALLY</u>
Seedlessness	22	Juiciness	3
Flavor	118	Makes good snack	1
No response	21	Love grapes	1
Help local economy	1	Tenderness	2
Price	4	Firmness	1
Home grown	1	Same as any other grape	1
Appearance	6	Never had it before	1
Sweetness	35	Color	1
Freshness	30	Good eating bunches	1
Ohio grown	5		
Tenderness	1		
Local grown	6		
Everything	4	Total Tally	266



TALLIED RESPONSES TO THE QUESTION: "What do you dislike most about the Ohio variety?"

<u>RESPONSE</u>	<u>TALLY</u>	<u>RESPONSE</u>	<u>TALLY</u>
Size too small	59	Not enough	3
Not sweet enough	1	Skins taste sharp	5
No response	59	Texture	1
Nothing	46	Skin	3
Price	6	Too sweet	1
Color	1	Appearance	2
Size	12	Travel distance	1
Seeds	10	Juiciness	1
Thick skin	5	Spray residue	1
Tough skin	17	Unripe	1
Not keeping well	5	Too soft	1
Too sour	2	Slimy	1
Skins separate	3	Tartness	1
Seed lump	1		
Flavor	3		
Short season	11		
Not very fresh	2	Total Tally	266



APPENDIX III



## APPENDIX III: CODES USED FOR OPEN-ENDED QUESTIONS

## Location:

F	Farm Market
S	Sage's Market
G	Golden Dawn

## Variety:

H	Himrod
C	Canadice
L	Lakemont
R	Reliance
AR	Arkansas
PR	Price
AL	Alden
V	Venus

What caused you to purchase the Ohio variety?

C	Curiosity
L	Local Support
OH	Ohio Support
P	Price
T	Tasted First
S	Seedlessness
H	Heard of Survey
A	Appearance
NR	No Response
O	Other

What do you like most about the Ohio variety?

S	Seedlessness
FL	Flavor
FR	Freshness
SW	Sweetness
P	Price
L	Locally Grown
OH	Ohio Grown
NR	No Response
O	Other

What do you dislike most about the Ohio variety?

S	Small Size
T	Tough Skin
SH	Short Season
SE	Seeds
P	Price
N	Nothing
NR	No Response
O	Other

## APPENDIX III: CODES USED FOR OPEN-ENDED QUESTIONS (Continued)

About how far did you have to travel to get to the market where you purchased these grapes?

- |   |                   |
|---|-------------------|
| 1 | 0-10 miles        |
| 2 | 11-20 miles       |
| 3 | 21-30 miles       |
| 4 | 31-40 miles       |
| 5 | 41 and over miles |

Age:

- |   |          |
|---|----------|
| 1 | Under 18 |
| 2 | 18-25    |
| 3 | 26-33    |
| 4 | 34-41    |
| 5 | 42-49    |
| 6 | 50-57    |
| 7 | 58-65    |
| 8 | Over 65  |

