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## The Importance of Fresh Fruit Attributes in Trinidad and Tobago in the Purchase Decision of Women

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**Abstract:** As consumers become more sophisticated their basic requirements change, and issues of product quality and food safety increase in importance while shopping for food and other products. Consumers may no longer be price focused in their purchases. Trinidad and Tobago (T&T) has been transitioning from a low income country to a high income country in the last decade. What attributes are sought by the contemporary T&T female fruit shopper is of vital importance to both Traditional and Modern food retailers. This study attempts to identify the attributes of fresh fruits that are important to female shoppers in the contemporary produce market. The analysis focused on the importance placed on a selected number of fresh fruit attributes in an attempt to identify if they were different between Traditional and Modern outlet shoppers. The results suggest “quality of fruits” is most important to female shoppers, while price ranked 5<sup>th</sup> in the list. Quality of fruits, appearance of fruits and nutritional value of fruits were statistically different between Traditional and Modern outlet shoppers. Armed with this information retail fresh fruits operators should be better positioned to develop their marketing strategies.

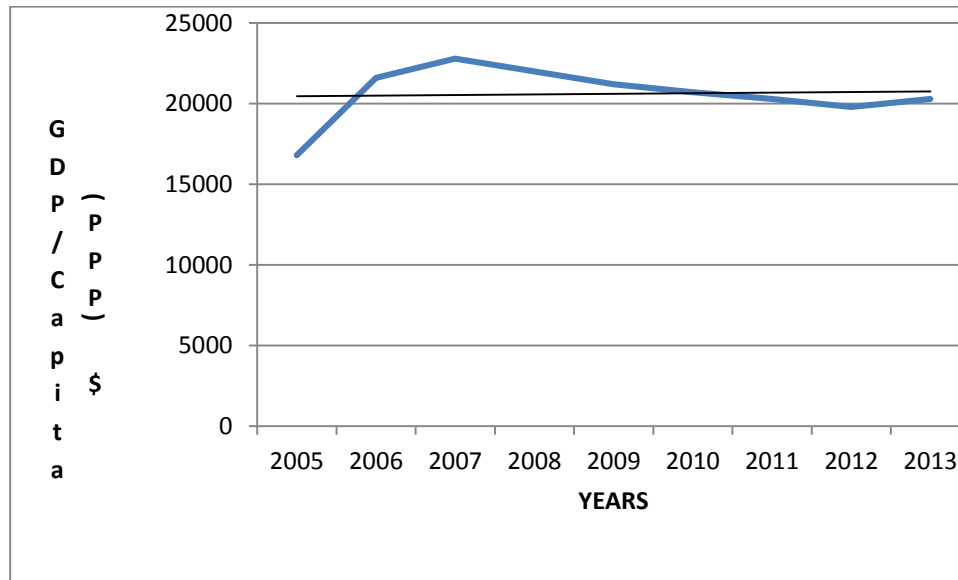
**Keywords:** Fresh fruit attributes, Trinidadian women, Quality, Retail outlet choice.

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## Introduction

As part of the planned studies on food marketing in the Caribbean, this paper reports the findings of the importance of fresh fruit quality attributes in the purchase decision of women in Trinidad and Tobago (T&T). There are numerous attributes on which agricultural produce can vary – size, color, taste, nutritional content etc. and fresh fruit is no exception. What attributes shoppers seek while making a purchase decision is vital information for both traditional and modern retail outlet operators as they attempt to remain profitable and attract new customers. Traditionally fresh fruit sales were primarily at roadside stands and the public markets. Sale at these outlets was generally by the heap or count, with little grading, minimal packaging and much haggling over price. Today the sale of fresh fruits in supermarkets is vastly different. Fruits are generally sold by weight, in many cases washed and sized, packaged and with a listed price per kilogram. What attributes are important to shoppers, at both supermarket and the traditional outlets? This is the focus of this study.

Trinidad and Tobago is an oil and gas based economy that has made considerable progress since the 1970s. Figure 1 shows the Gross Domestic Product per Capita (PPP) \$ for the period 2005 to 2013, with a trendline added. As can be observed in the figure the GDP/Capita displayed a slight upward trend during the period. In 2013 with GDP/Capita of \$ 20,300 T&T ranked 64 in the world. GDP growth rate (%) for T&T moved from 0.00 in 2010 to 1.60 in 2013 and ranked 150 globally just behind the USA that was ranked 149. Has T&T women ascended the “Hierarchy of Food Needs” beyond the “Enough Food” level as outlined by Satter E. (2007)?

