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Consumer Perceptions of Fruit and Vegetable Origin, Growing Methods, and Willingness to Pay in Trinidad and Tobago Marketplaces: Implications for Extension Programming

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Consumer behavior is a complex phenomenon encompassing internal, external, and situational factors. This study examined perceptions of market consumers about fruits and vegetables in Trinidad and Tobago in terms of produce origin, growing method, and willingness to pay. A stratified purposive sample of consumers at 14 unique market locations was surveyed to measure the three constructs and demographics. Descriptive statistics, correlational analysis, a t-test, and one-way analysis of variance were used to analyze the data. Findings revealed consumers have positive perceptions of locally grown produce and produce grown without chemicals. Findings also revealed a slight willingness to pay more for such characteristics. There were small to moderate correlations among the three constructs. Male and female perceptions of locally grown produce were significantly different, but no differences were found based on age. Extension educators working with producers who sell directly to consumers can utilize results from this study in working with clientele to tailor marketing and production strategies. Further research into social norms and perceived behavior control is recommended to better understand consumer behavior and help Extension better prepare stakeholders for success in the market places.

Keywords: consumer perceptions, produce origin, growing methods, willingness to pay, Extension, Trinidad and Tobago

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Introduction

Consumer behavior is a complex phenomenon that encompasses internal, external, and situational factors. In the agricultural marketplace, specifically, consumer behavior can be influenced by awareness and beliefs about producer practices. There is, however, a growing disconnect between consumer awareness and understanding and producer practices. With an ever-increasing urban consumer base and a decreasing number of producers, the exchange of information between producers and consumers has become nearly obsolete (Sharp, Imerman, & Peters, 2002). Hansen (2005) found “the quality of food products is not determined by the consumer or by the producer independently, but by the interplay between the parties” (p. 90). This suggests that there is a need to reconnect producers with consumers.

A variety of programs have sought to address this disconnect at all age levels. For example, some Extension efforts in the United States are focused on agricultural education through school or community gardens and farm-to-school programming (Benson, 2014). These types of programs are also an opportunity to educate youth and parents about healthy living choices (Odera, Lamm, Owens, Thompson, & Carter, 2013). Community Supported Agriculture programs are another potential solution for educating consumers about farming practices. In this type of program, consumers have “direct knowledge of who produces the food, where it is produced, how it is grown, and may have . . . input into farm decisions” (Sharp et al., 2002, para. 10). All of these programs bring people together with a common goal of educating the general public about agricultural production.

Education and cultural value systems, including values, beliefs, and societal influences (Luna & Gupta, 2001; Spiers, Gundala, & Singh, 2014), are foundational components of consumer attitudes and perceptions that influence either a favorable or unfavorable response in regards to an object or subject. Irani, Sinclair, and O’Malley (2001) found that these personal factors influence consumer perception and acceptance of agricultural innovations and systems. Kearney (2010) found consumer perceptions and behaviors to be drivers of food production. Thus, understanding consumer perceptions and attitudes can help producers forecast potential product markets (Irani et al., 2001) and help producers understand consumer expectations.

Produce Characteristics

A growing trend in consumer behavior is purchasing what is considered ethical or sustainable foods. These include locally grown and organic foods. Locally grown food is an ambiguous term used to describe food that is sourced from a specific area, which may be within a defined mile radius or within a defined location (e.g., a county, region, or state). Research has found that consumers have positive perceptions and intentions to purchase locally grown foods (Chamberlain, Kelley, & Hyde, 2013), yet even the most conscientious consumers perceive

limits to their purchasing behavior. Factors that ultimately influence purchasing decisions based on food origin include, but are not limited to, cost, time, aesthetics, convenience, branding, taste, freshness, and availability (Chamberlain et al., 2013; Hu, Batte, Woods, & Ernst, 2012).

Organic foods are those that are grown by avoiding certain inputs and technological tools, such as synthetic fertilizers and genetic engineering (U.S. Department of Agriculture, National Organic Program, Agricultural Marketing Service, 2015). Research has shown that consumers purchase products labeled as organic because of intrinsic and extrinsic forces. Intrinsic forces generally pertain to perceived health benefits and upholding a personal moral code. Extrinsic forces include environmental considerations and political factors, such as support for the local economy and local producers, and other social influences (Padel & Foster, 2005). Although the organic food industry is on the rise, research shows the consumers generally have positive attitudes toward the purchase of organic foods, but are not necessarily willing to pay more for them (Chamberlain et al., 2013). Cost, low quality, importance of the specific food in the diet, social messages, and some demographic characteristics were reasons consumers would not pay more (Chamberlain et al., 2013; Smith & Paladino, 2010).