APPENDIX IV

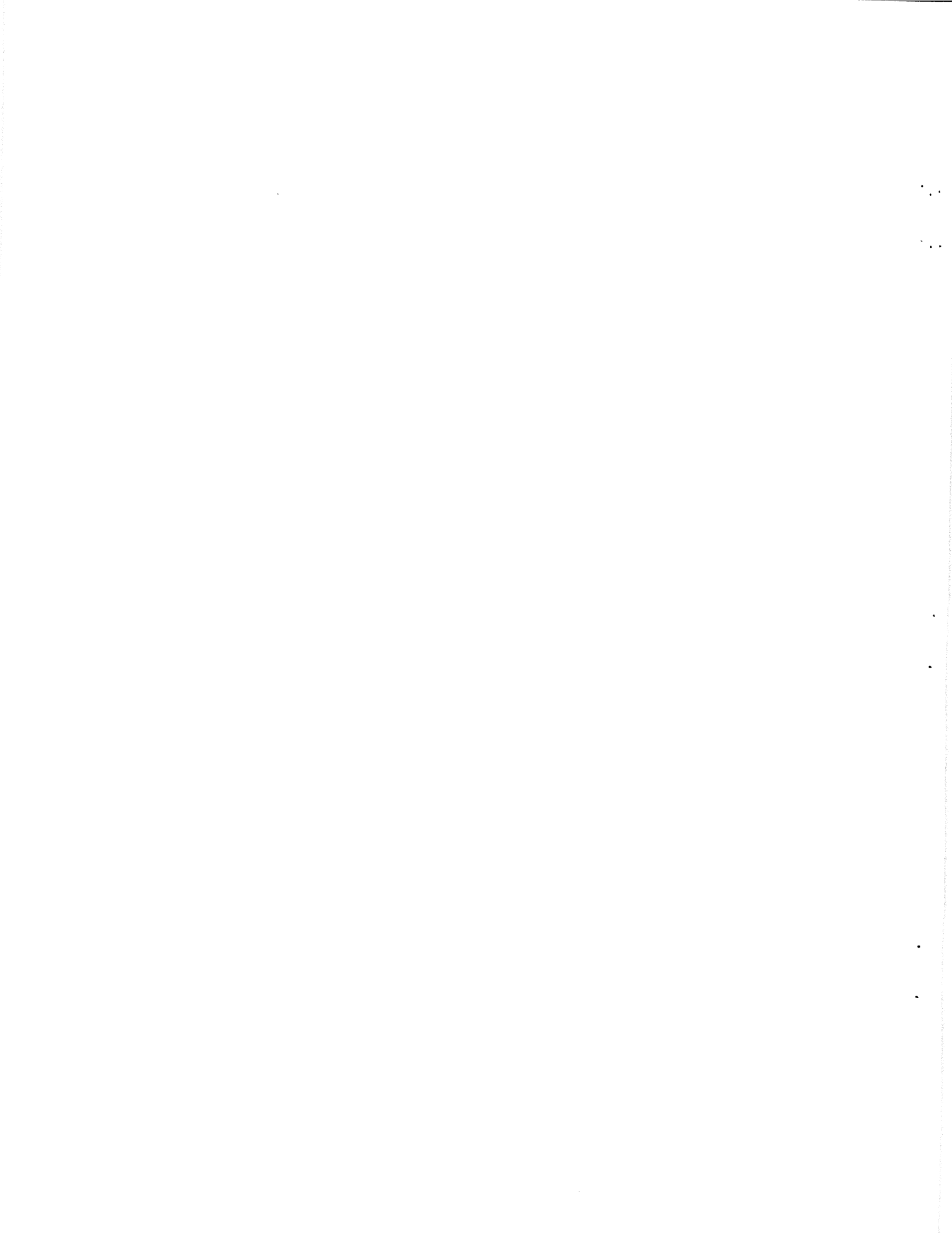




TABLE OF RETAIL LOCATIONS, AUG.-OCT., 1983

LOCATION	SAS			
	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
F	102	102	38.346	38.346
G	106	208	39.850	78.195
S	58	266	21.805	100.000

Codes: F=Farm Market; G=Golden Dawn; S=Sage's Market

Source: Original Data

TABLE OF VARIETIES SOLD, AUG.-OCT., 1983

VARIETY	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
AL	12	12	4.511	4.511
AR	19	31	7.143	11.654
C	36	67	13.534	25.188
H	40	107	15.038	40.226
L	42	149	15.789	56.015
PR	16	165	6.015	62.030
R	61	226	22.932	84.962
V	40	266	15.038	100.000

Codes: AL=Alden; AR=Arkansas; C=Canadice; H=Himrod  
L=Lakemont; PR=Price; R=Reliance; V=Venus

Source: Original Data

Table 1. TABLE GRAPE CHARACTERISTICS, RANKED BY CONSUMERS,  
AUG.-OCT., 1983

SLEEDLESS	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
NR	88	88	33.083	33.083
1	65	153	24.436	57.519
2	26	179	9.774	67.293
3	37	216	13.910	81.203
4	23	239	8.647	89.850
5	27	266	10.150	100.000
FRESH	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
NR	92	92	34.586	34.586
1	25	117	9.398	43.985
2	54	171	20.301	64.286
3	60	231	22.556	86.842
4	26	257	9.774	96.617
5	9	266	3.383	100.000
PRICE	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
NR	89	89	33.459	33.459
1	16	105	6.015	39.474
2	23	128	8.647	48.120
3	15	143	5.639	53.759
4	34	177	12.782	66.541
5	89	266	33.459	100.000
FLAVOR	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
NR	91	91	34.211	34.211
1	69	160	25.940	60.150
2	59	219	22.180	82.331
3	33	252	12.406	94.737
4	12	264	4.511	99.248
5	2	266	0.752	100.000

Codes: NR=No Response; 1=Ranked First; 2=Ranked Second;  
3=Ranked Third; 4=Ranked Fourth; 5=Ranked Fifth  
Source: Original Data

Table 2. REASONS GIVEN BY CONSUMERS FOR PURCHASING OHIO GROWN TABLE  
GRAPES, AUG.-OCT., 1983.

## TABLE OF CAUSE: SECTION I, 2. FREQUENCIES AND PERCENTAGES

CAUSE	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
A	11	11	4.135	4.135
C	21	32	7.895	12.030
H	20	52	7.519	19.549
L	19	71	7.143	26.692
NR	88	159	33.083	59.774
O	61	220	22.932	82.707
OH	13	233	4.887	87.594
P	6	239	2.256	89.850
S	10	249	3.759	93.609
T	17	266	6.391	100.000

Codes: A=Appearance; C=Curiosity; H=Heard of Survey;  
L=Local Support; NR=No Response; O=Other;  
OH=Ohio Support; P=Price; S=Seedlessness;  
T=Tasted First

\*Table 3. COMPARISON OF OHIO TABLE GRAPES WITH GRAPES CONSUMERS  
USUALLY PURCHASE, AUG.-OCT., 1983.