**Figure 1:** T&T GDP/Capita (PPP) \$ for 2005 to 2013

Source: Macro Economy Meter

In the contemporary fresh fruit market with more educated, health conscious, time pressured, and value seekers, price alone might not drive fresh fruit sales. Fresh fruit sales might be a good example where the three categories of products based on the ease of assessing a product's quality attributes might be at work. These three categories are:

- (a) Search goods – goods with characteristics that are relatively easy for a consumer to assess its quality in advance of purchase, example the shape of an orange;
- (b) Experience goods – goods with attributes that shoppers must actually consume before they can determine the quality, example the sweetness of an orange;
- (c) Credence goods – goods with attributes that shoppers might not be able to evaluate even after consumption, example the nutritional value of consuming an orange;

As the fresh fruit market in Trinidad and Tobago continues to try and respond to consumers demand for products with an increasingly wide array of attributes, both academics and practitioners would be called on to help to protect the consuming public

from false claims, and provide businesses with valued information to improve their strategies. At the same time retail operators would need an increased understanding of the attributes sought by current and prospective customers if they are to provide them with value for money. Research is therefore a must if the retail sector is to keep abreast with the factors driving the present transformation.

While nutritionists and others expound on the benefits of fresh fruit consumption, there appears to be little empirical work being done on where consumers buy fresh fruits, what attributes they desire, how much they are prepared to pay for these desired attributes and the frequency of fresh fruit purchasing in the Caribbean. Marketing theory suggests that the choice of a retail outlet for a product is a multifaceted construct, driven not only by the product and socio-economic factors, but also by level of involvement in the purchase decision. This study attempts to shed some light on the desired attributes of fresh fruits in T&T and identify possible differences that might exist between traditional outlet and supermarket shoppers for these attributes.

The rest of the paper is organized as follows. The next section provides a brief review of some relevant literature to this study. This is followed by a statement of the problems addressed in the study. Thereafter the analytical approach and data used in the study are described. This is followed by the results, and finally the conclusions and discussion.

### **Literature Review**

Sustained economic growth in developed and developing countries has allowed consumers to move up Maslow's hierarchy of needs pyramid from satisfying basic physiological needs. Antle J. M. (1999) suggested that the traditional model of analyzing an agricultural market required modification and called for what was referred to as "The New Economics of Agriculture". In this new model Antle J. M. (1999) suggested that the demand function should incorporate two new variables; (a)  $Q$  – a vector of

nonprice attributes from which consumers derive utility, and (b) C – representing characteristics of the consuming population, while the supply function include C. In a nutshell, a wider range of factors than was traditionally considered are required for contemporary food markets.

Improving our knowledge of shoppers' behavior in relation to purchases of fresh fruits is of obvious value to retail operators, nutritionists and dietitians as they try to increase the consumption of fresh fruits in the Caribbean. However, a common definition of quality is required for these varied actors to work in harmony. A review of the literature in both developed and developing countries readily reveals the numerous attributes encompassed in the concept of food quality. Garvin D.A. (1984) suggested that there are five approaches to define quality. In the transcendent approach of philosophy quality cannot be defined precisely. As Opara, L. U. (2000) stated "The term 'quality is elusive and connotes different meanings to different people. Quality is also dynamic and reflects both time and position in the entire food supply chain'.

Abbot J. (1999) defined quality "as the degree of excellence of a product or its suitability for particular use. She further states that the quality of produce encompasses sensory properties (appearance, texture, taste, and aroma), nutritive values, chemical constituents, mechanical properties, functional properties and defects. Becker T. (2000) suggested that quality can be defined in terms of the moment at which the consumer receives information or cues about the characteristics of the product while shopping for or consuming it.

Caswell J. A. (2000) provides another perspective of quality with special focus on food products. In her categorization quality can be put into five categories. Table 1 illustrates her five categories and some components of interest in each category. In T&T the level of interest in these categories would vary from product to product, and in the case of fresh fruits I am not sure if all are considered.