Demographic characteristics are also indicators of consumer food perceptions. In a review of literature from 2000 through 2014, Feldmann and Hamm (2015) found that females are reported most often as likely to purchase local foods. Chamberlain et al. (2013) corroborated this finding. Similarly, females are more likely to purchase organic foods and are willing to pay more for such items (Narine, Ganpat, & Seepersad, 2015; Yue & Tong, 2009). This is often related to characteristics of health, nutrition, quality, agrochemical use, and other factors (Narine et al., 2015; Shafie & Rennie, 2012). These differences in findings could be due to individual characteristics of the study samples, the location of the studies, or other variables.

Respondent age has been found to be a significant demographic indicator of food perceptions and willingness to pay, but the data is often contradictory. Muhammad, Fathelrahman, and Ullah (2015), Smith and Paladino (2010), and Shafie and Rennie (2012) found that young consumers are less likely to purchase organic foods due to higher prices. Other studies found that it is the younger generations who have a higher willingness to pay for organic products (Narine et al., 2015; Yue & Tong, 2009). In terms of locally produced food items, Feldmann and Hamm (2015) found that as age increased, so did loyalty to local producers.

Background Information

This study was conducted in Trinidad and Tobago (Trinidad). Agricultural contribution to the gross domestic product in Trinidad is relatively low, between 0.3% and 0.6% (The World Bank Group, 2015; The World Factbook, n.d.). This situation creates an opportunity for

producers, agricultural educators, and Extension Services to better understand consumer preferences in their efforts to sustain and grow the agricultural industry.

There is little information available about consumer preferences and behavior regarding food products in Trinidad. Spiers et al. (2014) documented the deep cultural ties to food product selection and purchasing in Trinidad. Another study conducted by Narine et al. (2015) found most consumers in Trinidad are willing to pay higher prices for organic tomatoes. In the latter study, the authors found that a number of factors influence willingness to pay, including perceived health benefit, education level, gender, income, and area of residence. Narine et al. (2015) explained, “Trinidadian consumers have very limited knowledge of the differences between [organic and conventional] products . . . The main issue is the lack of public awareness and education of organic foods” (p. 87). It should be noted that Trinidad does not have a national standard for organically produced foods (Narine et al., 2015; Sandlin, 2015). This lack of public awareness and education about organic foods is an opportunity for Extension Services to help producers understand their consumers’ perceptions to better promote the producers’ agricultural goods.

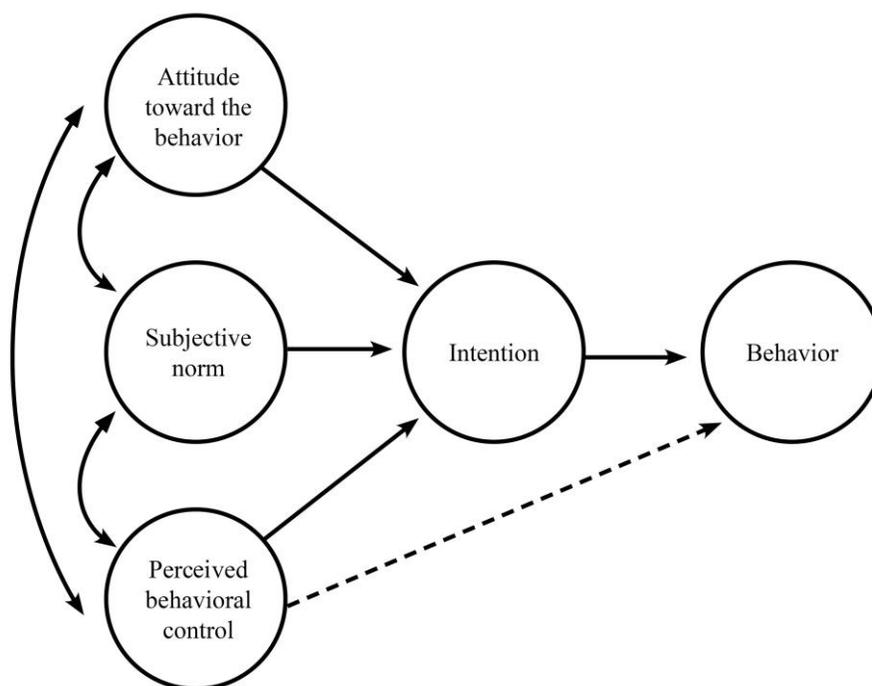
Educational outreach is available to producers through Extension Services. Extension educational activities, such as workshops, demonstrations, and informational flyers, are provided through a combination of governmental, institutional, and public and private sources (Ganpat, Harder, & Moore, 2014). Alternative efforts to educate and train farmers have also been investigated. Dolly and Kissoonsingh (2006) reported that vegetable producers in Trinidad were receptive to the use of distance education methods to receive information and training about new technologies. However, no literature was identified that described the implementation efforts or results of distance education programming for producers in Trinidad.

