GEORGIA LOCALLY GROWN PRODUCE BOX

by

BILL DAVISON

(Under the Direction of Vanessa Shonkwiler)

ABSTRACT

In recent years, consumer demand for healthy, locally grown food has been on the rise. To capitalize on this steadily increasing consumer base, producers of fruits and vegetables will need to consider alternative marketing channels for their products. A significant number of businesses have begun looking for ways to bring locally grown crops directly to consumers. Given the nature of the locally grown food movement, opportunities present themselves all around the country. This exploratory study finds consumers are willing to pay price premiums for products they know were grown in a sustainable manner and were packaged using eco-friendly materials. The following pages will examine what consumers may already know about conventional and more modern farming practices such as hydroponics, what type of fruits and vegetables they prefer, and what type of packaging consumers desire.

INDEX WORDS: Locally Grown, Georgia Grown, Fruits and Vegetables, Marketing, Hydroponics

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Chapter 1, Introduction

In recent years, direct to consumer sales have risen as consumers look for alternative, more convenient ways to purchase food. According to an article published by the St. Louis Federal Reserve, “direct to consumer sales have risen from $.4 billion in 1992 to over $1.3 billion in 2012” (Dumont, 2017). According to a more recent 2012 Census of Agriculture article highlighting key facts and figures related to the local food movement, “in 2012, 163,675 farms (7.8 percent of US farms) were marketing foods locally, defined as conducting either direct-to-consumer (DTC) or intermediated sales of food for human consumption, according to census of agriculture data” (Low et al., 2015). Of this growth in direct-to-consumer sales, California accounted for 33% of the U.S. total” (USDA NASS, 2012 Census of Agriculture). In other parts of the country, 11 of the northeastern states accounted for 22% of the U.S. total (USDA NASS, 2012 Census of Agriculture). California has over 14,000 farms selling fresh and processed food to consumers, retailers, and institutions with Texas the only other state with more than 10,000 farms selling directly to consumers (USDA NASS, 2012 Census of Agriculture).

Numerous factors explain this increase in recent history. However, experts attribute most of this growth to three key factors. Consumers, in an increasing fashion, desire transparency regarding the ingredients in their food. Consumers also value an “authentic brand story” (Low et al., 2015). In other words, consumers want to know where their produce comes from, who produced it, and what practices were used. Lastly, the article cites a growing concern for the environmental impact non local agriculture has. More so than ever before, environmentally conscientious consumers want to know the food they consume was produced sustainably and ethically. Companies realize that consumers prefer products that were produced using sustainable practices that contribute to a healthier earth today and for years to

come. Increased labeling of food products shows that consumers appreciate organic, pesticide-free, and naturally grown labels. From an economic point of view, consumers in all income levels were willing to pay a price premium for food they considered sustainable, healthy, and traceable. The article found that in terms of job creation, the direct-to-consumer marketing channel offers much more potential growth than the more traditional manner of marketing where producers harvested their crop, had a wholesaler pick up their produce at the farm or a storage unit, and proceed to distribute product to various retail locations. Many consumers appreciate the fact that buying products from local food sources creates a multiplier effect and a spillover effect. According to a published article by NC State, the multiplier effect is "the concept that money spent on local food is more likely to be re-spent within the local economy" (Bloom, Lelekacs, and Dunning, 2016). The author finds "studies estimate the multiplier effects for spending on locally produced foods to be between $1.32 and $1.90" (Bloom J, Lelekacs J, and Dunning R, 2016). In other words, for every dollar spent on local food products, between $.32 and $.90 worth of additional local economic activity takes place" (Bloom J, Lelekacs J, and Dunning R, 2016). According to the St. Louis Federal Reserve, 32 jobs are created for every $1,000,000 generated in revenue in the direct-to-consumer sales (Dumont, 2017). Given that the more traditional, wholesale marketing channel sustains just over 10 jobs for this amount of revenue, many consumers will appreciate knowing that by supporting their local farmer they are facilitating economic growth and development in their surrounding community.

The USDA has dedicated considerable time and effort to analyzing the cause and effects of the rise in local food demand. In a report to the House Agriculture Committee in 2015, researchers found that the local food movement is "linked to the full suite of USDA priorities-including enhancing the rural economy, the environment, food access and nutrition, informing consumer demand, and strengthening agricultural producers and markets" (Low S and Adalja A et al, 2015). In other words, the local food movement meets the many trends that consumers care about. Studies have shown that consumers' demand for healthy whole foods is on the

incline, as well. According to an article written by Tara Taffera in December 2020 for Produce Business, “research shows that overall year to date (period ending Oct 6) produce sales are up 11%” (Taffera T, 2020). Locally grown food provides a healthy safe alternative to traditional store-bought produce and gives the consumer peace of mind in their consumption. This same report also found that “farms with gross cash income below $75,000 accounted for 85% of local food farms in 2012” but only represents 13% of sales (Low et al., 2015). In an article written by Debbie Weingarten titled “Foodie Localism Loves Farming in Theory, but not in practice,” Ms. Weingarten notes “the number of farmers’ markets increased by 180% between 2006 and 2014” (Weingarten, 2016). This shows increased consumer demand for locally grown products, but she also finds this brings considerable challenges to the producers. Given an increase in farmers’ markets, producers are unable to meet demand throughout all seasons. Customers have come to expect high quality products at all times of the year, despite the seasonality limitations for almost all crops. In response, vendors then choose to import products grown outside of the region or the country. This increased supply undercuts locally grown products and, in many cases, decreases net farm income for the local grower. To meet the growing demand for crops grown close to home, there will be an increasing need for entrepreneurship and more diverse marketing channels to respond to consumer needs, such as doorstep delivery.

Over the past year, the COVID-19 pandemic wreaked havoc on the global food supply chain. In an article written by Lindsay Campbell, she states “experts say the crisis could cause the number of people suffering through severe food shortages across the world to grow this year to 265 million from 135 million” (Campbell, 2020). One company, in particular, has looked to make healthy food more convenient to all. According to an article published on Business Models Inc. to provide a brief overview of HelloFresh’s business model, “in times of crises people seem to value healthy food more” (Business Models Incorporated). American farmers

have responded strongly to the pandemic and the need for an alternative marketing strategy. Numerous responses have developed to meet demand for clean, healthy, local food.

The main purpose of this research is to study and learn from consumer understanding of produce, production practices, and labeling. Though our study had a limited sample size, it is our hope that this study will serve as a resource for growers looking to expand their marketing channels. Allowing for more direct marketing efforts, such as delivering product to the customer, could cut down on expenses related to middlemen, increase net farm income, and provide customers a high quality, locally grown crop for a competitive price.

Chapter 2, Industry Review

Over the last year, several companies, both local and global, demonstrated various ways independent entrepreneurs have attempted to address the increasing demand for high quality, convenient produce (see Appendix 1). Some of these companies focus more on convenience while others emphasize sourcing only locally grown ingredients. Each of these operate on a different scale from hyper local to global. For example, David Melton, founder and director of Fresh Harvest which sources locally grown produce and other farm products and delivers to customers' doorsteps, in an email says that he and his employees currently deliver over 4,000 boxes of fresh produce to the Atlanta area on a weekly basis. Recently, he and his team have begun distributing in the Athens area. Prior to the pandemic, Melton had just over 40 employees and was delivering approximately 1700 produce boxes per week. One year later, his staff has doubled, and his business has accelerated.

If farmers want to keep up with demand for locally grown products, they will need to examine all potential innovative marketing channels. Strategic marketing, the use of modern, sustainable production practices, and socially responsible management will determine the profitability of modern farmers. The pandemic which started early 2020 blatantly exposed flaws in the American food chain. Long, fragile supply chains left some grocery stores without product and many farmers without a market. In May 2020, as the corona virus spread throughout all corners of the country, many farmers lost their traditional direct marketing channels; farmers' markets and restaurants. Many producers used to sell 100% of their produce to restaurants. In the early stages of the corona virus as the USA looked to "flatten the curve" of infection numbers, many local governments mandated a shutdown of all restaurants. This eliminated the need for produce in restaurants. Many farmers had no other choice than to let produce go to waste.

Food Box Programs

To help generate income for these producers, the government passed the Corona Food Assistance Program (CFAP). Led by the USDA, industry leaders, growers and distributors, this program included a Farmers to Families Food Box Program. The program looked to meet the needs of several groups of people. According to an article published by Super Market News, "the program also will continue to require that proposals illustrate how coverage would be provided to areas identified as opportunity zones, detail subcontracting agreements and address the last mile delivery of product into the hands of the food-insecure populations" (Fatka, 2020). Not only will this direct to consumer delivery program benefit producers, but it will also ensure people with little, or no, access to fresh farm products will have increased supply throughout the pandemic. Beginning in May, over 75 million boxes had been delivered across the country; many reaching underserved food deserts. Updated on February 5, 2021 the Farmer to Family food box had delivered over 130 million boxes to families and distributors, alike (USDA Agricultural Marketing Service, 2021). Still uncertain as to the long-term effects of this program, some farmers were able to sell 100% of their crop. This marketing channel provides a new outlet, though it does come with increased costs created by the need for more marketing efforts. Ongoing in Congress, members have discussed the potential for a second food box program in 2021, though no decision has been made.

With the previously mentioned program, the US government looked to bear the burden for poorer communities to have access to fresh food. In other circumstances, some private companies began to focus in on this direct-to-consumer idea. Companies such as Hello Fresh, Fresh Harvest, and Misfits Market have developed their best efforts to meet demand for convenient, high quality products. Due to the quality sourcing and convenience offered, these companies' product commands a price premium. Targeting the right customer will continue to play a crucial role in the development of these businesses. Many of the companies offer full meals right to one's front door. For many of these companies, the pandemic has sped up

growth. According to an article published by Reuters, “HelloFresh reported sales of 970.2 million euros ($1.13 billion) for the third quarter, the upper end of the company’s own forecast range provided last month of 968 million to 971 million euros, and up 120% from a year earlier” (Pasquini, 2020).