**Table 1:** Quality attributes of food products (with examples)

Quality attributes	Examples
Food Safety Attributes	Foodborne pathogens, Heavy metals, Pesticide residues, Food additives, Naturally occurring toxins, veterinary residues
Nutrition Attributes	Fats, Calories, Fibre, Sodium, Vitamins, Mineral
Value Attributes	Purity, Compositional integrity, Size, Appearance, Taste, Convenience of preparation
Package Attributes	Package materials, Labeling, Other information provided
Process Attributes	Animal welfare, Biotechnology, Environmental impact, Pesticide use, Worker safety

Source: Caswell J. A. (2000)

Brunso et al (2005) suggest that quality can be examined from two perspectives, objective and subjective perceptions. Objective quality encompasses the technical, measurable and verifiable aspects of products/services, processes and quality control. Subjective or perceived quality refers to the consumers' perceptions or value judgments.

Brunso et al (2005) identified four types of food quality:

- (a) Product-oriented quality – refers to all aspects of the physical product that together enable a precise description of the specific product;
- (b) Process-oriented quality – refers to the various transformations inputs undergo in an effort to arrive at the final food product;
- (c) Quality control – refers to the standards that a product has to conform to to be approved for a specific quality class;
- (d) User-oriented quality – refers to the individual user's subjective evaluation;

The utilization of all of these categories in fruit shopping decisions in T&T is open to debate. Other researchers have attempted to simplify the concept of quality by putting the concept into two categories – intrinsic and extrinsic attributes. From a very simplistic perspective extrinsic attributes here are related to the product but not in the

physical sense, such as, its country of origin. While intrinsic attributes are related to such aspects as color, shape, texture etc.

In a study titled "Intrinsic and Extrinsic quality attributes, loyalty and buying intention: an analysis for a PDO product" Fandos C. & C. Flavian (2006), state "It is also worth noting that the concept of quality, or more exactly the perception of quality varies depending on a range of factors such as the moment at which the consumer makes the purchase or consumes the product, and the place where it is bought or enjoyed, to name a few." Okello J.J. et al (2012) in their study titled "Choice of Fresh Vegetable Retail Outlets by Developing-Country Urban Consumers: The Case of Kale Consumers in Nairobi, Kenya" identified income, living environment, risk perception, willingness to pay for safety and perception of consistency of quality of kale affect the probability of choosing the roadside, supermarket, or specialty store over the open-air market.

Given the brief review of quality attributes for food products the following attributes were identified for this study: Price of fruits, Appearance, Taste, Quality, Nutritional value, and Locally produced.

### **Research Problems**

- (1) To rank the importance of the identified fruit attributes in the purchase decision of fresh fruits by Trinidadian women?
- (2) To test if there was a difference in the importance ranking of the attributes between traditional and modern outlet for fresh fruits by women shoppers in T&T.

### **Research Hypotheses**

**H<sub>01</sub>:** There is no significant difference in the importance of the price of fruits between the two retail formats by Trinidadian women when purchasing fresh fruits.

**H<sub>02</sub>:** There is no significant difference in the importance of appearance of fruits between the two retail formats by Trinidadian women when purchasing fresh fruits.

**H<sub>03</sub>:** There is no significant difference in the importance of taste of fruits between the two retail formats by Trinidadian women when purchasing fresh fruits.

**H<sub>04</sub>:** There is no significant difference in the importance of quality of fruits between the two retail formats by Trinidadian women when purchasing fresh fruits.

**H<sub>05</sub>:** There is no significant difference in the importance of the nutritional value of fruits between the two retail formats by Trinidadian women when purchasing fresh fruits.

**H<sub>06</sub>:** There is no significant difference in the importance of the fruit being locally produced between the retail two formats by Trinidadian women when purchasing fresh fruits.

### **Analytical Approach and Data**

To investigate if there was a difference in importance between the patrons of modern retail outlets and the traditional formats a questionnaire was developed and pretested in July 2014. The questionnaire tried to identify the main choice of retail outlet used by respondents when purchasing fresh fruits. The respondents were asked to rank the identified fruit attributes on a scale of 1 to 5, where 1 was not important and 5 very important. Point Score Analysis Ilkbery, B. W. (1977) was used to determine the ranking of the identified variables. Independent samples t-test was used to identify if there was a difference between the ranking of the attributes for shoppers at the two types of outlets. The decision rule employed in this study is as follows: reject the null hypothesis if the probability of the test statistic is less than or equal to alpha 0.05.

