EXAMINING CONSUMER PREFERENCES WITHIN THE AVOCADO INDUSTRY: DOES POINT OF ORIGIN MATTER?

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ABSTRACT

The avocado market in the United States has grown immensely over the past two decades, and numerous foreign regions import avocados into the United States in order to keep up with domestic consumer demand. This study was conducted to primarily determine if point of origin is a factor consumers take into consideration when purchasing avocados. As avocado consumption has dramatically increased over the past twenty years, trying to understand consumer preferences within the avocado industry was also an important aspect of this study. A survey was conducted and gathered 290 useable responses. The majority of the respondents resided in California, however the majority of US states were represented within the data. Results suggest that consumers find point of origin to have little importance in their avocado purchasing decision. Respondents considered ripeness, visual appearance, and low prices to be the most important factors when purchasing avocados. Avocado consumers are most willing to purchase avocados that fall within the $1.20-$1.49 range. Consumers were also willing to pay $0.20 more for an avocado grown in California.

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CHAPTER 1

INTRODUCTION

According to the United States Department of Agriculture's (USDA) 2012 data, California has continued to lead the nation in terms of state aggregate crop value, producing just shy of $43 billion worth of crops (Parker, 2014). California's economic success can be attributed to the variability in weather and soil types throughout the state, which allow for micro-climatic conditions. These microclimates support a diversity of specialty crops, giving California the advantage over other states in ability to grow high valued crops. One such specialty crop is the avocado. With a large domestic demand for the fruit, the California avocado market is valued at $325 million, making it appealing for foreign imports to try to attain a portion of that share (United States Department of Agriculture, 2014). As a result of the fruit's growing popularity, per capita avocado consumption has increased 3.4 pounds over last twenty years (Agricultural Marketing Resource Center, 2013).

Avocados can be consumed in many forms, ranging from eating them plain, mashed into guacamole, and have even been known to be placed in smoothies and desserts. Fast-food chains such as Carl's Jr., Chipotle, Subway, and El Pollo Loco have now incorporated the avocado into many of their food products, greatly contributing to avocado demand as well. Furthermore, as a statement from the American Heart Association claims, avocados have "mono and polyunsaturated fats, [and] when consumed in moderation and eaten in place of saturated or Trans fats, can help reduce blood cholesterol levels and decrease risk for heart disease"

(California Avocado Commission, 2014). This example along with many other statements from health institutions suggest the health benefits associated with this fruit, and similarly contribute to the overall increasing demand for avocados (Chaker, 2012). Avocados are consumed year-round in the United States; however, the California harvest season lasts only the eight months from March through October (Calavo Growers, 2013). California cannot supply fruit year-round, thus, to fulfill the consumer's demand for a year round supply, the industry relies on imports.

Mexico, Peru, Chile, and the Dominican Republic are the four major countries that import avocados into the United States, providing a year-round supply for consumers when the domestic California avocado industry is out of season (United States Department of Agriculture, 2014). With cheap labor, looser environmental regulations, and large acreage planted in avocados, these countries seemingly are able to undercut the domestic fruit prices, providing consumers with cheaper priced avocados. These countries enable consumers to enjoy year round consumption, which keeps avocados on the store shelf, reminding consumers to purchase them and not allowing the consumer to forget about the commodity when it is not in season. The lower pricing aspect is not an issue, nor does it hurt the domestic avocado market; that is, until large quantities of imports continue to come through the industry when California is in the peak of their harvest season. When this issue does occur, classic supply and demand models prove that when supply is high, prices will also be low. Therefore, the influx of imports does not give any country, domestic or foreign, a reasonable market price for their commodity. Furthermore, there is no regulation on the amount or time of the year that foreign countries can import these products. As stated by the office of the United States Trade Representative, "the United States, Canada, and Mexico (NAFTA) entered into a trade agreement…[causing] all remaining duties and quantitative restrictions [to be] eliminated" (Unites States Trade Representative, 2014). This

means that if a store or food broker is willing to buy a commodity, say avocados, these countries can legally import as much as they want with protection under NAFTA.

As a result of competition for consumer dollars, each country has formed their own marketing campaign in order to reach the consumer and convince them that their country has a superior product. California adopted the *California Avocado Commission* as its main marketing campaign, Peru has *Avocados from Peru,* and Mexico operates under *Avocados de Mexico.* All of these campaigns have had successes, provide support to growers, and represent growers in any legal actions that may occur. In some instances, the avocado marketing associations have filed lawsuits against one another. In 2007 when Mexico was first allowed into the lucrative California avocado market, they filed a lawsuit against the California Avocado Commission (CAC) on the basis of slander (Fleming, 2007). They claimed that the CAC had said that "Mexican farmers don't use advanced pesticides like California does," and "Mexican avocados cannot pass California health and safety standards" (Fleming, 2007). This is a significant example of how each country wants a share in the U.S. Avocado market, ideally the California market. These campaigns spend millions of dollars to convince the consumer their product is better. For the 2012-2013 fiscal budget, the CAC allocated nearly ten million dollars to their marketing campaign (Aymami, 2012). Although millions of dollars are spent to generate consumer interest, it is not certain whether there is a connection between marketing dollars spent and actual consumer purchasing behavior. It is thought that consumers pay attention to what country their avocados come from; however, this hypothesis has not been tested. If proven false, then the avocado marketing campaigns should consider rethinking their marketing strategies in order to more effectively inform their target consumers.

Problem Statement

Are the marketing dollars being spent to generate consumer interest of avocados from a certain country or region actually playing a role in the purchasing behavior of the consumer?

Hypotheses

The majority of avocado consumers pay attention to point of origin when purchasing an avocado in uncut fruit form.

Avocado consumers do not pay attention to the point of origin when purchasing a value-added avocado item.

Consumers are unaware that different countries/regions have different quality of avocados.

Objectives

1) To determine if point of origin is a factor when purchasing avocados.
2) To evaluate if avocado consumers prefer a specific point of origin for their avocados.
3) To identify differences in the interest of the point of origin of avocados based the form and/or value-added nature of the avocado at time of purchase.
4) To examine if point of origin affects willingness to pay for avocados.
5) To test if consumers of California residency are different than all other US states, for objectives 1-4.

Significance of the Study

As of the 2011 calendar year, California produced just shy of 400 million pounds of avocados (Agricultural Marketing Resource Center, 2013). It is estimated that there are currently 5,000 avocado growers in California who account for 52,000 productive acres (California Avocado Commission, 2014). Combined, these growers spend nearly $246 million annually on production costs, which due to the ripple effect creates an economic impact of $400 million (Tootelian, 2010). Furthermore, "more than 3,500 jobs are created as a result of avocado grower spending" (Tootelian, 2010). Although the California avocado industry and its economic impact may seem impressive, it only accounts for about a third of the global avocado industry.

Mexico, Peru, the Dominican Republic, and Chile are the top competitors to the California avocado industry and combined these four countries imported just over one billion pounds of avocados on record for the 2012 fiscal year (United States Department of Agriculture, 2014). Mexico single-handedly has around 185,000 productive acres planted in Hass avocados, which mirrors the size of the global market share that Mexico currently holds (Hofshi, 2001). One of the primary drivers of the substantial import volumes is the considerable increase in per capita avocado consumption in the United States over the past twenty years. Per capita consumption increased from a low of 1.1 pounds per person in 1989, to an estimated 4.5 pounds per person in 2011, and is thought to continually be on the rise for the future (Agricultural Marketing Resource Center, 2013). With an industry valued at roughly $1.5 billion, excluding the additional value of value-added avocado products, it is imperative to see if the marketing dollars being spent are actually collected back in the form of increased revenues, or if they simply are being unintentionally wasted. Growers, marketing boards, and consumers themselves

will all benefit from the results of this study, and will be able to apply it in their business or purchasing decisions.

CHAPTER 2

REVIEW OF THE LITERATURE

Introduction

This review of literature will aim to establish a reference for existing data, avocado studies, and other literature that is applicable to consumer preferences within the avocado industry. It begins with the quality that domestic and imported avocados have when entering a grocery store for consumer consumption. It then moves into country of origin and the requirements that imported foods must undergo before being sold within the United States. Consumer insights and ideas that are associated with foreign trade are discussed, and the section concludes with consumer's response to various marketing techniques.

Quality of Avocados

The avocado fruit is unique in its character, as it is one of few fruits that do not ripen on the tree, but rather ripen post-harvest (Gamble et al., 2010). From an industry perspective, this works (1) in favor of the farmer, as they can stagger harvest depending on market conditions, and (2) allows the marketers of packing houses the ability to move inventory before new supply is needed (Gamble et al., 2010). Once inventory is received from the growers, it is not uncommon for a packing house to store the fruit for up to four weeks, in a temperature and atmospheric controlled environment (Gamble et al., 2010). As soon as market conditions are ideal, packers replicate nature and release ethylene gas, which triggers the beginning of the ripening process

(Adkins et al., 2005). While this practice is used industry wide, there are limitations in getting a perfectly ripened, undamaged avocado from a tree to consumers' hand.

Avocados picked before maturity "have been reported as having poor texture (rubbery, unevenly ripe, stringy) and flavor (watery, green, bitter)" (Gamble et al., 2010). To avoid receiving immature avocados from their suppliers, packing houses set their own quality standards for the growers. Mature avocados must meet a proper oil content requirement (Gamble et al., 2010). However, oil content is "time-consuming and difficult" to measure, therefore a more applicable measurement was introduced involving dry matter (DM) percentage (Gamble et al., 2010). DM of around 20% is marginally mature, while a DM of around 40% is extremely mature (Gamble et al., 2010). While it may seem that a DM of 30% is a happy medium between two extremes, many countries "adopt the Californian minimum dry matter standard of 20.8% for 'Hass'" (Gamble et al., 2010). The acceptable DM percentage is on the lower side, though "California demonstrated that eating quality of avocados improve over the harvest period" which formulated the idea that as the harvest season goes on, DM percentage would increase, hence increasing overall flavor, too. This is beneficial for the grower since it allows for some variability in when the fruit should be harvested. Additionally, if the grower staggers harvest, then the packing house is not oversupplied with the harvested the crop all at once, providing favorable conditions for the packer, since logistically moving a large supply all at once is not ideal, and contributes to poor fruit quality if the supply is not moved quickly enough. Oversupply in market conditions may force packers to store the fruit longer than the four-week threshold. Storage of fruit between the four to six week period, even among controlled atmospheric conditions, results in "diffuse flesh discoloration ('flesh greying', or 'internal chilling injury'), but other [damage] include[s] vascular browning, vascular leaching (browning of flesh around

the vascular bundles), stringy vascular tissue (thickening and separation of the vascular strands), and outer flesh blackening (blackening of the outmost layer of the mesocarp)" (Woolf et al., 2005). In addition to the undesirable effects of prolonged storage, the essential gas, ethylene, comes with unwelcome side effects.