During the height of the corona virus pandemic, many farms and community supported agriculture (CSA) groups began offering delivery services. As the world begins to move past the pandemic and restaurants and schools open back up, local small farms seem to have integrated these delivery services into their business model. However, their offer is often at a higher price per unit, and requires additional marketing to maintain a profitable amount of customers and a steady quantity of supply. During the research done for this paper, one major event occurred in South Carolina related to the locally grown movement. In August of 2020, the USDA and the Department of Agriculture in South Carolina announced the opening of an Agricultural Technology Campus in Hampton, South Carolina. According to several articles published, the $314 million investment “will include greenhouses for locally grown, pesticide-free tomatoes, leafy greens, and other produce...” (WTOC Staff, 2020). The project, set to begin production in 2022, will employ 1,547 people and will boost the economy throughout the state (WTOC Staff, 2020). In a statement about the ag tech campus, state commissioner of agriculture, Hugh Weathers, says “as food demand grows and as we bring food production to the East Coast and not bring those trucks across the country and have that cost involved, there’s only just potential for additional growth...” (WTOC Staff, 2020). This project looks to provide food to the entire state at a reduced price and an increased quality. The ATC will also include a 150,000 square feet distribution center (WTOC Staff, 2020). This, combined with the use of greenhouses and other season extending technologies, will allow for year-round production and stable prices for high quality, fresh product around the Southeast. Experts forecast the project generating over $7 billion over the next fifteen years (WTOC Staff, 2020).

Throughout research, it became evident that seasonality really dictates what these groups and companies are able to offer. This paper will address potential solutions to this and how consumers may respond to changing production practices.

Georgia Grown Box

With a mission to deliver Georgia locally grown fruits and vegetables right to one's front door, this "Georgia Grown Box" could work with numerous farmers to provide fresh produce, and other farm products such as meats and dairy products, to customers all year. Aggregators around the country operate similarly, but this model would focus on fresh, year-round, and consistent. A large part of this business model would focus on the logistics of such an operation. By finding, or creating, greenhouse growers around the state, this business would then collect the produce to aggregate and eventually distribute throughout Georgia. Using greenhouses and hydroponics will allow for the production of staple crops such as lettuce, tomato, cucumbers, peppers, strawberries, and more on a year round basis. Producing crops in a greenhouse also allows for higher yields. In an article published by CHOICES, researchers at the University of Illinois compared the yields for lettuce grown in vertical farms, in a greenhouse, and in the field. While looking at lettuce production, they found vertical farms can produce 5,000,000 heads/acre/year, greenhouses can produce 1,600,000 heads/acre/year, while field grown harvest reach 50,000 heads/acre/year (Coyle B and Ellison B, 2017).

Given this box will source products from greenhouse growers, it will be crucial to the business' success that consumers feel comfortable buying produce grown in a greenhouse. Greenhouse grown crops pose no health threat to consumers. They also tend to pose less of an environmental impact on surrounding lands, making them more eco-friendly and sustainable. Some studies have shown, though, that consumers may be hesitant to buy greenhouse grown.

During research, it became evident that hydroponics may provide a way to supply the box with high quality, fresh, hyper-local, consistent product. Hydroponics has been around for a long time. Though it has just recently become a viable, scalable business venture, many small

producers have produced their crops this way in the past. Hydroponics refers to a production practice where crops are grown without using soil. The roots sit in a pool of water and crucial nutrients until they are ready to be harvested. Using recent technological advances in artificial lighting and air temperature control systems, the grower can produce crops year-round. Because the grower has manufactured the perfect growing environment and the seeds do not compete with other weeds, or disease-ridden soil, the yields for hydroponically grown crops greatly surpass the yields of traditionally grown field crops. According to an article by Jordan Robbins, mentioned above, “hydroponics first caught US consumers’ attention via large scale use in the hothouse tomato industry” (Robbins J, 2016). The article continues talking about how consumers may respond to produce grown hydroponically. The article states that “hydroponics is less about the production method and more about what results. Today’s consumer doesn’t really focus on it being hydroponic-they may not even know what that means, explains Paul Lightfoot, chief executive of Bright Farms, “it’s more about it being local and sustainable. If it’s local product, then focus on shelf life and taste. It’s really about what results from the production method and not the production method itself” (Robbins J, 2016). As this quote shows, hydroponics has numerous benefits. It will be important, though, that growers market the benefits of the crop itself and less so the production practice.

The marketing of crops grown in a greenhouse will decide whether or not the greenhouse industry continues to grow. There are considerable doubts about how the consumer responds to greenhouse production. In one article written by Kayla Young, she quotes Fred DeSchouwer, of Greenhouse Produce. He “points to consumer research in the past decade that has found aversion to greenhouse labelling rather than to the actual product. It more gave an aspect of manipulated, not as natural, manufactured (Young K, 2017).” The article continues, “once these labels were taken away, however, DeSchouwer notes these doubts gave way to greater priorities. They cared is it safe? Is it healthy? Is it nutritional?... We had the consistency, quality, flavor, and production volume” (Young K, 2017). Though greenhouse production may

prove to be the most efficient way to produce, it will become increasingly important for the grower to market the benefits of the crop itself. On the other hand, the number of food conscience consumers is growing. People have become more and more interested in how their food is produced. For this more educated audience, it may be beneficial to include aspects of the growing process that would appeal to sustainable, food conscience consumers, such as higher water conservation levels, less land used, less carbon footprint due to a decrease in transportation, etc...

Purdue University has performed much market research on the potential consumer response to hydroponically grown produce. In a presentation titled “Key Factors for Hydroponics,” Purdue Extension emphasizes a few characteristics that bode well for the future of hydroponics. They state that “baby boomers are practicing healthy eating habits,” and “40% of consumers say more consistent availability of products would encourage them to start buying, or buy more, local foods. In the same presentation, the extension agent speaks to the target consumer for these crops. Because women tend to do the shopping for the household, it is vital women approve of the production practice and the benefits it produces. According to surveys conducted by Purdue, women are more likely to buy these crops knowing they were grown nearby. Also, college educated, at least, individuals are more likely to buy fresh produce. Buyers of fresh, local produce tend to come from households with annual incomes over $75,000 (Purdue Extension). On the grower side, the agent recommends a 30-50% mark-up for profit (Purdue Extension). According to AmHydro, a supplier of hydroponic equipment, each head of lettuce can be produced for under $1.50 (AmHydro, 2021). Following the Purdue extension suggestion, this would put a head of lettuce at roughly $2.25. Will the consumer pay a price premium for this crop? Marketing the benefits will be crucial to profitability and survival.

As compared to more traditional retail locations, this produce offered in this box would be more expensive. In order to encourage customers to pay this price premium, operators would need to market the model. In other words, customers would need to know that they have

the freshest produce delivered to their door on a consistent basis. The business would be able to differentiate itself from aggregators by offering more frequent subscription services. Many CSAs offer subscriptions or “shares” to customers before harvesting their crops. This model, though, could offer weekly, monthly, or any variation in between, delivery to its customer base. At the distribution center, employees would pack the boxes according to order and prepare them for delivery directly to the customer’s door. The center could sell their pre-made boxes at the farmer’s market. Given the right number of employees, the Georgia Grown Box could sell at numerous markets around the state. The supply chain for such a business would evolve over time. At the start, the offerings would be limited to seasonally grown crops. There are greenhouses producing produce in the state, and the Southeast, but many of them seem to have limited products. To start a business like the one described, several events could occur. One, it seems possible that the Georgia Department of Agriculture, owner of the Georgia Grown brand, could work to raise the funds to pay for a distribution center. This route would make sure to keep growers involved in the process. These producers could become both part owners and suppliers of the Georgia Grown Box. Secondly, a non profit could ask for a grant to build, or rent a warehouse distribution hub. The non-profit would then spend its time working on finding suppliers and preparing the logistics of the business. Lastly, an already for profit, such as HelloFresh or Blue Apron, could come in and focus on Georgia crops specifically creating a HelloFresh Georgia brand.

Over time, if profitable, the business could begin to invest in greenhouses to grow certain crops. Depending on business growth, other producers could invest in greenhouses on their own land. This type of integration would lead to more predictable and consistent offerings. The next part of this paper will perform a strength, weakness, opportunity, and threats (SWOT) analysis for the proposed business model.

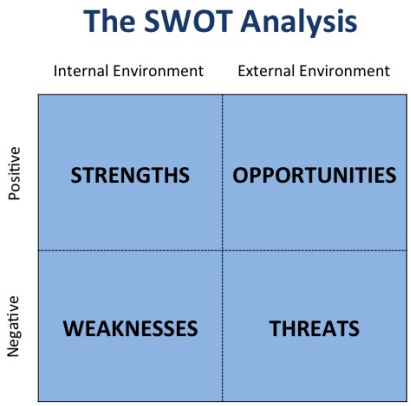


Figure 1: SWOT Analysis

Strengths (1) Home delivery (2) High quality, fresh (3) Consistent (4) Less environmental impact	Weaknesses (1) Logistics (2) Seasonality (3) Limited number of greenhouse growers
Opportunities (1) Covid "re-start" (2) Growth in alternative buying habits (3) More convenient, sustainable production (4) Employment of local workforce (5) Encouraging more CEA growers	Threats (1) Weather (2) Fuel prices (3) Cheap imports

Figure 2: SWOT Box

The proposed model has several strengths. One key value proposition is **home delivery**. Years before the coronavirus pandemic broke out, many customers had become interested in not only buying quality products, but in buying convenience. We see this in the growth of many direct-to-consumer food box programs. The ideal customer of this box is a wealthy, food conscience, healthy-minded single, couple, or family. These consumers have busy schedules and do not necessarily have the time in their days to go to the grocery store and spend time looking for quality produce. By providing produce on a subscription basis, such as

weekly or bi-monthly, the customers know they will have healthy options in their kitchen on a regular basis.

An additional strength to the Georgia Grown Box is its provision of **high quality, fresh product**. By marketing to the entire state, customers all around Georgia will receive the freshest produce available. Much of the produce found in grocery stores and restaurants today comes from California, Arizona, and even Central America. One article published by Vegetable Growers News states "just three states account for 76% of the country's vegetable production value during 2017, according to the numbers released recently by the USDA's National Agricultural Statistics Service;' the three states being California, Arizona, and Florida (Vegetable Growers News, 2018). These products, grown in a traditional manner, travel in truck beds for thousands of miles, all while losing freshness and important nutrients before they even reach the marketplace. By the time the customer has the fruit or vegetable on their plate, the product can hardly qualify as fresh. The Georgia Grown Box distribution center would ensure customers receive quality product on the same day, or within just a day or two of harvest.

