

## An Analysis of Consumers Preference for Apples in Bangalore City

Taeab Fahimullah <sup>1\*</sup>, Rahimi Mohammad Rahim <sup>2</sup>, Qadari Ahmad Shah <sup>2</sup> and Bahar Zabihullah <sup>1</sup>

<sup>1</sup>Department of Agribusiness, Faculty of Agriculture, Nangarhar University, Nangarhar, Afghanistan

<sup>2</sup>Department of Economics and Extension, Faculty of Agriculture, Nangarhar University, Nangarhar, Afghanistan

\*Corresponding author email: [Fahimullah25@gmail.com](mailto:Fahimullah25@gmail.com)

### ABSTRACT

Human diets need fruits. India imports several fruits from throughout the globe. The research documented the source and varieties of imported fruits available in the market, analysed customer choice, and assessed variables affecting consumption. The Bengaluru research had 60 participants. The survey found that India imports the most fruits from China in 2016-17. Most customers chose apple (82.33), followed by pomegranate (69). Nearly 41.67% of customers choose trustworthy brands, while 36.67% are fine with any brand. Most customers (58.33%) bought imported fruits via contemporary retail, followed by wholesalers (30%). In Bengaluru, 81.67% of buyers said health, flavor, and quality influenced their purchase of imported fruits. To lessen dependency on imported fruits, state agricultural colleges, especially horticultural universities and departments, must enhance local fruit quality, taste, and color to compete with imported fruits.

**Keywords:** Apples, Consumer Preference, Consumption, Garrett`s ranking

### INTRODUCTION

Consumer preferences are subjective tastes assessed by the usefulness of different commodities bundles. Consumers usually choose depending on product, price, venue, and promotion. Consumer tastes are unaffected by wealth and pricing. Consumer preferences are not determined by their capacity to acquire items (Masake & Jain, 2011). Consumer behaviour is the decision-making and physical action involved in buying, assessing, using, and controlling products and services (Sekhon, 2006). Consumer behaviour involves studying what people purchase, where they buy it, how frequently they buy it, and how often they consume it. To get a competitive edge, it's important to know how consumers respond to product characteristics, pricing, and advertising.

In certain countries, individuals are affluent enough to purchase more fruits at once. In underdeveloped civilizations, consumers may barely cover their basic necessities; hence apples may be last on the list (Mevlut, 2012). Fresh produce consumption has increased due to institutional and economic causes. Rising earnings have altered customer expectations, and they want a wider range of fresh fruit year-round. In addition, international trade agreements, advances in the marketing infrastructure of highly perishable items, and worldwide coordination among importers, handlers, and distributors have increased fresh apple availability (Singh & Gajanana, 2007).

Growing evidence that apple-rich diets high in vitamins, minerals, and fibre reduce chronic illnesses and obesity is another cause (Yeu & Tong, 2011). Health problems have altered customer preferences for fresh produce as nutrition and health have become more linked (Moghana, 2012; Moksha, 2016). The study aims to

document the various types and origins for apples available in Bangalore market, also to investigate the patterns of apple consumption and the determinants of consumer preference for apples, the study will also examine the marketing strategies for predominant apple varieties in Bangalore city.

## MATERIALS AND METHODS

### *Study Area*

Bangalore, Karnataka's capital, is a cultural melting pot. The city includes well-planned parks, gardens, broad avenues of blooming trees, and a pleasant temperature. Bangalore, India's fourth biggest city, with 12.47 million residents and a 47 percent decadal growth rate (2018). Bangalore follows New Delhi in Indian metropolitan growth. Great dynasties like the Kadambas and Hoyasalas founded the city in the 16th century. Bangalore is 920 meters above sea level. Due to its height, the 2190-square-kilometer city has a comfortable temperature year-round. The 2011 census found 88.48% city literacy. The Garden City of India is known for its tree-lined avenues and lush vegetation. Highest recorded temperature was 39°C, lowest was 7.8°C. August, September, and October had the most 24-hour rainfall at 180mm (Palaniappal, 2010; Victoria, 2016; Wang, 2010).