High concentrations of ethylene increase the probability of diffuse discoloration (Adkins et al., 2005), which provoked research into methods of prevention of this condition. Specifically, the research focused on incorporating 1-methylcyclopropene (1-MCP) before and after ethylene application (Adkins et al., 2005). Successful experimentation showed that application of 1-MCP reduces ethylene concentration and protects the avocados from diffuse discoloration (Adkins et al., 2005). Furthermore, 1-MCP delays ripening, which benefits countries that have not adopted the "ripe for tonight" (consumption within 1-3 days) concept, as it provides the ability for sale at specific stages of ripeness (Adkins et al., 2005). Although packing houses have developed techniques to control the ripening process and avocado quality standards, sometimes undesirable fruit quality is out of their control.

The food chain is an extensive process from harvest to consumer consumption and imperfections combined with improper transportation may be to blame for bruised fruit on store shelves. Consumers need be careful too, as they are sometimes the cause of unwelcome avocado conditions. When the avocado becomes ripe, the flesh is susceptible to bruising. Consumers can be to blame for inner flesh bruising, since squeezing the fruit during selection is common, and often more than one piece of fruit is squeezed during the selection process (Gamble et al., 2010). Yet, it is possible that mishandling somewhere along the food chain occurred as well, and that proper precautions were not given during transport, though most physical bruising is the result of

in store incidences and leaves consumers disheartened when they open the fruit, and to their frustration, the flesh is brown or inedible (Gamble et al., 2010).

Country of Origin

Technological and innovative progressions have connected the world in more ways than ever before. Transportation, regardless of what method, has connected not only continents but people as well. Transportation has also allowed for an increase in commodity trading between countries and, thus, given the consumer access to fruits and vegetables year round, even if the product is out of season domestically. Though imports of commodities from global firms are permitted into countries such as the United States, the process does come with regulation.

An increase in global firms can be accredited with the implementation of Country of Origin Labeling (COOL) as it allows these companies to meet requirements for compete ting in an international market (Strašek, 2010). Imported food can effortlessly be found at any chain grocery store, though the Food, Conservation, and Energy Act of 2008 mandates that certain agricultural commodities such as beef, pork, lamb, fish and shellfish, fruits and vegetables, and peanuts sold in stores be marked with COOL (Jones et al., 2009). For the consumer, COOL labeling is often preferred, as it often associates product, to product quality (Jones et al., 2009). However, contrary to consumer group preference, those involved in the supply chain did not welcome the idea of COOL, since this amplifies the cost of production for these commodities (Kuchler et al., 2012; Jones et al., 2009). The costs that the producers and processors obtain from COOL include the cost associated with the label, separating the products, and tracking products throughout the supply chain (Jones et al., 2009). Yet, although initial production costs may increase, if consumers are eager to pay a premium for certain countries' produce, producers *willingly* comply by the regulations in order to receive the premium pay (Jones et al., 2009).

Lucky for the domestic producer, there is increasing evidence that suggests consumers prefer domestic products as opposed to foreign commodities, demonstrating that COOL affects consumer purchasing behavior (Strašek, 2010). COOL has given consumers the capability to make shopping decisions by providing more information.

Consumers are currently more attentive to the overall nutrition, health, and quality of the food they are consuming than ever before (Strašek, 2010). For example, if the consumer is very "green" and is against carbon emissions, COOL can help them decide between domestic and foreign commodities. Distinction between foreign and domestic commodities is referred to as the country-of-origin effect, where the consumer distinguishes between products grown domestically and those of foreign trade (Schnettler et al., 2008). The country-of-origin effect is a result of the image and perception the consumer has about the quality of foreign commodities, which is based on current and previous experiences (Schnettler et al., 2008).

Consumer Behavior

Consumers are the main focus of business to consumer businesses. No matter the industry, in order to remain in business vendors must convince their customers to spend money on a certain product or service. In many instances, in order to capture consumer dollars, commodity marketing campaigns are used to capture the attention of consumers. Marketing campaign research is focused on certain areas such as understanding consumer willingness to buy local, fresh produce over imported produce, private labels versus national brands, and organic produce, which has seen 20% annual retail growth since 1990 (Rainbolt et al., 2012).

A discrepancy between food retailers' and consumers' understanding of what it means to be "local" is a common occurrence (Bosworth et al., 2013). In food retail, there are many definitions of what the term "local" consists of, ranging from local being within 100 miles of the

point of sale, within a day's drive of the point of sale, in the same state, or even from an adjoining state (Bosworth et al., 2013). Interestingly, a survey of consumers concluded that 50% of those surveyed recognized that "local" meant a product had to be produced within 100 miles of the point of sale, and only 37% thought "local" justified within the same state (Bosworth et al., 2013). There is not actual definition of local food, however it most commonly ranges from 30 to 150 miles, with an average of 100 miles often adopted (Cranfield et al., 2012). Local produce can come in many forms, and is not just limited to brick and mortar storefronts. Local produce can consist of farmers markets, community-supported agricultural programs, "you-pick" systems, and even roadside vendors (Cranfield et al., 2012). Habitually, consumer's willingness to pay for produce has been driven by price, quality, convenience, and brand familiarity (Rainbolt et al., 2012). Yet, one study found that consumers are increasingly willing to pay more for local produce, since local produce has attributes such as food safety, traceability, certification, and brand, which all reassure consumer's perception of value gained (Nganje et al., 2011).

As the non-transparency within the supply chain becomes seemingly more apparent due to the further distances between place of production and place of consumption, consumers are beginning to question food production practices (Feldmann and Hamm, 2014). It is believed that many consumers have redirected their consumption preferences toward local food, since local food has not traveled far, and is labeled directly by the producer (Feldmann and Hamm, 2014). These insights on consumer behavior align with a study that took place in the UK. A study conducted in the UK researched consumer perception and willingness to pay for imported foods versus their domestic, local counterparts. Of those in the UK that participated, results showed that local foods are thought to be less convenient/readily available and more expensive (Arnoult

et al., 2010). National foods (foods that were grown in the UK) were thought to be cheaper and more accessible than local foods and seen as a means to support the economy (Arnoult et al., 2010). Lastly, imported foods were considered less fresh, due to the transport and storage that is necessary with imported food (Arnoult et al., 2010). Furthermore, there was indication that the decisions to purchase or reject local foods was based on dynamics such as the price relative to imported food and any ethical/environmental associations of that food (e.g., GMO, Organic) (Arnoult et al., 2010). Willingness to pay for local lamb and strawberries was studied and the results showed that willingness to pay for local lamb was high at £1.75 per kilo compared to only £1.06 per kilo for imported lamb (Arnoult et al., 2010). There was also a high willingness to pay for local strawberries at £1.94 per kilo versus £1.11 per kilo for imported strawberries (Arnoult et al., 2010). The study confirmed two assumptions. First, that local produce is valued more over imported produce, and second, that produce in-season is preferred to produce out-of-season (Arnoult et al., 2010). From the Arnoult et al. (2010) study, it can be theorized that consumers prefer local produce, and select imported goods as a last resort measure. By interpreting the results of the study, when consumers are given two options, say that of local strawberries in-season and imported strawberries, consumers are willing to pay more to purchase the local strawberries due to the freshness and taste preferences associated with them (Arnoult et al., 2010). This study is only one of many that point to consumer preference for local produce.

A study by Nganje et al. (2011) provides insights into the change in consumer willingness to pay and suggests that consumers are willing to pay $0.18 more per pound for spinach marked with “Arizona Grown” labels compared to unmarked spinach (Nganje et al., 2011). These results shed light on consumer behavior and the association of local grown food to food safety within the supply chain (Nganje et al., 2011). Furthermore, consumers in this

instance responded with a higher willingness to pay for "Arizona Grown" over a label that read "USDA-Certified locally grown" (Nganje et al., 2011). In a different study conducted in the UK, researchers looked at consumers who purchase produce. It was found that those surveyed associated local foods as being of higher quality, mainly in terms of freshness since the produce did not have to travel large distances (Chambers et al., 2007). In addition, local foods were also considered to taste better, which can be linked to seasonality and proper maturation at time of harvest of local produce (Chambers et al., 2007). In a similar study, it was found that consumer's lifestyle affects their purchasing behaviors as well (Cranfield et al., 2012). Those who partake in growing their own gardens and prepare more food at home have a higher chance of buying local food (Cranfield et al., 2012). With all signs pointing toward consumer demand for local produce, one specific reason why retail chains have not converted to all local produce is that the infrastructure is currently not present. The supply chain for local produce is not entirely efficient, and is still in the development stages (Cranfield et al., 2012). In order to meet the increasing demand of consumers for local foods, retail stores need to adopt better supply chain practices.

Research suggests that avocados are an elastic good (Russo et al., 2008). Elasticity with respect to avocados suggests that consumers will substitute avocados with the purchase of another good, relative to a price increase. It is estimated that avocado price flexibility of demand is -1.3 (Alston et al., 2007). This -1.3 value means that for every 30% increase in the price of avocados, avocado consumption falls by 40%. With average cost Hass avocados that are sold in retail stores being $1.30 per unit, a 30% price increase is quite significant (Li et al., 2005). The price of $1.30 per unit represents a retail-farm price spread of $1.30 to $0.73, respectively (Li et al., 2005).

Although the average retail price of avocados may be high, consumers benefit greatly from the trade liberalization of countries like Chile and Mexico, since prices compared to the amount these countries import, are lower (Li et al., 2005). Compared to California avocados, Chilean and Mexican avocados were shown to be $0.17 less per pound (Li et al., 2005). This price difference is largely due to the price of imported avocados being, on average, lower than the additional cost for California shipping-point avocados (Li et al., 2005). Thus, retailers were able to acquire avocados cheaper from importing countries, and pass that savings on to the consumer (Li et al., 2005). Demand for avocados are highest in summer months, May through September, with June capturing the highest demand (Li et al., 2005). As a result, retailers show patterns that during the high demand summer months retail prices or retail markups are consistently lower, yet profitability of sales is higher (Li et al., 2005).