Producers in Trinidad primarily use conventional, innovative, and a combination of conventional and innovative growing methods to produce crops (Sandlin, 2015). Producers using conventional techniques use agrochemicals to control pests and weeds to increase yields. Innovative producers use practices such as permaculture and farm design to achieve organic production of their crops. Producers using a combination of growing methods trying to produce organically but may use agrochemicals (sometimes off the record) to control pests and/or optimize yields. Sandlin (2015) also found that producers in Trinidad prefer to receive information from informal sources (i.e., fellow growers) rather than formal sources, such as Extension.

Theoretical Framework

The theoretical framework for this study was based on the theory of planned behavior (Ajzen, 1988), specifically the component regarding attitude toward the behavior. This theory shows the influence of an individual's attitude, subjective norms, and perceived behavioral control on intention. Perceived behavioral control accounts for an individual's experience and ability to anticipate challenges. Intention then influences volitional behavior (see Figure 1).

Figure 1. Theory of Planned Behavior



[Adapted from Ajzen, 1988, p. 133]

Human behavior is inherently complex, as the factors that contribute to behavioral expression are complex. Due to the variability of an individual's attitude and subjective norms, attempts to predict behavior have proven to be largely inconsistent (Ajzen, 1988). An individual's attitude toward a behavior is "the individual's positive or negative evaluation of performing the particular behavior of interest" (Ajzen, 1988, p. 117). Individual attitudes may be affected by their personality and personal values (Ajzen, 1988; Luna & Gupta, 2001). Similarly, subjective norms, or a "person's perception of social pressure to perform or not to perform the behavior," (Ajzen, 1988, p. 117) contributes to behavioral intention. In Luna and Gupta's (2001) culture and consumer behavior interaction model, they refer to subjective norms as a cultural value system. A cultural value system develops over time in the context of a group or groups to which they belong.

Inconsistency is a challenge as it pertains to the ability to predict human behavior. Inconsistency can be introduced by personal factors outside of attitudes or personality, such as health, and by situational factors, such as context (Ajzen, 1988). Overall success in predicting behavior will also depend on non-motivational factors, such as availability and resources (Ajzen, 1988). Although research has shown little support for behavioral consistency, even in situations where the individual's "underlying disposition" (p. 37) is assumed to be the same, Ajzen (1988) indicated that under terms of volitional behavior, people generally do what they intend to do. Therefore, "if intentions are... immediate determinates of volitional behavior, then they should correlate more strongly with the behavior than do other kinds of antecedent factors" (Ajzen, 1988, p. 114).

Purpose and Objectives

The purpose of this study was to examine market consumer perceptions of fruits and vegetables in Trinidad. The specific objectives of the study were to

- 1) Describe consumers' perceptions of the characteristics of fruits and vegetables in terms of produce origin and growing method;
- 2) Describe consumers' willingness to pay for various characteristics of fruits and vegetables in terms of produce origin and growing method;
- 3) Explore the relationships between produce origin, growing method, and willingness to pay; and
- 4) Explore the relationships between produce origin, growing method, and willingness to pay and respondent gender and age.

