A STUDY ON CONSUMERS PREFERENCE FOR IMPORTED FRUITS IN BENGALURU CITY

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In partial fulfillment of the requirement for the award of the degree of

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(Agribusiness Management)

BENGALURU **AUGUST, 2018**


Affectionately Dedicated
To My Beloved Country
Afghanistan.

DEPARTMENT OF AGRICULTURAL MARKETING, CO-OPERATION AND BUSINESS MANAGEMENT
UNIVERSITY OF AGRICULTURAL SCIENCES, GKVK, BENGALURU – 560 065

CERTIFICATE

This is to certify that the Project Report entitled **"A STUDY ON CONSUMERS PREFERENCE FOR IMPORTED FRUITS IN BENGALURU CITY"** submitted by **Mr. AZIZUL RAHMAN RAGASHTAI, ID No. MBAL 6006,** in partial fulfilment of the requirements for the degree of **MASTER OF BUSINESS ADMINISTRATION (AGRIBUSINESS MANAGEMENT)** to the University of Agricultural Sciences, Bengaluru is a bonafide record of research work done by him during the period of his study in this University, under my guidance and supervision and the project work has not previously formed the basis of the award of any degree, diploma, associateship, fellowship or other similar titles.

Bengaluru,
August, 2018

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Major Advisor

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Bengaluru
August, 2018 **(Azizul Rahman Ragashtai)**

A STUDY ON CONSUMERS PREFERENCE FOR IMPORTED FRUITS IN BENGALURU CITY

AZIZUL RAHMAN RAGASHTAI

ABSTRACT

Fruits are indispensable to human diet. India is importing different types of fruits from different parts of the world. The study was conducted with the objective of documenting source and different types of imported fruits available in the market, to analyze the consumer preference for imported fruits and to assess the factors influencing consumption of imported fruits. The study was conducted in Bengaluru city with a sample of 60 respondents. The study revealed that China is the number one destination for import of fruits to India during 2016-17. The consumers have given highest preference for apple (mean score of 82.33) followed by pomegranate with a mean score of 69. Nearly 41.67 per cent of the consumers prefers to buy from trusted brands and 36.67 per cent indicated that any brand is okay. More than half of the (58.33 %) consumers purchased imported fruits from modern retail formats followed by wholesalers (30 %). A vast majority (81.67 %) of consumers have clearly revealed that health, taste and quality were the major factors influencing the purchase of imported fruits in Bengaluru city. The state Agricultural universities, including Horticultural universities and Horticulture departments need to focus on bringing improvement in local fruits in respect of quality, taste, colour and keeping quality to compete with the imported fruits so as to reduce dependence on imported fruits.

August, 2018

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Dr. B. M. Shashidhara
Major Advisor

ಆಮದು ಮಾಡಿದ ಹಣ್ಣುಗಳಿಗೆ ಬೆಂಗಳೂರು ನಗರದ ಗ್ರಾಹಕರ ಆದ್ಯತೆಯ ಅಧ್ಯಯನ

ಅಜಿಜುಲ್ ರಹಮಾನ್ ರಗಷ್ಟೈ

ಸಾರಾಂಶ

ಹಣ್ಣುಗಳು ಮಾನವನ ಆಹಾರಕ್ಕೆ ಅನಿವಾರ್ಯವಾಗಿವೆ. ಭಾರತವು ಪ್ರಪಂಚದ ವಿವಿಧ ಭಾಗಗಳಿಂದ ವಿವಿಧ ರೀತಿಯ ಹಣ್ಣುಗಳನ್ನು ಆಮದು ಮಾಡಿಕೊಳ್ಳುತ್ತಿದೆ. ಆಮದು ಮಾಡಿಕೊಂಡ ಹಣ್ಣುಗಳಿಗಾಗಿ ಗ್ರಾಹಕರ ಆದ್ಯತೆಯನ್ನು ವಿಶ್ಲೇಶಿಸಲು ಮತ್ತು ಆಮದು ಮಾಡಿಕೊಂಡ ಹಣ್ಣುಗಳನ್ನು ಸೇವಿಸುವುದಕ್ಕೆ ನಿರ್ಣಾಯದ ಅಂಶಗಳು ಹಾಗೂ ಮಾರುಕಟ್ಟೆಯಲ್ಲಿ ಆಮದು ಮಾಡಿದ ಹಣ್ಣುಗಳ ಲಭ್ಯತೆಯನ್ನು ದಾಖಲಿಸುವ ಉದ್ದೇಶದಿಂದ ಈ ಅಧ್ಯಯನವನ್ನು ಬೆಂಗಳೂರಿನಲ್ಲಿ ನಡೆಸಲಾಯಿತು. ಈ ಅಧ್ಯಯನಕ್ಕಾಗಿ 60 ಗ್ರಾಹಕರನ್ನು ಆಯ್ಕೆ ಮಾಡಲಾಗಿತ್ತು. 2016–17 ರ ಅವಧಿಯಲ್ಲಿ ಹಣ್ಣುಗಳನ್ನು ಚೈನಾ ದೇಶದಿಂದ ಹೆಚ್ಚಾಗಿ ಆಮದು ಮಾಡಿಕೊಂಡಿರುವುದು ತಿಳಿದು ಬಂದಿದೆ. ಬೆಂಗಳೂರಿನ ಗ್ರಾಹಕರು ಆಮದು ಮಾಡಿದ ಹಣ್ಣುಗಳಲ್ಲಿ ಸೇಬು ಹಣ್ಣಿಗೆ ಪ್ರಾಮುಖ್ಯತೆ ನೀಡಿದ್ದಾರೆ. ನಂತರ ಗ್ರಾಹಕರು ದಾಳಿಂಬೆ ಹಣ್ಣಿಗೆ ಪ್ರಾಮುಖ್ಯತೆಯನ್ನು ಸಹ ನೀಡಿದ್ದಾರೆ. 41.67 ರಷ್ಟು ಗ್ರಾಹಕರು ವಿಶ್ವಾಸಾರ್ಹ ಬ್ರಾಂಡ್‌ಗಳಿಂದ 36.67 ಪ್ರತಿಶತದಷ್ಟು ಖರೀದಿಸಲು ಆಧ್ಯತೆ ನೀಡಿದರು ಆದರೆ ಶೇ. 58.33 ಗ್ರಾಹಕರು ಯಾವುದೇ ಬ್ರಾಂಡ್ ಆದರೂ ಸರಿ ಎಂದು ತಿಳಿಸಿದ್ದಾರೆ. ಅರ್ಧದಷ್ಟು (58.33%) ಗ್ರಾಹಕರು ಆಮದು ಮಾಡಿಕೊಂಡ ಹಣ್ಣುಗಳನ್ನು ಆಧುನಿಕ ಚಿಲ್ಲರೆ ಸ್ವರೂಪಗಳಿಂದ ಖರೀದಿಸಿದ್ದರೆ ಶೇ. 30 ರಷ್ಟು ಗ್ರಾಹಕರು ಸೇಬು ಖರೀದಿಸಿದ್ದಾರೆ. ಈ ಅಧ್ಯಯನದಿಂದ ತಿಳಿದುಬಂದ ಪ್ರಮುಖ ಅಂಶವೇನೆಂದರೆ ಆರೋಗ್ಯ, ರುಚಿ, ಗುಣಮಟ್ಟ ಮತ್ತು ಪೋಷಕಾಂಶಗಳ ಪ್ರಮಾಣ ಬಹುಪಾಲು (81.67%) ಗ್ರಾಹಕರು ಆಮದು ಮಾಡಿದ ಹಣ್ಣುಗಳ ಬಳಕೆಯಲ್ಲಿ ತೃಪ್ತಿ ವ್ಯಕ್ತಪಡಿಸಿದ್ದಾರೆ. ಆಮದು ಮಾಡಿದ ಹಣ್ಣುಗಳ ಮೇಲೆ ಅವಲಂಬನೆಯನ್ನು ಕಡಿಮೆ ಮಾಡಲು, ಆಮದು ಮಾಡಿದ ಹಣ್ಣುಗಳೊಂದಿಗೆ ಸ್ಪರ್ಧಿಸಲು ಗುಣಮಟ್ಟದ, ರುಚಿ, ಬಣ್ಣ ಮತ್ತು ಕೀಪಿಂಗ್ ಗುಣಮಟ್ಟದ ರಕ್ಷಣೆಗೆ ಸಂಬಧಿಸಿದಂತೆ ಸ್ಥಳಿಯ ಹಣ್ಣುಗಳಲ್ಲಿ ಸುಧಾರಣೆ ತರುವಲ್ಲಿ ತೋಟಗಾರಿಕಾ ವಿಶ್ವವಿದ್ಯಾನಿಲಯಗಳು ಮತ್ತು ತೋಟಗಾರಿಕೆ ಇಲಾಖೆಗಳು ಹಾಗೂ ರಾಜ್ಯದ ಕೃಷಿ ವಿಶ್ವವಿದ್ಯಾನಿಲಯಗಳು ಗಮನ ಹರಿಸಬೇಕಿದೆ.

ಆಗಸ್ಟ್, 2018

ಕೃಷಿ ಮಾರಾಟ, ಸಹಕಾರ ಮತ್ತು
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ಪ್ರಮುಖ ಸಲಹೆಗಾರರು

A Study on Consumers Preference for Imported Fruits in Bengaluru City

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Introduction

Fruits are indispensable to human diet. Fruits provide a diversified, flavoured, colourful, tasty, low caloric, and protective, micro-nutrient rich diet. Adequate fruit consumption is associated with numerous health benefits. In the backdrop of accelerated urbanization, liberalization of trade policy, rising disposable income, changes in life style, resulted in the use of fruits grown not only in the country but also from outside. In this backdrop an attempt is made to study consumers preferences for imported fruits in Bengaluru City.

Objectives

- To analyze the consumers preference for imported fruits in Bengaluru City.

Materials and Methods

Study area:

The study was conducted in Bengaluru City in Karnataka state.

Source of data:

The primary data was collected through personal interview method using pre-tested schedule from 60 consumers.

Tool used for analysis:

Garrett's ranking was used to analyse the factors preferring imported fruits by consumers.

Fig. 1: Map showing the study area Bengaluru City in Karnataka state.

Results

Table 1: Consumers preference for imported fruits in Bengaluru City

Sl. No.	Product	Mean Score	Garret's Rank
1.	Apple	82.33	I
2.	Pomegranate	69.00	II
3.	Grapes	68.00	III
4.	Kiwi	67.48	IV
5.	Orange	66.17	V
6.	Pear	57.50	VI
7.	Strawberry	51.33	VII
8.	Fig	49.17	VIII
9.	Dragon fruit	47.67	IX
10.	Grapefruit	46.50	X
11.	Thai Guava	42.17	XI
12.	Apricot	32.33	XII
13.	Cherry	27.17	XIII
14.	Peach	26.33	XIV
15.	Plum	22.67	XV

Table 2: Factors influencing buying behaviour of consumers for imported fruits

Sl. No.	Factors	Mean Score	Garret's Rank
1.	Good for Health	76.20	I
2.	Good Taste	69.60	II
3.	Storage value	61.20	III
4.	Quality	58.60	IV
5.	Easily Available	50.40	V
6.	Advise of Friends	41.80	VI
7.	Habitual since years	37.60	VII
8.	Increase in per capita income	29.40	VIII
9.	Family tradition	28.20	IX

Discussion

The consumers preference for imported fruits in Bengaluru City is presented in Table 1. It is clear from the table that apple (Garrett's score 82.33) was the main imported fruit preferred by consumers followed by pomegranate (69.00), grapes (68.00), kiwi (67.48) and orange (66.17). The least preferred imported fruit by consumers was plum (22.67).

The reasons for preferring imported fruits by consumers are presented in Table 2. The consumers have indicated various reasons among which fruits are good for health (Garrett's score 76.20) was the main reason preferring imported fruits. Good taste (69.60), storage value (61.20), quality (58.60) easily available (50.40) are the other reasons.

Graphs and Photographs

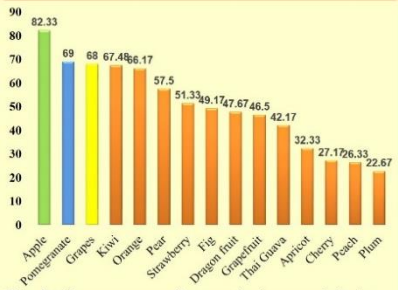

Fig. 2: Consumers preference for imported fruits in Bengaluru City

Fig. 3: Factors influencing buying behaviour of consumers for imported fruits

Fig. 4: Interview with consumers buying imported fruits in a retail store

Summary

- The study revealed that maximum number of the consumers preferred imported apples, pomegranates, grapes, kiwis, oranges etc.
- The preference for imported fruits by consumers in Bengaluru City is mainly due to increase in per capita income, perception of health benefits due to consumption of variety of fruits including imported fruits, changes in taste and preference among middle class etc.

Advisory committee

Chairman: Dr. B.M. Shashidhara

Members: Dr. G. N. Nagraja
Dr. M.S. Ganapathy
Dr. S. Ganesh Moorthy

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I INTRODUCTION

Fruits are botanically diverse, perishable, seasonal, and regional commodities. They come in many forms, shapes and sizes, colors, flavors, and textures. The fruit has always been a part of the human diet and is an important nutritional source, with high water content (70 – 85 %) and a relatively high amount of carbohydrates but low contents of fat (less than 0.5 %) and protein (less than 3.5%). Fruits contain many useful vitamins as well as minerals, dietary fiber, and antioxidants. Some fruits have been billed as superfruits because of their unique nutritional properties and phytochemical composition. Some other fruits, although commonly utilized by the local people, remain exotic to the rest of the world also because of their exotic flavor and taste, there is a growing demand for fruits in different parts of the world. Fruits are used by humans to provide variety, taste, interest, aesthetic appeal and to meet certain nutritional requirements. Hence fruit is considered as a food, drink and medicine, neatly packed by nature in attractive, handy and easy to open containers.

History records that fruits are used by human beings from the nomadic age to the present day civilized life. The majority of species of fruits that are grown and consumed in the modern world have been domesticated by the late Neolithic and Bronze Ages between 6000 and 3000 BC. In addition, a number of fruits that have been extensively collected from the wild by the native people were domesticated during the early part of 20^{th} century. In general, among so many species of flowering plants with so much anatomical diversity, only a relatively small group of species and fruit types are common in the human diet.

1.1 Concept of fruits

The word fruit is derived from the Latin word “fructus”. Broadly, the botanical term fruit refers to the mature ovary of a plant, the edible part of a plant that consists of the seeds and surrounding tissues. This includes fleshy fruits (such as blueberries, cantaloupe, peach, pumpkin, tomato) and dry fruits, where the ripened ovary wall becomes papery, leathery, or woody as with cereal grains, pulses (mature beans and peas) and nuts. Fruit is also been defined as “the tissues which support the ovules and whose

development is dependent on the events occurring in the ovules". The Oxford English dictionary defines fruits as "the edible product of a plant or tree, consisting of seed and its envelope, especially the latter when juicy and pulpy".

However, some botanical fruits may not be palatable or sweet. For example, lemon, avocado, and cranberry, but are still considered as fruits in cooking or processing. In some cases, a plant part other than the botanical fruit may be accepted as a fruit in cooking or processing. For example, the fleshy and sweet petiole of the rhubarb (*Rheumrhabarbarum*) is considered a fruit in the United States.

1.2 Classification of Fruits

There are different ways to classify fruit. Generally speaking, the outer, often edible layer in fleshy fruits is the pericarp, which develops from the ovary wall of the flower and surrounds the seeds. While the seeds are akin to the egg development in the ovary of a fowl, the pericarp may be assumed as the uterus. However, a small number of fruits do not fit into this description. For example, in most nuts, the edible part is the seed but not the pericarp. In addition, many edible vegetables such as cucumber and squash are common pericarp and are botanically considered as fruits. From the botanical point, fruits can be classified into simple fruits, aggregate fruits, and multiple fruits on the basis of anatomical attributes.

Fruits are also commonly classified as pomaceous fruits, stone fruits, berries, tropical and subtropical fruits, hard-shelled dry fruits, and wild fruits. Various classification systems have been applied to fruits to meet the objectives of classification. Fruits can be categorised based on their origins, growth patterns, postharvest respiration rates and ethylene responses, anatomical features, or the consumer's preference. From the point of dietary assessment, the fruits can be classified into the following groups.

A. Accessory Fruits

Fruits that develop from tissues surrounding the ovary are called accessory fruits. Accessory fruits generally develop from flowers that have inferior ovaries, and the receptacle or hypanthium becomes a part of the fruit. Occasionally accessory fruits are

also called a false fruit, spurious fruit. Accessory fruits can be simple, aggregate or multiple fruits.

i. Simple Fruits

Simple fruits are formed from a single ovary and may contain one to many seeds, which have developed as part of the fruit. Simple fruits develop from a single matured ovary in a single flower. They contain one or more carpels, simple fruits, take roots from a single ovary and may or may not take in further modified accessory floral (perianth) structures. It will be either fleshy or dry; fleshy fruits include the berry, drupe, pome, pepo, and hesperidium.