Avocado volume sold is significantly more responsive to daily price decreases, compared to daily price increases (Hass Avocado Board, 2013). When price decreases, consumers increase purchases of avocados, however when price increases, consumers do not reduce purchases to the same extent (Hass Avocado Board, 2013). Larger avocados have a higher sensitivity to daily price changes, since larger avocados are usually priced higher than smaller avocados, and the overall dollar increase or decrease is more apparent to the consumer (Hass Avocado Board, 2013). In an experiment conducted with a base price of $2.00 per large avocado, a -20% decrease in large avocado price resulted in dollar sales gain of $234 for the retail store initiating the price reduction (Hass Avocado Board, 2013). However, a baseline of $1.00 per small avocado with the same -20% decrease in price only yielded $11 gain in sales (Hass Avocado Board, 2013). Consumers react more to large avocado price decreases compared to small avocado price decreases. As a result of this data, the study looked further into this trend.

With respect to large avocados, with a 20% decrease in the price, consumers purchased 34.9% more than the base price of the study (Hass Avocado Board, 2013). However, consumers did not respond as drastically with a 20% increase of the price, as they only reduced consumption by 21.7% (Hass Avocado Board, 2013). When looking at smaller avocados, a 20% decrease from the base price provided a 29.6% increase in consumption, whereas a 20% increase in the price only decreased consumption by 19.1% (Hass Avocado Board, 2013). Both large and small avocados vary in pricing, ranging from $0.10 to $2.00 and over. For large avocados, 27% of the all commodity value (AVC) weighted distribution was sold between $0 and $0.99 (Hass Avocado Board, 2013). Furthermore, 16% of the AVC weighted distribution was sold in the price categories of $1.20-$1.29 and $1.40-$1.49 (Hass Avocado Board, 2013). Small avocados show a 25% AVC weighted distribution whose prices fall between $0.90- $0.99 (Hass Avocado Board, 2013). Based on these two price categories for large and small avocados, it appears most consumers prefer to buy avocados for less than $1, which is beneficial information to stores when running their promotions.

Foreign Trade

Providing produce for the consumer year-round is made possible by foreign firms. Tropical climates near the equator allow producers to grow certain commodities year round, as these regions are not subject to seasonality. While domestic consumers may be satisfied with imported fruits and vegetables in the midst of a frigid winter, this delight comes with a price. Agricultural trade is associated with extensive environmental issues, commodity reputation, and the spread of pests and disease (Svanes and Aronsson, 2013).

Though few countries have studied the agricultural impact on the environment of their home country, the environmental effects of trade hold true regardless of the country. Tracking

the emissions of agricultural commodities from early production up until consumer consumption has brought to light some surprising facts. Aggregate greenhouse gas emissions of the entire European Union (EU) food supply chain embodies nearly 31% of total climate emissions for the EU (Svanes and Aronsson, 2013). While this percentage may seem high, it is necessary to realize that the commodities of animal origin usually carry the majority of EU greenhouse gas emissions (Svanes and Aronsson, 2013). Though, planted commodities have their impact on the environment as well. Specifically, vegetable commodities derived from plants grown in heated greenhouses, transported by air, and grown using techniques that provide low production per acre contribute to overall EU emissions (Svanes and Aronsson, 2013). Fruit crops have always been associated with lower emissions compared to their vegetable and meat counterparts, however there are a few popular fruits that are large environmental polluters (Svanes and Aronsson, 2013). Bananas are one of the most consumed fruits in the world and the number one consumed fruit in Norway and Sweden (Svanes and Aronsson, 2013). Though not frequently acknowledged, bananas have been associated with biodiversity loss, huge water consumption, and pollution of air, water, and soil (Svanes and Aronsson, 2013). Since the main banana producers for the EU are located in Latin America, there is a considerable distance the commodity must travel from the farm to reach the paying consumer (Svanes and Aronsson, 2013). With the expansive distance traveled by the fruit, fossil fuels are emitted into the atmosphere via exhaust from combustion in the transport method. Bananas, similar to all other fruit commodities, require numerous steps from the initial planting all the way to harvest, and there is pollution occurring at every point along the way.

In order to grow fruit to meet consumer specifications, fertilizers are a common application during production. However if too much is applied, the excess fertilizer can enter

bodies of water in the form of nitrates which harm aquatic life (Svanes and Aronsson, 2013). During the maturation period, bananas are covered in plastic to shield them from harmful insects during growth (Svanes and Aronsson, 2013). While producers aim to reuse the plastic wraps, after about three uses they are no longer efficient, and are recycled at the end of their usable life (Svanes and Aronsson, 2013). This use of plastic adds to the overall aggregate pollution as well (Svanes and Aronsson, 2013). Once harvested, the bananas are washed in a diluted chlorine solution that can be reused for up to six days (Svanes and Aronsson, 2013). Electricity is used to operate the packaging plant, and diesel consumed by the trucks that ship the bananas after packaging (Svanes and Aronsson, 2013). By the time the banana is finally consumed, 2.9 kg (6.4 lbs.) of CO_2 has been emitted into the atmosphere for every kilogram (2.2 lbs.) of bananas produced (Svanes and Aronsson, 2013). The emission and pollution that is associated with bananas can be seen in many other fruits as well.

When looking at global production agriculture, imports into any region pose environmental harm in the form of greenhouse gas emissions from transportation machinery. Although if fruit is grown and consumed domestically, the emission impact would be less due to lesser transportation pollution compared to its foreign counterpart (Svanes and Aronsson, 2013). Yet, some foreign countries are closer to the commodity destination area, like Mexico is to the U.S., which theoretically provides imports at lesser environmental harm than Latin America does to the EU. Though having such ease of trade like Mexico does with the U.S. doesn't always pose well for both countries.

The North American Free Trade Agreement (NAFTA) was signed by the U.S., Mexico, and Canada and first took effect in January 1994 (Nica et al., 2006). As an outcome of this agreement, research has shown that the U.S. is the most important trade partner for Mexico, and

that Mexico's economy relies heavily on the U.S. economy (Nica et al., 2006). Interestingly, data analyzed shows an urgency to import from Mexico to the U.S. prior to 1992, which can be interpreted as Mexico anticipating the passing of NAFTA and trying to attain market share in the U.S. (Nica et al., 2006). Consumers still seek information of concerns that arise from food scares and contamination issues that derive from food safety and quality (Thomsen and Hansesn, 2014). Thus, foreign imports have that stigma about them (Jouanjean, 2012). In an effort to ease the mind of consumers, the private sector aimed to develop "codes of practice" which set quality standards and regulations that foreign countries must abide by if they intend to do business with domestic firms (Jouanjean, 2012). The reputation of foreign countries is heavily persuaded if that country abides by the regulations set by the private sector. In one instance with a Peruvian canned asparagus producer, a food safety breach that took place on a few products (cans) ruined the entire export market as a whole (Jouanjean, 2012). As a result, European consumers were left with a disapproving view of Peruvian asparagus, and the market never recovered from this one instance (Jouanjean, 2012). This shows the concern the consumers have with foreign imports, and how one quality mistake can ruin a country's reputation, and even the industry reputation as a whole. Foreign imports not only cause skepticism in the consumer's mind, but also have the potential to introduce foreign pest and diseases into the importing country.

While consumers may enjoy foreign imports that provide fruit year-round, producers are often weary. Mexico was not allowed to import avocados into the continuous United States from 1914 until 1997, due to an abundance of "avocado-specific" pests and fruit flies (Peterson and Orden, 2008). The spread of pests and diseases is a concerning issue and can cause economic harm to domestic producers in the form of lost crops or pest prevention. If certain fruit flies from Mexico are found in the U.S. they are taken extremely serious, and can result in "local

quarantine and eradication programs" (Peterson and Orden, 2008). The costs to combat these pests can reach up to $2,322 per acre and could result in a 20% production loss of domestic grown avocados, if these pests get out of a controllable population size (Peterson and Orden, 2008). Pests can be transported on the fruit themselves, or on a branch/leaf that may have made it into the bin used for harvest. The USDA requires imports to be quarantined and fumigated; however, these precautions are not fool proof (Western Pest, 2014). With such high value crops at risk of contamination from foreign pests and disease, domestic producers are skeptical of the efficiency of pest precautions and preventions taken.

Consumer Response to Marketing Techniques

Businesses seek to provide services or commodities to a specific group, and in return capture revenues. There are various methods used to grab consumer attention and to convince the consumer that "business a" has a superior product than "business b." Marketing is an incorporated strategy used to grab consumer attention and society is bombarded with marketing and advertisement daily. Estimates suggest a person living in a large city sees 5,000 advertising messages every day (Story, 2007). In agriculture, many commodity marketing programs such as the "got milk" and "wonderful pistachios" campaigns have been successful in increasing product revenues (Blua, 2011). Through marketing and other strategic methods, consumers are being persuaded to buy a certain food product, whether they are foreign or domestic.

The California avocado industry, like many other commodity markets, has aimed to establish consumer loyalty. With NAFTA being signed in 1992, California needed to establish a market share before foreign produce hit the market shelves. In 1993, the California avocado industry spent roughly 6% of their total annual revenues on advertising (Carman and Green, 1993). This spending increased consumer demand for California avocados, and for every

marketing dollar spent, an average of $0.82 was returned (Carman and Green, 1993). Although supply from foreign markets greatly increased, a huge marketing success has been seen in the avocado industry. With the influx of annual supply from 406 million pounds in 1996 to 1.056 billion pounds in 2008, the industry, that according to the past demand models was supposed to fail, is now flourishing (Carman and Sexton, 2011). A price disaster was avoided in this situation by obtaining legislation that would make importers comply with mandatory domestic marketing programs, thus eliminating any import "free riders" that would not have to comply with domestic marketing orders (Carman and Sexton, 2011). This legislation prevented financial disaster, both for the US growers and shippers, and stabilized the volatility of the supply increase (Carman and Sexton, 2011).

In addition to the legislation approval, the California Avocado Commission's marketing team targeted commodity research, which allowed insight as to what matters to consumers. These techniques focused on the growing consumer interest of the health and nutritional benefits in avocados, and aligned with governmental policies promoting fruit and vegetable consumption in order to fight obesity and improve overall health (Carman and Sexton, 2011). The commodity research results aided in acquiring recognition of the avocado in the USDA diet recommendations along with attaining lifelong partnerships with health promoting organizations (Carman and Sexton, 2011). This marketing success allowed for the increase of imports as well. In 1989, imports into the U.S. only accounted for 3% of the market share; in 2010 imports made up 87.7% of the market (Carman and Sexton, 2011). The marketing victory prevented financial disaster within the U.S. avocado industry, as it prevented drastic increase in supply from imports not to overtake the demand and cause a radical price decrease (Carman and Sexton, 2011). This was possible by projecting how much consumers would be willing to purchase, and not allowing

supply to drastically exceed demand. Thus, a stable price was established and maintained. This achievement, however, is only one example of successful marketing strategies.

