

**From Field to Plate: Alabama Fruit and Vegetable Production, Marketing, and the
Impact of Consumer Demand**

by

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Abstract

Extensive research has been conducted on the various aspects of the fresh produce supply chain including producers, wholesalers, retailers, and consumers. However, there is currently a lack of research regarding consumer demands for locally-grown, fresh fruits and vegetables in Alabama. The disconnect between consumers, producers, and grocers within a state contributes to the problem due to a lack of informational research in this area. This study expanded upon previous research focused on varying aspects of local production, retail sales of local produce, and consumer purchasing habits.

Survey instruments were used to gather the data from consumers, producers, and grocery store produce managers. Alabama producers were asked to complete a survey regarding their production and marketing practices. To assess the marketing system for Alabama-grown, fresh fruits and vegetables, researchers asked retail outlet managers and producer buyers to complete a survey regarding current and future purchases of fresh produce. Researchers asked a selected group of Alabama residents to complete a survey regarding current purchases of locally-grown fresh produce, in an effort to assess some aspects of consumer demand for fresh fruits and vegetables,.

Survey results from each group were the used in the overall evaluation of Alabama's fresh fruit and vegetable supply chain. There is an aging population of fruit and vegetable producers in Alabama. Although they are producing more, both in terms of variety and acreage, they tend to use the same decision making techniques from the

previous year. Currently, the majority of producers are marketing their produce directly to consumers through pick-your-own operations and farmers markets. Retailers also considered consumers to value locally-produced, fresh fruits and vegetables. The majority (89%) of retailers also indicated that consumers request additional varieties of local produce. Based on the data, consumers were interested in purchasing Alabama-grown produce, and they would purchase more given greater availability. The majority (72%) of respondents were willing to purchase Alabama-grown produce.

The next step is determining how to encourage growth and sustain an increased volume of production, along with providing viable alternatives for marketing fresh fruits and vegetables among producers in the state of Alabama. For retailers, the next step is determining which varieties of local produce are being requested; along with determining if it is feasible to procure those produce varieties in order to sell them in Alabama retail outlets. With consumers, the next step is determining ways to educate consumers about current selection and seasonality of locally-grown, fresh fruits and vegetables.

Meeting the needs of consumers could help encourage growth in the Alabama produce industry. For one, if producers know what consumers are looking for, then they can evaluate current production methods and seek alternatives to better meet this demand. Additionally, produce managers at grocery stores can work towards stocking produce desired by the public. Evaluating consumer demand is important for making sales, and knowing what consumers want can aid in that process.

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CHAPTER 1

Introduction

Extensive research has been conducted on the various aspects of the fresh produce supply chain including producers, wholesalers, retailers, and consumers. Research shows that the fresh produce market has changed dramatically over the past 15 years. Changes in the market place include shifts in consumer demand, technological innovations, and retail consolidation. These changes have altered the traditional market relationships among producers, wholesalers, and retailers (Dimitri et al., 2003). Quite possibly, the area of research receiving the most attention in the fresh produce supply chain has been the marketing of fresh produce from the perspective of producers, as well as consumers. However, there is currently a lack of research regarding consumer demands for locally-grown, fresh fruits and vegetables in Alabama.

The first step in the fresh produce supply chain begins with producers or growers. For data collection purposes, the U.S. Department of Agriculture (2010) defines a farm as “any operation that sells at least \$1,000 of agricultural commodities or that would have sold that amount of produce under normal circumstances.” However, this definition does little to present an accurate view of the current farming population, because farms in the United States are diverse in scale and operating practices.

One of the current issues facing small to mid-size farmers involves a lack of marketing knowledge and implementation of said knowledge (Sanders, 2006). This lack

of marketing knowledge can be disadvantageous to both the farmer and the consumer. For the farmer, a lack of marketing knowledge can lead to low sales. Consumers, on the other hand, may receive fewer fresh market product choices because of a farmer's lack of market knowledge. According to Sanders (2006), knowing your market target means not only knowing the shopping preferences of the consumer but also knowing how much the consumer spends and where they spend it.

An issue directly related to the aforementioned lack of marketing knowledge is that producers have little to no indication about what to grow in the upcoming growing seasons. The disconnect between consumers, producers, and grocers within a state contributes to the problem due to a lack of informational research in this area. To combat the problem, producers are searching for alternatives to traditional production practices that offer higher returns per acre. At this day and time, producers must not only consider production practices, but also how their fruits and vegetables will be marketed to achieve higher returns per acre than previously received (Monson and Mainville, 2010).

The second step in the fresh produce supply chain is evaluating retail markets. While farmers markets were the customary places for purchasing rural produce, they all but disappeared in many countries with the arrival of supermarkets (Bukenya et al., 2007). Since that time, the marketing of fresh fruits and vegetables has been forever changed. Changes in the fruit and vegetable industry, especially over the past 15 years, occurred for several reasons: shifting consumer demand, supermarket mergers, changing role of merchant wholesalers, and the introduction of marketing fees (Dimitri et al., 2003). While some changes have altered the industry as a whole, other changes have more specifically altered the relationships between producers, wholesalers, and retailers.

The fresh produce supply chain concludes with consumers. It would be naïve to think that every consumer purchases the same fresh fruits and vegetables at the market. However, they can only buy what the market is able or willing to sell. Monson and Mainville (2010) state that the public has a growing demand for fresh, high-quality, and wholesome foods. Consumers see direct marketing outlets, such as farmers markets, as a way to get fresher produce at a lower cost (Gallons et al., 1997). Eastwood (1996) states that fresh produce purchases constitute an important component of consumer's food budgets.

In discussing produce purchases made by consumers, it is important to consider the significant changes in produce consumption that have occurred in recent decades (Eastwood et al., 1987). Several factors account for the dramatic rise in consumption of fresh fruits and vegetables including the encouragement to increase consumption of fruits and vegetables and the produce industry's effective response to consumers' and foodservice managers' demand for convenience (Handy et al., 2000).

There is a need for research that strengthens local food systems. These strategies include researching local food systems themselves and conducting studies intended to reveal the barriers and opportunities for connecting consumers with local food resources (Dunne et al., 2010). The significance of this study is that every consumer, producer, and retail outlet within the state of Alabama is a stakeholder, and their interests need to be accurately determined. This study was designed to address the issues highlighted by Dunne et al. (2010).

1.1. Objectives

The aim of this study was to complete a comprehensive evaluation of the current magnitude of the fresh produce supply chain within Alabama. This study builds on previous research focused on varying aspects of local production, retail sales of local produce, consumer purchasing habits, and state commodity programs. This study includes evaluating different aspects of the fresh produce supply chain in Alabama from the perspectives of producers, retailers, and consumers. Evaluation of the producers includes identifying current production and marketing practices of fresh produce within the state of Alabama. Retail outlet evaluation includes identifying the marketing of Alabama-grown, fresh fruits and vegetables in Alabama retail stores. For consumers, this evaluation considers the current purchasing habits when purchasing locally-grown, fresh fruits and vegetables, as well as their future purchasing habits.

1.2. Research Questions

The study was conducted in an effort to answer the following research questions:

Producers

- 1) Where do Alabama growers market their fresh fruits and vegetables?
- 2) How do Alabama producers market their fresh fruits and vegetables?
- 3) Are producers affiliated with producer programs such as the Alabama Fruit and Vegetable Growers Association (AFVGA) and/or the Buy Fresh, Buy Local campaign?
- 4) Do producers recognize benefits through being affiliated with these programs?

Retail Outlets

- 1) Do retail outlets make a conscious effort to offer locally-grown, fresh fruits and vegetables to consumers?

2) Are locally-grown, fresh fruit and vegetable products differentiated from fresh produce grown outside the state?

3) Is there a difference in fresh fruit and vegetable sales of chain retailers vs. independent groceries?

Consumers

1) Are residents in Alabama interested in purchasing locally-grown, fresh fruits and vegetables?

2) If so, where do Alabama residents purchase these fresh fruits and vegetables?

3) Will purchases of fresh fruits and vegetables change in the future for these residents?

1.3. Definition of Terms

For the purposes of this study, the following terms have been operationally defined:

Local: from within the state of Alabama.

Fresh produce: fresh fruits and/or vegetables produced and purchased for consumption; not used for other purposes (i.e. canning, juicing, dried, or frozen).

Producer: a person growing the fruits and/or vegetables for consumption; may or may not market the fresh produce directly to consumers.

Retail outlets: any place where fresh produce may be purchased directly by consumers; examples include grocery stores, mass merchandisers, and farmers markets.

1.4. Basic Assumptions

It was assumed that all the respondents, whether producers, retail outlet representatives, or consumers, answered their respective survey honestly and to the best

of their ability. It was also assumed that surveys were presented and administered to the survey respondents impartially. Finally, it was assumed that survey questionnaires were designed to collect an adequate amount of information to answer each of the research questions.

1.5. Limitations

This study was also limited to fresh fruit and vegetable producers within Alabama who voluntarily participated.

For the retail outlets, the sampling procedures were not completely random because only a limited number of retail outlet representatives agreed to participate in the study. The study was limited to retail outlet managers, produce managers, and regional fresh produce merchandisers for chain retail outlets for stores in Alabama.

Sampling procedures for the consumer study were not completely random because retail outlets did not agree for the researchers to conduct survey administration on-site. Some of the retail outlet managers were uninterested, whereas other retail outlets did not allow interaction with consumers by the researchers. Where survey administration was permitted, the study was limited to respondents who voluntarily participated.

1.6. Delimitations

The study investigated the production and marketing procedures of fresh fruit and vegetable producers attending the 2011 AFVGA Conference at Auburn University, Auburn, AL. Surveys were sent to growers based on list of Alabama producers compiled from three different lists: 2010 AU Market Vendors, AFVGA Members, and the Alabama Farmer's Market Authority.

The population of the retail outlet study was delimited to those Alabama retail outlets who voluntarily agreed to participate in the research study in the fall of 2011.

This study also investigated the current local fresh produce purchases of consumers. Surveys were completed at the Auburn University campus Farmer's Market during the summer of 2011. A second round of surveys was completed in the late summer of 2011 by Alabama Master Gardeners.

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CHAPTER 2

Review of Literature

2.1. Introduction

Research into the supply chain of fruits and vegetables fits under the larger umbrella of ‘Agri-food Research,’ a term used to describe “an expansion of rural sociological interest over the last twenty or so years beyond the farm gate to consider the place of farming in wider systems of food production, processing and supply” (Lockie and Kitto, 2000). Over the past several decades extensive research has been conducted on various aspects of research concerning producers, wholesalers, retailers, and consumers in the fresh market industry.

One of the areas receiving the most attention has been marketing of fresh produce, both from the perspective of producers and purchases made by consumers. To efficiently market fresh fruits and vegetables, it is necessary to determine the most profitable marketing mix. The marketing mix is the combination of the four P’s: product, price, place, and promotion. Types of products available in the marketplace could be dictated by consumers; but product variety is often decided by producers. Prices for fresh fruits and vegetables vary depending on season and retail locations such as farmers market or grocery stores. The channel of distribution chosen by the producer or seller defines place. Examples of place include retail supermarkets, institutions and restaurants, pick-your-own operations, farmers markets, agritourism opportunities, community supported agriculture, co-ops, direct sales, and contracts (Kohls and Uhl, 2002; Wolf, 1997).

Promotion of fruit and vegetable products could include informational handouts and free samples at farmers market, or special signage at grocery stores identifying product origin or distinctive product qualities.

Research shows that the fresh produce market has changed dramatically over the past 15 years. Changes in the fresh produce market place include shifts in consumer demand, technological innovations relating to production and marketing, and retail consolidation. Changing consumer demand reflects increased consumption of fresh fruits and vegetables among consumers, along with purchasing a wider variety of fresh produce year-round. Changes in information technology have introduced efficiencies throughout the supply chain, which have resulted in reduced production and marketing costs. These changes have altered the traditional market relationships between producers, wholesalers, and retailers (Dimitri et al., 2003).

Currently lacking is sufficient research regarding one of the newer marketing and promotion techniques – local fresh fruits and vegetables. Jalonick (2011) reported that the popularity of locally-grown food has led to an explosion of the word ‘local’ in food marketing. Locally-grown food has significantly increased in popularity for several reasons, including being fresher, production with fewer chemicals and being grown by smaller, less corporate farms (Jalonick, 2011). While three different marketing channel groups (producers, retailers, and consumers) will each be discussed in greater detail later in this literature review, it is important at this point to discuss the different perceptions of the term ‘local’ and local food systems.

Dunne et al. (2010) and Handy et al. (2000) stated that local food systems are “complex networks of relationships between producers, distributors, retailers, and

consumers grounded in a particular place,” and one of the elements influencing these relationships is how ‘local’ is defined. Through these systems, participants are working to increase food security and ensure the economic, ecological, and social sustainability of communities (Dunne et al., 2010).

According to Dunne et al. (2010), researchers have used a number of different definitions for defining ‘local’ in assessing local food systems. These definitions include, but are not limited to, political or geographic boundaries, as well as the concept of food miles. Here, the term ‘food miles’ defines the distance traveled from where the produce is harvested to where it is purchased by the final consumer. Seyfang (2006) reported that reducing the impact of ‘food miles’ cuts the energy and pollution associated with transporting food around the world.

The following illustrates the ambiguousness of the term ‘local.’ In a 2003 paper, Brown reported a strong interest in local food among her survey respondents. However, most respondents in her study considered “locally-grown” as being within the region of southeast Missouri, not within the whole state. According to Brown (2003), the results indicated that the distance the product travels is more important than loyalty to the state in which the product was grown.

Challenges inherent with local food systems include the absence of a standard definition. Jalonick (2011) raised the question as to what ‘local’ really means. Without a standard definition, sellers are free to capitalize on the trend and assign their own definition. Some retailers may define local as within their state, whereas others may consider it being within a large group of states. Conversely, “consumers might think it means right in their hometown” (Jalonick, 2011). However, due to the diversity of crops

and growing regions around the country, it is unlikely that a federal definition will ever be developed. Jalonick (2011) suggested that a definition based on distance may work for one state will not make sense for others. An even bigger challenge than defining 'local' is "bringing enough infrastructure to rural areas and widening distribution networks as consumers demand more locally-grown food" (Jalonick, 2011). According to Dunne et al. (2010), "an important aspect of studying local food systems is establishing the geographic designation of the study area." For this particular research project, the study area is designated as the state of Alabama.

2.2. Producers

For data collection purposes, the U.S. Department of Agriculture (2010) defined a farm as "any operation that sells at least \$1,000 in agricultural commodities or that would have sold that amount of produce under normal circumstances." However, this definition does little to present an accurate view of the current farming population. U.S. farms are diverse in scale and operating practices. Some are small family farms, while others are large, corporate owned, million-dollar businesses. Although some farmers have full control over their farming processes, others are under contract to produce commodities under strict specifications (Hoppe et al., 2007).

The 2007 Census of Agriculture (USDA, 2009) reported there were a total of 192,119 farms used for fruit and vegetable production, with a total of 8,126,645 acres farmed. Data from the 2002 Census of Agriculture (USDA, 2004) is also presented for comparison. In 2002, there were 186,274 farms used for fruit and vegetable production, with a total of 9,235,212 acres farmed. Over the course of five years the total number of farms increased, but the total acreage reported decreased by nearly 1.1 million acres.

To better understand the current state of agriculture in the United States, it is important to consider that the U.S. farm population is aging. According to the 2007 Census of Agriculture (USDA, 2009), the average age of U.S. farm operators was 57 years. The census also stated that the number of operators 75 years and older grew by 20 percent from 2002 to 2007, while the number of operators under 25 years of age decreased 30 percent during that same time period (USDA, 2009). Velasquez et al. (2003) expressed concern that few new people are entering the farming to replace retiring farmers. They suggested “strategies that enhance the return midwestern U.S. farmers receive for fresh market vegetables might foster new farmers and service to increase vegetable production in the midwestern U.S.” (Velasquez et al., 2003).

Monson and Mainville (2010) highlighted some of the numerous challenges faced by producers in Virginia, although many of the challenges listed are recognized by producers across the nation. These challenges include high costs of production, limited potential for scale economies, and development pressures that increase costs and constrain production activities. Wilson et al. (1997) stated that “intra- and interseasonal diversification by agricultural producers provide an increasingly important means for agribusinesses, particularly the fresh produce industry, to manage risk and take advantage of emerging market opportunities.” In this day and time, producers must not only consider production practices but also how their fruits and vegetables will be marketed to achieve higher returns per acre than previously received (Monson and Mainville, 2010). Velasquez et al. (2003) made several suggestions that farmers can use to enhance the value of their vegetables. These suggestions include “growing organic or reduced-pesticide vegetables, providing part of the processing on-farm, using improved and/or

innovative marketing methods, or growing and marketing cultivars with special qualities” (Velasquez et al., 2003).

A number of different production methods are available to vegetable producers, including: conventional, high tunnel, organic, and controlled environment. Conventional or traditional production methods have been used by producers for decades.

Technological advances in agriculture have contributed to impressive yield gains and have greatly altered U.S. agriculture (Sassenrath et al., 2008). Improvements in plant breeding, mechanization, and conservation systems have all contributed to improvements in agriculture production. However, aspects of conventional agriculture may have adverse effects on environmental and human health, as well as a high price tag (Pimentel et al., 2005). These adverse effects stem from the reliance on synthetic chemical fertilizers and pesticides, runoff of soil and nitrogen fertilizer, and soil erosion.

Another production method available to fruit and vegetable producers in the U.S. is high tunnels. Producers in many parts of the U.S. are using high tunnels for vegetable, small fruit, and cut flower production (Carey et al., 2009). Zhao and Carey (2009) define high tunnels as greenhouse-like structures that provide a protected environment for crop production throughout the year and differ from greenhouses in that they are typically covered by a single layer of plastic, with no permanent electrical service, automated ventilation, or heating system. Most high tunnels have a source of water for irrigation, with drip irrigation being used most often (Lamont, Jr., 2009). One of the benefits of using high tunnels is that crops are grown in a more protected environment, which allows for longer production seasons and improves yield and quality (Hunter, 2010; Zhao and Carey, 2009).

A third production technique available to producers is organic production.

Organic agriculture production refers to production without the use of synthetic chemical fertilizers and pesticides. In this sense, the term 'organic' is merely a production technique, and does not necessarily entail any change in structures or provision (Seyfang, 2006). The 1990s witnessed the introduction of organic food products from specialty outlets into mainstream retail venues in many countries throughout the world yet the wider availability of organic foods worldwide has not yet boosted retail sales beyond niche market status (Thompson, 2000). Thompson's article published 12 years ago reports on the inability to accurately analyze consumer demand for organic foods due to the lack of collected scanner data. However, locally sourced organically grown food has been suggested as a model of sustainable consumption for a range of economic, social, and environmental reasons (Seyfang, 2006).

The final production technique to be discussed includes hydroponics. Greenhouse food production technology has changed dramatically over the past 20 years (Jensen, 1999). Greenhouse food production, often termed controlled environmental agriculture, or CEA, usually accompanies hydroponics (Jensen, 1999). Hydroponics is defined as a technology for growing plants in nutrient solutions with or without the use of an artificial medium to provide mechanical support (Jensen, 1997). Liquid hydroponic systems have no other supporting medium for the plant roots, whereas aggregate systems have a solid medium of support. In terms of today's agriculture production methods, hydroponic culture is possibly the most intensive method of crop production (Jensen, 1997; 1999). However, it is also highly productive, conservative of water and land, and protective of the environment (Jensen, 1997). Hydroponic methods allow production of vegetables in

areas where suitable soil is not available or where disease or other conditions make ground bed production unfeasible (Oregon State University, 2002). Hydroponic crops typically grown include herbs, peppers, cucumbers, tomatoes, lettuce, mixed greens, and strawberries (Tyson et al., 2009)

Considering the aforementioned production challenges, producers are searching for alternatives to traditional production and marketing practices that offer higher returns per acre. Producers near rapidly expanding suburban and urban populations in Virginia, and other states, are also searching for alternatives to traditional marketing practices to capitalize on the population growth (Monson and Mainville, 2010). Being located near areas experiencing rapid population growth presents producers with the possibility of investing in new market outlets.

In the 1990s, produce distribution channels began to experience a significant growth in the volume and value of fresh fruits and vegetables (McLaughlin et al., 1999). The changes experienced throughout the system have created both challenges and opportunities for those involved within the entire supply chain system. Due to the perishable nature of the product, fresh fruit and vegetable products move quickly through the marketing supply chain to combat spoilage. Upon being harvested, fresh fruits and vegetables are handled and packed either by a shipper or grower-shipper (Dimitri et al. 2003).

There are several different options for the next step in the fresh produce supply chain. The produce may be exported, or sold direct to consumers, retail stores, or foodservice establishments. According to Dimitri et al. (2003) and Handy et al. (2000), sales from grower-shippers to retailers and foodservice establishments might be mediated

by wholesalers or brokers, or might occur directly. Marketing opportunities available for produce distribution include retail supermarkets, institutions and restaurants, pick-your-own operations, farmers markets, agritourism opportunities, community supported agriculture, co-ops, direct sales, and contracts (Dimitri et al., 2003; Glaser et al., 2001; Handy et al., 2000). Several of the positive impacts of local markets are support of regional economies through retention of revenue in the community, reduced transportation miles, and service of fresher foods (Dunne et al., 2010; Seyfang, 2006; Strohbehn and Gregoire, 2003).

Marketing to retail supermarkets is one of the distribution channels available to fruit and vegetable producers. However, small to medium producers have a much more difficult time entering this distribution channel. While larger farmers can afford to invest in the costly marketing system required for mass food retailing and distribution, small farmers cannot afford the investment and must choose alternative distribution channels for marketing their fresh fruits and vegetables (Bukenya et al., 2007). Additionally, small to medium producers cannot grow the necessary quantities that retail supermarkets require (Bruhn et al., 1992).

Direct access channels to the consumer therefore offer an alternative source of revenue and immediate cash flow for small farmers. Direct and niche marketing to consumers is becoming an important source of revenue for many farms with limited production scale, especially those with small to medium operations (Bond et al., 2008; Brown, 2003; Bond et al., 2006; Wolf et al., 2005). It is important to note the absence of exact definitions for “small” and “medium” farm operations in the literature. For example, Liang and Pokola (2010) defined small farms as having annual sales of less

than \$10,000 and medium farms were defined as having between \$10,000 and \$249,999 in annual sales. Hoppe et al. (2010) defined small farms as those with gross cash farm income (GCFI) of less than \$250,000. However, 60% of small farms had a GCFI of less than \$10,000, and 22% have less than \$1,000 (Hoppe et al., 2010)

One of the many options available to smaller farmers is marketing fresh produce to institutions and restaurants. Enshayan (2001) analyzed the impact of institutional markets on local agriculture markets and stated that institutional markets can result in greater retention and investment of local food dollars. Keeping even a portion of these food dollars in the area can have a considerable economic impact. However, marketing to hotels, restaurants, and institutions is quite complex. Producers must contend with factors such as menu offerings, geographic location, purchasing and payment policies, and compliance for food safety, just to name a few (Starr et al., 2003; Strohbehn and Gregoire, 2003).

In considering the feasibility of institutions purchasing local goods, Enshayan (2001) and Starr et al. (2003) stated that many institutions have vendor-bid systems or contracts that require them to purchase from one or more distributors. Additionally, institutions often require pre-processed foods, which limits the amount of locally produced goods they can purchase (Enshayan, 2001). Starr et al. (2003) stated that many of the larger institutions, such as schools and colleges, could have additional barriers to purchasing locally-grown products such as meeting requirements to take food from government commodity programs, insurance requirements for vendors, lack of discretionary budgets, and little to no discretion to pay higher prices for higher quality. Lastly, Enshayan (2001) stated that “public policies at the state level may be needed to

provide incentives for institutional buyers to buy locally.” Section 4302 of the Farm Bill amended section 9(j) of the Richard B. Russell National School Lunch Act to require the Secretary of Agriculture to encourage institutions operating the Child Nutrition Program to purchase unprocessed locally-grown and locally-raised agricultural products (USDA, 2011). While the USDA’s Farm to School program may encourage procurement of locally-grown products, the decision of what and how much to purchase is made at the institutional level.

Another option available for fresh fruit and vegetable farmers is operating a “pick-your-own” operation on-site. Each producer approaches this concept a little differently, so this operation may or may not incorporate the entire piece of property depending on several different factors including location, size of property, willingness of producer to harvest the remaining crop, and the amount of liability insurance. Producers may choose to develop “pick-your-own” farms and on-farms produce stands for several reasons. Two specific reasons are to “capture consumers who may drive by” or those “seeking an on-farm experience” (Bond et al., 2006).

One of the more popular alternatives for farmers marketing fresh fruits and vegetables are direct marketing opportunities, which includes farmers markets. Farmers markets are market outlets where farmers bring their produce to sell directly to consumers, supplying them with a fresh, high quality product, while receiving a higher profit margin than what might be possible through the wholesale market (Gallons et al., 1997; Onianwa et al., 2006). Farmers markets offer producers a unique opportunity to obtain better profit margins by selling fresh fruits and vegetables directly to the consumer, despite increasing production costs. These one-step marketing outlets are

attractive to local growers because they can obtain better profit margins (since there are no middlemen), making farming a viable economic activity (Govindasamy et al., 2002).

The number of farmers markets in the United States has been growing steadily in recent years (Bukenya et al., 2007; Onianwa et al. 2006). More than one million consumers visit farmers markets in the United States every week, with more than 20,000 farmers participating (Onianwa et al., 2006). In their article, Bukenya et al. (2007) offered several key features to which the steady growth and popularity of farmers markets can be attributed. These features include freshness, high quality, fair pricing, pleasant social interaction with farmers and market shoppers, and locally-grown foods.

To illustrate the popularity of farmers markets, many vendors were selling up to \$1,000 worth of produce a day at farmers markets along the West Coast from April to October (Egan, 2002). Marketing at farmers markets is a method that continues to appeal to many growers as well as consumers. Producers benefit through enhanced profit and increased interaction with customers, and new growers have better opportunity to sell produce and learn the trade (Onianwa et al., 2006). Consumers frequenting farmers markets benefit from having access to fresh produce and from the interaction with the farmer (Onianwa et al., 2006). However, little is known about what type of produce attributes motivate consumers to patronize certain direct marketing channels versus traditional supermarkets, and what characteristics differentiate these patrons relative to other consumers (Bond et al., 2008); information that is essential for producers to be able to meet the needs of consumers.

Bond et al. (2006) offered producers several techniques for increasing patronization of consumers purchasing produce through direct marketing channels. For

consumers who have a strong preference for purchasing through direct marketing channels, Bond et al. (2006) suggested differentiating the produce with marketing materials that highlight vitamin content, nutritional properties, traceability, pesticide-free, and local-grown claims. When marketing to consumers who only occasionally patronize direct marketing channels, producers should emphasize safety, country of origin, variety, and visual appeal of produce offerings (Bond et al., 2006).

Agritourism opportunities offer producers another way to receive additional income presenting the potential to generate increased on-farm revenues, and farm profitability (Jolly and Reynolds, 2005). In California, Jolly and Reynolds (2005) reported that 67 percent of the respondents who had purchased products at farm-related tourism sites indicated a willingness to pay a price equal or more than what they would pay for similar products in conventional outlets.

Community supported agriculture (CSA) is a newer type of direct agricultural marketing (Hinrichs, 2000), with the first documented CSA being established in 1985 in western Massachusetts. CSA programs offer producers the ability to off-set production risk by spreading it across a number of shareholders by selling shares of the farm production prior to the growing season (Bond et al., 2006). Members (or shareholders) then receive farm products throughout the season, usually weekly, at the discretion of the farmer (Hinrichs, 2000).

CSA shares generally cost hundreds of dollars and typically provide enough fresh produce for a family. Aside from fresh fruits and vegetables, these shares may include other products such as eggs, honey, flowers, and/or meat (Brown and Miller, 2008). Prices per share should be set at a level that is beneficial to both the farmer and the

shareholder. The CSA share price should cover the operating costs and yield a fair return to the farmer's labor (Brown and Miller, 2008; Hinrichs, 2000).