Simple fruits can be divided into two groups: fleshy pericarp — berries, drupes, and pomes; and dry pericarp — nuts. Types of fleshy and simple fruits are berry (redcurrant, gooseberry, and avocado), stone fruit or drupe (plum, cherry, peach, apricot, olive), false berry — epigenous accessory fruits such as banana and cranberry, and pome — accessory fruits such as apple and pear. In contrast to fleshy and simple fruits, in nuts, it is the stony layer that surrounds the kernel of pecans and is removed when eating.

ii. Aggregate Fruits

Aggregate fruits are formed from a single compound flower and contain many ovaries. Aggregate fruits consist of a number of matured ovaries formed in a single flower and arranged over the surface of a single receptacle. Individual ovaries are called fruitless. Examples include strawberries, raspberries, and blackberries. An aggregate fruit develops from a flower with numerous simple pistils. An example is a raspberry, whose simple fruits are termed as drupelets because each is like a small drupe attached to the receptacle.

iii. Multiple Fruits

Multiple fruits, such as Pineapple, Fig, and Mulberry, are formed from the fused ovaries of many separate but closely clustered flowers. There are also many dry multiple

fruits, for example, tulip tree (multiple of samaras), sweet gum (multiple of capsules), sycamore and teasel (multiple of achenes), and Magnolia (multiple of follicles).

Fruits can be summarized into eight types: (1) berry — simple fruit and seeds developed from a single ovary, (2) pepo — berries where the skin is hardened, (3) hesperidium — berries with a rind, (4) false berries — epigynous fruit made from a part of the plant other than a single ovary, (5) compound fruit — from several ovaries in either a single flower or multiple flowers, (6) aggregate fruit — multiple fruits with seeds from different ovaries of a single flower, (7) multiple fruit — fruits of separate flowers packed closely together, and (8) other accessory fruit — where the edible part is not generated by the ovary.

1.2.1 Classification of fruits based on the origin

Another common way to classify fruits is based on growing regions and also production areas such as temperate zone fruits, subtropical fruits, and tropical fruits.

a) Temperate Fruits

The temperate fruit production requires specific environmental conditions which are found naturally in zones with a Mediterranean climate. These areas comprise California (USA), zones surrounding the Mediterranean Sea (Northern Africa, southern Europe, Greece, Turkey and the Middle East), portions of Australia, the southern tip of Africa and Central Chile. The Temperate fruits like Apple, Apricot, Blackberry, Blackcurrant, Blueberry, Cherry, Gooseberry, Grapes, Kiwi fruit, Nectarine, Mulberry, Peach, Pear, Melon, Plum, Quince, Raspberry, and Strawberry can be found only in sub-tropical and temperate origins.

The Temperate fruits include most common fruits from Rosaceae family and popular small fruit crops. Many of the world's best-known and favorite fruits (such as apple, pear, peach, plum, grape, and strawberry) are adapted to climates in the middle latitudes and are known as temperate fruits. Temperate fruits have two climatic adaptations: they require some cold periods (dormancy) to complete their life cycle, which conditions their adaptation in tropical climates, and they have various degrees of

winter hardiness, which conditions their adaptability in cold climates. Fruits that do not specifically require cold but have slight frost tolerance (citrus, fig, olive, persimmon, and pomegranate) are known as subtropical fruits. The temperate fruits are usually classified by their growth habit as tree fruits (apple, pear, peach), vine fruits (grape, kiwifruit), or small fruits (strawberry, raspberry, currant, and blueberry).

b) Tropical and Subtropical Fruits

Tropical and subtropical fruits, can be broadly defined as those meeting all of the following criteria: crops that have their origin and commercial growing areas (when such exist) in the tropics or subtropics, plants that are evergreen and perennial, crops with a limited degree of frost resistance, and plants whose growth is practically non-existent below 50°F (10°C) (with some exceptions according to species and individual age). Distinction between tropical and subtropical is possible if one considers that tropical species are not only sensitive to temperatures below 68°F (20°C) but require a climate with average mean temperatures higher than 50°F (10°C) for the coldest month. Additionally, most tropical require humid environmental conditions. Examples of truly tropical crops are traditional fruits native to Southeast Asia, like Mangosteen, Durian, and Rambutan. However, some fruit crops can be cultivated equally well in either the tropics or the subtropics, of which the Banana and the Avocado are the most outstanding examples.

Generally speaking, the tropics extend between the Tropics of Cancer and Capricorn, at 23° north and south of the equator. But, Agronomically speaking, these boundaries are too rigid. Not only do they contain areas, especially at higher altitudes that do not conform to the climatic characteristics generally assigned to the tropics but regions outside this belt have coastal areas that may exhibit climatic conditions fitting properly in the tropics. This is the reason why some climatologists have extended the region to the thirtieth parallels. In any event, the main feature associated with the tropics is not so much that of heat but rather steady warm temperatures throughout the year. The Tropical and subtropical fruit crops differ from each other on the degree of tolerance to low temperature. Subtropical fruits include most citrus crops and some other evergreen

species. Tropical fruits mostly originated in tropical rainforests; they do not tolerate a temperature below 10°C. The Subtropical fruit is categorized as fleshy fruit (Bananas, Avocados, Litchis, Kiwi fruit, Mangoes, Guavas, Pineapples, Papayas and Granadillas) and nuts (Cashew, Macadamia, Pecan, Almonds, and Walnuts). Each fruit has various cultivars, which have different harvesting dates.

1.2.2 Exotic fruits

The term exotic comes from the Greek *exotikos*, "foreign," which in turn comes from the prefix *exo*, meaning "outside." All dictionary definitions of "exotic" have two strands: "from a distant place," and "striking and attractive because unfamiliar". Hence the exotic fruits are the fruits which are not native. Exotic fruits cover just a small group of fruits and the appearance of these fruits are perhaps something totally different. India has also wide varieties of delicious and exotic fruits that are grown locally in few regions but marketed mainly in upcountry markets and also exported to other countries.

The Exotic fruits are increasingly rare. Sometimes they are called as minor fruits and are collected from the wild and eaten mostly by the locals, but during recent years find their way into the upcountry and international markets during the harvest season. Further, some of the exotic fruits are tropical. There are some of exotic fruits like Jungli Jalebi (Camachile), Carambola, Buddha's Hand (Fingered Citron), Langsat, Mangosteen, Japani Phal (Persimmon), Ambarella (Indian Hog Plum), Karonda (Carandas Cherry), Targola/Taal (Ice Apple or Sugar Palm fruit), Phalsa (Indian Sherbet Berries), Rambutan, Indian mulberry, Dragon Fruit, Pomelo, Bael, Langsat, Tamarillo, Cherimoya, Durian, Miracle Fruit, Kiwano Fruit, Mangosteen, Kumquat, Cupuaçu, Rambutan, Feijoa (pineapple guava), Snake Fruit (Salak), Cucamelon (mouse melon), Jackfruit, Soursop (custard apple), Aguaje Fruit, Pepino, Plantains (cooking banana), Longan Fruit, African cucumber, Aizen fruit, American Chestnut, American Hazelnut, American Red, Batuan, Raspberry, Balsam apple, Black Sapote, Calamondins, Common Apple Berry, Durian, Conkerberry, Eastern May Hawthorn, Fibrous Satinash, Galia melon, Goumi Fruit, Hardy kiwi, Jabotacaba, Kahikatea, Kakadu plum, Kiwi fruit, Kutjera, Kumquat, Lychee, Maqui fruit, Marula fruit, Miracle fruit, Monstera Deliciouso, Physalis, Mora de Castilla, Nonda

plum, Nungu, Oregon grape, Passion fruit, Persimmon, Pomegranate, Pummelo, Saguaro, Rambutan, Rollinia, Salak, Santol, Star apple, Star fruit, Texas Persimmon, Snow berry, Velvet apple, Wolfberry, Wax jambu, and White sapote etc.

1.3 Benefits of fruits

Fruit constitutes a significant part of human nutrition – and is highly recommended for a healthy, vitamin-rich diet. The Fruit is consumed by man, mainly because of their organoleptic and chemical property. They play a vital role in human nutrition, by supplying the necessary growth factors essential for maintaining normal health. Fruits are also termed as Protective foods. They are rich sources of vitamins (A, B complex and C) and minerals (calcium, iron, and phosphorus) in diets to keep human health in good condition. Fruits are easily digestible and contain ample amounts of different organic acids and digestive enzymes. They are rich sources of roughage value in food, help in bowel movement, prevents constipation, natural fiber and an energy giving materials having high calorific value. Almost all fruits have some medicinal value in one way or the other. 'An apple a day keeps the doctor away' is a well-known phrase indicating the significance of fruits in human diet.

The consumption of fruits is known to reduce many types of cancers risks. The potassium, folic acid, and antioxidants present in fruits reduce the incidence and mortality from cardiovascular diseases. The Increased consumption of fruits has been shown to provide protection against age-related diseases such as cataract and macular degeneration.

Globally, the majority of people are consuming less than the daily recommended fruits requirements. Even in developed nations like Australia, Canada, Europe, UK, and the USA, there is a large gap between actual and recommended consumption of fruits. In a study from 52 low and middle-income countries, 77.6 per cent of men and 78.4 per cent of women consumed less than the minimum recommended fruits requirements.

1.3.1 Consumption of fruits in India

In India traditionally, a vast majority of the population prefers to consume fresh fruits. The nutritional intake from fruits and vegetables is higher among urban population compared to the rural population. Along with the urbanization, people are likely to increase their calorie intake at a higher pace through fruits and vegetables. The increase in calorie intake is more than 10 per cent in the urban area whereas it is merely 1.89 per cent in a rural area over the period from 2004-05 to 2009-10. The average consumption of fruits in India is only a quarter of the average in Europe and Australia. It is estimated that per capita fruits availability in the country is 230 gms per capita per day.

The factors such as income, aging of a population, market promotion, and consumer awareness about the importance of fruit, year-round availability of fruits have contributed to increased fresh fruit consumption. The consumption of fruit has also been increasing in the last years due to changes in consumer preferences and promotion campaigns by international organizations and governmental agencies.

1.4 Production, processing, and trading of fruits

Fruit crops are a major part of agricultural production. Although long-distance trade of fresh fruits are highly complex, considering that these products are perishable, it is estimated that roughly 10 per cent of the world production of fruits is traded internationally, which means about 55 million tons per year. The international trade of fresh fruit has grown at an annual average rate of 3 per cent in the last ten years. World fruit production reached 690.8 million tons in 2016. China leads the ranking with 32 per cent of the world production, followed by India with 11 per cent and Brazil with 4 per cent of the world fruit production. The three largest fruit producing countries are China, India, and Brazil, combined accounted for 48 per cent of global production. The other important fruit-producing countries are the United States, Indonesia, Philippines, Italy, Mexico, Turkey and Iran. Based on production quantities, the most popular fresh fruits worldwide in order are Bananas, Melons, Apples, and Grapes. The Top 10 fruit types in terms global production volume (2016) are Bananas and plantains, Melons, Apples, Grapes, Oranges, Mangoes, mandarins, Pears, Pineapples and Peaches and nectarines. In

the United States, around 28 million tons of fruits are harvested annually from 4.3 million acres of fruit land. In India, the production of fruits is estimated to be at 95 million tons in 2017-18, two per cent higher than the previous year (Horticultural Statistics at a Glance 2017).

1.4.1 Processing of fruits

The quality of processed fruit products depends on their quality at the start of processing. The quality attributes of fresh fruits include appearance, texture, flavor, and nutritive value. The appearance factors include size, shape, color, and freedom from defects and decay. The texture factors include firmness, crispness, and juiciness. The flavor components incorporate sweetness, sourness (acidity), astringency, bitterness, aroma, and off-flavors. Nutritional quality is determined by a fruit's content of vitamins (A and C are the most important in fruits), minerals, dietary fiber, carbohydrates, proteins, and antioxidant phytochemicals (carotenoids, flavonoids, and other phenolic compounds). The safety factors that may influence the quality of fresh fruits include residues of pesticides, the presence of heavy metals, mycotoxins produced by certain species of fungi, and microbial contamination.

Many fruits, including fleshy fruits like (Apple, Kiwi fruit, Mango, Peach, Pear, and Watermelon) are commercially valued as human food, consumed both fresh and as jams, marmalade, and in the form of preservatives. Fruits are similarly used in manufactured foods (e.g., cookies, cakes, muffins, ice cream, or yogurt) or beverages, such as fruit juices (e.g., Grape juice, Apple juice, or orange juice) or alcoholic beverages (e.g., brandy, fruit beer, or wine). Fruits are similarly used for gift giving, e.g., in the shape of Fruit Bouquets and Fruit Baskets.

1. 4.2 Significance of frozen and fresh fruit

An estimated 80 per cent of all fruits grown globally are sold as whole fresh fruit. Further, the fresh fruit market is still growing, mainly outside of the US and the EU. However, in mature markets, consumer preferences seem to be shifting towards frozen fruit. This is at the expenditure of shelf-stable products like juice and canned fruits. In the

last decade, global demand for frozen fruit has increased by 5 per cent a year. The popularity of berries, one of the main frozen fruit products, has definitely supported this trend. At the same time, global demand for preserved fruit (in cans, pouches, and bottles) has remained flat on a global basis and decreased by over 1 per cent a year in Europe, Australia, and the US.

1.4.3 International trade in fruit

Globally, the production of fruit is rising by more than 2 per cent per year on average, while the trade in fruit rose by 7 per cent per year. The global trade in fruit is increasing more quickly than production. Currently, about 10 per cent of the fruit grown globally is traded internationally, and that share is still increasing. Globally, the market for fresh unprocessed fruit has grown by almost 4 per cent on average in volume in the past decade. While that growth in relatively mature markets in the EU and North America was about 1 per cent, the rest of the world experienced a much stronger growth, mostly due to a higher population and prosperity growth.

Bananas, apples, citrus fruits, and grapes are traded worldwide, with Latin America as a dominant global export force and China has become an important import market. The fruit market also differs from the vegetable market in that a large share of fruit is processed, with juice being a major industry.

Fruit production and processing are important activities in many countries. The trading and distribution of fruits have become an important economic activity. Fresh fruits are becoming the most globalized products within the agricultural sector. This has been facilitated due to the reduction of transportation cost, improvement in cold chain facilities, modernization of infrastructure, augmentation of middle classes income and changes in dietary habits. Besides, the growing importance of transnational corporations, both in the production sector as well as in the distribution chains, has also propelled international trade of fresh fruit. Nowadays, fruit production and processing are among the major industries in many countries, and the trading and distribution of fruits have become an important international economic activity.

1.4.4 Emergence of organic fruit

Organic foods are gaining market share around the world. In general, the market share of organic fruit is more in affluent countries compared to the emerging economies. However higher income is not the only determinant for buying organic fruits, as the share of organic produce in total produce purchases is varying from country to country. For example, the share is 2 per cent in Australia and 5 per cent in the Netherlands, 9 per cent in the US and 15 per cent in Sweden. The causes behind this variation are mainly because of fruits, availability, and quality of conventional fruits, as well as cultural factors, importing the consumption of fruits. Further, Social media play an increasingly important role in fruit consumption trends. As a result, trade in organic fruits has risen steadily in emerging economies.

1.4.5 Importance of logistics and storage

The storage and logistics are extremely important for the trade in fruit. Because of 'controlled atmosphere' storage, some kinds of fruit such as apples and pears can be stored for longer periods, because the oxygen content is lowered artificially while the carbon dioxide content is increased. Due to good quality controls, storage and conditioning, the fruit can be transported over long distances. Because of this, countries such as Chile, South Africa, New Zealand and Peru managed to find sales markets for their fruit globally. Besides, these countries have the geographical advantage of a favorable climate and their position in the Southern Hemisphere.

Globally many factors are driving growth in fresh fruit trade. These factors are improved market access, changing consumer preferences, a more professional retail environment, increasing purchasing power and last-but-not-least the combination of improved logistics, (controlled-atmosphere) storage and cold-chain facilities. Many fruits can be shipped over long distances by transportation by sea.

Table 1.1: Global production of fresh fruits from 2012-16

Sl. No.	Year	Production (in '000 MT)
1.	2012	30,532
2.	2013	31,537
3.	2014	32,478
4.	2015	32,831
5.	2016	33,253

Source: https://www.statista.com/statistics/262266/global-production-of-fresh-fruit/ (2018).

Table 1.2: Leading producers of fresh fruits worldwide in 2016

Sl. No.	Country	Production (in '000 MT)
1.	India	9482
2.	Viet Nam	2952
3.	China	2666
4.	Myanmar	1407
5.	Indonesia	1345
6.	Nigeria	1242
7.	Nepal	1086
8.	Papua New Guinea	1073
9.	Colombia	732
10.	Bangladesh	563

Source: https://www.statista.com/statistics/279164/global-top-producers-of-selected fresh-fruit-worldwide/ (2018).

Table 1.3: Global fruits production in 2016 by variety

Sl. No.	Fruits variety	Production (in Million MT)
1.	Watermelons	117
2.	Bananas	113
3.	Apples	89
4.	Grapes	77
5.	Oranges	73
6.	Mangoes	47
7.	Plantains	35
8.	Tangerines	33
9.	Pears	27
10.	Pineapples	26
11.	Peaches and nectarines	25
12.	Lemons and limes	17
13.	Papayas	13
14.	Plums and sloes	12

Source: https://www.statista.com/statistics/264001/worldwide-production-of-fruit-by variety/ (2018).

1.5 Fruit production in India

A large variety of fruits grown in India, of which mango, banana, citrus, guava, grape, pineapple, and apple are the major ones. Apart from these, fruits like papaya, sapota, Annona, phalsa, jackfruit, ber, pomegranate in tropical and subtropical areas and peach, pear, almond, apricot and strawberry in the temperate region are also grown in a sizeable area. In India many varieties of different fruit crops growing under specific climate and in a specific zone of climate. Further specific type of climate responsible for the acquiring some unique characteristics to that particular variety of fruit crop. Some examples of varieties of fruit crops which are grown under specific climate includes Alphonso variety of mango in Konkan region, Kesar variety of mango in Gujarat, Banginpalli variety of mango in Vishakhapatnam region of Andhra Pradesh, Shahi

variety of litchi in Bihar, Nagpur mandarin of citrus in Nagpur region of Maharashtra, Kinnow variety of citrus in Punjab, Khasi mandarin in Khasi hills, etc.