### *Samples Collection*

The present study is confined to a detailed enquiry of consumers' preference for Apples in Bengaluru city to accomplish the objectives of the study area. The primary data regarding the study was collected from the respondents by personal interview method, by administering pre-tested structured schedule. The sample respondent was interviewed at road side apples shops, modern retail stores and fruits markets. The specific information elicited included questions regarding consumption of apples, nature of purchase decisions, weekly expenditure on apple consumptions, factors influencing for buying apples, preference for different types of apples in Bangalore city.

### *Statistical Analysis*

#### *Garrett's ranking technique*

The Garrett's ranking method was used as a methodology to examine the elements influencing brand selection based on certain features. Garrett's ranking methodology serves as a valuable tool for evaluating and prioritizing a collection of elements or objects, as indicated by the respondents from a representative sample, according to certain criteria. The following section provides a description of the approach used for the purpose of ranking. The respondents' assigned values were converted into scores using the method provided by Garrett and Woodworth (1969).

$$\text{Per cent position} = \frac{100 (R_{ij} - 0.5)}{N_j}$$

Where,

$R_{ij}$  = Rank given for the  $i^{\text{th}}$  factor by  $j^{\text{th}}$  respondent and

$N_j$  = Number of factors ranked by the  $j^{\text{th}}$  respondent.

The conversion of the projected percentage position into a score was accomplished by using Garrett's table. Subsequently, the cumulative scores of several participants were aggregated, and subsequently, the average score was computed. The element that was deemed most significant was the one that had the highest mean score. Factor analysis is a statistical technique used to identify underlying factors or dimensions that explain the relationships among a set of observed variables. It involves Factor analysis is a statistical technique used to elucidate the variability among observable variables that are connected, by representing them in terms of a smaller set of unseen variables known as factors. Factor analysis is a statistical method that aims to identify and analysis the underlying latent variables that contribute to the observed differences in a set of responses. The variables that have been observed are represented as linear combinations of the prospective components, along with the inclusion of error terms. The acquired knowledge on the interrelationships among the observed variables may afterwards be used to decrease the number of variables within a given dataset.

## RESULTS

### Socio-demographic characteristic of consumers in Bangalore city

The socio-demographic characteristic of consumers was presented in the Table 1 which contains the information about the gender, age group, marital status, food habit and family type. The table explains that amongst the 130 consumers studied, majority of the consumers (66.15%) were males and the remaining (33.85%) were females. According to the age, majority (40.31%) of consumers were between the age group of 20 to 30 years which included the employees and business people. About 33.33 per cent of the consumers were belonged to the age group of 31 to 40 years. 17.05 per cent of consumers were included in the age group of 41 to 50. 6.98 per cent of the consumers were in the age group of 51 to 60 years and 2.33 per cent were in the age group of above 60 years. With respect to marital status, a vast majority of the respondent consumers (60.77%) were married and only 39.23 per cent were not married, which clearly indicates that the family requirements increase after the marriage and also purchase decision will be influenced by both husband and wife. With respect to food habits, majority of the respondent consumers (50.77%) were non-vegetarians and the rest (49.23%) were vegetarians. With reference to the type of family, majority (53.08 %) of consumers had a joint family and (46.92%) of the consumers were of nuclear family.

Table 1: Socio-demographic characteristics of consumers in Bangalore city

Sl. No.	Characteristics	Category	Number	Percentage
1.	Gender	Male	86	66.15
		Female	44	33.85
<b>Total</b>			<b>130</b>	<b>100.00</b>
2.	Age group (years)	20-30	50	40.31
		31-40	46	33.33
		41-50	22	17.05
		51-60	9	6.98
		61 above	3	2.33
<b>Total</b>			<b>130</b>	<b>100.00</b>
3.	Marital status	Single	51	39.23
		Married	79	60.77
<b>Total</b>			<b>130</b>	<b>100.00</b>
4.	Food habit	Vegetarian	64	49.23
		Non-vegetarian	66	50.77
<b>Total</b>			<b>130</b>	<b>100.00</b>