The CAC promotes California avocados via radio and other modes of advertising (Li et al., 2005). A study was conducted to look at the effectiveness of CAC promotion, and analyzed over sixty specific locations that mainly focused on geographical areas, and larger cities. The study was organized into various target sample sizes, based on the population of the cities the study looked at. Data from a time span of the CAC promotions was collected and analyzed, and results found that nine out of ten of the selected locations, within the larger specific sample, were connected to higher retail sales, and three of those nine locations (San Francisco, Los Angeles and Dallas) were not associated with any in-store promotions or price reductions (Li et al., 2005). These three stores that were not offering promotions, still had higher increased sales, which suggests that the CAC has success in promoting avocados, and that consumers respond to these promotions.

The "buy organic, buy local" movement gives consumers a cause to shop for, and that cause is the idea of environmentally friendly food. Buying directly from farmers is becoming a reality (Bougherara et al., 2008). Under community supported agriculture (CSA) programs, farmers partner with groups or individual households and deliver food to their door (Bougherara et al., 2008). The associated environmental benefits are a common reason that individuals sign up for a CSA (Bougherara et al., 2008). In addition, the quality of the produce tends to be superior, since the produce is harvested at maturity, and not early in order to have a longer shelf life.

A food's nutrient profiling has an effect on consumer perceptions (Bryans, 2009). Nutrient profiling helps inform consumer decisions by giving relative information on the labels

of food that consumers purchase (Bryans, 2009). Though marketing produce through nutrient profiling has its benefits, there is also a downside. A single person's opinion being shared through tools such as social media or one isolated personal bad experience can ruin consumer reputations of a product for a lifetime (Bonaiuto et al., 2010). Consumer's decisions are influenced by reputational attributes. For example, if the territory or location a product came from is perceived as non-superior, the product may not be purchased, regardless of the product quality (Bonaiuto et al., 2010). Consumers are also influenced in this same area with different products. With respect to mineral water, the location of the source has more of an impact on consumers' purchasing behavior rather than the consumer's perception of the appearance of the retail bottled water product (Bonaiuto et al., 2010). Consumer's selection of milk chocolate depends both on source location, and the social and environmental stigmas involved (Bonaiuto et al., 2010).

CHAPTER 3

METHODOLOGY

Data Collection

The avocado industry is growing, with imports making up nearly two-thirds of the overall market share (United States Department of Agriculture, 2014). As per capita avocado consumption has increased, determining consumer behavior and whether point of origin is a factor when purchasing avocados is interesting to consider. It is hypothesized that the majority of avocado consumers pay attention to the point of origin when purchasing an avocado, that avocado consumers do not pay attention to the point of origin when purchasing a value-added avocado item, and that consumers are unaware that different countries/regions have different quality of avocados. By conducting a survey and collecting primary data, testing whether consumers demonstrate differences in willingness to pay based on avocado characteristics from different points of origin in both "fresh" and value-added form is possible.

Conducting primary research is necessary for this study as there is little secondary research available for determining differences in consumer willingness to pay (WTP) based on point of origin. Surveys offer a way to measure the interest and ideas of a specific group. As a result of the lack of secondary data, a survey was designed aligned with all the research objectives.

An online survey was developed, and hosted on the Survey Monkey website. For this study, no in-person surveys were conducted. The survey was sent out to the World Wide Web via a Uniform Resource Locator (URL). With the click of this URL, respondents were directed to an online version of the survey, and were then able to complete the survey via any supported electronic device. The main modes used to distribute the URL were Reddit, Facebook, LinkedIn, Instagram, and Email. As an incentive for respondents to complete the survey and increase usable sample size, respondents were told that they would be entered into a random selection drawing, and the winner of the drawing would receive a GoPro, worth a value of $148.00 US dollars.

Development of the Survey

Two qualifying questions were used to determine if potential respondents met the minimum criteria for survey completion. It is important that respondents purchase avocados or premade guacamole, preferably year round as this would allow more insight into the perceptions on imported fruit since domestic fruit is not available year round. The survey begins with asking if the respondent is a resident of the United States. Although foreign avocado perceptions could be valuable and informative, for the purpose of this study US citizens were of primary focus. Another qualifying question is asked, confirming if the respondent purchases avocados. If they do not purchase avocados, they are directed immediately to demographic questions. See the appendix for the complete survey.

The survey then continues to collect information about consumer behavior when purchasing avocados in their whole form. Reasons why consumers buy avocados offer insight into consumer behavior, and frequency of avocados purchases can add to the exposure and familiarity a consumer has with the avocado. In order to measure this, question 4 asks how many

avocados the respondent purchases in a typical month. Question 5 asks on average, what percent of grocery trips involve the purchase of avocados. These questions can be combined to show the average number of avocados purchased per visit to grocery store. As a means to providing insight into consumer behavior, respondents were asked to choose from a list of five different reasons for avocado purchases. The reasons ranged from needing for a specific recipe to when the price is right. In order to be able to measure consumer willingness to pay based on point of origin, specific point of origin locations needed to be addressed. Taken from the USDA Economic Research Service (ERS), point of origin locations were chosen based on top importing countries. Countries such as Mexico, Chile, Peru, and the Dominican Republic were top importers for "fresh" (whole avocados) while Mexico, Peru, Dominican Republic, Chile, and South Africa were top importers for prepared or preserved avocado (United States Department of Agriculture, 2014). California, the United States, and Japan were also included as point of origins. Japan was included to test consumer knowledge of where avocados actually come from. Japan does not currently import avocados to the United States, and since respondents that will be analyzed are restricted to within the United States, and it is assumed that they would not have access to avocados of Japanese origin. These points of origins were used for questions like 9 and 10, which asked what points of origin consumers buy avocados from, along with which point of origins are preferred.

Additionally, prices paid for avocados was measured in question 11, asking the maximum price a consumer would pay for a single avocado. Prices ranged from $.99 or less up to a high or $2.00 or more. The location/store that the consumer purchased avocados at was measured, which can be analyzed to see if consumers who shop at specialty stores have a different mindset/preference than those who shop in big box name brand stores. With aiming to seek the

importance of certain characteristics consumers look for in avocados at the time of purchase, a rating scale was constructed in question 12. A rating of 5-extremely important, to a rating of 1-not important at all was used to determine the importance of characteristics such as point of origin, low price, size and visual appearance, to name a few. With seeking consumer insights for premade guacamole, similar questions as stated above were asked with respect to premade guacamole, but the verbiage of whole avocado was replaced with premade guacamole. Similar tests that were run to measure point of origin familiarity with whole avocados were used to measure point of origin familiarity in premade guacamole form, too.

As a means to achieving the research objective of determining if point of origin affects willingness to pay for avocados, consumers were shown a picture of, for lack of better words, a "bad looking" avocado, and asked how much they would be willing to pay for it. The survey continued to question 22, which showed, a good looking avocado, and consumers again were asked how much they would be willing to pay. Question 23 and 24 then showed the good looking avocado, although it had the distinguishing characteristics of being California origin, and also not of US origin. Again, consumers asked how much they were willing to pay. From the different amounts listed, change in willingness to pay based on distinguishing characteristics, is measurable.

Question 25 continues with trying to measure how consumers associate avocados from various countries. Consumers were asked to associate certain characteristics with point of origin. Point of origin locations include California, Chile, Ecuador, Japan, Mexico, Peru, South Africa, USA, along with "does not describe any point of origin", and "uncertain." An "uncertain" option is provided which allows respondents to not associate a characteristic with a particular point of origin, which prevents a respondent from feeling obligated to associate a characteristic with a

point of origin. Additionally, “does not describe any point of origin” was also included, since certain characteristics presented to the consumer may not be a characteristic of all avocados, regardless of point of origin. Characteristics that were analyzed include price, size, appearance, flavor, organically grown, and ripeness uniformity. All of these characteristics were thought to be important to the consumer at time of purchase. By associating these characteristics with various points of origin, consumer perceptions are measurable. If consumers notice that avocados from California are notoriously watery and lack flavor, then analysis can measure consumers associations based on characteristics and point of origin.

Question 26 provided multiple statements which can arguably be true or false. An example of a statement asked reads “Imported avocados are associated with good quality.” From here, respondents answer a range of “5-Strongly agree,” down to a “1-Strongly disagree.” This gives direction into consumer perception of certain statements, and ultimately perception of whole avocados/premade guacamole based on point of origin. This is measurable because if a respondent answering that price is “Extremely important” when purchasing whole avocados and a respondent “strongly disagrees” with the statement reading “Domestic avocados tend to be cheaper than imported avocados” then this consumer’s perception is that domestic avocados are more expensive compared to their imported counterparts. As the survey continues, demographical questions were asked, which included “are you the primary shopper,” age, gender, employment, income, and state of residency for the respondent.

Procedure for Data Analysis

The survey will be available online for five weeks, and then will be analyzed using IBM SPSS statistical analysis package. From there, statistical tests will be performed based off the form of the data collected (e.g. ordinal, nominal, categorical, and ratio data, or any combination

of these four data types). Common tests that will be used include t-tests, chi-squared, and ANOVA. Descriptive tests, and frequencies of each question will be run on all scale data, which will provide a picture of the "average" response for each question. Frequencies will be used because they provide percentages, and compared with other demographic questions, an idea of what percent of a specific group thinks a certain way can be analyzed. This will be especially useful for the demographics of the survey.

In order to determine if point of origin is a factor when purchasing avocados, question 12, which asked respondents to rate certain characteristics in terms of importance, will be analyzed. This will offer insight into the trends and preferences that respondents look for when purchasing avocados. By analyzing the mean for question 12.a, which looked at point of origin, it can be determined how important point of origin is to consumers. A paired sample t-test can be run comparing all other characteristics to one another in order to determine if there is a statistical difference between the listed characteristics. This will also offer some insight as to what of point of origin avocado consumers prefer, since consumers know where they buy their avocados from (question 9) paired with a response of "extremely important" in the point of origin category, it can be assumed that a consumer is consciously deciding to buy avocados from a specific region. However, if an answer of "not important at all" is given regarding point of origin (question 12.a), and an answer of "I don't know" is given for the question asking what point of origin they buy their avocados from (question 9), then this shows that some consumers just buy avocados for a certain reason, regardless of what point of origin. In order to fully understand the avocado consumer, looking at responses for the reason of purchase (question 6) can offer suggestions as to why consumers buy avocados regardless if they care about the point of origin.

