SUPPLY CHAIN ANALYSIS OF DRAGON FRUITS
A STUDY IN VARANASI DISTRICT U.P.

PROJECT REPORT SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF

Master of Agri-Business Management
in
Agricultural Economics

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Submitted by: **Manmohan Verma**

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Dear Sir,

This is to certify that the project report entitled "Supply Chain Analysis of Dragon Fruits : A Study in Varanasi District, U.P." submitted in partial fulfillment of the requirements for the degree of **Master of Agri-business Management**, from Institute of Agricultural Sciences, Banaras Hindu University, Varanasi (U.P)., is a record of bonafide research carried out by **Mr. Manmohan Verma, I.D. No,18412ABM011** , under my supervision and no part of the project report has been submitted for any other degree or institution.

The assistance and help received during the course of this investigation and sources of literature have been duly acknowledged.

Thanking you.

Forwarded by:
(Prof. P.S. Badal)
(Professor)
Chairman of Advisory committee

Yours faithfully
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"Supply Chain Analysis of Dragon Fruits : A Study in Varanasi District, U.P.

by

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Project report submitted in partial fulfillment of the requirements for the award of the degree of

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Last but not the "least", I bow my head before the feet of almighty "Baba Vishwanath", Bajrang Bali and Saraswati Maa seeking their blessings to accomplish the daunting task ahead in my life.

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CHAPTER 1

INTRODUCTION

1.1. Background of the study

Agriculture is the core driver of the Indian economy. It accounts for about 14 per cent of the Gross Domestic Product (GDP) and it employs more than 53 per cent of the total population that is directly or indirectly engaged in agriculture. Besides, the agriculture sector provides raw materials of 70 to 80% to the industries in the whole country. The role of agriculture in securing the food needs for the last and fast-growing population is considerable after that how can the food be reachable to the end consumer with the proper supply chain management is a more notable point at this time.

Despite having all this importance, agriculture continues to face a range of issues and challenges. The essential ones are destructive climatic conditions, lack of gorgeous land-use system ensuing in soil and different herbal assets degradation, restrained use of extended agricultural technologies, the predominance of subsistence agriculture and lack of and/or absence of enterprise-oriented agricultural manufacturing system, restrained or no get right of entry to market facilities ensuing in low participation of the smallholder farmers in fee chain or price addition of their produces.

The total economic value and production of horticultural produce, such as fruits, vegetables and nuts has doubled in India over the 10 years from 2002 to 2012. In the year of 2012, the production from horticulture exceeded grain output for the first time. The total horticulture produces reached 277.4 million metric tonnes in 2013, making India the second-largest producer of horticultural products after China. Of this, India in 2013 produced 162 million tonnes of vegetables, 81 million tonnes of fruits, 17 million tonnes of nuts, 5.7 million tonnes of spices and plantation products (cashew, cacao, coconut, etc.), 1 million tonnes of aromatic horticulture produce and 1.7 million tonnes of flowers (7.6 billion cut flowers).

A pitaya is a fruit which has infinite cactus species, most importantly of the genus Hylocereus (sweet pitayas). Pitaya originates mainly from the tropical and subtropical wooded regions of forests of Latin Americas, which include North, Central and South America (Crane and Balerdi 2005; Luders and McMahon, 2006). In Asia, It is recognised as dragon fruit due to the fact of its pores and skin which is included with bracts (scales) like a dragon.

Dragon fruit (Hylocereus spp.) is a small type of fruit mountaineering cactus that has acquired worldwide focus as a decorative plant for its large, scented, night-blooming flowers. It is a non-climacteric fruit blanketed with rosy-red pores and skin studded with inexperienced scales and its white flesh carries many small black seeds (Le-Bellec et al., 2006). From the unique arts, about one hundred years ago, the French brought it into Vietnam, the place it was once completely grown for the king as a decorative crop (Luders and McMahon, 2006). Vernacular names of dragon fruits are Strawberry pear, Night-blooming cereus, Belle of the night, In India these fruits are by and large handy in metro-politician cities like Chennai, Mumbai, Kolkata, Ahmedabad, Delhi etc. the place as it is imported from Vietnam, Singapore, Srilanka and from many south-east-Asian countries. Nowadays, these fruits are cultivated in many areas like Pune, Ahmednagar, Aurangabad, Sholapur, Sangali in Maharashtra. It is cultivated in low us of a moist zone, intermediate and dry area zones with irrigation facilities.

Dragon fruit has an excessive financial fee and is beneficial for treating a wide variety of ailments (Suryono, 2006). It is believed to be in a position to decrease LDL cholesterol concentration, to stability blood sugar concentration, to stop colon cancer, to fortify kidney feature and bone, to fortify the talent workings, growing the sharpness of the eyes as properly as splendour substances (Suryono, 2006).

Most of the food objects in contemporary society are reachable in processed form. The superior society is in want of besides issues served meals merchandise for instance breakfast, lunch and dinner. Therefore all these must be processed and geared up to be served on the spot.

The major goal of fruit processing is to supply wholesome, safe, nutritious and applicable meals to clients all through the year.

Food processing industries have an extremely good effectively concerning the processed dragon fruits. Processed Dragon fruit merchandise are not often accessible in our markets and very little work has been completed on the processing of dragon fruit in our country. Food processing industries are in the developing stage in India, and consumption of processed fruit merchandise is step by step turning into popular. A variety of regionally processed fruit merchandise is now accessible in the market. So the scope of making use of dragon fruit stays vibrant in India. If quality merchandise from dragon fruit is developed, it may additionally be welcomed via the consumers who have an affinity for dragon fruit spherical the year. The ease of institution and fast boom may also rapidly lead to an oversupply in the market. The export practicable for H. undatus from India is unknown at this stage.

To improve the production and productivity of agriculture, India has developed different development policies that enhance agricultural production with the respect of horticulture. Some of them are as follows: Development of Commercial Horticulture through Production and Post-Harvest Management of Horticulture Crops, Capital Investment Subsidy Scheme for construction/ expansion/ modernization of Cold Storages/Storages of Horticulture Products, Technology Development and Transfer for promotion of Horticulture, Market Information Scheme for horticulture Crops. Horticulture Promotion Services / Expert Services.

However, several problems hinder the performance of dragon fruit production and productivity in bale highlands. Shortage of improved seed variety, prices of dragon food products, the high price of fertilizer, pesticides and seed, price instability problems for agricultural products, high costs of combine harvesting, reduced soil fertility, lack of a sustainable market outlet, poor infrastructure, and various diseases are the major constraints of dragon food production. To reverse this situation and improve dragon fruit production and productivity in the area among calls for the development of a well-performing marketing system which satisfies consumer demands with the minimum margin between producers and consumer prices. A well-functioning marketing system is not limited to the stimulation but it also increases production by seeking additional output. However, dragon value chains and their characteristics have not yet been studied and analysed for different parts of the country, especially in the Northern area. This study focused on investigating the dragon fruit value chain and important constraints using a value chain analysis approach in Varanasi district in Uttar Pradesh. The finding of the study can assist in developing improved market development strategies to benefit all stakeholders that are participating in the dragon fruit supply chain in the study area.