FLAVORC	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
B	182	182	68.421	68.421
NR	19	201	7.143	75.564
S	54	255	20.301	95.865
W	11	266	4.135	100.000

KEEPING	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
B	79	79	29.699	29.699
DK	15	94	5.639	35.338
NR	34	128	12.782	48.120
S	120	248	45.113	93.233
W	18	266	6.767	100.000

APPEARC	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
B	87	87	32.707	32.707
NR	18	105	6.767	39.474
S	144	249	54.135	93.609
W	17	266	6.391	100.000

FRESHC	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
B	160	160	60.150	60.150
NR	20	180	7.519	67.669
S	82	262	30.827	98.496
W	4	266	1.504	100.000

Codes: B=Better; NR=No Response; S=Same; W=Worse;  
DK=Don't Know

Source: Original Data

Table 4. DECISION TO REPURCHASE OHIO GRAPES OVER GRAPES USUALLY PURCHASED, AT THE SAME PRICE, AUG.-OCT., 1983.

SAS				
OHIO\$ME	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
DK	2	2	0.752	0.752
N	27	29	10.150	10.902
NR	7	36	2.632	13.534
Y	230	266	86.466	100.000

Source: Original Data

Codes: DK=Don't Know; N=No; NR=No Response; Y=Yes

Table 5. CHARACTERISTICS MOST LIKED ABOUT OHIO TABLE GRAPES AUG.-OCT., 1983.

LIKE	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
FL	120	120	45.113	45.113
FR	29	149	10.902	56.015
L	8	157	3.008	59.023
NR	20	177	7.519	66.541
O	26	203	9.774	76.316
OH	3	206	1.128	77.444
P	4	210	1.504	78.947
S	21	231	7.895	86.842
SW	35	266	13.158	100.000

Source: Original Data

Codes: FL=Flavor; FR=Freshness; L=Local Support; NR=No Response  
O=Other; OH=Ohio Support; P=Price; S=Seedlessness;  
SW=Sweetness

Table 6. CHARACTERISTICS MOST DISLIKED ABOUT OHIO TABLE GRAPES, AUG.-OCT., 1983.

DISLIKE	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
DK	1	1	0.376	0.376
N	49	50	18.421	18.797
NR	55	105	20.677	39.474
O	46	151	17.293	56.767
P	6	157	2.256	59.023
S	69	226	25.540	84.962
SE	11	237	4.135	89.098
SH	11	248	4.135	93.233
T	18	266	6.767	100.000

Codes: DK=Don't Know; N=Nothing; NR=No Response; O=Other;  
P=Price; S=Small Size; SE=Seeds; SH=Short Season;  
T=Tough Skin

Table 7. DECISION TO REPURCHASE OHIO VARIETY AGAIN AT THE SAME PRICE,  
AUG.-OCT., 1983.

PURCHASE	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
DK	2	2	0.752	0.752
N	15	17	5.639	6.391
NR	3	20	1.128	7.519
Y	246	266	92.481	100.000

Codes: DK=Don't Know; N=No; NR=No Response; Y=Yes

TABLE OF SEX: CONSUMER RESPONSES, AUG.-OCT., 1983.

SEX	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
F	180	180	67.669	67.669
M	58	238	21.805	89.474
NR	28	266	10.526	100.000

Source: Original Data

Codes: F=Female; M=Male; NR=No Response

TABLE OF FAMILY SIZE: CONSUMER RESPONSES, AUG.-OCT., 1983

FAMILY SIZE	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
NR	19	19	7.143	7.143
1	15	34	5.639	12.782
2	72	106	27.168	39.850
3	48	154	18.045	57.895
4	56	210	21.053	78.947
5	33	243	12.406	91.353
6	9	252	3.383	94.737
7	7	259	2.632	97.368
8	6	265	2.256	99.624
9	1	266	0.376	100.000

Source: Original Data

Codes: NR=No Response

TABLE OF NUMBER OF GRAPE PURCHASES PER MONTH, AUG.-OCT., 1983

MONTHLY	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
DK	2	2	0.752	0.752
NR	40	42	15.038	15.789
0	1	43	0.376	16.165
1	50	93	18.797	34.962
15	1	94	0.376	35.338
2	78	172	29.323	64.662
20	1	173	0.376	65.038
3	27	200	10.150	75.188
4	50	250	18.797	93.985
5	6	256	2.256	96.241
6	8	264	3.008	99.248
7	1	265	0.376	99.624
8	1	266	0.376	100.000

Source: Original Data

Codes: DK=Don't Know; NR=No Response

TABLE OF MILES TRAVELLED TO MARKET, AUG.-OCT., 1983

SAS				
MILES	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
NR	35	35	13.158	13.158
1	159	194	59.774	72.932
2	33	227	12.406	85.338
3	16	243	6.015	91.353
4	9	252	3.383	94.737
5	14	266	5.263	100.000

Source: Original Data

Codes: NR=No Response; 1=0-10 miles; 2=11-20 miles; 3=21-30 miles  
4=31-40 miles; 5=41 and over miles

TABLE OF CONSUMER AGES, AUG.-OCT., 1983

AGE	FREQUENCY	CUM FREQ	PERCENT	CUM PERCENT
NR	21	21	7.895	7.895
1	6	27	2.256	10.150
2	17	44	6.391	16.541
3	47	91	17.669	34.211
4	48	139	18.045	52.256
5	25	164	9.398	61.654
6	33	197	12.406	74.060
7	32	229	12.030	86.090
8	37	266	13.910	100.000

Source: Original Data

Codes: NR=No Response; 1=Under 18; 2=18-25 years old; 3=26-33 years old;  
4=34-41 years old; 5=42-49 years old; 6=50-57 years old;  
7=58-65 years old; 8=Over 65





APPENDIX V



Table 8. CONSUMER EVALUATION OF THE FLAVOR DIMENSION OF OHIO VARIETIES VERSUS TRADITIONALLY PURCHASED TABLE GRAPES, AUG.-OCT., 1983.