In an interview with Tim Woods from the University of Kentucky, Hollis (2009) reported on the demands being made on the produce supply chain as a whole. These demands include quality assurance, traceability, and third-party certification, with food safety being the primary factor in all of these demands. Over the past two decades, "the percentage of vegetables being imported into the United States market has risen, with most of the produce coming from Mexico and also from Canada" (Hollis, 2009). With imports on the rise, there has been a renewed interest in local products for local markets.

The share of produce volume sold directly by grower-shippers to retail supermarkets has increased, as have sales to the foodservice sector (Dimitri et al., 2003). Small growers have the ability to move larger volumes of product during peak supply periods by diversifying marketing strategies (Tropp, 2008). Tropp (2008) suggested that smaller growers consider sales to institutional and commercial customers, in addition to direct market outlets. Another marketing opportunity is for fruit and vegetable producers to use production contracts. However, there are concerns that the changing contractual relationships among firms that grow, move, and sell fresh fruits and vegetables will affect profits, food quality, and consumer wellbeing (Dimitri, 1999).

Along with discussing marketing opportunities, it is also imperative to discuss minimizing problems often found within the supply chain. No matter how motivated consumers seem to be, they are unlikely to tolerate unreliable produce deliveries from suppliers. Untimely deliveries and considerable transaction costs may limit the willingness of some consumers to consider procurement of locally-grown fruits and

vegetables. Tropp (2008) suggested that “it may be beneficial to help smaller-scale growers create additional marketing alliances that would enable them to scale up production and improve their logistical efficiency.”

According to Baker (1999), targeting individual consumer needs through product development and marketing strategies is challenging for food producers, processors, and retailers who lack the detailed understandings of consumer preferences. Knowledge of consumer preferences affects a producers’ choice of production processes and produce offerings within the context of direct marketing channels (Bond et al., 2008). In considering the importance of research in the fruit and vegetable industry, Eastwood et al. (1987) noted that growers can use the information when making decisions about the types of commodities to plant and about the feasibility of direct market outlets.

2.3. Retail Outlets

At one point in time, farmers markets were the customary places for purchasing rural produce. However, farmers markets all but disappeared in many countries with the arrival of supermarkets (Bukenya et al., 2007). Since that time, the marketing of fresh fruits and vegetables has been forever changed. According to Calvin et al. (2001), a broader definition combining mass merchandisers with conventional grocery retailers “captures the evolving structure of the U.S. food marketplace in which a new type of retailer is playing a greater relative role.” While the consolidation of retailers has the potential to lower procurement, marketing, and distribution costs, the changes had not made much of an impact on the industry (Calvin et al., 2001). However, as new procurement models are designed and implemented, there exists the ability to streamline the supply chain and centralize buying practices.

Numerous changes in the fresh produce industry have occurred over the past three decades (Dimitri et al., 2003). Current changes in the fruit and vegetable industry are due to several reasons: consumer demand, supermarket mergers, changing role of merchant wholesalers, and the introduction of marketing fees. While certain changes have altered the industry as a whole, other changes have more specifically altered the relationships between producers, wholesalers, and retailers. Several of these changes include retail consolidation, technological change in production and marketing, shipper consolidation, growing consumer demand, and year-round availability (Calvin et al., 2001; Dimitri et al., 2003; Glaser et al., 2001; Kaufman et al. 2000). The aforementioned changes have affected the volume of sales, price, and quality of many fresh fruits and vegetables (Kaufman et al., 2000).

Increasingly, mass merchandisers and warehouse club retailers are selling fresh food products with low-price strategies, thus increasing the overall volume of produce sold (Dimitri, et al. 2003). The increased volume of produce sold is evident when considering that the per capita consumption of fresh fruits and vegetables increased 6 percent between 1987 and 1995, and 8 percent between 1995 and 2001 (Dimitri et al., 2003). To keep up with increased consumer demand, new products were introduced, and as a result, the average produce department is larger. The average supermarket produce department as carrying an average of 335 produce items, almost twice the number carried in 1990 (Kaufman et al., 2000). Aside from supermarket changes, the fresh produce marketing channels have changed also. The share of produce volume sold directly by grower-shippers to retail supermarkets has increased, as have sales to the foodservice sector (Dimitri et al., 2003).

2.3.1. Produce Procurement

One important topic in the fresh produce industry is produce procurement, or the shipper/retailer relationship. Fresh produce marketing systems require that fresh fruits and vegetables be moved quickly to limit spoilage. Upon harvesting fresh produce, a shipper or grower-shipper will pack the fruits and vegetables in preparation for the next step in the distribution process. The produce may be exported, or sold direct to consumers, retail stores, or foodservice establishments (Dimitri et al., 2003). The entire supply chain for fresh fruits and vegetables can become quite complex when considering movement from different shipping points into various channels of distribution (McLaughlin et al, 1999).

In some cases, sales from grower-shippers to retailers are mediated by wholesalers or brokers; in other cases sales occur directly. Currently, most imports and exports of fresh fruits and vegetables are handled by produce shippers and wholesalers whose primary form of business is in the global trading of fresh produce (McLaughlin et al., 1999). Even locally, most fresh fruits and vegetables, if not sold directly by the grower, are handled by wholesalers before going to retail grocery stores and supermarkets. According to Dimitri et al. (2003), a typical produce sale at this day and time may take place between a multiproduct grower-shipper and a large supermarket retailer under a standing contract specifying various conditions and terms.

Traditionally, sales of fresh fruits and vegetables has occurred on a daily basis, but Calvin et al. (2001) noted that by 1999, advanced pricing arrangements were becoming more common. For example, during the study period from 1994 to 1999,

shares of daily sales dropped from 72 to 58 percent and advanced pricing arrangements increased from 19 to 24 percent over the same time period (Calvin et al., 2001).

According to Handy et al. (2000), the changing structure of produce wholesalers and retailers have affected how produce travels from the farmer to consumer. To get a better understanding of the shipper/retailer phase of fresh produce procurement, Calvin et al. (2001) interviewed a number of retailers and wholesalers for their perspective. The resulting report summarized results from selected firms across different regions in the United States, and included a mix of retailer and wholesaler types and sizes.

A portion of the 2001 report from Calvin et al. focused on retailer consolidation. The consolidation of retailers in the fresh produce industry was cited for potentially lower procurement, marketing, and distribution costs. Handy et al. (2000) stated that both wholesalers and retailers have significantly consolidated as they have attempted to take advantage of economies of size in procurement and information technologies. However, many of the recently merged chains are still in the process of integrating their buying operations (Calvin et al., 2001). Accordingly, as retailers fully integrate their acquired chains and implement new procurement models designed to streamline the supply chain, the buying practices of retailers may become more centralized than they have to date (Calvin et al., 2001). Retail consolidation is not the only factor affecting the shipper/retailer relationship. Other changes, mentioned earlier, include changes in consumer preferences for variety, convenience, and food safety; changes in technology; and changes in shipper consolidation (Calvin et al., 2001; Dimitri et al., 2003; Glaser et al., 2001; Kaufman et al. 2000).

For the study by Calvin et al. (2001), when shippers reviewed their records, many found relatively small changes in the number of regular customers when considering all buyer types. Most shippers believed that the number of retail customers had declined during the same time, and the majority viewed this as harmful (Calvin et al., 2001). With fewer retail customers, a majority of the shippers thought they had less negotiating power and were fearful of losing accounts if they did not comply with buyer requests (Calvin et al., 2001). According to Glaser et al. (2001), produce shippers expressed concern about supermarket mergers and the potential for adverse effects of new industry marketing and trade practices. To ease the uncertainty in dealing with retailers, Calvin et al. (2001) reported that many shippers are adjusting their marketing strategies to increase sales to other types of buyers.

Some of the new industry marketing and trade practices referenced by Glaser et al. (2001) and Patterson and Richards (2000) included slotting fees, electronic data interchange, pay-to-stay, promotional allowances, lease-back agreements, failure fees, and a host of other ways in which retailers demand payment from supplies to stock a particular product. It is important at this point to discuss another topic regarding produce procurement, namely transaction fees, such as contracts, volume discounts, and slotting fees. In addition to advanced pricing arrangements, the use of contracts has also become more common in the fresh produce industry (Calvin et al., 2001). After interviewing shippers for their study, Calvin et al. (2001) reported volume discounts to be the most frequently paid type of fee. In general, shippers viewed this fee as having a negative or neutral impact on their business (Calvin et al., 2001). However, the authors report that volume incentives have the potential to promote a more stable relationship between

suppliers and retailers; as the retailer buys more units from the supplier, costs per unit decline, providing an incentive for the retailer to buy larger quantities from a particular supplier (Calvin et al., 2001).

Another relatively new transaction activity appearing in the fresh produce industry is the use of slotting fees. Slotting fees are defined as a fee paid upfront to gain retail shelf space for a new or existing product. These fees have been used in other parts of the grocery store for many years, but they have only recently been introduced to the fresh produce department, specifically for fresh-cut fruits and vegetables (Calvin et al., 2001). The Food Marketing Institute (2002) reported that the most common slotting fees or “allowances” are for new products, but many supermarkets will waive such allowances for minority vendors and for suppliers in their communities. However, as Calvin et al. (2001) reported, a few of the shippers they interviewed were asked to pay, and some lost accounts when they failed to comply. The economic viability of smaller shippers who play by the rules, and the ability of U.S. consumers to obtain the best quality produce at the lowest possible price is at stake with the introduction of the various fees, according to Patterson and Richards (2000).

2.3.2. Marketing of Fresh Fruits and Vegetables

Sales of fresh fruits and vegetables to U.S. consumers have increased significantly during recent years. Fresh produce sales to consumers through supermarkets and other retail stores, through meals and stacks consumed, and through direct sales by farmers were \$70.8 billion in 1997, up from \$36.4 billion a decade earlier (Handy et al., 2000). Research regarding the marketing of fresh fruits and vegetables is more readily available than the marketing and sales of local produce, especially outside of the realm of direct

marketing outlets, although some does exist. Local foods are no longer marketed solely through farmers markets and community-supported agriculture programs, but also in large and smaller retail outlets from cooperatives to supermarkets (Dunne et al., 2010). To successfully market local goods, the products must be of high quality yet sold at a competitive price (Brown, 2003). In considering prices, Kohls and Uhl (2002) stated that “economic theory tells us that two identical products, selling in a competitive market, should sell for the same price once transportation costs have been taken into account.”

Two of the distribution channels discussed here include grocery retailers and farmers markets. McLaughlin et al. (1999) stated that close to half of all fresh produce distributed in the U.S. moves through the wholesale distribution system. This system consists of key players including produce packers, field buyers, distributors, brokers, repackers, and various receivers in the terminal market (McLaughlin et al., 1999). In terms of direct grocery retail sales, sales from this category represent the most important marketing channel for the sales of fresh produce studied, except California and Florida tomatoes. Combining mass merchandisers with conventional grocery retailers captures the evolving structure of the U.S. food marketplace in which a new type of retailer is playing an even greater role (Calvin et al., 2001).

Traditionally, local food has been promoted through direct marketing outlets such as farmers markets and community supported agriculture programs. However, retail stores are increasingly carrying and marketing local foods in response to consumer demand and market potential. Due to the frequency in which consumers shop at retail grocery stores, these stores may place a significant role in the successes local agriculture (Dunne et al., 2010). The case for additional research regarding ‘local’ foods and

traditional retail grocery stores was made by Eastwood et al. (1987). They stated that retail food outlet operators can make more informed decisions regarding which types of fresh produce to carry, determine the best methods for distinguishing between local and out-of-area produce items, and determine relevant advertising campaigns (Eastwood et al., 1987).

Lindgren (1991) noted that there has been a renewed interest in the past 10 to 15 years in using farmers markets for direct-marketing of agricultural products. From 1994 to 2002, the number of farmers markets in the United States increased 79 percent (USDA - AMS, 2002), indicating significant growth in this type of retail outlet. Egan (2002) stated the proliferation of open-air markets has come out of nowhere, giving more consumers an option and allowing many small farmers to stay in business. Wolf et al. (2005) stated that farmers markets provide opportunities for family farms, especially smaller farm operations, to sell their fresh produce directly to consumers.

In terms of consumer patronage, approximately 3 million Americans purchase produce on a weekly basis from farmers markets nationwide (Egan, 2002). However, farmers markets continue to represent a very small portion of sales in the agricultural industry (Wolf et al., 2005) despite increases in the number and popularity of farmers markets nationwide. Approximately 3 percent of the nation's farmers sell at least a portion of what they grow directly to consumers (Egan, 2002). According to Egan (2002), farmers markets reported about \$1 billion in sales in 2001, compared with more than \$200 million in sales for produce sold in early venues.

One of the most important changes in the fresh produce industry is that of changing consumer demand. Developing products and market strategies that target

individual consumer needs require that food producers, processors, and retailers have a detailed understanding of consumer preferences (Baker, 1999). Understanding consumer preferences and store patronage patterns requires understanding demographic and psychographic variables of consumers. While many studies have considered demographic variables, little is known about how psychographic factors impact the grocery shopping practices of consumers (Sullivan and Savitt, 1997).

Retailers also need to understand the shopping patterns of both rural and urban consumers. According to Sullivan and Savitt (1997), retailers need to better understand how rural consumers spend money, to remain successful in business. It would also benefit retailers to know the factors influencing the decisions of rural consumers to spend money, both in and out of the area in which they reside. Sullivan and Savitt (1997) suggested an economic need for retailers and communities to understand why consumers shop outside of their area. In the study conducted by Sullivan and Savitt (1997), store patronage variables (price and product selection), as well as psychographic and demographic variables were examined to determine what propels residents to shop at certain locations.

In studying these variables, retail food outlet operators can make more informed decisions regarding the types of fresh produce to stock, whether or not to distinguish between local and non-local items, as well as any advertising programs to use (Eastwood et al., 1987). As far as advertising programs are concerned, Scheerens (2001) suggested “the fact that fruit and vegetables are often marketed without brand names may be one of the factors which limits the incentive for producers and marketers to advertise.”

The aforementioned changes in the produce industry, such as consolidation, the introduction of new technologies, changing consumption patterns, and new marketing and trade practices, are all important dynamic forces that are likely to continue to shape produce markets and market channels in the future (Kaufman et al., 2000). According to Dunne et al. (2010), the perspectives of food retailers regarding ‘local’ food systems merit further study, especially considering the relative volume of their potential contributions to local food movements.

2.4. Consumers

Monson and Mainville (2010) stated that the public has a growing demand for fresh, high-quality, and wholesome foods. The public also demands food that includes intangible attributes such as environmental sustainability, support for local agriculture, and economic development, all of which are often assumed to be inherent in locally produced foods (Monson and Mainville, 2010). Consumers see direct marketing outlets, such as farmers markets, as a way to get fresher produce at a lower cost (Gallons et al., 1997).

Eastwood (1996) stated that fresh produce purchases constitute an important component of consumer’s food budgets. It would be naïve to think that every consumer purchases the same fresh fruits and vegetables at the market. However, they can only buy what the market is able or willing to sell. Based on an extensive literature review, there is a lack of knowledge regarding consumer demands of fresh fruits and vegetables in the state of Alabama, much less any research focused on locally-grown fresh produce. Some researchers have studied purchasing habits of a specific commodity, such as tomatoes (Simonne et al., 2006), or a specific location, such as farmers markets (Baker et al., 2009;

Eastwood et al., 1999; Govindasamy et al., 1998; Wolf et al., 2005); but purchasing habits of broad commodity categories remain largely unknown. According to Sullivan and Savitt (1997), research has reported on consumer expenditures and demographics, yet very little research has been conducted about why they spend.

2.4.1. Produce Consumption

In discussing produce purchases made by consumers, it is important to consider the significant changes in produce consumption that have occurred in recent decades (Eastwood et al., 1987). Several factors account for the dramatic rise in consumption of fresh fruits and vegetables; the first being that federal agencies, private health organizations, and produce companies have encouraged Americans to increase consumption of fruits and vegetables. Another important factor contributing to rising consumption of fresh fruits and vegetables is the produce industry's effective response to consumers' and foodservice managers' demand for convenience (Handy et al., 2000).

The produce industry has responded to the demand for convenience by offering packaged and pre-cut vegetables and fruits, which are now occupying more shelf space in the produce department as they continue to gain acceptance by consumers. A third reason offered by Handy et al. (2000) regarding the increases in fresh fruit and vegetable consumption in the last 10 years is that the diversity of produce items has expanded. On the opposite end of the spectrum, Scheerens (2001) offered two main factors that may deter increased consumption of small fruit including their relatively high price per serving and their relative perishability, which affects cost, ease of transport, and availability.

2.4.2. Produce Quality and Attributes

Scheerens (2001) reported that the factors influencing food choices of consumers are complex and interrelated. Some of the factors relate directly to the consumer, such as sensory preference, physiological factors, age, gender, and lifestyle. Other factors include personality, education, income, social attitudes about diet and health, ethnicity and tradition, religious beliefs, social pressures, marketing pressures, and knowledge or self-identity beliefs. There are, however, other factors that relate directly to the item being purchased, such as produce quality and available product information. According to Onianwa et al. (2006), consumers considered attributes such as freshness, appearance, variety, selection of produce, availability of locally-grown items, price, and atmosphere of the store when deciding where to make their fresh produce purchases.

Produce quality and characteristics play a large role in purchase decisions for most consumers (Govindasamy et al., 1997). In the United Kingdom, consumers feel that buying local produce results in a purchase of products that are of higher quality, fresher, and more nutritious (Chambers et al., 2007). Brown (2003) reported that survey respondents considering local produce to be of higher quality, which is the main reason they shop at farmers markets. Similar to Brown's study, a study of farmers market customers in Vermont revealed that local and fresh foods were the two most important reasons for customer patronage to the farmers markets in the area (Baker et al., 2009).

In 1997, Wolf published research comparing the tastes and preferences of farmers market consumers with those who purchased produce at supermarkets. Desirable produce characteristics for farmers market produce included fresh looking, fresh tasting, high-quality product, and a good value for the money (Wolf, 1997; Scheerens, 2001). In their

study of direct marketing customers, Bond et al. (2006) and Scheerens (2001) reported that direct market consumers tend to place a high value on firmness and texture, freshness and taste, safety, and value for the produce dollar. Identifying specific food attributes valued by consumers can result in increased sales of products with those attributes. For example, freshness, taste and visual appearance are determinants that are directly related to the ability of the produce to satisfy the needs for which it was purchased (Govindasamy et al., 1997).

2.4.3. Locally-grown Produce

The current literature lacks information regarding consumer demand for locally produced goods in Alabama. Evidence suggests that consumers have strong preferences for locally-grown products, but there is limited information about the exact magnitude and drivers of these preferences (Carpio and Isengildina-Massa, 2009). By understanding and anticipating consumer needs and preferences regarding fresh fruit and vegetable purchases, producers can be better prepared to make profit seeking decisions (Govindasamy et al., 1997).

According to Sanders (2006), a current issue facing the small to mid-size farmer involved a lack of marketing knowledge and implementation. This lack of marketing knowledge can be disadvantageous to both the farmer and the consumer. For the farmer, a lack of marketing knowledge can lead to low sales. Consumers, on the other hand, may receive fewer choices of fresh market product as a result of a farmer's lack of market knowledge. Knowing the market target means not only knowing the shopping preferences of the consumer but also knowing how much the consumer spends and where they spend it (Sanders, 2006).

In his study of Tennessee farmers markets, Eastwood (1996) reported that many of the study participants completing surveys indicated they wanted more local produce available throughout the year. This is partly explained when considering that urban food shoppers may be unfamiliar with the harvest times of locally-grown, fresh fruits and vegetables (Eastwood, 1996). In a 1987 study, Eastwood et al. reported neutrality among consumers with respect to origin. The authors suggested promotion stressing specific advantages of locally-grown fresh produce to combat the neutrality among consumers (Eastwood et al., 1987).

2.4.4. Purchasing Location

According to Sullivan and Savitt (1997), some of the research available has attempted to evaluate store patronage behavior with regard to lifestyle factors that shape outshopping patterns, especially in small rural communities. According to Ballenger and Blaylock (2003), “Consumers with rising incomes are quite willing to increase food spending if it means acquiring more convenience, better quality, or more of other valued food attributes.” Bond et al. (2006) stated that consumers of direct market produce use factors such as having a wide variety of superior and safe produce as well as supporting local producers in determining where to shop.

Still, little is known about what other produce attributes motivate consumers to patronize certain direct marketing channels versus traditional supermarkets, and what characteristics differentiate these patrons relative to other consumers (Bond et al., 2008). Understanding what reasons motivate individuals to purchase goods from farmers markets can guide marketing efforts (Baker et al., 2009). Knowing the characteristics of typical consumers allows vendors to identify unmet demand, coordinate among markets,

and develop stronger and more strategic plans. Onianwa et al. (2006) reaffirmed the need to analyze and understand consumers, their purchasing habits, and their preferences regarding fresh produce. Knowing this information can assist in enhancing services at farmers markets and ultimately increase market share (Bond et al., 2009; Eastwood et al., 1987; Govindasamy et al., 1998, 2002; Onianwa et al., 2006).

According to Eastwood (1996), consumers value supermarkets for the advantages they provide with respect to location, convenience, and consistent supply. For supermarket managers, knowing the profile of potential customers is important for marketing purposes because managers could maximize their advertising efforts and resources by targeting the right population (Govindasamy et al., 1998).

Eastwood (1996) reported “although locally-grown fresh produce is perceived to have advantages, there are two countervailing forces also at work with respect to shopping decisions.” The first is the additional cost associated with stopping at farmers markets. The additional cost associated with farmers markets is the inconvenience for consumers, which also needs to be considered (Brown, 2003). The second force is the current satisfaction level perceived by urban food shoppers. Since they are satisfied with the quality and freshness available elsewhere, they are less likely to visit farmers markets for purchasing fresh fruits and vegetables.

According to Bond et al. (2009), it is important for producers to know how to best educate current and potential customers about the features of the purchase location and the products available at direct market venues. In their 2006 study, Onianwa et al. examined the characteristics of consumers in selected farmers markets in Alabama. They evaluated consumer views and preferences of farmers markets, and compared and

contrasted consumers' views and preferences between farmers markets and supermarkets. In essence, the current study is designed as a follow-up to the Onianway et al. study from 2006 by evaluating the fresh produce supply chain in Alabama from the perspectives of producers, retailers, and consumers.

2.5. State-Sponsored Programs

According to Govindasamy et al. (2004), much of agriculture is characterized by competitive markets, thus individual farmers are typically incapable of influencing the prices received for their products. Thus, several states, including Arizona, California, Texas, and South Carolina have focused on marketing locally-grown products. According to Jekanowski (2000) and Patterson (2006), advertising and promotion of agricultural products have occurred at the state government level since the 1930s. At that time, the programs for marketing specific produce, such as Washington apples and Florida citrus, were viewed as self-help marketing solutions to aid farmers (Patterson, 2006). Furthermore, advertising by commodity groups and marketing boards tends to focus on increasing consumer demand for a single product, such as pork, milk, or potatoes (Jekanowski, 2000).

According to Patterson et al. (1999), state commodity promotional programs have become widespread. As of 1995, 23 states had state branding programs. By 2003, Patterson et al. (2003) reported that as many as 38 states were using some sort of state branding program. In his 2006 article, Patterson reported that state branding programs were employed in 43 states. These promotions are designed to appeal to the interests of state citizens and are argued to bolster the local economy (Patterson et al., 1999).

The late 1980s witnessed the launch of state programs to collectively promote all the products produced within a state under a single state brand (Patterson, 2006). Examples of these state programs include Jersey Fresh, Go Texan, and Something Special from Wisconsin. For the most part, state branding programs serve three key functions: expanding consumer awareness of state-sourced products, motivating consumers to buy the state-sourced products, and establishing new markets or expanding existing markets domestically and/or internationally (Jekanowski, 2000).

Patterson (2006) reported that these state branding programs were being viewed as a way of improving economic opportunities for each state's farmers at a time when prices for many agricultural commodities were depressed. State branding programs are aimed at promoting, or at least identifying, all agricultural products produced within that state. Doing so adds a 'family branding' aspect to generic promotions that typically focus on a single commodity (Jekanowski, 2000). As agricultural markets are becoming increasingly global, and U.S. producers are facing greater competition from other countries, these programs are expected to grow in popularity (Jekanowski, 2000). Consumers also like these programs, which stir sentimental feelings about helping their neighbor farmers (Patterson, 2006).

The following examples discuss several of the many state branding programs in the United States. According to Govindasamy et al. (2004), the Jersey Fresh program was implemented by the New Jersey Department of Agriculture in 1984, and was the first state-funded marketing campaign for agricultural products produced in New Jersey. This program was designed to increase consumer awareness of the state's agricultural products

as well as to encourage food retailers to promote Jersey Fresh products (Govindasamy et al., 2004).

In his 2006 study, Patterson evaluated consumer awareness of Arizona's program and their preferences for Arizona products. Patterson (2006) also analyzed the effects of the program on product sales. Results indicated that consumers were largely unaware of Arizona's program; however, most reported that they would prefer Arizona products over others (Patterson, 2006).

In her 2003 study, Brown evaluated the effectiveness of the *AgriMissouri* label. Growers participate in a matching funds program and use the label to encourage consumers to purchase Missouri-based produce. The state produces a buyer's guide, "listing everything from barbecue sauces to fish to vegetables," to help consumers locate agricultural products grown or processed in Missouri (Brown, 2003). Survey participants were asked whether they would choose products with an *AgriMissouri* label over a product without such a label. Seventy-nine percent of respondents indicated they would choose the product with an *AgriMissouri* label present (Brown, 2003). Results of Brown's 2003 study imply that marketing of local produce should focus on quality and competitive pricing of products coming from southeast Missouri. Brown (2003) suggested appealing to a consumer's loyalty to a smaller region rather than promoting products based on the state in which they were grown.

In discussing state branding programs, Jekanowski (2000) and Patterson et al. (1999, 2003) reported that the programs usually rely heavily on the use of a standardized logo or slogan, which can be displayed on point-of-purchase (POP) materials supplied to supermarkets, in sales flyers distributed by individual supermarkets, or via television or

radio advertisements. According to Carpio and Isengildina-Massa (2009), the rise in consumer interest in local foods has been accompanied by increased participation of state departments of agriculture in promoting locally-grown foods. Identifying this market segment accomplishes several objectives. First, products and services may be developed to meet the segment's unique needs. Fresh fruits and vegetables may be priced and discounted according to the needs of this specific market segment. In addition, promotion and advertising programs may be designed to target consumers in the segment. Finally, distribution systems appropriate to the segment may be utilized (Baker, 1999).

Little research has been conducted to determine the factors that could influence successful implementation of state branding programs, despite the growing interest in such programs (Jekanowski, 2000). Determining such factors could be useful for identifying and targeting consumers who are the most willing to build loyalties to local products (Jekanowski, 2000). Furthermore, differentiating products produced within the state with state branding programs could complement national promotion efforts aimed at increasing consumer awareness of agricultural commodities in general (Jekanowski, 2000).

2.6. Conclusion

Over the past several decades extensive research has been conducted on various aspects of research concerning producers, wholesalers, retailers, and consumers in the fresh market industry. One of the areas receiving the most attention has been marketing of fresh produce, both from the perspective of producers and purchases made by consumers. Research showed that the fresh produce market changed dramatically over the past 15 years. Changes in the fresh produce market place included shifts in consumer

demand, technological innovations relating to production and marketing, and retail consolidation.

The focus of this research was on one of the newer marketing and promotion techniques – local fresh fruits and vegetables. Jalonick (2011) reported that the popularity of locally-grown food has led to an explosion of the word ‘local’ in food marketing. Locally-grown food has significantly increased in popularity for several reasons, including being fresher, made with fewer chemicals, and being grown by smaller, less corporate farms (Jalonick, 2011). Three different marketing channel groups (producers, retailers, and consumers) will each be studied in greater detail and the results will be discussed in the following chapters.

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CHAPTER 3

Production and Marketing Practices of Alabama Fruit and Vegetable Producers

3.1. Abstract

There is currently a lack of research regarding consumer demand for locally produced fresh fruits and vegetables in Alabama. Producers have little indication of how to best meet consumer demand because of the lack of information regarding the relationships between consumers, producers, and retail outlets in the state. To assess the current state of fresh fruit and vegetable production, Alabama producers were asked to complete a survey regarding their production and marketing practices. There is an aging population of fruit and vegetable producers in Alabama. Although they were producing more, both in terms of variety and acreage, they tend to use the same decision making techniques from the previous year. The majority of producers were marketing their produce directly to consumers through pick-your-own operations and farmers markets. The next step is determining how to encourage growth and sustain an increased volume of production, along with providing viable alternatives for marketing fresh fruits and vegetables among producers in the state of Alabama.