Consumers were asked to indicate the point of origin they prefer when buying avocados in question 9. By running descriptive tests on this question, it can be seen which point of origin is preferred. Various other perceptions will be examined by comparing the responses from other parts of the survey. One example being that if a consumer likes small fruit (question 12.*f*), it can be assumed that they would rate it of higher importance when buying avocados. If they indicate that they "disagree" with the statement that "avocados grown in California are smaller than imported avocados," (question 26.a) and lists Mexico as their preferred point of origin for avocados (question 9), an inference could be drawn that this consumer might like avocados from Mexico, possibly because they think avocados from Mexico tend to be smaller.

With trying to measure if differences in the interest of the point of origin of avocados based on form and/or value-added nature of the avocado at time of purchase exist, the rating scales for whole avocados and premade based on point of origin (questions 12.a and 20.a respectively) will be compared by using a paired sample t-test on the mean values of the rankings.

To measure if point of origin affects willingness to pay for avocados, the means from questions 21, 22, 23, and 24 can be compared. Mean values for these questions will initially be used to determine the baseline averages, and then compared to the baseline in order to determine if a change in WTP exists. Comparisons of these mean values by consumers will be done using paired sample t-tests, which will determine if there is a statistical difference between the means. In additions, two target groups will be selected to compare. California residents and all other US states (residency) will be compared, to measure differences between groups within the sample. By analyzing these two target groups, it offers understanding off people's different perceptions and opinions, which might be altered based upon where they reside.

Assumptions

It is assumed that the respondents have taken the survey on their own will, and understood and correctly interpreted any and all questions or information provided. It is assumed that each answer was answered truthfully, and that the sample taken is a representative sample of avocado consumers. It is assumed respondents are answering the survey with the mindset of buying avocados within the United States.

Limitations

By utilizing Reddit, Facebook, LinkedIn, Instagram and Email to distribute the survey, it subjects the survey to what is known as the snowball effect. Instead of attaining a random sample, the survey uses a convenience sample and is subject to exclusion of people without access to a computer/internet that actually are consumers of avocados. The snowball effect happens when an email with the survey is sent to an individual, then that individual forwards the email to their friends, and the survey continues to be distributed through a specific channel, instead of randomly being dispersed. However, the limited stretch of these collections methods are hard to overcome, as any method for collecting responses is "technically" limited in its own nature. Japan was used as a point of origin, in order to test if consumers actually know where their avocados come from. However, if a respondent travels frequently to Japan, and buys avocados in markets within Japan, it may affect the validity of the Japanese point of origin option.

CHAPTER 4

DEVELOPMENT OF THE STUDY

Analysis of the Objectives

The survey used to collect data for this study was made available to respondents for a four week period. In that time, 300 respondents took the survey. Of those 300 responses, 290 were deemed usable. The 10 responses that were not used had either entered outlier data, or there was no data at all available to analyze. All responses were distributed over the internet via Reditt, Email, Facebook, Linkedin, and Instagram.

Table 1 summarizes the demographics of the survey respondents. Women were represented more than men, making up 60.4% of the data. The two most common age groups were ages 18-24 and 25-34, which accounted for a combined 65.4% of the total survey respondents. The largest income group was $75,000-$149,000 which made up 29.7% of the sample size. There was a very good representation of primary shoppers, as 77.2% of respondents claimed to be the primary shopper of the household. In order to satisfy objective five of this study, the data was split into two groups based on states of residency. California residents made up 55.7% of the total responses, while “all other US states” represented 44.3% of the sample.

Table 1. Demographics of Survey Respondents (n=290)

Demographics	Category	Percent of Total
Gender	Male	39.6%
	Female	60.4%
Age	Under 18	2.4%
	18-24	33.7%
	25-34	31.7%
	35-44	14.6%
	45-54	8.5%
	55-64	5.3%
	65+	3.7%
Income	Under $20,000	16.1%
	$20,000 - $29,999	5.1%
	$30,000 - $39,999	7.6%
	$40,000 - $49,999	8.5%
	$50,000 - $59,999	9.3%
	$60,000 - $74,999	11.0%
	$75,000 - $149,999	29.7%
	$150,000 or more	12.7%
Primary Shopper	Yes	77.2%
	No	22.8%
California Resident	Yes	55.7%
	No	44.3%

Objective one aimed to measure if point of origin was a factor when purchasing avocados. Question 12 aimed to measure how important certain characteristics (on a scale of 1 to 5) were to the consumer at the time of purchase. As seen in Table 2, the mean ratings of the characteristics described in question 12 are organized in descending order, based on the average mean. Ripeness, visual appearance, and low price had the highest mean scores, while small size and brand received the lowest means, or for relevance of this study, lowest importance. A paired sample T-test was used to analyze the data, which led to determining the p-values between the

different characteristics. Characteristics from question 12 into were divided three categories (high, moderate, and low) based on how important each characteristic is at the time of purchase. The distinguishing factor that divides the characteristics is based on a combination of mean score and p-value. As seen in Table 2, each characteristic division was done at a P-value of ".000." Table 2 shows that Ripeness, Visual Appearance and a Low Price are the most important factors when purchasing avocados, and fit into the high importance category. Ripeness had an average mean of 4.0, which aligns with the "very important" category of the rating scale. Point of origin was given a third-to-last ranking in consumer's opinion. With a mean of only 2.56, point of origin balances between the "somewhat important" and "slightly important" rating category.

Table 2. Importance of Select Avocado Characteristics at Purchase (n=185)

Importance	Characteristic	Mean	P-Value	
High	Ripeness	4		
	Visual Apprearance	3.82	0.036	**
	Low Price	3.65	0.061	
Moderate	Large Size	3.15	0.000	***
	Sustainably Grown	2.7	0.000	***
	Point of Origin	2.56	0.110	
Low	Small Size	1.81	0.000	***
	Brand	1.75	0.589	

a. Significance levels are indicated by *,**,*** for a value of .1, .05, and .01, respectively.
b. The rating values are: 5-Extremly Important through 1-Not Important at all.
c. P-values represent the paired test between the given characteristic and the one above it (e.g. Ripeness and Visual Appearance = .036)

When isolating California residents vs. "all other US states," the importance of point of origin is still low as seen in Table 3. California residents only differ from the rest of the country in the importance of three avocado characteristics, Ripeness, Sustainably Grown, and Point of Origin. Californians hold sustainably grown and point of origin as more important characteristics when purchasing avocados compared to the rest of the country, however, California residents rate the importance of ripeness .59 points lower than compared to all other US states combined.

Table 3. Differences in the Importance of Avocado Characteristics by State of Residency.

	N=101	N=66		
	CA Resident	**All other US States**	**P.Value**	
Rating of Ripeness	3.74	4.33	0.000	***
Rating of Visual Appearance	3.75	3.98	0.118	
Rating of Low Price	3.67	3.66	0.932	
Rating of Large Size	3.15	3.21	0.676	
Rating of Sustainably Grown	2.87	2.49	0.044	**
Rating of Point of Origin	2.77	2.38	0.039	**
Rating of Small Size	1.77	1.86	0.504	
Rating of Brand	1.68	1.87	0.221	

a. Significance levels are indicated by *,**,*** for a value of .1, .05, and .01 respectively.
b. The rating values are: 5-Extremly Important through 1-Not Important at all.

Objective two aimed to measure if avocado consumers prefer a specific point of origin for their avocados. To analyze this, a Chi-square test was run to see if consumers preferred a specific point of origin as asked in question 10. Of the respondents that answered, 60.8% of them said their preferred point of origin for avocados was California. The second most preferred option was “no preference” with respect to point of origin. The data was again split between California and all other US states and 81.2% of people from California prefer California origin avocados while 32.8% of people from California prefer all other points of origin. Of the people living outside of California, 21.2% of them prefer California origin Avocados, while 67.2% of the people living in all other US states prefer all other points of origin. Of the respondents who prefer California avocados, 78.8% of them are from California while 21.2% of them are from all other US states. Additionally, of the respondents who said they prefer all other points of origin, 29.7% of them are from California while 70.3% of the respondents who prefer all other points of origin live in all other US states. Inferences can be made that those who live in California have access to California avocados, thus prefer them, while those that do not live in California, do not

have as readily access to the California avocado, thus not preferring it over other point of origins. The data also showed that 26.8% of respondents have "no origin preference," however only 16.8% of California residents said they had "no origin preference" while 41.8% of all other US states stated they had "no origin preference."

Objective three aims to distinguish if value added avocado forms (i.e. guacamole) has different point of origin interest than fresh whole avocados do. The respondents who purchase premade guacamole made up 16% of the sample size. Of those who purchase premade guacamole, 51.6% prefer California origin avocados to be used in the premade guacamole they buy, and 41.9% said they had no "preference." The sample as a whole rated that point of origin was 0.64 points (on a 1-5 scale) more important with respect to whole avocados compared to avocados used for guacamole. With respect to the origin of avocados used in guacamole, there was no difference in the rating of "slightly important" given by respondents between California residents and those who lived in all other US states. However, in both instances, the level of importance is considered low, although it is important to distinguish that the two means are statistically different (p-value of .001).

Objective four aimed to determine if point of origin affected consumer willingness to pay. As seen in Table 4, respondents were willing to pay $1.35 for a good looking avocado presented in the survey and as much as $1.55 if that same avocado came from California. Interestingly, respondents were still willing to pay almost $0.70 for a bad, rotten looking avocado. Table 4 shows the sample's change in willingness to pay between the various classifications of avocados. Respondents were willing to pay $0.66 more for a good looking avocado, compared to a bad looking avocado. Choosing between good looking avocados and California avocados, respondents were willing to pay $0.20 more. Although there was a negative

$0.04 change in WTP between good looking avocados and not of US origin, statistically there was no difference. Respondents had a negative change in WTP when given the option between California origin and not of USA origin, and would pay $0.24 less for foreign avocados. When consumers were given the option between bad looking avocados and not of USA origin avocados, consumers were willing to pay $0.62 more for avocados not of USA origin.

Table 4. Change in Willingness to Pay Between Avocado Conditions (n=188)

Condition	Price	Change in WTP	P.value	
Bad looking	$0.69			
Good looking	$1.35	$ 0.66	.000	***
Good looking	$1.35			
California Origin	$1.55	$ 0.20	.000	***
Good looking	$1.35			
Not in USA Origin	$1.31	$(0.04)	.440	
California Origin	$1.55			
Not in USA Origin	$1.31	$(0.24)	.000	***
Bad looking	$0.69			
Not of USA Origin	$1.31	$ 0.62	.000	***

a. All prices are in US Dollars.
b. Significance levels are indicated by *,**,*** for a value of .1, .05, and .01 respectively
c. Values with ( ) represent a negative change.