Table 1.4: Top 10 State wise area and production of fruits 2016- 17

Sl. No.	States	Area (in '000 Hectare)	Production (in '000 MT)
1.	Andhra Pradesh	605	12,099
2.	Maharashtra	764	10,378
3.	Uttar Pradesh	471	10,353
4.	Gujarat	393	8483
5.	Karnataka	439	7425
6.	Tamil Nadu	311	6080
7.	Madhya Pradesh	331	5937
8.	Bihar	309	4273
9.	West Bengal	253	3708
10.	Telangana	285	3537
11.	Others	2319	20,573
12.	**All India Total**	**6480**	**92,846**

Source: Horticultural Statistics at a Glance 2017, Government of India Ministry of Agriculture & Farmers Welfare.

1.5.1 Area production and productivity of fruits in India

The Production of fruits is estimated to be 92 million tonnes during the year 2016-17 which is about 2 per cent higher than the previous year. India is the major producer of fruits, the country ranks first in production of Papayas (44.51%), Mangoes (40.75%) and Bananas (26.04%). The massive production base offers India tremendous opportunities for export. During 2016-17, India exported fruits which worth Rs. 4,448.08 crores/ 667.51 USD Millions. Mangoes, Walnuts, Grapes, Bananas, Pomegranates account for larger portion of fruits exported from the country. The major destinations for Indian fruits are United Arab Emirates, Bangladesh, Malaysia, Netherland, Sri Lanka, Nepal, United Kingdom, Saudi Arabia, Pakistan, and Qatar.

India is the second largest producer of fruits in the world due to diverse agro-climatic conditions which allow the production of various tropical (mango, coconut, cashew) subtropical (orange, litchi, dates) temperate (apple, pear, almond) fruits. The annual production is estimated to be nearly million tones and it shares 10 per cent of word production (it consists of 4 per cent of citrus fruits and 46 per cent of mango). The Fruit is cultivated in 3.79 million hectares. However, fruits contribute only 1 per cent to the export earnings from agriculture products. Grape and mango together constitute 60 per cent of India‘s exports of fresh fruits. Citrus, banana, apple, and papaya are other important fruits for export.

Table 1.5: All India area, production and productivity of fruits over the years 1991-92 to 2016-17

Sl. No.	Year	Area (in '000 Hectare)	Production (in '000 MT)	Productivity (MT/Ha)
1.	1991-92	2874	28,632	10
2.	2001-02	4010	43,001	11
3.	2002-03	3788	45,203	12
4.	2003-04	4661	45,942	10
5.	2004-05	5049	50,867	10
6.	2005-06	5324	55,356	10
7.	2006-07	5554	59,563	11
8.	2007-08	5857	65,587	11
9.	2008-09	6101	68,466	11
10.	2009-10	6329	71,516	11
11.	2010-11	6383	74,878	12
12.	2011-12	6705	76,424	11
13.	2012-13	6982	81,285	12
14.	2013-14	7216	88,977	12
15.	2014-15	6110	86,602	14
16.	2015-16	6301	90,183	14
17.	2016-17	6480	92,846	14

Source: Horticultural Statistics at a Glance 2017, Government of India Ministry of Agriculture & Farmers Welfare.

1.5.2 Status of fruits import to India

India is importing different types of fruits from different parts of the world. The demand for imported fruits in the country is increasing due to accelerated urbanization, liberalization of trade policy, rising disposable income, changes in lifestyle. At present India is mainly importing fruits from United States of America, Côte d'Ivoire, Tanzania, Afghanistan, Guinea-Bissau, Iran, Australia, China, Benin, and Pakistan. As far as the import of fruits is concerned the United States of America is the top destination. For example, during the year 2017 India imported $ 774462 worth of fruits from the United States of America. The next important source for import of fruits is Côte d'Ivoire with $ 301682 value during 2017. The other important countries for import of fruits are as Tanzania $ 301381 followed by Afghanistan $ 256540, Guinea-Bissau $ 254492, Iran $ 152156, Australia $ 133841, China $ 128533, Benin $ 121272 and Pakistan $ 119902. (Horticultural Statistics at a Glance 2017)

Despite increased imports, domestic fresh-market production has maintained its level in the aggregate and even shown an upward trend in most of the five leading imported fresh fruits (even though production varies substantially from year to year). It appears that imports have grown mostly to satisfy increased consumption rather than to replace domestic production.

1.5.3 Consumer preference for fruits

Consumer preferences are defined as the subjective (individual) tastes, as measured by the utility of various bundles of goods. The consumer preference is mainly based on attributes like the product or service, the price, the place and the promotion. The consumer preferences are independent of income and prices. Further, the ability to purchase goods does not determine a consumer’s likes or dislikes.

The consumer behavior can be defined as the decision-making process and physical activity involved in acquiring, evaluating, using and disposing of goods and services. The study of consumer behavior examines how individual make decisions to

spend their available resources (time, effect, money) on consumption of the items of daily use.

Broadly the consumer behavior includes the study of what they buy it, where they buy it, how often they buy it and how often they use it. It is significant to know how the consumer reacts towards different product features, price, and advertisement, in order to ensure strong competitive advantage and there is a lot of affluence in some countries so those societies can afford to buy in greater quantities of fruits and a shorter interval. However in poor societies, the consumer can barely meet his barest needs and as a result, the consumption of fruits may be the last priority.

The gains in consumption of fresh produce are associated with a number of institutional and economic factors. Consumer preferences have changed with rising incomes, and consumers now demand a year-round supply of a greater variety of fresh produce. At the same time, international trade agreements, improvements in the marketing infrastructure of highly perishable goods, and global cooperation among importers, handlers, and distributors have enabled fresh fruit to be imported in greater quantities. Another factor is growing recognition that diets rich in fruit good sources of vitamins, minerals, and fiber are associated with reducing some chronic diseases and the rising problem of obesity. As evidence of the link between diet and health has grown, the health issues have increasingly influenced consumer preferences for fresh produce.

1.6 Importance of the study

Fruits are recognized for their benefits towards healthy living. Fruits provide a diversified, flavored, colorful, tasty, low caloric, and protective, micro-nutrient rich diet. In the backdrop of accelerated urbanization, liberalization of trade policy, rising disposable income, changes in lifestyle, resulted in the use of fruits grown not only in the country but also from outside. As a result, the import of fruits to India increasing over the years. However, the information and data related to volume and value of fruits imported to India are not available. The state-wise data related to the type of imported fruits consumed is also not available.

Further relatively slight is known about consumers' buying behavior of fresh fruits in Bengaluru city. Hence the study will focus specifically at fresh fruit, as this is an everyday consumption item for the majority of individuals and households in Bengaluru city.

The purposes of this study are threefold. First, it examines the source and different types of imported fruits available in the Bengaluru city both in organized and unorganized markets. Second, it evaluates the consumer preference and the purchase behavior for imported fruits. Finally, it examines how the consumers' purchase behavior for fruit is influenced by demographic variables like gender, age, education, and level of income.

Further, the study also intends to examine the sources of fruits imported to Bengaluru city from other countries. Besides the study intends to cover the season-wise imports, the profile of whole sellers, retailers dealing with the imported fruits in Bengaluru city. Additionally, the study will focus on the constraints faced by the traders in dealing with the imported fruits and come out with solutions to overcome these constraints faced by them. The study results can provide inferences, some of which could possibly be applicable to other types of fresh produce, especially vegetables. The findings of this study would thus be beneficial to practitioners and policymakers to formulate effective strategies designed to market fresh produce in Bengaluru city. Keeping all these issues in mind the present study was conducted in Bengaluru city with the following specific objectives.

1.7 Objectives of the study

1) To document source and different types of imported fruits available in the market,
2) To analyze the consumers preference for imported fruits in Bengaluru city and
3) To assess the factors influencing consumption of imported fruits.

1.8 Hypotheses of the study

To address the objective outlined in the study, the following hypotheses were formulated:

1) Many types of exotic fruits are sold in Bengaluru city.
2) The preference for imported fruits is very high among high-income groups.
3) Education, income and concern for health are important predictors of imported fruits consumption.

1.9 Presentation of the study

The study has been presented in six chapters. Chapter-I deals with the nature, importance and specific objectives of the study. Chapter-II describes the review of the relevant research work done in the past related to the present study. Chapter-III outlines the features of the study area, nature and source of data, sampling procedure and analytical tools and techniques employed in the study. Chapter-IV is devoted to present the results and discussion. Chapter-V provides the summary and implications of the whole study. Chapter-VI list the literature referred/ references assessed for the present study.

1.10 Limitations of the study

The present study was confined to Bengaluru city in Karnataka state. The secondary data related to imported fruits available from various sources is not very exhaustive. Even the secondary data which is available from the institutions is very ambiguous. Added to it the traders dealing with imported fruits in Bengaluru city are not ready to share the full information related the sources and destination of fruits imported, volume and value of imported fruits. Further, the primary data pertaining to consumption of fruits was drawn from 60 respondents in Bengaluru city. The collected primary data from a sample of respondents is confined to few areas in Bengaluru city. Hence it would be difficult to draw precise generalizations regarding the implications of the study. The findings in this study, interpretations, and conclusions are drawn could be best seen within these limitations**.**

II REVIEW OF LITERATURE

Literature review is a summary of past research in a subject area. The purpose of the literature review is to gain an understanding of the existing research relevant to a particular topic or area of research and to present that knowledge in the form of a written report. For example examining the past research allows to identify gaps in the literature, which can be attempted in the research work. The review of past research also helps in identifying the conceptual and methodological issues relevant to the study. It contributes to the understanding of issues involved, analytical tool adopted and overall handing of the research work. It also allows the researcher to collect relevant data and subject them to the sound reasoning and draw meaningful interpretation.

Sometimes literature review is a standalone investigation of how an idea or field of inquiry has developed over time. However, more usually it's the part of an academic paper, thesis or dissertation that sets out the background against which a study takes place. Further conducting a literature review before beginning research also provides how similar studies have been conducted in the past. By examining the strengths and weaknesses of existing research, it provides clue to adopt the most appropriate methods, data sources and analytical techniques. Besides the significance of any results will depend to some extent on how they compare to those reported in the existing literature. Hence, literature review provides a crucial point of reference.

In this chapter a short review of the relevant literature related to the present study is presented under the following headings:

2.1 Different types and brands of imported fruits.

2.2 Consumer preference for imported fruits.

2.3 Factors influencing the consumption of imported fruits.

2.1 Different types and brands of imported fruits

Veena (1996) studied on "an econometric analysis of the growth dimension of horticulture in Karnataka". The Markov Chain analysis was used in this study to identify

brand switching and brand loyalty of processed fruit and vegetable products in Karnataka state. The study revealed that Maggi, Sil and Kissan have market retention of 74.20, 55.78 and 48.74 per cent, respectively in respect of jam products. The study also revealed that Kissan brand followed by Maggi and Sil has better market position among the different brands. As a result the author predicted that the other brands likely to decline, on account of increased market share of Kissan, Maggi and Sil.

Beveraland (2001) in his study analyzed the level of brand awareness in New Zealand market for ZESPRI kiwi fruit and the effectiveness of branding strategy employed by kiwi fruit in New Zealand. The study was based primary data collected from 160 kiwi fruit consumers outside three major super market chains in Auckland and New Zealand. The results shown that the level of brand awareness for ZESPRI is low among the consumers. The study concluded that brand awareness could be increased through a relationship-making programme involving targeted marketing and supply chain management.

Pearson *et al*., (2003) studied on the "Australia fresh fruits and vegetables". The main objective for this study was to examine why most of fresh fruits and vegetables were unbranded. The brands have the potential value to buyers and to the organisations that own them. However, the study has revealed that brands are valuable to buyers when they have several attributes like taste and quality. The study has revealed that brands are relevant only for apples, oranges, rock melons and grapes, but not for potatoes, onions or mushrooms. This is mostly due to changes in the attributes of vegetables. Hence the study concluded that many fresh fruits and vegetable products are likely to remain unbranded.

Jin *et al.,* (2005) **s**tudied on the choosing brands, fresh produce versus other products. This study presents a framework to analyze how uncertainty about product attributes affects consumers' willing to pay for brand products over generic ones, incorporating key elements of a random utility model and product attribute models. The study found that in comparison to electronics, clothing, and processed food, consumers may not buy branded vegetables and fruits because of quality uncertainty, and they can easily reduce uncertainty of product quality of fresh vegetables and fruits by seeing,

touching, smelling, and tasting. Hence, consumers are less willing to pay for brands of fresh vegetables and fruits. However, simulation results also show that brands of fresh fruits and vegetables may have price premium similar to other products, but they lack the market share. Thus, the main challenge in building brands in vegetables and fruits is to establish a critical mass in marketing.

Arfini *et al.*, (2008) in their empirical study on the "Quality markers and consumer communication strategies: evidence in the very fresh sector in Italy" assessed the role of brands and territorial markers (PDO, PGI) in enhancing and promoting "very fresh" food products, particularly in fruit and vegetables. The first part of the work identifies the most widely used quality markers, and the legal and organisational aspects for some of them. The second part is empirical case studies on PDO and PGI, the two company brands (Melinda and Marlene) in the fruit and vegetable sector and, finally, one collective brand, "QC – Qualità Controllata" set up by a regional authority, Emilia Romagna Region. The results revealed that quality is a key factor when consumers choose fresh food products, but at the same time it is difficult for them to assess. On the demand side, consumers require protection measures, and on the supply side, efficient communications need to be available to all operators. In this context, quality markers such as logos, brands that distinguish a product from its competitors can be a strategic way of transmitting information, especially for firms which cannot afford resources for communications or their own brand name. The study revealed that collective brands and indications alone are not a sufficient condition for commercial success. What is essential, is the organisation of supply and brand strategy.

Rickardson and Rabiee (2001) studied on the "A Question of Access an exploration of the factors influencing the health of young males aged 15–19 living in Corby and their use of health care services". The study developed an experiment to examine consumer's willingness to pay for five apple varieties. They considered three treatments to estimate the effect of brand, in this case the varietal name, on consumer preference. The study revealed that brands have the influence in the fresh produce category. Furthermore, the study found out that the brand used for the new varieties influences consumer preference for branded apple varieties, but has little impact on

markets for traditional apple varieties. Hence the study concluded that the success of a new product will depend on consumer response, but at the same time it is especially difficult to measure how a new apple variety will creates demand in the market.

Yue and Tong (2011) studied on the "Consumer Preferences and Willingness to Pay for Existing and New Apple Varieties: Evidence from Apple Tasting Choice Experiments". The main objective of this study was to determine how much consumers are willing to pay for 13 new and existing apple varieties and analyse the quality attributes the consumers' like or dislike compared to new and existing apple varieties. The authors used choice experiments to investigate consumers' preferences and willingness to pay for various apple varieties. The experiments also asked consumers to evaluate a series of quality attributes by allowing them to taste apples. The choice experiments were conducted in real markets where consumers were purchasing fruits to eliminate any decontextualized biases. The results revealed that compared with other apple varieties, participants were willing to pay the highest prices for 'SweeTango', followed by 'Zestar TM' and 'Honeycrisp'. The regular and infrequent buyers were willing to pay significantly higher amounts for most of the studied varieties. The study concluded that attributes liked by consumers will help apple breeders to make targeted breeding decisions by understanding what quality attributes consumers like or dislike about the selected varieties.

Ghose and Lowengart (2012) studied on consumer choice and preference for brand categories. The focus of the research was to understand the phenomena of consumer choice and preference in the market. The study revealed that, the entry of new international brands affects market dynamics in a market where national, international and private brands are present. The estimated model provides with several diagnostic findings with respect to what kinds of product attributes affect choice probabilities of different categories of brands in respect of the international, the national and the private brands.

2.2 Consumer preference for imported fruits

Kulkarni and Murali (1996) studied on the purchasing practices of consumers of Parbhani Town. The study revealed that 83.50 per cent of consumers were getting information from the television regarding the availability of the products, followed by neighbours (71%) and newspapers (69.50%). The consumers were preferred retail market for buying of groceries (65%), vegetables (100%), fruits (100%), milk and milk products (100%), and snacks (75%). The majority (75%) of the consumers gave highest preference to quality when purchasing food products.

Kamenidou *et al*., (2002) studied on the household purchasing and consumption behaviour towards processed peach products. The study examined on the purchasing and consumption behaviour of Greek households for three processed peach products: canned peaches in syrup, jam and peach juice. The study revealed that 47.50 per cent of the households purchased canned peaches in syrup, 67.40 per cent purchased peach juice, and 42.60 per cent purchased peach jam. The causes for such buying were satisfactory taste and qualities and household's perception that these products were healthy. The results also revealed that the consumption quantities were considered low, while households usually buying the same brand inferring that consumers exhibiting a tendency towards brand loyalty.

Cavard and Moreaurio (2003) studied on the consumer behaviour on purchase of fruit and vegetables. The study was carry out through a consumer's survey comprising of 2000 French nationals to examine their purchase behavior in respect of fruit and vegetables. The study revealed that among the consumers the weekly purchase was more prevalent. Regarding the places of purchase, supermarkets came first, followed by open markets. In terms of modes of purchase, the self-service with assisted weighing was the preferred option by the consumers. The authors have indicated that consumer expectations are more related to better control of labelling and quality, with manufacturing date.