A convenience sampling method was used to collect the data in Trinidad only. Questionnaires were administered to prospective respondents who were willing to participate at banks, hospitals, the University of the West Indies and outside supermarkets and in public markets during the months of August and September 2014.



A total of 350 questionnaires were administered of which 306 were fully completed and returned, giving a response rate of 87 percent. The relevant data was analyzed using SPSS version 20.

## Results

The majority of the sample (67%) purchased their fresh fruits at the traditional retail outlet, public market and roadside fruit stalls. The point score of each variable is calculated by the sum of the values selected for each level in the Likert scale multiplied by the number of respondents that choose the respective value, equation 1.

### Equation 1:

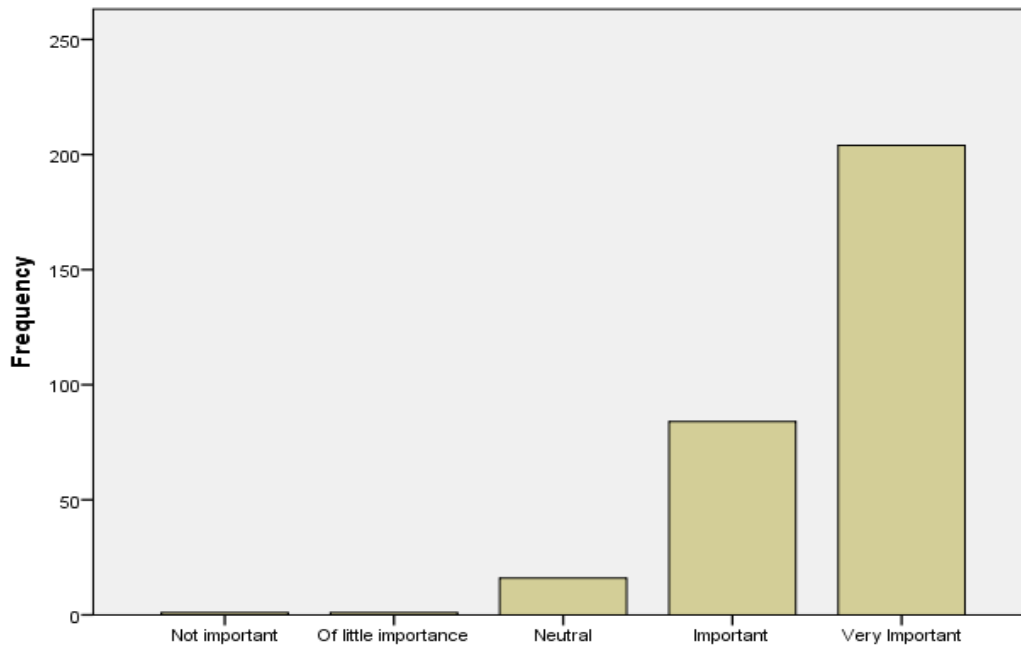
$$\text{Point Score} = \sum_{i=1}^5 r_i n_i$$

Where: r = rank

i = ranking level.....i = 1, 2, 3, 4 or 5

n = number of respondents that choose the respective 'i'

Table 2 illustrates the point scores of the attributes analyzed in this study. As is seen in this table the perceived quality of the fruit received the highest point score, 1407 out of a possible score of 1530 (306\*5). Figure 2 illustrates the frequencies of the various categories for quality of fruits. As can be observed in the figure over 200 (67%) of the respondents ranked quality of fresh fruits as very important in their purchase decision. Appearance and taste of fruits which are value attributes of food product quality were ranked second and third respectively. Price was ranked fifth, with cues on origin of fruit scoring less than 1000 points. This ranking suggests that price is not the most critical attribute in fresh fruit purchasing by female Trinidadians.

**Figure 2:** Frequencies of ranking for quality of fresh fruits**Table 2:** Point Scores of Fruit attributes

Fruit attributes	Point Score	Rank
Quality of fruits	1407	1
Appearance of fruits	1389	2
Taste of fruits	1350	3
Nutritional value of fruits	1263	4
Price of fruits	1190	5
Locally produced fruits	993	6

The Levene's Test for equality of variances was used to check the variance between the two samples. For price of fruits, taste of fruits and locally produced fruits the  $p > 0.05$  was obtained and as a result the null hypotheses are not rejected. We can therefore proceed on the assumption of homogeneity of variance between the two groups for these variables. In the case of appearance of fruits, and quality of fruits the  $p$  value was  $< 0.05$  and as such equal variance cannot be assumed.