One other strength to this box would be **consistency**. Greenhouse production has grown in recent years and allows for farmers to extend the growing season. According to an article published by The Journal of the International Association of Agricultural Economists, "greenhouse grown food crops in the US in 2014 reached $800 million, with 63% of these crops grown hydroponically" (Gilmour and Bazzani, 2019). In an additional article titled "The New Face of Hydroponics", Jodean Robbins states that "the potential market for indoor agriculture is close to $9 billion (Robbins). This paper will cover specific crops offered in the Georgia Grown Box later, but to make a point we will use lettuce, tomatoes, and cucumbers for our example here. Traditionally grown, these crops are planted in the ground out in California and Arizona, watered, and cared for over a few months, harvested, and packed into a truck for a delivery that could be thousands of miles away. This large production does provide for economies of scale giving consumers' a lower price during the growing season. The most effective way to compete

against this economies of scale will come through intensive marketing efforts. Letting your consumer know that buying local means fresh, less environmental impact, and supporting the nearby economy will encourage buyers to support your business even if it means a slight premium, as discussed later. With the transportation of crops across the country, valuable nutrients are lost in each fruit and vegetable. By using a greenhouse where internal temperatures, humidity, and light is highly controlled, some farmers have been able to provide fresh all year, despite the time of year. Instead of growing outside, a farmer can grow cucumbers in beds in a greenhouse, and tomatoes and lettuce hydroponically without soil throughout both hot and cold seasons. Though greenhouse production does not suit certain crops, there are many "staple" goods that could be produced in a greenhouse to ensure the customer that they will receive fruit and vegetables of the freshest quality. These staple crops would be produce that individuals consume on a more regular basis. For example, lettuce, tomatoes, and cucumbers are more widely accepted in consumption habits than okra, for example.

The next strength I would propose can be described as a **seasonal offering**. I believe that this could provide some "flavor" in the proposed Georgia Grown Box. In Georgia, summer-time products like strawberries, blueberries, watermelon, and peaches bring excitement to local grocery markets and to farm stands up and down the road. Customers, many unrelated to agriculture, have become accustomed to these summer-time goods. Many look forward to buying home grown fruit to use in their homemade pie, ice cream, and other dessert recipes. The Georgia Grown Box could use this customer behavior to its advantage by offering special summer-time boxes where certain crops like the ones previously mentioned are added to the box's usual products. This would not only boost sales but would also give more traditional farmers an additional marketing channel for their crops. Depending on the fruit or vegetable, the Box could also include recommended recipes for the newly included product.

Next, this paper will look at weaknesses of the Georgia Grown Box. One primary weakness of the proposed model is **logistics**. Logistics related to gathering products from farmers and the final delivery to the customer provide many logistical issues. Because many producers have specialized in their production of a single, or just a few, crops, gathering enough goods to fill up a box would mean bringing together multiple producers. The cost related to farmers' delivery to the distribution center could be mitigated by proper location of the distribution center. Putting the center closer to farmers, though, would most likely mean further from the customer. For example, putting a center in Macon would mean many farmers could easily drop off their crops at the center, but given the state's population center of Atlanta in the northern part of the state, this would mean higher costs related to customer delivery.

In a paper published by Jacob Brimlow and James Matson in 2015, they write "evidence suggests local food sales in intermediary market channels have been limited by high transaction costs, lack of infrastructure for storage and aggregation, high number of producer suppliers, cash flow, inconsistent quality of supply, and variation in demand" (Brimlow and Matson). As shown above, local producers face many challenges larger growers do not. They do not benefit from economies of scale. Because smaller producers operate in smaller quantities, in some cases, transportation costs can be higher for local growers than large producers who are able to ship or truck their produce across the country in massive amounts. According to an article published by NC State, "transportation only accounts for approximately 11% of greenhouse gas emissions in agriculture" (Bloom J, Lelekacs J, and Dunning R, 2016). "Most of the emissions and energy used in food systems occurs during the production, processing, packaging, or selling of food" (Bloom J, Lelekacs J, and Dunning R, 2016).

Another weakness would be **price**. To ensure profitability for the crop, one will need to understand the numerous benefits of purchasing the Georgia Grown Box. Ultimately what this Box offers is a shorter, more concise supply chain. Consumers understand that when they buy one of these boxes, they are paying to support local producers, the local economy, more

environmentally friendly production practices, and the convenience of home delivery. Because of fruit and vegetable production and scale around this country and Central America, there will always be a cheaper product. Cheaper in price, and in many cases cheaper in quality. Many producers in Georgia produce their crop on a large scale. This allows for them to export out of the state and even into foreign markets. These producers grow fruits and vegetables on thousands of acres and can offer their goods at competitive, low prices. The Georgia Grown Box could work to keep more product grown in the state, in the state. As demand for the Box grows, the business operator could contract with larger growers in the state. This would give them a higher price for their product while also providing high quality, homegrown goods to this state's growing population. Customers also have begun to care more about quality in recent years. As food production practices have improved over the last few decades and malnutrition has greatly decreased, consumers' attention has moved toward fresh, local, and healthy. This leads us to the opportunity part of the Georgia Grown Box.

The last year, or so, has brought chaos all around the country. Starting with a global pandemic that left many sitting at home wondering where their next step may lead them, and leading into nationwide protests, riots, and civil unrest, the world looks very different than it did just a year ago. What has not changed, though, is people's desire for high quality food. No matter the events around the country, people want to make sure they lead healthy lives and provide themselves, and their loved one, with healthy food on a consistent basis. During such chaos, people want reliable, stable, consistent products that come from places close to home. The Georgia Grown Box fulfills all of these characteristics. Customers do not have to worry about kinks in the supply chain affecting their food availability or chaos affecting their ability to feed themselves. Instead of taking time out of their day to shop in grocery stores that may suffer from shortages, the Georgia Grown Box allows for customers to order high quality products. Better yet, these goods will show up on their doorstep as frequently as the customer would like.

There is a massive opportunity for consistent, stable food service. Given global unrest, the opportunity continues to grow.

Though opportunity exists, threats to the Georgia Grown Box present themselves throughout the business's supply chain. First of all, for those traditional growers who will supply the Box, weather and labor threaten their production. Bad weather in South Georgia, a region affected by hurricane season every year, can leave farmers without a crop. Labor conflicts can also leave fruit and vegetables in the field, as we saw at the beginning of the COVID-19 pandemic. One way to mitigate this serious risk is to condense and consolidate production of the Box. As seen in South Carolina on their newly announced ag-tech campus, leaders have invested in a 1,000 acres campus that will host all production practices (WTOC Staff, 2020). Having the production close together and on the same piece of land as the distribution and packing center limits any risk associated with logistics. If high fuel prices threaten to decrease farmers' ability to bring their product up to the center, they may choose to sell to the wholesaler that shows up on their farm. If production was close together, fulfillment of the box is made much easier.

Chapter 3, Data

We collected data by administering a survey open to all. The survey was sent out through various social media channels, class lists, and university-related listservs. With respect to number of potential respondents, the administration is limited, leaving the possibility for a more thorough and widespread survey later open. The survey aimed to gauge consumer preferences in fruits and vegetables, and to understand what consumers may know about hydroponics and other produce production practices. For example, questions were related to various labelling strategies such as conventional, USDA organic, sustainably grown, certified naturally grown, and greenhouse grown.

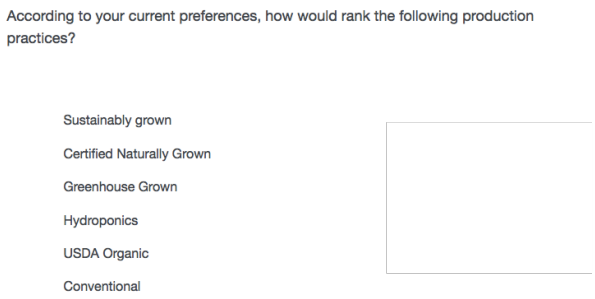


Figure 3: Production Practice Survey Question

According to the USDA, “USDA certified organic foods are grown and processed according to federal guidelines addressing, among many factors, soil quality, animal raising practices, pest and weed control, and use of additives. Organic producers rely on natural substances and physical, mechanical, or biologically based farming methods to the fullest extent possible” (McEvoy M, 2019). Though there is no formal definition for sustainably grown, according to one USDA report, sustainable farming systems are ones that are “capable of maintaining their productivity and usefulness to society indefinitely. Such systems must be

resource-conserving, socially supportive, commercially competitive, and environmentally sound" (Gold M, 2007). According to Certified Naturally Grown (CNG), a third-party inspector, "CNG farmers do not use any synthetic herbicides, pesticides, fertilizers, or genetically modified organisms" (Certified Naturally Grown, 2015). Lastly, greenhouse grown can be applied to all sorts of produce grown indoors and in a manipulated environment.

Also, a part of data collection, we examined consumers' understanding of the locally grown movement. We asked for them to clarify what they considered to be grown locally. These respondent chose between state level, 50 mile radius, county level, southern region, and 400 mile radius.

A primary goal for this research, we want farmers to understand the certain traits and characteristics consumers value when buying the Georgia Grown Box of produce. This includes the types of fruits and vegetables consumers prefer, what type of practices the consumer values, and the type of packaging a consumer values the most when accepting delivery. Regarding packaging attributes, we looked at which characteristics were most important to consumers. We focused on packaging traits such as recyclable, reusable, not plastic, not foil, and biodegradable, i.e. certified organic, conventional, sustainable and current shopping habits, e.g. where they currently buy their produce from and whether they have purchased produce from a delivery service before.

A large section of our survey focused on hydroponics. As hydroponics allows for consistent, year- round production, farmers looking to enter the direct-to-consumer marketing channel may consider investing in this production practice. If so, we need to know that consumers are comfortable buying fruits and vegetables grown with hydroponics. One half of the respondents, the control group, received numerous questions related to hydroponics including whether they knew what it is, and if they have consumed hydroponically grown produce before. The second half of the group, the treatment group, received additional informational slides covering the basic characteristics of hydroponics.

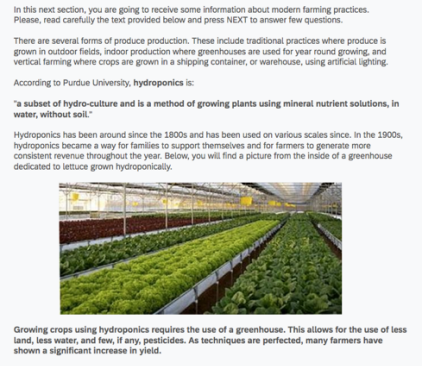


Figure 4: Hydroponics Information

Having both a control and treatment group allows for us to see what consumers know about hydroponics, whether getting information changes their view and whether using the "hydroponically grown" label brings some value-added.

Our survey included several demographic questions, i.e. gender, income, household size, description of current neighborhood, education level, and race.