Radhakrishnan (2004) studied on the perspectives and prospects of coffee consumption in India. The study of coffee consumption had shown an annual average

growth of 2.14 per cent for the era from 1951 to 2003. In absolute terms, the off take in domestic market had grown from about 18,400 tons to about 70,000 tons during 2003. However during the period from 1991 to 2000 did not show any noticeable growth in consumption of coffee. The study also revealed that demand for coffee is mainly from Robusta than Arabica. Though during the pooled marketing, the period between 1981-90 showed the higher volume of consumption (> 50,000 metric tons and peaked about 63,000 metric tons) and the highest growth rates were achieved during the period 1951-1960 and 1971-1980 with a CGR of 7.23 and 3.28 per cent, respectively. Promoting the market in non- traditional areas, consolidating traditional markets, encouraging the sale of coffee in retail outlets, encouraging the product forms, consumer education and focus on the youth are the some of the suggestions made by the author to increase coffee consumption.

Lim *et al*., (2005) studied on the analysis of buying behavior and preference to fruits in Korea. The aim of this study was to observe the buying behavior of fruit purchasers. The study examined consumers preference through encouraging or discouraging factors for purchasing fruits in 2003. The study indicate that the practice of consuming fresh fruits with dessert was a major reason for buying fruits. The study also revealed that since fruits are recognized as one of the healthiest foods, consumers also give priority for food safety while purchasing fruits. However, the high price of fruits restrained a lot of consumers to purchase fruits. Further the study also revealed that the buying patterns differed according to customer preference as well as for the seasons. The preference for local fruits depended on the choice pattern based on their preference and the changes of season. The most favorite fruits preferred by consumers in the order of preference are apple, grape, pear and mandarin.

Jabir Ali (2006) studied on the structural changes in consumption and nutrition of livestock products in India and its implication for food security. The study indicate that in India the consumption pattern had undergone a significant changes towards high-value commodities like vegetables and fruits, meat, milk and egg due to urbanization, increase in per capita income, changes in lifestyle, preference, and increased awareness about food nutrients among the consumers. The study revealed that during 1983 to 1999, the

consumption of cereals declined from 192 to 152 kg per year in rural areas and 147 to 125 kgs in urban areas. However, the consumption of fruits increased by 553 per cent, vegetables by 167 per cent, milk, and milk products by 105 per cent and meat, eggs, and fish by 85 per cent in rural areas during the same period. These changes in diet were even more dramatic in urban areas indicating the structural changes in the consumption and nutrition pattern among the consumers in India.

Ximing and Ray (2006) studied on the Chinese consumer response to imported fruit: intended uses and their effect on perceived quality. The study was organize through an intercept mail survey of 1000 consumers in two Chinese cities, Guangzhou (highly developed) and Urumqi (relatively undeveloped). The study examined the relationships between intended use and people's perceptions of fruit quality. The results from the study could help to better understand why Chinese consumers purchase imported fruit and the interrelationships between quality attributes and intended uses. The study indicate that the consumption of fruits depended on the consumers perceptions about fruit quality. The study similarly revealed that a significant difference exists between the two cities in terms of the relative importance of the five intended uses. The study also revealed that even if imported fruits prices are higher than the local fruits, there are still many willing buyers. Further the study also revealed that the purchase behaviour is influenced by the perceived high quality of imported fruits. However, the study also concluded that there is a limitation indicating that the perceived quality itself cannot explain the consumer's behaviour comprehensively without examining the intended use behind and the decision to purchase fruits by consumers.

Jesionskowska *et al.,* (2008) studied on the preferences and consumption of dried fruit and dried products among Dutch, French and Polish consumers. The study revealed that dried fruit, as well as by products of dried fruit, are consumed rather occasionally by the consumers. However, Polish respondents seems to be more familiar with dried fruit compared to Dutch or French consumers. The highest number of consumers indicated that they eat dried fruit once a day or few times a week. Although 58.3 per cent of Dutch respondents revealed that they never eat dried fruit, 8.6 per cent admitted that they eat Raisins once a day. Moreover, Raisins occurred to be the most preferred fruit not only for

Dutch but also for French and Polish respondents. With respect to consumption pattern, the Dutch and French respondents indicated that they prefer dried fruit consumption mainly in the morning, whereas Polish consumers indicated that they eat dried fruit in the afternoon and also in the evening.

Krishnakumar and Catherine (2010) studied on the consumer preferences for imported Kona coffee in south India. The main objective of the study was to discover consumer preferences for imported, specialty, high-end Kona coffee in South India. In this study, they used Conjoint Choice Experiment (CCE) with latent class analysis to find any South Indian consumer's preferences for specialty imported Kona coffee. The results indicated that India offers an export market for Kona coffee, provided it caters to consumer preferences. The study indicate that the consumer's first preference is for strong taste. The relative significance of price was lesser than taste but majority are also averse to higher prices. However, 15 per cent of the sample respondents does not bother about price but prefer taste, indicating the presence of a high-end niche market segment.

Cui *et al.,* (2011) studied on the imported fruit consumption in Beijing and Shanghai. The aim of this study was to know Chinese fruit consumer's purchasing behavior, particularly imported fresh fruit consumers, and to derive relevant export strategies. The survey was conducted via direct interview of fruit consumers in Beijing and Shanghai using the questionnaire. Imported fresh apple and pear are the two fruits selected for the study. The study revealed that Chinese consumer's most favourite fruit was apple. The fruit demand elasticity's with respect to income averaged 0.35, In Beijing and Shanghai consumers elasticity's were 0.21, 0.43 respectively. Three out of four Chinese consumers purchased imported fruit, particularly by high income families in Shanghai. The women and younger generations preference for imported fruit was high. Beijing households consumed more fruits than Shanghai, yet Shanghai households spent more on imported fruit. The high income families spent more on both fruit and imported fruit than other income groups. The price was considered as the most important factor, followed by freshness and tastes. In general the safety was not the main concern, yet high income group also concerned about imported fruit safety from the point of health. The

Chinese consumers revealed that Japanese fresh fruit-apple and pear- as relatively expensive fruits compared to their quality, freshness, and safety.

Moser *et al.*, (2011) studied on the consumer preferences for fruit and vegetables with credence-based attributes. The study aimed at identifying and ranking attributes, focusing on how they are statistically significant among consumer in their buying fresh produce buying decisions. To explore consumer preferences for fruits and vegetables, the study focused on understanding the key factors in purchasing fruit and vegetables. The study showed that the choice to buy and willing to pay for fresh fruits and vegetables was primarily driven by attributes such as personal health and quality.

Idun *et al.*, (2016) studied on the drivers of consumer preference for apple among South African consumers of different ethnic and age groups. South African consumers' preference for apple quality and appearance were analyzed in this study. The black, white and Indian consumers of two age groups (18-25 or 26+) participated in this study which was conducted in Pretoria, Gauteng Province (GP) and Durban, Kwa-Zulu Natal province (KZN). Nine apple cultivars were examined with a wide variation in respect of flavor and appearance. The descriptive sensory analysis was used to find out the consumer preference for quality and appearance which was assessed on a 9-point hedonic scale. The Principal Component Analysis (PCA) was also used to project the outcome of descriptive sensory analysis in respect of consumers' preference. The study revealed that the region, race and age group influenced the consumer preference in respect of quality while region, race and gender influenced the consumer preference for appearance. The black consumers from both GP and KZN and from both age groups as well as white and Indian consumers from the older age group (26+) had a high preference for sweet taste. The White and Indian consumers in the young age group (18-25) preferred cultivars that were closely associated with positive textural attributes. Except for black female consumers from GP, black consumers generally preferred the 'Golden Delicious'. However the White and Indian consumers preferred the green 'Granny Smith'.

2.3 Factors influencing the consumption of imported fruits

Rees (1992) studied on the factors influencing the consumer's choice. The study revealed that the factors which were influencing the consumer's choice for food are flavor, texture appearance, advertising a reduction in traditional cooking, fragmentation of family. Further the demographic and household role changes and the introduction of microwave ovens have also resulted in changes in eating habits. Besides the sale of processed food products with large numbers of working wives and single people, who require and value convenience is also influencing the consumer's preference. Further the emergence of organized retail markets with concentration of 80 per cent of food sales is also considered to be important. Besides the consumers are concerned about safety and healthy eating habits. As a result they are concerned about the way in which food is produced and want safe, natural and high quality food with a reasonable price.

Pearson *et al.,* (2005) studied on the "Do 'food deserts' influence fruit and vegetable consumption?-a cross sectional study". The study was based on random selection of 1000 respondents, equally distributed between four electoral wards. The wards were chosen to reflect diversity in grocery shopping facilities, material deprivation and level of urbanization; two were urban wards whilst two were predominately rural. This study analyzed the association between diet and access to supermarkets, transport, fruit and vegetable price and deprivation, in regions divergent with geography and socio-economic indices. A postal survey of 1000 addresses (response rate 42%) gathered information on family demographics, supermarket and shop use, car ownership, mobility and previous day's fruit and vegetable intake. The postcode information was used to derive road travel distance to nearest supermarket and deprivation index. Fruit and vegetable prices were assessed by using a shopping basket survey. Generalized linear regression models were used to ascertain predictors of fruit and vegetable intake. The study revealed that a total of 426 respondents provided complete information. The mean age of respondents was 50.7 years (SD 14.9), median fruit intake 2 portions/day (range 0–12, truncated at 6), and median road travel distance to nearest supermarket 1.9 km (range 0.1–9.4 km). The study indicate that the Male grocery shoppers ate less fruit than female grocery shoppers. The consumption of vegetables increased slightly with age. The

deprivation, supermarket, fruit and vegetable price, distance to nearest supermarket and potential difficulties with grocery shopping were not significantly associated with either fruit or vegetable consumption. The study indicated that three key elements-food, fruit and vegetable price, socio-economic deprivation and a lack of locally available supermarkets, have not much influenced fruit or vegetable intake. The study suggested that food policies aimed at improving diet should be orientated towards changing socio-cultural attitudes towards food.

Lin *et al.,* (2008) studied on the "Demand for organic and conventional fruits". The purpose of the study was to examine the demand and price analysis and food consumption/nutrition/food safety. The authors examined consumer demand for organic and conventional fruits by estimating a censored demand system, using Nielsen's Homescan data. The socio demographic characteristics and income are found to be significant factors for organic fruit consumption. Asymmetric cross-price effects are found between organic and conventional fruits, suggesting that a change in relative prices will more likely cause consumers of conventional fruits to "cross-over" to organic fruits, while the reverse was less likely to happen such that organic consumers will "revert" to conventional fruits.

Dimech *et al.,* (2011) studied on the "attitudes of Maltese consumers towards quality in fruits and vegetables in relation to their food-related lifestyles". The objective of this study was to examine the influence of Maltese consumers' lifestyles towards the attributes of fruits and vegetables. The primary data was collected from 881 respondents, through a questionnaire administered through telephone interviewing. The sample was drawn from the dwellings registered by the National Statistics Office, the records of which are regularly updated through auxiliary sources. The consumer profiles were identified through segmentation analysis, taking into account five aspects: (i) subjectivity of quality; (ii) consumer difference; (iii) intangible dimensions; (iv) information environment; (v) price. The outcomes from the descriptive analysis indicate that more than 50 per cent of respondents buy fresh fruit and vegetables from hawkers, (32 %), supermarkets and Wet Markets (8 %). The remaining 6 per cent buy fresh fruit and vegetables either directly from the farmer or consume their home-grown products. The

study revealed the importance of implementing appropriate marketing strategies in order to communicate the quality aspects of food in general and of fruit and vegetables in particular.

Li *et al.,* (2012) studied on the "factors influencing the consumption of fruit and vegetables among elderly Chinese people". The objective for the study was to assess fruit and vegetables consumption and the variables that influence fruit and vegetables consumption among Chinese people who are 60 years and above. Twenty-four-hour dietary recall data from the 1991, 1993, 1997, 2000, 2004, 2006, and 2009 China Health and Nutrition Surveys were used to collect the fruit and vegetables intake in this study. The data was analyzed by using t tests, χ^2 tests, and logistic regression. The study revealed that between 1991 and 2009, the elderly Chinese adults experienced an improvement in dietary fruit and vegetables intake. For example the fruit and vegetables consumption increased from 325.7 g/d in 1991 to 379.0 g/d in 2009. During this 18-year period, the proportion of daily consumption increased from 11.0 per cent to 32.5 per cent for fruit and 95 per cent for vegetables. Age, gender, educational attainment, community influence, physical activity, marital status, and drinking were significantly associated with fruit and vegetables consumption. However the findings also indicated that fruit and vegetables intake among elderly adults in China was lower than the minimum of 400 g/d recommended by the World Health Organization.

Mevlut (2012) studied on "The analysis of households' purchasing preferences for fruit juice in Turkey". The study identified the product types (orange, sour cherry etc.) as the most important factor on consumers' fruit juice purchasing preferences (28.34%). The other important factors were found price (16.83%), international quality and food safety certificates (16.14%), being organic (15.21%), production methods (13.06%) and containing sugar additive (10.43%). The important attributes which maximizes consumer satisfaction are "the orange juice which is 100% fruit juice, without sugar additive, organic and has international quality and food safety certificates and affordable price".

Clum *et al.,* (2016) studied on the "Factors influencing consumption of fruits and vegetables among older adults in New Orleans, Louisiana". The main objective for the study was to identify demographic, social and structural factors associated with intake of

fruit and vegetables among the older adults in New Orleans, Louisiana. A cross sectional randomly sampled, address-based telephone survey of households in Orleans Parish, Louisiana was conducted among the household's. The survey assessed demographic characteristics, food intake, access to supermarkets and other food sources, transportation, self-reported health, and frequency of grocery shopping. The study revealed that older adults consumed fewer fresh fruits and vegetables than younger adults ($p<0.01$). Bivariate associations with decreased fruits and vegetables included older age, receipt of government assistance, African American race, mobility and poorer health. Multivariate factors associated with lower consumption include age, African American race, and poorer health. The study also revealed that women consumed more fruit and vegetables than men. The study concluded that fruits and vegetables consumption is associated with improved health and reduced mortality. Hence the study suggested that addressing reduced fruits and vegetables consumption among the older adults will enable to improve health among the older adults.

Rika *et al.,* (2016) studied on the "Preference for locally grown or imported fruit among the millennial generation in Johor, Malaysia". This study attempted to explore the factors influencing the choice of locally grown or imported fruits among young Malaysians. It analyzed how consumer preference, socioeconomics, and demographic profiles can affect their choice of which fruit category they pick. 500 respondents were interviewed by using a structured questionnaire to collect information related to their fruit preferences and choices. The millennium generation in Malaysia, especially the Malay living in Johor, were surveyed as a representation of future consumers of fruit and their subsequent choices and demand. The factor analysis was carried out on statements regarding consumer preferences on choices of local or imported fruit. The study shown that the five factors were responsible for consumer preferences for fruits. They include the demographic profiles of the respondents such as family size and dimension of fruit preferences, including country of origin, perceived quality, and environmental concerns, were important factors that affect consumers' purchasing behavior in choosing locally grown or imported fruits. Logit regression indicated that family size, country of origin product quality, perceived quality, and variety of fruits are likely to influence the preferences for fruit among the younger generation.

III METHODOLOGY

The methodology refers to the theoretical analysis of the methods used in a field of study. In any research, the clear understanding and interpretation of primary and secondary data are possible only with the adoption of the suitable method of analysis. This chapter essentially maps out of the methods used in this study for analysis of the primary as well as secondary data. The details of the methodology used in this study are presented under the following headings.

3.1 Selection and description of data

3.2 Sampling procedure/design

3.3 Collection of data: a source of data and type of data

3.4 Analytical tools and techniques employed in the study

3.1.1 Selection of the study area

Bengaluru is the principal administrative, cultural, commercial, industrial and knowledge capital of the state of Karnataka. Bengaluru is also been identified as the country's 'Silicon Valley' and it is one of the technological innovation hubs with a technological achievement index (TAI) of 134 according to the Human Development Report (United Nations Development Programme, 2001). Bengaluru also houses numerous other leading commercial and educational institutions, and industries like textiles, aviation, space, biotechnology, etc. Bengaluru has become a shopper's paradise. The city has popular shopping areas like M G Road, Brigade Road, Commercial Street, Majestic area, and Jayanagar Shopping Complex.

Bengaluru is currently seeing something of a retail boom. The organized retail outlets have spread all over the Bengaluru City. Several supermarkets and malls have sprung up in the recent past. To name a few, the largest mall in Bengaluru, the Mantri Square in Malleshwaram. Besides there are others such as the Fab mall, Sunday to Monday, and the brand new Family Mart. The latest buzz is that of hypermarkets - Big Bazaar is already functional. Bengaluru is also the base for Metro Cash & Carry, strictly

a B2B retailing zone, which now has establishments in Yeshwantpur and Kanakpura Road. The newest addition to the Mall Wagon is the Gopalan Mall or Namma Mall on Mysore Road. Keeping this in mind Bengaluru city was purposefully selected for the study.

3.1.2 Description of the study area

Bengaluru, the capital city of Karnataka, is a veritable melting pot of various cultures. The city has well – laid out parks, gardens, long avenues of blossoming trees and salubrious climate. Bengaluru has a population of 12.47 Million, making it India's, fourth largest city, with a decadal growth rate of 47% per cent (2018). Bengaluru is the next fastest growing Indian metropolis afterward New Delhi. The city was established during the 16th century, by great dynasties like the Kadambas, and the Hoyasalas. Bengaluru city is located at an height of 920 meters above sea level. The city, which is spread over an area of 2190 square kilometers, enjoys a pleasant climate throughout the year due to its elevation. According to 2011 census, the literacy rate of the city is 88.48 per cent. Its tree-lined streets and abundant greenery have led to it being called the Garden City of India. The highest temperature recorded is 39ºC (102ºF) and the lowest is 7.8ºC (46ºF). The wettest months are August, September, and October; with the heaviest rainfall of 180 mm in a 24-hour period.