5.	Family type	Nuclear family	61	46.92
		Joint family	69	53.08
<b>Total</b>			<b>130</b>	<b>100.00</b>

### *Import of Apples to India*

India bought mostly Washington and Red Delicious apples, with some Golden Delicious and others. Australia and New Zealand produced largely Gala and Red Delicious apples. Chinese apples were mostly Fuji. India imports most apples from China. Around 80% of imported apples originate from China, USA, and Chile. (DGCI & S, 2018) Trade Map, International business development trade data. FAS New Delhi expects 2018/19 import decreases of 9% to 0.23 MMT. India's northern areas eat most domestic apples, while other regions have little distribution. Thus, the southern, western, and eastern Indian markets for imported apples develop. Human diets need fruits. India imports several fruits from throughout the globe. The research documented the source and varieties of imported fruits available in the market, analysed customer choice, and assessed variables affecting consumption. The Bengaluru research had 60 participants. The survey found that India imports the most fruits from China in 2016-17. Most customers chose apple (82.33), followed by pomegranate (69). Nearly 41.67% of customers choose trustworthy brands, while 36.67% are fine with any brand. Most customers (58.33%) bought imported fruits via contemporary retail, followed by wholesalers (30%). In Bengaluru, 81.67% of buyers said health, flavor, and quality influenced their purchase of imported fruits. To lessen dependency on imported fruits, state agricultural colleges, especially horticultural universities and departments, must enhance local fruit quality, taste, and color to compete with imported fruits (Table 2).

Table 2: Import of apples to India

S. No.	Country	2016-17	
		Qty in Tones	Rs. in Crores
1.	China	147,852	12.14
2.	United States	92,574	9.65
3.	Chile	23,954	2.45
4.	Italy	21,196	2.15
5.	New Zealand	9,964	1.20
6.	Turkey	5,143	0.43
7.	France	3,018	0.30
8.	Australia	590	0.04
9.	Others	22,814	0.01
<b>Total</b>		<b>327,105</b>	<b>28.37</b>

**Source:** Trade statistics for international business development DGCI&S (2018)

### **Availability of Imported Apple varieties in Bangalore city**

Available varieties of imported apples are presented in Table 3. It is clear from the table that ten different varieties of imported apples were available and traded in Bangalore fruit market. The most traded and popular variety of imported apples was Washington grade (A and B) from USA indicated by 25 per cent of traders in Bangalore city. The next mostly traded and imported variety among imported apples was Royal Gala (18.33%) from New Zealand. The Fuji variety from Japan was preferred as an important traded variety by 15 per cent respondents among the ten available imported varieties in Bangalore city. Green apple variety from China (13.33%), France variety from France (10%), Chili variety from Chili (6.69%), Italian variety from Italy (5%) and Golden Delicious from USA (3.33%) variety of imported apples was also important traded and popular

varieties. The study also revealed that Pink Lady Grad (A and B) from Australia variety (1.66%) and Red Delicious Grad (A, B and C) (1.66%) from USA were the least traded and important varieties among the imported Apple varieties in Bangalore city.

Table 3: Preferred imported Apple varieties by consumer in Bangalore city

Sl.No.	Variety	Mean Score (n=130)	Rank
1.	Washington	60.3	I
2.	Royal Gala	53.2	II
3.	Red Delicious	50.5	III
4.	Fuji	45.8	IV
5.	Green	39.7	V

#### *Preferred place for purchase of Apples*

Table 4 shows where Bangalore residents buy apples. According to the table, most customers bought apples from contemporary retail (30.77%), followed by sidewalk vendors (28.46%), online (19.23%), wholesaler (10.77%), and push cart sellers (6.15%). They buy apples from traditional stores (4.61%). It displays apples at all shops and venues. Consumers appreciated current retail models for their convenience, freshness, and variety. Modern retail models include More Megastore, Big Bazaar, Reliance Fresh, Namdarari's Fresh, Nilgiris, and others. The availability of apples in organized retail outlets is also encouraging customers to purchase apples. There are wholesalers at Krishna Rajendra Market, Russell Market, fruit market, K. R. Market, and Singenahalli Agrahara, where people buy imported fruits owing to cheap pricing and availability. There are several retail fruit and vegetable stores in Bangalore that sell apples. Thus, customers purchase apples from these stores.