3.2. Introduction

For data collection purposes, the U.S. Department of Agriculture (2010) defines a farm as “any operation that sells at least \$1,000 of agricultural commodities or that would have sold that amount of produce under normal circumstances.” U.S. farms are diverse in

scale and operating practices. Some are small family farms, while others are large, corporate owned, million-dollar businesses.

Two of the most important decisions for producers are production decisions and marketing decisions. Production decisions involve which varieties to grow, how much of each variety to grow, as well as production methods. Marketing decisions involve deciding when and where to market the produce grown, as well as pricing decisions. Call (1995) stated that horticultural crop production is a “highly technical interplay of science, art, hard work and salesmanship.” Considering these factors, fruit production is typically considered a longer-term investment; while vegetable farmers have more options in deciding which crops to grow in the upcoming season. However, a lack of communication between producers and the retailers and consumers within the state leaves producers with little to no indication as to what to grow in the coming year. Thus, producers use various methods in determining which varieties of vegetables, and fruits to some extent, to grow during the upcoming production season (Call, 1995; McCann et al., 1997; Saltiel et al., 1994).

Production decisions are based on geographical distribution, farm structure, profitability, awareness of other farming practices, and consumer demand, according to Saltiel et al. (1994). While Call (1995) pointed out that determining what should be grown can be quite simple, projecting what and how much of each crop should sell is more difficult. In planning for future production, some farmers opt for contract production (Hoppe et al., 2007), whereas others may focus their efforts in local markets. Contracts have been used by farmers in California for years, one example being lettuce, which has been grown almost entirely under contracts since the 1930s, when it became

technologically possible for California farmers to supply fresh lettuce to cities in the East (Hueth et al., 1999).

A number of different production methods are available to producers, including: conventional, high tunnel, organic, and hydroponics. Conventional or traditional production methods have been used by producers for decades. Technological advances in agriculture have contributed to impressive yield gains and have greatly altered U.S. agriculture (Sassenrath et al., 2008). Another production method available to fruit and vegetable producers in the U.S. is high tunnels; which are used in many parts of the U.S. for vegetable, small fruit and cut flower production (Carey et al., 2009). One of the benefits of using high tunnels is that the crops are grown in a more protected environment, which allows for extended production and marketing seasons and improves yield and quality (Zhao and Carey, 2009).

Another production method available to producers is organic production, which refers to production without the use of synthetic chemical fertilizers and pesticides. In this sense, the term ‘organic’ is merely a production technique (Seyfang, 2006). The fourth, and final, production technique to be discussed includes hydroponics. Jensen (1997) defines hydroponics as a technology for growing plants in nutrient solutions with or without the use of an artificial medium to provide mechanical support. Liquid hydroponic systems have no other supporting medium for the plant roots, whereas aggregate systems have a solid medium for support. In terms of today’s agriculture production methods, hydroponic culture is possibly the most intensive method of crop production writes Jensen (1997, 1999). However, it is also “highly productive, conservative of water and land, and protective of the environment” (Jensen, 1997).

Monson and Mainville (2010) highlight some of the numerous challenges faced by producers in Virginia, although many of the challenges listed are recognized by producers across the nation. These challenges include high costs of production, limited potential for economies of scale, and development pressures that increase costs and constrain production activities. In this day and time, producers must not only consider production practices but also how their fruits and vegetables will be marketed to achieve higher returns per acre than previously received (Monson and Mainville, 2010).

Due to the perishable nature of the product, fresh fruit and vegetable products must move quickly through the marketing supply chain to combat spoilage. Upon being harvested, fresh fruits and vegetables are handled and packed either by a shipper or grower-shipper (Dimitri et al. 2003). The next step in the fresh produce supply chain dictates that the produce may be exported, or sold direct to consumers, retail stores, or foodservice establishments. According to Dimitri et al. (2003) and Handy et al. (2000), sales from grower-shippers to retailers and foodservice establishments might be mediated by wholesalers or brokers, or might occur directly. Marketing opportunities available for produce distribution include retail supermarkets, institutions and restaurants, pick-your-own operations, farmers markets, agritourism opportunities, community supported agriculture, co-ops, direct sales, or contracts (Dimitri et al., 2003; Glaser et al., 2001; Handy et al., 2000).

Marketing to retail supermarkets is one of the many distribution channels available to fruit and vegetable producers. While larger farmers can afford to invest in the costly marketing system required for mass food retailing and distribution, small farmers cannot afford the investment and must choose alternative distribution channels for

marketing their fresh fruits and vegetables (Bukenya et al., 2007). Aside from investment costs, small farms are typically not able to meet the quantity demands of larger retail supermarket chains. Direct access channels to the consumer offer an alternative source of revenue and immediate cash flow for small to medium operations (Bond et al., 2008; Bond et al., 2006; Brown, 2003; Wolf et al., 2005). However, it is important to note the absence of exact acreage numbers defining “small” and “medium” farm operations in the literature.

According to Baker (1999), targeting individual consumer needs through product development and marketing strategies is challenging for food producers, processors, and retailers who lack the detailed understandings of consumer preferences. Knowledge of consumer preferences affects a producers’ choice of production processes and produce offerings within the context of direct marketing channels (Bond et al., 2008). In considering the importance of research in the fruit and vegetable industry, Eastwood et al. (1987) note that growers can use the information when making decisions about the types of commodities to plant and about the feasibility of direct market outlets.

3.2.1. United States Agriculture Production

The 2007 Census of Agriculture (USDA, 2009) reported operator characteristics for up to three operators per farm. There were a total of 2,204,792 principal operators, 993,881 (45%) of whom reported farming as being their primary occupation. The majority (86%) of principal operators were men. Seventy-seven percent (1,693,362) of respondents reported that they reside on the farm that they operate. The majority of respondents (73%) indicated they have been at the present farm for 10 years or more.

To better understand the current state of agriculture in the United States, it is important to consider that the U.S. farm population is aging. According to the 2007 Census of Agriculture (USDA, 2009), the average age of principal operators was 57 years. The majority of principal operators, 1,817,361 or 82% of survey respondents, were represented in the age groups “45 to 54 years,” “55 to 64 years,” “65 to 74 years,” and “75 years and over.” The fewest survey respondents were represented in the age group categories “Under 25 years” and “25 to 34 years” with a total of 118,613 respondents, which is only 5% of the population.

The 2007 Census of Agriculture (USDA, 2009) reported a total of more than 2.2 million farms, with more than 922 million acres of land in farms. Of this total, more than 200,000 farms were identified for vegetable (69,172 farms), orchard (115,935 farms), and/or berry production (25,017 farms), with nearly 10 million acres farmed between these three categories. Seventy-six percent of the 69,172 vegetable farms were between 0.1 and 14.9 acres, whereas less than 2% of the vegetable farms were greater than 750 acres in size. Eighty-six percent of the 115,935 orchards were between 0.1 and 49 acres in size. Seventy-eight percent of the 25,017 farms reporting berry production were between 0.1 and 4.9 acres.

3.2.2. Alabama Agriculture Production

In the 2007 Census of Agriculture (USDA, 2009) operator characteristics for Alabama farms included a total of 48,753 principal operators, 19,416 (40%) of whom reported farming as being their primary occupation. The majority (87%) of principal farm operators in Alabama were men. Seventy-eight percent (37,966) of respondents reported that they resided on the farm that they operated. The majority of respondents (72%)

indicated they have been at the present farm for 10 years or more, with the principal operator having worked an average of 20.5 years on the present farm. Ninety-two percent (45,014) of Alabama farms were classified as family or individual farms, compared to partnership (3%), corporation (2%), or other organization types (1%).

According to the 2007 Census of Agriculture (USDA, 2009), the average age of principal operators in Alabama was 57.6 years. The majority of principal operators, 35,266 or 72% of survey respondents, were represented in the age groups “50 to 54 years,” “55 to 59 years,” “60 to 64 years,” “65 to 79 years,” and “70 years and over.” The fewest survey respondents were represented in the age group categories “Under 25 years” and “25 to 34 years” with a total of 2,499 respondents, which was only 5% of the population.

The State of Alabama is home to approximately 3,500 fruit and vegetable farms including 1,603 vegetable farms, 1,795 orchards, and 496 berry farms (USDA, 2009). A total of 25,000 acres were used for vegetable production, 25,000 acres were identified for use in orchards, and an additional 800 acres used in berry production. Seventy percent (1,112) of the vegetable farms were between 0.1 and 4.9 acres in size, with ninety-three percent (1,489) ranging in size from 0.1 to 24.9 acres. Fifty percent (945) of orchards were between 0.1 and 4.9 acres, with 88% (1,674) of the farms between 0.1 and 24.9 acres (USDA, 2009).

3.2.3. Purpose of Study

The purpose of this study was to complete a comprehensive evaluation of the current production and marketing practices of fresh fruits and vegetables made by Alabama producers. Specifically, objectives are: 1. determine where Alabama producers

market their fresh fruits and vegetables; 2. determine how Alabama producers market their fresh produce; 3. determine the number of producers affiliated with producer programs such as the Alabama Fruit and Vegetable Growers Association (AFVGA) and/or the Buy Fresh, Buy Local campaign; and 4. evaluate producer recognition of benefits through affiliation with these producer programs. To gather data for this project, the primary researcher sought answers to survey questions involving production methods, marketing location and methods, affiliation with Alabama producer programs, and producer-perceived benefits of the producer programs.

3.3. Materials and Methods

To evaluate the four research objectives, a survey instrument was constructed using questions from existing surveys in published research (Alonso and O'Neill, 2011; Lee and Blank, 2004; Monson and Mainville, 2010). The survey instrument (Figure 3.1) was designed to collect information regarding the production and marketing practices of fruit and vegetable producers in Alabama. To better understand the production practices of fruit and vegetable producers, the survey questions were divided into five different categories: production practices, marketing practices, farmers market participation, membership program participation, and demographics.

Information gathered on production practices included varieties of fruits and vegetable grown, acreage devoted to production, production methods, and decision factors. Producers were surveyed on their marketing practices regarding pick-your-own operations and market locations. In addition, producers were surveyed on product attributes and the competitive advantage of said attributes from their viewpoint, as well as consumers. Farmers market questions gathered information regarding participation,

location, and seasonality of farmers market participation. To better understand membership program participation, producers were surveyed on membership and related benefits regarding two programs: AFVGA and Buy Fresh, Buy Local. The last survey section gathered demographic information from producers including gender, year of birth, ethnicity, education, and 2010 household income. Several of the demographic questions gathered production information, such as location of farm, years producing fresh fruits and vegetables, and farm land ownership.

The primary researcher attended the Alabama Fruit and Vegetable Grower Association (AFVGA) annual conference held on Auburn University's campus, Auburn, Alabama, Saturday, February 3, 2011 to distribute the surveys. The annual conference provided researchers with the opportunity to survey a wide variety of fruit and vegetable producers from the State of Alabama. There were 125 producers in attendance at the 2011 AFVGA conference. A total of 23 surveys were completed and returned to the researchers at the conference.

A copy of the producer survey was also mailed to additional potential respondents in an effort to increase the survey responses. A list of potential respondents was compiled from three separate grower entities: Alabama Fruit and Vegetable Grower Association, The Market at Ag Heritage Park (Auburn University Farmers Market), and Farmers Market Authority. This technique is similar to Alonso (2010) consulting the Alabama Sustainable Agriculture Network and Alabama Fruit and Vegetable Growers Association websites for his research project. He used these websites because they "identified the location of farmers in different counties of the State of Alabama" (Alonso, 2010).

For this research project, the three lists were entered into Microsoft Excel[®] 2010 for Windows[™] (Microsoft Corporation, Inc., Redmond, WA, 2010) and cross-checked for duplicates. From the original list of 253 producers, cross-referencing yielded a list of 224 unique entries. Potential survey respondents received a copy of the cover letter explaining the purpose of the study and a copy of the survey at the end of March, 2011. Of the original 224 survey packets mailed to the producers, two were returned noting that the producers had passed away and one had completed the survey previously. Removing these three surveys reduced the total sample size to 221 potential survey respondents. A total of 52 surveys were completed and returned to the researchers by the end of April 2011. Due to time and monetary constraints, this was a one-time mailing effort.

Between the two survey distribution methods, a total of 75 usable surveys were returned to the researchers. With the anonymous nature of the survey, the researchers assumed that the 125 producers in attendance at the AFVGA conference were included in the list for the mail-out portion of the study. For the purpose of this study, a sample size of 221 producers was assumed. The 75 returned surveys yields a response rate of 34%. Kaplowitz et al. (2004) evaluated web and mail survey response rates and reported the highest response rate (31%) with surveys distributed by mail.

Compared to the approximately 3,500 fruit and vegetable farms located in Alabama, the number selected for this study was very limited and is recognized as a limitation. Additionally, there is survey bias present because larger fruit and vegetable producers were not represented in the study. Alonso (2010) suggests that the exploratory nature of the study justifies the approach for focusing on those operations that were conveniently accessible and identifiable. In a similar study, Alonso and O'Neill (2011)

suggested that while the number of responses was clearly low compared to the total number of producers operating in Alabama, this number is believed to provide some initial insights as to the current production and marketing practices of Alabama fruit and vegetable producers.

The data from the returned producer surveys (n=75) were entered into Excel[®]. All data were then copied into the Statistical Package for the Social Sciences (SPSS[®]) for Windows[™] Release 19 (International Business Machines Corporation, Armonk, NY, 2011) spreadsheet for evaluation using the procedures “Frequency” and “Descriptives.” Analysis of variance was performed on response data using PROC GLIMMIX in SAS[®] version 9.2 (SAS Institute, Cary, NC). The statistical models included a main effect for the two surveys (mailed surveys versus conference surveys) and the main effect and interaction for question choices for the appropriate questions. Survey questions requiring consumers to rank choices on an ordinal scale were analyzed using the multinomial probability distribution. Questions requiring consumers to choose from a list of choices were coded as binary data and were analyzed using the binary probability distribution. Single degree of freedom, paired CONTRAST statements were used to determine differences in question choices. PROC TTEST was used to determine the differences between surveys for questions with normal response data. All tests were at $\alpha = 0.05$ and all missing scores were coded as missing values.

3.4. Analysis and Results

In evaluating differences between mailed and conference respondents, differences were found for five questions: acres used other than fresh; AFVGA membership; benefits of AFVGA membership; BF, BL membership; and benefits of BF, BL membership.

Differences were also found between mailed and conference respondents regarding demographics, including: gender; ethnic group; level of education; years producing fresh produce; owning the land; on-farm income for 2010; and household income for 2010. In reporting results, questions that had three or more responses are presented in the text and in tables; however questions that have a binary response are discussed solely in the text.

Demographics

To better understand the current population of fruit and vegetable producers in Alabama, demographic information was collected and analyzed for data such as gender, age, ethnicity, education, and income. The majority (80%) of survey respondents were male, with 15 (20%) females completing the survey. Ethnicity of producers was also examined. Caucasian (82.2%) was the largest group followed by African American (12.3%) and Native American (4.1%), and then Other (1.4%), Hispanic (0%), and Asian (0%) in the smallest group (Table 3.1).

The average year of birth reported was 1949, meaning the average age of respondents was 62 years. The oldest producer was 89 years of age and the youngest was 24 years old. Even more noteworthy was that 80% of producers were over 50 years of age. No differences were found among the years of production categories. Education level of producers was also evaluated. Respondents indicating some college (31.5%), college (26%), and graduate degree (24.7%) were in the largest group, followed by high school (16.4%), and some high school (1.4%) in the smallest group (Table 3.2).

Each respondent was asked to indicate the county where their farm is located (Figure 3.2). To compare regional differences, the 67 counties in Alabama were arbitrarily assigned to one of nine regions in the state. Each producer was then assigned

to one of the nine regions (Table 3.3). When asked if they owned all of the land used in their production of fresh fruits and vegetables, 75% indicated they did.

Survey respondents were asked about their income from fruit and vegetable production. The majority of respondents (81.7%) answered either “less than \$10,000” (42.3%) or “\$10,000 to \$49,999” (39.4%). These responses were different from the group representing “\$50,000 to \$99,999” (12.7%), “\$100,000 to \$249,999” (4.2%), “\$250,000 to \$499,999” (0%), and “over \$550,000” (Table 3.4). As for 2010 household income, survey respondents reporting income of “less than \$20,000” (8.5%), “\$20,000 to \$39,999” (18.3%), “\$40,000 to \$59,999” (19.7%), “\$60,000 to \$79,999” (18.3%) and “\$80,000 to \$99,999” (11.3%) represented the larger group, with “\$100,000 to \$119,999” (5.6%), “\$120,000 to \$139,999” (7.0%), “\$140,000 to \$159,999” (5.6%), and “greater than \$160,000” (4.2%) representing the smaller response group (Table 3.5).

Production Practices

Survey respondents were asked to provide information regarding production practices of fresh fruits and vegetables. Producers listed the fruits and vegetables they produced and indicated the acreage used for each crop. Fifty-two of the respondents provided the requested information, but 23 of the respondents only listed produce grown. Totals for acreage and number of producers for each of the crops were analyzed. The top ten produce categories by reported acreage are shown in Table 3.6.

Other produce varieties reported include squash (24.5 acres), okra (17 acres), strawberries (16.55 acres), satsumas (16 acres), and collards/greens (14 acres). Sweet potatoes had a total acreage of 12.15 acres, cantaloupes (9 acres), beans (8 acres), and cucumbers and plums each had a total acreage of 7 acres. There were 7 produce items

produced on 2 to 6 acres as reported by survey respondents. These produce items include muscadines (5.35 acres), blackberries (5.08 acres), peppers (5 acres), nectarines (3 acres), grapes (2.5 acres), eggplant (2.25 acres), and herbs (2 acres). Eight produce items were produced on less than 2 acres including persimmons (1.5 acres), potatoes (1.45 acres), broccoli, onion, and cabbage each had a total acreage of 1 acre, turnips and brussel sprouts each had a total acreage of .5 acre, and zucchini (.25 acre). An additional 8 produce items were reported, however no accompanying acreage totals were provided. These produce items include pears, figs, lettuce, plumcots, beets, cauliflower, raspberries, and swiss chard.

Survey respondents reported a total of 1274.14 acres farmed in 2010 and 1438.4 acres farmed in 2011. A paired sample t-test in SPSS was used to compare the acreage from the two production years for each of the producers (Table 3.7). There was a significant increase between the acres used in 2011 production versus 2010 production.

Not surprising, production methods used most frequently by producers were classified as conventional (88%), which was different from group representing organic (8%), hydroponic (3%), or other (1%) production methods (Table 3.8). Producers were asked to identify how they decided what produce would be grown in the upcoming growing season. Given that survey respondents could pick more than one decision method, the three most popular decision methods were “same production as last year” (42.5%), “meeting demand for consumers” (39.7%) and “meeting demand perceived to be present” (34.3%) in the largest response group, followed by “other” (13.7%), and then “meeting specified contract” (2.7%) in the smallest response group (Table 3.9).

Marketing Practices

Survey respondents were asked to provide information about their marketing practices for the fresh fruits and vegetables they produce including marketing location and produce attributes. Producers were asked if they owned and operated a pick-your-own operation. Fifty-four percent of respondents indicated that they do own a pick-your-own (PYO), with 46% reporting that they do not operate a PYO. Two indicated that they had operated a PYO in the past, but were not operating one this year. When asked to identify the marketing outlets most commonly used, “Direct sales” which includes farm stands or pick-your-own operations and farmers markets was the largest group, followed by “Other” and “Contract with grocery stores,” and then “Restaurants” in the smallest group (Table 3.10).

A probit analysis was conducted using SPSS to evaluate variables that may impact why producers chose one marketing outlet over another. The dependent variable is defined as having at least 50% of sales be considered direct sales for producers, which includes farm stands and pick-your-own. The explanatory variables used in the model include total acres farmed in 2011, production methods used, miles from farmers market, membership in AFVGA and/or BFBL, and years of production (Table 3.11).

It was expected that those producers with at least 50% direct sales to consumers are more likely to have fewer acres in production compared to producers who use other outlets for selling their produce. It was expected that producers with at least 50% direct sales live away from farmers markets, explaining the choice of one outlet over the other. The primary researcher also predicted that producers with at least 50% direct sales were members of either AFVGA or BFBL, or both. Membership in either of these programs

may have provided marketing assistance to help smaller producers who preferred to sell directly to the public. It was also expected that producers with at least 50% direct sales had not been producing as long as larger, more established growers.

The chi-squared value for the probit model is 19.97, significant at less than .01 percent, and the overall model fit is .452. As acres farmed increases, the predicted probability of the producer having more than 50% in direct sales decreases. Miles from the closest farmers market does not seem to impact whether or not producers choose direct sales versus some other sales outlet. An increase in both AFVGA membership and BFBL membership increases the predicted probability that producers recognize more than 50% direct sales. As years in production increases, the predicted probability of the producer having more than 50% in direct sales decreases. That is to say that those producers with fewer years of production experience are more likely to have at least 50% direct produce sales to the public.

One question on the survey asked producers to indicate three reasons why their produce has a competitive advantage over the other produce sold in the market place. The largest group of respondents answered “Fresher/tastes better” (91.8%) and “Produced locally” (84.9%), followed by “Supporting local farmers” (31.5%) and “Safer food supply” (27.4%). The third largest response group included “Stays fresher longer” (15.1%), “Increased nutritional value” (13.7%), and “Stricter production standards” (8.2%), and then “Other” (4.1%), “Preservation of the environment” (2.7%), and “Preservation of the genetic diversity” (1.4%) in the smallest group (Table 3.12). A similar question asked why consumers value the produce offered for sale by the producers. “Fresher/tastes better” (84.9%) was reported by the largest percent of

respondents, followed by “Produced locally” (63%), and then “Supporting local farmers” (13.7%), “Stricter production standards” (9.6%), “Safer food supply” (8.2%), “Other” (8.2%), and “Stays fresher longer” (6.9%) in the third group. “Increased nutritional value” (2.7%), “Preservation of the environment” (0%), and “Preservation of the genetic diversity” (0%) were in the smallest response group (Table 3.13).

Farmers Market Participation

Producers were asked to provide information about their participation in farmers markets for selling the fresh fruits and vegetables they produce. Questions asked included market participation, deciding what to bring to the market, and which farmers markets producers frequent throughout the year. Survey respondents traveled an average of 162 miles each week to farmers markets in Alabama. When asked to indicate the number of farmers markets frequented each week during the different seasons, 82% visit 1 or 2 farmers markets during spring (n=27), 77% visit 1 or 2 markets during the summer (n=48), and 80% visit 1 or 2 markets during the fall and winter seasons (n=25 and n=5, respectively).

Respondents were asked how they decided what fruits and vegetables to take to sell at farmers markets, with 52% indicating that they bring their best quality produce to sell. The second largest response group included “Meeting market demand” (20.3%) and “Excess unsold” (13.6%), followed by “Other” (6.8%) and “Small quantities” (5.1%) in the smallest group (Table 3.14). The total responses do not equal to 100 due to rounding.

Five answer choices were provided for producers to indicate which Alabama farmers markets they frequent throughout the year, although they could choose more than one of the answer choices. Twenty percent of respondents visit farmers market at Auburn

University, with another 20.3% frequenting farmers markets in the Birmingham area (Jefferson County), 10.2% frequenting farmers markets in the Montgomery area (Montgomery County) and 8.5% of respondents visit markets in the Mobile area (Mobile County). The largest percentage (64.4%) of producers reported visiting “other” farmers markets throughout the state, which was different from the other answer choices.

Membership program participation

Producers were asked to provide information about their membership in and benefits associated with two different grower organizations: Alabama Fruit and Vegetable Grower Association (AFVGA) and Alabama Buy Fresh, Buy Local (BFBL). Of the 75 respondents, 76% were members of the AFVGA and 59% were members of Alabama BFBL.

Survey respondents were also asked to indicate what benefits they perceived to be present through membership in one or both of these organizations. Researchers did not define or give examples of the benefits listed in the answer choices, thus leaving the interpretation to the producers. For the AFVGA members, the benefits relating to increased marketing benefits and increased marketplace demand were the most visible. Benefits relating to influence on marketplace sales, increased marketplace demand, and increased marketing were the most visible for Alabama BFBL members (Table 3.15).

3.5. Summary and Discussion

In summary, the majority of survey respondents were male (80%) and Caucasian (82%). There is an aging population of fruit and vegetable producers in Alabama, with 80% of producers being over 50 years of age. One limiting factor is that participation in the study required that producers be represented on at least one of the three lists. This

serves as a potential limitation because the scope of production for larger, more commercial farms was not evaluated. However, the farm population throughout the United States is aging, with the average age of principal operators being 57 years (USDA, 2009). This leads to the question of who will continue the production of fresh fruits and vegetables once these producers retire and pass away.

It is important for producers to understand the impact they have on the consumers. Without understanding this impact and having consumers demand local produce, there is no incentive for producers to continue producing fresh fruits and vegetables for consumers throughout the state. The majority of respondents (81.7%) answered the question of on-farm income with either “less than \$10,000” (42.3%) or “\$10,000 to \$49,999” (39.4%). Of the producers surveyed, fruit and vegetable growers throughout the state, for the most part, were farming on a small scale.

The largest group of respondents indicated household incomes of less than \$100,000. This means that farming potentially constitutes anywhere from one-tenth to one-half of household income for these producers. Farming is a secondary income for most of these producers, which means that any of the producers could potentially cease production at any time. Again, as previously mentioned, without sales outlets willing to purchase locally-grown produce and without consumers demanding local produce, producers may question why they should continue producing fresh fruits and vegetables. Limitations exist because, as stated previously, larger, more commercial fruit and vegetable production operations were not surveyed. These operations are likely to report higher on-farm and household incomes, when compared to the group of survey respondents.

Survey respondents reported a total of 1274.14 acres farmed in 2010 and 1438.4 acres farmed in 2011. The majority (88%) used conventional production methods, and most of the producers did not recognize consumers valuing the other production methods such as organic and hydroponic. Unless it is for personal reasons, most producers will likely continue to use conventional production methods since they are not feeling the pressure from consumers to make changes to one of the other production methods mentioned above.

When asked to identify how they decided what produce would be grown in the upcoming growing season, the most popular decision method was “same production as last year” (42.5%); which was similar to respondents indicating “meeting demand from consumers” (39.7%) and “meeting demand perceived to be present” (34.3%). Although they were producing more, both in terms of variety and acreage, producers reported using the same decision making techniques from the previous year. Producers who grow the same varieties of fruits and vegetables year after year may do so for several reasons: fruit orchards require a bigger commitment than vegetable gardens, direct sales channels may be established for some producers so they may be hesitant to change their production, or they may simply be comfortable with producing the varieties they are familiar with and are not looking to change. While some producers encounter consumer demand and produce fruits and vegetables to meet such demand, not all producers agree. Given an older age demographic, the majority of these producers may find it not worth their time to alter their decision and production methods. Without an increase demand from the public (either at farmers markets, direct sales, or from retail outlets), Alabama fruit and vegetable producers have no incentives to change their production habits.

Producers identified the two marketing outlets most commonly used as direct sales (83%) and farmers markets (64%), which allow for direct contact with the consumer. This direct contact may provide benefits, other than monetary, to a producer which limits them from exploring other marketing outlets. Potential benefits experienced by producers may include: enjoying face to face contact with consumers, not having to travel long distances to take produce to market or larger wholesalers, and being able to select which produce travels to market and which remains at home. However, these reasons were not evaluated in the survey and are merely suggested reasons as to why producers choose direct marketing outlets over others.

Producers were also asked to indicate the reasons why their produce earned a competitive advantage in the market place. The two produce attributes indicated with the highest frequency included “fresher/tastes better” (91.8%) and “produced locally” (84.9%). This indicates producers view their produce as being superior to the other produce in the marketplace. However, producers did not indicate if this was in comparison to other farmers market produce or fresh produce available at retail outlets. Producers are encouraged to use these attributes to their advantage, if they truly believe they have a superior product.