3.2 Sampling procedure/design

Bengaluru city was mainly selected for the study since it is the hub of many organized retail outlets, multi-store, hypermarkets shopping malls. All the organized retail outlets also run food retail outlets. These organized retail outlets in Bengaluru city also selling imported fruits. Further, there are many imported fruits wholesaler/dealers established their trade for the last two to three decades in Bengaluru city since there is a growing demand for imported fruits. Besides, there are few small exclusive fruit vendors who are also dealing with imported fruits along with local fruits.

The primary data from a sample of 60 respondents was collected regarding their preference for imported fruits by administrating pre-tested structured schedule. The

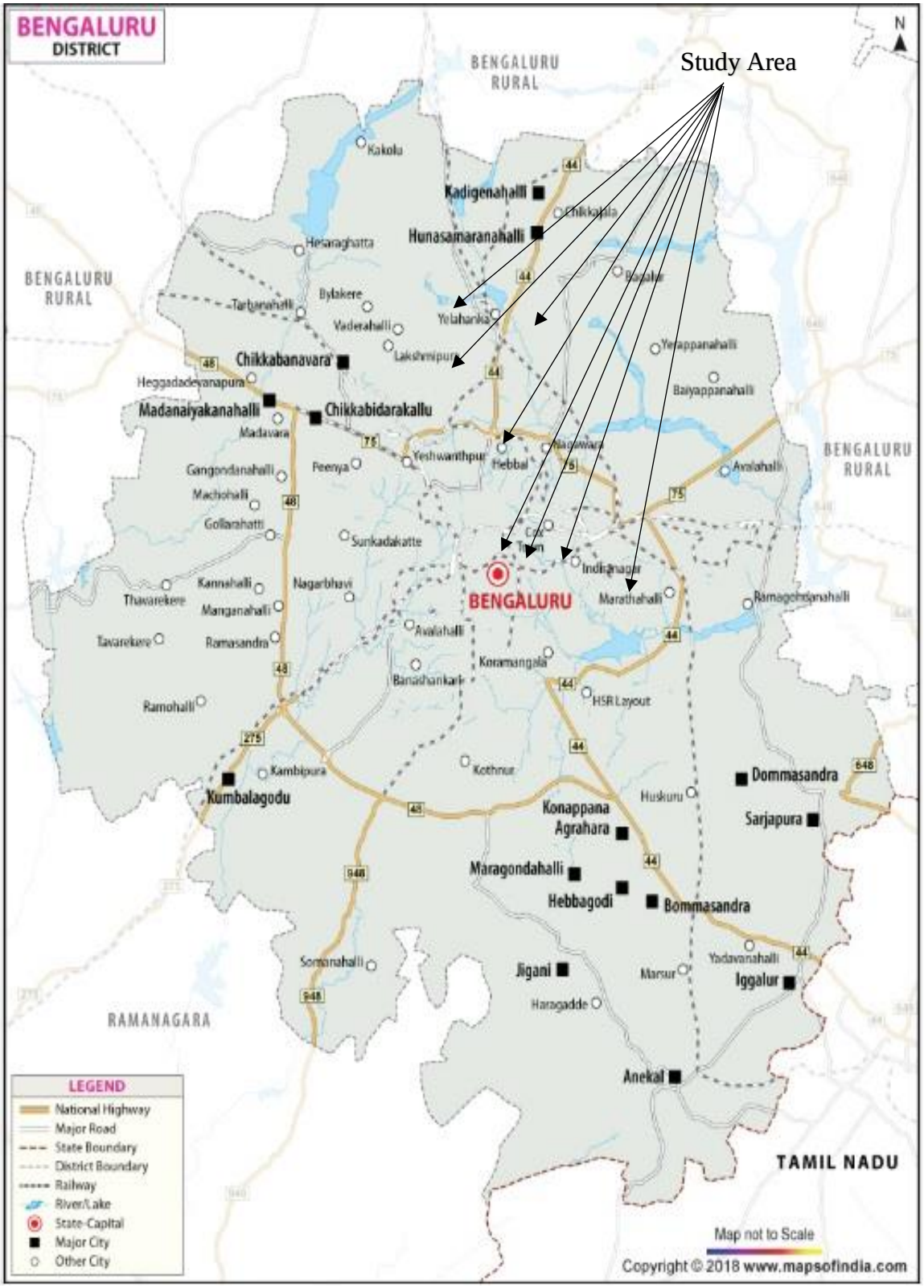

Fig. 1: Map of Bengaluru city showing the study area

convenient method for sampling was adopted to select the respondents. The primary data from a sample of 60 respondents were collected from different localities of Bengaluru city. The primary data collected from sample respondents were mainly related to attitude and factors influencing the consumption of imported fruits. Further, the primary data from ten retailers was also collected to examine the type of imported fruits sold, the volume of business, tastes, and preferences of consumers etc.

3.3 Nature and sources of data

The study is based on both primary and secondary data. The primary data regarding the socio-economic characteristics of the consumers and the consumers perception towards imported fruits was collected by administrating pre-tested schedule which included questions regarding age, education, occupation, income, type of family, food habit, consumption of imported fruits, nature of purchase decision, frequency of purchase, monthly expenditure on imported fruits, place of purchase, level of satisfaction, period of imported fruits consumption, influence of brand on the consumption of imported fruits, source of information on imported fruits, probability of consumption of imported fruits in future, reason for buying imported fruits, factors influencing the purchase of branded imported fruits' in Bengaluru city, etc.

3.3.1 Period of study

The primary data was collected during the period from January to April 2018. The secondary data related to the area, production and productivity of fruits in India was collected from 1991-92 to 2016-17.

3.4 Analytical tools and techniques employed in the study

The analysis of the data is the procedure of cleaning, inspecting, modeling and transforming the achieved data with the goal of underlining valuable information and suggesting conclusions. The data analysis has approached, encompassing various techniques under a diversity of names in different domains. The choice of suitable analytical tools is important in a research study as they have a crucial bearing on the results and their clarification.

The primary data collection were tabulated and analyzed by using suitable statistical/analytical tools and technique, keeping in view, the particular objectives of the study to draw meaningful conclusions. Based on the nature and extent of the data, the methods and tools/techniques of analysis employed in the present study are elaborated under following headings.

3.4.1 Descriptive statistics

3.4.2 Percentage analysis

3.4.3 Garrett's ranking technique

3.4.4 Factor analysis

3.4.1 Descriptive statistics

Descriptive statistics is a summary statistic that quantitatively describes or summarizes features of a collection of information, while descriptive statistics in the mass noun sense is the process of using and analyzing those statistics. Descriptive statistics are distinguished from inferential statistics (or inductive statistics), in that descriptive statistics aims to summarize a sample, rather than use the data to know about the population that the sample of data is thought to represent. This commonly means that descriptive statistics, unlike inferential statistics, is not developed on the basis of probability theory and are frequently nonparametric statistics. Even when a data analysis draws its main conclusions using inferential statistics, descriptive statistics are generally also presented. For example, in papers reporting on human subjects, typically a table is included giving the overall sample size, sample sizes in important subgroups (e.g., for each treatment or exposure group), and demographic or clinical characteristics such as the average age, the proportion of subjects of each sex, the proportion of subjects with related comorbidities, etc.

3.4.2 Percentage analysis

A percentage is a way of stating a number, particularly a ratio, as a fraction of 100. It is often indicated using the per cent sign %, or the abbreviations pct. The percentages are used to show how large/small one quantity is relative to another quantity.

The main quantity commonly represents a portion of or a conversion in the second quantity, which must be bigger than zero.

3.4.3 Garrett's ranking technique

The Garrett's ranking was used as a technique to analyze the factors like some reasons for choosing a brand on the basis of certain attributes. Garrett's ranking is useful to rank a set of factors or items as supposed by the respondents from sample based on certain criteria. The methodology for ranking is described below. The order of value assigned by the respondents was changed into scores using the formula given by Garrett and Woodworth (1969).

$$\text{Per cent position} = \frac{100\ (Rij - 0.5)}{Nj}$$

Where,

Rij = Rank given for the i^{th} factor by j^{th} respondent and

Nj = Number of factors ranked by the j^{th} respondent.

By referring to Garrett's table, the per cent position estimated was converted into a score. Then, for every reason, the scores of various respondents were added and the mean score was calculated. The reason with the maximum mean score was considered to be the most important factor.

3.4.4 Factors analysis

Factor analysis is a statistical method used to define variability between observed correlated variables in terms of potentially lower number of unobserved variables called factors. Factor analysis searches for joint variations in response to unobserved latent variables. The observed variables are modeled as linear combinations of the potential factors, plus error terms. The information gained about the interdependencies between observed variables can be used later to reduce the set of variables in a dataset.

Factor analysis model

$X_i = A_{i1}F_1 + A_{i2}F_2 + A_{i3}F_3 + \ldots\ldots\ldots\ldots\ldots\ldots + A_{im}F_m + V_iU_i$

Where,

X_i = i^{th} standardized variable

A_{ij} = standardized multiple regression co-efficient of the variable on common factor $_j$

F = common factor

V_i = standardized regression co-efficient of variable i on the unique factor

U_i = Unique factor for variable i

m = number of common factors

The unique factors are uncorrelated with each other and with common factors. The common factors themselves can be a linear combination of the observed variables.

$$F_i = W_{i1}X_1 + W_{i2}X_2 + W_{i3}X_3 + \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots + W_{ik}X_k$$

Where,

F_i = estimate of the i^{th} factor

W_i = weight or score of the co-efficient

k = number of variables

It is possible to select weight or factor score coefficient so that the first factor explains the major portion of the over-all variance. Then, the second set of weights can be selected so that the second factor accounts for most of the variance subject to being uncorrelated with the first factor. The same standard can be useful for selecting additional weights for the additional factors.

Definitions

Bartlett's test of sphericity

It is a statistic test for examine the hypothesis for showing that the variables are uncorrelated in the population i.e., the population correlation matrix is an identity matrix. Bartlett's test of sphericity tests the hypothesis that a correlation matrix is an identity matrix, which would indicate that the variables are unrelated and therefore unsuitable for structure detection. Each variable correlates perfectly with itself (r=1) but has no correlation with the other variables (r=0).

Correlation matrix

A correlation matrix is a table showing correlation coefficients between sets of variables. Each random variable in the table is correlated with each of the other values in the table. This allows seeing which pairs have the highest correlation. It is a lower triangle matrix showing the simple correlation r, among all possible pairs of variable involved in the analysis. The diagonal elements which are all 1 are usually omitted.

Factor scores

The Factor scores are compound scores assessed for each respondent on the deriving factors.

Factor Loadings

Factor loadings are coefficients found in either a factor pattern matrix or a factor structure matrix. Factor loadings help in labelling and interpreting the factors. It measures that how closely the variables in the factor are associated. Furthermore it is calling factor variable correlation. These are the correlation coefficients between the variables and the factors.

Eigen value

Eigen values are the variances of the factors. They measure the variance in all the variables similar to the factor. Furthermore Eigen values are calculated by adding the squares of factor loading of all the variables in the factor. It helps in explanation of the factor importance with respect to variables. Generally, factors with Eigen values more than one are considered stable. The factors that have low Eigen values (<1.0) may not explain the variance in the variables related to that factor.

Communalities

Communalities measure the percentage of variance in each variable clarified by the factors extracted. It is denoted by h^2 and ranges from 0 to 1. A high communality value indicates that the maximum amount of variance in the variable is explained by the factors extracted from the factor analysis.

Total variance explained

It is the percentage of the total variance of the variables explained. This is calculated by adding all the communality values of each variable and diving it by the number of variables.

Factor variance explained

It is the percentage of total variance explained by the factors. It is added by calculated by adding the squared factor loadings of all the variables and diving it by the number of variables.

IV RESULTS AND DISCUSSION

In consistence with the objectives of the study, the data collected from primary as well as secondary source were subjected to analysis by using statistical tools and techniques to draw meaningful conclusions. The findings of the study has been presented and interpreted on the basis of analysis of data using appropriate statistical tools and techniques in relation to the specific objectives of the study. The results of the study are presented under the following sub headings.

4.1 General Characteristics of consumers buying imported fruits in Bengaluru city

4.2 Types of imported fruits and brands available in the market in Bengaluru city

4.3 Consumer preference for imported fruits in Bengaluru city

4.4 Factors influencing the purchase of imported fruits in Bengaluru city

4.1 General characteristics of consumers buying imported fruits in Bengaluru city

4.1.1 Socio-demographic characteristic of consumers in Bengaluru city

The socio-demographic characteristic of consumers was presented in the Table 4.1., which includes the information about the gender, age group, marital status, food habit and family type. The table reveals that among the 60 consumers studied more than half of the consumers (53.33%) were males and the remaining (46.67%) were females.

With respect to the age majority (61.67%) of consumers belonged to the age group of 30 to 35 years which included the professionals and business people. About 25 per cent of the consumers were in the age group of 26 to 29 years. Further, 10 per cent of consumers were in the age group of above 36 years and 3.33 per cent were in the age group of below 25 years.

With respect to marital status, a vast majority of the respondent consumers (71.67%) were married and only 28.33 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 (66.67%) were non-vegetarians and the rest (33.33%) were vegetarians. With reference to the type of family, a vast majority (85 %) of consumers had a nuclear family and a marginal number of (15%) of the consumers were of joint family. It clearly depicts that nuclear families are more in number.

Table 4.1: Socio-demographic characteristics of consumers in Bengaluru city

(n=60)

Sl. No.	Characteristics	Category	Number	Percentage
1.	Gender	Male	32	53.33
		Female	28	46.67
Total			**60**	**100.00**
2.	Age group (years)	Below 25	2	3.33
		>25-30	15	25.00
		>30-35	37	61.67
		Above 35	6	10.00
Total			**60**	**100.00**
3.	Marital status	Single	17	28.33
		Married	43	71.67
Total			**60**	**100.00**
4.	Food habit	Vegetarian	20	33.33
		Non-vegetarian	40	66.67
Total			**60**	**100.00**
5.	Family type	Nuclear family	51	85.00
		Joint family	9	15.00
Total			**60**	**100.00**

4.1.2 Socio-economic profile of consumers in Bengaluru city

The socio-economic profile of consumers in Bengaluru city was presented in the Table 4.2. The socio-economic profile includes education level, occupation, earning members in the family and family income. With regard to literacy level, majority of the consumers were post-graduates (60 %) which shows that consumers are well educated

and aware of what is good for health, followed by graduates (38.33%) and (1.67%) consumers were studied up to high school. It was interesting to note that none of the respondent consumers were illiterates.

Table 4.2: Socio-economic profile of consumers in Bengaluru city

(n=60)

Sl. No.	Characteristics	Category	Number	Percentage
1.	Education level	High School	1	1.67
		Graduate	23	38.33
		Post-graduate	36	60.00
Total			**60**	**100.00**
2.	Occupation	Employees	20	33.33
		Business	11	18.33
		Professionals	16	26.67
		Housewife	5	8.33
		Others	8	13.34
Total			**60**	**100.00**
3.	Earning members in the family	One	33	55.00
		Two	20	33.33
		More than two	7	11.67
Total			**60**	**100.00**
4.	Family income (Rs./month)	5000 – 10,000	4	6.67
		10,000-50,000	23	38.33
		50,000 - 100000	19	31.67
		Above 1 lakh	14	23.33
Total			**60**	**100.00**

With respect to occupation of the respondent consumers the table shows that 33.33 per cent were employees, 26.67 per cent were professionals, followed by business people (18.33%). Further, 8.33 per cent were housewives and the remaining (13.34%) were from other categories.

With respect to earning members in the family, majority (55%) of families had one earning member, followed by 33.33 per cent of families had two earning members and 11.67 per cent of families had more than two earning members indicating that those consumers who have own business and high income are purchasing more fruits.

With respect to the family income, 38.33 per cent of the families were earning in the range of Rs. 10,000 to 50,000 per month. Further 31.67 per cent of respondent consumers were earning in the range of Rs. 50,000 to one lakh, and 23.33 per cent of the families were earning more than Rs. one lakh per month.

4.2 Types of imported fruits and brands available in the market in Bengaluru city

4.2.1 Import of fresh fruits and vegetables to India

The import of fresh fruits and vegetables to India is presented in Table 4.3. The main objective of the study was to document volume and value of fruits imported to India from other countries. However, the data related to fruits was not available separately. As a result the table 4.3 reveals the data related to both fruits and vegetables. It is clear from the table that China is the number one destination for import of fruits and vegetables to India. During 2016-17, India has imported nearly Rs. 1070 crores worth of fruits and vegetables from China. India is importing fruits like Apples, Kiwis, Peaches, Pomegranates, Thai Guavas, Grapefruits, Grapes, Pear and orange from China. Next to China, Pakistan is emerging as an important destination for import of fruits and vegetables to the country. From Pakistan the important fruits imported to India are Mangos, Apricot, and Thai Guava. India has imported nearly Rs. 849 crores worth of fruits and vegetables from Pakistan. Next to China and Pakistan, India is also importing fruits and vegetables from Afghanistan. From Afghanistan India has imported nearly Rs. 806 crores worth of fruits and vegetables. From Afghanistan the important fruits imported to India are Pomegranates, Apples, Pears, Apricots, Grapes and Guavas. It's clear from the table that the three major importing countries are basically neighboring countries of India. India is also importing fruits and vegetables from United States to the tune of nearly Rs. 748 crores. The important fruits imported from United States to India are Apples, Grapefruits, Pears and oranges. The other important destinations for

importing fruits to India are Iraq (Rs. 392 crores), followed by Chile (Rs. 270 crores), Sri Lanka (Rs. 244 crores), New Zealand (Rs. 197 crores), Egypt (Rs. 184 crores), Iran (Rs. 177 crores) and other countries (Rs. 961 crores).