Methods

This study used survey methods to identify the perceptions of market consumers about the fruit and vegetable (produce) source in Trinidad. To represent market consumers in Trinidad, participants were randomly selected on various days and times of the week and from farmer's markets, wholesale and retail markets, and roadside markets. To stratify the data, samples were taken at 14 unique locations at different times of the week and at different times of the day. A total of 170 questionnaires were completed. All data were collected face-to-face and with a paper-based instrument. No differences in response were found based on participant location, day, or time of collection. Thus, while caution is warranted against generalization to broader audiences, evidence of ecological validity is present (Fraenkel, Wallen, & Hyun, 2012).

A researcher-created instrument was used to measure consumer perceptions in three constructs: Produce origin, growing method, and willingness to pay based on the two previous categories. A five-point summated scale, 1 = *Strongly Disagree*, 2 = *Disagree*, 3 = *Neither Agree nor*

Disagree, 4 = *Agree*, 5 = *Strongly Agree*, was used to measure consumer level of agreement with 23 total statements. Gender and age information were also collected. No identifying information was collected from the participants to ensure confidentiality.

Face and content validity of the instrument were established through the use of an expert panel (Fraenkel et al., 2012). The panel included three Trinidadians who assessed and corrected the language and concepts used on the instrument. The panel also provided feedback on the ease of response, layout, and other aspects that contribute to the overall validity of the instrument. A post-hoc reliability analysis revealed the three scales, produce origin (Cronbach's $\alpha = .86$), growing methods (Cronbach's $\alpha = .82$), and willingness to pay (Cronbach's $\alpha = .83$), had acceptable reliability.

Objectives one and two were descriptive in nature. The associated data were reported using frequencies and percentages (Field, 2009). Correlations were calculated using the scale means to examine the relationships between the three constructs to meet the goal of objective three. Objective four was analyzed using a *t*-test and an analysis of variance (ANOVA) procedure. Effect sizes for these analyses were measured using Cohen's *d* for the correlation analysis. Effect sizes were not calculated for the ANOVA as none of the relationships were significant ($p < .05$).

Findings

Research objective one sought to describe consumers' perceptions of fruits and vegetables in Trinidad in terms of produce origin and growing methods. Consumers found locally grown produce to be better than imported produce (see Table 1). A majority of consumers agreed or strongly agreed that locally grown produce is more nutritious (57.8%, $n = 97$) or healthier (61.8%, $n = 105$). Consumers also agreed or strongly agreed that buying locally grown fruits and vegetables stimulates the Trinidadian economy (91.1%, $n = 155$) and that they are better for the environment than imported produce (65.3%, $n = 111$). The frequencies in this construct indicated that a majority of consumers are not certain, disagree, or strongly disagree that locally grown fruits and vegetables are more consistently available (53.3%, $n = 90$) or less damaged (54.8%, $n = 92$) than imported produce.

Table 1. Consumer Perceptions About the Characteristics of Produce Based on Origin

Item	<i>f</i> (%)				
	1	2	3	4	5
Locally grown fruits & vegetables are more nutritious than imported fruits & vegetables.	—	17(10.1)	54(32.1)	66(39.3)	31(18.5)
Buying locally grown fruits & vegetables stimulates the local economy.	—	1(0.6)	16(9.5)	92(54.8)	59(35.1)
Locally grown fruits & vegetables have less damage than imported fruits & vegetables.	3(1.8)	29(17.3)	60(35.7)	58(34.5)	18(10.7)
Locally grown fruits & vegetables are more consistently available than imported fruits & vegetables.	3(1.8)	23(13.6)	64(37.9)	68(40.2)	11(6.5)
Locally grown fruits & vegetables are healthier for me than imported fruits & vegetables.	1(0.6)	10(5.9)	54(31.8)	71(41.8)	34(20.0)
Locally grown fruits & vegetables are better for the environment than imported fruits & vegetables.	—	10(5.9)	49(28.8)	80(47.1)	31(18.2)
Locally grown fruits & vegetables are fresher than imported fruits & vegetables.	—	8(4.7)	34(20.1)	84(49.7)	43(25.4)
Locally grown fruits & vegetables taste better than imported fruits & vegetables.	—	9(5.3)	52(30.8)	74(43.8)	34(20.1)
Buying locally grown fruits & vegetables stimulates the Trinidadian & Tobagonian economy.	—	1(0.6)	14(8.2)	99(58.2)	56(32.9)

Scale Mean = 3.79, *SD* = .56

Scale Alpha = .86

Note: 1 = Strongly Disagree, 2 = Disagree, 3 = Neither Agree nor Disagree, 4 = Agree, 5 = Strongly Agree.