1.2. Statement of the Problem

According to Mohammed Hassena (2009) upgrading the dragon fruit market value chains sector takes into account the systematic review of the problems and opportunities that exist across the value chain from input supply to marketing of the final product. The major challenge in the dragon fruit value chain and the reason behind supporting this value chain, in general, is because of the incoming globalization. Under current productivity and service provision, it will become more difficult for Ethiopian dragon fruit sector to withstand the competition from the more productive and efficient system of most other countries. More productive and efficient countries can provide dragon fruit products at a lower cost to the consumer which has repercussions on the economy in general. Some of the specific challenges that affected dragon fruit value chain were less quality control systems, weak quality-based pricing system, low dragon fruit production and less technical capacity of production. Supply of crops in the study area is subjected to seasonal variations where surplus supply at harvest is the main feature. The nature of the product on the one hand and lack of a properly functioning marketing system on the other often resulted in lower producers' prices.

Several studies that have in the past examined the marketing system of various agricultural commodities and its implications for agricultural and economic development in India, in general, have employed the market value chain approach on different enterprises.

1.3. Objectives of the Study

1. Map the dragon fruit production in terms of:
   A. Geographical location and number of the dragon fruit growers; and
   B. Based on the production, project the supply of dragon fruit in the province in the next 3 years;

2. To Identify and assess the key players in the dragon fruit supply chain as implied by the practices and problems of the key players:

a. Input suppliers (suppliers of planting materials, technology, fertilizers and pesticides, materials needed);
b. Growers/processors;
c. Marketing intermediaries (cooperative, assembler/transporters, wholesalers, retailers);

3. Propose recommendations to improve and sustain the dragon fruit industry in Varanasi City area.

1.4. Scope and Limitations of the Study

This study focused on the entire supply chain of dragon fruits input supplier to the consumer within Varanasi district. The study was conducted in one district and important information was collected from sample households and marketing actors involved in the marketing of Dragon Fruits in the study area.

Chapter - 2

LITERATURE REVIEW

This chapter presents the definition of concepts related to marketing, value chain. It approaches the study of agricultural marketing, agricultural market value chain analysis and conceptual framework of the study.

2.1. Definition and Basic Concepts

Market: FAO (2008) defined markets are places where buyers and sellers come together to trade. They are social arrangements that allow buyers and sellers to obtain information and exchange commodities. Scholar (Saccomandi, 1998) the defined market as “the exchange, circulation and distribution of commodities between people and places.”

Marketing: Kotler’s (2003) definition of marketing is widely known as “the 21-century definition of marketing” which runs as follows a social and managerial process by which individuals and groups obtain what they need and want through creating and exchanging products and values with others.

Marketing system: It is defined as the sequential set of kinds or types of business firms through which a product passes during the marketing process. It is the interrelationship of firms (Branson and Norvell, 1983). It is usually seen as a “system” because it comprises several, usually stable, interrelated structures that, along with production, distribution, and consumption, underpin the economic process (Mendoza, 1995).

Agricultural marketing: It is defined as agriculturally oriented marketing. It embraces all operations and institutions involved in moving farm products from farm to consumers (Pritchard, 1969). It covers all the activities associated with agricultural production and food, feed, and fibre assembly, processing, and distribution to final consumers, including analysis of consumers' needs, motivations, and purchasing and consumption behaviour (Branson and Norvell, 1983).

2.1.2. Concept of the market value chain

Kotler (2003) also defined supply chain as a longer channel stretching from raw materials to final products that are carried to final buyers. He shortly put as a value-delivery network. He also separated the supply chain from demand chain in that the later starts from thinking first the target market and move backwards from that point, as a backward orientation.

According to Andrew et al. (2006), the term supply chain is used internationally to encompass every activity involved in producing and delivering a final product or service, from the supplier's supplier to the customer's customer. The primary focus of supply chains is thus on cost and efficiencies in supply.

Value chain: The value chain concept entails the addition of value as the product progresses from input suppliers to producers and consumers. A value chain, therefore, incorporates productive transformation and value addition at each stage of the value chain. At each stage in the value chain, the product changes hands through chain actors, transaction costs are incurred, and generally, some form of value is added. Value addition results from diverse activities including bulking, cleaning, grading, and packaging, transporting, storing and processing (Anandajayasekeram and Berhanu, 2009) as shown in Figure 1 for the case of a typical agricultural value chain.

A defining feature of global economic systems is the shift from traditional units of production defined within national boundaries to the rise of global value chains, embodying networks of actors tied together by contractual relationships. Value chains are defined as institutional arrangements linking producers, processors, marketers, and distributors –often separated by time and space— that progressively add value to products as they pass along the chain (Nabi and Luthria, 2002).

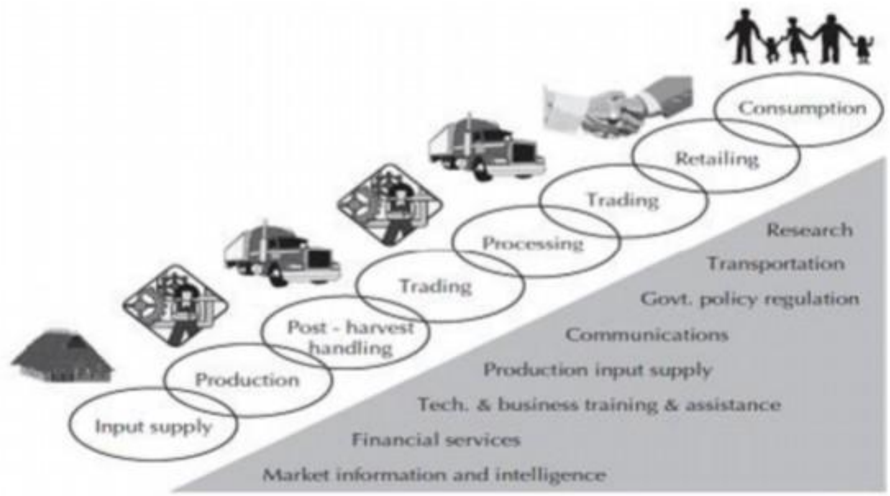


Figure 1: Typical agricultural value chain and associated business development services.
Source: Adapted from Anandajayasekeram and Berhanu (2009).

Figure 1 Typical Agricultural Value Chain

Value chain analysis is a useful analytical tool that helps understand overall trends of industrial reorganization and identify change agents and leverage points for policy and technical interventions. Value chain analysis is the process of breaking a chain into its constituent parts to better understand its structure and functioning. The analysis consists of identifying chain actors at each stage and discerning their functions and relationships; determining the chain governance, or leadership, to facilitate chain formation and strengthening, and identifying value-adding activities in the chain and assigning costs and added value to each of those activities. The flows of goods, information and finance through the various stages of the chain are evaluated to detect problems or identify opportunities to improve the contribution of specific actors and the overall performance of the chain (UNIDO, 2009).

CONCEPTUAL FRAMEWORK

A widely accepted conceptual framework in industrial organization studies holds that structural conditions determine the behaviour (conduct) and subsequent performance of a firm. To assess market, conduct and performance, and to properly understand the roles of each element, Waldman and Jensen (2001), linked those elements and attributes that have a direct relationship. In perfectly competitive markets, an atomistic market structure results in inefficient economic performance with price equal to marginal cost, efficient firms driven from the market, and long-run economic profits equal to zero.

Value chains include process actors such as input suppliers, producers, processors, traders and consumers. At one end are the producers – the farmers who grow the crops and raise the animals. At the other end are consumers who eat, drink and wear the final products. In the middle may be many individuals and firms, each performing one small step in the chain: transporting, processing, storing, selling, buying, packaging, checking, monitoring and making decisions.