After designing the survey with the Qualtrics software, we sent it out through various social media channels. Our final sample is composed of 17 males and 26 females. The completion rate was 63.76% which can be explained by the fact that there was no financial reward for completing the survey and the fact that some questions required more time to answer. Out of these respondents, 37 were white/Caucasians, 3 were Hispanics, 1 Asian, and 2 others. The respondents had varying education levels. 1 had a high school diploma, 6 had some college, 2 had a 2-year college degree, 17 had a 4-year college degree, 13 had a master's degree, 3 had a doctoral degree, and 2 had a professional degree. The box below shows the varying income levels of the respondents. As the largest income group was below $19,999, We can safely assume that we had a majority of students taking the survey.

Table 1: Respondent Income Level

Respondents' Income		
Income Level	#	% of Total
<$19,999	14	34%
$20,000-$29,999	2	5%
$30,000-$39,999	1	2%
$40,000-$49,999	4	10%
$50,000-$59,999	2	5%
$60,000-$69,999	0	0%
$70,000-$79,999	0	0%
$80,000-$89,999	2	5%
$90,000-$99,000	3	7%
$100,000-$109,999	0	0%
$110,000-$119,000	2	5%
$120,000-$129,999	1	2%
$130,000-$139,999	2	5%
$140,000-$149,999	0	0%
$150,000-$159,999	5	12%
$160,000-$169,999	1	2%
$170,000-$179,999	0	0%
$180,000-$189,000	0	0%
$190,000-$199,000	0	0%
$200,000-$209,999	1	2%
>$250,000	1	2%

The average household size, including only those who are 18 years old or above, for our respondents is 2.6. 28 of our respondents described their neighborhood as suburban, 10 as rural, and 5 as urban. All, but two, of our respondents are current residents of Georgia. The other two currently reside in North Carolina.

Chapter 4, Results

Produce Purchasing Habits

Our respondents buy groceries from a variety of brick-and-mortar stores. According to the survey, participants shop at Publix, Kroger, Walmart, Aldi, Ingles, Trader Joe's, Costco, Whole Foods, Giant, and Bi-Lo. One respondent buys from a CSA. Two buy from Fresh Harvest.

More interestingly, of all respondents, roughly 28% have ordered fresh produce through an online delivery service. Delivery services include HelloFresh, Blue Apron, Hungry Harvest, and Fresh Harvest. Out of this 28% who ordered produce from one of these delivery services, 21% described themselves as being "extremely satisfied," while 52% described themselves as "somewhat satisfied." Among the attributes of these online delivery service, we tested freshness, quality and price. The average freshness score for these respondents is 82.53. The average quality score given to this produce is 80.53, while the average price score is 69.64. These scores fit on a scale from 0-100. The price score can be interpreted as "the higher the score, the more expensive the consumer felt the produce was."

Fruit and Vegetable Preferences

After looking at demographics and past experiences with food delivery services, our study also tested consumers on their fruit and vegetable preferences. Respondents were presented with a list of fruits and vegetables. They then choose between "Do not prefer, prefer slightly, prefer a moderate amount, prefer a lot, and prefer a great deal." The following graph shows the responses and rates for "prefer a lot" and "prefer a great deal." Obtaining these responses will

hopefully show farmers what consumers may desire should the grower decide to offer a direct-to-consumer marketing channel.

Table 2: Consumer Fruit Preferences

	Consumer Preferences		
Fruit	Prefer a lot	Prefer a great deal	Total
Strawberries	34.54%	41.81%	76.35%
Blueberries	30.91%	38.18%	69.09%
Apples	45.40%	23.63%	69.03%
Peaches	30.91%	32.70%	63.61%
Tomatoes	30.90%	29.09%	59.99%
Bananas	41.81%	16.36%	58.17%
Grapes	30.90%	20.00%	50.90%
Oranges	29.09%	16.36%	45.45%
Watermelons	20.00%	23.60%	43.60%

Table 3: Consumer Vegetable Preferences

	Consumer Preferences		
Vegetable	Prefer a lot	Prefer a great deal	Total
Onion	34.54%	36.36%	70.90%
Broccoli	32.72%	29.09%	61.81%
Lettuce	32.70%	29.09%	61.79%
Carrot	25.45%	30.90%	56.35%
Squash	32.72%	20%	52.72%
Pepper	23.60%	29.09%	52.69%
Cucumbers	23.60%	23.60%	47.20%
Basil	12.72%	16.36%	29.08%
Cabbage	20%	7.30%	27.30%
Kale	16.36%	10.90%	27.26%
Beets	1.08%	3.63%	4.71%

The boxes show the most desirable fruit and vegetable to the least desirable. It is important to note that there are many fruits and vegetables excluded from these lists.

Packaging

The next part of the survey asked for participants to rate the importance of each packaging trait. The options included recyclable, reusable, not plastic, not foil, and biodegradable. The following table shows the results.

Table 4: Packaging

Packaging Preference	
Trait	Score
Reusable	69.45
Recyclable	69.33
Biodegradable	63.51
Not plastic	56.97
Not foil	53.32

Should growers, or distributors, continue to deliver produce to consumers, it will be necessary for them to consider the packaging of their produce. Consumers today want to know that just as the produce is safe and healthy for them, the packaging used to deliver the produce benefits the environment.

Hydroponics

A good part of the survey was dedicated to measure consumer knowledge as it relates to hydroponics, a soil-less method of growing crops year-round inside of a greenhouse. To support the consistency has a key strength to the direct-to-consumer marketing model, it was necessary to evaluate the impact of providing additional technical information to the respondents vs. not providing any on their willingness to purchase and to pay. Numerous traits related to production were identified, and the respondents were asked to score how well, or poorly, hydroponic practices did on each trait. One group did not receive information related to hydroponics production. Conversely, the treatment group received a one-page hydroponic informational slide, as seen below.

Table 5: Hydroponic Understanding

Consumer Hydroponic			
Trait	Score (no info)	Score (info)	% Difference
Harvests	55.77	83.41	49.6%
Fertilizer use	55.23	78.73	42.5%
Soil Use	66.54	88.04	32.3%
Electricity	45.09	58.64	30.1%
Carbon footprint	59.72	77.18	29.2%
Locally grown	59.84	77.04	28.7%
Natural	52.37	66.38	26.8%
Land use	68.04	85.77	26.1%
Pest control use	64.13	79.32	23.7%
Water usage	62.26	73.5	18.1%
Freshness	72.05	84	16.6%
Quality	72.36	81.05	12.0%
Food safety	68	74.72	9.9%
Safety	71.63	74.14	3.5%
Better than greenhouse	56.94	57.43	0.9%

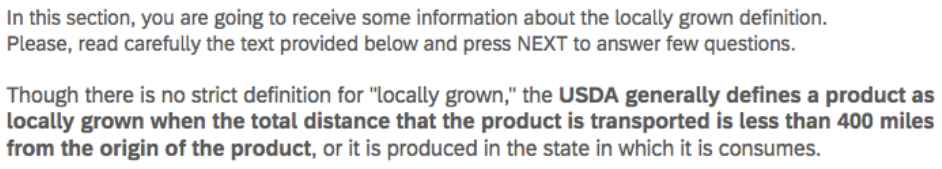
The table above shows each trait and its varying score between the control and the treatment groups. The top of the table starts with the trait score that changed the most and continues down to the trait score that changed the least. With this data, one can see that all scores increased when given prior information about hydroponics. The traits that changed substantially may be used as marketing tools for growers. For example, one can see that the fertilizer use score is much higher for the treatment group than the control group. If a farmer, for example, produces tomatoes or lettuce, hydroponically, he may consider advertising the decreased use of fertilizers in their crop. Some of these traits may be more beneficial for the grower, than the consumer. For example, harvests for hydroponically grown crops per area farmed are much higher than the same area under a more traditionally grown crop. Many consumers may not place importance on this. It may only be a way for growers to increase their bottom line. On the other hand, the carbon freshness trait could prove much more meaningful to many consumers. Though it did not

change as much as other traits in the survey administered, the freshness of the produce directly impacts the customer experience.

At the University of Illinois, researchers testing consumer expectations related to production practices found that produce grown in a greenhouse had the highest score. Specifically, the researchers tested consumer expectation related to light source efficiency, land use, soil use, harvest yields per year, water use, electricity use, pest control use, and general production. On a scale from 1-5, greenhouse grown produce averaged 4.1, vertically farmed produce averaged 3.8, and field grown produce averaged 3.6 (Coyle B and Ellison B, 2017). Though we did not test all of the exact same traits, we were able to find similar results in categories like harvest, soil use, electricity, land use, and water use.

Locally Grown

Next, we looked at what consumers may know about the locally grown definition. The control group received no prior information; whereas the treatment group received a one slide definition of the USDA's informal definition of "locally grown." (slide seen below) Table 6 shows the results.


In this section, you are going to receive some information about the locally grown definition. Please, read carefully the text provided below and press NEXT to answer few questions.

Though there is no strict definition for "locally grown," the **USDA generally defines a product as locally grown when the total distance that the product is transported is less than 400 miles from the origin of the product**, or it is produced in the state in which it is consumes.

Figure 5: Locally Grown Information

Table 6: Locally Grown

Locally Grown Definition		
Boundary	Respondents (no info)	Respondents (info)
State Level	39.1%	28.6%
50 mile radius	34.8%	14.3%
County Level	21.7%	4.8%
Southern Region	4.3%	14.3%
400 mile radius	0.0%	38.1%

As the data shows, most respondents in the control group consider any crop grown in the state it's consumed to be locally grown. After receiving a definition of locally grown that suggests any crop produced within 400 miles of the area it is consumed is locally grown, respondents seemed to agree.

Willingness to Pay

Lastly, our study looked into respondents' willingness to pay for different attributes. We asked our respondents to "Please indicate total price you would pay for a green lettuce grown hydroponically and delivered to your door." The range of answers went from $1 to $4 while The average willingness to pay was $2.51. Given that Publix recently had two heads of hydroponically grown lettuce for sale at $4 total, this willingness to pay suggests there may be a premium for growers to take advantage of. According to an article published in CHOICES, a study at the University of Illinois found that "on average, participants' WTP was $2.23 for a 5-ounce box of vertically farmed lettuce, $2.28 for the greenhouse grown, and $2.36 for the field grown lettuce" (Coyle and Ellison, 2017). This study did not test for the locally grown attribute. Our study did look at the locally grown trait and found that the average score for how important the "locally grown" label was to consumers was 2.03, with 1 being most important This,

coupled with our pricing and willingness to pay data, suggests consumers would willingly pay a higher price premium.

In order to more fully understand consumer willingness to pay, we created a model to help us differentiate between each type of consumer and what they may pay given their understanding of the product's background. We ran multiple regressions to gauge the different effects certain traits may have on consumer willingness to pay. Our dependent variable was the WTP per respondent within each group (control and treatment) and your explanatory variables (5.5, 5.6 and 4.12 for control group and 6.11, 6.12 and 4.12 for the treatment group). The full results tables can all be found in Appendix 3.