Of the six attributes analyzed only three were statistically significantly at alpha 0.05 - appearance, quality and nutritional value. Table 3 illustrates the mean values for the attributes and p-value for the 2-tailed t-test.

**Table 3:** Mean values and t-test for traditional and modern outlets

Variables	Traditional Outlet Mean	Modern Outlet Mean	Independent Sample t-test sig.(2- tailed)
Price of fruits	3.95	3.77	0.236
Appearance of fruits	4.60	4.41	0.043
Taste of fruits	4.46	4.32	0.174
Quality of fruits	4.67	4.45	0.012
Nutritional value of fruits	4.22	3.93	0.023
Locally produced	3.28	3.17	0.430

**H<sub>01</sub>:** There is no significant difference in the importance of the price of fruits between the two retail formats by Trinidadian women when purchasing fresh fruits.

The t-test sig. (2-tailed) result obtained for hypothesis 1 was  $p = 0.236$ . The null hypothesis is not rejected as the test result is not statistically significant. Hence, it is concluded that Trinidadian females do not perceive the price to be different between the two formats.

**H<sub>02</sub>:** There is no significant difference in the importance of appearance of fruits between the two retail formats by Trinidadian women when purchasing fresh fruits.

The t-test sig. (2-tailed) result obtained for hypothesis 2 was  $p = 0.043$ . The null hypothesis is rejected as the test result is statistically significant. Hence, it is concluded that Trinidadian females do perceive the appearance to be different between the two formats.

**H<sub>03</sub>:** There is no significant difference in the importance of taste of fruits between the two retail formats by Trinidadian women when purchasing fresh fruits.

The t-test sig. (2-tailed) result obtained for hypothesis 3 was  $p = 0.174$ . The null hypothesis is not rejected as the test result is not statistically significant. Hence, it is concluded that Trinidadian females do not perceive the taste of fruits to be different between the two formats.

**H<sub>04</sub>:** There is no significant difference in the importance of quality of fruits between the two retail formats by Trinidadian women when purchasing fresh fruits.

The t-test sig. (2-tailed) result obtained for hypothesis 4 was  $p = 0.012$ . The null hypothesis is rejected as the test result is statistically significant. Hence, it is concluded that Trinidadian females do perceive the quality of fruits to be different between the two formats.

**H<sub>05</sub>:** There is no significant difference in the importance of the nutritional value of fruits between the two retail formats by Trinidadian women when purchasing fresh fruits.

The t-test sig. (2-tailed) result obtained for hypothesis 5 was  $p = 0.016$ . The null hypothesis is rejected as the test result is statistically significant. Hence, it is concluded that Trinidadian females do perceive the nutritional value to be different between the two formats.

**H<sub>06</sub>:** There is no significant difference in the importance of the fruit being locally produced between the retail two formats by Trinidadian women when purchasing fresh fruits.

The t-test sig. (2-tailed) result obtained for hypothesis 6 was  $p = 0.430$ . The null hypothesis is not rejected as the test result is not statistically significant. Hence, it is concluded that Trinidadian females do not perceive the origin of fruits, i.e. locally produced to be different between the two formats.

## **Conclusions and Discussion**

This study offers an insight into the importance of fruit attributes in the purchase decision of Trinidadian women. The results suggest that the price of the fruits is not the

predominant factor influencing their choice. Aesthetics might be more important to female shoppers in T&T as quality and appearance were ranked first and second respectively in the Point Score Analysis. Further in the Independent sample t-test price was not statically significant.

Food retailing in Trinidad and Tobago is highly competitive, and it is expected to become more so in the years to come. As food retailers attempt to find ways to differentiate themselves there is need for them to know what attributes are important to shoppers. As the results of this study suggest nutritional value is important to shoppers in T&T and as the shopping population becomes more knowledgeable greater emphasis might be placed on this attribute. Given the exploratory nature of this study only a few attributes of fresh fruits were examined. Further research examining for instance, the importance of food safety and process attributes is needed to help to provide store managers/operators with the type of information they would need in tomorrow's highly competitive food marketing arena.

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