Table 4.3: Import of fresh fruits and vegetables to India

Sl. No.	Country	2016-17	
		Qty in MT	Rs. in Crores
1.	China	1,99,549	1070
2.	Pakistan	1,65,544	849
3.	Afghanistan	26,476	806
4.	United States	76,732	748
5.	Iraq	1,46,922	392
6.	Chile	35,770	270
7.	Sri Lanka	13,684	244
8.	New Zealand	20,567	197
9.	Egypt	49,661	184
10.	Iran	42,833	177
11.	Others	1,26,845	961
Total		**9,04,583**	**5898**

Source: Horticultural statistics at a glance 2017, Government of India Ministry of Agriculture & Farmers Welfare.

4.2.2 Season wise availability of imported and domestic fresh fruits in Bengaluru city

The season wise availability of imported and domestic fresh fruits in Bengaluru city is furnished in Table 4.4. The main objective of the study was to document fresh fruits which are available in all seasons in India and also those fruits which are existing in the market throughout the year. As a result the below table reveals the data related to Season wise availability of imported and domestic fresh fruits in Bengaluru city.

Imported and domestic fruits which are available throughout rainy season from (June to September) are Asian Pear, Barbados Cherries, Cactus Pear, Cape Gooseberries,

Crab Apples, Cranberries, Feijoa, Grapes, Guava, Huckleberries, Jujube, Key Limes, Kumquats, Muscadine Grapes, Mushrooms, Passion Fruit, Pear, Persimmons, Pineapple, Pomegranate, Quince, Sapote, Sharon Fruit and Sugar Apple.

Fruits which are available in winter season from (October to January) are Apple, Custard Apple, Strawberries, Sweet Lime, Fig, Grapes, Guava, Papaya, Pomegranate, Pineapple, Passion Fruit, Chikoo, Musk Melon, Banana, Tangelo, Ugli Fruit, Rhubarb, Clementine, Cranberry, Kumquat, Lemon, Passion Fruit, Pear, Persimmon, Cactus Pear, Cherimoya, Dates, Grapefruit, Kiwifruit, Oranges, Persimmons, Pomelo, Banana, Red Currants, Sharon Fruit and Tangerines. These fruits are available throughout winter season but some of them can be find in other seasons also. The taste of these fruits are different compared to other season fruits.

The summer season which start from (February to May) have different types of imported and domestic fruits. Summer season have many types of fruits than any other season but similar to winter season and these are fruits which are available in the summer season are Apricots, Asian Pear, Barbados Cherries, Black Currants, Blackberries, Blueberries, Boysenberries, Breadfruit, Cantaloupe, Casaba Melon, Champagne Grapes, Cherries, Cherries (Sour), Crenshaw Melon, Durian, Elderberries, Figs, Grapefruit, Grapes, Honeydew Melons, Jackfruit, Key Limes, Limes, Loganberries, Longan, Loquat, Lychee, Mulberries, Nectarines, Olallieberries, Passion Fruit, Peaches, Persian Melon, Plums, Raspberries, Sapodillas, Sapote, Strawberries, Sugar Apple, Bitter Melon, Cherimoya, Mango, Oranges, Pineapple and Watermelon. These fruits are tasty and sweat. As a result, consumers have many kinds of fruits from every season throughout the year which have its own special taste and quality.

Imported and domestic fruits which are available throughout the year from (January to December) are Apples, Orange, Apricots, Bananas, Cranberries, Kiwano, Lemons and Papayas. As these fruits are available throughout the year having many types, the consumers have the option to choose. Further these fruits are available in the market with many varieties. These fruits are so healthy and have a good taste with storage value.

Table 4.4: Season wise availability of imported and domestic fresh fruits in Bengaluru city

Seasons	Months	Fruits
Rainy season	June, July August and September	Asian Pear, Barbados Cherries, Cactus Pear, Cape Gooseberries, Crab Apples, Cranberries, Feijoa, Grapes, Guava, Huckleberries, Jujube, Key Limes, Kumquats, Muscadine Grapes, Mushrooms, Passion Fruit, Pear, Persimmons, Pineapple, Pomegranate, Quince, Sapote, Sharon Fruit and Sugar Apple.
Winter season	October, November, December and January	Apple, Custard Apple, Strawberries, Sweet Lime, Fig, Grapes, Guava, Papaya, Pomegranate, Pineapple, Passion Fruit, Chikoo, Musk Melon, Banana, Tangelo, Ugli Fruit, Rhubarb, Clementine, Cranberry, Kumquat, Lemon, Passion Fruit, Pear, Persimmon, Cactus Pear, Cherimoya, Dates, Grapefruit, Kiwifruit, Oranges, Persimmons, Pomelo, Banana, Red Currants, Sharon Fruit and Tangerines.
Summer season	February, March, April and May	Apricots, Asian Pear, Barbados Cherries, Black Currants, Blackberries, Blueberries, Boysenberries, Breadfruit, Cantaloupe, Casaba Melon, Champagne Grapes, Cherries, Cherries (Sour), Crenshaw Melon, Durian, Elderberries, Figs, Grapefruit, Grapes, Honeydew Melons, Jackfruit, Key Limes, Limes, Loganberries, Longan, Loquat, Lychee, Mulberries, Nectarines, Olallieberries, Passion Fruit, Peaches, Persian Melon, Plums, Raspberries, Sapodillas, Sapote, Strawberries, Sugar Apple, Bitter Melon, Cherimoya, Mango, Oranges, Pineapple and Watermelon.
Throughout the Year	January to December	Apples, Orange, Apricots, Bananas, Cranberries, Kiwano, Lemons and Papayas.

Source: http://www.nourishinteractive.com/healthy-living/free-nutrition-articles/104-fruits-by-season (2012).

4.2.3 Major producing countries of fruits and their varieties

The major producing countries of fruits and their varieties is furnished in the Table 4.5. The table indicates that Apple have varieties like red delicious, gala, guji, granny smith, honeycrisp, cripps pink and golden delicious. The major producing

countries are China, United States, Poland, Turkey, India, Iran, New Zealand and Australia.

Pomegranate is second major fruit with varieties like punica protopunica, punica granatum, alandi or vedki, dholka, kandhari, kabul, muskati red, paper shelled, spanish ruby. The major producing countries are India, Iran, Turkey, Spain, Tunisia, Morocco, Afghanistan, China, Greece and Japan. Further fig is another major imported fruit with its varieties like black mission, brown turkey, sierra, calimyrna, king, kadota. Fig major producing countries are like Turkey, Egypt, Algeria, Iran and Morocco.

Grapes is another major fruit with its varieties like cabernet sauvignon, merlot, airen, tempranillo, chardonnay, syrah, garnacha tinta, sauvignon blanc, trebbiano toscano, pinot noir. The major producing countries are China, United States, Italy, France, Spain, Turkey, Chile, Argentina, Iran, Africa, Turkey, Argentina, India, Sudan and Ghana.

Kiwi fruit is another major fruit with two types sore and sweat that sore kiwi's varieties are fuzzy kiwifruit, kiwi berries and sweet kiwi's varieties are golden kiwifruit. The major producing countries are China, Italy, New Zealand, Iran, Chile and Greece.

Orange is another major fruit with varieties like sweet oranges, mandarins, grapefruit, pomelo, lemons, limes and kumquat. The major producing countries are Brazil, China, India, United States, Spain and Egypt.

Pear is another major fruit with varieties like Anjou Pears (red and Green), Asian Pears, Bartlett Pears, Bosc Pears, Comice Pears, Forelle Pears, French Butter Pears, Seckel Pears. The major producing countries are China, Argentina, United States, Italy and Turkey. Follow by other major fruits which produce more after pear are strawberry, fig, dragon fruit, grapefruit, Thai guava, apricot, cherry, peach and plum.

Table 4.5: Major producing countries of fruits and their varieties

Fruit	Common varieties	Major Producing countries
Apple	Red Delicious, Gala, Fuji, Granny Smith, Honeycrisp, Cripps Pink, Golden Delicious	China, USA, Poland, Turkey, India, Iran, New Zealand and Australia
Pomegranate	Punica protopunica, Punica granatum, Alandi or Vedki, Dholka, Kandhari, Kabul, Muskati Red and Paper Shelled	India, Iran, Turkey, Spain, Tunisia, Morocco, Afghanistan, China & Greece.
Grapes	Cabernet Sauvignon, Merlot, Airen, Tempranillo, Chardonnay, Syrah, Garnacha Tinta, Sauvignon Blanc, Trebbiano Toscano, Pinot Noir.	China, USA, Italy, France, Spain, Turkey, Chile, Argentina, Iran, Africa, Turkey, Argentina and India.
Kiwi fruit	Sore (Fuzzy kiwifruit , Kiwi berries), Sweet (Golden kiwifruit)	China, Italy,New Zealand, Iran, Chile and Greece
Orange	Sweet oranges, Mandarins, Grapefruit, Pomelo, Lemons, Limes and Kumquat.	Brazil, China, India, United States, Spain and Egypt
Pear	Anjou Pears (red and Green), Asian Pears, Bartlett Pears, Bosc Pears, Comice Pears, French Butter Pears, Seckel Pears.	China, Argentina, United States, Italy and Turkey
Strawberry	Honeoye, Earliglow, Allstar, Ozark Beauty, Chandler, Jewel, Seascape, Sparkle, Surecrop, Fort Laramie	USA, Turkey, Spain, Egypt, Mexico, Russia, Japan, South Korea, Poland and Germany.
Fig fruit	Black Mission, Brown Turkey, Sierra, Calimyrna, King, Kadota	Turkey, Egypt, Algeria, Iran and Morocco
Dragon fruit	Stenocereus (yellow) sour. Hylocereus (white and red) sweet.	United States, Asia, Africa and Australia.
Grapefruit	Oro Blanco, Ruby Red, Pink, Rio Star, Thompson, White Marsh, Flame, Star Ruby, Duncan, and Pummelo HB	China, United States, Mexico, Thailand, Africa, Israel, Turkey, Argentina and India.
Thai Guava	Apple guava, Yellow guava, Strawberry guava, Thai maroon guava	India, China, Thailand, Pakistan, Mexico, Indonesia, Brazil and Bangladesh.
Apricot	Chinese Apricot, Gold Cot, Tilton, Wenatchee, Goldbar, Gold Kist & Tomcot	Uzbekistan, Turkey, Iran, Italy, Algeria and France.
Cherry	Bright Red Sour, Bing, Dark Hudson, Rainier, Yellow	Russia, Turkey, Ukraine, USA, Iran, Poland and Spain.
Peach	Nectarines, Peacherines, Flat peaches	China, Spain, Italy, United States and Greece
Plum	Damson, Greengage, Mirabelle, Satsuma plum, Victoria, golden plum	China, Romania, Serbia, United States, Turkey, Iran, India, Spain and Italy

Source: https://en.wikipedia.org/wiki/List_of_largest_producing_countries_of_agricultural_commodities. 2015- 16

4.2.4 Seasons wise consumption of imported fruits by consumers in Bengaluru city

The seasonal wise consumption of imported fruits by consumers in Bengaluru city are presented in Table 4.6: The table reveals that among all the three seasons, consumers consume more imported fruits in the summer season (mean score of 55.13) this is mainly due to availability of more imported fruits. The second season was rainy season with a (mean score of 51.13). The winter season ranked third for consuming of imported fruits by consumers in Bengaluru city (mean score of 41.33). However the variations between the three seasons is not very high. As a result there is a good demand for imported fruits in all the three season.

Table 4.6: Seasons wise consumption of imported fruits by consumers in Bengaluru city

Sl. No.	Seasons	Mean score	Garrett's Ranks
1.	Summer season	55.13	I
2.	Rainy season	51.13	II
3.	Winter season	41.33	III

4.3 Consumer preference for imported fruits in Bengaluru city

4.3.1 Decision maker in the purchase of imported fruits in the family

The decision makers in the purchase of imported fruits in the family is presented in Table 4.7. It could be noticed from the table that respondent consumers themself were (46.67%) taking decisions for purchasing of imported fruits, followed by parents (30.00%) which shows that parents are the second major groups which are making decision for the purchase of imported fruits.

The third group was wife and husband (21.67%) which shows that some time both wife and husband are making decision for the purchase of imported fruits. The influence of children in the purchase of imported fruits is negligible (1.66%).

Table 4.7: Decision maker in the purchase of imported fruits in the family

(n=60)

Sl. No.	Decision Makers	Number	Percentage
1.	Own	28	46.67
2.	Wife / Husband	13	21.67
3.	Parents	18	30.00
4.	Children	1	1.66
Total		**60**	**100.00**

4.3.2 Consumers preference for imported and domestic fruits in Bengaluru city

The consumer preference for imported and domestic fruits in Bengaluru city is presented in Table 4.8. The table shows that 45 per cent of consumers preferring domestic fruits. This is mainly due to availability of more varieties of domestic fruits in the market. Further the table also indicates that consumer's preferences for imported fruits. Nearly 36.67 per cent of consumers preferred imported fruits.

However it is interesting to note that 18.33 per cent of the consumers prefer both domestic as well as imported fruits. The city has a large percentage of middle income group with varied ethnic groups, cultures which resulted in more demand for imported fruits.

Table 4.8: Consumers preference for imported and domestic fruits in Bengaluru city

(n=60)

Sl. No.	Type	Number	Percentage
1.	Domestic Fruits	27	45.00
2.	Imported Fruits	22	36.67
3.	Both	11	18.33
Total		**60**	**100.00**

4.3.3 Consumers preference for imported fruits in Bengaluru city

The consumers preference for imported fruits in Bengaluru city is presented in Table 4.9. It is clear from the table that Apple is number one preferred fruit among the consumers (mean score of 82.33) in Bengaluru city. This is mainly due to availability of different types of attractive Apple fruits available from countries like China, United States, Poland, Turkey, Iran, New Zealand, Australia etc. Further the keeping quality of Apple is also good. The traders also prefers to import Apple from long distances due to better margins, year round availability and good demand in the city. Hence Apple has occupied number one position among the consumer in Bengaluru city. Besides consumers also prefer Apple due to its value in term of health benefits.

Next to Apple, Pomegranate has the highest preference among the consumers in Bengaluru city with a mean score of 69. Similar to Apple Pomegranate has also attractive varieties available from other countries like Iran, Turkey, Spain, Tunisia, Morocco, Afghanistan, China, Greece and Japan. Grapes is third attractive fruit for consumers in Bengaluru city. Next to Pomegranate, Grapes has the highest preference among the consumers in Bengaluru city with a mean score of 68. The market is flooded with different types of Grapes both imported and locally produced. In fact the prices of grapes imported from other countries are comparatively higher. In spite of it imported Grape fruit is preferred by the consumers in Bengaluru city due to attractive colours and taste. Kiwi fruit is also another important fruit preferred among the consumers in Bengaluru city with a mean score of 67.48. Kiwi fruit is a niche fruit available in Bengaluru city only in selected retail markets. Further the value of fruit is also high. Kiwi fruit is imported from countries like China, Italy, New Zealand, Iran and Chile.

The consumers in Bengaluru city also buying oranges imported from countries like Brazil, China, United States, Spain and Egypt. Orange has also highest preference among consumers in Bengaluru city with a mean score of 66.17. The Orange imported from other countries are mainly of two types. First types of Orange is used by consumers like any fruits for direct consumption. Second types of Oranges are used only for juice

purpose. Orange is also very attractive to consumers in Bengaluru city due to attractive colors, taste and health benefits.

Some of the other fruits preferred by consumers in Bengaluru city are basically exotic fruits like Strawberry, Dragon fruit, Grapefruit, Thai guava, Plum and etc. It is interesting to note that these types of fruits are also available in Bengaluru city only during the last few years. Few of these fruits imported from other countries are also costly. In spite of it these fruits are highly preferred by high end consumers in Bengaluru city.

Table 4.9: Consumers preference for imported fruits in Bengaluru city

Sl. No.	Product	Mean Score	Garrett's Rank
1.	Apple	82.33	I
2.	Pomegranate	69.00	II
3.	Grapes	68.00	III
4.	Kiwi fruit	67.48	IV
5.	Orange	66.17	V
6.	Pear	57.50	VI
7.	Strawberry	51.33	VII
8.	Fig fruit	49.17	VIII
9.	Dragon fruit	47.67	IX
10.	Grapefruit	46.50	X
11.	Thai Guava	42.17	XI
12.	Apricot	32.33	XII
13.	Cherry	27.17	XIII
14.	Peach	26.33	XIV
15.	Plum	22.67	XV

The other imported fruits preferred by consumers in Bengaluru city are Pear which import from countries like China, Argentina, United States, Italy and Turkey. Pear has preference among consumers in Bengaluru city with a mean score of 57.50. Followed by Strawberry with a mean score of 51.33. Next to Strawberry is Fig fruit with a mean

score of 49.17, Dragon fruit with a mean score of 47.67, Grapefruit with a mean score of 46.50. Thai Guava with a mean score of 42.17, Apricot with a mean score of 32.33, Cherry with a mean score of 27.17, Peach with a mean score of 26.33 and Plum with a mean score of 22.67.

