

Market Analysis of Hydroponic Lettuce in the Nashville Region



Min Huang
Meng Li
John Rutter
Jeremy Walters
Pornpat Wiwattarangkul

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Executive Summary

Inflated quota prices for tobacco have discontinued the use of many greenhouses for tobacco production in Tennessee. The result has been idle greenhouses. Idle greenhouses will not earn the producer revenue, so new profitable alternatives must be sought. One alternative is to use the greenhouse for the production of hydroponic vegetables.

One type of vegetable that is hydroponically grown is head lettuce. Hydroponic lettuce can be grown year round and harvested every 35 days, allowing for quick turnover. The product attributes are better and even more consistent than that of traditional lettuce.

The objective of this study was to ascertain whether or not a market existed for hydroponic lettuce in the Nashville region. The study also sought to find any hydroponic vegetables that had an insufficient supply. To accomplish these objectives, the study concentrated on evaluating the supply and sources of lettuce to restaurants and the feasibility of selling hydroponic lettuce to the wholesale market.

The results of the analysis concluded that there was only a limited market for hydroponic lettuce. In order for the producer to be successful in this market, the producer would need to establish a wholesaler and use a push strategy to develop customers for the product. The analysis also concluded that there was a market for hydroponic tomatoes and cucumbers. Therefore, the producer has the option of continuing to produce hydroponic lettuce, the producer could grow other hydroponic vegetables, or the producer could grow a mixture of hydroponic lettuce as well as other hydroponic vegetables.

Introduction

Many tobacco producers in Tennessee have left their greenhouses idle due to inflated quota prices. Since the costs of building the greenhouses have already been incurred, and vacant

greenhouses have the opportunity of increasing farm incomes, many tobacco producers have attempted to find alternative uses for their greenhouse to earn additional revenue. Using tobacco greenhouse to grow fresh vegetables and fruits has been widely practiced by tobacco growers, who currently possess an empty greenhouse. In addition, greenhouses give farmers the advantage of producing fruits and vegetables in a controlled environment.

Hydroponics is defined as the growing of plants and nutrient solutions with or without an inert medium to provide mechanical support. Hydroponics is basically the science of growing plants without soil. The key to hydroponics is a complete nutrient that is water-soluble and contains all the elements required for plant growth, including the trace elements, such as copper, iron, zinc, boron, and calcium.

Hydroponic vegetable production has caught producers' attention in utilizing an empty greenhouse. Hydroponic lettuce is one type of vegetable that many farmers have chosen to produce in their greenhouse. A picture of hydroponic lettuce is presented in Figure 1. The major advantages of hydroponic lettuce include a short production period, availability year round, and consistency of product attributes. The life cycle of hydroponic lettuce is very short compared to traditionally grown lettuce; growers can harvest hydroponic lettuce after 35 days of production. In greenhouse production, temperature can be controlled year round to provide the optimal level of lettuce.



Figure 1. Hydroponic Lettuce

This also means that growers can supply their lettuce when demand is high. Constant supply of fresh vegetables is considered to be crucial for green market consumers, either for commercial or residential purposes, as they have a constant demand¹. Growers may be able to assure their consumers of a constant price or small fluctuation in price due to variation in production factors. Producing lettuce without soil and inside a controlled environment helps growers to produce clean product with beautiful color and leaf shape. The appearance of green products greatly accounts for good market price and high profit. Another advantage of hydroponic lettuce is that it can be grown close to the market distributor. As a perishable product, long distance transportation may damage and lower market value of the product. Moreover, having the product located near the consumer can considerably reduce transportation and other related cost.

¹ Green market consumers are those who purchase fresh and nutritional vegetables regularly.

Definition of the Problem and Objectives

Since hydroponic lettuce is new to the market, it is believed that the market is not fully established. Recognition of hydroponic vegetables is not yet developed among consumers who regularly purchase fresh vegetables. Currently, there is no evidence of sufficient demand for hydroponic lettuce. Hydroponics may follow the path of organic vegetables that has taken a decade to fully obtain consumer recognition. Therefore, the study needs to define the primary target consumers and secondary consumers. Education programs are needed to make consumers aware of the benefits of hydroponic lettuce. While hydroponic lettuce is currently not widely available to consumers, supply is expected to expand.

Price is another issue. There is no common market price for hydroponic lettuce. The price varies from one grower to another as costs of production of each producer differ. Furthermore, the price of hydroponic lettuce is considered to be relatively high compared to price of traditional lettuce in normal season. Variation of price between stores and between traditional and hydroponic lettuce are presented in Table 1 (price may vary to different prices received by growers and markup). During the normal season of lettuce, one head of traditional lettuce usually costs around \$1. However, a head of hydroponic lettuce can cost from \$1.5 to \$3.

Table 1. Lettuce price comparison between stores around Kingston Pike

Store	Traditional lettuce		Hydroponic Lettuce	
	Approximate Price*	Weight (lb.)	Approximate Price*	Weight (lb.)
Farm Fresh Market	.69 – 1.69	1	1.49	.3
Fresh Market	1.19 – 2.5	1	1.99	.5
Kroger	1.19 – 3	1.5	2.99	.5

*All prices were collected during April 2002.

According to the National Organic Program (NOP) regulations, hydroponic lettuce cannot be filed and labeled as organic.² Hydroponic lettuce is soil-free but not entirely chemical free, so they do not meet the requirement of the NOP regulations. In addition, there are the penalties for the misuse of the term “organic”. That is, the adoption of the term organic does not provide benefits for the farmers who grow hydroponic lettuce. Producers may convey information on advantages of being hydroponic to consumers by labeling them on the package; this would be most helpful if the end-users are residential consumers but have little influence on commercial consumers.