Respondents traveled an average of 162 miles each week to 1 or 2 farmers markets each season throughout Alabama. There are a number of suggestions as to why the majority of producers only frequent 1 or 2 farmers markets each season to sell their produce including: increased fuel prices, limited time due to a full-time job away from the farm, or choosing farmers markets with locations and times to complement their harvesting schedule. In deciding what produce to take to the farmers market, the two

most frequent responses included “meeting market demand” (20.3%) and “excess unsold elsewhere” (13.6%). In theory, meeting market demand is reasonable, given that many of the producers may use outlet as their sole marketing program. However, for those producers choosing to take the excess produce that was not sold elsewhere, the producers really do not have an idea if their produce will be well received. Also, if the produce is excess from other markets, it stands to reason that the produce may not be as fresh when compared to the produce brought by other producers specifically for this market.

Producers were asked about their membership in two different grower organizations: Alabama Fruit and Vegetable Grower Association (AFVGA) and Alabama Buy Fresh, Buy Local (BFBL). Of the 75 respondents, 76% were members of the AFVGA and 59% were members of Alabama BFBL. For the AFVGA members, the benefits relating to increased marketing and increased marketplace demand were the most visible. Benefits relating to influence on marketplace sales, increased marketplace demand, and increased marketing were the most visible for Alabama BFBL members. Additional time should be spent interviewing producers about how well these two programs meet their needs involving the production and marketing of Alabama-grown produce. Again, the study sample population served as a limitation because these two grower organizations comprised the majority of the list of possible survey respondents. Larger fruit and vegetable producers in Alabama were not included in the study and their responses may have resulted in a different outcome for the participation and perceived benefits questions.

There is no reason to believe that Alabama producers were not offering a competitive product into the fresh produce market. The next step is determining how to

encourage growth and sustain an increased volume of production. Evaluating information from the retail outlets will hopefully help identify how to get retailers to offer more locally-grown fresh produce in the retail marketplace. Marketing changes providing viable alternatives for producers is an option for increasing fresh produce sales.

Collecting data from only 75 Alabama fruit and vegetable producers was a potential limitation of this study, especially because thousands of farms exist in this state. Also, selecting a convenience sample of farmers, those included on the aforementioned lists, means that the reported data may not be applicable to the core of Alabama farms. Alabama farms producing on a larger scale were not represented, and this is considered a limitation to the applicability of the study.

Throughout the research process, there were things that could have been handled a bit different. For one, the survey was administered through a one-time mailing effort. Had Dillman's (2007) "tailored-design" method been adopted, survey recipients would have received an introductory postcard, hard copy of the survey with cover-letter, follow up reminder, and replacement survey mailed to non-respondents. When asking about income from fruit and vegetable production, the income categories should have been split into smaller categories. Instead of starting with "less than \$10,000," the options should have started with "less than \$1,000" or "less than \$2,500." With the majority of producers reporting on-farm income of less than \$49,999, it would have been beneficial to focus on a smaller production scale.

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Table 3.1. Producers' ethnicity as reported in an Alabama fruit and vegetable survey in 2011 ^z.

Ethnicity	Responses	Percentages ^y
Caucasian	60	82.2% a
African American	9	12.3% b
Native American	3	4.1% b
Other	1	1.4% c
Hispanic	0	0% c
Asian	0	0% c

^z = Surveys distributed to producers at the Alabama Fruit and Vegetable Growers Association Conference on February 3, 2011 and via mail during March of 2011.

^y = Differences among category selections (lower case letters in column) presented as percents of total surveys were determined using paired contrasts at $\alpha = 0.05$. (N=73)

Table 3.2. Producers' level of education as reported in an Alabama fruit and vegetable survey in 2011 ^z.

Education	Responses	Percentages ^y
Some high school	1	1.4% c
High school	12	16.4% b
Some college	23	31.5% a
College	19	26.0% a
Graduate school	18	24.7% a

^z = Surveys distributed to producers at the Alabama Fruit and Vegetable Growers Association Conference on February 3, 2011 and via mail during March of 2011.

^y = Differences among category selections (lower case letters in column) presented as percents of total surveys were determined using paired contrasts at $\alpha = 0.05$. (N=73)

Table 3.3. Producers' locations and regions in an Alabama fruit and vegetable survey in 2011 ^z.

Region	Counties ^y	N=74 ^x
Northwest	Colbert, Franklin, Lauderdale, Lawrence, Limestone, Marion, Winston	6
Northeast	Cherokee, DeKalb, Etowah, Jackson, Madison, Marshall	6
North central	Blount, Cullman, Jefferson, Morgan, St. Clair, Walker	9
West central	Fayette, Greene, Hale, Lamar, Pickens, Sumter, Tuscaloosa	2
East central	Calhoun, Chambers, Clay, Cleburne, Lee, Macon, Randolph, Tallapoosa	11
Central	Autauga, Bibb, Chilton, Coosa, Dallas, Elmore, Perry, Shelby, Talladega	13
Southwest	Baldwin, Choctaw, Clarke, Marengo, Mobile, Washington	9
South central	Butler, Conecuh, Covington, Crenshaw, Escambia, Lowndes, Monroe, Montgomery, Wilcox	3
Southeast	Barbour, Bullock, Coffee, Dale, Geneva, Henry, Houston, Pike, Russell	15

^z = Surveys distributed to producers at the Alabama Fruit and Vegetable Growers Association Conference on February 3, 2011 and via mail during March of 2011.

^y = Alabama's 67 counties were divided into 9 regions.

^x = Number of fruit and vegetable producers representing each region of Alabama.

Table 3.4. Producers' on-farm income in 2010 as reported in an Alabama fruit and vegetable survey in 2011 ^z.

Income	Responses	Percentages ^y
Less than \$10,000	30	42.3% a
\$10,000 to \$49,999	28	39.4% a
\$50,000 to \$99,999	9	12.7% b
\$100,000 to \$249,999	3	4.2% b
\$250,000 to \$499,999	0	0.0% b
Greater than \$500,000	0	0.0% b

^z = Surveys distributed to producers at the Alabama Fruit and Vegetable Growers Association Conference on February 3, 2011 and via mail during March of 2011.

^y = Differences among category selections (lower case letters in column) presented as percents of total surveys were determined using paired contrasts at $\alpha = 0.05$. (N=70)

Table 3.5. Producers' household income in 2010 as reported in an Alabama fruit and vegetable survey in 2011 ^z.

Income	Responses	Percentages ^y
Less than \$20,000	6	8.5% a
\$20,000 to \$39,999	13	18.3% a
\$40,000 to \$59,999	14	19.7% a
\$60,000 to \$79,999	13	18.3% a
\$80,000 to \$99,999	8	11.3% a
\$100,000 to \$119,999	4	5.6% b
\$120,000 to \$139,999	5	7.0% b
\$140,000 to \$159,999	4	5.6% b
Greater than \$160,000	3	4.2% b

^z = Surveys distributed to producers at the Alabama Fruit and Vegetable Growers Association Conference on February 3, 2011 and via mail during March of 2011.

^y = Differences among category selections (lower case letters in column) presented as percents of total surveys were determined using paired contrasts at $\alpha = 0.05$. (N=62)

Table 3.6. Top ten produce categories by planted acreage reported by Alabama

fruit and vegetable producers in a 2011 survey.

Produce	Acreage Total ^z	N ^y
Peaches	169.70	11
Peas	157.50	13
Melons	112.00	11
Blueberries	108.78	20
Watermelon	79.00	11
Sweet corn	62.00	6
Apples	37.00	2
Tomatoes	33.58	26
Field corn	32.00	9
Pumpkins	27.00	2

^z = Acreage totals are lower than actual values because not all producers listed acreage amounts for produce grown.

^y = Number of producers for each produce category includes only those listing both produce variety and corresponding acreage.

Table 3.7. T-test for paired samples analyses comparing the acres farmed for 2011 versus 2010 among Alabama fruit and vegetable producers.

Test Variable	N	Mean Score	Standard Deviation	Df	T	2-tailed Sig.
2011 Production Acreage 2010 Production Acreage	75	2.216	7.222	74	2.640	.010*

* Significant at the p=0.05 level

Table 3.8. Production methods reported by producers in an Alabama fruit and vegetable survey in 2011^z.

Production Methods	Responses	Percentages^y
Conventional	65	87.8% a
Organic	6	8.1% b
Hydroponic	2	2.7% b
Other	1	1.4% b

^z = Surveys distributed to producers at the Alabama Fruit and Vegetable Growers Association Conference on February 3, 2011 and via mail during March of 2011.

^y = Differences among category selections (lower case letters in column) presented as percents of total surveys were determined using paired contrasts at $\alpha = 0.05$. (N=74)

Table 3.9. Methods for deciding what to grow in the upcoming season as reported by producers in an Alabama fruit and vegetable survey in 2011^z.

Decision Methods	Responses	Percentages^y
Same as last year	31	42.5% a
Demand from consumers	29	39.7% a
Demand perceived by growers	25	34.3% a
Other	10	13.7% b
Contract	2	2.7% c

^z = Surveys distributed to producers at the Alabama Fruit and Vegetable Growers Association Conference on February 3, 2011 and via mail during March of 2011.

^y = Differences among category selections (lower case letters in column) presented as percents of total surveys were determined using paired contrasts at $\alpha = 0.05$. (N=74)

Table 3.10. Locations for marketing fresh fruits and vegetables as reported by

Alabama fruit and vegetable producers in a 2011 survey^z.

Attribute	Mean	Standard Error^y
Direct sales	60.5	4.6 a
Farmers markets	52.3	4.9 a
Other	36.8	7.3 b
Contract with grocery store	21.3	9.1 b
Restaurants	10.7	2.2 c

^z = Producers were asked to choose three attributes that give their produce a competitive advantage in the marketplace.

^y = Differences among category selections (lower case letters in column) presented as percents of total surveys were determined using paired contrasts at $\alpha = 0.05$.

Table 3.11. Probit analysis of producers with greater than 50% direct sales to the public as reported by Alabama fruit and vegetable producers in a 2011 survey^z.

Variables	Coefficients	Standard Error	Sig.
Intercept	-1.384	.916	.131
TotalAcres11	-.005	.008	.560
ProdMethods	-1.688*	.732	.021
Miles	.000	.732	.483
AFVGAMem	1.043*	.527	.048
BFBLMem	1.062*	.477	.026
YearsProd	-.136	.162	.400

^z = Producers were placed into two categories – those with greater than 50% direct sales and those with less than 50% direct sales.

* Significant at 0.05 level

Table 3.12. Attributes providing competitive advantage in the marketplace

as perceived by Alabama fruit and vegetable producers in a 2011 survey ^z.

% ^y	Attribute
91.8% a	Fresher/Tastes better
84.9% a	Produced locally
31.5% b	Supporting local farmers
27.4% b	Safer food supply
15.1% c	Stays fresher longer
14% c	Increased nutritional value
8% c	Stricter production standards
4% d	Other
3% d	Preservation of the environment
1% d	Preservation of genetic diversity

^z = Producers were asked to choose three attributes that give their produce a competitive advantage in the marketplace.

^y = Differences among category selections (lower case letters in column) presented as percents of total surveys were determined using paired contrasts at $\alpha = 0.05$.

Table 3.13. Produce attributes valued by consumers as perceived by Alabama fruit and vegetable producers in a 2011 survey^z.

%^y	Attribute
84.9% a	Fresher/Tastes better
63.0% b	Produced locally
13.7% c	Supporting local farmers
9.6% c	Stricter production standards
8.2% c	Safer food supply
8.2% c	Other
6.9% c	Stays fresher longer
2.7% d	Increased nutritional value
0.0% d	Preservation of the environment
0.0% d	Preservation of genetic diversity

^z = Producers were asked to choose three attributes that give their produce a competitive advantage in the marketplace.

^y = Differences among category selections (lower case letters in column) presented as percents of total surveys were determined using paired contrasts at $\alpha = 0.05$.

Table 3.14. Methods for deciding which produce to take to the farmers market as reported by producers in an Alabama fruit and vegetable survey in 2011^z.

Reasons	Responses	Percentages^y
Best quality	30	51.7% a
Meet demand	12	20.3% b
Excess unsold	8	13.6% b
Other	4	6.8% c
Small quantities	3	5.1% c

^z = Surveys distributed to producers at the Alabama Fruit and Vegetable Growers Association Conference on February 3, 2011 and via mail during March of 2011.

^y = Differences among category selections (lower case letters in column) presented as percents of total surveys were determined using paired contrasts at $\alpha = 0.05$. (N=57)

Table 3.15. Benefits to membership in two organizations as perceived by

Alabama fruit and vegetable producers in a 2011 survey^z.

Alabama Fruit and Vegetable Grower Association (N=55)^y	Benefit	Alabama Buy Fresh, Buy Local (N=43)^x
46%	Increased marketplace demand	67% a
53%	Increased marketing benefits	67% a
29%	Influence on marketplace sales	70% a
38%	Use of member-only benefits	28% b

^z = Alabama fruit and vegetable producers were surveyed on membership and benefits of two organizations. Some of the producers were members of both organizations.

^y = No significant differences between answer choices.

^x = Differences among category selections (lower case letters in column) presented as percents of total surveys were determined using paired contrasts at $\alpha = 0.05$.

Figure 3.1.

Producer Survey

Production and Marketing Practices of Alabama Fruit and Vegetable Producers

This survey is designed to gather information from you, the producer, about your production practices in growing fresh fruits and/or vegetables. In particular, we are interested in your attitudes and perceptions towards the production and marketing of locally grown fresh produce. Your opinion is critical for ongoing assessment of current and future production of fresh market produce. This survey is four pages in length and will take approximately seven minutes to complete. We want to remind you that your survey responses are completely confidential.

I. Production Practices

This section contains questions relating specifically to your production practices of fresh fruits and vegetables. Fresh fruits and vegetables are those products that have never been canned or frozen. Please answer each question to the best of your knowledge.

1. Please list the fresh fruits and/or vegetables you produce the most often (i.e. tomatoes, melon, squash, etc). Beside each, please indicate the average annual acreage used in production.

2. How many total acres of fruits and/or vegetables are you planning to farm this year (2011)? (For example: If you farmed 20 acres in the spring and 20 acres in the fall, then you would indicate 40 total acres farmed.) _____ acres
3. Approximately how many total acres of fresh fruits and/or vegetables did you farm last year (2010)? (For example: If you farmed 20 acres in the spring and 20 acres in the fall, then you would indicate 40 total acres farmed.) _____ acres
4. How many acres of fruits and/or vegetables did you use for markets other than fresh (i.e. canning, juicing, dried, or frozen)? _____ acres
5. Which method best describes your production methods in producing your fresh fruits and/or vegetables?
 Conventional
 Organic (Certified by the National Organic Program)
 Hydroponic
 Other (Please specify) _____
6. How will you decide what fresh fruits and/or vegetables you will grow this year?
 Meeting specified contract
 Same production as last year
 Meeting demand you perceive to be present this year
 Meeting demand from consumers
 Other (Please specify) _____

II. Marketing Practices

This section contains questions relating to your marketing practices of fresh fruits and/or vegetables. Please answer each question in a way that best depicts your operation.

7. Do you operate a pick-your-own operation?
 Yes No
8. Where do you market your fresh produce? (Please identify the percentage of your total annual yield marketed to each of these outlets; total should equal 100%)
 % Contract with grocery stores
 % Farmers markets
 % Direct sales: farm stands or pick-your-own operations
 % Restaurants
 % Other (Please specify) _____
9. In your opinion, which of the following attributes gives your fresh produce a competitive advantage over those sold in the market? (Select three)
 Fresher/Tastes better Safer food supply
 Produced locally Increased nutritional value
 Supporting local farmers Stays fresher longer
 Stricter production standards Preservation of genetic diversity
 Preservation of the environment Other (Please specify) _____
10. In your opinion, what do consumers value most about your produce? (Select two)
 Fresher/Tastes better Safer food supply
 Produced locally Increased nutritional value
 Supporting local farmers Stays fresher longer
 Stricter production standards Preservation of genetic diversity
 Preservation of the environment Other (Please specify) _____

III. Farmers Market Participation

The following questions relate to sales at farmers markets. Please answer each question in a way that best depicts your operation. If you do not participate in any farmers markets, please skip to Section IV.

11. How many farmers markets in Alabama do you participate in each season?
 Spring Summer Fall Winter
12. How do you, as a producer, decide what fruits and/or vegetables you will bring to the farmers market? (Select one)
 Best quality produce
 Meet market demand
 Excess produce not sold elsewhere
 Small quantities that could not be sold elsewhere
 Other (Please specify) _____

13. On average, how many miles do you travel each week taking your fresh fruits and/or vegetables to farmers markets in Alabama? _____ miles
14. Please indicate which Alabama farmers markets you frequent during the year.
- Auburn University
 - Birmingham area (Jefferson County)
 - Mobile area (Mobile County)
 - Montgomery area (Montgomery County)
 - Other (Please specify) _____

IV. Membership Programs

Your answers to the following questions allow the researchers to generalize the data back to the population. The answers provided in the section are confidential and will only be accessed by the researchers. Please answer each question to the best of your knowledge.

15. Are you a member of the Alabama Fruit and Vegetable Growers Association?
 Yes No (Skip to question #17)
16. Which of the following do you feel are benefits of membership in the Alabama Fruit and Vegetable Growers Association? (Please select all that apply)
- Increased marketplace demand
 - Increased marketing benefits
 - Influence on marketplace sales
 - Use of member-only resources
17. Are you affiliated with the Buy Fresh, Buy Local program within the state?
 Yes No (Skip to question #19)
18. Which of the following do you feel are benefits of membership in the Buy Fresh, Buy Local program? (Please select all that apply)
- Increased marketplace demand
 - Increased marketing benefits
 - Influence on marketplace sales
 - Use of member-only resources

V. Demographics

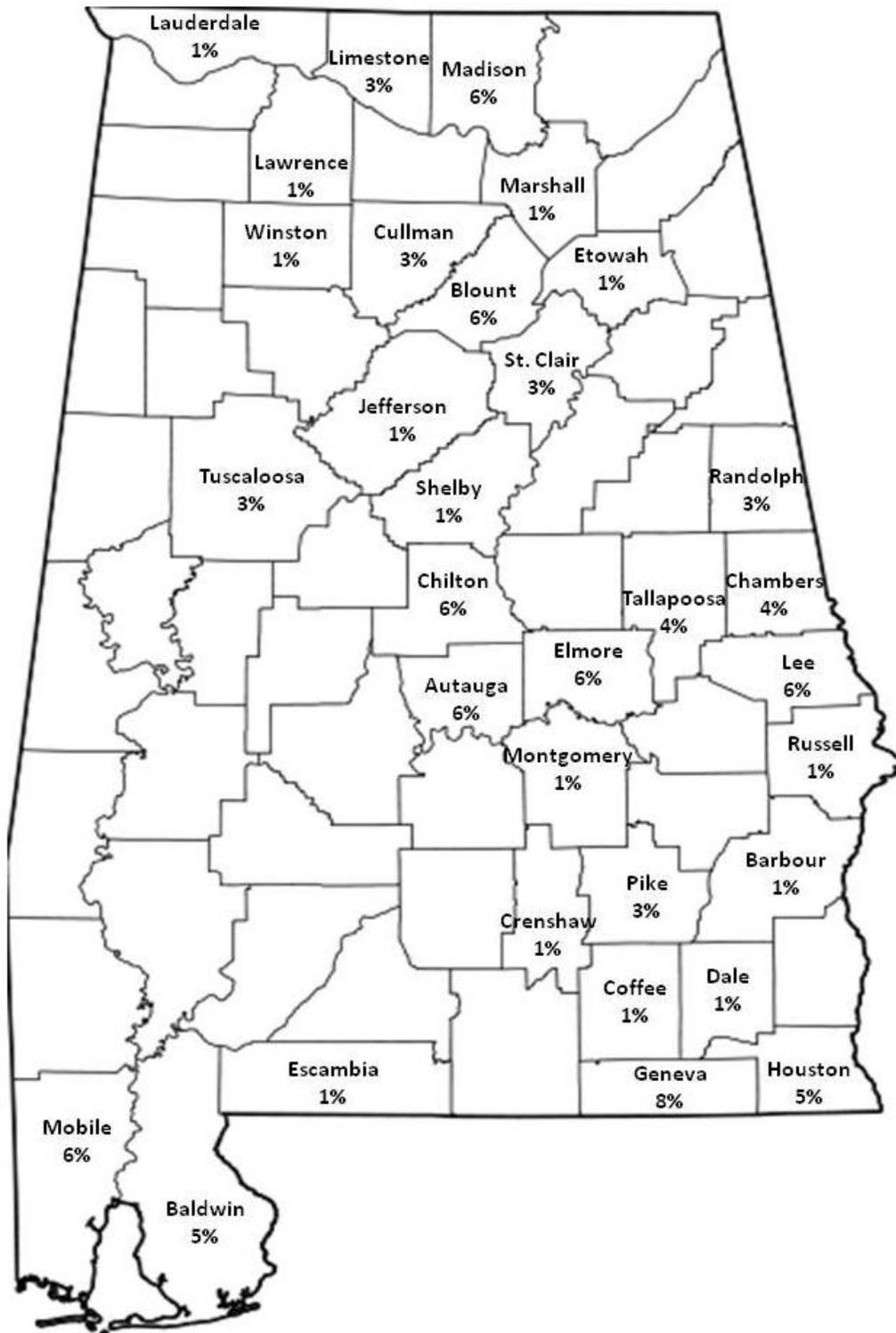
Your answers to the following questions allow the researchers to generalize the data back to the population. The answers provided in this section are confidential and will only be accessed by the researchers. Please answer each question to the best of your knowledge.

19. In what county of Alabama is your farm located? _____
20. What is your gender? (Select one)
- Male
 - Female

21. What year were you born? _____
22. How many people reside in your household including yourself? _____
23. What is your ethnic group? (Select one)
- | | |
|--|---|
| <input type="checkbox"/> Caucasian | <input type="checkbox"/> African American |
| <input type="checkbox"/> Hispanic | <input type="checkbox"/> Asian |
| <input type="checkbox"/> Native American | <input type="checkbox"/> Other (Please specify) _____ |
24. What level of education have you completed? (Select one)
- | | |
|---|---|
| <input type="checkbox"/> Some high school | <input type="checkbox"/> High school graduate |
| <input type="checkbox"/> Some college or technical school | <input type="checkbox"/> Completed four-year college degree |
| <input type="checkbox"/> Completed graduate degree | |
25. How many years have you produced fresh fruits and/or vegetables? (Select one)
- | |
|---|
| <input type="checkbox"/> 0-5 years |
| <input type="checkbox"/> 6-10 years |
| <input type="checkbox"/> 11-20 years |
| <input type="checkbox"/> 21+ years |
| <input type="checkbox"/> Multiple generations |
26. Do you own all of the land used in growing fresh fruits and/or vegetables?
- | |
|------------------------------|
| <input type="checkbox"/> Yes |
| <input type="checkbox"/> No |
27. Please provide your approximate on-farm income for 2010. (Select one)
- | | |
|---|---|
| <input type="checkbox"/> Less than \$10,000 | <input type="checkbox"/> \$10,001 to \$49,999 |
| <input type="checkbox"/> \$50,000 to \$99,999 | <input type="checkbox"/> \$100,000 to \$249,999 |
| <input type="checkbox"/> \$250,000 to \$499,999 | <input type="checkbox"/> Over \$500,000 |
28. Please provide your approximate household income for 2010. (Select one)
- | | |
|---|---|
| <input type="checkbox"/> Less than \$20,000 | <input type="checkbox"/> \$20,000 to \$39,999 |
| <input type="checkbox"/> \$40,000 to \$59,999 | <input type="checkbox"/> \$60,000 to \$79,999 |
| <input type="checkbox"/> \$80,000 to \$99,999 | <input type="checkbox"/> \$100,000 to \$119,999 |
| <input type="checkbox"/> \$120,000 to \$139,999 | <input type="checkbox"/> \$140,000 to \$159,999 |
| <input type="checkbox"/> Over \$160,000 | |

Figure 3.2.

Map of producers' locations in an Alabama fruit and vegetable survey in 2011.



CHAPTER 4

A Sampling of Consumer Demand of Fresh Fruits and Vegetables in Alabama

4.1. Abstract

Consumer demand is one of the driving forces in the fresh produce industry but limited research is available regarding consumer demand for locally-grown, fresh fruits and vegetables in Alabama. Producers have little indication of how to best meet consumer demand because of the lack of information regarding relationships between consumers, producers, and retail outlets in the state. To assess some aspects of consumer demand for fresh fruits and vegetables, researchers asked a selected group of Alabama residents to complete a survey regarding current and future purchases of locally-grown fresh produce. Based on this research, these particular consumers were interested in purchasing Alabama-grown produce, and they would purchase more given greater availability. The majority (72%) of respondents were willing to purchase Alabama-grown produce, compared to purchasing produce originating from the Southeast U.S., United States, or imported. The consumers in this sample indicated a level of agreement between “Agree” and “Strongly Agree,” with an average of 4.42 on a 5-point Likert scale, when evaluating the statement: “I would be interested in purchasing more locally-grown produce if available.” The next step is determining ways to educate these consumers about current selection and seasonality of locally-grown, fresh fruits and vegetables, and then to develop additional means to educate a broader scope of consumers more

representative of the socioeconomic demographics of the entire state. Meeting the needs of consumers could help encourage growth in the Alabama produce industry.

4.2. Introduction

The public has expressed a growing demand for fresh, high-quality, and wholesome foods (Monson and Mainville, 2010). Fresh produce purchases constitute an important component of consumer's food budgets (Eastwood, 1996). Consumers see direct marketing outlets, such as farmers markets, as a way to get fresher produce at a lower cost (Gallons et al., 1997).

4.2.1. Produce Consumption in the United States

Significant changes in produce consumption have occurred in recent decades for consumers in the United States (Eastwood et al., 1987). One important factor contributing to rising consumption of fresh fruits and vegetables was the produce industry's effective response to consumers' and foodservice managers' demand for convenience (Handy et al., 2000). The produce industry has responded to the demand for convenience by offering packaged and pre-cut vegetables and fruits, which are now occupying more shelf space in the produce department as they continue to gain acceptance by consumers. Also, increases in fresh fruit and vegetable consumption in the last 10 years has occurred as the diversity of produce items has expanded (Handy et al., 2000).

4.2.1.1. Produce Quality and Attributes

Factors influencing food choices by consumers are complex and interrelated (Scheerens, 2001). Some factors relate directly to the consumer, such as sensory preference, and physiological factors such as age, gender, and lifestyle. Other factors include personality, education, income, social attitudes about diet and health, ethnicity

and tradition, religious beliefs, social pressures, marketing pressures, and knowledge or self-identity beliefs. There are, however, other factors that relate directly to the item being purchased, such as produce quality and available product information. For example, consumers consider attributes such as freshness, appearance, variety, selection, availability, price, and store atmosphere when deciding where to make their fresh produce purchases (Onianwa et al., 2006).

Produce quality and characteristics play a large role in purchasing decisions for most consumers (Govindasamy et al., 1997). In the United Kingdom, consumers feel that buying local produce results in a purchase of products that are of higher quality, fresher, and more nutritious (Chambers et al., 2007). Brown (2003) reported survey respondents considered local produce to be of higher quality, which is the main reason they shop at farmers markets. Similar to Brown's study, a study of farmers market customers in Vermont revealed that "local" and "fresh foods" were the two most important reasons for customer patronage of the farmers markets in the area (Baker et al., 2009).

Wolf (1997) compared the tastes and preferences of farmers market consumers with those who purchased produce at supermarkets. Desirable produce characteristics for farmers market produce included fresh looking, fresh tasting, high-quality product, and a good value for the money (Wolf, 1997; Scheerens, 2001). Studying direct marketing customers, Bond et al. (2006) and Scheerens (2001) found that consumers tended to place a high value on firmness and texture, freshness and taste, safety, and value for the produce dollar. Identifying specific food attributes valued by consumers can result in increased sales of products with those attributes. For example, freshness, taste, and visual

appearance were determinants that directly related to the ability of the produce to satisfy the needs for which it was purchased (Govindasamy et al., 1997).