4.3.4 Nature of buying decision by consumers in the purchase of imported fruits in Bengaluru city

The nature of buying decision by consumers in the purchase of imported fruits in Bengaluru city is presented in Table 4.10. It is clear from the table that except Apple, Kiwi and to some extent the Pomegranate consumers are purchasing imported fruits rather impulsively indicating that as and when they visit a fruit store they prefer to buy a fruit. This may be due to attraction of fruit in terms of color, shape, aroma, packaging material used or maybe due to trader's promotional strategies, which indicates the consumers to buy a fruit.

4.3.5 Frequency in purchase of imported fruits by consumers in Bengaluru city

The frequency in purchase of imported fruits by consumers in Bengaluru city is presented in Table 4.11. The consumers are well aware of what fruits to buy for themselves and for their families and also from the point of their diet. The table 4.11 reveals that 10 per cent of respondent consumers were purchasing Apple Twice in a week followed by Grapes (6%), Orange (5.60%), Pomegranate (3%) and Kiwi fruit (2%).

The consumers are also buying imported fruits once in a week. The important fruits which consumers are purchasing once in a week with high percent are Grapes and Apple (28.33% and 28.33% respectively) followed by Orange (27.90%), Pomegranate (25%), Strawberry (23.33%) and Kiwi fruit (10%).

Similarly some of the consumers are purchasing imported fruits once in fortnight in the order of Grapes (56%), Orange (46.50%) and Kiwi fruit (45%) followed by Apple (43.34%) and Pomegranate (43%).

Table 4.10: Nature of buying decision by consumers in the purchase of imported fruits in Bengaluru city

(n=60)

Sl. No.	Product	Nature of purchase decision	Number	Percentage
1.	Apple	Impulsive	28	46.67
		Planned	32	53.33
2.	Kiwi fruit	Impulsive	32	53.33
		Planned	28	46.67
3.	Peach	Impulsive	59	98.33
		Planned	1	1.67
4.	Plum	Impulsive	59	98.33
		Planned	1	1.67
5.	Dragon fruit	Impulsive	59	98.33
		Planned	1	1.67
6.	Apricot	Impulsive	56	93.33
		Planned	4	6.67
7.	Pomegranate	Impulsive	42	70.00
		Planned	18	30.00
8.	Fig fruit	Impulsive	52	86.67
		Planned	8	13.33
9.	Cherry	Impulsive	58	96.67
		Planned	2	3.33
10.	Thai Guava	Impulsive	58	96.67
		Planned	2	3.33
11.	Grapefruit	Impulsive	58	96.67
		Planned	2	3.33
12.	Strawberry	Impulsive	51	85.00
		Planned	9	15.00
13.	Grapes	Impulsive	44	73.33
		Planned	16	26.67
14.	Pear	Impulsive	58	96.67
		Planned	2	3.33
15.	Orange	Impulsive	44	73.33
		Planned	16	26.67

Table 4.11: Frequency in purchase of imported fruits by consumers in Bengaluru city

(n=60)

Sl. No.	Product	Twice in a week	Once in a week	Once in fortnight	Once in a month	Occasionally
1.	Apple	10.00	28.33	43.34	10.00	8.33
2.	Kiwi fruit	2.00	10.00	45.00	23.00	20.00
3.	Peach	0.00	0.00	1.66	6.67	91.67
4.	Plum	0.00	0.00	0.00	0.00	100.00
5.	Dragon fruit	0.00	1.66	11.67	11.67	75.00
6.	Apricot	0.00	1.67	18.33	23.33	56.67
7.	Pomegranate	3.00	25.00	43.00	19.00	10.00
8.	Fig fruit	0.00	6.67	38.33	18.33	36.67
9.	Cherry	0.00	0.00	1.66	36.67	61.67
10.	Thai Guava	0.00	1.00	20.00	28.33	50.67
11.	Grapefruit	0.00	0.00	19.67	25.33	55.00
12.	Strawberry	0.00	23.33	28.34	31.66	16.67
13.	Grapes	6.00	28.33	56.00	8.00	1.67
14.	Pear	0.00	3.00	23.33	21.67	52.00
15.	Orange	5.60	27.90	46.50	13.33	6.67

Note= All the figure in table 4.11 are in percentage.

Further, consumers are buying some imported fruits once in a month. The important fruits which are purchasing once in a month are Cherry (36.67%) followed by Strawberry (31.66%) and Thai guava (28.33%), Grapefruit (25.33%) and Apricot (23.33%).

It is clear from the table that there is a variation in forms of frequency of purchasing imported fruits. For example in respect of eight fruits like Plum, Peach, Dorgan fruit, Cherry, Apricot, Grapefruit, Pear and Thai guava the frequency of purchase is occasional with a range of (50.67%) to 100 per cent. For example in case of Plum all

the respondent consumers are buying preferring this fruit rather occasionally indicating that the demand for imported fruit is substantially 100. The other fruits which have less demand and preference by the consumers in Bengaluru city are Peach, Dorgan fruit, Cherry, Apricot, Grapefruit, Pear and Thai guava.

However in case of Apple the frequency of purchase is spread across twice in a week to occasionally in respect of Grapes the frequency is more towards purchase once in a week (28.33%) to once in fortnight. The next important fruit which is spread across twice in a week to occasionally be Orange followed by Pomegranate.

Hence it is clear from the table that consumers are buying imported fruits rather almost regularly either once in a week or most preferably once in fortnight. The frequency of purchasing of imported fruits by consumers once in a month or occasionally is rather very modest.

This clearly indicates that consumer's preference to buy a fruit depends on various conditions including taste, preference of fruit on health grounds, price and availability.

4.3.6 Monthly consumption of imported fruits by consumers in Bengaluru city

The monthly consumption of imported fruits by consumers in Bengaluru city is presented in Table 4.12. It could be seen from the table that there is a relationship between monthly expenditure and monthly income. As the monthly income increases, the monthly expenditure for imported fruits has also increased.

Further it shows that consumers are willing to pay more for fruits than food and especially for those imported fruits which are good for health, have good taste and high storage value like Apple, Pomegranate, Grapes, Kiwi fruit and Orange. So it's clear that among imported fruits Apple quantity used per person by consumer is 2.50 kg and value per person of this quantity is Rs. 375. Next to Apple is Pomegranate quantity used per person by consumer is 2.10 kg and value per person of this quantity is Rs. 315, Grapes quantity used per person by consumer is 1.03 kg and value per person of this quantity is

Rs. 288. Followed by Kiwi fruit quantity used per person by consumer is 0.75 kg and value per person of this quantity is Rs. 150, Orange quantity used per person by consumer is 1.45 kg and value per person of this quantity is Rs. 145, Pear quantity used per person by consumer is 0.50 kg and value per person of this quantity is Rs. 110 and Strawberry quantity used per person by consumer is 0.50 kg and value per person of this quantity is Rs. 100. In addition fig, dragon fruit, grapefruit, Thai guava, Apricot, Cherry, Peach, Plum are those imported fruits which consumers are purchasing less quantity for consumption per month.

Table 4.12: Monthly consumption of imported fruits by consumers in Bengaluru city

Sl. No.	Product	Price (Per Kg)	Monthly	
			Quantity Per Person (Kg)	Value Per Person (Rs.)
1.	Apple	150	2.50	375
2.	Pomegranate	150	2.10	315
3.	Grapes	280	1.03	288
4.	Kiwi fruit	200	0.75	150
5.	Orange	100	1.45	145
6.	Pear	220	0.50	110
7.	Strawberry	200	0.50	100
8.	Fig fruit	100	0.50	50
9.	Dragon fruit	250	0.20	50
10.	Grapefruit	250	0.17	43
11.	Thai Guava	100	0.40	40
12.	Apricot	400	0.09	36
13.	Cherry	1200	0.03	36
14.	Peach	350	0.07	25
15.	Plum	360	0.06	22
Total		**4310**	**10.35**	**1784**

4.3.7 Place of purchase of imported fruits by the consumers in Bengaluru city

The place of purchase of imported fruits by the consumers in Bengaluru city is presented in Table 4.13. It could be observed from the table that, majority of the consumers purchased imported fruits from modern retail format (58.33%), followed by wholesaler (30%), Traditional retail outlets (6.67%), and footpath vendors (3.33%) even from push cart vendors (1.67%). It shows the availability of imported fruits in all the stores and outlets. Consumers preferred modern retail formats because of easy availability, fresh quality, availability of different varieties.

The modern retail formats includes more megastore, Big Bazaar, Reliance fresh, Namdhari's fresh, Nilgiris and host of others. The emergence of these organized retail stores is also encouraging consumers to buy imported fruits due to availability of fruits in these stores. The wholesalers are concentrated in few places like Krishna Rajendra Market, Russell market, fruit market, Singenahalli Agrahara where few consumers prefer to purchase imported fruits due to low prices, availability of all fruits in one place. In Bengaluru city there are large number of retail fruits and vegetable outlets where imported fruits are also available. Hence consumers also buy imported fruits from these retail outlets.

Table 4.13: Place of purchase of imported fruits by the consumers in Bengaluru city

(n=60)

Sl. No.	Type of store	Number	Percentage
1.	Modern retail formats	35	58.33
2.	Wholesaler	18	30.00
3.	Traditional retail outlets	4	6.67
4.	Footpath Vendors	2	3.33
5.	Push cart Vendors	1	1.67
Total		**60**	**100.00**

4.3.8 Level of Satisfaction of consumers on the use of imported fruits in Bengaluru city

The level of satisfaction of consumers on the use of imported fruits in Bengaluru city is presented in the Table 4.14. It could be observed from the table that, majority of the consumers are satisfied to use imported fruits because imported fruits are totally different from domestic fruits, with better quality, better shelf life and variety. Further imported fruits are prefer by consumers from the point of health. The table reveals that Vast majority of consumers (81.67%) were satisfied. Further (11.67%) consumers were highly satisfied and only (6.67%) consumers were not satisfied, which is mainly related to high prices compared to local fruits.

Table 4.14: Level of satisfaction of consumers on the use of imported fruits in Bengaluru city

(n=60)

Sl. No.	Level of satisfaction	Number	Percentage
1.	Satisfied	49	81.67
2.	Highly satisfied	7	11.67
3.	Not Satisfied	4	6.67
Total		**60**	**100.00**

4.3.9 Period of consumption of imported fruits by consumers in Bengaluru city

The period of consumption of imported fruits by consumers in Bengaluru city is presented in Table 4.15. As majority of the consumers are familiar with imported fruits they are consuming imported fruits from a long period. The table indicate that among the consumers majority of them (51.67%) were consuming imported fruits for more than 5 years. The consumers who are consuming in range of 3-5 years is about 20 per cent. Nearly 21.67 per cent of the consumers consuming in the range of 1-3 years. The rest (6.66%) of the consumers are consuming for the last year.

Table 4.15: Period of consumption of imported fruits by consumers in Bengaluru city

(n=60)

Sl. No.	Period	Number	Percentage
1.	Above 5 years	31	51.67
2.	3-5 years	12	20.00
3.	1-3 years	13	21.67
4.	1 year	4	6.66
Total		**60**	**100.00**

4.3.10 Influence of brand on the consumption of imported fruits by consumers in Bengaluru city

The Influence of brand on the consumption of imported fruits by consumers in Bengaluru city is presented in Table 4.16. It is clear from the table that consumers of imported fruits are always prefers to buy from trusted brands and they have indicated that any brand with good quality of fruit is good. It can be observed from the Table that 41.67 per cent of the consumers always prefers to buy from trusted brands. Another 36.67 per cent consumers have indicated that any brand with good quality of fruit is okay followed by 13.33 per cent of consumers who preferred good quality of fruit even without brand and the remaining 8.33 per cent consumers were not aware of brand.

Table 4.16: Influence of brand on the consumption of imported fruits by consumers in Bengaluru city

(n=60)

Sl. No.	Alternative purchase plans	Number	Percentage
1.	Trusted brands	25	41.67
2.	Any brand with good quality of fruit	22	36.67
3.	Good quality of fruit even without brand	8	13.33
4.	Not aware of brand	5	8.33
Total		**60**	**100.00**

4.3.11 Sources of information to consumers of imported fruits in Bengaluru city

The sources of information to consumers of imported fruits in Bengaluru city is furnished in Table 4.17. Nearly 28.33 per cent of the respondent consumers were aware of imported fruits mainly due to information available from shopkeepers and retailers about imported fruits. The next important sources were friends and relatives (20%). Nearly 18.33 per cent of the consumers are getting information through television, followed by shelf display (18.33%), newspapers (6.67%), pop display and announcement (5%) and magazines (1.67%). The remaining 1.67 per cent of the consumers are getting information through other sources.

Since consumers in Bengaluru city are well to educated, getting information on imported fruits is very easy. Hence they access the information through various sources. From the point of health also consumers in Bengaluru city keep update about the information on fruits whether they are locally grown or imported including variety, place or origin of the fruits and its benefits to health.

Table 4.17: Sources of information to consumers of imported fruits in Bengaluru city

(n=60)

Sl. No.	Sources	Number	Percentage
1.	Shopkeeper and retailer	17	28.33
2.	Friends and relatives	12	20.00
3.	Television	11	18.33
4.	Shelf display	11	18.33
5.	Newspapers	4	6.67
6.	Pop display and announcement	3	5.00
7.	Magazines	1	1.67
8.	Other source	1	1.67
Total		**60**	**100.00**

4.3.12 Preference for imported fruits by consumers in future

The preference for imported fruits by consumers in future is furnished in Table 4.18. From the table it is clear that consumers are willing to purchase imported fruits in the future also. Further for some fruits the probability of consumption is high particularly in respect of Apple, Pomegranate, Orange, Kiwi fruit and Grapes.

This clearly indicates that the consumers in Bengaluru city have already accepted these fruits as part and parcel of life and as a result continue to patronage these fruits in future also. However in respect of other fruits like Strawberry, Fig, Pear, Dragon fruit, Grapefruit, Apricot, Thai Guava, Cherry, Peach and Plum the probability of favoring these fruits is uncertain. This may be due to its fact that even at present the preference for these imported fruits is not regular. In fact majority of consumers consume these fruits occasionally. Hence there is no clarity in respect of patronage these fruits in future.

Table 4.18: Preference for imported fruits by consumers in future

(n=60)

Sl. No.	Product	Number	Percentage
1.	Apple	56	93.33
2.	Pomegranate	51	85.00
3.	Orange	45	75.00
4.	Kiwi fruit	44	73.33
5.	Grapes	38	63.33
6.	Strawberry	19	31.67
7.	Fig fruit	17	28.33
8.	Pear	11	18.33
9.	Dragon fruit	10	16.67
10.	Grapefruit	9	15.00
11.	Apricot	8	13.33
12.	Thai Guava	7	11.67
13.	Cherry	6	10.00
14.	Peach	5	8.33
15.	Plum	3	5.00

4.3.13 Factors influencing buying behaviour of consumers for imported fruits in Bengaluru city

The factors influencing buying behaviour of consumers for imported fruits in Bengaluru city is presented in Table 4.19. Table also present the rank matrix of those reasons for buying of imported fruits. The imported fruits are good for health is considered as the foremost reason for buying imported fruits (mean score of 76.20). The second main reason was in term of good taste with a mean score of 69.60. The storage value was ranked as third factor (mean score of 61.20). Quality and easily available were ranked as fourth and fifth respectively (mean score of 58.60 and 50.40 respectively). The advice of friends ranked as the sixth reason (mean score of 41.80). The other reasons are habitual since years mean score of 37.60, Increase in per capita income mean score of 29.40 and family tradition mean score of 28.20 indicated by consumers in Bengaluru city.

Table 4.19: Factors influencing buying behaviour of consumers for imported fruits in Bengaluru city

Sl. No.	Reasons	Mean Score	Garrett's Rank
1.	Good for Health	76.20	I
2.	Good Taste	69.60	II
3.	Storage Value	61.20	III
4.	Quality	58.60	IV
5.	Easily Available	50.40	V
6.	Advise of Friends	41.80	VI
7.	Habitual since years	37.60	VII
8.	Increase in per capita income	29.40	VIII
9.	Family tradition	28.20	IX

4.4 Factors influencing the purchase of imported fruits in Bengaluru city

Factor analysis was used to identify the factors influencing the purchase of imported fruits in Bengaluru city. The first step in factor analysis is to check the adequacy of data with the help of Kaiser-Meyer-Olkin (KMO) Measure and Bartlett's

Test (Table 4.20). The KMO measure was found to be 0.621 which shows that the factors that are extracted will account for fair amount of variance. The overall significance of correlation matrix was tested with Bartlett's test of Sphericity. The Chi-square value for Bartlett's Test was significant, thus rejecting the null hypothesis of independence among the variables.

Eigen values greater than one were considered for determining the number of factors influencing the purchase of imported fruits in Bengaluru city. With the help of Cattell's scree plot the factors were determined. Four factors had Eigen values greater than one, thus these factors were considered.

The rotated factor matrix for factors influencing the purchase of imported fruits in Bengaluru city is presented in the Table 4.21. It can be observed from the table that "health", "taste", "quality" and "nutrients content" were substantially loaded on factor 1, while "more variety availability", "recognizable branded product", "more trust to origin" and "more seasonal products" were significantly loaded on factor 2. "Attractive packaging", "readily available" and "brand image" were loaded on factor 3. "Low price" was loaded on factor 4.