The purposes of this study are to evaluate supply and sources of lettuce to estimate and examine the feasibility of selling hydroponic lettuce on wholesale markets. Also, this study will determine whether or not a market exists for hydroponic lettuce and examine alternative hydroponic vegetables that have insufficient supply.

Review of Industry information

Since hydroponic lettuce is considered new to the market, previous studies and industry information about marketing hydroponic lettuce are not widely available. Therefore, current market information on traditional lettuce would be used to substitute industry information of hydroponic lettuce.

Nearly 100 percent of the traditional field grown lettuce consumed in the United States is produced domestically. The vast majority of domestic production takes place in two states: California and Arizona. (Lewrene et al., 2001). A relatively small number of firms coordinate the growing, processing and transport of lettuce. Because of the long shipping distance from

² The National Organic Program regulates that producers and handlers must be certified by a USDA accredited certifying agent to sell, label, or represent their products as “organic”. www.ams.usda.gov.

production sites to consumers around the country, lettuce has to be picked before its maturity, which affect appearance, taste, and freshness. Another problem is the increased transportation costs due to long distances. In addition, field grown lettuce has soil related problems such as weeds, insects, and disease. Pesticide residues in the fresh vegetable products may also cause food safety issues among consumers. The traditional field grown products can be affected by the weather or season significantly. During bad weather periods, producers can only supply poor quality lettuce at a high price. That is, prices may vary greatly due to uncontrolled weather. All of the above problems with traditional field grown lettuce encourage the development of the local hydroponic lettuce market.

Over the past two decades, consumers across the country have become more aware of their health, so consumption of vegetables has been trending upward. Per capita consumption of fresh leafy green vegetables increased 14.3 percent from 162.4 pounds in 1987 to 185.6 pounds in 1997 (USDA, Vegetables and Specialties and Outlook Yearbook, 1999). One of the leading leafy green vegetables consumed, head lettuce, has been strongly dominated by market trends. Rising incomes have been cited in Kaufman et al. (2000) as a factor that enabled consumers to purchase higher quality and greater variety of vegetables. Therefore, organic and locally grown vegetables appear to have high potential to attract consumers dollars. Lettuces of all types account for the largest share of farm cash receipts for leafy green vegetables. Moreover, production of lettuce varieties has jumped 40 percent from 1989 to 1996 (Effland, 1998).

Several market channels are available for producers, such as direct market, retail stores, foodservices, bagged salad and wholesalers. Since the producer that we are working with has a relatively small-scale operation compared to Archer Daniels Midland (ADM), market distribution of lettuce through wholesalers would be utilized. Sales of wholesalers increased

about 65 percent from \$34.5 billion in 1987 to \$53 billion in 1997 as well as continued growth in nontraditional produce such as organic and specialty items has been beneficial to wholesalers (Kaufman et al., 2000). These high-margin products are difficult for supermarket chains to buy directly from growers, since individual chains do not have the volume to purchase or organize trailer loads of those products. Even though, head lettuce is the main leafy green vegetable contained in bagged salad, hydroponic lettuce is not usually included in the bagged salad. The main reason is that hydroponic lettuce wilts easier than the traditional lettuce when packed in the bagged salad. Therefore, distributing hydroponic lettuce through bagged salad processors will be neglected in this study.

A study of greenhouse vegetable production from North Carolina State University indicated that production is higher in the field. For greenhouse production to be profitable a price premium must also be available, because operating costs are comparatively high. Greenhouse vegetable production is very labor-intensive, requiring 7-12 workers per ha unless transplants are purchased, or packing is done off-site. In addition, at least some workers must be skilled in working with hydroponic plant growing system, which also has to be purchased. This means that the quality must be consistently high and greenhouse product must be clearly differentiated from field-grown products.

A tissue analysis of soilless culture peppers has been cited by some wholesalers in California that hydroponic peppers not only contain more vitamins than soil grown peppers, but they also contain no trace of heavy metals that are harmful to human consumption. Adding this quality, some wholesalers in California are selling their hydroponic produce to organic grocers in certain area. This evidence may lead and pave the way to market hydroponic produces for growers in other regions.

The hydroponic lettuce is usually sold in plastic crispers that keep the lettuce fresh and prevent damage during transportation. The crystal clear crisper, which has a hinged lid and has a cup in the bottom for the roots, gives the product a clean and fresh image.

Previous studies show that the market preference for different types of leafy green vegetables appear to be variable. Most people, who were raised in the South, are familiar with and like more flavorful leaf lettuces; however, people from the Northern U.S. are more familiar with head lettuces and are generally willing to pay a premium price for high quality. Their general migration to the South has changed the demographics of the region such that the present population is not as familiar with and is less likely to purchase leaf lettuce. In addition, the ethnic populations in many areas of the Southeast are increasing in numbers, and many of these people prefer the stronger, more flavorful vegetables. They are more likely to use leaf lettuce and more oriented greens (R. Allen Straw et. Al, 1998). At present it appears that retailers and consumers in the Southeastern U.S., use little leaf lettuce; however, head lettuce enjoys a relatively strong and constant demand.

Methods

The approach taken in the hydroponic lettuce study was to establish what the supply and source of lettuce was to restaurants and to evaluate the wholesale market. Earlier research indicated that hydroponic lettuce could not be bagged or processed, so the market analysis excluded these as a potential market participants. In addition grocery stores were believed to be supplied by distributors and wholesalers, so our analysis of the wholesale market would give indications of the grocer demand.

In order to contact individuals for the surveys, the Real Yellow Pages web site³ was used to identify participants. Once the results were found, the restaurant survey was narrowed down and the participants were contacted by phone.