Table 4: Preferred place for purchase of Apples in Bangalore city

S. No.	Type of store	Number	Percentage
1.	Modern Retail Format	40	30.77
2.	Footpath Vendors	37	28.46
3.	Online	25	19.23
4.	Wholesaler	14	10.77
5.	Pushcart Vendors	8	6.15
6.	Traditional Retail Outlets	6	4.61
<b>Total</b>		<b>130</b>	<b>100.00</b>

#### *Average quantity of Apples purchased by consumer*

Table 5 shows monthly apple purchases. The figure showed that 45.38 percent of customers bought 2 kg of apples each month, 25.30 percent bought 3 kg, and 22.31% bought 4 kg. Only 7% of consumers bought 5 kg of apples every month owing to their health issues (Sugar Patients), which are accessible year-round, habitual, and nutritious.

Table 5: Average quantity of Apples purchased by consumer

Sl. No.	Quantity (kg)	No. of consumers	Percentage
1	2	59	45.38
2	3	33	25.30
3	4	29	22.31
4	5	13	7.00
	<b>Total</b>	<b>130</b>	<b>100.00</b>

### ***Marketing channels and price spread of Apples in Bangalore City***

Marketing is moving commodities from producer to consumer at the right time, location, and form. Thus, marketing is mental and physical. In conceptual terms, the supplier must know what customers want, and in physical terms, the commodities must be brought to where consumers want them. Marketing channels transport goods from manufacturers to consumers. Direct interaction between producer and customer is rare since consumers are scattered far from industrial hubs. Large manufacturers and purchasers have created specialised marketing firms under their authority. India produces most apples for fresh consumption with little processing. Apples are sold in India's major marketplaces, including Azadpur Mandy, Delhi, Mumbai, Bangalore, Ahmadabad, Kanpur, Jaipur, and small-scale retailers. Apple dealers use two key marketing channels.

The key marketing outlets in Bangalore are:

Channel (I) Foreign markets – Contractor (Chennai Harbour, Mumbai) – Bangalore Fruit Market (Wholesalers) – K.R Market, Majestic (Wholesalers) – Retailer – Consumer.

Channel (II) Chandigarh or Azadpur Market - Contractor (Chennai Harbor, Mumbai) – Bangalore Fruit Market (Wholesalers) – K.R Market, Majestic (Wholesalers) – Retailer – Consumer

## **DISCUSSION**

Fruit consumption in India is highly correlated with consumer income. The middle and lower-income groups are more likely to purchase bananas, while the high income group prefers to buy bananas, mangoes, apples and oranges. The high-income group also has increased consumption of other fruits: pineapple and grapes (Kavitha et al., 2016). Research carried out on the fruit and vegetable supply chain in India suggests that there is inadequate supply chain management, a lack of cold chain infrastructure and a lack of food processing units (Pandey et al., 2013; Chaudhary et al., 2016).

The local production of apples may present a problem for middle and high income group and hence, the preference for imported fruit (Balraj, 2016). Nearly 90% of retail transactions are made in "unorganized" or independent businesses with little regulated atmospheres. Despite travel time, imported apples may survive many days at uncontrolled market temperatures due to supply chain management. Imports began to enter the

market in 2001/02, increasing supply and consumption time. Imports began arriving near the conclusion of the domestic crop, resulting in a year-round presence of apples.

This year-round presence has improved consumer awareness, raising demand beyond the domestic season (August-March). In the previous 10 years, overall imports have surged six fold, going from 60,000 tons to a record 370,000 in 2016/17, with China and the United States rotating as the leading provider (however imports in 2017/18 were decreased to 350,000 tons). Meanwhile, imports have increased from 3% to 14% of consumption. Just as a rising tide lifts all boats, the success of high quality imports is causing the market to become more competitive, leading to advances in the domestic sector as producers discover that better quality apples can successfully get higher prices.