Thus, it can be inferred from table that factor 1 labelled as "taste and health", with variables like health, taste, quality and nutrients content reveals that consumers preferred imported fruits due to the perception of health benefits, good taste and high quality with good nutrients. Similarly, factor 2 relate to the more variety availability, branded product, trust on origin and also due to seasonality. Therefore, this factor is labelled as "origin brand availability" factor. The third factor labelled as "marketing strategies" related to attractive packaging, readily available fruit and brand image, where in consumers are influenced by the attractive packing of and brand image of the fruits. The fourth factor related to low price, where in consumers are influenced by the low price of imported fruits available in the market (Table 4.21).

Table 4.20: KMO and Bartlett's Test for variance of the factors

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		**0.621**
Bartlett's Test of Sphericity	Approx. Chi-Square	**192.01**
	Degrees of freedom	**66.00**
	Significance	**0.00**

Table 4.21: Rotated factor matrix for factors influencing the purchase of imported fruits in Bengaluru city

Sl. No.	Particulars	Factor			
		1	**2**	**3**	**4**
1.	Health	**0.265**	-0.040	-0.131	0.090
2.	Taste	**0.317**	-0.101	0.046	0.178
3.	Quality	**0.360**	-0.047	0.033	-0.084
4.	Nutrients content	**0.352**	0.032	0.046	-0.423
5.	Attractive packaging	0.034	-0.148	**0.445**	0.160
6.	Low price	-0.023	-0.050	0.027	**0.597**
7.	Readily available	0.105	-0.035	**0.379**	-0.194
8.	More variety availability	0.063	**0.268**	-0.189	0.039
9.	Recognizable branded product	-0.067	**0.502**	-0.133	-0.363
10.	Brand image	-0.228	0.145	**0.319**	0.087
11.	More trust to origin	-0.003	**0.287**	0.058	0.148
12.	More seasonal products	-0.098	**0.308**	0.131	0.144

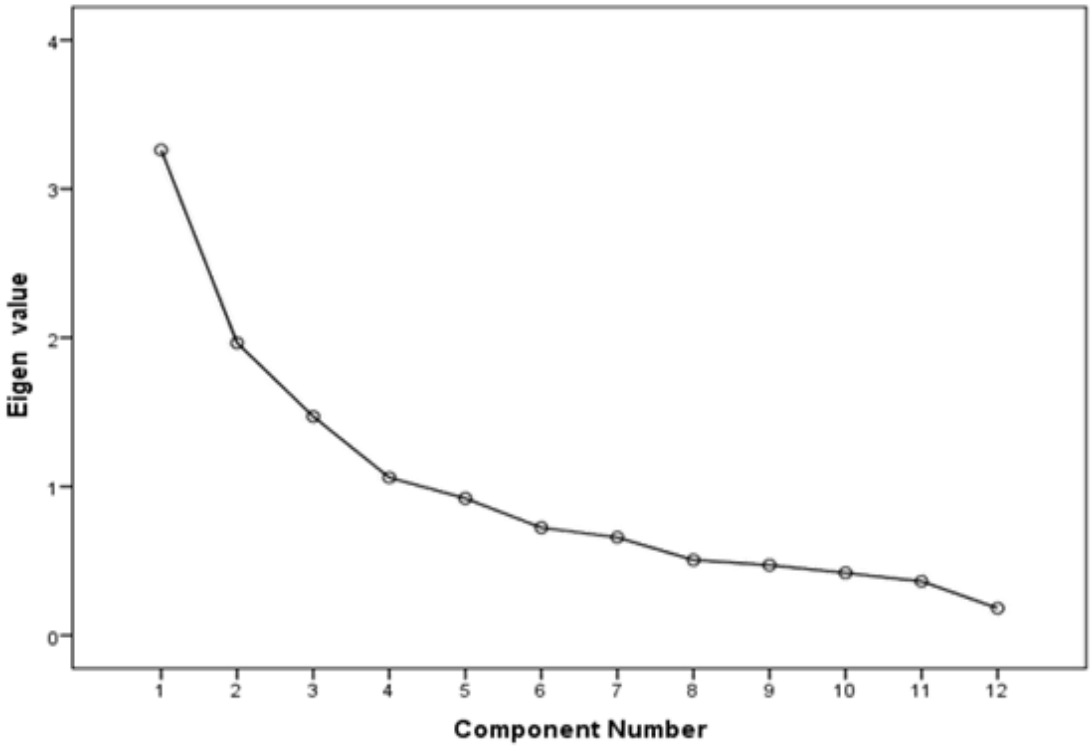

Fig. 2: Cattell's scree plot for number of factors influencing the purchase of imported fruits in Bengaluru city

V SUMMARY AND IMPLICATIONS

Fruits are botanically diverse, perishable, seasonal, and regional commodities. They come in many forms, shapes and sizes, colors, flavors, and textures. Fruit has always been a part of the human diet and is an important nutritional source. Fruits contains many useful vitamins as well as minerals, dietary fiber, and antioxidants.

History records that fruits are used by human beings from the nomadic age to the present day civilized life. The majority of species of fruits that are grown and consumed in the modern world have been domesticated by the late Neolithic and Bronze Ages between 6000 and 3000 BC.

The word fruit is derived from the Latin word “fructus”. Broadly, the botanical term fruit refers to the mature ovary of a plant, the edible part of a plant that consists of the seeds and surrounding tissues.

According to their origins and major production areas, fruits are commonly grouped into three types’ temperate fruits, subtropical fruits, and tropical fruits.

In India traditionally, a vast majority of the population prefers to consume fresh fruits. The nutritional intake from fruits and vegetables is higher among urban population compared to the rural population.

The world fruit production reached 690.8 million tons in 2016. China leads the ranking with 32 per cent of the world production, followed by India with 11 per cent and Brazil with 4 per cent of the world fruit production. The three largest fruit producing countries are China, India, and Brazil, combined accounted for 48 per cent of global production.

The Production of fruits in India is estimated to be 92 million tonnes during the year 2016-17 which is about 2 per cent higher than the previous year. India is the largest producer of fruits, the country ranks first in production of Bananas (26.04%), Papayas (44.51%) and Mangoes (40.75%).

India is importing different types of fruits from different parts of the world. The demand for imported fruits in the country is increasing due to accelerated urbanization, liberalization of trade policy, rising disposable income, changes in lifestyle. At present India is mainly importing fruits from United States of America, Côte d'Ivoire, Tanzania, Afghanistan, Guinea-Bissau, Iran, Australia, China, Benin, and Pakistan.

Consumer preferences for fruits are defined as the subjective tastes, as measured by the utility of various bundles of fruits. The consumer preference is mainly based on attributes, the price, the place and the promotion. The consumer preferences are independent of income and prices.

The present study is an effort to examine the source and different types of imported fruits available in the Bengaluru city both in organized and unorganized markets. Second, it evaluates the consumer preference and the purchase behavior for imported fruits. Finally, study assess the factors influencing consumption of imported fruits.

The following objectives were framed to conduct the study.

1. To document source and different types of imported fruits available in the market,
2. To analyze the consumer preference for imported fruits in Bengaluru city and
3. To assess the factors influencing consumption of imported fruits.

The present study was conducted in Bengaluru City. The study is based on primary and secondary data. The primary data from a sample of 60 respondents was collected regarding their preference for imported fruits by administrating pre-tested structured schedule. The convenient sampling method was accepted to select the respondents. The primary data from a sample of 60 respondents were collected from different localities of Bengaluru city. The primary data collected from sample respondents were mainly related to attitude and factors influencing the consumption of imported fruits. Further, the primary data from 10 retailers was also collected to examine the type of imported fruits sold, the volume of business, tastes, and preferences of consumers etc.

The data collected for the study was analyzed using descriptive statistics, percentage analysis, Garrett's ranking technique and factor analysis technique.

5.1 Major findings of the study

1. China is the number one destination for import of fruits and vegetables to India during 2016-17. India has imported nearly Rs. 1070 crores worth of fruits and vegetables from China. India is importing fruits like Apples, Kiwis, Peaches, Pomegranates, Thai Guavas, Grapefruits, Grapes, Pear and orange from China.
2. Season wise different varieties of imported and domestic fresh fruits are available in Bengaluru city. However fruits which are available throughout the year are apples, orange, apricots, avocados, bananas, cranberries, coconut, kiwano, lemons and papayas.
3. The major producing countries of fruits are China, India, Brazil, United States, Turkey and Russia.
4. Among all the three seasons, the summer season was considered as the suitable season for consuming of imported fruits (mean score of 55.13). The second season was rainy season with a (mean score of 51.13).
5. Among the 60 consumers studied a more than half of them (53.33%) were males and only 46.67 per cent were females.
6. The majority (61.67%) of consumers belonged to the age group of 30 to 35 years and 25 per cent from the consumers were in the age group of 26 to 29 years.
7. The vast majority (71.67%) of consumers were married and the rest 28.33 per cent were not married.
8. The majority (66.67%) consumers were non-vegetarians and the rest 33.33 per cent were vegetarians.
9. The vast majority (85 %) of the consumers belonged to nuclear family and a marginal number of (15%) of the consumers belonged to joint family.

10. The majority (60%) of the consumers were post-graduates and 38.33 per cent were graduates. It is fascinating to note that none of the respondent consumers were illiterates.

11. Among the consumers, 33.33 per cent were employees and 26.67 were professionals.

12. The majority (55%) of families had one earning member and 33.33 per cent of families had two earning members.

13. Among the consumers 38.33 per cent of the families had the income ranging from Rs. 10,000 to 50,000 per month, followed by 31.67 per cent had the income ranging from Rs. 50,000 to one lakh.

14. The consumers themselves were purchasing imported fruits (46.67%), followed by parents (30%).

15. The preferences for domestic fruits by consumers was 45 per cent and preferences for imported fruits was 36.67 per cent.

16. Among the consumers the highest preference was for apple (mean score of 82.33) and followed by pomegranate in Bengaluru city with a mean score of 69.

17. Among imported fruits except Apple, Kiwi and to some extent the Pomegranate consumers are purchasing the other imported fruits impulsively.

18. Among the respondent consumers, 10 per cent were purchasing apple twice in a weak followed by Grapes 6 per cent and orange 5.60 per cent. Further Imported fruits which purchase once in a week are Grapes and Apple (28.33% and 28.33% respectively) followed by Orange (27.90%), Pomegranate (25%), Strawberry (23.33%) and Kiwi fruit (10%).

19. Among the imported fruits the consumers have shown highest preference to Apple. For example the quantity of Apple purchased per person per month is 2.50 kg with a value of Rs. 375. Next to apple is Pomegranate comes second with 2.10 kg per person per month with a value of Rs. 315.

20. Majority (58.33%) of the consumers purchased imported fruits from modern retail format followed by wholesalers (30%).

21. Vast majority of (81.67%) consumers were satisfied in the use of imported fruits and 11.67 per cent of consumers were highly satisfied.

22. Among the consumers majority (51.67%) were consuming imported fruits for more than 5 years and 20 per cent were consuming in range of 3-5 years.

23. Nearly 41.67 per cent of the consumers prefers to buy from trusted brands and 36.67 per cent indicated that any brand is okay.

24. Nearly 28.33 per cent of the consumers were aware of imported fruits mainly due to information available from shopkeepers and retailers and 20 per cent consumers were aware of fruits due to influence of friends and relatives.

25. Consumers are willing to purchase imported fruits in the future also and for some fruits the probability of purchasing imported fruits is high in respect of apple, pomegranate, orange, Kiwi fruit and grapes.

26. Health is considered as the foremost reason for buying imported fruits (mean score of 76.20). The second reason was in terms of good taste with a mean score of 69.60.

27. Factors influencing the purchase of imported fruits in Bengaluru city are “health”, “taste”, “quality” and “nutrients content” followed by “more variety availability”, “recognizable branded product”, “more trust to origin”, “more seasonal products”, “attractive packaging”, “readily available”, “brand image” and “Low price”.

5.2 The study Implications

1. The consumer’s preference among the imported fruits was highest for apple followed by pomegranate, orange, kiwi fruit and grapes. Hence the business opportunities for these imported fruits in the Bengaluru city is very high.

2. Health, taste and quality were the major factors influenced the purchase of imported fruits by the consumers. Hence, product promotion of imported fruits need to be based on giving priority to these factors.

3. The demand for imported fruits is high among middle income and more particularly among high income groups in Bengaluru city. Hence the retailers need to focus on the quality of the fruits.
4. The central and state government, the horticulture department need to focus on bringing improvement in local fruits in respect of quality, taste, colour and keeping quality to increase the volume and value of sales of local fruits, since the demand for imported fruits is increasing in the country.

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APPENDICES

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Investigator Name: Azizul Rahman Ragashtai

Schedule for consumers

Title of the Study: A Study on Consumers Preference for Imported Fruits in Bengaluru City

Respondent No:……

Date:……/……/……..

1. **Name of respondent:** ……
2. **Gender:** Male ☐ Female ☐
3. **Address:** ……..…….……..... ……..
4. **Age:** Below 25 ☐ >25-30 ☐ >30-35 ☐ Above 35 ☐
5. **Marital status:** Single ☐ Married ☐
6. **Food Habit:** Vegetarian ☐ Non- Vegetarian ☐
7. **Family type:** Nuclear family ☐ Joint family ☐
8. **Education level:**

Primary School ☐ High School ☐ Graduation ☐

Middle School ☐ PUC ☐ Post-Graduation ☐

9. **Occupation:**

Employees ☐ Business ☐ Professional ☐

Housewife ☐ Others ☐

10. **Number of earning members in the family** ☐

11. Monthly family income (from all the sources) Rs.:

5000 – 10,000 ☐ 10,000-50,000 ☐ 0.5-1 lakh ☐ >1 lakh ☐

12. Which season are you consuming more imported fruits?

a) Summer Season ☐
b) Rainy Season ☐
c) Winter Season ☐

13. Who is buying fruits in your household?

a) Own ☐
b) Wife / Husband ☐
c) Parents ☐
d) Children ☐

14. Which fruits do you prefer?

Imported Fruits		Domestic Fruits		Both	

15. Are you consuming imported fruits? a) Yes ☐ b) No ☐

If yes which type of imported fruits?

Sl. No.	Imported fruits	Rank it (1-5)	Sl. No.	Imported fruits	Rank it (1-5)
1.	Apple		2.	Cherry	
3.	Kiwi		4.	Thai Guava	
5.	Peach		6.	Grapefruit	
7.	Plum		8.	Strawberry	
9.	Dragon fruit		10.	Grapes	
11.	Apricot		12.	Pear	
13.	Pomegranate		14.	Orange	
15.	Fig		16.	Other	

16. Nature of purchase decision

Sl. No.	Imported fruits	Nature of purchase decision		Sl. No.	Imported fruits	Nature of purchase decision	
		Impulsive buying	Planned purchase			Impulsive buying	Planned purchase
1.	Apple			2.	Cherry		
3.	Kiwi			4.	Thai Guava		
5.	Peach			6.	Grapefruit		
7.	Plum			8.	Strawberry		
9.	Dragon fruit			10.	Grapes		
11.	Apricot			12.	Pear		
13.	Pomegranate			14.	Orange		
15.	Fig			16.	Other		

17. Frequency of purchase of imported fruits and monthly consumption

Type of Imported fruits	Twice in a week	Once in a week	Once in fortnight	Once in a month	Occasionally	Monthly consumption	
						Qty/per person	Value/per person
Apple							
Kiwi							
Peach							
Plum							
Dragon fruit							
Apricot							
Pomegranate							
Fig							
Cherry							
Thai Guava							
Grapefruit							
Strawberry							
Grapes							
Pear							
Orange							
Other							

18. Place of purchase of imported fruits by consumers.

Sl. No	Nature of outlet	
1.	Modern retail formats	
2.	Wholesaler	
3.	Traditional retail outlets	
4.	Footpath Vendors	
5.	Push cart Vendors	

19. Level of satisfaction by consumption of imported fruits

Level of satisfaction	Satisfied	Highly Satisfied	Not Satisfied
Imported fruits			

20. Approximately Since how many years you are buying imported fruits?

a) Above 5 years
b) 3-5 years
c) 1-3 years
d) 1 year

21. Your opinion about brand which you are purchasing fruits

a) Trusted brands
b) Any brand with good quality of fruits
c) Good quality of fruits even without brand
d) Not aware of brand

22. Source of information on Imported fruits

Source of information	Imported fruits
Television	
Radio	
Newspapers	
Magazines	
Friends/relatives	
Shopkeeper/retailer	
Shelf display	
Pop display and announcement	
Any other	

23. Which imported fruits would you like to consume even in the future?

Sl. No.	Imported fruits	Future Consumption	Sl. No.	Imported fruits	Future Consumption
1.	Apple		2.	Cherry	
3.	Kiwi		4.	Thai Guava	
5.	Peach		6.	Grapefruit	
7.	Plum		8.	Strawberry	
9.	Dragon fruit		10.	Grapes	
11.	Apricot		12.	Pear	
13.	Pomegranate		14.	Orange	
15.	Fig		16.	Other	

24. Reasons for purchasing imported fruits? (Rank it between 1-10)

Sl. No.	Rank	Imported fruits	Sl. No.	Rank	Imported fruits
1	Storage Value		6	Increase in per capita income	
2	Good Taste		7	Habitual since years	
3	Good for Health		8	Advise of Friends	
4	Quality		9	Family tradition	
5	Easily Available		10	Others	

25. I would like to buy more imported fruits if

Factors	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Health					
Taste					
Quality					
Nutrients content					
Attractive packaging					
Low price					
Readily available					
More variety availability					
Recognizable branded product					
Brand image					
More trust to origin					
More seasonal products					