When the data was split based on residency, California residents and all other US states were, statistically, willing to pay the same amount for the bad looking avocado (see Table 5). Additionally, California residents would pay a low of $1.15 for non-USA origin avocados while all other states paid $1.53 for the same foreign avocado. This is the only classification where the groups were statistically significant, and California residents are willing to pay $0.38 less for foreign avocados than all other US residents.

Table 5. Consumer Willingness to Pay For Avocados of Different Conditions Based Residency

	N=101	N=67		
Willingness to Pay for:	**CA**	**All other US States**	**P.value**	
Bad looking Avocado:	$0.66	$0.78	0.129	
Good looking Avocado:	$1.30	$1.42	0.138	
California Orgin Avocado:	$1.50	$1.60	0.519	
Not of USA Origin Avocado:	$1.15	$1.53	0.019	**

a. All prices are in US Dollars.
b. Significance levels are indicated by *,**,*** for a value of .1, .05, and .01 respectively.

Staying with objective 5, the change in willingness to pay was divided into states of residency. California residents showed that in each instance of avocado quality comparison, a statistical difference was present (see Table 6). The largest difference was between bad and good looking avocados. California consumers are willing to pay $0.64 more for good looking avocados compared to bad ones. They are also have a change in WTP of $0.35 less for avocados not grown in the US when compared to California origin avocados.

Table 6. Change in Willingness to Pay Between Avocado Conditions for CA Residents (n=188)

Condition	**Price**	**Change in WTP**	**P.value**	
Bad looking	$0.66			
Good looking	$1.30	$ 0.64	.000	***
Good looking	$1.30			
California Origin	$1.50	$ 0.21	.000	***
Good looking	$1.30			
Not in USA Origin	$1.15	$(0.14)	.000	***
California Origin	$1.50			
Not in USA Origin	$1.15	$(0.35)	.000	***
Bad looking	$0.66			
Not of USA Origin	$1.15	$ 0.49	.000	***

a. All prices are in US Dollars.
b. Significance levels are indicated by *,**,*** for a value of .1, .05, and .01 respectively
c. Values with ( ) represent a negative change.

On the contrary, as seen in Table 7, all other US state residents show no difference in willingness to pay for California origin avocados compared to avocados not grown in the US. All other US state residents only have a negative change in WTP of $0.07. With respect to all other US states, bad looking compared to good looking avocados had a $0.64 change in WTP. Bad looking avocados and not of US origin avocados showed a $0.75 change in WTP. In every other classification, although there was a change in WTP, the change was not significant. Although no direct research objectives were being analyzed, the data had findings that were considered valuable and interesting. At the end of the survey, respondents were asked to rate how strongly they agree or disagree on the statement given. The rating scale used was a 5-strongly agree, to 1-strongly disagree.

Table 7. Change in Willingness to Pay Between Avocado Conditions for All Other US States (n=188)

Condition	Price	Change in WTP	P.value	
Bad looking	$0.78			
Good looking	$1.42	$ 0.64	.000	***
Good looking	$1.42			
California Origin	$1.60	$ 0.18	.193	
Good looking	$1.42			
Not in USA Origin	$1.53	$ 0.11	.421	
California Origin	$1.60			
Not in USA Origin	$1.53	$(0.07)	.134	
Bad looking	$0.78			
Not of USA Origin	$1.53	$ 0.75	.000	***

a. All prices are in US Dollars.
b. Significance levels are indicated by *,**,*** for a value of .1, .05, and .01 respectively
c. Values with ( ) represent a negative change.

As seen in Table 8, respondents agreed most with the statement reading “premade guacamole is always made fresh.” On the contrary, respondents disagreed most with the

statement reading “avocados that travel great distances to grocery stores have a higher environmental impact than avocados that travel shorter distances.”

Table 8. Consumer Insight into Various Debatable Questions (N=169)

Question Asked Respondent	Mean	P.Value	
Premade guacamole is always made fresh.	4.00		
Compared to other points of origin, California avocados most often are bruised/have brown spots upon being cut open.	3.60	.000	***
Premade guacamole only uses imported avocados.	3.38	.008	***
Domestic avocados tend to be cheaper than imported avocados.	3.26	.212	
Avocados grown in California are smaller than imported avocados.	3.17	.379	
Imported avocados are associated with good quality.	3.14	.711	
Imported avocados bring avocado specific pests and disease across borders, and there is no regulations to prevent this.	3.08	.492	
Imported avocados are stored for as many as four weeks after being harvested before reaching store shelves.	2.73	.000	***
Imported avocados are picked pre-maturely, compromising taste and flavor.	2.44	.000	***
Premade guacamole is full of preservatives.	2.43	.897	
California avocados are more likely to be organic compared to imported avocados.	2.11	.001	***
Avocados that travel great distances to grocery stores have a higher environmental impact than avocados that travel shorter distances.	2.02	.299	

a. Significance levels are indicated by *,**,*** for a value of .1, .05, and .01 respectively.
b. The rating scale is 5=Extremely Important through 1=Not Important at all.

Trying to further determine if residency play a factor in consumer perceptions, the same tests were run to determine if people living in California view the statements differently than people living in all other US states. The respondents, statistically, agreed on the means of all statements except for four. These four can be seen in Table 9 and are indicated by the marking of “***” on the far right. California residents were more likely to agree that “premade guacamole is always made fresh.” Interestingly, California avocados must have a reputation of being smaller, as California residents were more likely to agree with the statement that “avocados grown in

California are smaller than imported avocados." Based on Tables 8 and 9, respondents do not view California avocados as a superior product compared to other points of origin.

Table 9. Consumer Insight into Various Debatable Questions based on California Residents and Residents of all other US states. (N=169)

		Mean	P.Value	
Question Asked Respondent	CA Residents	All other US States		
Premade guacamole is always made fresh.	4.22	3.65	.038	***
Compared to other points of origin, California avocados most often are bruised/have brown spots upon being cut open.	3.75	3.36	.443	
Premade guacamole only uses imported avocados.	3.43	3.31	.007	***
Domestic avocados tend to be cheaper than imported avocados.	3.31	3.21	.202	
Avocados grown in California are smaller than imported avocados.	3.30	2.99	.000	***
Imported avocados are associated with good quality.	3.30	2.91	.568	
Imported avocados bring avocado specific pests and disease across borders, and there is no regulations to prevent this.	3.02	3.10	.394	
Imported avocados are stored for as many as four weeks after being harvested before reaching store shelves.	2.75	2.70	.003	***
Imported avocados are picked pre-maturely, compromising taste and flavor.	2.35	2.54	.493	
Premade guacamole is full of preservatives.	2.41	2.43	.711	
California avocados are more likely to be organic compared to imported avocados.	2.05	2.16	.119	
Avocados that travel great distances to grocery stores have a higher environmental impact than avocados that travel shorter distances.	1.93	2.15	.902	

a. Significance levels are indicated by *,**,*** for a value of .1, .05, and .01 respectively.
b. The rating values are: 5-Extremly Important through 1-Not Important at all.

Consumers were asked in question 25, to try to associate a given statement/characteristic with a specific point of origin. The "X" marking for Table 10 indicates the top four point of origin associations for each category. For example, California, Mexico, Describes no origin, and Uncertain were the top four origins for the category of Low Price. This means that respondents associated these four origins most with Low Price. It is important to know that although a point of origin may be represented, it can still be a very small percentage of the sample that associates the given origin with a characteristic. Although percentages are not reported in Table 10,

California is within the top four origins for the Low Price characteristic, but only 7.6% of the respondents associated California with Low Price. As seen in Table 10, respondents were uncertain in each statement. Additionally, "does not describe any point of origin" was selected frequently. California was the most occurring point of origin, with a total of 8 cells marked with a "X." USA and Mexico were second, with each having a total of six "X" cells. Interestingly, Japan was selected for three characteristics. This is interesting because Japan does not currently import avocados into the US. Surprisingly, Chile was never selected for any characteristic. This comes as a surprise since Chile currently imports avocados into the US, and a consumer has access to Chilean fruit over Japanese fruit. South Africa was not selected, which makes sense as they are only importers of premade guacamole, and this question only pertained to whole avocado form. Since Japan does not import avocados to the US, Mexico was the only point of origin that had "watery/flavorless" associations. California and USA were the only two origins that were considered to grow "Hass" avocados, when in reality most all avocados in retail stores are Hass variety, thus showing possible consumer confusion that foreign fruit is not of Hass variety, when in fact, it is.

Table 10. Point of Origin Association Based on Characteristics.

	California	Chile	Ecuador	Japan	Mexico	South Africa	USA	Describes no Origin	Uncertain
Low Price	X				X			X	X
Small Size				X	X			X	X
Partial Brown Spots/Brown Strings			X		X			X	X
Creamy/Nutty Falvor	X						X	X	X
High Price	X			X			X		X
Watery/Flavorless				X	X			X	X
Hass Variety	X						X	X	X
Organically Grown	X						X	X	X
Locally Grown	X						X	X	X
Large in Size	X						X	X	X
Not Evenly Ripened			X		X			X	X
Perfect color/texture when cut open	X				X			X	X

a. If a cell has a "YES," that origin is associated with that characteristic.
b. Top 4 points of origin were selected for each characteristic.

CHAPTER 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

Research into consumer preferences within the avocado industry was the focus of this project. An online survey was used to collect the data responses, and 290 responses were collected. Females made up 60.4% of the gender that took the survey. Age groups 18-24, and 25-34 were the largest represented with 64.4% of the sample. The income group most represented was $75,000-$149,000 accounting for 29.7% of the sample. Primary shoppers made up 77.2% and 55.7% of the sample resided in California. At the time of purchase, Ripeness, Visual Appearance and a Low Price were considered the most important factors. When given the option of California avocados or Avocados that are not of US origin, consumers were willing to pay $0.24 more for the California avocados. Of people residing in California, only 32.8% of them prefer avocados grown outside of California. Respondents very strongly agree with the statement that "premade guacamole is always made fresh," and strongly disagree with the statement that "avocados that travel great distances to grocery stores have a higher environmental impact than avocados that travel shorter distances."