Consumers indicated general agreement with statements in the construct measuring perceptions about the methods used to grow produce ($M = 4.31$, Cronbach's $\alpha = .82$); individual category frequencies can be found in Table 2. Overall, consumers tended to agree with statements supporting the growth of fruits and vegetables without synthetic pesticides and chemical fertilizers. A majority of consumers strongly agreed that produce grown without chemicals are healthier for them (58.2%, $n = 99$) and are better for the environment (54.1%, $n = 92$). Conversely, consumers also agreed or strongly agreed that produce grown with chemicals are more visually pleasing (81.0%, $n = 137$) and are more consistently available than those grown without chemicals (72.2%, $n = 122$).

Table 2. Consumer Perceptions About the Methods Used to Grow Their Produce

Item	<i>f</i> (%)				
	1	2	3	4	5
I prefer to buy fruits & vegetables grown <u>WITHOUT</u> chemicals.	1(0.6)	1(0.6)	1(0.6)	83(48.8)	84(49.4)
Fruits & vegetables grown <u>WITHOUT</u> chemicals are healthier for me.	—	—	4(2.4)	67(39.4)	99(58.2)
Fruits & vegetables grown <u>WITHOUT</u> chemicals taste better.	1(0.6)	3(1.8)	25(14.8)	65(38.5)	75(44.4)
Fruits & vegetables grown <u>WITHOUT</u> chemicals are better for the environment.	—	—	9(5.3)	69(40.6)	92(54.1)
Fruits & vegetables grown <u>WITH</u> chemicals may harm my health.	—	1(0.6)	17(10.0)	71(41.8)	81(47.6)
Fruits & vegetables grown <u>WITH</u> chemicals are more visually pleasing.	2(1.2)	6(3.6)	24(14.2)	82(48.5)	55(32.5)
Fruits & vegetables grown <u>WITH</u> chemicals are more consistently available than those grown without chemicals.	1(0.6)	6(3.6)	40(23.7)	76(45.0)	46(27.2)

Scale Mean = 4.31, *SD* = .49
Scale Alpha = .82

Note: 1 = *Strongly Disagree*, 2 = *Disagree*, 3 = *Neither Agree nor Disagree*, 4 = *Agree*, 5 = *Strongly Agree*.

The purpose of objective two was to describe consumer willingness to pay for various characteristics of produce in Trinidad; the results are reported in Table 3. Consumers reported agreement or strong agreement with statements that indicated their willingness to pay for positive characteristics of produce. This includes characteristics such as taste, nutrition, and freshness. While a majority of consumers (51.5%, $n = 87$) agreed they would pay more for locally grown fruits and vegetables, there were notable frequencies of neutrality and disagreement (48.5%, $n = 82$) with this statement, given that consumers indicated agreement in objective one that locally grown produce is more nutritious, fresher, tastes better, is better for the environment, and stimulates the local economy (see Table 1). They did, however, report agreement and strong agreement with the statement indicating willingness to pay more for produce grown without chemicals (80.6%, $n = 137$).

Table 3. Consumer Willingness to Pay for Various Characteristics of Produce

Item	f (%)				
	1	2	3	4	5
I am willing to pay more for locally grown fruits & vegetables.	9(5.3)	39(23.1)	34(20.1)	76(45.0)	11(6.5)
I am willing to pay more for fruits & vegetables grown without chemicals.	—	10(5.9)	23(13.5)	110(64.7)	27(15.9)
I am willing to pay more for tastier fruits & vegetables.	1(0.6)	5(2.9)	19(11.2)	113(66.5)	32(18.8)
I am willing to pay more for healthier fruits & vegetables.	—	4(2.4)	13(7.6)	110(64.7)	43(25.3)
I am willing to pay more for consistently available fruits & vegetables.	1(0.6)	15(8.8)	46(27.1)	87(51.2)	21(12.4)
I am willing to pay more for less damaged fruits & vegetables.	4(2.4)	13(7.6)	31(18.2)	106(62.4)	16(9.4)
I am willing to pay more for fresher fruits & vegetables.	1(0.6)	6(3.5)	19(11.2)	120(70.6)	24(14.1)
Scale Mean = 3.80, SD = .55					
Scale Alpha = .83					

Note: 1 = Strongly Disagree, 2 = Disagree, 3 = Neither Agree nor Disagree, 4 = Agree, 5 = Strongly Agree.