VARIETY	FLAVORC				TOTAL
	B	NR	S	W	
AL	10 3.76 83.33 5.49	1 0.38 8.33 5.26	1 0.38 8.33 1.85	0 0.00 0.00 0.00	12 4.51
AR	11 4.14 57.89 6.04	1 0.38 5.26 5.26	5 1.88 26.32 9.26	2 0.75 10.53 18.18	19 7.14
C	27 10.15 75.00 14.84	3 1.13 8.33 15.79	5 1.88 13.89 9.26	1 0.38 2.78 9.09	36 13.53
H	28 10.53 70.00 15.38	1 0.38 5.26 5.26	9 3.38 22.50 16.67	2 0.75 5.00 18.18	40 15.04
L	18 6.77 42.86 9.89	3 1.13 7.14 15.79	18 6.77 42.86 33.33	3 1.13 7.14 27.27	42 15.79
PR	11 4.14 68.75 6.04	2 0.75 12.50 10.53	2 0.75 12.50 3.70	1 0.38 6.25 9.09	16 6.02
R	48 18.05 78.69 26.37	6 2.26 9.84 31.58	7 2.63 11.48 12.96	0 0.00 0.00 0.00	61 22.93
V	29 10.90 72.50 15.93	2 0.75 5.00 10.53	7 2.63 17.50 12.96	2 0.75 5.00 18.18	40 15.04
TOTAL	182 68.42	19 7.14	54 20.30	11 4.14	266 100.00

Source: Original Data

Codes: AL=Alden; AR=Arkansas; C=Canadice; H=Himrod; L=Lakemont;  
 PR=Price; R=Reliance; V=Venus; B=Better; NR=No Response;  
 S=Same; W=Worse

Table 9. CONSUMER EVALUATION OF THE KEEPING QUALITY DIMENSION OF OHIO VARIETIES VERSUS TRADITIONALLY PURCHASED TABLE GRAPES, AUG.-OCT., 1983.

VARIETY	KEEPING					TOTAL
	B	DK	NR	S	W	
FREQUENCY						
PERCENT						
ROW PCT						
COL PCT						
AL	4 1.50 33.33 5.06	1 0.38 8.33 6.67	2 0.75 16.67 5.88	4 1.50 33.33 3.33	1 0.38 8.33 5.56	12 4.51
AR	5 1.88 26.32 6.33	3 1.13 15.79 20.00	0 0.00 0.00 0.00	10 3.76 52.63 8.33	1 0.38 5.26 5.56	19 7.14
C	9 3.38 25.00 11.39	0 0.00 0.00 0.00	7 2.63 19.44 20.59	17 6.39 47.22 14.17	3 1.13 8.33 16.67	36 13.53
H	10 3.76 25.00 12.66	2 0.75 5.00 13.33	5 1.88 12.50 14.71	22 8.27 55.00 16.33	1 0.38 2.50 5.56	40 15.04
L	15 5.64 35.71 18.99	1 0.38 2.38 6.67	5 1.88 11.90 14.71	19 7.14 45.24 15.83	2 0.75 4.76 11.11	46 15.79
PR	2 0.75 12.50 2.53	1 0.38 6.25 6.67	5 1.88 21.25 14.71	6 2.26 37.50 5.00	2 0.75 12.50 11.11	16 6.02
R	20 7.52 32.79 25.32	5 1.88 8.20 33.33	8 3.01 13.11 23.53	24 9.02 39.34 20.00	4 1.50 6.56 22.22	61 22.93
V	14 5.26 35.00 17.72	2 0.75 5.00 13.33	2 0.75 5.00 5.88	18 6.77 45.00 15.00	4 1.50 10.00 22.22	40 15.04
TOTAL	79 29.70	15 5.64	34 12.78	126 45.11	18 6.77	266 100.00

Source: Original Data

Codes: AL=Alden; AR=Arkansas; C=Canadice; H=Himrod; L=Lakemont;  
PR=Price; R=Reliance; V=Venus; B=Better; NR=No Response;  
S=Same; W=Worse

Table 10. CONSUMER EVALUATION OF THE APPEARANCE DIMENSION OF OHIO VARIETIES VERSUS TRADITIONALLY PURCHASED TABLE GRAPES, AUG.-OCT., 1983.