The value chain includes direct actors who are commercially involved in the chain (producers, traders, retailers, consumers) and indirect actors who provide services or support the functioning of the value chain. These include financial or non-financial service providers such as bankers and credit agencies, business service providers, government, researchers and extension agents. Figure 2 illustrates the general framework for value chain actors and support system.

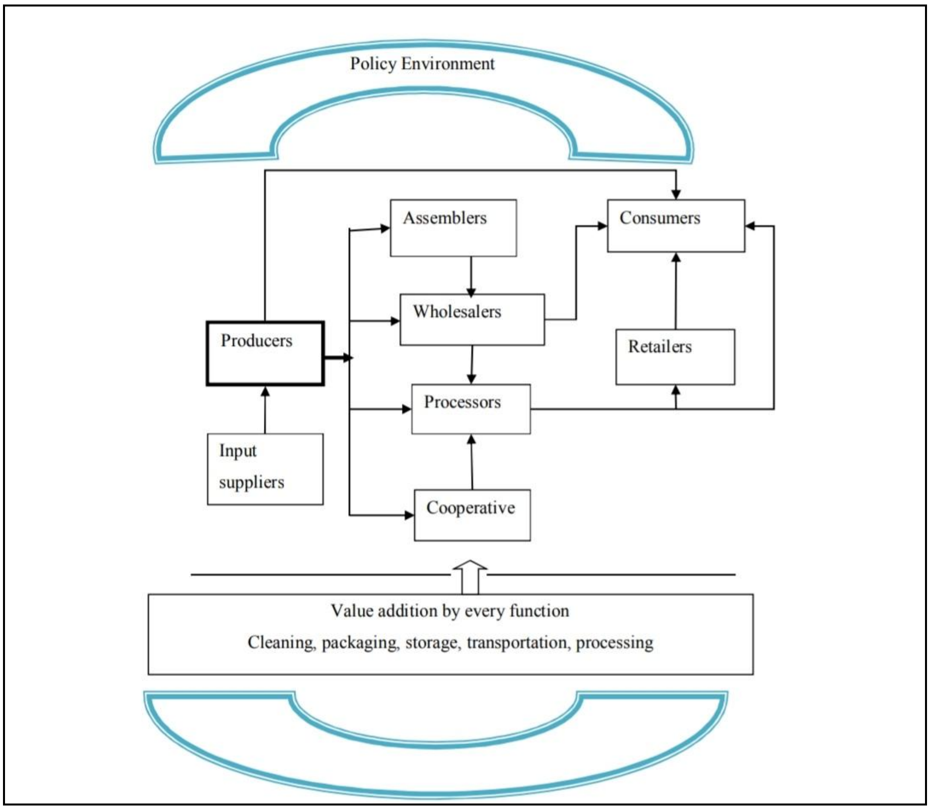


Figure 2 conceptual framework

3 dragon fruit plantation characteristics

The dragon fruit supply chain starts with farmers who make plantation decisions based on forwarding buy-in contracts with traders. The traders sell fruit to by-products and wholesalers who in turn distribute the fruit and by-products to retail, export, and by-product producers.

The dragon fruit blooms from May to August and is ready a month later for harvesting in September and October. However, dragon fruit prices are usually low in the main season (due to the availability of the fruit). Due to its high economic value in January and February, dragon fruit growers install lighting systems to stimulate trees to bloom and have fruits to improve productivity in the dry season which lasts from November to April. Therefore, there are two times for harvesting, either from May to October (rainy season or season 1) or from November to April (dry season or season 2).

Dragon fruit trees are commercially viable for 10–12 years, but because they grow quickly, the plantations can continue to harvest existing crops below that age or cut them down for investment in other varieties based on demand and price.

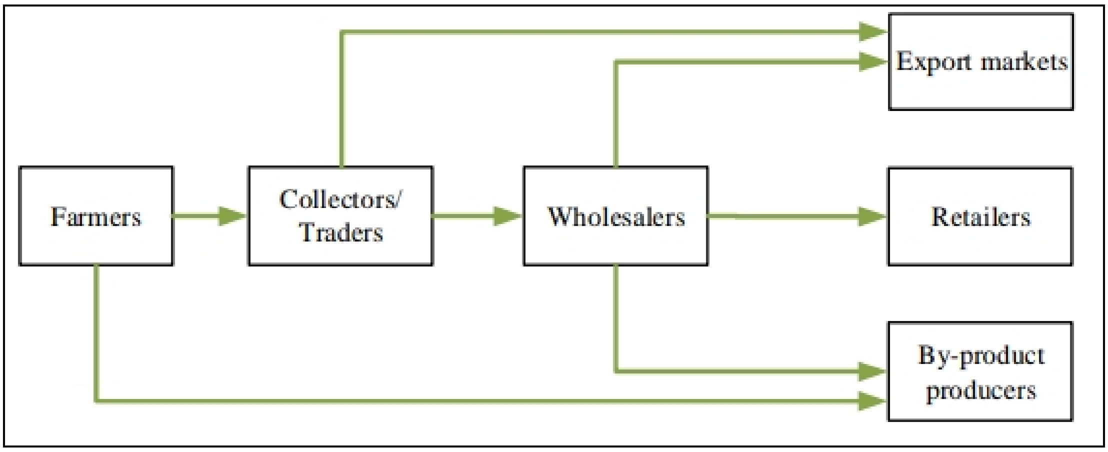


Figure 3 simplified dragon fruit supply chain

This is a hierarchical planning approach which separates the decision-making process into tactical and operational phases. In hierarchical planning, decisions are first made at the tactical level and then at the operational level. Figure 3, which is adapted from Ahumada et al., shows how the hierarchical approach may be applied to the dragonfruit chain.

Here there is a quantitative modelling approach for decision making for dragon fruit plantation and harvesting is presented. As previously mentioned, this approach looks at planting and cutting (which are tactical decisions) taken over a multi-year planning horizon. The potential benefit from the hierarchical planning is that growers can be involved in making decisions about the market and production.

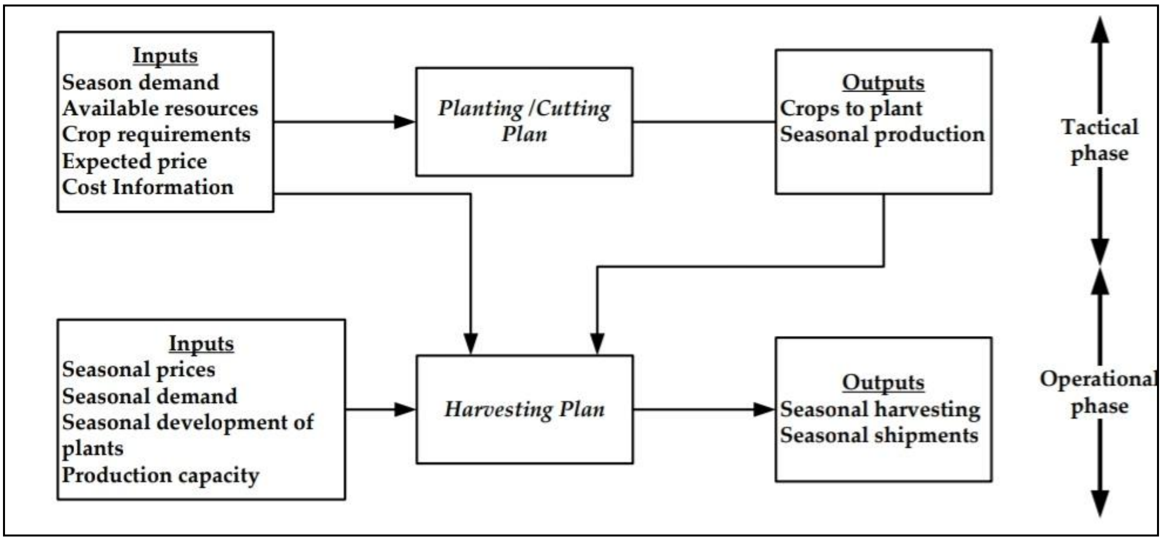


Figure 4 Example of hierarchical planning of schematic

In Figure 4, the first phase deals with tactical decisions that are only made at the start of the season such as what crop to plant or truncate, and when and how much to plant or truncate. While in the second phase, farmers must decide how much to sell to customers in each season according to the market conditions.