Objective three sought to examine any relationships among the three constructs in objectives one and two. Spearman's correlation coefficient analyses revealed statistically significant correlations between consumer perceptions about the characteristics of produce based on origin and consumer perceptions about the methods used to grow produce ($r_s = .20, p < .05$). Statistically significant correlations were also found between consumer perceptions about the characteristics of produce based on origin and consumer perceived willingness to pay for various characteristics of produce ($r_s = .37, p < .001$); and consumer perceptions about the methods used to grow produce and consumer perceived willingness to pay for various characteristics of produce ($r_s = .34, p < .001$). Based on Hopkins' effect size interpretations, as described by Kotrlik and Williams (2003), the correlations were determined to be small (.10 - .30) to moderate (.30 - .50).

Objective four explored the relationships of gender and age with Consumer Perceptions of Produce Point of Origin, Growing Method, and Willingness to Pay. The relationships of gender were analyzed using *t*-tests and the relationships of age were analyzed using ANOVA tests. The construct means were used for analysis. The results of the *t*-tests can be found in Table 4. There were 79 male (46.5 %) and 90 female (52.9 %) respondents; one respondent did not gender-identify. There was a statistically significant difference ($p < .05$) between males ($M = 3.70, SD = .57$) and females ($M = 3.87, SD = .54$) on consumer perceptions of produce origin [$t(167) = 2.01,$

$p < .05$]. According to Cohen (1988), the overall relationship of gender with this construct ($d = .31$) was small. No statistically significant differences were found between gender categories and consumer perceptions of the methods used to grow produce nor were there statistically significant differences between gender categories and perceived willingness to pay for various characteristics of produce.

Table 4. Means, Standard Deviations, and *t*-Tests for the Relationship of Gender and Consumer Perceptions of Produce Point of Origin, Growing Method, and Willingness to Pay

Variable	Male		Female		<i>t</i> (167)	<i>p</i>	Cohen's <i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Produce origin	3.70	.57	3.87	.54	2.01	.046	.31 ^a
Produce growing method	4.25	.46	4.11	.41	1.67	.096	.26 ^a
Perceived willingness to pay	3.79	.51	3.81	.59	0.28	.780	.04 ^a

^aLow effect size ($d = .2$); medium effect size ($d = .5$); large effect size ($d = .8$) (Cohen, 1988).

To examine the relationships of age with consumers' perceptions, age clusters were assigned by generation classification (Williams, Page, Petrosky, & Hernandez, 2010). They were assigned as: Millennials (ages 20–37, $n = 55$); Gen X (ages 38–49, $n = 34$); and Baby Boomers (ages 50–68, $n = 76$). There were only seven respondents in the Depression category (ages 69–85); those respondents were combined with the Baby Boomers for analysis. Five consumers did not indicate their age. An ANOVA was used to explore the relationships of age on consumer perceptions of produce point of origin, growing method, and willingness to pay. No significant differences were found. The results are shown in Table 5.

Table 5. Means, Standard Deviations, and One-Way Analyses of Variance for the Relationship of Age on Consumer Perceptions of Produce Point of Origin, Growing Method, and Willingness to Pay

Variable	Millennial		Gen X		Baby Boomers/ Depressions		<i>F</i> (2, 164)	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Produce origin	3.77	.52	3.75	.50	3.83	.62	.27	.764
Produce growing method	4.28	.51	4.26	.53	4.34	.47	.47	.624
Perceived willingness to pay	3.75	.51	3.84	.59	3.82	.58	.37	.692

Conclusions

The first objective sought to describe consumers' perceptions of the characteristics of fruits and vegetables in terms of produce origin and growing method. The data indicated that consumers believed locally grown produce is better than imported in terms of nutrition, freshness, taste, and economical impact. Consumers also believed produce grown without chemicals are better than conventionally grown in terms of health benefits, taste, and environmental impacts. These findings are in agreement with previous research that found consumers have positive perceptions of locally grown foods (Chamberlain et al., 2013) and organic foods (Narine et al., 2015; Shafie & Rennie, 2012). Consumers did agree, however, that produce grown with chemicals is more visually pleasing than organically grown produce.