The questions on the surveys were asked in a manner to achieve the objectives of the survey. In both cases, the surveys were designed to be easy to follow and limited the amount of time the restaurant and wholesale participant had to spend on the survey.

Restaurant Survey

The intent of the restaurant survey was to determine if the restaurants used head lettuce and how much the restaurants used on a daily basis. The objectives to the survey are as follows:

- (i.) Determine what is the producers' supply?
- (ii.) Who are the market participants?
- (iii.) What the demand for lettuce is by restaurants?
- (iv.) Who were the restaurant suppliers?

As indicated earlier, the Real Yellow Pages were used to gather restaurant information. The restaurant listing had 2309 restaurants from the Nashville area. The number of restaurant types was narrowed down by categories to a manageable number to survey. Fast food and other similar restaurant types were excluded from the survey list. The restaurant categories that were used for the survey included American, Beef, Cajun, Casual, Chicken, Chops, Fine Dining, Gourmet, Italian, Mediterranean, Salads, Sandwiches, Seafood, Steaks, and Submarines. After separating the listing, half of the 70 restaurants were contacted to save time and money (Appendix B).

<http://www.realpages.com>

For questions 3,4, and 5, number values were assigned to each of the different possible outcomes, so a spreadsheet program could interpret the data. The number values for the third question were wholesalers = 1, chain distributor = 2, and other = 3. For the fourth question, the values were \$0-\$5 = 1, \$5 -\$15 = 2, \$15 - \$25 = 3, and \$25+ = 4. The fifth question values were national chain = 1, local or regional chain = 2, and independently owned = 3.

Wholesaler Survey

The intent of the wholesaler survey was to find the amount of hydroponic vegetables that are currently sold in the Nashville region and to evaluate the market for hydroponic lettuce. In doing so, the survey would address the following seven objectives.

- (i.) How many wholesalers carry hydroponic vegetables?
- (ii.) What type of wholesalers would be willing to purchase hydroponic lettuce?
- (iii.) Would a local producer influence the wholesalers' decision to purchase hydroponic lettuce?
- (iv.) What are wholesalers willing to pay for hydroponic lettuce?
- (v.) What characteristics of lettuce are important to wholesalers?
- (vi.) What factors effect wholesalers' purchase behavior?
- (vii.) Is there a demand for any hydroponically grown vegetables that have an insufficient supply?

Using the Real Yellow Pages web site, there were 15 fruit and vegetable wholesalers in the Nashville area. Each of the wholesalers were contacted and asked to participate in the survey, which can be found in Appendix C. The wholesaler survey contained both open-ended and close-ended questions. Close-ended questions only required the wholesaler to reply with a

yes or no answer in which yes = 1 and no = 0. Close-ended questions relating to the characteristics of lettuce and factors effecting purchase behavior used a scale of 1 to 5 with 1 being the least important and 5 being the most important. Open-ended questions allowed wholesalers to respond differently with the objective of finding additional information.

Results

The restaurant survey had 15 out of 35 responses with a rate of 43% (Appendix D). While two of the restaurants refused to participate in the survey, most of the restaurants that did not respond were closed or had moved to another locations. For others, the manager was not available. Of the 43% that responded to the survey, 73% of those respondents were market participants for head lettuce.

Of the restaurants that were market participants, 9% used less than 10 heads of lettuce per day, 55% used between 10 to 20 heads of lettuce per day, and 36% used more than 20 heads of lettuce per day (Appendix D, Figure 1). Of the surveyed restaurants, 73% purchased from a wholesaler and the other 27% purchased from a chain distributor (Appendix D, Figure 2). The restaurants were asked the average price of an entrée served at their establishment; 45.5% charged between \$5 to \$15 per entrée, 45.5% charged between \$15 to \$25 per entrée, and 9% charged more than \$25 per entrée (Appendix D, Figure 3). The restaurants that charged between \$5 to \$15 per entrée used the following amounts of head lettuce on a daily basis; 60% used less than 15 heads per day and 40% used more than 20 heads per day (Appendix D, Figure 4). The restaurants that charged between \$15 to \$25 per entrée used the following amounts of lettuce on a daily basis: 40% used less than 15 heads per day, 40% used between 15 to 20 heads per day, and 20% used over 20 heads per day (Appendix D, Figure 5).

The restaurant classification were 36% national chains, 18% local or regional chains, and 46% independently owned (Appendix D, Figure 6). The most likely market participant of head lettuce would be a restaurant that purchased from a wholesaler, charges \$15 or more and is independently owned.

The wholesaler survey had 5 out of 13 responses with a rate of 38% (Appendix E). The wholesaler list contained one brokerage firm and a duplicate firm that had two names and two numbers. Wholesalers that did not participate in the survey were closed, not opened yet, or the manager or purchasing agent was not available.

Based on the wholesaler survey, wholesalers ranked freshness, appearance, size, and taste from most important (5) to least important (1). Four of the five wholesalers responded to the question and the results are presented in Table 2.

Table 2. Importance of product characteristics to wholesalers

Wholesaler	Freshness	Appearance (Color)	Size (Uniformity)	Taste
Mean	5	5	4.25	3.875

* 1 = least important, 5 = most important

The wholesalers ranked product attributes, price, packaging, labeling, and contracting by their influence on purchase behavior with 5 being the most important and 1 being the least important. Only four of the five wholesalers responded to this question, and the results are presented in Table 3.