Overall, we did find that giving respondents information did increase willingness to pay. As shown in table 1 of appendix 3, our control group had a willingness to pay of $2.28. This value, the intercept, was significant at the 1% level. In contrast, we see that the treatment group was willing to pay $2.75 after receiving the information, as shown in box 4 of appendix 3.

In box 1 of appendix 3, we see that food safety came out to be negative at the 11% level. We can interpret this as consumers assume the produce they buy is safe and anything otherwise would not be bought. In box 2 of appendix 3, we see that the quality trait tested positive at .06(.09). If consumers believe they are buying a higher quality product, they will pay a slight premium. Also in this box, we see that females are willing to pay a premium of $.70 at the 13% significance level.

In box 3 of appendix 3, we test the importance of packaging to consumers. Recyclable tests positive at .018 (.01). Reusable tests at -.02115 (.01). Not plastic tests at .01(.04). These results show that consumers are willing to pay a premium for recyclable and not plastic, but they may see reusable as too much of a hassle, having to clean it over and over, for example.

Box 4 of appendix 3 shows a willingness to pay of $2.75 at the .01% level. This shows that if given information on production practies, consumers may be willing to pay a slight premium.

Box 6 of appendix 3 shows that consumers may be willing to pay $2.54 (.000317) for more eco friendly production practices.

Our treatment group received information on hydroponics before being asked questions related to the production practice. After regression, several traits proved significant. Harvests tested well with consumers, .0311(.05). On the other hand, pest control did not test well, at -.03498(.106). When looking at the treatment group results, we also saw that freshness, better than greenhouse grown are the qualities consumers were willing to pay for. In fact, we found a negative correlation between willingness to pay and the locally grown attribute, -.021(.03).

Chapter 5, Conclusions

For this research paper, we wanted to focus on four main objectives. As mentioned in the introduction, we wanted to study consumer preference in fruits and vegetables, consumer knowledge of production practices, consumer understanding of labelling, and to provide farmers with a resource to help them meet growing demand for locally grown DTC crops. Today's consumer wants to understand the context in which their produce was grown. They want to know how the produce was grown, where it was produced, and what type of impact production had on the earth. As a subset of studying consumer knowledge of production practices, we also wanted to gauge consumer understanding of hydroponic production. As this paper is written, many producers are beginning to produce various crops using hydroponic systems inside of greenhouses. We found that the majority of consumers do not know what hydroponics is. Over time, larger studies should be done as hydroponics becomes a more popular form of production. We also wanted to test consumer understanding of what locally grown means. As a subset of studying consumer knowledge of different labelling practices, we wanted to study "locally grown." Locally grown can refer to American grown or grown within miles of consumption. Because the USDA makes no formal definition, this will be left for producers and consumers to decide. Lastly, this study looked to understand the type of packaging consumers value the most. Ultimately, the consumer values packaging that they believe has the least impact on the environment.

Our results show that the modern consumer is willing and able to pay price premiums for products they feel were grown in a sustainable manner, using hydroponics and environmentally

friendly packaging. Growers looking to meet the demand for this new consumer will need to balance out their efforts between production and marketing to target direct-to-consumer sales. Growers will also need to consider upfront investment costs for newer, more modern technologies should they look to meet the increasing demand for high quality crops grown consistently throughout the year. Farm management, consumer understanding, and well thought out marketing strategies will determine the financial success of growers in the future. Understanding the new consumer's preferences in food production and presentation will be crucial given the increasing competition between direct to consumer sales.

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2021. Frequently Asked Questions: What does "certified naturally grown" mean? Certified Naturally Grown.

Appendix 1: Case Studies

1. FreshDirect offers doorstep delivery of fresh fruits, vegetables, and meats to areas up and down the East coast. Primarily operating in New York, the company manages a 400,000 square feet automated fulfillment center.

2. HelloFresh operates with the mission to provide "consumers with a fresh and high-quality meal with no effort required" (Hello Fresh). This business offers a subscription service where consumers can choose "how many meals they want per week, how many people the meals should serve and what kind of ingredients they want in their meal" (Hello Fresh).

3. Starting in 2018, Misfits Market began with the mission "to provide affordable access to healthy food and to fight the food waste crisis" (Misfits Market). This company delivers boxes of fresh produce that does not meet the cosmetic requirements to be sold at a restaurant or grocery store. The company believes that even if a fruit or vegetable does not look right, it can still act as a safe, healthy, and nutritious snack. The company buys their produce directly from farmers that operate "certified organic and non-GMO" farms (Misfits Market). These farmers come from all over the United States.

4. Started in New York City, Blue Apron has worked to meet the rising demand for food box delivery. Blue Apron partners with numerous farms around the country in order to provide the freshest and highest quality ingredients right to consumers' doorstep. The company sources seafood caught using sustainable practices, as defined by Seafood Watch (Blue Apron). They also guarantee the livestock sourced has not been fed antibiotics or hormones. Lastly, they only use non-GMO and all-natural produce. Blue Apron also offers a vegetarian option, demonstrating the rising demand for convenient and healthy food. There are multiple plans all offering different recipes with varying numbers of servings.

5. Freshly is a food box delivery service that delivers prepared ingredients to homes across the U.S. Freshly meals come prepared in boxes allowing for easy preparation.

6. Founded in 2012, Garnish and Gather, G&G, delivers food boxes to homes all throughout Atlanta, Georgia. The company will also bring food boxes to farmers' markets around the state. G&G markets itself as "Georgia's local meal kit and grocery delivery service, bringing the farmer's market to you since 2012" (Garnish and Gather). The company sources all of the ingredients from local farms. The customer can also choose to add dessert or cocktail ingredients to their box. The company also advertises five new recipes each week.

7. With meals starting at just $5.99, Fresh n Fit has served Metro Atlanta since 2003 (Fresh n Fit Cuisine). They offer fully prepared meals with new recipes added by professional chefs on a weekly basis. This company pledges to use grass fed and finished livestock, sustainably caught seafood, and non-GMO, organic produce when possible (Fresh n Fit). They look to vary their menu according to local seasonality.

8. Eat Right Atlanta markets itself as a pop-up farmer's market. It sources food from local farmers' markets and delivers around the city. They sell produce in schools, hospitals, and workplaces. The company also offers home delivery if you find this to be the most convenient option. They offer numerous fruit and vegetable combo boxes. Their most common box comes with a mix of 12 fruits and vegetables for $18. A larger version of the box is also sold for closer to $30 (Eat Right Atlanta).

9. With its headquarters in Clarkston, Georgia, Fresh Harvest partners with roughly 12 farms all within 70 miles of their location (Fresh Harvest Georgia). This company works to provide "regular deliveries of organic produce, meat, dairy, and artisan items" (Fresh Harvest Georgia).

10. Carlton Farms, based out of Rockmart, Georgia, offers one time delivery of various farm products. The farm offers some of their own products, such as the livestock grown on the grounds, while also sourcing ingredients from other operators within 100 miles of their location (Carlton Farms).

11. Farmers Fresh CSA is in western Georgia. This community supported agriculture business is comprised of many small farmers located throughout west Georgia and even into the eastern part of Alabama. The group looks to deliver fresh, organically grown produce to their customers' doorstep. (Farmers Fresh CSA).

Appendix 2: Buyers' survey using Qualtrics

GA Grown Box Survey

Start of Block: INTRODUCTION

Q1.1 I'm a student in the Department of Agricultural and Applied Economics at The University of Georgia and I invite you to take part in my research project on locally grown products and sustainable production practices. **To take part in this survey, you must be 18 years of age or older and a resident of the state of Georgia.** It should only take about 12 minutes. Participating in the study is voluntary, and you may choose not to take part or stop at any time without penalty or loss of benefits to which you are otherwise entitled.

Once the survey responses are received, you will remain anonymous. The results of the survey may be published and presented at conferences, but your name will not be used. In fact, the published results will be presented in summary form only with aggregated data. There are no known risks or discomforts associated with this research. If you have any questions about this survey, please send an email to william.davison25@uga.edu. Questions or concerns about your rights as a research participant to this survey should be directed to The Chairperson, University of Georgia, Institutional Review Board; telephone (706) 542-3199; email address - irb@uga.edu. **By clicking "agree" below, you are agreeing to participate in the above described survey. Then press "NEXT" to start the survey.** Thank you for your

consideration! You may print and keep this letter for your records. Sincerely, William Davison

Graduate Assistant

College of Agricultural and Environmental Sciences

Department of Agricultural and Applied Economics

- ○ Agree (1)
- ○ Don't agree (2)

End of Block: INTRODUCTION

Start of Block: Age qualifier

Q2.1 What year were you born?

▼ 1900 (1) ... 2006 (107)

End of Block: Age qualifier

Start of Block: State qualifier

Q3.1 In what state do you currently reside?

▼ Alabama (1) ... I do not reside in the United States (53)

End of Block: State qualifier

Start of Block: PRODUCE BOX

Q4.1 Where do you, or the primary shopper in your household, usually buy fresh produce from?

- ○ Farmers market (1)
- ○ Specialty grocery store (like Striplings) (2)
- ○ Walmart (3)
- ○ Target (4)
- ○ Kroger (5)
- ○ Publix (6)
- ○ Aldi (7)
- ○ Trader Joe's (9)
- ○ Other (Please specify) (8) _____

Q4.2 Have you ever ordered fresh produce through an online delivery service, such as HelloFresh?

- ○ Yes (1)
- ○ No (2)
- ○ I'm unsure (3)

Display This Question:

If Have you ever ordered fresh produce through an online delivery service, such as HelloFresh? = Yes

Q4.3 If yes, which delivery service/company did you order from?

_____

Display This Question:

If Have you ever ordered fresh produce through an online delivery service, such as HelloFresh? = Yes

Q4.4 How would you rate your overall experience with the fresh produce box?