VARIETY	APPEARANCE				TOTAL
	B	NR	S	W	
FREQUENCY					
PERCENT					
ROW PCT					
COL PCT					
AL	3	1	8	0	12
	1.13	0.38	3.01	0.00	4.51
	25.00	8.33	66.67	0.00	
	3.45	5.56	5.56	0.00	
AR	6	0	12	1	19
	2.26	0.00	4.51	0.38	7.14
	31.58	0.00	63.16	5.26	
	6.90	0.00	8.33	5.88	
C	16	3	16	1	36
	6.02	1.13	6.02	0.38	13.53
	44.44	8.33	44.44	2.78	
	18.39	16.67	11.11	5.88	
H	7	2	24	7	40
	2.63	0.75	9.02	2.63	15.04
	17.50	5.00	60.00	17.50	
	8.05	11.11	16.67	41.18	
L	11	3	23	5	42
	4.14	1.13	8.65	1.88	15.79
	26.19	7.14	54.76	11.90	
	12.64	16.67	15.97	29.41	
PR	8	2	6	0	16
	3.01	0.75	2.26	0.00	6.02
	50.00	12.50	37.50	0.00	
	9.20	11.11	4.17	0.00	
R	23	5	30	3	61
	8.65	1.88	11.28	1.13	22.93
	37.70	8.20	49.18	4.92	
	26.44	27.78	20.83	17.65	
V	13	2	25	0	40
	4.89	0.75	9.40	0.00	15.04
	32.50	5.00	62.50	0.00	
	14.94	11.11	17.36	0.00	
TOTAL	87	18	144	17	266
	32.71	6.77	54.14	6.39	100.00

Source: Original Data

Codes: AL=Alden; AR=Arkansas; C=Canadice; H=Himrod; L=Lakemont;  
 PR=Price; R=Reliance; V=Venus; B=Better; NR=No Response;  
 S=Same; W=Worse

Table 11. CONSUMER EVALUATION OF THE FRESHNESS DIMENSION OF OHIO VARIETIES VERSUS TRADITIONALLY PURCHASED TABLE GRAPES, AUG.-OCT., 1983.

VARIETY	FRESHC				TOTAL
	B	NR	S	W	
FREQUENCY					
PERCENT					
ROW PCT					
COL PCT					
AL	4 1.50 33.33 2.50	1 0.38 8.33 5.00	6 2.26 50.00 7.32	1 0.38 8.33 25.00	12 4.51
AR	11 4.14 57.89 6.88	0 0.00 0.00 0.00	7 2.63 36.84 8.54	1 0.38 5.26 25.00	19 7.14
C	21 7.89 58.33 13.13	3 1.13 8.33 15.00	10 3.76 27.78 12.20	2 0.75 5.56 50.00	36 13.53
H	22 8.27 55.00 13.75	3 1.13 7.50 15.00	15 5.64 37.50 18.29	0 0.00 0.00 0.00	40 15.04
L	29 10.90 69.05 18.13	3 1.13 7.14 15.00	10 3.76 23.81 12.20	0 0.00 0.00 0.00	42 15.79
PR	8 3.01 50.00 5.00	3 1.13 18.75 15.00	5 1.86 31.25 6.10	0 0.00 0.00 0.00	16 6.02
R	41 15.41 67.21 25.63	5 1.88 8.20 25.00	15 5.64 24.59 18.29	0 0.00 0.00 0.00	61 22.93
V	24 9.02 60.00 15.00	2 0.75 5.00 10.00	14 5.26 35.00 17.07	0 0.00 0.00 0.00	40 15.04
TOTAL	160 60.15	20 7.52	82 30.83	4 1.50	266 100.00

Source: Original Data

Codes: AL=Alden; AR=Arkansas; C=Canadice; H=Himrod; L=Lakemont;  
PR=Price; R=Reliance; V=Venus; B=Better; NR=No Response;  
S=Same; W=Worse

Table 12. DECISION TO REPURCHASE OHIO GRAPES OVER GRAPES USUALLY PURCHASED, AT THE SAME PRICE, BY VARIETY, AUG.,-OCT., 1983.

VARIETY	OHIOSME				TOTAL
	DK	N	NR	Y	
FREQUENCY PERCENT ROW PCT COL PCT					
AL	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	12 4.51 100.00 5.22	12 4.51
AR	0 0.00 0.00 0.00	3 1.13 15.79 11.11	1 0.38 5.26 14.29	15 5.64 78.95 6.52	19 7.14
C	1 0.38 2.78 50.00	3 1.13 8.33 11.11	0 0.00 0.00 0.00	32 12.03 88.89 13.91	36 13.53
H	1 0.38 2.50 50.00	7 2.63 17.50 25.93	1 0.38 2.50 14.29	31 11.65 77.50 13.48	40 15.04
L	0 0.00 0.00 0.00	6 2.26 14.29 22.22	1 0.38 2.38 14.29	35 13.16 83.33 15.22	42 15.79
PR	0 0.00 0.00 0.00	2 0.75 12.50 7.41	1 0.38 6.25 14.29	13 4.89 81.25 5.65	16 6.02
R	0 0.00 0.00 0.00	4 1.50 6.56 14.81	1 0.38 1.64 14.29	56 21.05 91.80 24.35	61 22.93
V	0 0.00 0.00 0.00	2 0.75 5.00 7.41	2 0.75 5.00 28.57	36 13.53 90.00 15.65	40 15.04
TOTAL	2 0.75	27 10.15	7 2.63	230 86.47	266 100.00