Table 3. Importance of factors in purchasing behavior

Wholesaler	Product Attributes	Price	Packaging	Labeling	Contracting
Mean	4.5	4.25	4	3.5	2

* 1 = least important, 5 = most important

Based on the wholesaler survey, only one of the five wholesalers carried hydroponic vegetables. The wholesaler that carried hydroponic vegetables mainly dealt in hydroponic tomatoes; however, the wholesaler did carry a little hydroponic lettuce. Hydroponic vegetables with an insufficient supply were cucumbers and tomatoes. When asked if the producer would be interested in purchasing from a local producer, three of the wholesalers were interested, but only one was willing to pay above the market price of lettuce. This wholesaler would pay an additional five dollars per case - 24 heads to a case - for the hydroponic lettuce. In addition, none of the wholesalers required a minimum quantity. The product requirement that the producer would have to meet also included HACCP.⁴ The vegetables would need to be labeled, cleaned, and trimmed. For the most part, wholesalers were not interested in contracting with a local producer.

Conclusion

The results of the restaurant survey demonstrate the quantity of head lettuce used on a daily basis is a relatively small quantity, and it would not be possible to cater to individual restaurants due to the associated cost and inefficiency. A producer would have to distribute to more than 20 different restaurants per day. The survey also demonstrated that most of the restaurants used a local wholesaler for their supply of fresh lettuce.

Based on the results of the first survey, the market analysis turned its attention to the wholesaler market. The results indicate that wholesalers are most interested in the freshness and appearance (color) of lettuce. Both of these attributes are characteristic of hydroponic lettuce. The wholesalers' purchase behavior tended to place more importance on product attributes, price, and packaging. These are factors that the producer should also consider. The results of

⁴ HACCP stands for Hazard Analysis Critical Control Point which is an international recognized food safety methodology, which provides the framework for hazard identification, and control.

the survey also concluded that there were not a lot of wholesalers that dealt with hydroponic vegetables, suggesting a limited demand in the Nashville area. Wholesalers were open to purchase from a local producer, but the price would need to be competitive with the market price of head lettuce. Therefore, the producer would be able to sell his product, but the limited demand would keep the price of hydroponic lettuce competitive with the market price for head lettuce.

The encouraging results showed that there was a demand for hydroponic cucumbers and tomatoes. Due to the open market and current demand, the producer might consider producing these vegetables. Furthermore, the producer might want to consider growing vegetables when traditional vegetable supply is limited. The limited supply of these vegetables may increase the price for the producers' revenue and be a better allocation of greenhouse space.

Recommendations

Our group suggest these three basic alternatives to the producer. The producer can continue to grow hydroponic lettuce, begin to grow other hydroponic vegetables, or produce a mixture of the hydroponic lettuce with other hydroponic vegetables. In any cases, the producer needs to locate wholesalers in the Nashville region that are interested in distributing hydroponic vegetables.

If the producer continues to grow hydroponic lettuce, then he/she needs to increase the demand for his/her product. Once a wholesaler is established, the producer should consider using a push strategy. He/she may be able to increase demand by providing a limited amount of free samples to the wholesaler's customers (See Appendix F). Results from the wholesaler survey indicated that customers that would possibly use hydroponic lettuce include other wholesalers, restaurants, or grocery stores and fresh markets. A case would be the preferred

packaging for restaurants and possibly wholesalers. The individual packaging and labeling would be preferred by the grocery stores and possibly other wholesalers (See Appendix G). Additional value may be obtained by adopting the “Pick Tennessee Products” label. There are no certification process or fees associated with using the label. The only requirement for using the label is that the product must be produced in the state of Tennessee. In addition to the sample, the producer may also consider providing information about the operation and practices as well as the health benefits.

The second alternative is to investigate other hydroponic vegetables that have an established demand. Two vegetables that were named in the wholesaler survey include tomatoes and cucumbers. Before acting, the producer should further investigate this alternative and, again, establish a wholesaler connection.

The final alternative is to produce a mixture of hydroponic lettuce with other hydroponic vegetables, varying production with demand. This alternative would seek to utilize the greenhouse to produce the highest revenue.