4.2.1.2. Purchasing Location

Some attempts have been made to evaluate store patronage behavior with regard to lifestyle factors that shape outshopping patterns, especially in small rural communities (Sullivan and Savitt, 1997). According to Ballenger and Blaylock (2003), consumers are quite willing to increase food spending if it means acquiring more convenience, better quality, or more of other valued food attributes. Consumers of direct market produce appear to use factors such as having a wide variety of superior and safe produce as well as supporting local producers in determining where to shop (Bond et al., 2006).

Still, little is known about what motivates consumers to patronize certain direct marketing channels versus traditional supermarkets, and what characteristics differentiate these patrons from other consumers (Bond et al., 2008). Knowing the characteristics of typical consumers allows vendors to identify unmet demand, coordinate among markets, and develop stronger and more strategic plans (Baker et al., 2009). Onianwa et al. (2006) reaffirms the need to analyze and understand consumers, their purchasing habits, and their preferences regarding fresh produce.

While locally-grown fresh produce was perceived to have advantages (Eastwood, 1996), there were two countervailing forces also at work with respect to shopping decisions. First, the additional cost associated with stopping at farmers markets is inconvenient for consumers (Brown, 2003). The second force is the current satisfaction level perceived by urban food shoppers, because they are satisfied with the quality and

freshness available elsewhere, they are less likely to visit farmers markets for purchasing fresh fruits and vegetables.

Consumers value supermarkets for the advantages they provide with respect to location, convenience, and consistent supply (Eastwood, 1996). For supermarket managers, knowing the profile of potential customers is important for marketing purposes to allow managers to maximize their advertising efforts and resources by targeting the right population (Govindasamy et al., 1998).

Producers need to know how to best educate current and potential customers about the features of the purchase location and the products available at direct market venues (Bond et al., 2008). In a 2006 study, Onianwa et al. evaluated consumer views and preferences of farmers markets, and compared and contrasted consumers' views and preferences between farmers markets and supermarkets. They determined that, on average, farmers market consumers visited the farmers market about 12 times a year and spent an average of \$22 per visit; whereas the same set of consumers visited supermarkets about 37 times a year and spent an average of \$32 per visit.

4.2.1.3. Locally-grown Produce

Consumers have strong preferences for locally-grown products, but limited information about the exact magnitude and drivers of these preferences is available (Carpio and Isengildina-Massa, 2009). By understanding and anticipating consumer needs and preferences regarding fresh fruit and vegetable purchases, producers can be better prepared in making profit seeking decisions (Govindasamy et al., 1997).

The current body of literature is limited with regard to consumer demand for locally-grown produce in Alabama. Agriculture and other rural activities (including

produce farming) have been traditionally conducted for decades in Alabama (Alonso and O'Neill, 2011). However, while these areas are of great interest and clear benefit to the state's economy, there are still many knowledge gaps with regards to farmers markets and other rural activities and industries (Alonso and O'Neill, 2011).

Along with evaluating purchasing location, Onianwa et al. (2006) examined the characteristics of consumers in selected farmers markets in Alabama. The researchers asked consumers to compare the attributes, such as freshness, appearance, and selection, for fresh fruits and vegetables between supermarkets and farmers markets. With regard to freshness, nearly 80% of respondents preferred farmers markets, whereas the remaining respondents either preferred supermarkets or were indifferent. For the appearance of produce 62% of consumers chose farmers markets, while 15% chose supermarkets and the remaining 23% were indifferent. Fifty-six percent of respondents preferred farmers markets over supermarkets for variety and selection of produce, while 23% preferred the supermarkets (Onianwa et al., 2006). It stands to reason that consumers who were surveyed at a farmers market would be more likely to favor farmers market produce than a random sample of the population as a whole.

4.2.2. Population Demographics

The U.S. population is roughly 308.8 million, with Alabama's population representing nearly 4.8 million of that total (U.S. Census Bureau, 2011). Fifty-six percent of Alabama's population was between 18 and 65 years of age, and 13.8% of the population was 65 years or older. Just over half (51.5%) of Alabama's residents were female. The majority of Alabama residents were Caucasian (68.5%), followed by African American (26.2%), Hispanic or Latino (3.6%), Asian (1.1%), or American Indian (0.6%).

There were 1.8 million households in Alabama, with an average of 2.48 persons per household. The median household income is \$40,547.

4.2.3. Purpose of Study

The purpose of this study was to complete a comprehensive evaluation of the current and future purchasing habits for fresh fruits and vegetables by a selected group of Alabama consumers. Specifically, objectives were: 1. determine if these Alabama residents are interested in purchasing locally-grown, fresh fruits and vegetables; 2. determine where these consumers usually purchase locally-grown produce; and 3. evaluate factors that may influence changes in the future purchasing habits of locally-grown, fresh fruits and vegetables by these Alabama residents. This study builds on previous research focused on varying aspects of consumer purchasing behavior, local production, farmers markets, and state commodity programs. To gather data for this project, the researchers sought answers to survey questions involving shopping patterns for fresh fruits and vegetables, shopping patterns for local fresh fruits and vegetables, and farmers market visitation.

4.3. Materials and Methods

A survey instrument was developed to evaluate the three research objectives using questions from existing surveys used in published research (Govindasamy et al., 1998; Groves, 2005; Huang and Yeh, 2009; Jekanowski et al., 2000; Onianwa et al., 2006). The survey instrument (Figure 4.1) was designed to collect information regarding current consumption of fresh market produce in general, along with locally-produced, fresh market fruits and vegetables among a selected group of Alabama consumers, from those who were responsible for purchasing decisions. To better understand the fresh fruit and

vegetable purchases by consumers, the survey questions were structured into four different sections: shopping patterns for fresh fruits and vegetables; shopping patterns for local, fresh fruits and vegetables; farmers market visitation; and demographics.

Information gathered on shopping patterns for fresh fruits and vegetables included purchase location, frequency of purchases, and Likert-scale items regarding knowledge of the origin of fresh produce and current selection of fresh fruits and vegetables. The second section of the survey gathered information on shopping patterns for local, fresh fruits and vegetables. The information gathered for this section included benefits of local produce and Likert-scale items regarding selection and willingness to purchase locally-grown, fresh fruits and vegetables. Information gathered regarding farmers market visitation included frequency of visits, distance away from home, and selection of fresh produce among growers. The last survey section gathered demographic information from consumers including gender, year of birth, marital status, education, and 2010 household income.

The first set of surveys was distributed to consumers when the primary researcher attended the Auburn University Farmers Market on Thursday, June 9, 2011. Survey respondents were male or female heads of households. The questionnaires were distributed randomly during the hours of operation, between 3 PM and 6 PM. The second set of surveys were completed electronically by Alabama Master Gardener (AMG) members. After receiving Institutional Review Board (IRB) approval for research involving human subjects, an electronic survey was developed in SurveyMonkey[®] (SurveyMonkey.com, LLC, Palo Alto, CA, 2011). Kerry Smith, AMG Program Coordinator for Alabama, emailed the URL to AMG members throughout the state.

Master Gardener members were given 3 weeks to complete the survey electronically. Between the two survey distribution methods, a total of 326 usable surveys were returned to the researchers. There were 42 surveys completed at the AU Farmers Market, and another 284 surveys completed by AMG members.

The data from the 326 consumer surveys were entered into Microsoft Excel[®] 2010 for Windows[™] (Microsoft Corporation, Inc., Redmond, WA, 2010). All data were then copied into the Statistical Package for the Social Sciences (SPSS[®]) for Windows[™] Release 19 (International Business Machines Corporation, Armonk, NY, 2011) spreadsheet for evaluation using “Frequency” and “Descriptives.” Analysis of variance was performed on response data using PROC GLIMMIX in SAS[®] version 9.2 (SAS Institute, Cary, NC). The statistical models included a main effect for the two surveys (Auburn University Farmers Market versus Alabama Master Gardener) and the main effect and interaction for question choices for the appropriate questions. Survey questions requiring consumers to rank choices on an ordinal scale were analyzed using the multinomial probability distribution. Questions requiring consumers to choose from a list of choices were coded as binary data and were analyzed using the binary probability distribution. Single degree of freedom, paired CONTRAST statements were used to determine differences in question choices. PROC TTEST was used to determine the differences between surveys for questions with normal response data. All tests were at $\alpha = 0.05$ and all missing scores were coded as missing values.

4.4. Analysis and Results

In evaluating differences between Auburn University Farmers Markets customers and Master Gardeners, differences were found for six questions: frequency of purchases

in the past week; interested in origin of produce; satisfied with current selection of produce; ability to pay with debit and credit cards; produce grown at consumers residence; and year born. In the analysis of all other results, the consumer groups were treated as one group.

Demographics

To better understand the sample population of fresh produce consumers in Alabama, demographic information was collected and analyzed for data including gender, age, ethnicity, education, and income. Analysis of demographic results show that the consumers surveyed do not represent the normal demographics of the state as a whole. The majority (81%) of survey respondents were female, with males completing the remaining 19% of the surveys. The average year of birth reported was 1954, meaning the average age of respondents was 57 years. For customers frequenting the Auburn University Farmers Market the average age was 35 years compared to the average age of 61 years for the Master Gardener population. Nearly two-thirds (62%) of respondents were born between 1944 and 1964. The two oldest respondents were born in 1928 and the youngest respondent was born in 1991.

Ethnicity of consumers was also examined. Caucasian (97%) was the larger group followed by Asian (2%), African American (1%), Native American (0%), Hispanic (0%), and Other (0%) in the smaller response group (Table 4.1). Respondents were asked to indicate their current relationship status. Married (75%) was the largest group followed by single (12.5%), and then divorced (6.4%), widowed (4.5%), domestic partnership (1.9%), and separated (0%) in the smallest group (Table 4.2). Sixty-two percent of respondents indicated two people residing in the household, followed by 18% residing in

the household alone. Other responses regarding the number of people residing in the household include: 3 (12%), 4 (5%), 5 (2%), or 6 (1%).

Education level of consumers was also evaluated. None of the respondents reported only having some level of a high school education, while 2% reported having a high school diploma, and the other 98% reported having at least some college education. Respondents having a college degree (69.6%) were in the largest group, followed by some college or technical school (23.1%) and graduate degree (5.1%), and then high school (2.2%) and some high school (0.0%) in the smallest group (Table 4.3).

One survey question asked survey respondents to indicate the ZIP code in which their primary residence was located. Once all of the surveys were returned, the researcher used a website (www.melissadata.com/lookups/countyzip.asp) to identify the county associated with each zip-code. Once a county name was assigned to each respondent, the researcher then assigned each respondent to one of the nine regions (Table 4.4). The three regions with the most responses were the Northeast (29%), East Central (20%), and Southwest (16%). A similar question asked consumers to indicate if their residence was considered urban, suburban, or rural. Respondents indicating “suburban” (45.3%) comprised the largest response group followed by rural (31.9%), and then urban (22.8%) in the smallest group (Table 4.5). Each residence location category was different from the others. Survey respondents were asked if they grew any fruits and vegetables at home and 75% responded with “yes.” Among consumers at the AU Farmers Market, half of the respondents grow fruits and/or vegetables at their residence. However, 79% of Alabama Master Gardeners reported growing fresh produce at home.

More than half (58%) of survey respondents reported a 2010 household income of between \$40,000 and \$119,999 (Table 4.6). Twenty-one percent of consumers reported their 2010 household income of less than \$40,000, while the other 21% reported an income of more than \$120,000. The only response category different from the others was the \$120,000-\$139,999 category (Table 4.6).

Fresh Produce Purchases

Survey respondents were asked to answer questions regarding fresh produce purchases in regards to location and frequency. When asked where they most often purchased fresh fruits and vegetables, 52.3% of these consumers indicated making such purchases at grocery store followed by farm stands/pick-your-own operations (18.7%) in the second largest response group, supercenter (17.1%) in the third largest group, and then farmers markets (11.8%) in the smallest group (Table 4.7).

The largest response group indicated purchasing fresh produce weekly (54.7%) followed by more than once a week (31.1%), twice a month (11.8%), and then once a month (2.5%) in the smallest group (Table 4.8). Each of the response categories were different from each other. In a similar question, respondents were asked to indicate the frequency of fresh produce purchases made during the past seven days. The answers ranged from 0 to 6, with an average of 1.86 purchases. Seventy-six percent of respondents indicated making either one or two fresh purchases during the past week.

The seasonality of fresh fruit and vegetable purchases was also evaluated. Respondents were asked to indicate the percentage of fresh produce from their total produce purchases (canned, fresh, frozen, etc.) made each season. The greatest number of fresh produce purchases were made during the summer (69% of total purchases) followed

by spring (58%) and fall (55%), and then winter (45%) in the smallest group (Table 4.9).

Respondents were asked to indicate their level of agreement for two, 5-point Likert-scale items. Consumers indicated a level of agreement between “Agree” and “Strongly Agree,” with a median score of 4.46, when evaluating the statement “I am interested in knowing the origin of the fresh fruits and vegetables purchased.” For AU Farmers Market consumers a median score of 4.5 was reported, whereas a median score of 5.0 was reported for Master Gardener members. Respondents neither agreed nor disagreed when evaluating “I am satisfied with the current selection of fresh fruits and vegetables available in the marketplace,” with an average score of 3.09. For AU Farmers Market consumers a median score of 4.0 was reported, whereas a median score of 3.0 was reported for MG members. The differences between response groups were different for both questions.

Local Fresh Produce Purchases

The second section on the survey asked questions aimed specifically at gathering information regarding locally-produced, fresh fruit and vegetable purchases. If respondents shopped for locally-produced items, they were asked to indicate what benefits they perceived to be present. The two benefits selected with the greatest frequency include “Fresher/tastes better” (91%) and “Supporting local farmers” (91%) followed by “Produced locally” (82.5%), and then “Stays fresher longer” (53.4%), “Increased nutritional value” (51.5%), and “Safer food supply” (46.3%) in the third group. The fourth largest response group included “Preservation of the environment” (28.8%), with “Preservation of genetic diversity” (16.0%) and “Stricter production standards” (14.1%) in the smallest group (Table 4.10). When respondents were asked

about willingness to purchase fresh fruits and vegetables, 72% indicated they were willing to purchase Alabama-grown produce followed by produce grown in the Southeast (16%) and produce grown in the United States (11%), and then imported fresh produce (1%) in the smallest group (Table 4.11).

Consumers completing the survey were asked to list the locally-produced fruits and vegetables purchased most often. The four produce varieties indicated most often include tomatoes (67%), squash (37%), melons (37%), and peaches (33%) (Table 4.12) along with a list of the other responses. A similar question asked respondents to list any local fresh fruits and vegetables that may not be available but that they would like to purchase. Without clarification, respondents answered this question in one of two ways: 1) looking for produce not available out of season or 2) looking for produce not currently available in Alabama or not available on a large scale. Consumers offered additional comments regarding the availability of Alabama-grown, fresh fruits and vegetables (Table 4.13). Several of the quotes are listed below, with the remaining available for viewing in Figure 4.2.

“I would like all grocery chains to offer locally-grown so that I don’t need to seek them at other markets.”

“Just a more varied selection in general – sometimes the pickings are pretty limited.”

“I like tropical fruits. Greenhouse-grown in Alabama could work.”

Survey respondents were asked to indicate their level of agreement for four 5-point Likert-scale items in the section of the survey evaluating shopping patterns for local produce. With an average score of 4.16, consumers agreed with the statement, “I make an

effort to purchase locally-grown produce.” The consumer responses between the AU Farmers Market (median of 4.0) versus AMG members (median of 5.0) were significant. Respondents neither agreed nor disagreed when evaluating the statement, “I am satisfied with the current selection of local produce available in the marketplace” with an average score of 3.11. There was no difference between consumer response groups. Consumers indicated a level of agreement divided between “Agree” and “Strongly Agree,” with an average of 4.42, when evaluating “I would be interested in purchasing more locally-grown produce if available.” Again, there was no difference between consumer response groups. For the fourth statement, “I would be willing to pay more for locally-grown produce,” consumers identified most closely with “Agree,” with an average of 3.79. There was no difference between AU Farmers Market and AMG consumers.

Farmers Market Visitation

When asked if they purchase fresh produce from a farmers market, 94% of respondents answered yes. There was no difference between the two consumer response groups. Ninety-two percent of consumers have a farmers market within 10 miles of their home. Farmers market visitation varied among survey respondents, with 52.7% attending only in the summer, 45.6% attending year-round, and the remaining 1.8% attending during the fall. Year-round and summer only responses were different from fall only and winter only (Table 4.14).

When asked about product selection for each vendor, 69.3% of respondents stated they expect producers at the farmers markets to offer a larger product selection (3 or more products), which was different from the 30.7% respondents preferring smaller product selection (fewer than 3 products). Consumers were asked which payment method

they would like to see offered at the farmers market they frequent the most, because some farmers markets only accept cash transactions. The ability to pay with PayPal, credit cards, or debit cards (54.2%) was the largest group followed by the ability to write checks (32.6%), and then access to an ATM on-site (13.2%) in smallest group (Table 4.15). Each of the preferred payment method categories was different from the others.

Survey respondents were asked to indicate their level of agreement with four, 5-point Likert-scale items in this section. Consumers indicated a level of agreement divided between “Neither” and “Disagree” for “The ability to pay with debit or credit cards increases my visitation to the farmers market” (2.62). There was no difference between consumer response groups for the item “I would pay more for the fresh produce if I were able to deal with fewer producers” (2.46). Likewise, respondents indicated a level of agreement between “Neither” and “Agree” for two items: “The farmers market has convenient hours” (3.43) and “I am satisfied with the current selection of fresh produce available at the farmers market” (3.39). There was no difference between consumer response groups for these two items.

4.5. Summary and Discussion

Based on the demographic information collected and analyzed, including gender, age, ethnicity, education, and income, the applicability of these results do not represent the population of the state as a whole. However, while the original plan was to survey consumers at retail outlets throughout the state, it is believed that consumers represented in this study tend to be similar to the demographics of the general produce consumer. For example, in a study of 1,549 general fresh produce consumers (Bond et al., 2008), researchers reported 74% of respondents were female with an average age of 51 years. In

the current study, the majority of respondents were female (81%) and between 47 and 67 years old (62%). The predominance of female respondents is consistent with the results presented in several previous food based surveys (Wolf, 1997; Scheerens, 2001; and Onianwa et al., 2006). Baker (1999) reported the ethnicity composition in his study regarding food safety attributes in fresh apples to be: Caucasian (86.3%); African American (6.1%); Hispanic (1.8%); and American Indian, Asian or Other (5.9%).

In this study, three-quarters (75%) of respondents were married; and the number of people residing in the household was either 1 or 2, according to 80% of the respondents. Bond et al. (2008) reported a mean household size of 2.41, with a range of 1 to 7 members, while Baker (1999) reported a median household size of 2.66. Household income for 2010 was divided fairly equally between the income categories, with 58% of respondents reporting a household income between \$40,000 and \$120,000.

Nearly half (45%) of consumers reported living in suburban residences and 75% of respondents reported growing fruits and vegetables at home. Among consumers at the AU Farmers Market, half of the respondents grow fruits and/or vegetables at their residence. However, 79% of Alabama Master Gardeners reported growing fruits and/or vegetables at home. Understanding that consumers grow fruits and vegetables at home has several implications. Some of the MG members may grow all of the produce they consumer and might not frequent farmers markets at all. Other consumers may grow more traditional varieties of produce at home and then turn to retail outlets and farmers markets to purchase produce they are unable to grow for whatever reason. It is also important to consider that these consumers may have stricter standards and be more critical of the produce they choose to purchase and consume, regardless of location. One

important note is that the survey did not ask respondents to indicate the type and number of fruits and vegetables grown at home. Responses could vary from a few tomato plants in containers on a back patio to a large vegetable garden in the back yard.

More than half (52%) of consumers surveyed purchased their fresh fruits and vegetables at grocery stores. The survey did not gather data regarding the motivations of consumers to purchase fresh produce from one type of retail outlet versus the others. The primary researcher can only provide possible motivations for purchasing at grocery stores. One specific motivation is convenience – in terms of being able to complete the rest of their shopping in the same trip and the fact that grocery stores tend to have more convenient hours than farmers markets, especially in the smaller, more rural markets. In more rural towns, farmers markets may be open just a few hours once a week. This schedule may not be conducive for individuals who are busy working, keeping the house, or raising a family. This may explain why the majority of farmers market attendees are older women.

It is important to note the majority (86%) of respondents reported making the fresh produce purchases either weekly or more than once a week. When farmers markets are open for limited hours, consumers find it more convenient to frequent other types of retail outlets to purchase fresh fruits and vegetables. Of total produce purchases (including fresh, canned, and frozen), fresh produce constituted the greatest percentage during the summer (69%) and spring (58%). This question assumed that all survey respondents purchased fresh fruits and vegetables at either grocery stores or supercenters where other types of produce (canned and frozen) are readily available.

Knowledge of consumer store patronage could help retail outlets understand the shopping patterns of their consumers, and help the outlets identify the frequency of which fresh produce could be stocked. This in turn, could alter the delivery schedule of fresh fruits and vegetables to the retail outlets for producers. Understanding the demographics of those responsible for fresh fruit and vegetable purchases could help both producers and retail outlets with their marketing and advertisement campaigns for these products. Respondents were interested in knowing the origin of the fresh produce they purchase, so having information regarding the origin of the produce displayed prominently in the grocery stores would assist consumers in easily identifying locally-grown produce available for purchase. Meeting the needs of consumers could help encourage growth in the Alabama produce industry.

Local fresh produce purchases were also evaluated. Three benefits of fresh produce were indicated by the majority of respondents: fresher/tastes better (91%), supporting local farmers (91%), and produced locally (83%). These perceived benefits were recognized by survey respondents, regardless of purchase location. Knowing that consumers recognized these benefits for locally-grown, fresh fruits and vegetables could be of benefit to both producers and retail outlets. This information could be incorporated into marketing and promotional materials to help increase sales of locally-produced goods.

Ninety-four percent of respondents purchased some amount of fresh produce from farmers markets. Visitation patterns among consumers may be impacted by various factors including: location, availability of produce (short production season), seasonal nature of some of the smaller farmers market (only being open during the summer

months), or attending to purchase specialty items (for example, pumpkins in the fall).

Further research could be conducted to evaluate whether or not consumers are interested in attending farmers markets year-round. Alabama producers could be presented with the results and may find that unmet demands exist which could be addressed by producing and marketing local goods in the “off” seasons, especially during the fall and winter.

Responses regarding payment methods available at farmers markets varied among respondents. The greatest response (54%) was that the ability to pay with PayPal, credit cards, or debit cards would have the most positive influence on their trip to the farmers market. This response was less than the researcher expected. One explanation for the lower number was the majority of respondents were AMG members. This is an older population who may choose to write checks or pay with cash, as opposed to using debit or credit cards.

This research could have been conducted in a bit different manner. For one, in evaluating current selection of fresh produce at farmers markets, respondents could have been asked to indicate the number of products that they usually see per vendor. Second, when responding to questions about the current selection (in terms of quantity and quality) of fresh produce available at farmers markets, it was up to the survey respondents to define the “selection” variable. A value of 3.39 out of 5 for the statement “I am satisfied with the current selection of fresh produce available at the farmers market” could be a case of needing to educate consumers as to what is grown in the area and the seasonality of produce. Third, the nature of survey respondents, with the majority being AMG members, limits the applicability of results.

One of the biggest issues with this study was the inability to interview a diverse consumer population. Limitations were seen in the lack of cooperation by retail outlets, for various reasons. Future research in this area, especially in retail outlets, would be beneficial. Perhaps taking preliminary data to the store managers would help entice them to allow for survey distribution on-site. Compared to the approximately 4.8 million residents in Alabama, the number of responses was limited and is recognized as a limitation to the generalizability of the data.

While the number of responses was clearly low as compared to the total number of residents in Alabama, this number was nevertheless believed to provide some initial insights concerning the demand for locally-produced, fresh fruits and vegetables among Alabama consumers. Ideally, the sampled population should accurately represent the entire population of Alabama. At most, the results may have application to similar demographic groups in the southeastern United States. Outside of these boundaries, there could be too much variance among consumer demographics to be able to generalize the results to every consumer in Alabama or the United States as a whole.

4.6. Literature Cited

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Table 4.1. Consumers' ethnicity as reported in an Alabama fruit and vegetable survey in 2011^z.

Ethnicity	Responses	Percentages^y
Caucasian	298	96.8% a
Asian	6	2.0% b
African American	4	1.3% b
Native American	0	0.0% b
Hispanic	0	0.0% b
Other	0	0.0% b

^z = Surveys distributed to consumers at the Auburn University Farmers Market in May of 2011 and online during the fall of 2011.

^y = Differences among category selections (lower case letters in column) presented as percents of total surveys were determined using paired contrasts at $\alpha = 0.05$. (N=308)

Table 4.2. Consumers' relationship status as reported in an Alabama fruit and vegetable survey in 2011 ^z.

Ethnicity	Responses	Percentages ^y
Married	232	74.6% a
Single	39	12.5% b
Divorced	20	6.4% c
Widowed	14	4.5% c
Domestic Partner	6	1.9% c
Separated	0	0.0% c

^z = Surveys distributed to consumers at the Auburn University Farmers Market in May of 2011 and online during the fall of 2011.

^y = Differences among category selections (lower case letters in column) presented as percents of total surveys were determined using paired contrasts at $\alpha = 0.05$. (N=311)

Table 4.3. Consumers' level of education as reported in an Alabama fruit and vegetable survey in 2011^z.

Education	Responses	Percentages^y
Some high school	0	0.0% c
High school	7	2.2% c
Some college	72	23.1% b
College	217	69.6% a
Graduate school	16	5.1% c

^z = Surveys distributed to consumers at the Auburn University Farmers Market in May of 2011 and online during the fall of 2011.

^y = Differences among category selections (lower case letters in column) presented as percents of total surveys were determined using paired contrasts at $\alpha = 0.05$. (N=312)

Table 4.4. Location of Alabama consumers' primary residences, by county and corresponding region from an Alabama fruit and vegetable survey in 2011 ^z.

Region	Counties ^y	% ^x
Northwest	Colbert, Franklin, Lauderdale, Lawrence, Limestone, Marion, Winston	1
Northeast	Cherokee, DeKalb, Etowah, Jackson, Madison, Marshall	29
North central	Blount, Cullman, Jefferson, Morgan, St. Clair, Walker	9
West central	Fayette, Greene, Hale, Lamar, Pickens, Sumter, Tuscaloosa	8
East central	Calhoun, Chambers, Clay, Cleburne, Lee, Macon, Randolph, Tallapoosa	20
Central	Autauga, Bibb, Chilton, Coosa, Dallas, Elmore, Perry, Shelby, Talladega	5
Southwest	Baldwin, Choctaw, Clarke, Marengo, Mobile, Washington	16
South central	Butler, Conecuh, Covington, Crenshaw, Escambia, Lowndes, Monroe, Montgomery, Wilcox	5
Southeast	Barbour, Bullock, Coffee, Dale, Geneva, Henry, Houston, Pike, Russell	7

^z = Surveys distributed to consumers at the Auburn University Farmers Market in May of 2011 and online during the fall of 2011.

^y = Alabama's 67 counties were divided into 9 regions.

^x = Percentage of consumer responses from each region in Alabama.

Table 4.5. Consumers' residence location as reported in an Alabama fruit and vegetable survey in 2011^z.

Education	Responses	Percentages^y
Suburban	139	45.3% a
Rural	98	31.9% b
Urban	70	22.8% c

^z = Surveys distributed to consumers at the Auburn University Farmers Market in May of 2011 and online during the fall of 2011.

^y = Differences among category selections (lower case letters in column) presented as percents of total surveys were determined using paired contrasts at $\alpha = 0.05$. (N=307)

Table 4.6. Consumers' household income in 2010 as reported in an

Alabama fruit and vegetable survey in 2011^z.

Income	Responses	Percentages^y
Less than \$20,000	32	11.2% a
\$20,000 to \$39,999	28	9.8% a
\$40,000 to \$59,999	45	15.8% a
\$60,000 to \$79,999	46	16.1% a
\$80,000 to \$99,999	35	12.3% a
\$100,000 to \$119,999	39	13.7% a
\$120,000 to \$139,999	10	3.5% b
\$140,000 to \$159,999	26	9.1% a
Greater than \$160,000	24	8.4% a

^z = Surveys distributed to consumers at the Auburn University Farmers Market in May of 2011 and online during the fall of 2011.