Source: Original Data

Codes: AL=Alden; AR=Arkansas; C=Canadice; H=Himrod; L=Lakemont;  
 PR=Price; R=Reliance; V=Venus; DK=Don't Know; N=No;  
 NR=No Response; Y=Yes

TABLE 13. DECISION TO REPURCHASE OHIO TABLE GRAPES AT THE SAME PRICE, BY VARIETY, AUGUST-OCTOBER, 1983

VARIETY	PURCHASE				TOTAL
	DK	N	NR	Y	
FREQUENCY					
PERCENT					
ROW PCT					
COL PCT					
AL	0	0	0	12	12
	0.00	0.00	0.00	4.51	4.51
	0.00	0.00	0.00	100.00	
	0.00	0.00	0.00	4.88	
AR	0	3	0	16	19
	0.00	1.13	0.00	6.02	7.14
	0.00	15.79	0.00	84.21	
	0.00	20.00	0.00	6.50	
C	0	2	0	34	36
	0.00	0.75	0.00	12.78	13.53
	0.00	5.56	0.00	94.44	
	0.00	13.33	0.00	13.82	
H	0	1	0	39	40
	0.00	0.38	0.00	14.66	15.04
	0.00	2.50	0.00	97.50	
	0.00	6.67	0.00	15.83	
L	2	3	0	37	42
	0.75	1.13	0.00	13.91	15.79
	4.76	7.14	0.00	88.10	
	100.00	20.00	0.00	15.04	
PR	0	2	0	14	16
	0.00	0.75	0.00	5.26	6.02
	0.00	12.50	0.00	87.50	
	0.00	13.33	0.00	5.69	
R	0	2	1	58	61
	0.00	0.75	0.38	21.80	22.93
	0.00	3.28	1.64	95.08	
	0.00	13.33	33.33	23.58	
V	0	2	2	36	40
	0.00	0.75	0.75	13.53	15.04
	0.00	5.00	5.00	90.00	
	0.00	13.33	66.67	14.63	
TOTAL	2	15	3	246	266
	0.75	5.64	1.13	92.48	100.00

Source: Original Data

Codes: AL=Alden; AR=Arkansas; C=Canadice; H=Himrod; L=Lakemont;  
 PR=Price; R=Reliance; V=Venus; DK=Don't Know; N=No;  
 NR=No Response; Y=Yes



Table 14. CHARACTERISTICS MOST LIKED ABOUT OHIO TABLE GRAPES BY VARIETY, AUG.-OCT., 1983.

VARIETY	LIKE										TOTAL
	FREQUENCY ROW PCT COL PCT	FL	FR	L	NR	O	OH	P	S	SW	
AL	9 3.38 75.00 7.50	1 0.36 8.33 3.45	0 0.00 0.00 0.00	1 0.38 8.33 5.00	1 0.36 8.33 3.85	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	12 4.51
AR	11 4.14 57.89 9.17	0 0.00 0.00 0.00	1 0.36 5.26 12.50	0 0.00 0.00 0.00	4 1.50 21.05 15.38	1 0.38 5.26 33.33	0 0.00 0.00 0.00	0 0.00 0.00 0.00	2 0.75 10.53 9.52	0 0.00 0.00 0.00	19 7.14
C	15 5.64 41.67 12.50	5 1.88 13.89 17.24	0 0.00 0.00 0.00	1 0.36 2.78 5.00	3 1.13 8.33 11.54	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	6 2.26 16.67 25.57	6 2.26 16.67 17.14	36 13.53
H	18 6.77 45.00 15.00	2 0.75 5.00 6.90	2 0.75 5.00 25.00	1 0.36 2.50 5.00	1 0.36 2.50 3.85	0 0.00 0.00 0.00	1 0.38 2.50 25.00	2 0.75 5.00 9.52	13 4.89 32.50 37.14	15.40	
L	12 4.51 28.57 10.00	7 2.63 16.67 24.14	3 1.13 7.14 37.50	7 2.63 16.67 35.00	3 1.13 7.14 11.54	2 0.75 4.76 66.67	2 0.75 4.76 50.00	2 0.75 4.76 4.52	4 1.50 9.52 11.43	15.79	
PK	7 2.63 43.75 5.83	2 0.75 12.50 6.90	0 0.00 0.00 0.00	2 0.75 12.50 10.00	2 0.75 12.50 7.69	0 0.00 0.00 0.00	0 0.00 0.00 0.00	0 0.00 0.00 0.00	3 1.13 18.75 8.57	16 6.02	
R	27 10.15 44.26 22.50	7 2.63 11.48 24.14	1 0.36 1.64 12.50	4 1.50 6.56 20.00	6 2.26 9.84 23.08	0 0.00 0.00 0.00	1 0.38 1.64 25.00	7 2.63 11.48 33.33	8 3.01 13.11 22.86	61 22.93	
V	21 7.89 52.50 17.50	5 1.88 12.50 17.24	1 0.36 2.50 12.50	4 1.50 10.00 20.00	6 2.26 15.00 23.08	0 0.00 0.00 0.00	0 0.00 0.00 0.00	2 0.75 5.00 9.52	1 0.36 2.50 2.86	15.40	
TOTAL	120 45.11	29 10.90	6 3.01	20 7.52	26 9.77	3 1.13	4 1.50	21 7.89	35 13.16	266 100.00	

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Source: Original Data  
 Codes: AL=Alden; AR=Arkansas; C=Canadice; H=Himrod; L=Lakemont; PR=Price; R=Reliance;  
 V=Venus; FL=Flavor; FR=Freshness; L=Locally Grown; NR=No Response; O=Other;  
 OH=Ohio Grown; P=Price; S=Seedlessness; SW=Sweetness

Table 15. CHARACTERISTICS MOST DISLIKED ABOUT OHIO TABLE GRAPES, BY VARIETY, AUG.-OCT., 1983.