To execute the hierarchical planning schematic a deterministic optimization model is developed in this paper for the dragon fruit production in Varanasi. Although dragon fruit is used as the main target in the current study, our model can certainly be adapted to other fresh fruit production chains.

CHAPTER 3

DESCRIPTION OF STUDY AREA

Name of District: Varanasi

Pin code: 221001

Language: Hindi and Bhojpuri

3.1 District related Information

State: Uttar Pradesh

Famous for: tourist place Pilgrimage

STD code of Varanasi: 0542

In the state of Uttar Pradesh Varanasi city is located on the bank of the river Ganga .The capital of Uttar Pradesh is Lucknow. The city Varanasi is one of the oldest pilgrimage cities in the world .In the matter of Indian inheritance, the name Varanasi is treated as the origination from the names of two rivers Assi and Varuna.

For the city of of Varanasi, It is believed that it was to be the birthplace of Parsvnath, who was the twenty-third Tirthankara. The great Pandit Madan Mohan Malviya is the founder of institute 'Banaras Hindu University, the biggest University in Asia. Varanasi is the place where we get the great centre of education and excellence for ages. It is a place where all the rays of the promotion of mysticism, spiritualism and Hindi language and honoured authors such as the ever-famous novelist Prem Chand and Tulsi Das, the famous saint-poet who wrote Ram Charit Manas.

3.2 Geographical Existence of Varanasi District

The city of Varanasi is located in the middle valley of Ganga in North India. It is in the Eastern part of the state of Uttar Pradesh. The urban area is stretched between 82° 56'E - 83°03'E and 25° 14'N 25 23.5'N. It is located in the Gangetic plains of North India, this type of land is very fertile because low-level floods in the Ganges river continually replenish the soil. On a local level, Varanasi is located on the higher ground between rivers Ganga and Varuna, the mean elevation being 80.71m.

3.3 Climate of Varanasi District

Varanasi climate have a humid subtropical climate with a variation between the temperature of insummer and winter. The temperature range between 25 and 46 C in the summer season. There is a variation in winters monsoon. The Cold waves from the Himalayan region. It causes temperatures to dip across the city in the winter from December to February .

3.4 Demographics of Varanasi city

The population of Varanasi urban agglomeration in 2001 was 1371749; the sex ratio was 879 females every 1000 males. However, the area under Varanasi Municipal Corporation has a population of 1100748 with the sex ratio being 883 females for every 1000 males. The literacy rate in the urban agglomeration is 77% while that in the municipal corporation area is 78%, Approximately 138,000 people in the municipal area live in slums.

3.5 Economy

3.5.1 Weaving in Varanasi city

The most special Banarasi sarees silk and gold-wrapped silk yarn with supplementary weft brocade. Varanasi has several small cottage industries, including the production of Banarasi sarees, which are a regional type of saree made from silk.

Varanasi sarees are adorned with intricate designs and zari embellishments making it popular during traditional functions and weddings. Earlier, the embroidery on sarees was often done with threads of pure gold. In 2009, weaver associations and cooperatives together secured Geographical Indication (GI) rights for Banaras Brocades and Sarees.

3.5.2 Agriculture in Varanasi

Varanasi produces large quantities of langar mangoes, which are variety developed in the area. Banarasi paan (betel leaf) and khoa (a milk product) are popular, and the related small scale industries employ many people.

3.5.3 Manufacturing in Varanasi city

Indian Railways runs a major diesel locomotive factory in Varanasi, Diesel Locomotive Works (DLW). BHEL, a large power equipment manufacturer, also runs a plant here.

3.5.4. Tourism in Varanasi city

Varanasi is a centre for silk weaving and brassware. Fine Silks and Brocaded fabrics, Exquisite Saris, Brassware, Jewellery, Woodcraft, Carpets, Wall hangings, Lampshades and masks of Hindu and Buddhist deities are some of Varanasi shopping attractions. The main shopping areas include the Chowk, Gyan Vapi, Vishwanath Gali, Thatheri Bazar. Lahurabir, Godoulia or Dashashwamedh Gali and Golghar.

CHAPTER 4

RESEARCH METHODOLOGY

4.1 Study area: - Due to the convenience in data collection and financial constraints, Varanasi was purposely selected for the study.

4.2 Area for sampling: -Some popular supermarkets , hypermarkets and retails stores are chosed for research purposes in Varanasi city. .

4.3 Size: 120 customers were purposely selected for the study.

4.4 Data source: For this primary and secondary data is collected. We collected primary type data from consumers of dragon fruits the through an online survey. Secondary data got various types of sources via online source and offline source.

4.5 Study period: The study was conducted to collect the relevant data from March 2020 to July 2020.

Statistical Attributions: Descriptive Statistics like frequency distribution and Likert scaling technique have been used for fulfilling the research objectives. it is useful to summarize our group of data using a combination of tabulated description, graphical description .

Likert scaling technique-To work out with the objective for supply chain analysis of dragon fruits in Varanasi city, the data was collected through Google form using 5 points Likert scale is that based on a 5 point continuous and scoring pattern was 5, 4, 3, 2 and 1 for indomitably Agree, Agree, neutral, Disagree and indomitably Disagree respectively against each pre-stated statements to record their views.

A "Likert Technique" is a way where we go through the consumers for evaluation processes. This items are valuable for the measurement of consumers behaviour and their attitude. It helps to understand what is the view of consumers for a specific questions.

To analyse the data it is usually coded as follows:

1- indomitably disagree

2- Disagree

3- neutral

4- Agree

5- indomitably Agree

Analysis for research: With Likert scale data we cannot use mean as a measure of central tendency as it has no meaning ex. what is the average of indomitably Agree and Disagree? The most appropriate way of measure average is the mode, is that the most frequent response, or the median. The best way to represent the distribution of responses ex.(% that agree, disagree etc.) is to use a column/bar graph.

CHAPTER 5

RESULTS AND DISCUSSION

RESULTS AND DISCUSSION

5. A: Socio-economic existence of the consumer (Based on % Method)

5.1 Consumers gender

Figure 5.1 shows that among the 120 customers preference, 62.5% of consumers were Male & 37.5% of consumers were Females. It is probably understood from the figure that the majority of consumers out of 120 customers preference were male.

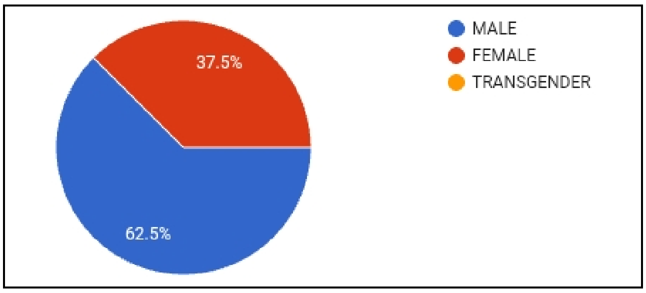


figure 5.1 Gender of the consumers

5.2 Age of the consumers

It is clearly understood from the figure 5.2 that among the 120 customer reviews preference, 1.7% of consumers were in the age of 18 years, whereas 12.5% of the consumers were in the age of 25 years which is highest. 9.2% of the consumers were in the age of 23 years which is the second-highest.