Conclusions

The data that was analyzed offered insights into the preferences that avocado consumers have. Factors that were initially thought to be important to consumers, such as brand, size of avocados, sustainably grown fruit, and point of origin, turned out to be not very important. There was a strong rating for the "ripeness" at time of purchase category, however such a low interest in point of origin was a surprising insight the data provided. With the information that ripeness is a "very important" factor when purchasing avocados, strategic pricing strategies can be created. Since fresh produce has a limited shelf life before spoiling compared to other processed goods, it is sometimes the case that retailers will offer price reductions or promotions to entice consumers to purchase more, allowing inventory to be cleared before the product spoils. Given the circumstance that a retailer had an abundance of ripe avocados, their initial thought would be to run a promotional price reduction in order to clear inventory and prevent current supply from soiling. However, in order to maximize revenue for the retailer, the data suggests that ripe avocados are the most desirable to consumers, and a price reduction, although it may clear inventory faster, may not be necessary to clear inventory. Rather, a potential price increase might make more sense in order to capitalize on revenues. The data showed that an ideal price point to sell avocados at is around $1.35, although if distinguishing characteristics such as "California grown" applies, that price target could be around $1.55. However, the data collected was based solely on non-ripe avocados. Thus, the $1.35 price point could be slightly raised, given the importance, or demand that consumers have for ripe avocados.

Although retailers should strive to have ripe avocados available to satisfy consumer demands, it is also an additional risk the retailer takes upon themselves. An alternative to ripe avocados are the hard, non-ripe form. The data showed that consumers do not want to buy firm

avocados and wait for them to ripen. It could be the case, however, where the industry as a whole should market and run promotional campaigns to educate consumers that planning meals in advance is in their best benefit. By educating the consumer on the technique and time it takes to ripen avocados, this could benefit the entire industry as a whole. Consumers, if willing to plan, would potentially be more satisfied with their purchase as they can, somewhat, control and monitor ripening conditions which might provide a more enjoyable avocado, with no bruises or brown spots. The retailer would benefit from this, too, as the risk of dealing with avocados that are days away from spoiling would be reduced. Suppliers/producers would benefit from consumer education as well, since overall satisfaction of avocado consumers has the potential to increase, thus increasing the demand.

The importance of point of origin regarding the avocados used in guacamole was rated as being "slightly important" by respondents. It is not unreasonable that consumers do not necessarily care about point of origin with respect to premade guacamole, since guacamole takes a different form than a whole avocado. Premade guacamole is perceived as being fresh and tasty, and has other things added to it aside from avocados such as spices and preservatives. A detachment from the whole, original avocado possibly contributes to this consumer sentiment and, thus, the reason that consumers have different views when compared to whole avocados. For manufactures as a whole, this is positive news. They can purchase the cheapest avocado regardless of point of origin. Regardless of the point of origin, the value-added premade guacamole manufactures are able to minimize their input costs with no consumer backlash. However for producers, if they want to dominate the premade guacamole market, they must provide cheap avocados. This could come in the form of visually distressed fruit, labeled "number 2s" in the industry.

The results also suggest that California residents will pay more for California avocados, while residents from other parts of the country are not as willing to pay premium for a California grown avocado. The two groups were polar opposites with respect to point of origin. An explanation for this could be the argument that those who reside in California have access to California avocados and the freshness that comes along with local food. Thus, they prefer local, California avocados compared to avocados grown outside of California. However those that do not reside in California do not as readily have access to the California avocado, and view it equal to any other avocado regardless of where it is grown. For the California Avocado Commission, this isn't good news. More marketing techniques should be implemented outside California, in order to raise consumer awareness and make the WTP for non-California residents, equal to that of California residents.

Respondents agreed strongly that premade guacamole is made fresh. If this is a widely accepted perception, the marketing dollars spent of convincing consumers premade guacamole is fresh can be less. Marketing campaigns do not need to spend money on something consumers already deem to be true. Respondents also agreed with the statement that "compared to other points of origin, California avocados are bruised/have brown spots upon being cut open." This finding is interesting, as when the data was split between California residents and all other US states, California residents agreed more with this statement that non-California residents. It could be the case for non-California residents that since California origin avocados need to be transported and stored, they fall into the same category/quality classification as avocados from other points of origin, thus are not any more bruised or discolored than their imported counterparts. However when trying to explain why California residents view California avocados as more bruised/brown compared to other points of origin, there is not obvious explanation

present. There is the possibility that avocados are more abundant and widely consumed in California versus elsewhere in the US, thus California residents have more exposure to avocados and thus due to the sheer numbers, are more likely to run across a bruised/brown avocado. The question could have also been leading, and respondents agreed with it since they assumed it to be true. If the question was reversed and asked, "Compared to California avocados, avocados from all other points of origin are bruised/have brown spots upon being cut open" respondents may have agreed similarly, since they might assumed the question is true.

Recommendations

Although survey questions were asked to try not to be leading or persuasive, it is possible that respondents were persuaded to answer a certain way. Furthermore, "select all that apply" questions although are valuable for accurate data, present a larger challenge when analyzing the data, as each possible response must be treated as a separate variable. This research was limited in its representation of US states aside from California. Additionally, it was limited into assuming all respondents have had access to avocados from all points of origins within the survey, and have opinions on those points of origin and their avocado quality.

Recommendations for Further Research

Residency is an interesting variable to analyze, and valuable information can be gathered based on more specific geographical locations. For example, dividing the state of California into two or three sections such as northern, central, and southern California, it would be interesting to see if northern Californians have the same perceptions as southern California does, since weather and environmental factors are different throughout the state. The effectiveness of avocado advertising would be interesting to analyze. Questions in a future survey could look into the effectiveness that the California Avocado Commission (CAC) has on promoting California

avocados. Additionally, research into consumer awareness of whether the CAC even exists and what their role is within the industry would be interesting to measure. Seeing if nationalism and point of origin align is another area for further development. This study showed that people who reside in California are willing to pay more for California grown avocados, but it would be interesting to see if the people of Mexican nationality view Mexican avocados as superior, or if they are willing to pay more for Mexican avocados. Same could be tested for all other points of origins. It would be informative to know that if simply being from a certain region or area alters an individual's mindset based solely on pride, regardless of quality. Brand names to consumers with respect to avocados played little importance in regards to this study, thus, identifying if consumers even recognize or can differentiate avocados brands would be an additional topic for future research. Consumers in this study disagreed strongly with the statement that read, "Avocados that travel great distances to grocery stores have a higher environmental impact than avocados that travel shorter distances." Looking at why consumers might think this way would be another topic to look into. The study by Svanes and Aronsson (2013) that was discussed earlier showed a relation to distance travelled and pollution, so finding why this sample strongly disagrees would be informative.

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APPENDIX

Objectives

1) To determine if point of origin is a factor when purchasing avocados.

2) To evaluate if avocado consumers prefer a specific point of origin for their avocados.

3) To identify differences in the interest of the point of origin of avocados based the form and/or value-added nature of the avocado at time of purchase.

4) To examine if point of origin affects willingness to pay for avocados.

5) To test if consumers of California residency are different than all other US states, for objectives 1-4.

Survey

1. By taking this survey you will be participating in research aiming to collect data on consumers within the avocado industry. Upon completion of this survey, you will be given the option to enter your email. By entering your email, you will receive one (1) entry into a grand prize drawing of a GoPro Hero. By continuing, you are acknowledging that you are not being forced to taking this survey and are taking it on your own free will, knowing that you are not required to answer a question you are not comfortable with. However, if you wish to have a valid entry into the GoPro Hero drawing, each question *must* be answered in entirety. Even if you enter your email, failing to answer all questions in entirety will force you to not be eligible for the GoPro Hero drawing. By continuing, you understand that entering the GoPro Hero giveaway is optional, and is not being forced upon you, and it is merely offered as an incentive to complete the entire survey. Do you wish to continue?

   ☐ Yes ☐ No

2. Do you reside in the United States?
   ☐ Yes ☐ No
3. Do you purchase avocados at least one (1) time per month?
   ☐ Yes ☐ No-Send straight to demographic questions
   ☐ No. I get all avocados from my own tree or the tree of a friend-Send straight to demographic questions.

4. How many avocados do you typically purchase in an average month?
   a. Please do not give a range and use numbers, not words.
      i. Average per month: _____.

5. On average, what percentage of those involve the purchase of an avocado(s)?
   a. Please do not give a range and use whole numbers, not words. Please enter percent in the following form. XX.X
      i. Fill in _____%.

6. What is your primary reason for purchasing avocados?
    - ☐ I purchase avocados when the price is reasonable, making them affordable
    - ☐ I purchase avocados when they are visually appealing/ripe
    - ☐ I purchase avocados when they are needed for a specific meal/recipe
    - ☐ I purchase avocados only for special occasions
    - ☐ I purchase avocados because I enjoy the health benefits associated with them
    - ☐ I purchase avocados as a gift for friends/family
    - ☐ Other (Please describe)

7. Where are you most likely to purchase avocados?
    - ☐ Super Market (e.g. Vons, Safeway, Albertson's, Kroger)
    - ☐ Specialty Market (e.g. Trader Joe's, Whole Foods, Sprouts)
    - ☐ Chain Superstore (e.g. Wal-Mart, Target)
    - ☐ Farmer's Market
    - ☐ Warehouse Store (e.g. Costco, Sam's Club)
    - ☐ Chain Discounter (e.g. Food 4 Less, Winco)
    - ☐ Other (Please describe)

8. Point of origin definition:
   The source where a product came from. For example, if a potato is grown in Idaho and shipped to Texas, the point of origin of the potato is Idaho. Similarly, if a mango is grown in Brazil and shipped to Texas, the point of origin of the mango is Brazil.

   Sustainable Agriculture Definition:
   In simplest terms, sustainable agriculture is the production of food, fiber, or other plant or animal products using farming techniques that protect the environment, public health, human communities, and animal welfare.

   I agree I have read the above definitions
   ☐ Yes

9. To the best of your knowledge, what is the point of origin of the avocados that you purchase? Select all that apply.
    - ☐ California
    - ☐ Chile
    - ☐ Ecuador
    - ☐ Japan
    - ☐ Mexico
    - ☐ Peru
    - ☐ South Africa
    - ☐ USA (other than California)
    - ☐ I don't know

10. To the best of your knowledge, what point of origin do you PREFER to but avocados from?
    - ☐ California
    - ☐ Chile
    - ☐ Ecuador
    - ☐ Japan
    - ☐ Mexico
    - ☐ Peru
    - ☐ South Africa
    - ☐ USA (other than California)
    - ☐ I don't know
11. What the maximum price you are willing to pay for an avocado? Prices are described in dollars per avocado.
    - ☐ $.99 or less
    - ☐ $1.00-1.19
    - ☐ $1.20-1.49
    - ☐ $1.50-1.79
    - ☐ $1.80-1.99
    - ☐ $2 or more

12. Please rate the following in terms of importance when purchasing avocados (5=Extremely important, 1= Not important at all).

    a. Point of origin definition:
        i. The source where a product came from. For example, if a potato is grown in Idaho and shipped to California, the point of origin of the potato is Idaho. Similarly, if a mango is grown in Ecuador and shipped to California, the point of origin of the mango is Ecuador.