VARIETY	DISLIKE									
	DK	N	NR	O	P	S	SE	SH	T	TOTAL
AL	0 0.00 0.00 0.00	1 0.38 8.33 2.04	3 1.13 25.00 5.45	1 0.38 8.33 2.17	0 0.00 0.00 0.00	0 0.00 0.00 0.00	4 1.50 33.33 36.36	2 0.75 16.67 18.18	1 0.38 8.33 5.56	12 4.51
AK	0 0.00 0.00 0.00	5 1.88 26.32 10.20	2 0.75 10.53 3.64	6 2.26 31.58 13.04	0 0.00 0.00 0.00	1 0.38 5.26 1.45	1 0.38 5.26 9.69	0 0.00 0.00 0.00	4 1.50 21.05 22.22	19 7.14
C	0 0.00 0.00 0.00	6 2.26 16.67 12.24	7 2.63 19.44 12.73	10 3.76 27.78 21.74	1 0.38 2.78 16.67	7 2.63 19.44 10.14	1 0.38 2.78 9.09	2 0.75 5.56 18.18	2 0.75 5.56 11.11	36 13.53
H	0 0.00 0.00 0.00	2 0.75 5.00 4.08	8 3.01 20.00 14.55	6 2.26 15.00 13.04	2 0.75 5.00 33.33	19 7.14 47.50 27.54	0 0.00 0.00 0.00	0 0.00 0.00 0.00	3 1.13 7.50 16.67	40 15.04
L	0 0.00 0.00 0.00	6 2.26 14.29 12.24	7 2.63 16.67 12.73	6 2.26 14.29 13.04	0 0.00 0.00 0.00	20 7.52 47.62 28.99	1 0.38 2.38 9.09	2 0.75 4.76 18.18	0 0.00 0.00 0.00	42 15.79
PR	0 0.00 0.00 0.00	2 0.75 12.50 4.08	7 2.63 43.75 12.73	2 0.75 12.50 4.35	0 0.00 0.00 0.00	0 0.00 0.00 0.00	2 0.75 12.50 18.18	2 0.75 12.50 18.18	1 0.38 6.25 5.56	16 6.02
R	1 0.38 1.64 100.00	14 5.26 22.95 28.57	10 3.76 16.39 18.18	6 3.01 13.11 17.39	1 0.38 1.64 16.67	18 6.77 29.51 21.09	0 0.00 0.00 0.00	3 1.13 4.92 27.27	6 2.26 9.64 33.33	61 22.93
V	0 0.00 0.00 0.00	13 4.69 32.50 26.53	11 4.14 27.50 20.00	7 2.63 17.50 15.22	2 0.75 5.00 35.33	4 1.50 10.00 5.89	2 0.75 5.00 18.18	0 0.00 0.00 0.00	1 0.38 2.50 5.56	40 15.04
TOTAL	1 0.38	49 18.42	55 20.66	46 17.29	6 2.26	69 25.94	11 4.14	11 4.14	18 6.77	266 100.00

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Codes: AL=Alden; AR=Arkansas; C=Canadice; H=Himrod; L=Lakemont; PR=Price; R=Reliance; V=Venus; DK=Don't Know; N=No; NR=No Response; O=Other; P=Price; S=Small Size; SE=Seeds; SH=Short Season; T=Tough Skin

Table 16. AGES OF RESPONDENTS AT THREE RETAIL OUTLETS, AUG.-OCT., 1983

LOCATION	AGE								TOTAL
	1	2	3	4	5	6	7	8	
FREQUENCY									
PERCENT									
ROW PCT									
COL PCT									
F	0	0	3	2	0	2	0	0	7
	C.00	.	15.79	10.53	C.00	10.53	0.00	C.00	36.64
	C.00	.	42.86	28.57	C.00	28.57	0.00	.	
	C.00	.	60.00	66.67	C.00	28.57	0.00	.	
G	0	0	0	1	0	1	1	0	3
	C.00	.	0.00	5.26	0.00	5.26	5.26	.	15.79
	C.00	.	0.00	33.33	C.00	33.33	33.33	.	
	C.00	.	0.00	33.33	0.00	14.29	50.00	.	
S	1	0	0	2	1	4	1	0	9
	5.26	.	10.53	0.00	5.26	21.05	5.26	.	47.37
	11.11	.	22.22	0.00	11.11	44.44	11.11	.	
	100.00	.	40.00	0.00	100.00	57.14	50.00	.	
TOTAL	1	.	5	3	1	7	2	.	15
	5.26	.	26.32	15.79	5.26	36.64	10.53	.	100.00