^y = Differences among category selections (lower case letters in column) presented as percents of total surveys were determined using paired contrasts at $\alpha = 0.05$. (N=285)

Table 4.7. Consumers' response regarding purchase location as reported in an

Alabama fruit and vegetable survey in 2011^z.

Location	Rank - Frequency (Percentage)				Median ^y
	1	2	3	4	
Grocery Store	168 (52.3%)	69 (21.5%)	60 (18.7%)	24 (7.5%)	1.0 a
Super center	55 (17.1%)	109 (34.0%)	115 (35.8%)	42 (13.1%)	2.0 b
Farmers market	38 (11.8%)	53 (16.5%)	72 (22.4%)	158 (49.2%)	3.0 d
Farm stand	60 (18.7)	91 (28.4%)	72 (22.4%)	98 (30.5%)	3.0 c

^z = Surveys distributed to consumers at the Auburn University Farmers Market in May of 2011 and online during the fall of 2011.

^y = Differences among category selections (lower case letters in column) presented as percents of total surveys were determined using paired contrasts at $\alpha = 0.05$. (N=321)

Table 4.8. Frequency of fresh produce purchases as reported in an Alabama fruit and vegetable survey in 2011 ^z.

Frequency	Responses	Percentages ^y
Weekly	176	54.7% a
More than one a week	100	31.1% b
Twice a month	38	11.8% c
Once a month	8	2.5% d

^z = Surveys distributed to consumers at the Auburn University Farmers Market in May of 2011 and online during the fall of 2011.

^y = Differences among category selections (lower case letters in column) presented as percents of total surveys were determined using paired contrasts at $\alpha = 0.05$. (N=322)

Table 4.9. Percentage of fresh produce purchased by season according to

Alabama fruit and vegetable consumers in a 2011 survey ^z.

Season	% ^y
Spring	58% b
Summer	69% a
Fall	55% c
Winter	45% d

^z = Consumers were asked to choose the three attributes they value regarding Alabama-grown, fresh fruits and vegetables.

^y = Differences among category selections (lower case letters in column) presented as percents of total surveys were determined using paired contrasts at $\alpha = 0.05$.

Table 4.10. Attributes providing competitive advantage in the marketplace as perceived by Alabama fruit and vegetable consumers in a 2011 survey ^z.

% ^y	Attribute
91.1% a	Fresher/Tastes better
91.1% a	Supporting local farmers
82.5% b	Produced locally
53.4% c	Stays fresher longer
51.5% c	Increased nutritional value
46.3% c	Safer food supply
28.8% d	Preservation of the environment
16.0% e	Preservation of genetic diversity
14.1% e	Stricter production standards

^z = Consumers were asked to choose the three attributes they value regarding Alabama-grown, fresh fruits and vegetables.

^y = Differences among category selections (lower case letters in column) presented as percents of total surveys were determined using paired contrasts at $\alpha = 0.05$.

Table 4.11. Willingness to purchase local fruits and vegetables as reported in an Alabama fruit and vegetable survey in 2011 ^z.

Frequency	Responses	Percentages ^y
Alabama	227	71.8% a
Southeastern U.S.	52	16.5% b
U.S.	36	11.4% b
Imported	2	0.6% c

^z = Surveys distributed to consumers at the Auburn University Farmers Market in May of 2011 and online during the fall of 2011.

^y = Differences among category selections (lower case letters in column) presented as percents of total surveys were determined using paired contrasts at $\alpha = 0.05$. (N=317)

Table 4.12. Percent of Alabama-grown, fresh fruits and vegetables purchased most often across all seasons by Alabama consumers in the marketplace ^z.

%	Produce variety	%	Produce variety
67%	Tomatoes	5%	Cabbage
37%	Squash	5%	Green beans
37%	Melons	3%	Bananas
33%	Peaches	3%	Carrots
22%	Corn	3%	Eggplant
20%	Sweet potatoes/Potatoes	3%	Pears
18%	Beans	2%	Beets
17%	Strawberries	2%	Celery
17%	Blueberries	2%	Legumes/Peanuts
16%	Peas	2%	Satsumas
15%	Peppers	2%	Zucchini
15%	Apples	1%	Figs
12%	Okra	1%	Herbs
12%	Onions	1%	Lemons
12%	Greens/Lettuce/Spinach	1%	Mushrooms
11%	Cucumbers	1%	Pumpkins

^z = Percentages may be lower than actual, given that not all consumers listed which Alabama-grown, fresh fruits and vegetables they purchase most often.

Table 4.13. Fresh fruit and vegetable items Alabama consumers want to see available

for purchase in the marketplace, as reported in a 2011 survey ^{z,y}.

N	Produce variety	N	Produce variety
19	Lettuce	4	Corn
15	Apples	4	Pomegranates
15	Broccoli	4	Swiss chard
13	Tomatoes	4	Winter squash
12	Asparagus	3	Cantaloupe
12	Oranges	3	Figs
10	Grapes	3	Mango
10	Kiwi	3	Persimmons
10	Peaches	3	Satsumas
9	Strawberries	2	Avocado
8	Sweet potatoes/Potatoes	2	Collards
8	Spinach	2	Grapefruit
7	Onion	2	Herbs
7	Peas	2	Leeks
7	Pineapples	2	Limes
6	Raspberries	2	Muscadines
5	Bananas	2	Oriental vegetables
5	Blackberries	2	Plums
5	Blueberries	2	Rhubarb
5	Kale	2	Turnip greens
5	Melons	1	Apricots
5	Pears	1	Fennel
4	Artichokes	1	Okra
4	Cauliflower	1	Paw paw
4	Celery	1	Watercress
4	Cherries		

^z = Consumers were asked to indicate which fresh produce items they would like to see available for purchase in the marketplace.

^y = Not all consumers answered this question.

Table 4.14. Farmers market attendance by season according to

Alabama fruit and vegetable consumers in a 2011 survey ^z.

Season	% ^y
Year Round	45.6% a
Summer only	52.7% a
Fall only	1.8% b
Winter only	0.0% b

^z = Consumers were asked to choose the three attributes they value regarding Alabama-grown, fresh fruits and vegetables.

^y = Differences among category selections (lower case letters in column) presented as percents of total surveys were determined using paired contrasts at $\alpha = 0.05$.

Table 4.15. Preferred payment methods among consumers frequenting farmers market according to Alabama fruit and vegetable consumers in a 2011 survey ^z.

Payment Method	% ^y
Ability to pay with Pay Pal, Credit Card, or Debit Card	54.2 % a
Ability to pay with check	32.6% b
Access to an ATM for cash	13.2% c

^z = Consumers were asked to choose the three attributes they value regarding Alabama-grown, fresh fruits and vegetables.

^y = Differences among category selections (lower case letters in column) presented as percents of total surveys were determined using paired contrasts at $\alpha = 0.05$.

Figure 4.1.

Consumer Survey

Consumer Purchasing Habits of Fresh Fruits and Vegetables

Your opinion is critical for ongoing assessment of current and future consumption of fresh market produce.

I. Shopping Patterns for Fresh Fruits and Vegetables

- 1. Where do you most often purchase your fresh fruits and vegetables? (Please rank from 1 to 4, with 1 being to most often and 4 being the least often)
2. How often do you purchase fresh fruits and vegetables? (Select one)
3. How many times have you purchased fresh fruits and vegetables within the past week?
4. Of your total produce purchases (i.e. canned, fresh, frozen, etc.), what percentage are fresh fruits and vegetables? Please indicate the percentage for each season.

Please indicate your level of agreement with each of the following statements. (1-Strongly Disagree, 2-Somewhat Disagree, 3-Neither, 4-Somewhat Agree, 5-Strongly Agree)

- 5. I am interested in knowing the origin of the fresh fruits and vegetables I purchase (where they were produced)
6. I am satisfied with the current selection of fresh fruits and vegetables available in the market place
7. Please list the fresh fruits and vegetables you purchase the most often (i.e. tomatoes, melon, squash, etc).

II. Shopping Patterns for Local Fresh Fruits and Vegetables

- 8. If you purchase locally-produced items, what benefits do you perceive to be present? (Select all that apply)
9. Would you be most willing to purchase? (Select one)
10. Please list the local fruits and vegetables you purchase the most often (i.e. tomatoes, melon, squash, etc).
11. Please list any local fruits and vegetables that may not be available but that you would like to purchase.

Please indicate your level of agreement with each of the following statements.
 (1-Strongly Disagree, 2-Somewhat Disagree, 3-Neither, 4-Somewhat Agree, 5-Strongly Agree)

	Strongly Disagree				Strongly Agree
12. I make an effort to purchase locally grown fruits and vegetables	1	2	3	4	5
13. I am satisfied with the current selection of local fruits and vegetables available in the market place	1	2	3	4	5
14. I would be interested in purchasing more locally grown fruits and vegetables if products were available	1	2	3	4	5
15. I would be willing to pay more for locally grown fruits and vegetables	1	2	3	4	5

III. Farmers Market Visitation Questions

16. Do you purchase fresh fruits and vegetables from a farmers market?
 Yes No (Please skip to the last section)
17. If so, when do you visit farmers markets? (Select all that apply)
 Year round Summer only Fall only Winter only
18. How often do you purchase fresh fruits and vegetables? (Select one)
 Once a month Twice a month Weekly More than once a week
19. How many times have you purchased fresh fruits and vegetables from a farmers market within the past week?
 One Two Three or more
20. How many miles is the farmers market from your home? _____ miles
21. How many products do you expect a typical farmer to have for sale? (Select one)
 One Two Three or more products
22. Do you prefer a smaller product selection from each grower or a larger product selection? (Select one)
 Smaller product selection (i.e. a farmer only has tomatoes and strawberries for sale)
 Larger product selection (i.e. a farmer has tomatoes, cucumbers, and strawberries)
23. Which of the following payment methods would have the greatest influence on your trip to the farmers market? (Select one)
 Access to ATM PayPal / Credit cards / Debit cards Checks

Please indicate your level of agreement with each of the following statements.
 (1-Strongly Disagree, 2-Somewhat Disagree, 3-Neither, 4-Somewhat Agree, 5-Strongly Agree)

	Strongly Disagree				Strongly Agree
24. The ability to pay with debit or credit cards increases my visitation to the farmers market	1	2	3	4	5
25. I would pay more for the fresh fruits and vegetables if I were able to deal with fewer producers	1	2	3	4	5
26. The farmers market has convenient operating hours	1	2	3	4	5
27. I am satisfied with the current selection of fresh produce available at the farmers market	1	2	3	4	5

IV. Demographics

28. Do you grow vegetables at your residence?
 Yes No
29. What is your gender? (Select one)
 Male Female
30. What year were you born? _____
31. Which best describes you? (Select one)
 Single, never married Married
 Widowed Divorced
 Separated Domestic partnership
32. How many people reside in your household including yourself? _____
33. What is your ethnic group? (Select one)
 Caucasian African American
 Hispanic Asian
 Native American Other (Please specify) _____
34. What level of education have you completed? (Select one)
 Some high school High school graduate
 Some college or technical school Completed four-year college degree
 Completed graduate degree
35. What is your ZIP code? _____
36. Is your residence located in an urban, suburban, or rural setting? (Select one)
 Urban Suburban Rural
37. Please provide your approximate household income for 2009 before taxes. (Select one)
 Less than \$20,000 \$20,000 to \$39,999
 \$40,000 to \$59,999 \$60,000 to \$79,999
 \$80,000 to \$99,999 \$100,000 to \$119,999
 \$120,000 to \$139,999 \$140,000 to \$159,999
 Over \$160,000

Figure 4.2.

Consumer comments regarding the availability of locally-grown, fresh produce

“I would like all grocery chains to offer locally-grown so that I don’t need to seek them at other markets.”

“I would like better local tomatoes.”

“Living in Alabama, most vegetables are available regionally (from Florida). What I have enjoyed the most and that tastes better from Alabama are the tomatoes and green peppers. I have also bought fresh Alabama turnips that were awesome.”

“Most local fruits and veggies are not available in the fall and winter so I go back to Publix. I don't know where the food comes from.”

“Anything I can get. I would buy them in the grocers if they said ‘locally-grown’.”

“I like tropical fruits. Greenhouse-grown in Alabama could work...”

“More varieties of apples.”

“More varieties of greens and tomatoes.”

“Tomatoes in the winter.”

“Not enough available.”

CHAPTER 5

Final Summary and Discussion

5.1. Purpose of the Studies

The goal of these studies was to answer questions regarding the production, marketing, and consumption of Alabama-grown, fresh fruits and vegetables. The purpose of the production study was to determine: 1. where Alabama producers market their fresh produce; 2. how they market the produce; 3. if producers are affiliated with producer programs; and 4. benefits recognized through affiliation with the producer programs. The retailer study's purpose was to determine: 1. if grocery stores make an effort to offer locally-grown produce for sale; 2. if local produce is differentiated from non-local; and 3. if differences in sales exist between chain retailers and independent grocery stores. The purpose of the consumer study was to determine: 1. if Alabama residents were interested in purchasing local produce; 2. where consumers usually purchase local produce; 3. evaluate factors that may influence changes in future purchasing habits of local produce by Alabama consumers.

5.2. Summary of Producer Study

A survey instrument, constructed using questions from existing surveys in published research, was designed to collect information regarding the production and marketing practices of fruit and vegetable producers in Alabama. The primary researcher attended the Alabama Fruit and Vegetable Grower Association (AFVGA) annual conference to distribute surveys to fruit and vegetable producers. A copy of the producer

survey was also mailed to potential respondents to increase the survey responses.

Between the two survey distribution methods, a total of 75 usable surveys were returned to the researchers, yielding a response rate of 34%.

In the 2007 Census of Agriculture (USDA, 2009) operator characteristics for Alabama farms included a total of 48,753 principal operators, 19,416 (40%) of whom reported farming as being their primary occupation. The majority (87%) of principal farm operators in Alabama were men. For this study, the majority (80%) of survey respondents were male, with 15 (20%) females completing the survey. Ethnicity of survey respondents were divided as follows: Caucasian (82.2%), African American (12.3%), Native American (4.1%), and Other (1.4%). The average age of respondents was 62 years. Even more noteworthy was that 80% of producers are over 50 years of age. According to the 2007 Census of Agriculture (USDA, 2009), the average age of principal operators in Alabama was 57.6 years.

The majority of respondents (47%) had been producing fresh fruits and vegetables for “21+ years” or “Multiple Generations.” In the 2007 Census of Agriculture (USDA, 2009) operator characteristics for Alabama farms, the majority of respondents (72%) indicated they have been at the present farm for 10 years or more, with the principal operator having worked an average of 20.5 years on the present farm. The aging population of fruit and vegetable producers in Alabama has been growing produce for many years. As more of the producers discontinue growing produce, it will be important for the next generation to continue producing fresh fruits and vegetables in the state. Without continuing the production of produce in Alabama, any number of problems could arise: decreased availability of Alabama-produce for sale leads to higher prices

paid by consumers; or consumers paying higher prices for produce imported from other states or countries. It is important to note that 75% of reporting producers own the land used for fruit and vegetable production. With an aging population of fruit and vegetable producers, the possibility exists that upon retirement or death, that land could be used for other purposes, such as ranchland for cattle or sold to developers for future home sites.

Production methods used most frequently by producers were classified as conventional (88%), followed by organic (8%), hydroponic (3%), or other (1%). This may be correlated with the age of survey respondents. Older producers may be less willing to alter their production methods than their younger counterparts. Production decisions are based on geographical distribution, farm structure, profitability, awareness of other farming practices, and consumer demand, according to Saltiel et al. (1994). Given that survey respondents could pick more than one decision method, the two most popular methods for deciding what to grow in the upcoming season were “same production as last year” (42.5%) or “meeting demand for consumers” (39.7%).

The majority of producers were marketing their produce directly to consumers through pick-your-own operations and farmers markets. Utilizing these marketing methods may be a result of smaller production scales reported by survey respondents. Small-scale fruit and vegetable producers do not produce the quantity of produce needed to be able to sell through marketing outlets such as restaurants and retail food outlets. While there is no reason to believe that Alabama producers are not offering a competitive product into the fresh produce market, the next step is determining how to encourage growth and sustain an increased volume of production. Direct and niche marketing to consumers is becoming an important source of revenue for many farms with limited

production scale, especially those with small to medium operations (Bond et al., 2008; Brown, 2003; Bond et al., 2006; Wolf et al., 2005). Survey respondents traveled an average of 162 miles each week to 1 or 2 farmers markets each season in Alabama. Respondents were asked how they decided what fruits and vegetables to take to sell at farmers markets, with 52% of producers indicating they bring their best quality produce to sell.

Producers were asked to provide information about their membership in two different grower organizations: Alabama Fruit and Vegetable Grower Association (AFVGA) and Alabama Buy Fresh, Buy Local (BFBL). Of the 75 respondents, 76% were members of the AFVGA and 59% were members of Alabama BFBL. For the AFVGA members, the benefits relating to increased marketing and increased marketplace demand were the most visible. Benefits relating to influence on marketplace sales, increased marketplace demand, and increased marketing were the most visible for Alabama BFBL members. Additional time should be spent interviewing producers about how well these two programs meet their needs involving the production and marketing of Alabama-grown produce.

Collecting data from only 75 Alabama fruit and vegetable producers was a potential limitation of this study, especially because thousands of farms exist in this state. Aside from limited responses, there were several items that could have been handled differently with the research. For one, the survey was administered through a one-time mailing effort; additional contact efforts might have increased the response rate. Additionally, when asking about income from fruit and vegetable production, the income categories should have been split into smaller categories starting with “less than \$1,000”

or “less than \$2,500.” With the majority of producers reporting on-farm income of less than \$49,999, it would have been beneficial to focus on a smaller production scale.

5.3. Summary of Consumer Study

A survey instrument was designed to collect information regarding current consumption of fresh market produce in general, along with locally-produced, fresh market fruits and vegetables among a selected group of Alabama consumers. The first set of surveys was distributed to consumers when the primary researcher attended the Auburn University Farmers Market in May of 2011. A second set of surveys were completed electronically by Alabama Master Gardener (AMG) members. Between the two survey distribution methods, a total of 326 usable surveys were returned to the researcher.

The majority of respondents were female (81%) and Caucasian (97%). Sixty-two percent of respondents were between 47 and 67 years of age. Three-quarters (75%) of respondents were married. Wolf et al. (2005) indicated that farmers market shoppers were more likely to be female, married, and to have completed post-graduate work. While Brown (2003) did not find that age, income, or education directly influenced the preference for local produce, other studies found these consumer characteristics to be important (Eastwood, 1996; Jekanowski et al., 2000; Wolf, 1997).

Nearly half (45.3%) of consumers in this study reported living in suburban residences and 75% of respondents reported growing fruits and vegetables at home. Household location influenced preference for local products, with rural residents more willing to seek out and purchase local products than urban residents (Brown, 2003). While this data is not representative of the entire state because the majority of

respondents were AMG members, applicability of the results is still possible because of the similarities between the survey respondents and fresh produce consumers in general.

More than half (52.3%) of consumers surveyed purchase their fresh fruits and vegetables at grocery stores. The majority (86%) of respondents reported making their fresh produce purchases either weekly or more than once a week. Local fresh produce purchases were also evaluated. Three benefits of fresh produce were indicated by the majority of respondents: fresher/tastes better (91%), supporting local farmers (91%), and produced locally (83%). These perceived benefits were recognized by survey respondents, regardless of purchase location. For farmers market consumers in Michigan, the three factors with the highest mean importance for consumers were food quality, safety from food borne illness, and ability to support local farms (Conner et al., 2010).

Consumers indicated an interest in knowing the origin of the fresh fruits and vegetables they purchase. Information regarding the origin of the produce displayed prominently in the grocery stores would assist consumers in easily identifying locally-grown produce available for purchase, since the majority of respondents indicated they were interested in purchasing and make an effort to purchase Alabama-grown produce. Meeting the needs of consumers could help encourage growth in the Alabama produce industry. Consumers indicated they would purchase more locally-grown produce if it were available. Knowing that consumers recognize benefits for locally-grown, fresh fruits and vegetables could be of benefit to both producers and retail outlets. This information could be incorporated into marketing and promotional materials to help increase sales of locally-produced goods.

Ninety-four percent of respondents purchase fresh produce from farmers markets, and 92% of consumers have a farmers market within 10 miles of their home. Consumers see direct marketing outlets, such as farmers markets, as a way to get fresher produce at a lower cost (Gallons et al., 1997). Visitation patterns among consumers may be impacted by various factors including: location, availability of produce (short production season), seasonal nature of some of the smaller farmers market (only being open during the summer months), or attending to purchase specialty items. It is also important for Alabama fruit and vegetable producers to understand the frequency in which consumers visit farmers markets, especially for those producers who primarily market their produce at these outlets. For consumers, the best season for farmers market attendance occurred in the summer. For producers, they may want to concentrate their marketing efforts here in the summer and elsewhere in the spring and fall.

When asked about product selection from each vendor, 70% of respondents stated they expect producers at the farmers markets to offer a larger product selection (3 or more products). This may be due to customers looking for ways to complete their shopping in as few transactions as possible. Responses regarding payment methods available at farmers markets varied among respondents. The greatest response (54%) was that the ability to pay with PayPal, credit cards, or debit cards would have the most positive influence on their trip to the farmers market versus paying with cash or check.

Part of this research could have been conducted in a different manner. For one, in evaluating current selection of fresh produce at farmers markets, respondents could have been asked to indicate the number of products that they usually see per vendor. Second, when responding to questions about the current selection (in terms of quantity and

quality) of fresh produce available at farmers markets, it was up to the survey respondents to define the “selection” variable. Third, the nature of survey respondents, with the majority being AMG members, potentially limits the applicability of results.

One of the biggest issues with this study was the inability to interview a diverse consumer population. Limitations were seen in the lack of cooperation by retail outlets, for various reasons. Future research in this area, especially in retail outlets, would be beneficial. Compared to the approximately 4.8 million residents in Alabama, the number of responses was limited and is recognized as a limitation to the generalizability of the data. While the number of responses was clearly low as compared to the total number of residents in Alabama, this number was nevertheless believed to provide some initial insights concerning the demand for locally-produced, fresh fruits and vegetables among Alabama consumers.

Regardless of similarities, it is important for producers and retail outlets to have knowledge of consumer demographics for consumers who frequent their stores. Knowledge of consumer store patronage could help both producers and retail outlets understand the shopping patterns of their consumers, and help the outlets identify the frequency of which fresh produce could be stocked. Additionally, understanding the demographics of those responsible for fresh fruit and vegetable purchases could help producers and retail outlets with their marketing and advertisement campaigns for these products.

5.4. Comparison of Producer, Retail Outlets, and Consumer Studies

To get a better understanding of the answers from the three study populations, several of the same survey questions were asked of each of the populations. One of the

survey questions on all three surveys was asked in such a way as to be able to directly compare responses from survey respondents in the three different groups. However, due to low response rate in the retailer category, the comparison was conducted between producers and consumers. Six more questions are comparable between two of the different groups.

Producers and Retail Outlets

One of the survey questions asked producers to indicate where they market their fresh produce. The highest responses were market-direct sales (83%) and farmers markets (64%). Other responses include restaurants (12%) and market contract (12%). Similar questions on the retail survey asked respondents to indicate sources of procurement for local produce. The majority (75%) indicated that local produce comes from growers, with 38% of respondents indicating local produce comes from wholesale or grocer suppliers. The difference in responses could be due to several reasons. The producers surveyed may be smaller producers who find it easier to market directly to consumers. Local produce offered for sale through retail outlets more than likely comes from medium- to large-scale producers who have the ability to supply enough produce to retail outlets. Administering more surveys to be producers and retail outlets may result in changes in the aforementioned percentages.

Producers and Consumers

Questions regarding farmers market visitations were asked of producers and consumers. When asked to indicate the number of farmers markets frequented each week during the different seasons, 82% visit 1 or 2 farmers markets during spring (n=27), 77% visit 1 or 2 markets during the summer (n=48), and 80% visit 1 or 2 markets during the

fall and winter seasons (n=25 and n=5, respectively). More than half (53%) of respondents visit farmers markets in the summer only, whereas 46% of respondents frequent farmers markets year round. It is beneficial for producers to travel to farmers markets in the summer because that is the season in which the most consumers frequent the farmers markets. As for the other seasons, producers should evaluate whether attending farmers markets is making the best use of their time, energy, and resources. Producers may opt for alternative marketing techniques during the seasons when farmers market attendance is low. Other marketing methods could include creating a co-op and selling to restaurants or grocery stores.

One question on the survey asked producers to indicate the reasons why consumers value the produce produced by Alabama growers. On the consumer survey, researchers asked consumers to identify the attributes they value regarding Alabama-grown fresh fruits and vegetables. A summary of these results is provided in Table 5.1. Both populations selected “Fresher and/or tastes better” as the most important attribute. The “Produced locally” attribute was also highly favored by both populations. There was a significant interaction between source (producer versus consumer) and produce attributes. Three treatment differences are noted in Table 5.1. including: 1) differences among attributes for producers (first column, lowercase letters), 2) differences among attributes for consumers (second column, lowercase letters), and 3) differences between producers and consumers for each attribute (uppercase letters in rows).

For differences among producers regarding produce attributes, ‘Fresher/tastes better’ (91.8%) and ‘Produced locally’ (84.9%) comprised the largest response group, followed by ‘Supporting local farmers’ (31.5%) and ‘Safer food supply’ (27.4%), and

then 'Stays fresher longer' (15.1%), 'Increased nutritional value' (13.7%) and 'Stricter production standards' (8.2%). The smallest response group included 'Preservation of the environment' (2.7%) and 'Preservation of genetic diversity' (1.4%).

The differences among consumers regarding produce attributes included 'Fresher/tastes better' (91.1%) and 'Supporting local farmers' (91.1%) in the largest response group, followed by 'Produced locally' (82.5%), and then 'Stays fresher longer' (53.4%), 'Increased nutritional value' (51.5%), and 'Safer food supply' (46.3%). The two smallest response groups included 'Preservation of the environment' (28.8%), followed by 'Preservation of genetic diversity' (16%) and 'Stricter production standards' (14.1%).

For the differences between producers and consumers regarding produce attributes, there were three differences which were not significant between the two groups: 'Fresher/tastes better' (91.8% versus 91.1%), 'Produced locally' (84.9% versus 82.5%), and 'Stricter production standards' (8.2% versus 14.1%).

Differences in responses between producers and consumers existed for six of the produce attributes and in all cases consumers viewed the attributes more favorably than producers. Ninety-one percent of consumers indicated support of local farmers as a reason they choose locally-grown produce while only 31.5% of producers agreed. Over half of the consumers (53.4%) choose locally-grown fresh fruits and vegetables because it stays fresher longer, compared to 15.1% of producers. The results are similar to the 51.5% of consumers valuing the increased nutritional value of local produce while only 13.7% of producers agreed. Differences between producers and consumers were not quite as drastic for 'safer food supply' with 46.3% of consumers and 27.4% of producers valuing the attribute. The remaining two attributes were not seen favorably by either

group, but consumers chose the attributes more often than producers. Nearly 29% of consumers chose preservation of the environment as a benefit while less than 3% of producers concurred. And 16% of consumers valued preservation of genetic diversity compared to less than 2% of producers.

Retail Outlets and Consumers

Retailers were asked to indicate how often fresh and local produce was delivered to the store. Two of nine respondents indicated produce was delivered to store daily and seven of nine indicated produce was delivered three times a week. Consumers were asked how often they purchase fresh produce. More than half (55%) of consumers purchase fresh produce weekly and 31% of respondents purchase fresh produce more than once a week. Evaluating the frequency of which consumers purchase more perishable produce items, or those with a shorter shelf life, could help retailers decide how often to receive shipments of these items. Point of sale information should be evaluated by retail outlet produce buyers for patterns in sales of individual produce items. Detecting sales patterns could assist the buyers in determining how much of each item should be scheduled for the next delivery.