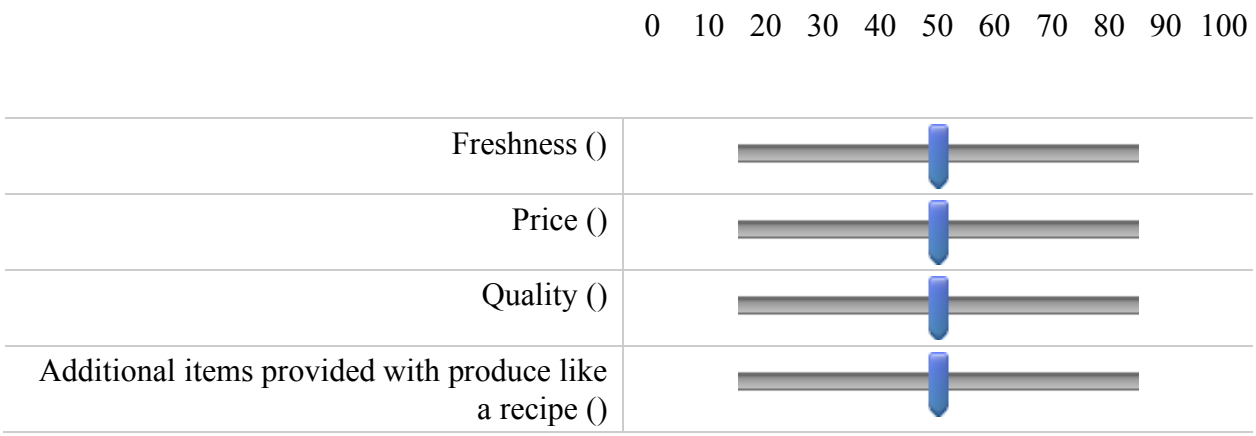
- Extremely satisfied (1)
- Somewhat satisfied (2)
- Neither satisfied nor dissatisfied (3)
- Somewhat dissatisfied (4)
- Extremely dissatisfied (5)

Display This Question:

If Have you ever ordered fresh produce through an online delivery service, such as HelloFresh? = Yes

Q4.5 How would you rate the following elements regarding your experience with the home delivered fresh produce box COMPARED to in-store purchase?

	Not at all important	Slightly important	Moderately important	Very important	Extremely important



Q4.6

Our idea is to sell a Georgia Grown Box that would contain 7-10 fresh fruits and vegetables, all locally sourced (box contents may vary over the year given available supplies) from our best growers.

For example, a box may include a head of lettuce, a couple of carrots, one bell pepper, one cucumber, a half pound of strawberries, a half pound of blueberries, two tomatoes, and two oranges.

You can expect a box such as this one to cost about $20.

The box would be delivered directly to your door.

Would you be interested in buying a Georgia Grown Box providing fresh produce and sourcing from only the highest quality local producers?

(Please select your preference)

- ○ Definitely yes (1)
- ○ Probably yes (2)
- ○ Might or might not (3)
- ○ Probably not (4)
- ○ Definitely not (5)

Q4.7 How would you expect the Georgia Grown box (home delivered fresh produce) to be COMPARED to in-store purchase?

Please rate the following elements.

	Much worse (1)	Somewhat worse (2)	About the same (3)	Somewhat better (4)	Much better (5)
Freshness (1)	○	○	○	○	○
Price (2)	○	○	○	○	○
Quality (3)	○	○	○	○	○
Additional items provided with produce like a recipe (4)	○	○	○	○	○
Other (Please specify) (5)	○	○	○	○	○

Q4.8 Supplies for Georgia Grown Box would be grown at local farms with sustainable and modern practices such as hydroponics. The reduced carbon footprint as well as sourcing from responsible growers would lead to a fresher, safer, and more consistent product throughout the year. The Georgia Grown Box would also be delivered to your door.

Given this information, would you be willing to pay a price premium (to the penny) for the Georgia Grown box compared to your usual in-store purchase?

	Additional amount I would pay for the Georgia Grown Box ($) 0 1 2 3 4 5 6 7 8 9 10
1 ()	

Q4.9 Rate these fruits according to your preferences for the Georgia Grown Box.

	Do not prefer (13)	Prefer slightly (14)	Prefer a moderate amount (15)	Prefer a lot (16)	Prefer a great deal (17)
Blueberries (1)	○	○	○	○	○
Peaches (2)	○	○	○	○	○
Apples (3)	○	○	○	○	○
Strawberries (4)	○	○	○	○	○
Oranges (5)	○	○	○	○	○
Bananas (6)	○	○	○	○	○
Grapes (7)	○	○	○	○	○
Watermelons (8)	○	○	○	○	○
Tomatoes (9)	○	○	○	○	○

Q4.10 Rate these vegetables according to your preferences for the Georgia Grown Box.

	Do not prefer (16)	Prefer slightly (17)	Prefer a moderate amount (18)	Prefer a lot (19)	Prefer a great deal (20)
Lettuce (1)	○	○	○	○	○
Cucumbers (2)	○	○	○	○	○
Squash (3)	○	○	○	○	○
Cabbage (4)	○	○	○	○	○
Pepper (5)	○	○	○	○	○
Onion (6)	○	○	○	○	○
Carrot (7)	○	○	○	○	○
Broccoli (8)	○	○	○	○	○
Basil (9)	○	○	○	○	○
Kale (10)	○	○	○	○	○
Beets (11)	○	○	○	○	○

Q4.11

In order to establish the right price for Georgia Grown Box's customers, let's evaluate one

produce. For example, a head of green leaf lettuce sells for $1.48 at Kroger.

The highest quality produce will require a small price premium.

Please indicate the TOTAL PRICE (to the penny) YOU WOULD PAY for a green lettuce grown hydroponically and delivered to your door.

	Maximum price ($) I would pay
	1 2 3 4 5
Green leaf lettuce ()	

Q4.12 Are these traits important to you when it comes to packaging the Georgia Grown Box?

(Rate all indicators)

	Not at all important	Slightly important	Moderately important	Very important	Extremely important
	0 10 20 30 40 50 60 70 80 90 100				

Recyclable ()	
Reusable ()	
Not plastic ()	
Not foil ()	
Biodegradable ()	

End of Block: PRODUCE BOX

Start of Block: HYDROPONICS, LABEL - CONTROL GROUP

Q5.1 Have you ever purchased a fruit or vegetable grown with a hydroponics method?

- Yes (1)
- No (2)
- I do not know (3)

Display This Question:

If Have you ever purchased a fruit or vegetable grown with a hydroponics method? = Yes

Q5.2 Where did you, or the primary shopper in your household, purchased it?

- ○ Walmart (1)
- ○ Kroger (2)
- ○ Publix (3)
- ○ Aldi (4)
- ○ Specialty Grocery Store (like Striplings) (5)
- ○ Farmers Market (6)
- ○ Target (7)
- ○ Trader Joe's (9)
- ○ Other (Please specify) (8) _____

Display This Question:

If Have you ever purchased a fruit or vegetable grown with a hydroponics method? = No

Q5.3 Indicate why you did/would not purchased a fruit or vegetable grown with a hydroponics method?

Check up to 3 reasons.

- [ ] I do not know what hydroponics is (1)
- [ ] I prefer a more traditional production practice (2)
- [ ] I believe hydroponics is unsafe (3)
- [ ] Such produce is not available at my usual grocery store (4)
- [ ] I believe hydroponics is not natural (6)
- [ ] I believe hydroponics generate a lower quality (7)
- [ ] Other (please explain) (5) _____

Q5.4

According to your current preferences, how would you rank the following production practices?

_____ Conventional (1)
_____ USDA Organic (2)
_____ Sustainably grown (3)
_____ Certified Naturally Grown (4)
_____ Greenhouse Grown (5)
_____ Hydroponics (6)

Q5.5 How would you rate the impact of hydroponics on the following characteristics?

	Extremely negative	Somewhat negative	Neither positive nor negative	Somewhat positive	Extremely positive
	0 10 20 30 40	50	60	70	80 90 100

Water usage ()	
Harvests ()	
Soil use ()	
Pest control use ()	
Land use ()	
Food safety ()	
Electricity use ()	
Fertilizer use ()	
Carbon footprint ()	

Q5.6 How would you rate the following characteristics to best describe hydroponics grown produce?

Not at all important	Slightly important	Moderately important	Very important	Extremely important

0 10 20 30 40 50 60 70 80 90 100

Freshness ()	
Locally grown ()	
Better than greenhouse grown ()	
Quality ()	
Safety ()	
Natural ()	

Q5.7 How would you rate the price of produce grown with hydroponics practice compared to other farming practices?

	Much lower	Moderately lower	Slightly lower	About the same	Slightly higher
	0 10 20 30 40	50	60 70 80	90 100	
Greenhouse grown ()					
Conventional ()					
Organic ()					
Certified Naturally Grown ()					
Sustainably grown ()					

Q5.8 In the future, if you have the option, would you purchase a fruit or vegetable grown using hydroponics?

- ○ Definitely yes (1)
- ○ Probably yes (2)
- ○ Might or might not (3)
- ○ Probably not (4)
- ○ Definitely not (5)

Q5.9 Would you purchase the Georgia Grown Box (delivered to your door) with fruits or vegetables grown using hydroponics?

- ○ Definitely yes (1)
- ○ Probably yes (2)
- ○ Might or might not (3)
- ○ Probably not (4)
- ○ Definitely not (5)

Q5.10 What does locally grown mean to you?

- ○ 10 mile radius (1)
- ○ County level (2)
- ○ 50 mile radius (3)
- ○ State level (4)
- ○ Southern region (5)
- ○ Nationwide (the entire US) (6)
- ○ Other (please explain) (7) _____

Q5.11

Where do you PREFER to buy your produce from? (check all that apply)

- ☐ Farmer's Market (1)
- ☐ Local grocery store (2)
- ☐ Supermarket (3)
- ☐ Road side/ Farm stand (4)
- ☐ Other (please explain) (5) _____

Q5.12 How often do you buy produce?

- ○ Daily (1)
- ○ 2-3 times a week (2)
- ○ Once a week (3)
- ○ Every other week (4)
- ○ Once a month (5)

Q5.13 Rank these characteristics in the order from most important to least, starting with most important at the top.

_____ Certified naturally grown (1)
_____ Locally grown (2)
_____ Grown in the USA (3)
_____ Georgia Grown (4)

End of Block: HYDROPONICS, LABEL - CONTROL GROUP

Start of Block: HYDROPONICS, LABEL - TREATMENT GROUP

Q6.1 Have you ever purchased a fruit or vegetable grown with a hydroponics method?

- ○ Yes (1)
- ○ No (2)
- ○ I do not know (3)

Display This Question:

If Have you ever purchased a fruit or vegetable grown with a hydroponics method? = Yes

Q6.2 Where did you, or the primary shopper in your household, purchased it?

- Walmart (1)
- Kroger (2)
- Publix (3)
- Aldi (4)
- Specialty Grocery Store (like Striplings) (5)
- Farmers Market (6)
- Target (7)
- Trader Joe's (9)
- Other (Please specify) (8) _____

Display This Question:

If Have you ever purchased a fruit or vegetable grown with a hydroponics method? = No

Q6.3 Indicate why you did/would not purchased a fruit or vegetable grown with a hydroponics method?