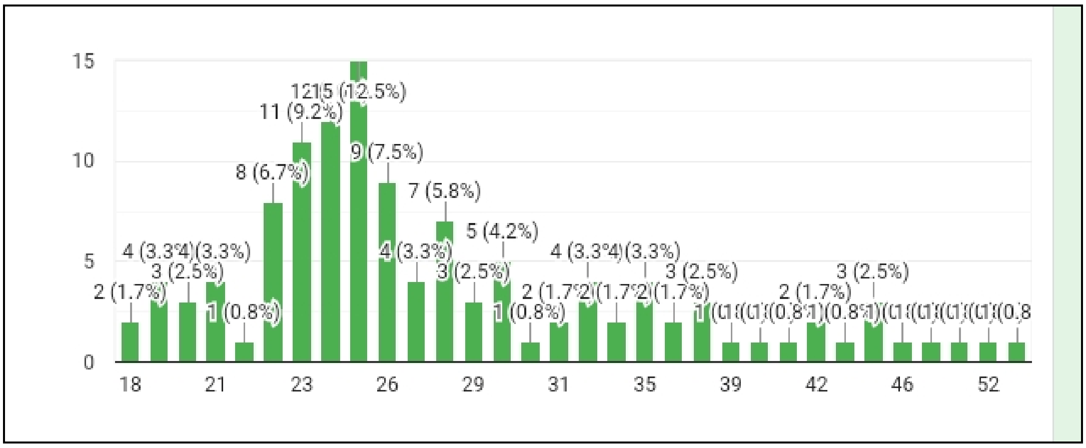


figure 5.2 Age of the consumers

5.3 Educational qualifications of consumers

figure 5.3 indicates that among the 120 customers preference 35.8 of% consumers were graduate, 38.3% of consumers were postgraduate,9.2% of consumers were high school qualified. 15.8% of consumers were intermediate qualified, From the above figure, it is clearly understood that the majority of customers for consuming the dragon fruits were postgraduate and graduated consumers opted the second position for this.

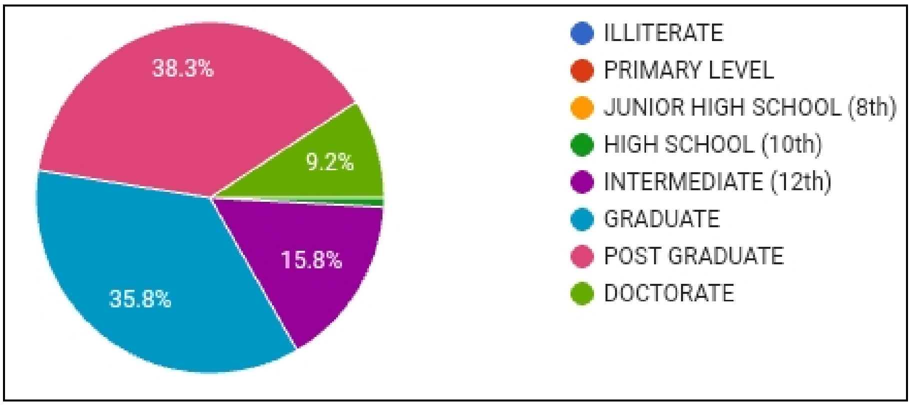


figure 5.3 Educational qualifications of consumers

5.4 Occupation of the consumers

It is probably understood from figure 5.4 that, among the 120 customers preference, 25% of consumers were government employees. 37.5% of consumers were unemployed, 15.8% consumers were private employees. The majority of unemployed, government employees, private employees have gone through the dragon fruits buying processes to complete the chain. They are consuming dragon fruits which were opted for various types of markets and agencies.

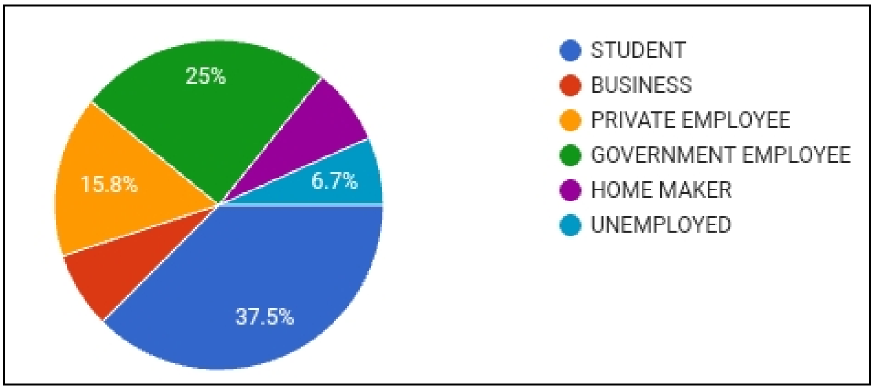


figure 5.4 Occupation of the consumers

5.5 Family type of consumers

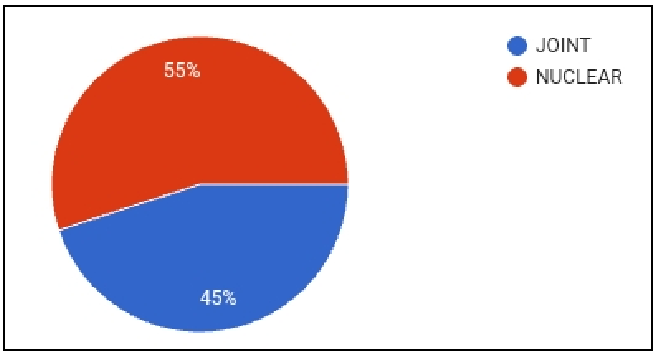


figure 5.5 Family type of consumers

It is probably understood from the figure 5.5 that, among the 120 customers preference, 55% of consumers were from a nuclearly understood family and 45% of consumers belonged to a joint family. The majority of consumers from dragon fruits consuming and buying behaviour preference were a nuclearly understood type.