A similar question regarding consumer satisfaction with current selection of local fruits and vegetables was asked of retailers and consumers. The majority (89%) of retailers indicated that consumers ask for additional varieties of local produce. Consumer satisfaction with the current selection of local produce only scored a 3.11 on a 5-point Likert scale. Consumers indicated they were interested in purchasing more local produce if available (4.42 of 5). These results present an accurate picture of the local produce industry in Alabama. A lower score (3.11) from consumers regarding the current

selection of local produce and a higher score (4.42) from consumers indicating an interest in purchasing more local produce if available is directly relatable to the 89% of retailers indicating that consumers ask for additional varieties of local produce. This information from retailers and consumers should be taken to producers so they are aware of the current situation regarding Alabama-grown produce from the perspective of retail outlets and consumers.

On the retail survey, respondents were asked if consumers value local produce and all of the respondents answered yes. A similar question on the consumer survey evaluated the willingness of consumers to purchase Alabama-grown produce. The majority (72%) of consumer survey respondents indicated they preferred purchasing Alabama-grown fruits and vegetables. In this instance, retail outlets were perceptive to what consumers were looking for. Again, this information should be taken to the producers as evidence that consumers are interested in purchasing Alabama-grown produce, and would purchase more if it were available.

Retailers were asked whether consumers were willing to pay more for locally-grown, fresh fruits and vegetables. Seven out of nine respondents (78%) indicated, yes, consumers were willing to pay more for locally-grown, fresh fruits and vegetables. Consumers were also asked if they were willing to pay more for local produce. Consumers weren't quite as agreeable, with a score of 3.79 on a 5-point Likert scale (n=307). A score of 3.79 is between 'neither agree nor disagree' and 'somewhat agree.' Willingness of consumers to pay more for locally-grown produce could depend on several factors including: annual income, residential location (urban versus rural), appreciation of local produce, and purchasing location.

5.5. Observations and Conclusions

The following observations and conclusions are based upon the first-hand experiences of the primary researcher while completing the producer, retail outlet, and consumer studies. Some of the observations are based on the data, whereas others are based on face-to-face interactions with retail outlets and consumers. Overall, there is a need to bridge gaps between each group. This can be accomplished in several ways: reporting to producers, working with the Alabama produce industry on consistent signage, and educating consumers.

Collecting Data

Of the survey methods used by the primary researcher for these studies, face-to-face proved to be the most beneficial. For the producer study, the researcher used two types of survey administration: on-site and mail. Although on-site administration did allow the researcher to briefly interact with the producers, the primary researcher did not gather any extra information through either of these methods.

With the retail outlet study, the researcher first tried electronic survey administration. This method did not work well for this particular group of respondents. The researcher then traveled to each location and spoke face-to-face with potential survey respondents. This method required a great deal of time, but the response rate was much higher (9 of 11). Additionally, speaking with respondents on-site allowed the researcher to collect supplemental information that could be useful in analyzing and reporting the data.

One of the biggest issues with this study was the inability to interview a diverse consumer population. Limitations were seen in the lack of cooperation by retail outlets,

for various reasons. Future research in this area, especially in retail outlets, would be beneficial. Perhaps taking preliminary data to the store managers would help entice them to allow for survey distribution on-site. Again, this method may take longer to get everything set up, but it may increase the receptiveness of store managers to allow for on-site survey distribution to consumers.

Producers

Providing producers with conclusions about the types and attributes of produce consumers are interested in could be beneficial. Additionally, providing producers with a list of retail outlets capable of purchasing locally-grown, fresh fruits and vegetables may assist producers with determining future marketing methods. It is understood that some producers may want to continue their direct marketing methods, but others may be looking for ways to expand their operations. Having marketing alternatives available for additional produce harvested from expanded farming operations could be beneficial. This information could be reported to producers at grower association meetings and through newsletters or emails. Alabama producers could be presented with the results and may find that unmet demands exist that could be met by producing and marketing local goods in the “off” seasons, especially during the fall and winter.

Consumers

While the primary researcher was helping with Auburn University’s 2011 AG Roundup, she observed that many consumers did not know what satsumas were. Those who knew what they were did not know where to purchase them or when they were in season. Only consumers from the southern portion of Alabama, where satsumas are grown, knew much about them. This is a perfect example of needing to educate

consumers about the types of local produce grown in Alabama, along with the seasonality of the produce. Educating consumers could be conducted at farmers markets and retail outlets using a variety of methods such as: educational materials (handouts, brochures, flyers, etc.), taste tests, and/or cooking demonstrations. Creating interest regarding the varieties and availability of produce by season accessible to consumers can also help to persuade potential customers to purchase the locally-grown, fresh produce.

5.6. Recommendations

From here, these studies could be used as guidelines to conduct more research in each of the study areas: producers, retail outlets, and consumers. The questions asked in the current studies were from derived from research where the researchers primarily ran descriptive statistics. Questions on the future surveys can be re-written in such a way as to gather more detailed information. Traveling around the state and spending face-to-face time with producers could be beneficial. Involving producers in constructing survey questions could help improve the survey response rate. Sending reminders for mailed surveys could also assist researchers in improving the survey response rate.

For the retail outlets, it is recommended that on-site survey administration be used. Given more time and resources, it is recommended that retail outlets from around the state be interviewed. Retail outlets are more welcoming and willing to help if researchers travel to each location. It is also recommended to future researchers in this area that they take a tablet for notes and a tape recorder.

If all three study areas will be used in future research, working on the retail outlet study before the consumer study may be beneficial. Retail outlet representatives will be more willing to allow consumer studies to be conducted on-site if they have a positive

experience working with the researchers on the retail outlet study. It is also recommended that researchers work with retailers to see if they can provide any of the data collected from point-of-sale (POS) scanners.

One of the most important recommendations is working on consistent signage. Something that is visible to consumers in every retail outlet fresh produce department and at farmers markets. Alabama needs a stamp, symbol, sign, sticker, or logo – one consistent symbol that is consistent throughout the whole state. Creating a “symbol” will require a buy-in from producers, wholesalers, and retailers. Doing so will ensure that consumers can easily recognize what Alabama products are available and there will be a lesser change of confusion if there is consistent signage throughout the state. If stores go above and beyond using the “symbol” by offering producer profiles and nutritional information, that would also benefit consumers. However, all retail outlets at least need to have consistent information available to consumers.

The following recommendations were made based on the findings of this research:

1. It is recommended that the producer study be repeated with more participants and spending time meeting with producers and discussing the survey.
2. It is recommended that the consumer study be repeated to include a greater diversity of survey respondents.
3. While electronic survey administration may work for some groups, it is recommended that surveys be administered on-site when conducting additional retail outlet responses.

4. It is recommended that all retail outlets designate locally-grown, fresh fruits and vegetables with special signage indicating the origin of the product in the marketplace.
5. Since several marketing programs, “Buy Alabama’s Best” and “Buy Fresh, Buy Local,” exist, it is recommended that the logo and special signage be introduced into all retail outlets in an effort to provide consistency for consumers frequenting the stores.

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Table 5.1. Produce attributes valued by consumers as perceived by Alabama-grown fruit and vegetable producers and consumers in surveys administered in 2011^{z,y}.

Producer %^x	Consumer %^x	Attribute
91.8% a NS	91.1% a	Fresher/Tastes Better
31.5% b B	91.1% a A	Supporting Local Farmers
84.9% a NS	82.5% b	Produced Locally
15.1% c B	53.4% c A	Stays Fresher Longer
13.7% c B	51.5% c A	Increased Nutritional Value
27.4% b B	46.3% c A	Safer Food Supply
2.7% d B	28.8% d A	Preservation of the environment
8.2% c NS	14.1% e	Stricter Production Standards
1.4% d B	16% e A	Preservation of genetic diversity

^z = Producers were asked to choose the two attributes that consumers value regarding Alabama-grown, fresh fruits and vegetables during 2011.

^y = Consumers were asked to choose the three attributes they value regarding Alabama-grown, fresh fruits and vegetables in a 2011 survey.

^x = Lower case letters indicate differences among Attributes for Consumers and Producers. Upper case letters indicate differences between Consumers and Producers for each Attribute at $\alpha = 0.05$. NS = not significant.

APPENDICES

APPENDIX A

Marketing of Locally-Grown Fresh Fruits and Vegetables at Alabama Retail Outlets

A.1. Abstract

While some research regarding consumer demand and production of fresh produce is available, limited research is available regarding the marketing of locally-grown, fresh fruits and vegetables in Alabama retail outlets. To assess the marketing system for Alabama-grown, fresh fruits and vegetables, researchers asked retail outlet managers and producer buyers to complete a survey regarding purchases of fresh produce. The primary researcher also conducted several on-site interviews with retail outlet managers at the time the surveys were distributed. Retailers considered consumers to value locally-produced, fresh fruits and vegetables. The majority (89%) of retailers also indicated that consumers request additional varieties of local produce. The next step is determining which varieties of local produce were being requested and if it is feasible to procure those produce varieties to sell in Alabama retail outlets. While some producers might sell directly to retail outlets, others may consider co-ops or other alternatives to be able to meet the needs of larger chain outlets.

A.2. Introduction

One area receiving the most attention in the produce industry has been marketing of fresh produce. In the past, farmers markets were the customary places for purchasing rural produce. However, farmers markets all but disappeared in many countries with the arrival of supermarkets (Bukonya et al., 2007). Since that time, changes in the fresh produce market place have included shifts in consumer demand, technological innovations relating to production and marketing, and retail consolidation. Changing

consumer demand reflects increased consumption of fresh fruits and vegetables among consumers, along with their purchasing a wider variety of fresh produce year-round (Dimitri et al., 2003).

Numerous changes in the fresh produce industry have occurred over the past three decades (Dimitri et al., 2003). Changes in the fruit and vegetable industry occurred for several reasons: consumer demand, supermarket mergers, changing role of merchant wholesalers, and the introduction of marketing fees. While certain changes altered the industry as a whole, other changes have more specifically altered the relationships among producers, wholesalers, and retailers. Several of these changes include retail consolidation, technological change in production and marketing, shipper consolidation, growing consumer demand, and year-round availability (Calvin et al., 2001; Dimitri et al., 2003; Glaser et al., 2001; Kaufman et al., 2000).

Increasingly, mass merchandisers and warehouse club retailers are selling fresh food products with low-price strategies, thus increasing the overall volume of produce sold (Dimitri, et al. 2003). The increased volume of produce sold was evident when considering that the per capita consumption of fresh fruits and vegetables increased 6 percent between 1987 and 1995, and 8 percent between 1995 and 2001 (Dimitri et al., 2003). New products were introduced to keep up with increased consumer demand, and as a result, the average produce department was larger. The average supermarket produce department was carrying an average of 335 produce items, almost twice the number carried in 1990 (Kaufman et al., 2000). Aside from supermarket changes, the fresh produce marketing channels have changed also. The share of produce volume sold

directly by grower-shippers to retail supermarkets has increased, as have sales to the foodservice sector (Dimitri et al., 2003).

A.2.1. Produce Procurement

Fresh produce marketing systems require that fresh fruits and vegetables be moved quickly to limit spoilage. After harvesting fresh produce, a shipper or grower-shipper packs the fruits and vegetables in preparation for the next step in the distribution process. The produce may be exported or sold direct to consumers, retail stores, or foodservice establishments (Dimitri et al., 2003). The entire supply chain for fresh fruits and vegetables can become quite complex when considering movement from different shipping points into various channels of distribution (McLaughlin et al., 1999).

In some cases, sales from grower-shippers to retailers are mediated by wholesalers or brokers; in other cases sales occur directly. Currently, most imports and exports of fresh fruits and vegetables are handled by produce shippers and wholesalers whose primary form of business is in the global trading of fresh produce (McLaughlin et al., 1999). Even locally, most fresh fruits and vegetables, if not sold directly by the grower, are handled by wholesalers before going to retail grocery stores and supermarkets. According to Dimitri et al. (2003), a typical produce sale at this day and time may take place between a multiproduct grower-shipper and a large supermarket retailer under a standing contract specifying various conditions and terms.

Some of the new industry marketing and trade practices referenced by Glaser et al. (2001) and Patterson and Richards (2000) included slotting fees, electronic data interchange, pay-to-stay, promotional allowances, lease-back agreements, failure fees, and a host of other ways in which retailers demand payment from suppliers to stock a

particular product. It is important at this point to discuss another topic regarding produce procurement, namely transaction fees, such as contracts, volume discounts, and slotting fees. In addition to advanced pricing arrangements, the use of contracts has also become more common in the fresh produce industry (Calvin et al., 2001). After interviewing shippers for their study, Calvin et al. (2001) reported volume discounts to be the most frequently paid type of fee. In general, shippers viewed this fee as having a negative or neutral impact on their business. However, the authors report that volume incentives have the potential to promote a more stable relationship between suppliers and retailers; as the retailer buys more units from the supplier, costs per unit decline, providing an incentive for the retailer to buy larger quantities from a particular supplier (Calvin et al., 2001).

Another relatively new transaction activity appearing in the fresh produce industry is the use of slotting fees. Slotting fees are defined as a fee paid upfront to gain retail shelf space for a new or existing product. These fees have been used in other parts of the grocery store for many years, but they have only recently been introduced to the fresh produce department, specifically for fresh-cut fruits and vegetables (Calvin et al., 2001). The Food Marketing Institute (2002) reported that the most common slotting fees or “allowances” were for new products, but many supermarkets will waive such allowances for minority vendors and for suppliers in their communities. However, as Calvin et al. (2001) reported, a few of the shippers they interviewed were asked to pay, and some lost accounts when they failed to comply. The economic viability of smaller shippers who play by the rules, and the ability of U.S. consumers to obtain the best quality produce at the lowest possible price is at stake with the introduction of the various fees (Patterson and Richards, 2000).

A.2.2. Marketing of Fresh Fruits and Vegetables

Sales of fresh fruits and vegetables to U.S. consumers have increased significantly during recent years. Fresh produce sales to consumers through supermarkets and other retail stores, and through direct sales by farmers were \$70.8 billion in 1997, up from \$36.4 billion a decade earlier (Handy et al., 2000). Research regarding the marketing of fresh fruits and vegetables is more readily available than the marketing and sales of local produce, especially outside of the realm of direct marketing outlets, although some does exist. Local foods are no longer marketed solely through farmers markets and community-supported agriculture programs, but also in large and smaller retail outlets from cooperatives to supermarkets (Dunne et al., 2010). To successfully market local goods, the products must be of high quality, yet sold at a competitive price (Brown, 2003).

McLaughlin et al. (1999) stated that close to half of all fresh produce distributed in the U.S. moves through the wholesale distribution system. This system consisted of key players including produce packers, field buyers, distributors, brokers, repackers, and various receivers in the terminal market (McLaughlin et al., 1999). In terms of direct grocery retail sales, sales from this category represent the most important marketing channel for the sales of fresh produce studied, except for California and Florida tomatoes. Combining mass merchandisers with conventional grocery retailers captures the evolving structure of the U.S. food marketplace in which a new type of retailer was playing an even greater role (Calvin et al., 2001).

Retail stores are increasingly carrying and marketing local foods in response to consumer demand and market potential. These stores may place a significant role in the

successes of local agriculture due to the frequency in which consumers shop at retail grocery stores. (Dunne et al., 2010). The case for additional research regarding ‘local’ foods and traditional retail grocery stores was made by Eastwood et al. (1987). They stated that retail food outlet operators can make more informed decisions regarding which types of fresh produce to carry, determine the best methods for distinguishing between local and out-of-area produce items, and determine relevant advertising campaigns (Eastwood et al., 1987).

One of the most important changes in the fresh produce industry is that of changing consumer demand. Developing products and market strategies that target individual consumer needs require that food producers, processors, and retailers have a detailed understanding of consumer preferences (Baker, 1999). Understanding consumer preferences and store patronage patterns requires understanding demographic and psychographic variables of consumers. Psychographic variables include attitudes, interests, and opinions of consumers, and are used to examine the store patronage choices made by consumers. While many studies have considered demographic variables, little is known about how psychographic factors impact the grocery shopping practices of consumers (Sullivan and Savitt, 1997).

In studying these variables, retail food outlet operators can make more informed decisions regarding the types of fresh produce to stock, whether or not to distinguish between local and non-local items, as well as any advertising programs to use (Eastwood et al., 1987). As far as advertising programs were concerned, Scheerens (2001) suggested, “the fact that fruit and vegetables are often marketed without brand names

may be one of the factors which limits the incentive for producers and marketers to advertise.”

The aforementioned changes in the produce industry, such as consolidation, the introduction of new technologies, changing consumption patterns, and new marketing and trade practices, were all important dynamic forces that are likely to continue to shape produce markets and market channels in the future (Kaufman et al., 2000). According to Dunne et al. (2010), the perspectives of food retailers regarding ‘local’ food systems merit further study, especially considering the relative volume of their potential contributions to local food movements.

A.2.3. Purpose of Study

Alabama is home to approximately 5,500 retail outlets selling items for human consumption, including convenience stores, food markets, supermarkets, and grocery stores (Manta Media, Inc., Columbus, Ohio, 2011). The purpose of this study was to complete a comprehensive evaluation of the current fresh fruit and vegetable supply chain in the state of Alabama. Specifically, objectives were: 1. determine whether grocery stores make an effort to offer locally-grown produce for sale; 2. determine if and how locally-grown produce was differentiated from products grown outside the state; and 3. evaluate differences in sales for chain retailers and independent grocery stores. To gather data for this project, the primary researcher sought answers to survey questions involving the procurement and marketing of Alabama-grown, fresh fruits and vegetables in Alabama retail outlets.

A.3. Materials and Methods

To evaluate the three research objectives, a survey instrument was constructed using questions from existing surveys in published research (Andreyeva et al., 2011; Simon et al., 2009; Smith et al., 2010). The survey instrument (Figure A.1.) was designed to collect information regarding the procurement and marketing of Alabama-grown fresh fruits and vegetables in Alabama retail outlets. The survey questions were divided into five categories: fresh fruits and vegetables, local produce, consumers and local produce, store description, and demographics.

Information gathered on procurement and marketing of fresh fruits and vegetables included purchasing decisions, volume of produce sold, seasonality, and delivery scheduling. Survey questions regarding the procurement and marketing of locally-grown, fresh fruits and vegetables included asking if growers approach retailers with produce offered for sale, volume of produce sold, origin of local produce, delivery scheduling, and pricing. In addition, retailers were surveyed on consumer purchases, store description, and store demographics.

The primary researcher used the internet to compile a list of potential survey respondents during June and July of 2011. An internet search using Google (Google Inc., Mountain View, California, 2011) for 'Alabama grocery stores' yielded a list of various stores throughout the state. The first webpage result was for Manta (Manta Media, Inc., Columbus, Ohio, 2012). Manta listed a total of 5,433 grocery stores in Alabama. However, nearly half (2,592) of those stores were discarded from the list if they were in one of the following subcategories: convenience stores, snack products, food stores, or delicatessen stores. Stores were chosen for the final list of possible contacts if they were

in one of the following subcategories: food markets, grocery stores (chain or independent), supermarkets (chain or independent), or cooperative food stores. This website was found to be the most comprehensive list of all retail outlets providing fresh fruits and vegetables for consumer purchase, including both independent and chain stores.

After receiving Institutional Review Board (IRB) approval for research involving human subjects, an electronic survey was developed in SurveyMonkey[®] (SurveyMonkey.com, LLC, Palo Alto, CA, 2011). Twenty retailers were recruited over the phone for survey participation in November and December of 2011. The primary researcher provided retailers with a brief statement regarding the research and the need for their input. Retailers were asked to provide their email address with an understanding that they would be receiving a link to an electronic survey. Emails containing the link to the electronic survey were sent within an hour of initial contact. An email reminder was sent one week after survey distribution, with a second email reminder sent one week later. There were no surveys completed electronically on SurveyMonkey[®]. Due to lack of response, a second list of 20 retailers was compiled in January of 2012 using Manta (Manta Media, Inc., Columbus, Ohio, 2012). Recruitment and survey distribution procedures followed those used for the first set of retailers. Again, there were no surveys completed electronically on SurveyMonkey[®].

The initial data collection methods proposed in the previous section proved to be ineffective. As an alternative, the primary researcher traveled to retail outlets in Alabama during February of 2012. On Thursday, February 16, 2012, respondents representing Wal-Mart and Winn-Dixie in the Auburn, Alabama area were surveyed. The owner of

several Piggly Wiggly stores in the Dothan, Alabama area was also contacted about participating in the survey; he completed the survey electronically on February 16, 2012.

The following day, Friday, February 17, 2012, the primary researcher traveled to Birmingham, Alabama and surveyed respondents at Whole Foods and Western Supermarket. The Fresh Market and Super Target did not have anyone available to complete the survey while the primary researcher was on site. The primary researcher then traveled to Prattville, Alabama to collect responses at Publix; and then on to Montgomery, Alabama to survey a respondent at Earth Fare. Additionally, on Friday, the owner of Fuller's Supermarket, an independent supermarket, in Greensboro, Alabama was interviewed on the phone.

On Saturday, February 18, 2012, the store manager and produce manager at the Kroger in Auburn, Alabama were surveyed. Respondents at three locations (Wal-Mart, Fuller's, and Earth Fare) were gracious enough to take time out of their schedules by meeting with the primary researcher for an average of 30-45 minutes. The resulting study included both quantitative and qualitative components, and it is believed that the study results have implications in a wider range of Alabama outlets than the nine outlets surveyed. The nine stores surveyed service very diverse population areas in terms of number of people, ethnicity, percentage of population holding at least a bachelor's degree, number of rental homes versus homeowner units, and median household income.

The data from the returned retailer surveys (n=9) were entered into Microsoft Excel[®] 2010 for Windows[™] (Microsoft Corporation, Inc., Redmond, WA, 2010). All data were then copied into the Statistical Package for the Social Sciences (SPSS[®]) for

Windows™ Release 19 (International Business Machines Corporation, Armonk, NY, 2011) spreadsheet for evaluation. All missing scores were coded as missing values.

A.4. Analysis and Results

Store Demographics

Stores surveyed represented six chain retail outlets and three independent grocery stores located in Auburn (3 stores), Birmingham (2 stores), Dothan (1 store), Greensboro (1 store), Montgomery (1 store), and Prattville (1 store) areas of Alabama. The geographic area of Alabama represented here was somewhat limited due to time constraints. The survey responses and in-depth interviews for the six chain retail outlets represent a total of 357 retail outlet stores in the state because the procurement procedures within each retail outlet chain were the same.

Of the returned surveys, three were from assistant produce managers; two were from owners; and one each from a store manager, produce manager, produce buyer, and sales associate. Purchasing decisions regarding fresh fruits and vegetables were made at the local level for seven stores and the regional level for two stores. None of the stores reported purchasing decisions being made at the corporate level. One of the stores indicated using auto-replenishment technology for ordering fresh produce.

Fresh Fruits and Vegetables

Survey respondents were asked to provide information regarding procurement of fresh fruits and vegetables for their stores. The SPSS® procedure “Frequency” was used to analyze the data for volume of fresh produce sold, sales by season, produce origin, and delivery schedules. To better understand the fresh produce sales of stores surveyed, respondents were asked to indicate the volume of fresh fruits and vegetables moved

through the store on a daily, weekly, monthly, and yearly basis. Only four respondents answered this question, with the other five respondents indicating that they didn't have the data available and could not begin to estimate the values. Averages calculated for volume of produce sold (in pounds) equaled approximately 1,039 pounds sold on a daily basis; 7,275 pounds weekly; 17,400 pounds monthly; and 343,200 pounds yearly (Table A.1).

Respondents were asked to rank in order from 1 to 4, with 1 being the best season and 4 representing the worst, the seasons in regards to sales of fresh fruits and vegetables. Forty-four percent of respondents indicated spring being the best season for produce sales, followed by summer ranking second (44%), fall ranking third (56%), and winter ranking last (56%). Except for winter, every season received a ranking of 1, 2, 3, or 4, indicating variability in seasonality of sales reported by respondents. Two of the Auburn, Alabama stores surveyed indicated fall as the best season for produce sales due to increased sales to college students returning to town for the start of a new school year. Several of the retailers indicated competition from local farmers markets in the late spring, summer, and early fall.

Additionally, survey respondents were asked to indicate how often fresh fruits and vegetables were delivered to the store, given the choices: daily, three times a week, or once a week. Two respondents indicated fresh produce delivered to the store daily, with the other seven respondents indicating produce being delivered three times a week. One of the respondents indicated 'daily' delivery specified that deliveries actually arrive 6 days a week, with the exception being the slowest day of the week for produce sales, Thursday. Several of the retailers indicated that with so much of the U.S. produce now

grown almost year-round, true seasons for fresh produce don't exist anymore. In the past, produce was only grown and available in certain seasons, leaving retailers the choice of not stocking those items or supplementing with imports.

Locally-grown, Fresh Fruits and Vegetables

Researchers also sought to better understand sales of local fruits and vegetables through traditional retail outlets; and used the SPSS[®] procedure "Frequency" to analyze the data. Seventy-eight percent of survey respondents indicated that growers directly approach their store or company with locally-grown, fresh fruits and vegetables they would like to sell. Respondents at several of the larger chain stores indicated some growers may approach the store, but that the growers must contact regional or corporate offices before being allowed to market their produce through each specific retail outlet. One of the respondents indicated that company policy requires they turn down all growers approaching the store to try to sell produce. This branch does have a contract with two local farmers; other than those two, all local produce contracts were handled through the regional distribution center in Atlanta, Georgia.

Respondents were also asked if locally-produced, fresh fruits and vegetables were offered for sale. All but one respondent indicated they offer Alabama-grown produce in the store. For the respondent who answered that local fresh fruits and vegetables were currently not offered for sale, he was asked if there was an effort to bring local produce into the marketplace. The survey respondent told the primary researcher that 'local' produce offered for sale is Georgia-grown because the regional distribution center is located in Georgia. He also stated that for Alabama-grown produce to be offered in their stores, the producer must be able to supply enough produce to all stores in the region,

which included approximately 200 stores. Another survey respondent stated that the company suspended their 'local' program a year ago due to problems with consistency in quality. At the time of being surveyed, they were working on re-establishing the program and hope to have the new program ready for this summer. A limited number of local produce items were offered for sale in this particular store because they were buying items directly from producers delivering to the store.

To better understand produce sales of locally-grown, fresh fruits and vegetables, respondents were asked to indicate the volume of fresh fruits and vegetables moved through the store on a daily, weekly, monthly, or yearly basis. Again, only four respondents answered this question, with the other five respondents indicating that they did not have the data available and could not begin to estimate the values. Averages calculated for volume of local produce sold (in pounds) equaled approximately 123 pounds sold on a daily basis; 824 pounds weekly; 3,322 pounds monthly; and 38,551 pounds yearly (Table A.2).

Respondents were asked to rank in order from 1 to 4, with 1 being the best season and 4 representing the worst, the seasons in regards to sales of locally-grown, fresh fruits and vegetables. Sixty-three percent of respondents indicated summer as the best season for sales of local produce. Respondents were evenly split on spring and fall. Among those surveyed, the majority (88%) indicated winter as the worst season for sales of local produce.

Due to the frequency in which consumers shop at retail grocery stores, retail stores may play a significant role in the successes local agriculture (Dunne et al., 2010). Seventy-five percent of survey respondents indicated that locally-grown fresh fruits and

vegetables were procured directly from growers, whereas 38% of respondents indicated wholesale or grocer supplier. The categories 'Co-op' and 'Corporate Distribution Center' were not chosen by any of the respondents. When asked how far locally-grown produce travels to reach the store, survey respondents were prompted to provide percentages for three response categories (Table A.3). Respondents could choose more than one category. Two respondents indicated that at least some of the local produce came from counties surrounding the store, 5 respondents indicated 'Within 75 miles,' and 5 indicated 'Within 150 miles.'

Survey respondents were asked to indicate how often locally-grown, fresh fruits and vegetables were delivered to the store, given the choices: daily, three times a week, or once a week. Two respondents indicated fresh produce delivered to the store daily, five respondents indicated local produce being delivered three times a week, and one indicated local produce being delivered once a week. One of the survey respondents indicated that locally-grown, fresh fruits and vegetables were not sold in the store.

To successfully market local goods, the products must be of high quality yet sold at a competitive price (Brown, 2003). Three of the survey questions focused on pricing for locally-grown, fresh fruits and vegetables. The first question asked survey respondents to indicate whether a difference in pricing exists between local and non-local fresh produce. Six survey respondents indicated there was not a difference in pricing between the two categories. These respondents were then instructed to skip to the next survey section. One of these respondents said that local products were procured much cheaper than non-local; however the products were sold at the same price.