Objective two sought to describe consumers' willingness to pay for fruits and vegetables in terms of produce origin and growing method. Although consumers held an overall positive perception of locally grown produce, there were fewer individuals who agreed or strongly agreed to the willingness to pay for such items and related characteristics. Consumers responded with strong agreement that they would be willing to pay more for produce grown without chemicals. However, when a statement asked about willingness to pay more for specific characteristics associated with organic production (e.g., healthier), consumers indicated more neutral or slight willingness to pay more. These findings are in alignment with the studies of locally grown food and organic food (Chamberlain et al., 2013; Padel & Foster, 2005; Shafie & Rennie, 2012; Smith & Paladino, 2010). These studies show that consumers are not necessarily willing to pay more for foods based on the constructs of produce origin and growing method. There are limiting factors unique to each category, but a common factor is that consumers are mindful of costs and do not want to overpay.

Objective three examined the relationships among consumer perceptions about the characteristics of produce based on origin, consumer perceptions about the methods used to grow produce, and consumer perceived willingness to pay for various characteristics of produce using correlation analysis. The analysis found a small correlation between consumer perceptions of produce origin and growing methods. It can be speculated, based on the findings in objective one and the writings of Padel and Foster (2005) and Smith and Paladino (2010), that many of the characteristics associated with locally grown and organic production evoke positive emotions in consumers, and the emotions may also be the same or similar, ultimately creating a correlational relationship between the two constructs.

The correlation between consumer perceptions of produce based on origin and willingness to pay was moderate, as was the correlation between consumer perceptions of produce based on growing method and willingness to pay. These correlations are not surprising with the positive perceptions of the constructs found in objective one and the indication of willingness to pay

more for such characteristics in objective two. Although correlations exist between both produce origin and growing method and willingness to pay, Feldmann and Hamm (2015) found indications of willingness to pay are “biased and overestimated because consumers often state that they would pay higher prices for certain product attributes than they actually do in real purchase situations” (p. 158).

Objective four examined relationships between the three constructs and respondent gender and age. Significant differences were found between males and females in their perceptions of produce origin. In this study, and in accordance with the findings of Chamberlain et al. (2013) and Feldmann and Hamm (2015), females were found to have a higher mean score than males in their perception of local produce. There were no significant differences found between males and females in their perceptions of produce growing method or their willingness to pay. This is contradictory to the findings of Narine et al. (2015) and Yue and Tong (2009) who found that females generally have more favorable perceptions of organic growing methods.

Previous studies found age to be a factor in consumer perceptions of produce point of origin with respect to growing method and willingness to pay (Feldmann & Hamm, 2015; Muhammad et al., 2015; Narine et al., 2015; Shafie & Rennie, 2012; Smith & Paladino, 2010; Yue & Tong, 2009). In this study, however, there were no significant differences found among Millennials, Gen X'ers, and Baby Boomers/Depressions in any of these constructs.

Discussion

According to Ajzen (1988), to understand behavior it is important to understand an individual's intention toward said behavior. Intention is comprised of attitude toward the behavior, the subjective norm, and perceived behavioral control. This study explored consumer perceptions in Trinidad market places about produce point of origin, produce growing methods, and their perceived willingness to pay for these characteristics. This information is beneficial for Extension educators and producers in Trinidad and beyond. Narine et al. (2015) noted the demographic characteristics related to Trinidadian consumers' willingness to pay for produce was similar to that of other developed countries. Therefore, parallels may be drawn when creating marketing and educational materials for these audiences.

Although sampling measures were taken to stratify the data and there was evidence of ecological validity (Fraenkel et al., 2012), this study was limited by the sampling procedure. Future studies should use random sampling techniques to mitigate error and allow the findings to be generalizable to a greater population. This study was also limited by questionnaire completion methods. The questionnaire was designed to be self-administered but, in many cases, the respondents requested that the researchers read the statements to them and complete the questionnaire for them. The respondents were literate but requested the reading of the

instrument as a sign of commitment by the researchers. This restricted the number of instruments collected as each had to be read aloud.