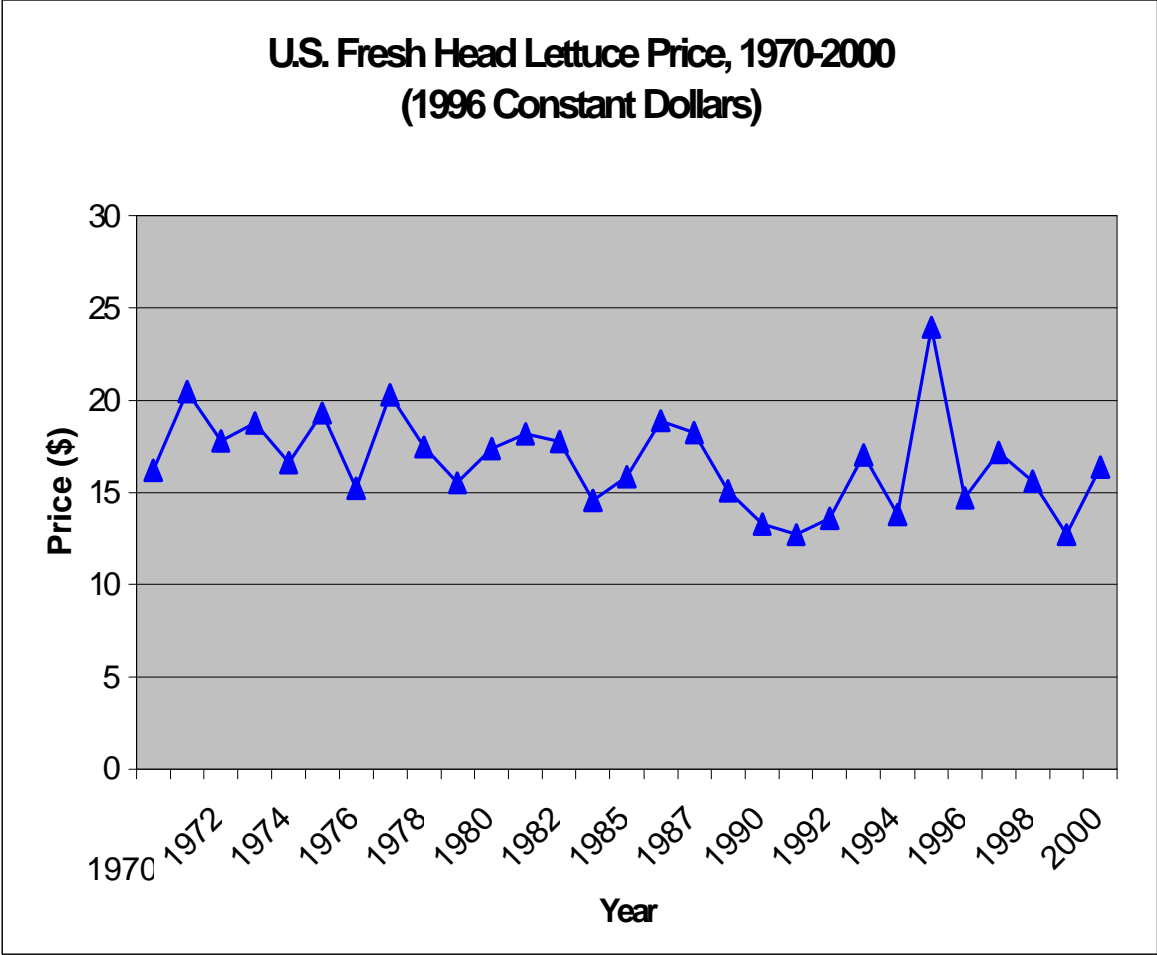
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Appendix A

Figure 1. Prices of fresh head lettuce for 1970 to 2000



Appendix B

Restaurant Questionnaire

Restaurant Name: _____

1. Do you use head or iceberg lettuce? yes ___ no___

If no, do you use bagged or processed lettuce? yes ___ no___

Thank you for your time.

2. How many heads of lettuce do you use on average per day or are they sold by the case (if so, how many cases/cartons and how many to a case/cartons)? _____

3. Is your supplier a Wholesaler ____, Chain Distributor ____,
or Other _____?

4. What is the average price per entrée in your restaurant?

\$0-\$5 ___ \$5-\$15 ___ \$15-\$25___ \$25+ ___

5. How would you classify your restaurant?

National Chain _____ Local or Regional Chain _____ Independently owned _____

Appendix C

Wholesaler Survey

1. Do you sell wholesale vegetables? ____ yes ____ no
2. Do you buy/sell iceberg (head) lettuce? ____ yes ____no
3. What type of establishments do you sell iceberg lettuce to?

_____ restaurants	_____ fresh markets
_____ grocery stores	_____ hotels
4. How would you rank the following characteristics when you consider purchasing lettuce?
Rank each (1-5) by importance.

_____ Freshness	
_____ Appearance (Color)	
_____ Size (Uniformity)	
_____ Taste	
5. What influences your purchase behavior? Rank each (1-5) by importance.

_____ Product Attributes	_____ Labeling
_____ Price	_____ Contracting
_____ Packaging	
6. Do you currently purchase any hydroponically grown vegetables? ____ yes ____ no
7. How much hydroponic lettuce do you buy on a weekly basis?

_____ # of cases	
_____ # per case	
_____ total	
8. What other vegetables do you purchase to sell that are hydroponically grown? _____
9. Are there any vegetables that you have a demand for that are hydroponically grown, but you do not have a current supplier?

10. Would you be interested in purchasing hydroponic lettuce from a local producer?
____ yes ____ no
11. How much more would you be willing to pay above the market price of traditional lettuce for hydroponic lettuce? _____

Appendix C (Continued)

12. Is there a minimum quantity of hydroponic lettuce that a producer would have to supply for your company to purchase an order? _____ yes _____ no How much?

13. Are there any other product requirements such as packaging, refrigeration, labeling, etc.)? _____ yes _____ no

14. Would you be interested in contracting with the local producer? _____ yes _____ no

15. Would you allow us to disclose your name in our report or just refer to you as a wholesaler? (Note: If interested, this would put you in contact with the local producer.)

_____ Yes, I would like to disclose my name.

_____ No, I would not like to disclose my name.

Appendix D

Restaurant Questionnaire Results

Questionnaire Total Responses	35 15	Market Participants	0.733333
Response Rate	0.428571429	Yes	11
		No	4

Supplier		Average Price	
Wholesaler	1	\$0-\$5	1
Chain Distributor	2	\$5-\$15	2
Other	3	\$15-\$25	3
		\$25+	4

Restaurant Classification	
National Chain	1
Local or Regional Chain	2
Independently owned	3

Questionnaire Results	Market Participants			
	Estimated Heads	Price	Supplier	Classification
1	25		4	1 3
2	15		3	1 2
3	10		2	2 2
4	24		2	1 1
5	13		3	1 3
6	16		3	1 1
7	24		3	1 3
8	11		2	2 3
9	4		2	1.5 3
10	30		2	1 1
11	16		3	1 1

Appendix D (Continued)