## CONCLUSION

Apple preferences are subjective tastes assessed by fruit bundle usefulness. Consumer choice is dependent on qualities, price, location, and advertising. Consumer tastes are unaffected by wealth and pricing. The present research examines the source and sorts of apples in Bangalore's organized and unorganized marketplaces. Second, it examines apple customer preferences and consumption characteristics. Third, it shows apple marketing channels and preference over other fruits. Finally, it identifies apple dealers' marketing limits.

**Conflict of Interest:** All authors express no conflict of interest in any part of the research.

**Funding:** This research received no external funding.

**Authors Contributions:** every author has contributed equally regarding this artical.

---

## REFERENCES

- Balraj, N. (2016). Issues and Challenges in the Supply Chain of Fruits and Vegetables Sector in India, A Review. *Splint International Journal of Professionals*, 3(8), 113.
- Chaudhry., Rashmi., YASMIN, J., PIYUSH, M., & TUSHAR, V. (2016). An Analytical Study of Apple Marketing Channels in Himachal Pradesh, India. *International Journal of Bio-Resource and Stress Management*, 7(2), 291-294.
- Kavitha, V., Umanath, M., Paramasivam, R., & Chandran, K. (2016). Determinants of Consumption Probability and Demand for Fruits in India. *Agricultural Economics Research Review*. (29).161-170.
- Masake, M. & Jain, B.C. (2011). Constraints in Production and Marketing of Papaya in Raipur district of Chhattisgarh. *International Research Journal of Applied and Basic Sciences*, 2 (1) 17- 19.
- Mevlut, G. (2012). The analysis of households' purchasing preferences for fruit juice in Turkey. *Journal of Food, Agriculture & Environment*, 10 (3 & 4),119-123
- Moghana, S. Lavanya, Ajjan, N., & Mahendran, K. (2012). Consumer's Awareness and Preference Towards Quality Certified Products. *International Journal of Research in IT & Management*, 2(5), 15-27.
- Moksha., (2016). An analysis of brand preference and market share of neem based pesticides in Kolar district. M.Sc.(Agri.) Thesis (Unpublished), University of Agricultural Sciences, Bangalore.
- Palaniappan, G., Thamaraikannan, M., & Sengottuval. (2010). Can Indian apples beat imports in quality and price? *Facts for you*, 7-11.

- Pandey, M., BAKER, G.A., & Pandey, D.T. (2013). Supply Chain Re-engineering in the Fresh Produce Industry. A Case Study of Adani Agrifresh”, *International Food and Agribusiness Management Review*, 16 (1), 113-134.
- Rupali, P. & GYAN, P. (2010). Marketable Surplus and Marketing Efficiency of Vegetables in Indore District. A Micro-Level Study. *IUP Journal of Agricultural Economics*, 7 (3), 84-93.
- Sekhon, N. S. (2006). Marketing of apple in Amritsar district of Punjab. M.Sc. Thesis. Punjab Agricultural University, Ludhiana.
- Singh, K., & Gajanana. T. M. (2007). Modes of Marketing of Fruits and Vegetables in India, Concept Publishing House, New Delhi.
- Victoria, M. (2016). Availability, affordability, and consumption of fruits and vegetables in 18 countries across income levels. Findings from the Prospective Urban Rural Epidemiology study, *Lancet Glob Health*4, 695–703.
- Wang, Q, Sun, J, & Parsons, R. (2010). Consumer Preferences and Willingness to Pay for Locally Grown Organic Apples. Evidence from a Conjoint Study. *HORTSCIENCE*45(3),376–381.
- Yue, C., & Tong, C. (2011). Consumer preferences and willingness to pay for existing and new apple varieties. Evidence from apple tasting choice experiments. *Horttechnology Journal*, 21 (3), 376–383.