In alignment with previous studies, consumers in this study indicated positive perceptions of locally sourced produce grown without chemicals and have neutral to slight agreement with statements indicating a willingness to pay more for related characteristics. Although one might expect a stronger agreement in willingness to pay based on the strong preferences for these characteristics and the recent study conducted by Narine et al. (2015), a review of literature conducted by Feldmann and Hamm (2015) found discrepancies in willingness to pay and actual behavior. Other limitations to purchasing locally sourced and organically produced foods, regardless of a consumer's intention, could have included cost, time, aesthetics, convenience, branding, taste, freshness, and availability (Hu et al., 2012). This is corroborated by Ajzen (1988) who wrote that predicting behavior is also dependent on non-motivational factors. Other influencing factors could have been the data collection procedures and unmeasured demographic characteristics, such as education level, of the obtained sample.

When looking into the relationships of the demographic characteristics measured in this study, it was interesting to find the only significant difference between males and females was in relation to produce origin, with women indicating more favorable perceptions toward locally grown fruits and vegetables. Due to the small effect size (Cohen, 1988), caution is advised when interpreting this finding. Previous studies also found that females generally indicate more support for organically grown produce (Chamberlain et al., 2013; Feldmann & Hamm, 2015; Narine et al., 2015). There was no difference found between male and female perceptions of production method in this study. There was no difference found in male and female willingness to pay for these characteristics, which is also contrary to previous findings. In other studies, females generally have indicated willingness to pay higher prices for both locally and organically grown produce (Narine et al., 2015; Yue & Tong, 2009).

Similarly, generational categories are a demographic characteristic that has received much attention regarding produce origin, growing method, and willingness to pay. Previous studies identified conflicting results as to which age group has more favorable perspectives and higher willingness to pay (Muhammad et al., 2015; Narine et al., 2015; Shafie & Rennie, 2012; Yue & Tong, 2009). This study found no significant differences between age and any of the three constructs.

The theory of planned behavior shows the reciprocal relationships between attitude, subjective norms, and perceived behavioral control as inputs into intention and behavior. Consumers in this study may have responded in accordance with how they felt subjective norms, or social pressures, expected them to respond versus their actual belief or level of belief (Ajzen, 1988; Luna & Gupta, 2001). This study did not investigate subjective norms, but some speculation can

be made based on the findings of this study and how information flows in the theory of planned behavior. There may be a positive social perception of locally grown and organically produced foods held by the respondents, because although they did not indicate a willingness to pay more for such items, they did have positive attitudes about these constructs.

Recommendations

As previously mentioned, the demographic characteristics that are related to Trinidadian consumers' willingness to pay for produce has been found to be similar to that of other developed countries (Narine et al., 2015). Therefore, Extension educators in the U.S. may apply the findings of this study to their work. The findings of this study highlight the opportunities for Extension educators who work with producers who sell directly to consumers at local markets and those who produce organically. Extension educators who work with these producers can help them to tailor their marketing strategies to better target consumers. Incorporating the results of this study, producers able to promote locally grown produce may find added success in developing supplemental marketing strategies targeting females. Based on this study, there is no apparent need to develop marketing strategies targeting a specific gender regarding organic production. Similarly, there were no differences in generational categories as to preference for locally or organically grown produce. All generational categories had positive perceptions of these categories. Further research into generation-specific marketing techniques may prove helpful if producers are trying to reach a particular age group. This study also found that consumers indicated willingness to pay more for these produce characteristics. Other studies have also shown an increased willingness to pay for these characteristics (Feldmann & Hamm, 2015), so individual research into local market demand and prices is recommended.

Further research on subjective norms and perceived behavioral control as it pertains to the constructs in this study would give a better understanding of consumer intention and behavior. This information, in conjunction with the findings of this study, would provide Extension educators with detailed information to assist producers in developing marketing strategies targeted at a specific behavior.

Using current dissemination methods and sources, as described by Ganpat et al. (2014), and implementing new distance education models (Dolly & Kisoonsingh, 2006), Extension educators should also develop educational materials to help producers develop or alter their production methods to meet the expectations of consumers and to better market their produce in the marketplace. It is also a way for Extension to ensure stakeholders have the appropriate knowledge, skills, and technologies to produce in a way that will allow them to be successful in the market places. Previous research has shown that producers in Trinidad use a variety of growing methods and can be innovative to meet the desires of the consumers (Sandlin, 2015). Furthermore, Extension educators can incorporate this information into their educational or

applied research programs to raise public awareness of farmer practices and research-based information about produce point of origin and growing methods.

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