Check up to 3 reasons.

- ☐ I do not know what hydroponics is (1)
- ☐ I prefer a more traditional production practice (2)
- ☐ I believe hydroponics is unsafe (3)
- ☐ Such produce is not available at my usual grocery store (4)
- ☐ I believe hydroponics is not natural (6)
- ☐ I believe hydroponics generate a lower quality (7)
- ☐ Other (please explain) (5) _____

Q6.4

According to your current preferences, how would rank the following production practices?

_____ Conventional (1)
_____ USDA Organic (2)
_____ Sustainably grown (3)
_____ Certified Naturally Grown (4)
_____ Greenhouse Grown (5)
_____ Hydroponics (6)

Q6.5 How would you rate the impact of hydroponics on the following characteristics?

	Extremely negative	Somewhat negative	Neither positive nor negative	Somewhat positive	Extremely positive
	0 10 20 30 40	50	60	70 80	90 100

Water usage ()	
Harvests ()	
Soil use ()	
Pest control use ()	
Land use ()	
Food safety ()	
Electricity use ()	
Fertilizer use ()	
Carbon footprint ()	

Q6.6 How would rate the following characteristics to best describe hydroponics grown produce?

Not at all important	Slightly important	Moderately important	Very important	Extremely important

0 10 20 30 40 50 60 70 80 90 100

Freshness ()	
Locally grown ()	
Better than greenhouse grown ()	
Quality ()	
Safety ()	
Natural ()	

Q6.7 How would you rate the price of produce grown with hydroponics practice compared to other farming practices?

	Much lower	Moderately lower	Slightly lower	About the same	Slightly higher
	0 10 20 30 40	50	60 70 80	90 100	
Greenhouse grown ()					
Conventional ()					
Organic ()					
Certified Naturally Grown ()					
Sustainably grown ()					

Q6.8 In the future, if you have the option, would you purchase a fruit or vegetable grown using hydroponics?

- ○ Definitely yes (1)
- ○ Probably yes (2)
- ○ Might or might not (3)
- ○ Probably not (4)
- ○ Definitely not (5)

Q6.9 Would you purchase the Georgia Grown Box (delivered to your door) with fruits or vegetables grown using hydroponics?

- ○ Definitely yes (1)
- ○ Probably yes (2)
- ○ Might or might not (3)
- ○ Probably not (4)
- ○ Definitely not (5)

Q6.10 In this next section, you are going to receive some information about modern farming practices.

Please, read carefully the text provided below and press NEXT to answer few questions.

There are several forms of produce production. These include traditional practices where produce is grown in outdoor fields, indoor production where greenhouses are used for year round growing, and vertical farming where crops are grown in a shipping container, or warehouse, using artificial lighting.

According to Purdue University, **hydroponics** is:

"a subset of hydro-culture and is a method of growing plants using mineral nutrient solutions, in water, without soil."

Hydroponics has been around since the 1800s and has been used on various scales since. In the 1900s, hydroponics became a way for families to support themselves and for farmers to generate more consistent revenue throughout the year. Below, you will find a picture from the inside of a greenhouse dedicated to lettuce grown hydroponically.

Growing crops using hydroponics requires the use of a greenhouse. This allows for the use of less land, less water, and few, if any, pesticides. As techniques are perfected, many farmers have shown a significant increase in yield.

Q6.11 After reading the information, how would you rate the following characteristics for hydroponics farming practice?

	Extremely negative	Somewhat negative	Neither positive nor negative	Somewhat positive	Extremely positive
	0 10 20 30 40 50 60 70 80 90 100				

Water usage ()	
Harvests ()	
Soil use ()	
Pest control use ()	
Land use ()	
Food safety ()	
Electricity use ()	
Fertilizer use ()	
Carbon footprint ()	

Q6.12 After reading the information, how would rate the following characteristics to best describe hydroponics grown produce?

Not at all important	Slightly important	Moderately important	Very important	Extremely important

0 10 20 30 40 50 60 70 80 90 100

Freshness ()	
Locally grown ()	
Better than greenhouse grown ()	
Quality ()	
Safety ()	
Natural ()	

Q6.13 After reading the information, how would you rate the price of produce grown with hydroponics practice compared to other farming practices?

	Much lower	Moderately lower	Slightly lower	About the same	Slightly higher
	0 10 20 30 40	50	60 70 80	90 100	
Greenhouse grown ()					
Conventional ()					
Organic ()					
Certified Naturally Grown ()					
Sustainably grown ()					

Q6.14 In the future, if you have the option, would you purchase a fruit or vegetable grown using hydroponics?

- ○ Definitely yes (1)
- ○ Probably yes (2)
- ○ Might or might not (3)
- ○ Probably not (4)
- ○ Definitely not (5)

Q6.15 Would you purchase the Georgia Grown Box (delivered to your door) with fruits or vegetables grown using hydroponics?

- ○ Definitely yes (1)
- ○ Probably yes (2)
- ○ Might or might not (3)
- ○ Probably not (4)
- ○ Definitely not (5)

Q6.16 What does locally grown mean to you?

- ○ 10 mile radius (1)
- ○ County level (2)
- ○ 50 mile radius (3)
- ○ State level (4)
- ○ Southern region (5)
- ○ Nationwide (the entire US) (6)
- ○ Other (please explain) (7) _____

Q6.17

Where do you PREFER to buy your produce from? (check all that apply)

- ☐ Farmer's Market (1)
- ☐ Local grocery store (2)
- ☐ Supermarket (3)
- ☐ Road side/ Farm stand (4)
- ☐ Other (please explain) (5) _____

Q6.18 How often do you buy produce? (check all that apply)

- ☐ Daily (1)
- ☐ 2-3 times a week (2)
- ☐ Once a week (3)
- ☐ Every other week (4)
- ☐ Once a month (5)

Q6.19 Rank these characteristics in the order from most important to least, starting with most important at the top.

_____ Certified naturally grown (1)
_____ Locally grown (2)
_____ Grown in the USA (3)
_____ Georgia Grown (4)

Q6.20 In this section, you are going to receive some information about the locally grown definition.

Please, read carefully the text provided below and press NEXT to answer few questions.

Though there is no strict definition for "locally grown," the **USDA generally defines a product**

as locally grown when the total distance that the product is transported is less than 400 miles from the origin of the product, or it is produced in the state in which it is consumes.

Q6.21 After reading USDA's definition, what does locally grown mean to you?

- ○ 10 mile radius (1)
- ○ County level (2)
- ○ 50 mile radius (3)
- ○ State level (4)
- ○ Southern region (5)
- ○ 400 miles radius (6)
- ○ Nationwide (the entire US) (7)

Q6.22 After reading USDA's definition, rank these characteristics in the order from most important to least, starting with most important at the top.

_____ Certified naturally grown (1)
_____ Locally grown (2)
_____ Grown in the USA (3)
_____ Georgia Grown (4)

End of Block: HYDROPONICS, LABEL - TREATMENT GROUP

Start of Block: GENERAL INFORMATION

Q7.1 What is the zip code where you live?

_____

Q7.2 How would you describe the area you live in?

- Rural (1)
- Suburban (2)
- Urban (3)

Q7.3 How many people living in your household are 18 years of age or older (including yourself)?

- 1 (1)
- 2 (2)
- 3 (3)
- 4 (4)
- 5 (5)
- 6 or more (6)

Q7.4 What is your education level?

- ○ Less than high school diploma (1)
- ○ High school diploma or GED (2)
- ○ Some college (3)
- ○ 2-year college degree (4)
- ○ 4-year college degree (5)
- ○ Master's degree (6)
- ○ Doctoral degree (7)
- ○ Professional degree (JD, MD) (8)

Q7.5 What was your annual household income in 2019?

▼ Less than $19,999 (1) ... $250,000 or more (25)

Q7.6 Please select one.

- ○ Male (1)
- ○ Female (2)

Q7.7 What is your race?

- White/Caucasian (1)
- African American (2)
- Hispanic (3)
- Asian (4)
- Native American (5)
- Pacific Islander (6)
- Other (7)

End of Block: GENERAL INFORMATION

Start of Block: END OF THE SURVEY

Q8.1 Please share any additional comment about this survey.

_____

End of Block: END OF THE SURVEY

Appendix 3: Regression analysis

Table 1: Regression of control group's willingness to pay with Q5.5 and demographics variables

SUMMARY OUTPUT

Regression Statistics

Multiple R	0.809156
R Square	0.654733
Adjusted R Squ	0.136833
Standard Error	0.802575
Observations	26

ANOVA

	df	*SS*	*MS*	*F*	*ignificance F*
Regression	15	12.21465	0.81431	1.264208	0.361101
Residual	10	6.441265	0.644127		
Total	25	18.65591			

	Coefficients	*tandard Erro*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 95.0%*	*Upper 95.0%*
Intercept	2.285872	0.766387	2.982661	0.013745	0.578256	3.993487	0.578256	3.993487
Water usage	-0.02399	0.019301	-1.24272	0.242321	-0.06699	0.019019	-0.06699	0.019019
Harvests	0.021569	0.020828	1.035561	0.3248	-0.02484	0.067977	-0.02484	0.067977
Soil use	0.015553	0.024667	0.630523	0.542492	-0.03941	0.070513	-0.03941	0.070513
Pest control use	-0.00192	0.033753	-0.05678	0.955836	-0.07712	0.07329	-0.07712	0.07329
Land use	0.015491	0.052323	0.29607	0.773234	-0.10109	0.132074	-0.10109	0.132074
Food safety	-0.02506	0.014366	-1.74436	0.111694	-0.05707	0.00695	-0.05707	0.00695
Electricity use	-0.00298	0.012608	-0.23607	0.818146	-0.03107	0.025116	-0.03107	0.025116
Fertilizer use	0.013641	0.022479	0.606845	0.557479	-0.03644	0.063726	-0.03644	0.063726
Carbon footprir	-0.01661	0.038672	-0.42952	0.676652	-0.10278	0.069556	-0.10278	0.069556
18-34	0.275841	0.946052	0.291571	0.776573	-1.83209	2.383777	-1.83209	2.383777
35-49	-0.05983	1.464995	-0.04084	0.968227	-3.32404	3.204381	-3.32404	3.204381
20 to 79K	0.858578	0.724669	1.184786	0.263495	-0.75608	2.47324	-0.75608	2.47324
80 to 140K	0.040482	0.766098	0.052842	0.958898	-1.66649	1.747455	-1.66649	1.747455
More than 140	0.65848	0.635756	1.035743	0.324719	-0.75807	2.075032	-0.75807	2.075032
female	0.385993	0.683858	0.564435	0.584896	-1.13774	1.909723	-1.13774	1.909723