Figure 1. The amount of lettuce heads consumed per day

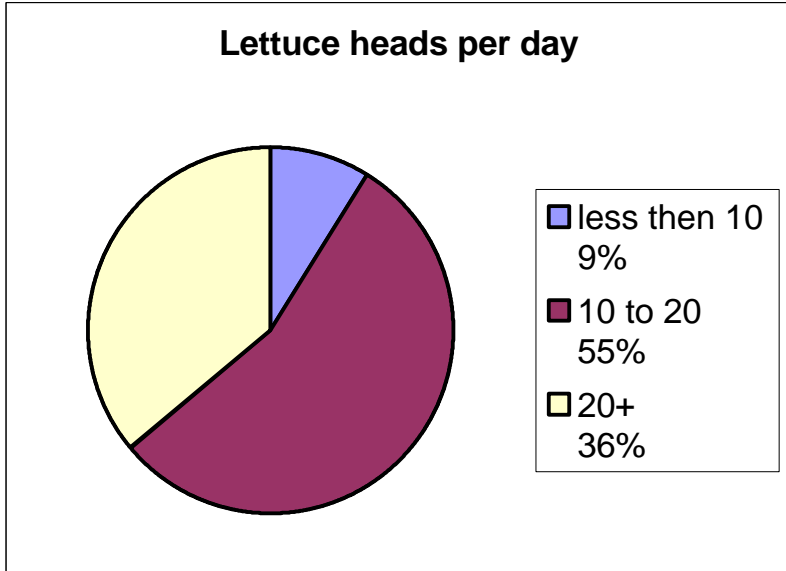
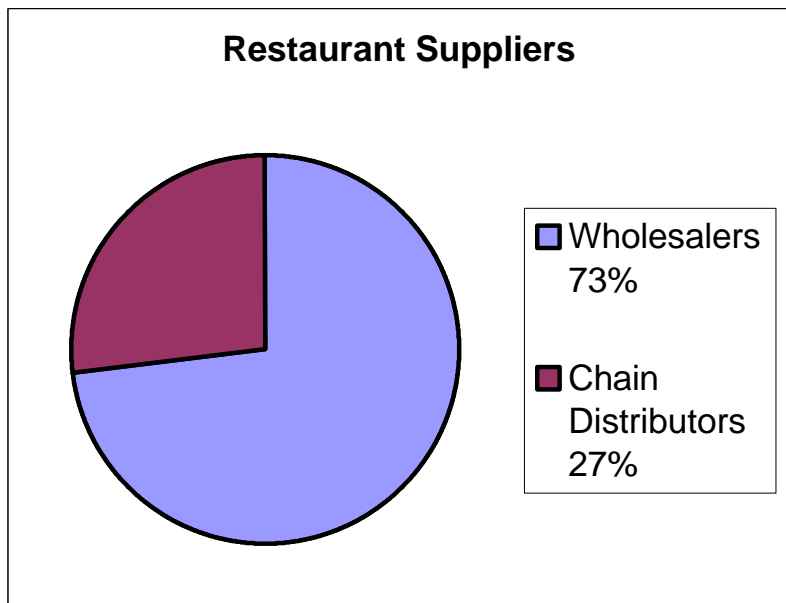


Figure 2. The restaurant suppliers



Appendix D (Continued)

Figure 3. The Price per entree

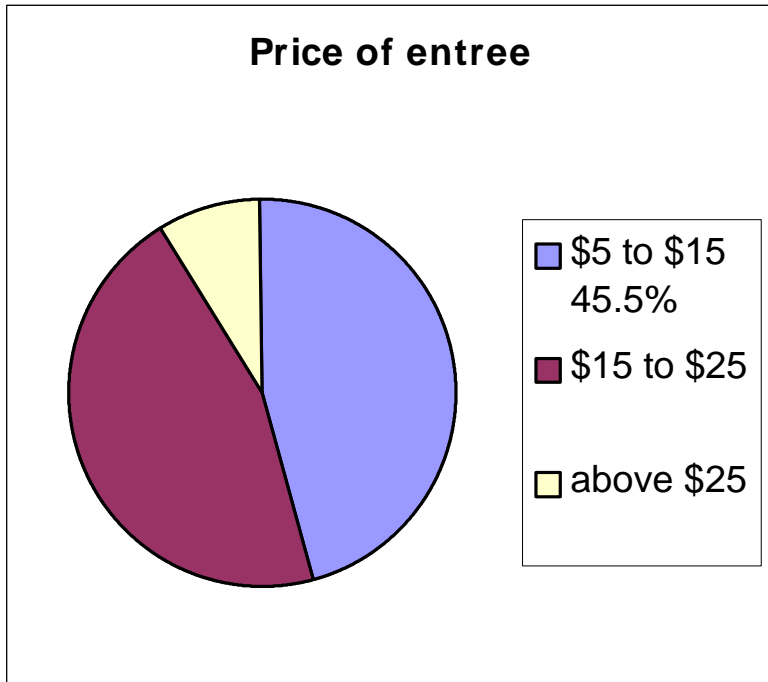
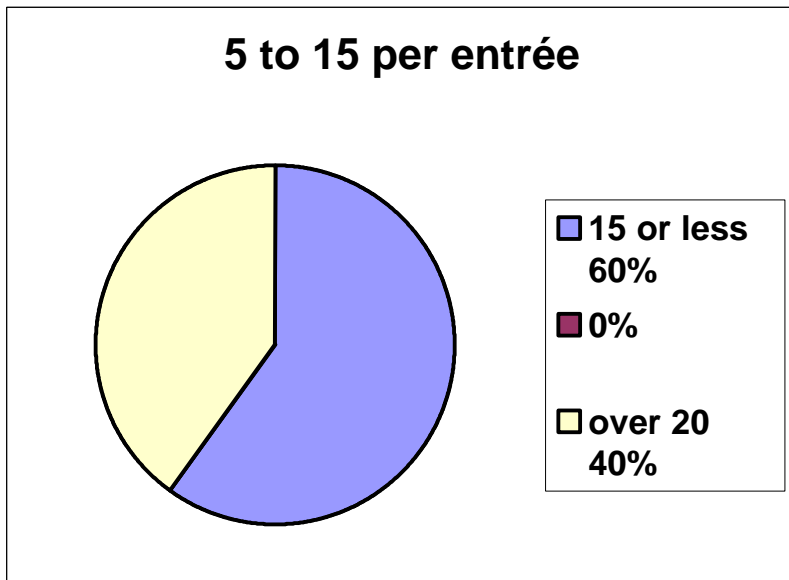