Source: Original Data

Codes: F=Farm Market; G=Golden Dawn; S=Sage's Market; NR=No Response; 1=Under 18;  
 2=18-25 years old; 3=26-33 years old; 4=34-41 years old; 5=42-49 years old;  
 6=50-57 years old; 7=58-65 years old; 8=Over 65



## Notes

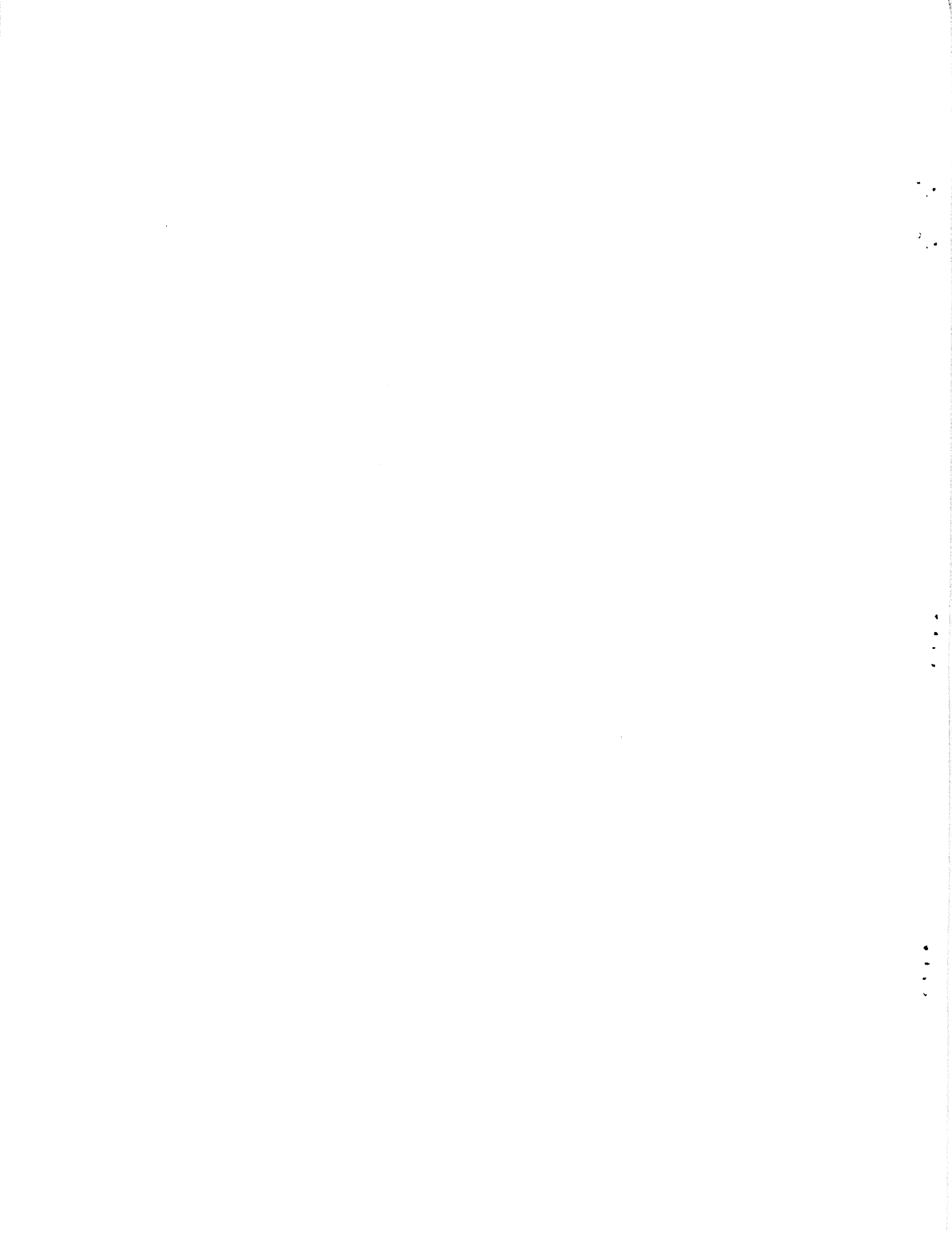
<sup>1</sup> Sharon Minot, "Expanding Fresh Market One Outlet for Grape Glut," The Ohio Farmer, 1 Oct. 1983, pp. 10-11.

<sup>2</sup> Lawrence G. Anderson, Jr., "Annual Report of Results for Table Grape Profit Plot Demonstration Ashtabula, Lake and Geauga Counties," 25 November 1981.

<sup>3</sup> Peter Dickson, Assistant Professor of Marketing, Marketing 751 Lecture Notes, The Ohio State University, Columbus, Ohio, June-July, 1983. This section draws heavily upon these notes.

<sup>4</sup> C. William Emory, Business Research Methods (Homewood, Illinois: Richard D. Irwin, Inc., 1980), pp. 66-67.

<sup>5</sup> Personal telephone call from Gregory Passewitz, 8 August 1983.



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