5.6 Family Size of consumers

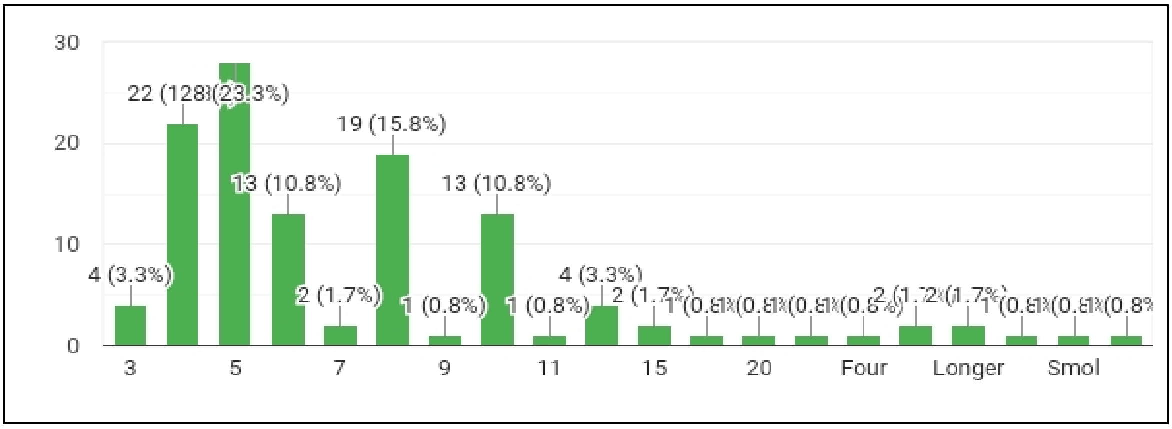


figure 5.6 Family size of consumers

figure 5.6 shows that among the 120 customers preference, 3.3% of consumers had 3 members in the family. 23.33% had 4 members in the family. 1 of8.33% of consumers had 5 members in the family. 10.8% of consumers had 6 members in the family. 1.7% of consumers had 7 members in the family. 15.8% of consumers had 8 members and 0.8% of consumers had 9 members in each family. 10.8% of consumers had 10 members in the family. 0.8% of consumers had 11 members in the family. of3.33% consumers had 12 members and 3.33% consumers had 13 members of each family. of1.67% consumers had 15 members, of1.67% consumers had 18 members and 0.8% consumers had 19 members in each family. 1.7% of consumers had 20 members in the family. The majority of consuming of dragon fruits and having buy behaviour was in the size of the family of 5 members.

5.7 Average monthly income of the family

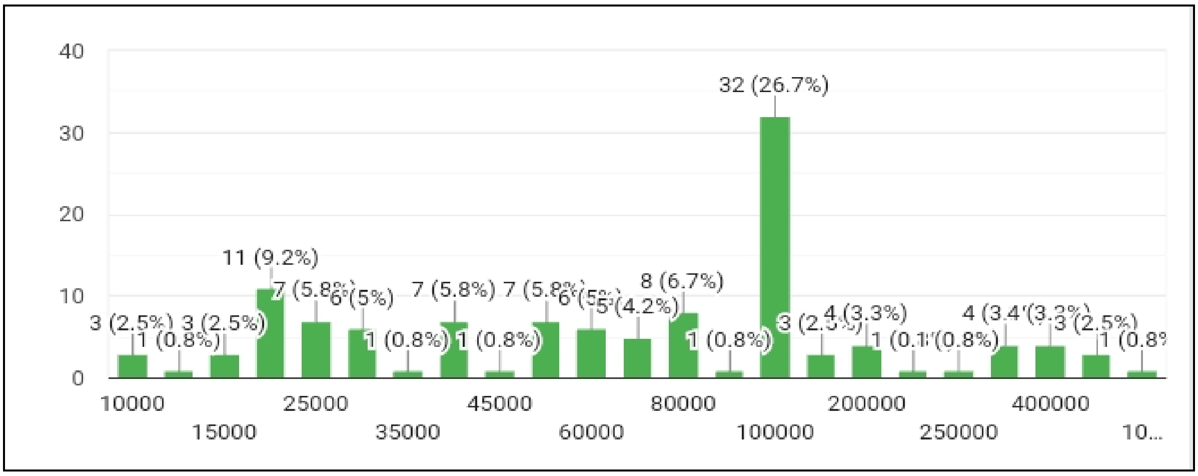


figure 5.7 average monthly income of the family

figure 5.7 shows that among the 120 customers preference, 2.5% of consumers have 10000 rupees as a monthly income, 20.5% of consumers have 15000 rupees as a monthly income, 9.2% of the consumers have 20000 rupees as a monthly income, 5.8% of the consumers have 25000 rupees as a monthly income, 5.8% of the consumers have 40000 rupees as a monthly income, 5% of the consumers have 60000 rupees as a monthly income, 6.7% of the consumers have 80000 rupees as a monthly income, 26.7% of the consumers have 100000 rupees as a monthly income, 35.3% of the consumers have 400000 rupees as a monthly income. It is clearly understood that from the above figure the majority of buying and consuming dragon fruits have monthly income equal to 100000 rupees or greater than 100000 rupees.

5.8 PURCHASE INFORMATION

5.8.1 Bought or consumed dragon fruit for the past 12 months

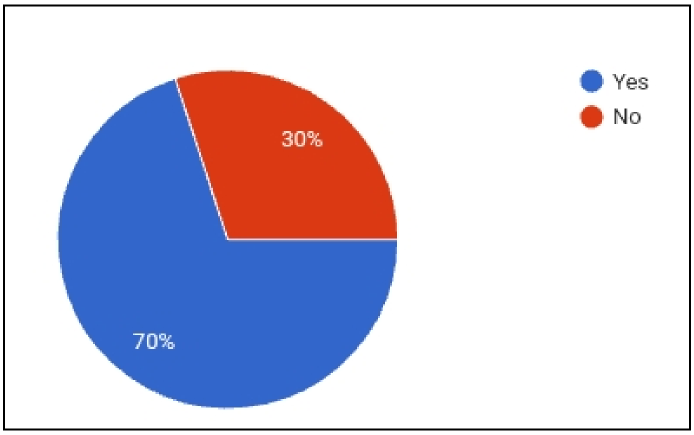


figure 5.8.1 Bought or consumed dragon fruit for the past 12 months

figure 5.8.1 shows that among the 120 customers preference that 70% of the consumers have consumed dragon fruit for the past 12 months. On the other hand, 30 % of the consumers have not consumed dragon fruits for the past 12 months. So it is clearly understood that the frequency of buying of dragon fruits going positively.

5.8.2 Frequency of purchasing Dragon fruit

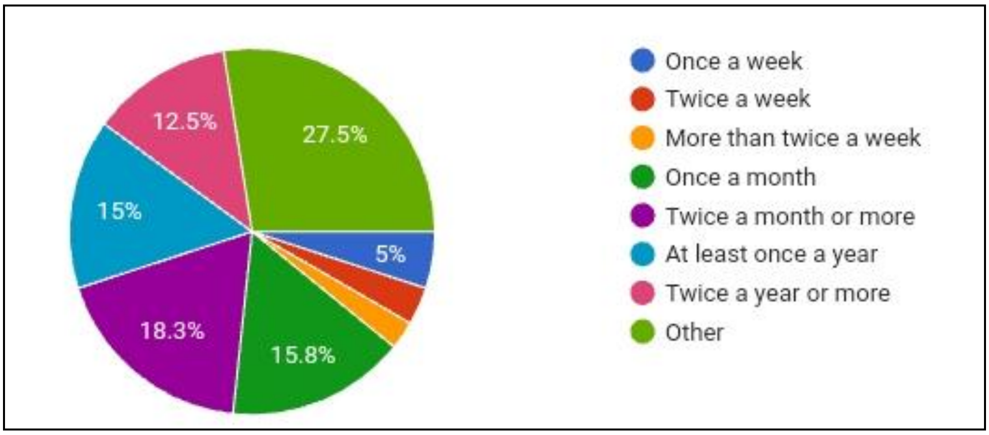


figure 5.8.2 Frequency of purchasing Dragon fruit

figure 5.8.2 shows that among the 120 customers preference that only 27.5% of the consumers were purchased dragon fruit once a month, 5% of the consumers have purchased dragon fruits once a week, 15.8% of the consumers have other choices, 18.3% of the consumers were purchased dragon fruits twice a month or more, 15% of the consumers were purchased dragon fruits at least once a year, 12.5% of the consumers have purchased dragon fruits twice a year or more. From the above figure, it is clearly understood that the majority of purchasing Dragon fruits in Varanasi city has the frequency in once a month.