Figure 4. Breakdown of lettuce consumption based on price per entree



Appendix D (Continued)

Figure 5. Breakdown of lettuce consumption based on price per entrée

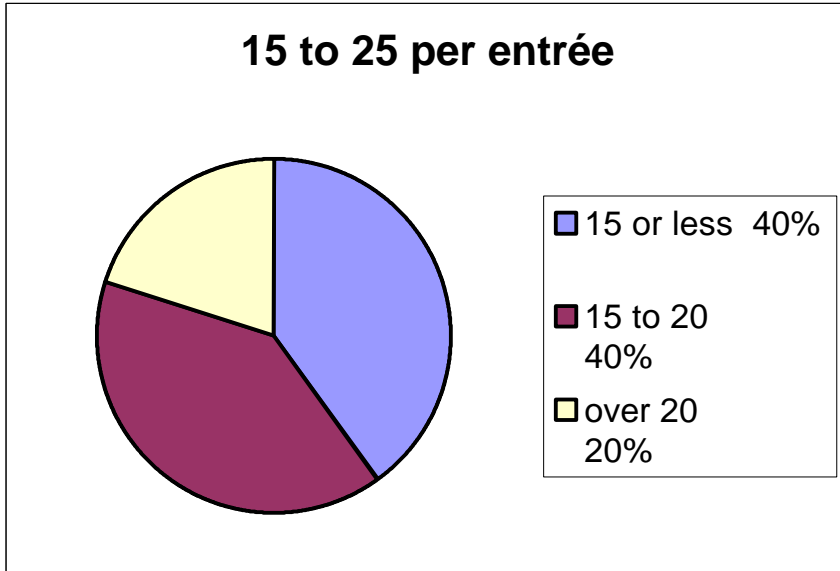
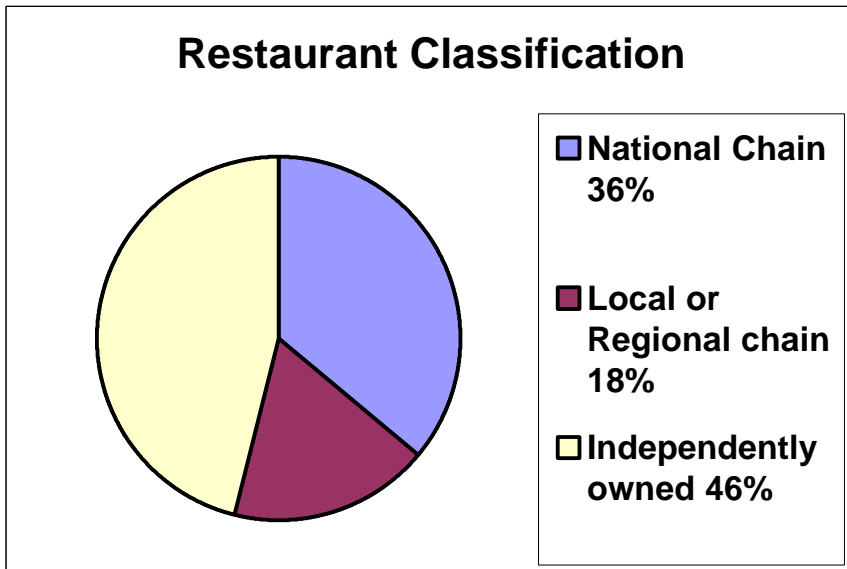