Table 2: Regression of control group's willingness to pay with Q5.6 and demographics variables

Regression Statistics

Multiple R	0.665737
R Square	0.443205
Adjusted R	-0.07076
Standard Er	0.89389
Observatio	26

ANOVA

	df	*SS*	*MS*	*F*	*ignificance F*
Regression	12	8.268401	0.689033	0.862327	0.598111
Residual	13	10.38751	0.799039		
Total	25	18.65591			

	Coefficients	*tandard Erro*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 95.0%*	*Upper 95.0%*
Intercept	2.360015	0.850347	2.775357	0.015755	0.522953	4.197077	0.522953	4.197077
Freshness	-0.04608	0.0276	-1.66949	0.118909	-0.1057	0.013548	-0.1057	0.013548
Locally gro	-0.01561	0.016964	-0.92019	0.374233	-0.05226	0.021038	-0.05226	0.021038
Better than	0.015255	0.009499	1.6059	0.132303	-0.00527	0.035777	-0.00527	0.035777
Quality	0.063003	0.034555	1.823266	0.091332	-0.01165	0.137655	-0.01165	0.137655
Safety	-0.00867	0.01759	-0.49274	0.630411	-0.04667	0.029334	-0.04667	0.029334
Natural	-0.01404	0.012675	-1.10736	0.288206	-0.04142	0.013347	-0.04142	0.013347
18-34	-0.32317	0.983244	-0.32868	0.747631	-2.44734	1.800996	-2.44734	1.800996
35-49	0.066476	1.162876	0.057165	0.955283	-2.44577	2.578718	-2.44577	2.578718
20 to 79K	0.779674	0.614672	1.268439	0.226886	-0.54824	2.107591	-0.54824	2.107591
80 to 140K	0.596765	0.690414	0.864358	0.403059	-0.89478	2.088313	-0.89478	2.088313
More than	0.620536	0.633318	0.979818	0.34506	-0.74766	1.988736	-0.74766	1.988736
female	0.700258	0.434682	1.610965	0.13119	-0.23882	1.639331	-0.23882	1.639331

Table 3: Regression of control group's willingness to pay with Q4.12 and demographics variables

SUMMARY OUTPUT									
Regression Statistics									
Multiple R	0.816102								
R Square	0.666022								
Adjusted R	0.403611								
Standard Er	0.667118								
Observatio	26								
ANOVA									
	df	*SS*	*MS*	*F*	*ignificance F*				
Regression	11	12.42525	1.129569	2.538089	0.051904				
Residual	14	6.230657	0.445047						
Total	25	18.65591							
	Coefficients	*tandard Erro*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 95.0%*	*pper 95.0%*	
Intercept	3.857292	0.75581	5.10352	0.000161	2.236241	5.478344	2.236241	5.478344	
Recyclable	0.018697	0.006467	2.891179	0.011847	0.004827	0.032567	0.004827	0.032567	
Reusable	-0.02115	0.007712	-2.74233	0.015882	-0.03769	-0.00461	-0.03769	-0.00461	
Not plastic	0.013433	0.006226	2.157383	0.04884	7.84E-05	0.026787	7.84E-05	0.026787	
Not foil	0.00233	0.004825	0.482856	0.636661	-0.00802	0.012678	-0.00802	0.012678	
Biodegrada	-0.03057	0.008444	-3.61996	0.002786	-0.04868	-0.01246	-0.04868	-0.01246	
18-34	-0.50619	0.849503	-0.59587	0.560773	-2.3282	1.315809	-2.3282	1.315809	
35-49	-0.32664	0.913498	-0.35757	0.725996	-2.2859	1.632617	-2.2859	1.632617	
20 to 79K	1.086398	0.466056	2.331046	0.035212	0.086807	2.085989	0.086807	2.085989	
80 to 140K	0.270226	0.50236	0.537914	0.599084	-0.80723	1.347681	-0.80723	1.347681	
More than	0.224906	0.479973	0.468581	0.646582	-0.80453	1.254345	-0.80453	1.254345	
female	0.363496	0.332637	1.092771	0.292942	-0.34994	1.07693	-0.34994	1.07693	

Table 4: Regression of treatment group's willingness to pay with Q6.11 and demographics variables

SUMMARY OUTPUT									
Regression Statistics									
Multiple R	0.861169								
R Square	0.741612								
Adjusted R Sc	0.257135								
Standard Erro	0.470041								
Observations	24								
ANOVA									
	df	*SS*	*MS*	*F*	*ignificance F*				
Regression	15	5.073022	0.338201	1.530747	0.276729				
Residual	8	1.767511	0.220939						
Total	23	6.840533							
	Coefficients	*tandard Erro*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 95.0%*	*pper 95.0%*	
Intercept	2.752444	0.393227	6.999635	0.000113	1.845661	3.659227	1.845661	3.659227	
Water usage	-0.01053	0.007405	-1.42235	0.192721	-0.02761	0.006543	-0.02761	0.006543	
Harvests	0.037166	0.011641	3.192705	0.012751	0.010322	0.06401	0.010322	0.06401	
Soil use	-0.03138	0.01792	-1.7511	0.118036	-0.0727	0.009944	-0.0727	0.009944	
Pest control	-0.03683	0.018102	-2.03436	0.07634	-0.07857	0.004917	-0.07857	0.004917	
Land use	0.003092	0.011116	0.278169	0.787937	-0.02254	0.028725	-0.02254	0.028725	
Food safety	0.002765	0.010581	0.26129	0.800469	-0.02163	0.027164	-0.02163	0.027164	
Electricity us	0.009478	0.008835	1.072743	0.314677	-0.0109	0.029853	-0.0109	0.029853	
Fertilizer use	0.033043	0.019947	1.656562	0.136199	-0.01295	0.07904	-0.01295	0.07904	
Carbon footp	-0.00533	0.009034	-0.59028	0.571298	-0.02617	0.0155	-0.02617	0.0155	
18-34	-0.13496	0.471868	-0.28602	0.782129	-1.22309	0.953166	-1.22309	0.953166	
35-49	0.157288	0.586908	0.267995	0.795483	-1.19612	1.5107	-1.19612	1.5107	
20-80	0.781438	0.53156	1.470082	0.17974	-0.44434	2.007218	-0.44434	2.007218	
80-140	-0.38065	0.401605	-0.94782	0.370971	-1.30675	0.545456	-1.30675	0.545456	
140+	0.697902	0.502794	1.388048	0.202554	-0.46154	1.857348	-0.46154	1.857348	
Female	-0.30998	0.343193	-0.90322	0.392794	-1.10138	0.481427	-1.10138	0.481427	

Table 5: Regression of treatment group's willingness to pay with Q6.12 and demographics variables

SUMMARY OUTPUT									
Regression Statistics									
Multiple R	0.867039								
R Square	0.751757								
Adjusted R	0.480947								
Standard Er	0.392905								
Observatio	24								
ANOVA									
	df	*SS*	*MS*	*F*	*ignificance F*				
Regression	12	5.14242	0.428535	2.775953	0.050667				
Residual	11	1.698114	0.154374						
Total	23	6.840533							
	Coefficients	*tandard Erro*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 95.0%*	*pper 95.0%*	
Intercept	2.41092	0.294642	8.182543	5.27E-06	1.762418	3.059423	1.762418	3.059423	
Freshness	0.017024	0.012073	1.410096	0.186156	-0.00955	0.043596	-0.00955	0.043596	
Locally gro	-0.02521	0.008224	-3.06494	0.010757	-0.04331	-0.00711	-0.04331	-0.00711	
Better than	0.007521	0.007343	1.024211	0.327732	-0.00864	0.023684	-0.00864	0.023684	
Quality	0.010133	0.015595	0.649723	0.529205	-0.02419	0.044458	-0.02419	0.044458	
Safety	-0.01282	0.005525	-2.31987	0.040587	-0.02498	-0.00066	-0.02498	-0.00066	
Natural	-0.0003	0.005516	-0.05486	0.957234	-0.01244	0.011837	-0.01244	0.011837	
18-34	0.310526	0.302372	1.026966	0.32649	-0.35499	0.976043	-0.35499	0.976043	
35-49	0.756311	0.399762	1.891902	0.085108	-0.12356	1.636182	-0.12356	1.636182	
20-80	-0.1721	0.343044	-0.50168	0.625779	-0.92714	0.582936	-0.92714	0.582936	
80-140	-0.4694	0.316564	-1.4828	0.166203	-1.16615	0.227352	-1.16615	0.227352	
140+	0.608441	0.477597	1.273963	0.228935	-0.44274	1.659624	-0.44274	1.659624	
Female	0.126755	0.307311	0.412465	0.687923	-0.54963	0.803143	-0.54963	0.803143	

Table 6: Regression of treatment group's willingness to pay with Q4.12 and demographics variables

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.634013
R Square	0.401973
Adjusted R	-0.05805
Standard Ei	0.560962
Observatio	24

ANOVA

	df	*SS*	*MS*	*F*	*ignificance F*
Regression	10	2.74971	0.274971	0.873815	0.57729
Residual	13	4.090823	0.314679		
Total	23	6.840533			

	Coefficients	*andard Erro*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 95.0%*	*pper 95.0%*
Intercept	2.547467	0.525273	4.849792	0.000317	1.412683	3.682251	1.412683	3.682251
Recyclable	-0.00097	0.007452	-0.13041	0.898238	-0.01707	0.015128	-0.01707	0.015128
Reusable	0.000649	0.007292	0.088957	0.930472	-0.0151	0.016401	-0.0151	0.016401
Not plastic	-0.01292	0.009973	-1.29568	0.217619	-0.03447	0.008623	-0.03447	0.008623
Biodegrada	0.011587	0.011853	0.97756	0.346134	-0.01402	0.037194	-0.01402	0.037194
18-34	0.169849	0.404602	0.419793	0.681492	-0.70424	1.043937	-0.70424	1.043937
35-49	0.674153	0.589421	1.143755	0.27335	-0.59921	1.94752	-0.59921	1.94752
20-80	0.416948	0.500321	0.833361	0.41969	-0.66393	1.497825	-0.66393	1.497825
80-140	-0.65739	0.420467	-1.56347	0.141949	-1.56575	0.250975	-1.56575	0.250975
140+	0.692476	0.580583	1.192724	0.254293	-0.5618	1.946749	-0.5618	1.946749
Female	-0.37615	0.403941	-0.93121	0.368715	-1.24882	0.496506	-1.24882	0.496506