5.8.3 Average amount of dragon fruits buy each time

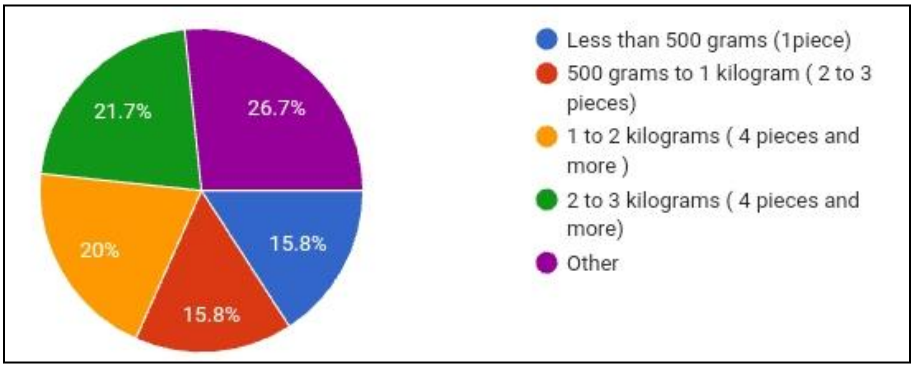


figure 5.8.3 Average amount of dragon fruits buy each time

It is probably understood from the figure 5.8.3 that, 15.8% of the consumers buy dragon fruits less than 500 grams(1 piece), 15.8% of the consumers buy dragon fruits 500 grams to 1 kilogram (2 pieces), 20% of the consumers buy dragon fruits 1 to 2 kilograms (4 pieces and more), 21.7% of the consumers buy dragon fruits (4 pieces and more). 26.7% of the consumers buy dragon fruits in another category.

5.8.4 where do the consumers obtain dragon fruits

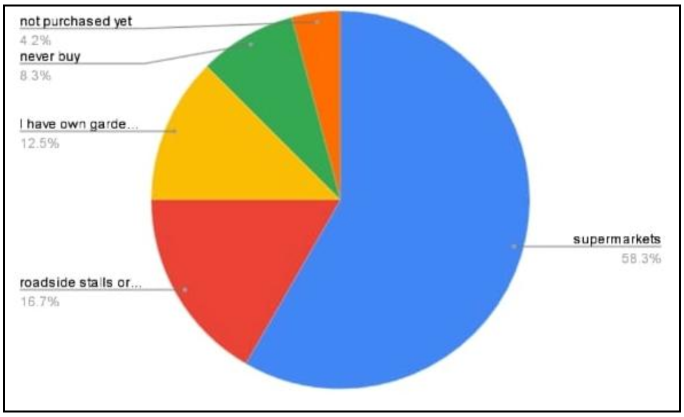


figure 5.8.4 where do the consumers obtain dragon fruits

It is probably understood from figure 5.8.4, among the 120 customers preference that, 58.3% of the consumers preferred supermarkets for buying dragon fruits, 16.7% of the consumers preferred roadside stalls or fruit stands for buying dragon fruits,12.5% of the consumers preferred there own garden or plant for obtaining dragon fruits, 8.3% of the consumers never buy dragon fruits. It is clearly understood that from the figure to obtain dragon fruits supermarkets is preferable.

5.8.5 Reason behind the preference the source or store

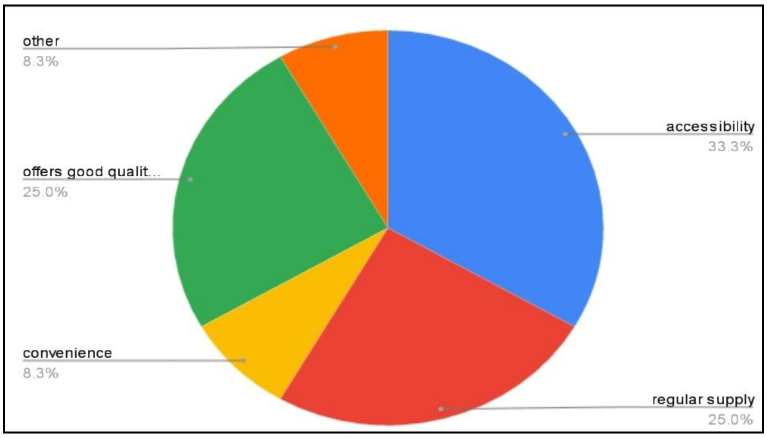


figure 5.8.5 Reason behind the preference the source or store

figure 5.8.5 shows that among the 120 customers preference that 33.3% of the consumers went for the accessibility of the dragon fruits, 25% of the consumers preferred for the regular supply, 25% of the consumers preferred for the good quality of dragon fruits, 8.3 % of the consumers went through the convenience. It is clearly understood that from the figure that the majority of preference for choosing store is the accessibility of dragon fruits in Varanasi city.

5.9 PURCHASE REASON AND ATTRIBUTE RATING

5.9.1 PURCHASE REASONS

	indomitably disagree		**Disagree**		**Neither agrees not to disagree**		**Agree**		**indomitably Agree**	
Factors	**Res**	**%**	**Res**	**%**	**Res**	**%**	**Res**	**%**	**Res**	**%**
nutrition benefits	**1**	0.8333333333	**2**	1.666666667	12	10	50	41.66666667	55	34.72222222
family preferences	**1**	0.8333333333	4	3.333333333	18	15	60	50	30	41.66666667
market availability	**2**	1.666666667	4	3.333333333	28	23.33333333	55	45.83333333	30	38.19444444
taste of the dragon fruits	4	3.333333333	3	2.5	24	20	65	54.16666667	25	45.13888889
feelings about eating or buying the dragon fruit	2	1.666666667	2	1.666666667	22	18.33333333	50	41.66666667	40	34.72222222

It is probably understood from table 5.9.1 that total consumers were 120 in the case of consumer preferences that the consumers through for indomitably agree for their nutrition benefits at the time of buying Dragon fruits. They keep in mind that dragon fruits is essential for their nutrition benefits so 30 4.7 % out of the total is consumers were indomitably agreed for this factor. For the factor family preferences 41% of the total out of the total consumers were agreed while only 3.33% consumers where disagreed. For the factor of market availability 38% out of the total consumers were indomitably agreed for the taste of the dragon fruits 60.54 percent out of the total consumers were agreed for this factor and 45% out of the total were indomitably agreed. For the factor of feelings about eating or buying the dragon fruit only 40% out of the total consumers were indomitably agreed.

5.9.1.1 nutrition benefits

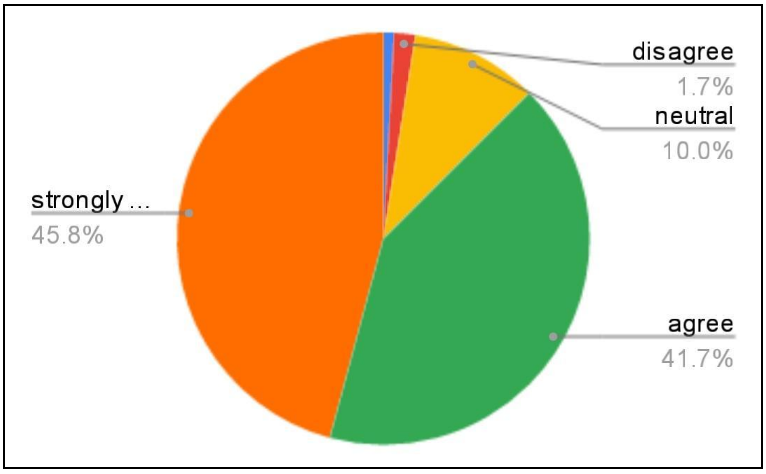


figure 5.9.1.1 nutrition benefits

It understandable clearly from figure 5.9.1.1 that total consumers were 120 in the case of consumer preferences. only 1 % consumers indomitably disagreed for the response of nutrition benefits while 1.7% consumers disagreed for the response of nutrition benefits and 10% consumers neutral for the response of nutrition benefits. 41.7% of the consumers were agreed for the response of nutrition benefits and 45.8 % of the consumers were indomitably agreed for the response of nutrition benefits.