Figure 6. The Restaurant Classification

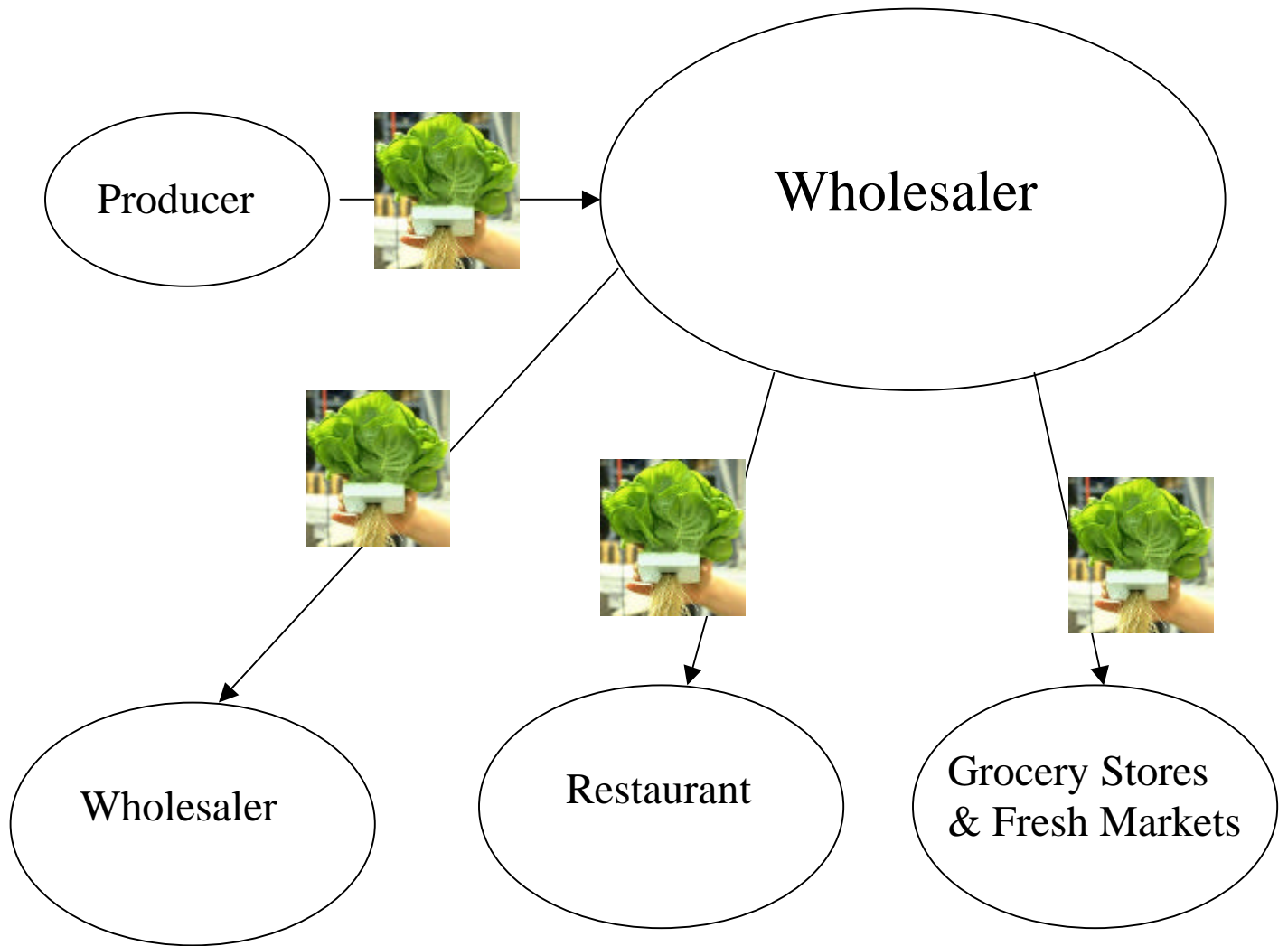


Appendix E

Question	1	2	3				4				5				
Wholesaler	Whole sale Vegetables	Iceberg Lettuce	Sell to Restaurants	Sell to Grocery Stores	Sell to Fresh Markets	Sell to Hotels	Rank Freshness	Rank Appearance (Color)	Rank Size (Uniformity)	Rank Taste	Rank Product Attributes	Rank Price	Rank Packaging	Rank Labeling	Rank Contracting
1	1	1	1	1	1	1	5	5	5	5	5	4	3	3	5
2	1														
3	1	1	1	1	1	1	5	5	3	3	5	5	5	2	1
4	1	1					5	5	4	4.5	4	3	5	5	1
5	1	1	1	1	1	1	5	5	5	3	4	5	3	4	1
Mean	1	1	1	1	1	1	5	5	4.25	3.875	4.5	4.25	4	3.5	2

Question	6	7	8	9	10	11	12	13	14	15
Wholesaler	Hydroponic Vegetables	Hydroponic Lettuce	Other Hydroponic Vegetables	Hydroponic Vegetables w/ Demand	Interested in Local Producer	Willingness to Pay	Minimum Quantity	Requirements	Contracting w/ Local Producer	Use Name in Report
1	0	0			1		0	HAACCP		0
2	0			0						
3	0	0			1	0	0	0	0	0
4	1	0	Tomatoes	Cucumbers	1	5	0	Label, Clean, Trimmed	1	0
5	0	0		Tomatoes	0					1

Appendix F



Appendix G

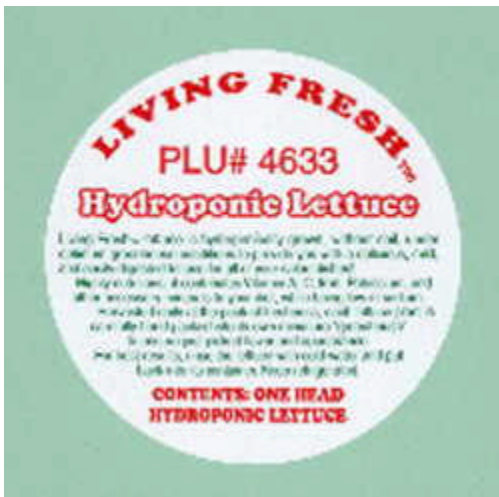


Lettuce Crisper Container

The lettuce crispers keep lettuce fresh and prevent damage from handling in the grocery store. One piece, crystal clear crisper has a hinged lid and has a cup in the bottom for the roots. 720 crisper containers are filled in a case.

Price:

Quantity	Price/case
1- 3	\$154.50
4- 6	\$150.00
7+	\$145.00



Lettuce Crisp Label

This label fits on top of the crisper lid and gives consumer information about the hydroponic lettuce.

Price:

Quantity	Price
1000+	\$37.50

Appendix G (Continued)



Lettuce Box

The Lettuce Box will hold 20 heads of hydroponic lettuce.

Size: 16"W x 24-1/4"L x 9-1/2"H

Price:

Quantity	Price/each
1- 249	\$2.18
250- 749	\$1.94
750- 1249	\$1.88
1250+	\$1.82