Retailers were also asked whether they thought consumers were willing to pay more for local produce, with 78% percent of indicating consumers were willing to pay more. One respondent stated, “Yes, consumers are willing to pay more for local, but most of the time they don’t have to.” Consumers do not object to paying the same price for receiving a much fresher, higher quality product (Whole Foods produce buyer, personal communication). Two respondents indicated that local and non-local produce items were sold at different prices. Both survey respondents indicated that non-local produce items were more expensive than their local counterparts. On average, local produce items were 10% to 20% cheaper than non-local, fresh fruits and vegetables. Lower transportation costs were one of the big factors contributing to the difference in pricing. Availability of fresh produce items also affects price.

Consumers and Local Produce

Survey respondents at retail outlets throughout Alabama were also asked to answer a series of questions regarding consumers and local produce. The SPSS[®] procedure “Frequency” was used to analyze the data for consumer demand and purchases of locally-grown, fresh fruits and vegetables. Eight survey respondents indicated that consumers ask for additional varieties of locally-grown, fresh produce. Some consumers ask for local produce items that were out-of-season, items that were not grown in the area, or items not currently available due to low supply for various reasons including drought, floods, late season freezes, etc.

Retailers were asked to indicate whether or not they thought consumers valued Alabama-grown, fresh fruits and vegetables. All 9 survey respondents indicated yes, consumers do value Alabama produce. This was consistent with Dunne et al. (2010)

reporting that retail stores were increasingly carrying and marketing local foods in response to consumer demand and market potential. One respondent added, “Yes, consumers value local produce. They certainly do not like imports.” Another survey respondent said, “It is not so much that consumers value local produce, but they are more interested in whether something is grown in the USA or imported.” The next question on the survey asked retailers to indicate why consumers value Alabama-grown, fresh fruits and vegetables sold in the market place (Table A.4). Three of the attributes were chosen by the majority (89%) of respondents, including: fresher/tastes better, produced locally, and supporting local farmers. These perceived benefits were recognized by survey respondents, regardless of grocery store type (chain versus independent).

Two survey questions asked survey respondents about signage used to designate local produce in the marketplace. Six respondents indicated that special signage was used in their stores to show consumers which items were locally produced. If respondents indicated that they use special signage, the researcher sought to determine which methods were used. Three respondents used terms “local” or “Alabama-grown” on signs; 2 respondents used these terms, along with different color signs; and 1 respondent indicated using terms, different color signs, along with vendor profiles and pictures to designate Alabama-grown produce. Bond et al. (2006) suggested differentiating locally-grown produce with marketing materials that highlight vitamin content, nutritional properties, traceability, pesticide-free, and local-grown claims.

Store Description and Demographics

Respondents were asked to indicate their level of agreement for three, 5-point Likert-scale items. Retailers indicated a level of agreement between “Somewhat Agree”

and “Strongly Agree,” with an average of 4.56, when evaluating the statement “The produce area layout makes it easy for customers to find what they need.” Respondents were not quite as agreeable when evaluating “The produce area layout makes it easy for customers to move around in the store,” with an average score of 4.44. One of the survey respondents stated, “The store is small and there is no room for expansion right now. The layout is not ideal, but there is not much we can do.” As expected, retailers strongly agreed with the statement “The store offers high quality produce,” with an average score of 4.89.

A.5. Summary and Discussion

Since the original methods proposed proved to be ineffective, the researchers decided to modify data collection techniques in an effort to collect data representative of retailers offering Alabama-grown fresh fruits and vegetables for sale. The modifications included traveling to retail outlets throughout central and east central Alabama, as well as contacting several additional retailers via telephone to conduct in-depth interviews. Again, it is important to note the resulting study included both quantitative and qualitative components, and it is believed that the study results have implications in a wider range of Alabama outlets than the nine outlets surveyed. The nine survey responses gathered, along with in-depth interviews for six of the retail outlets, represent a total of 357 retail outlet stores in the state because the procurement procedures within each retail outlet were set by company policy. For example, interviewing one Kroger store provided insight into the produce procurement process followed by every Kroger store, and the same is true of Winn-Dixie, Wal-Mart, Publix, and Earth Fare.

The majority of purchasing decisions regarding fresh fruits and vegetables for Alabama retail outlets were made at the local level. To provide the freshest produce for consumer purchase, retail outlets received deliveries of fresh produce at least three days a week, with two receiving shipments daily. Spring was the best season for sales of fresh fruits and vegetables, followed by summer, fall, and winter. However, two of the Auburn, Alabama stores surveyed indicated fall as the best season for produce sales due to increased sales to college students returning to town for the start of a new school year. Several of the smaller retailers indicated competition from local farmers markets in the late spring, summer, and early fall. These retailers indicating competition from farmers markets include both small, independent grocery stores as well as several of the larger chain stores. It is important for managers and produce buyers to understand their target audience and seasonality of produce sales so that they can order the correct amount of produce each week. Several of the larger retail outlets surveyed indicated that true seasons, in terms of produce grown, do not exist anymore because so much of the U.S. produce is grown almost year-round.

The majority (78%) of survey respondents indicated that growers approach the store wanting to sell their local produce, but several noted company policy restricted them from purchasing local produce from the producers. Eight of the 9 survey respondents indicated that locally-grown, fresh produce was offered for sale in their stores. The one store not selling Alabama-grown produce offered a reason as to their marketing situation. For Alabama-grown produce to be offered in their stores, the producer must be able to supply enough produce to all stores in the region, which included approximately 200 stores. As of yet, they have not found an Alabama producer

growing fresh fruits and vegetables on this scale. This was consistent with Bruhn et al. (1992) stating small to medium producers cannot grow the necessary quantities that retail supermarkets require. It may be beneficial to help smaller-scale growers create additional marketing alliances that would enable them to scale up production and improve their logistical efficiency (Tropp, 2008). Encouraging small-scale producers to pool their produce may help the producers to be able provide the quantity needed to sell to the retail chain not currently offering Alabama-grown produce. However, it is important to note that while the remainder of the retail outlets offer Alabama-grown produce for sale, the procurement process among the stores varies greatly.

Another one of the retail outlets surveyed stated that the company suspended their 'local' program a year ago due to problems with consistency in quality. They are currently working on re-establishing the program and the company hopes to have the new program ready for this summer. However, a limited number of local produce items are offered for sale in this particular store because they are buying items directly from producers delivering to the store. Visiting with producers and informing them of the quality control issues in the beginning could help make sure the retailers and producers are moving towards the same outcome.

In terms of local produce, summer was the best season for sales, followed by spring, fall, and winter. For the retail outlets surveyed, local produce originates from either growers or wholesaler/grocer supplier. Alabama-grown produce was not delivered to the store with the same frequency as non-local, fresh produce. Most of the respondents indicated local produce was shipped to the store three times a week. For those retailers accepting local produce from the surrounding county, or from within 75 miles, the

producer needs to be able to have a delivery schedule and be able to provide a consistent product to the retailers. Producers also need to have an idea of what produce varieties will sell the best in that particular area. The producers need to understand consumer demographics and demand for those living in the surrounding area, along with understanding the clientele frequenting the specific retail outlet to which they are selling their produce.

The majority of respondents (89%) indicated that consumers ask for additional varieties of locally-grown, fresh produce. This could be due to several reasons, including consumers asking for produce items that are out-of-season, items that are not grown in the area, or items not currently available due to low supply for various reasons including drought, floods, late season freezes, etc. Produce managers at grocery stores should determine the most requested local varieties and work towards stocking the desired produce, if possible. Evaluating and meeting consumer demand is important for making sales and recruiting loyal customers. After determining which produce varieties consumers requested, it may be necessary to educate them about current selection and seasonality of locally-grown, fresh fruits and vegetables. The possibility also exists for retail outlets, especially the smaller ones, to communicate with growers to see if any of the additional varieties of produce could be grown in that area. It might be beneficial to both the retail outlets and producers to determine if the growers are interested in expanding their operations to meet additional demand.

Attributes of locally-grown, fresh produce valued by consumers were also evaluated by retailers. Three benefits of fresh produce were indicated by the majority of respondents: fresher/tastes better (89%), produced locally (89%), and supporting local

farmers (89%). These perceived benefits were recognized by survey respondents, regardless of grocery store type (chain versus independent). One of the survey respondents used special displays with vendor profiles and pictures to designate local produce in the retail outlet. The other retail outlets could introduce special signage incorporating the three attributes listed above to appeal to consumers frequenting the retail outlets. If retail outlets believe that consumers actually value the produce attributes mentioned above, then it would be beneficial to focus marketing efforts around these three produce attributes.

Local produce was cheaper for stores to purchase, but they either offered the products for sale cheaper or at the same price when compared to non-local produce. Two factors that impacted price included shipped distance and availability. None of the respondents indicated selling locally-grown produce for an amount higher than non-local produce. Additionally, most of the retailers indicated that consumers were willing to pay more for local produce, yet none charges more. Consumers don't object to paying the same price for receiving a much fresher, higher quality product (Whole Foods produce buyer, personal communication). However, it is important to consider the demographics of the clientele frequenting the retail outlet because not all of the respondents shared the same view as the Whole Foods produce buyer. Several other retailers believed consumers to be unwilling to pay more for fresher, local produce.

Two-thirds of the respondents indicated that special signage was used in their stores to show consumers which items were locally produced. Designating local produce varied greatly among the respondents. Three used terms "local" or "Alabama-grown" on signs; 2 respondents used these terms, along with different color signs; and 1 respondent

indicated using terms, different color signs, along with vendor profiles and pictures to designate Alabama-grown produce. The variation between reported responses illustrates the lack of consistent signage for Alabama-grown produce in retail outlets. One of the survey respondents uses special displays with vendor profiles and pictures to designate local produce in the retail outlet. The other retail outlets could introduce special signage incorporating the origin of produce, along with vendor profiles to appeal to consumers frequenting the retail outlets. Information regarding the origin of the produce displayed prominently in the grocery stores would assist consumers in easily identifying locally-grown produce available for purchase. Meeting the needs of consumers could help encourage growth in the Alabama produce industry and increase sales of locally-grown, fresh fruits and vegetables in the marketplace.

Several of the survey questions could have been posed in a different manner to get more accurate results. For one, the survey asked retailers if consumers were asking for additional varieties of locally-grown, fresh fruits and vegetables. Retailers indicated consumers were asking for more; it would have been beneficial to ask retailers to list the specific varieties consumers asked for most often. Second, instead of asking for volume of fresh fruits and vegetables sold, asking for total sales in terms of dollars sold would have been better.

One of the biggest issues with this study was the inability to recruit participants state-wide. Each stop at a retail outlet required talking with two or three other people first. Usually, the first person the researcher interacted with was in customer service. Then, the primary researcher had to persuade the store manager or assistant store manager into letting her administer the survey. Finally, the primary researcher was able

to speak with someone in the produce department. In general, the primary researcher found respondents were more willing to participate face-to-face rather than calling on the phone. The researcher found that the time spent visiting with respondents at each location was usually between 30 minutes and 1 hour. Had respondents completed the survey electronically, it would have taken them approximately 7 to 10 minutes. However, spending extra time with retailers resulted in the researcher gaining additional knowledge in the study area.

While the number of respondents was clearly low compared to the total number of retail outlets in Alabama, this number was believed to provide some initial insights into the current state of fresh and local produce sales at Alabama retail outlets. Ideally, the sampled population should accurately represent the entire retail population of Alabama. Including retail outlets from North Alabama, such as the Huntsville, Alabama area, as well as retail outlets from South Alabama, including the Mobile, Alabama area would be beneficial. Given additional time, the researcher believes that traveling to retail outlets throughout the state could provide more insight into the sales and marketing of locally-grown, fresh fruits and vegetables in Alabama. At most, these results may have application to retail outlets in the southeastern United States. Outside of these boundaries, there could be too much variance among consumer and retailer demographics to be able to generalize the results to every retail outlet in America.

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Table A.1. Volume (in pounds) of fresh fruits and vegetables sold at Alabama retail outlets as reported by retail outlet representatives in a 2012 survey^{z,y}.

	Volume (pounds)	Frequency	Valid %
Daily	500	2	50%
	1,300	1	25%
	1,857	1	25%
Daily Average	1,039.25		
Weekly	3,500	2	50%
	9,100	1	25%
	13,000	1	25%
Weekly Average	7,275		
Monthly	5,200	1	25%
	14,000	2	50%
	36,400	1	25%
Monthly Average	17,400		
Yearly	168,000	2	50%
	436,800	1	25%
	600,000	1	25%
Yearly Average	343,200		

^z = Surveys distributed to retail outlets throughout Alabama during February of 2012.

^y = Limited data from retailers. Many of the survey respondents didn't have access to the data requested. (n=4)

Table A.2. Volume (in pounds) of Alabama-grown, fresh fruits and vegetables sold at Alabama retail outlets as reported by retail outlet representatives in a 2012 survey ^{z,y}.

	Volume (pounds)	Frequency	Valid %
Daily	20	1	25%
	75	1	25%
	96	1	25%
	300	1	25%
Daily Average	122.75		
Weekly	100	1	25%
	525	1	25%
	672	1	25%
	2,000	1	25%
Weekly Average	824.25		
Monthly	500	1	25%
	2,100	1	25%
	2,688	1	25%
	8,000	1	25%
Monthly Average	3,322		
Yearly	1,000	1	25%
	25,000	1	25%
	32,200	1	25%
	96,000	1	25%
Yearly Average	38,551.50		

^z = Surveys distributed to retail outlets throughout Alabama during February of 2012.

^y = Limited data from retailers. Many of the survey respondents didn't have access to the data requested. (n=4)

Table A.3. Origin of locally-grown, fresh fruits and vegetables sold at Alabama

retail outlets as reported by retail outlet representatives in a 2012 survey^{z,y}.

Respondent	Surrounding County (%)	Within 75 mile radius of store (%)	Within 150 mile radius of store (%)
1			100%
2		50%	50%
3			100%
4	25%	25%	50%
5	20%	80%	
6			100%
7		100%	
8		100%	

^z = Surveys distributed to retail outlets throughout Alabama during February of 2012.

^y = Retailers were asked to indicate the origin of local fresh fruits and vegetables sold in the store. (n=8)

Table A.4. Attributes valued by retail outlet consumers regarding Alabama fresh fruits and vegetables as perceived by respondents in a 2012 survey^z.

%	Attribute	%	Attribute
89%	Fresher/Tastes better	22%	Preservation of the environment
89%	Produced locally	22%	Safer food supply
89%	Supporting local farmers	11%	Stricter production standards
78%	Higher quality	11%	Increased nutritional value
44%	Stays fresher longer	0%	Preservation of genetic diversity

^z = Surveys distributed to retail outlets throughout Alabama during February of 2012. (n=9)

Figure A.1.

Retail Outlet Survey

Marketing of Fresh Fruits and Vegetables at Alabama Retail Outlets

This survey is designed to gather information from you about the sales and marketing of fresh fruits and vegetables at your store(s) in Alabama. Your response is critical for ongoing assessment of current and future production of fresh market produce. This survey is four pages in length and will take approximately seven to ten minutes to complete. We want to remind you that your survey responses are completely confidential.

Please complete this survey if you are either a retail manager, produce manager, or a regional produce merchandiser. The following questions contain the phrase “the store,” which may represent your specific store or your company (i.e. chain retail company).

IF you are completing this survey as a retail manager or produce manager, please answer the questions for your store only. IF you are completing this survey as a regional produce merchandiser, please limit the answers to your region of Alabama, which may include all or part of the state.

I. Fresh Fruits and Vegetables

1. Who makes the purchasing decisions regarding fresh fruits and vegetables for your store?
 Local (Manager) Regional Level
 Corporate Level (National) Other _____

2. What is the volume (quantity in pounds) of fresh fruits and vegetables moved through the store on a daily, weekly, monthly, and yearly basis?
_____ Daily _____ Weekly _____ Monthly _____ Yearly

3. What season is best for sales of fresh fruits and vegetables? (Please rank in order from 1 to 4, with 1 being the best season and 4 being the worst)
 Spring Summer Fall Winter

4. Please indicate the percentage of sales each season for local, national, and imported fresh fruits and vegetables. (Percentages should total 100% for each season.)

	Spring	Summer	Fall	Winter
Local (Alabama)	___%	___%	___%	___%
United States	___%	___%	___%	___%
Imported	___%	___%	___%	___%

5. How often are fresh fruits and vegetables delivered to the store?
 Daily Three times a week Once a week

II. Local Fruits and Vegetables

6. Do growers approach you with local fruits and vegetables they would like to sell in your store?
 Yes No
7. Are locally produced fresh fruits and vegetables offered for sale in your store?
 Yes (Skip to question #9) No
8. If No, is there an effort to bring in locally produced fresh fruits and vegetables?
 Yes No (Skip to Section III)
9. What is the volume (quantity in pounds) of locally grown fresh fruits and vegetables moved through the store on a daily, weekly, monthly, and yearly basis?
 Daily Weekly Monthly Yearly
10. What season is best for sales of locally grown fresh fruits and vegetables? (Please rank in order from 1 to 4, with 1 being the best season and 4 being the worst)
 Spring Summer Fall Winter
11. Where do the locally grown fresh fruits and vegetables sold in your store originate from? (Please indicate % for each category)
 Grower
 Wholesaler/Grocer Supplier
 Co-op
 Corporate Distribution Center
12. How far do the local fresh fruits and vegetables travel to reach your store? (Please indicate percentage)
 % Surrounding county
 % Within 75 mile radius of store
 % Within 150 mile radius of store
13. How often are locally grown fresh fruits and vegetables delivered to the store?
 Daily Three times a week Once a week
14. Is there a difference in pricing for local vs. non-local fresh fruits and vegetables?
 Yes No (Skip to Section III)
15. If Yes, which fresh fruits and vegetables are more expensive?
 Local Non-local
16. On average, what is the difference in pricing for local vs. non-local fruits and vegetables? (Please indicate percentage between pricing of categories in Question #14 and indicate whether items are more or less expensive.)
Local is % more/less expensive than non-local fruits and vegetables

III. Consumers and Local Produce

17. Do consumers ask for additional varieties of locally grown fresh fruits and vegetables?
 Yes No
18. In your opinion, do consumers value locally produced fresh fruits and vegetables?
 Yes No (Skip to Question #20)
19. In your opinion, why do consumers value locally grown fresh fruits and vegetables?
 (Select all that apply)
- | | |
|--|--|
| <input type="checkbox"/> Fresher/Tastes better | <input type="checkbox"/> Safer food supply |
| <input type="checkbox"/> Produced locally | <input type="checkbox"/> Nutritional benefits |
| <input type="checkbox"/> Supporting local farmers | <input type="checkbox"/> Stays fresher longer |
| <input type="checkbox"/> Stricter production standards | <input type="checkbox"/> Preservation of genetic diversity |
| <input type="checkbox"/> Preservation of the environment | <input type="checkbox"/> Higher quality |
20. Are local fresh fruit and vegetable items designated with special signage?
 Yes No (Skip to Question 22)
21. If Yes, what types of special signage or displays are used for designated local produce?
 Different color signs
 Terms "Local" or "Alabama grown" on signs
 Other (Please specify) _____
22. In your opinion, are consumers willing to pay more for local produce?
 Yes No

IV. Store Description

Please indicate your level of agreement with each of the following statements.
 (1-Strongly Disagree, 2-Somewhat Disagree, 3-Neither, 4-Somewhat Agree, 5-Strongly Agree)

	Strongly Disagree					Strongly Agree
	1	2	3	4	5	
23. The produce area layout makes it easy for customers to find what they need.						
24. The produce area layout makes it easy for customers to move around in the store.	1	2	3	4	5	
25. The store offers high quality produce.	1	2	3	4	5	

V. Demographics

26. Which of the following categories best describes your grocery store?
 Chain grocery store Independent grocery

27. In what zip-code is your store located? Please skip this question if you are a regional produce merchandiser completing this survey. ZIP Code: _____

28. If you are a regional produce merchandiser, how many stores in Alabama do you order fresh producer for?

Number of stores: _____

Appendix B
Recruitment Scripts
Producer Recruitment Script
(Verbal, In Person)

My name is Sara Rogers and I am a graduate student from the Department of Horticulture here at Auburn University. I would like to invite you to participate in my research study to determine your production and marketing practices. You may participate if you produce fresh fruits and/or vegetables and are at least 19 years of age. Please do not participate if you are not at least 19 years of age.

As a participant, you will be asked to complete a short survey which will take approximately eight to ten minutes of your time.

The survey is completely anonymous as no identifying information will be collected. You may decide to stop taking the survey at any time without any repercussion.

If you would like to participate in this research study, please complete the survey and place it in the box.

Do you have any questions now? If you have any questions later, please contact me at slr0006@auburn.edu or you may contact my advisor, Dr. Robinson, at cwr0001@auburn.edu.

Retail Outlet Recruitment Script

(Verbal, On Phone)

My name is Sara Rogers and I am a graduate student from the Department of Horticulture at Auburn University. I would like to invite you to participate in my research study to determine the marketing and sales of Alabama-grown fresh fruits and vegetables. You may participate if you are a produce manager at a grocery store or retail outlet in Alabama and are at least 19 years of age. Please do not participate if you are not at least 19 years of age.

As a participant, you will be asked to complete a short survey which will take approximately seven to ten minutes of your time. I will need to get your email address so that I may send you an electronic version of the survey.

The survey is anonymous as no identifying information about you will be collected. You may decide to stop taking the survey at any time without any repercussion.

Can I answer any questions you may have about the research study? If you have any questions later, please contact me (Sara Rogers) or you may contact my advisor, Dr. Carolyn Robinson. Our contact information will be provided to you in the survey cover letter.

Consumer Recruitment Script

(Verbal, In Person)

My name is Sara Rogers, and I'm a graduate student in the Department of Horticulture at Auburn University. I would like to invite you to participate in my research study to determine your purchasing habits of fresh fruits and vegetables. You may participate if you consume fresh fruits and vegetables and are at least 19 years of age. Please do not participate if you are not at least 19 years of age.

As a participant, you will be asked to complete a short survey which will take approximately five minutes of your time.

The survey is completely anonymous as no identifying information will be collected. You may decide to stop taking the survey at any time without any repercussion.

If you would like to participate in this research study, please complete the survey and place it in the box. Do you have any questions now?

A copy of the cover letter is provided to you and is yours to keep. The cover letter contains contact information for myself and my advisor. If you have any questions later, please contact me at slr0006@auburn.edu or you may contact my advisor, Dr. Robinson, at cwr0001@auburn.edu.

APPENDIX C

IRB Approval Forms

Producer Cover Letter



DEPARTMENT OF
HORTICULTURE

AUBURN UNIVERSITY
COLLEGE OF AGRICULTURE

(NOTE: DO NOT AGREE TO PARTICIPATE UNLESS AN IRB APPROVAL STAMP WITH CURRENT DATES HAS BEEN APPLIED TO THIS DOCUMENT.)

**INFORMATION LETTER
for a Research Study entitled
“Production and Marketing Practices of Alabama Fruit and Vegetable Producers”**

You are invited to participate in a research study to assess the production and marketing habits for fresh fruit and vegetable producers in Alabama. In particular, I am interested in your attitudes and perceptions towards the production and marketing of locally grown fresh produce. The study is being conducted by Sara Rogers, graduate student, under the direction of Dr. Carolyn Robinson, Assistant Professor in the Auburn University Department of Horticulture. You were selected as a possible participant because you are a fruit and/or vegetable producer in Alabama and are age 19 or older.

Your participation is voluntary. If you decide to participate in this research study, you will complete an anonymous survey. Your total time commitment will be approximately eight to ten minutes.

If you change your mind about participating, you can withdraw at any time during the study by returning the incomplete survey to me. Your decision about whether or not to participate or to stop participating will not jeopardize your future relations with Auburn University or the Department of Horticulture.

Any data obtained in connection with this study will remain anonymous. Information collected through your participation may be used to fulfill the requirements for my dissertation set forth by my graduate committee. In addition, a summary of the results may be published in a professional journal and/or presented at a professional conference.

There is no cost for participation and there will be no direct compensation provided. However, if you would like a copy of the preliminary results, please contact Dr. Carolyn Robinson after August 15, 2011.

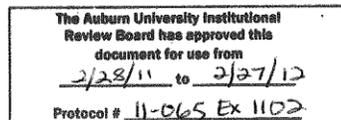
Please return your survey in the self-addressed stamped envelope provided to you by March 31, 2011.

If you have questions about this study, please contact Sara Rogers at slr0006@auburn.edu or Dr. Carolyn Robinson at cwr0001@auburn.edu.

If you have questions about your rights as a research participant, you may contact the Auburn University Office of Human Research Compliance or the Institutional Review Board by phone (334) 844-5966 or email at hsubjcc@auburn.edu or IRBChair@auburn.edu.

HAVING READ THE INFORMATION PROVIDED, YOU MUST DECIDE IF YOU WANT TO PARTICIPATE IN THIS RESEARCH PROJECT. IF YOU DECIDE TO PARTICIPATE, THE DATA YOU PROVIDE WILL SERVE AS YOUR AGREEMENT TO DO SO. THIS LETTER IS YOURS TO KEEP.

Sara Rogers 3/3/2011
Investigator's signature Date
Sara Rogers
Print Name



101 Funchess Hall, Auburn, AL 36849-5408; Telephone: 334-844-4862; Fax: 334-844-3131

w w w . a u b u r n . e d u

Consumer Cover Letter



DEPARTMENT OF
HORTICULTURE

AUBURN UNIVERSITY
COLLEGE OF AGRICULTURE

(NOTE: DO NOT AGREE TO PARTICIPATE UNLESS AN IRB APPROVAL STAMP WITH CURRENT DATES HAS BEEN APPLIED TO THIS DOCUMENT.)

INFORMATION LETTER for a Research Study entitled "Consumer Demand of Fresh Fruit and Vegetables in Alabama"

You are invited to participate in a research study to assess the consumer purchasing and consumption habits for fresh fruit and vegetable in Alabama. In particular, I am interested in your attitudes and perceptions towards the purchase of locally-grown (AL grown) fresh produce. The study is being conducted by Sara Rogers, graduate student, under the direction of Dr. Carolyn Robinson, Assistant Professor in the Auburn University Department of Horticulture. You were selected as a possible participant because you are a fruit and/or vegetable consumer in Alabama and are age 19 or older.

Your participation is voluntary. If you decide to participate in this research study, you will be asked to complete an anonymous survey. Your total time commitment will be approximately five minutes.

If you change your mind about participating, you can withdraw at any time during the study. Your participation is completely voluntary. If you choose to withdraw, your data can be withdrawn as long as it is identifiable. Your decision about whether or not to participate or to stop participating will not jeopardize your future relations with Auburn University or the Department of Horticulture.

Any data obtained in connection with this study will remain anonymous. We will protect your privacy and the data you provide by limiting access to the data to the few researchers working on the project. Information collected through your participation may be used to fulfill the requirements for my dissertation set forth by my graduate committee. In addition, a summary of the results may be published in a professional journal and/or presented at a professional conference.

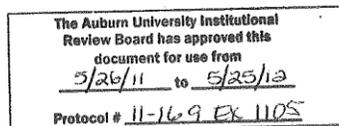
There is no cost for participation and there will be no direct compensation provided.

If you have questions about this study, please ask them now or contact Sara Rogers at slr0006@auburn.edu or Dr. Carolyn Robinson at cwr0001@auburn.edu.

If you have questions about your rights as a research participant, you may contact the Auburn University Office of Human Subjects Research of the Institutional Review Board by phone (334) 844-5966 or email at hsubjec@auburn.edu or IRBChair@auburn.edu.

HAVING READ THE INFORMATION PROVIDED, YOU MUST DECIDE IF YOU WANT TO PARTICIPATE IN THIS RESEARCH PROJECT. IF YOU DECIDE TO PARTICIPATE, THE DATA YOU PROVIDE WILL SERVE AS YOUR AGREEMENT TO DO SO. THIS LETTER IS YOURS TO KEEP.

Sara L. Rogers 6/9/2011
Investigator's signature Date
Sara L. Rogers
Print Name



101 Funchess Hall, Auburn, AL 36849-5408; Telephone: 334-844-4862; Fax: 334-844-3131
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