	Extremely Important 5	Very Important 4	Somewhat Important 3	Slightly Important 2	Not at all Important 1
a. Point of origin	☐	☐	☐	☐	☐
b. Low price	☐	☐	☐	☐	☐
c. Ripeness	☐	☐	☐	☐	☐
d. Brand	☐	☐	☐	☐	☐
e. Large size	☐	☐	☐	☐	☐
f. Visual appearance	☐	☐	☐	☐	☐
g. Sustainably grown	☐	☐	☐	☐	☐
f. Small Size	☐	☐	☐	☐	☐

13. Do you purchase premade guacamole at least one (1) time per month?
    ☐ Yes ☐ No-Send to Q21

14. How many times do you typically purchase premade guacamole in an average month?
    a. Please do not give a range and use numbers, not words.
        i. Times per month: _____.
15. On average, what percent of grocery trips involve the purchase of premade guacamole?
    a. Please do not give a range and use whole numbers, not words. Please enter percent in the following form. XX.X
        i. Fill in _____%.

16. What is your primary reason for purchasing premade guacamole?
    - ☐ I purchase premade guacamole when the price is reasonable, making it affordable
    - ☐ I purchase premade guacamole when it is made fresh
    - ☐ I purchase premade guacamole when it's needed for a specific meal/recipe
    - ☐ I purchase premade guacamole only for special occasions
    - ☐ I purchase premade guacamole because I enjoy the health benefits associated with avocados
    - ☐ Other (Please describe)

17. Where are you most likely to purchase premade guacamole?
    - ☐ Super Market (e.g. Vons, Safeway, Albertson's, Kroger)
    - ☐ Specialty Market (e.g. Trader Joe's, Whole Foods, Sprouts)
    - ☐ Chain Superstore (e.g. Wal-Mart, Target)
    - ☐ Farmer's Market
    - ☐ Warehouse Store (e.g. Costco, Sam's Club)
    - ☐ Chain Discounter (e.g. Food 4 Less, Winco)
    - ☐ Other (Please Describe)

18. Premade guacamole is made from mashed avocados. To the best of your knowledge, what is the point of origin of the avocados used to make premade guacamole? Select all that apply.
    - ☐ California
    - ☐ Chile
    - ☐ Ecuador
    - ☐ Japan
    - ☐ Mexico
    - ☐ Peru
    - ☐ South Africa
    - ☐ USA (other than California)
    - ☐ I don't know

19. To the best of your knowledge, what point of origin do you PREFER the avocados used to make premade guacamole you purchase come from?
    - ☐ California
    - ☐ Chile
    - ☐ Ecuador
    - ☐ Japan
    - ☐ Mexico
    - ☐ Peru
    - ☐ South Africa
    - ☐ USA (other than California)
    - ☐ I don't know

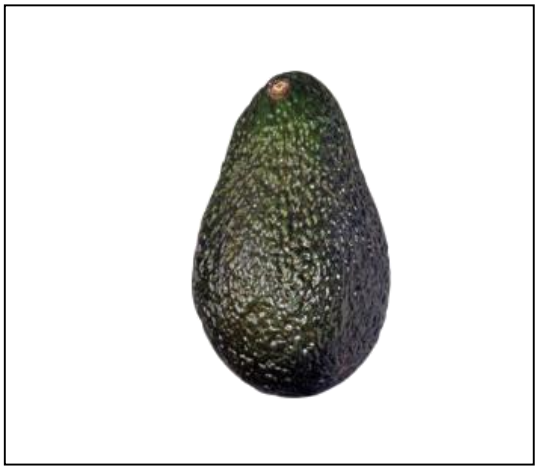
20. Please rate the following in terms of importance when purchasing premade guacamole (5=Extremely important, 1= Not important at all).

	Extremely Important 5	Very Important 4	Somewhat Important 3	Slightly Important 2	Not at all Important 1
a. Point of origin	☐	☐	☐	☐	☐
b. Low price	☐	☐	☐	☐	☐
c. Ingredients	☐	☐	☐	☐	☐
d. Brand	☐	☐	☐	☐	☐
e. Packaging Size	☐	☐	☐	☐	☐
f. Visual appearance	☐	☐	☐	☐	☐
g. Sustainably grown	☐	☐	☐	☐	☐
h. Freshly made	☐	☐	☐	☐	☐

Please examine this picture of an avocado:

21. How much would you be willing to pay for the avocado in the above picture? The picture represents an 8oz avocado. It is not organically grown. The point of origin is not known.
    Please do not use a range. Please do not use dollar signs, as it is assumed the value is in US dollars.
    i. Fill in?_____

Please examine this picture of an avocado:



22. How much would you be willing to pay for the avocado in the above picture? The picture represents an 8oz avocado. It is not organically grown. The point of origin is not known. Please do not use a range. Please do not use dollar signs, as it is assumed the value is in US dollars.

    ii. Fill in_____

23. If the avocado in the above picture is identified as being grown in California, how would this affect your willingness to pay for it? Please indicate the dollar amount you now would be willing to pay from the amount you previously stated in question 22. Please do not use a range. Please do not use dollar signs, as it assumed the value is in US dollars.

    iii. Fill in_____

24. If the avocado in the above picture is identified as having a point of origin outside of United States, how would this affect your willingness to pay? Please indicate the dollar amount you now would be willing to pay from the amount you previously stated in question 22. Please do not use a range. Please do not use dollar signs, as it assumed the value is in US dollars.

    iv. Fill in_____

25. The following provides a list of avocado characteristics and locations where avocados are grown. In your opinion, for each characteristic/description, please state where you think the avocado's point of origin was.

	California	Chile	Ecuador	Japan	Mexico	Peru	South Africa	USA	Does not describe any point of origin	Uncertain
a. Low price	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
b. Small in size	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
c. Partial Brown spots/brown strings	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
d. Creamy, nutty flavor	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
e. High price	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
f. Watery, flavorless	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
g. Hass variety	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
h. Organically grown	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
i. Locally grown	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
j. Large in size	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
k. Not evenly ripened	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
l. Perfect color/texture when cut open	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

26. You will now be shown a series of statements. Please indicate whether you agree or disagree with the statement on a scale of 5 (strongly agree) to 1 (strongly disagree). to Domestic avocados refer to avocados grown within USA borders. Imported avocados refer to avocados grown outside of the USA

	5 – Strongly Agree	4 – Somewhat agree	3 – Neither agree or disagree	2 – Somewhat disagree	1– Strongly disagree
Avocados grown in California are smaller than imported avocados	☐	☐	☐	☐	☐
California avocados are more likely to be organic compared to imported avocados	☐	☐	☐	☐	☐
Imported avocados are associated with good quality	☐	☐	☐	☐	☐
Imported avocados are picked pre-maturely, compromising taste and flavor	☐	☐	☐	☐	☐
Premade guacamole is always made fresh	☐	☐	☐	☐	☐
Imported avocados bring avocado specific pests and disease across borders, and there is no regulations to prevent this	☐	☐	☐	☐	☐
Premade guacamole only uses imported avocados	☐	☐	☐	☐	☐
Compared to other points of origin, California avocados most often are bruised/have brown spots upon being cut open	☐	☐	☐	☐	☐
Domestic avocados tend to be cheaper than imported avocados	☐	☐	☐	☐	☐
Imported avocados are stored for as many as four weeks after being harvested before reaching store shelves	☐	☐	☐	☐	☐
Avocados that travel great distances to grocery stores have a higher environmental impact than avocados that travel shorter distances	☐	☐	☐	☐	☐
Premade guacamole is full of preservatives	☐	☐	☐	☐	☐

27. Are you the primary shopper for your household?

☐Yes ☐No

28. Please describe your age:
    - ☐ Under 18
    - ☐ 18-24
    - ☐ 25-34
    - ☐ 35-44
    - ☐ 45-54
    - ☐ 55-64
    - ☐ 65+

29. Are you
    - ☐ Male
    - ☐ Female

30. Please describe your current employment status. Select all that apply
    - ☐ Employed full time
    - ☐ Employed part time
    - ☐ Student
    - ☐ Retired

31. Please describe your household income before taxes
    - ☐ Under $20,000
    - ☐ $20,000 - $29,999
    - ☐ $30,000 - $39,999
    - ☐ $40,000 - $49,999
    - ☐ $50,000 - $59,999
    - ☐ $60,000 - $74,999
    - ☐ $75,000 - $149,999
    - ☐ $150,000 or more

32. Which state do you reside in?
    - ☐Alabama
    - ☐Alaska
    - ☐Arizona
    - ☐Arkansas
    - ☐California
    - ☐Colorado
    - ☐Connecticut
    - ☐Delaware
    - ☐Florida
    - ☐Georgia
    - ☐Hawaii
    - ☐Idaho
    - ☐Illinois
    - ☐Indiana
    - ☐Iowa
    - ☐Kansas
    - ☐Kentucky
    - ☐Louisiana
    - ☐Maine
    - ☐Maryland
    - ☐Massachusetts
    - ☐Michigan

- ☐Minnesota
- ☐Mississippi
- ☐Missouri
- ☐Montana
- ☐Nebraska
- ☐Nevada
- ☐New Hampshire
- ☐New Jersey
- ☐New Mexico
- ☐New York
- ☐North Carolina
- ☐North Dakota
- ☐Ohio
- ☐Oklahoma
- ☐Oregon
- ☐Pennsylvania
- ☐Rhode Island
- ☐South Carolina
- ☐South Dakota
- ☐Tennessee
- ☐Texas
- ☐Utah
- ☐Vermont
- ☐Virginia
- ☐Washington
- ☐West Virginia
- ☐Wisconsin
- ☐Wyoming

33. Please provide your 5 digit zip code
    a. Fill in _____

34. Please enter your email if you wish to be entered into one (1) randomly selected grand prize drawing of a GoPro Hero. By entering your email, you will receive one (1) entry into a grand prize drawing of a GoPro Hero. This email will be the method used to make contact with you if you are the grand prize winner. Eligibility opened December 12, 2014 and will close January 9, 2015 at 11:59pm (Pacific Time). The grand prize winner will be selected randomly on January 16, 2015. Upon receiving an email that you are a grand prize winner, you will have forty eight (48) hours from the time the email was sent, to respond to the email in order to claim your prize. In the case that the grand prize winner does not respond within fourty eight (48) hours, the runner up will be emailed and be subject to the same criteria. The process will continue until a valid winner is reached.
    a. Have you met all criteria for an eligible entry and wish to participate in the drawing?
        ☐ Yes
        ☐ No

35. Please enter a valid email:
    a. Enter____