5.9.1.2 Family preferences

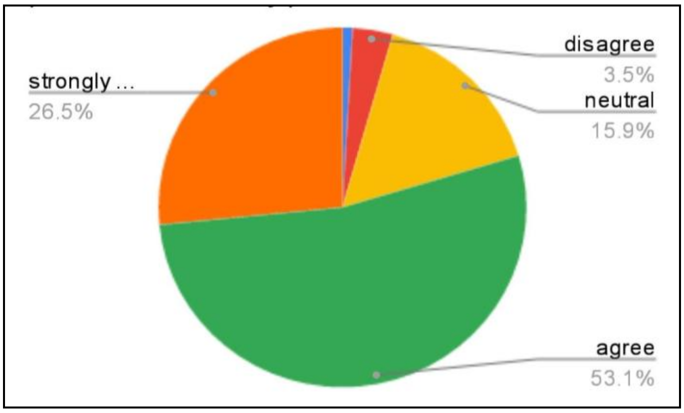
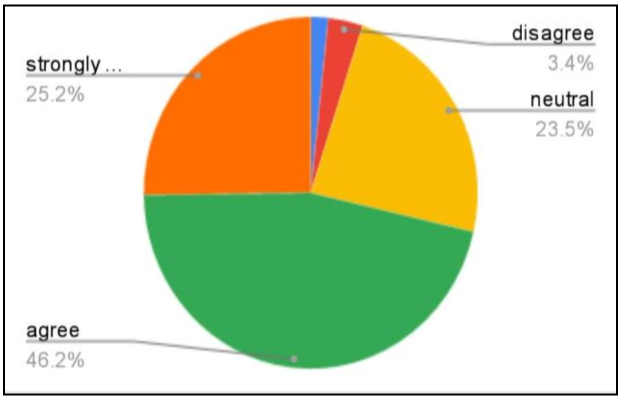


figure 5.9.1.2 family preferences

It indicates from figure 5.9.1.2 that total consumers were 120 in the case of consumer preferences. 15.9% consumers neutral for the response of family preferences. only 1 % consumers indomitably disagreed for the response of family preferences while 3.5% consumers disagreed for the response of family preferences and 53.1% of the consumers were agreed for the response of family preferences and 26.5 % of the consumers were indomitably agreed for the response of family preferences.

5.9.1.3 market availability



5.9.1.3 market availability

It understandable clearly from figure 5.9.1.3 that total consumers were 120 in the case of consumer preferences. only 46.2% of the consumers were agreed for the response of market availability and 25.2 % of the consumers were indomitably agreed for the response of market availability.

1 % consumers indomitably disagreed for the response of market availability while 3.4% consumers disagreed for the response of market availability and 23.5% consumers neutral for the response of market availability.

5.9.1.4 taste of the dragon fruits

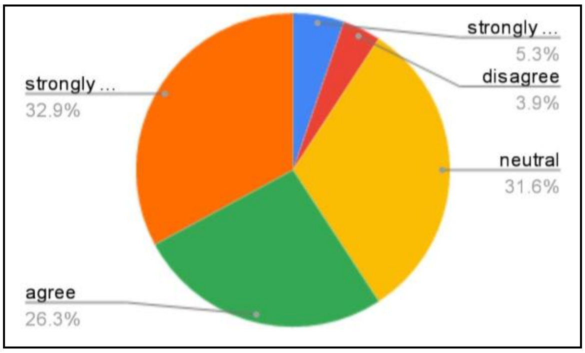


figure 5.9.1.4 taste of the dragon fruits

It indicates from figure 5.9.1.4 that total consumers were 120 in the case of consumer preferences. only 26.3% of the consumers were agreed for the response of taste of the dragon fruits and 32.9 % of the consumers were indomitably agreed for the response of taste of the dragon fruits. 5.3 % consumers indomitably disagreed for the response of taste of the dragon fruits while 3.9% consumers disagreed for the response of taste of the dragon fruits and 31.6% consumers neutral for the response of taste of the dragon fruits.

5.9.1.5 feelings about eating or buying the dragon fruit

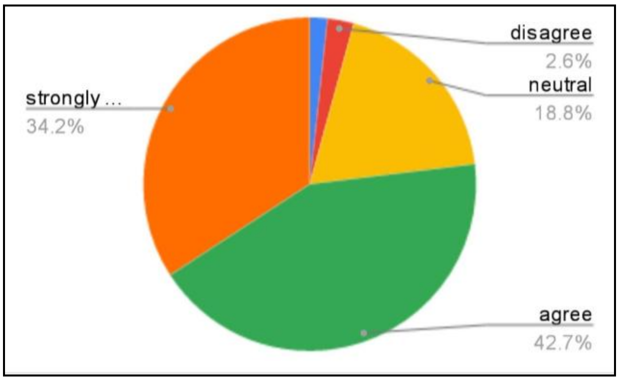


figure 5.9.1.5 feelings about eating or buying the dragon fruit

It understandable clearly from figure 5.9.1.5 that total consumers were 120 in the case of consumer preferences. 34.2% of the consumers were indomitably agreed for the response of feelings about eating or buying the dragon fruit.8% consumers neutral for the response of feelings about eating or buying the dragon fruit. 42.7% of the consumers were agreed for the response of feelings about eating or buying the dragon fruit.

5.10 QUALITY ATTRIBUTES OF DRAGON FRUIT

	indomitably disagree		Disagree		Neither agrees not to disagree		Agree		indomitably Agree	
Factors	**Res**	**%**	**Res**	**%**	**Res**	**%**	**Res**	**%**	**Res**	**%**
size of the dragon fruit	**2**	1.66666667	**1**	0.83333333 3	22	18.33333333	52	43.33333333	40	33.33333333
Flesh colour	**1**	0.833333333	4	3.333333333	18	15	65	54.16666667	35	29.16666667
The bracts freshness	**2**	1.66666667	4	3.333333333	19	15.83333333	55	45.83333333	42	35
taste	1	0.833333333	2	1.666666667	18	15	60	50	38	31.66666667
price	2	1.66666667	2	1.666666667	20	16.66666667	55	45.83333333	42	35

It is probably understood from table 5.10 that total consumers were 120 in the case of consumer preferences that for the factor of size of the Dragon fruit 33.3% out of the total consumers were indomitably agree about this. For the factor of flesh colour of Dragon fruits 54% out of the total consumers were agreed and 29 % out of the total consumers were indomitably agreed. the bracts freshness is indomitably agreed by 35%

out of the total consumers. where the factor taste of the Dragon fruit is indomitably agreed by 31.5 percent out of the total consumers. In the matter of price of Dragon fruits is indomitably agreed by 35% out of the total consumers and agreed by 45% out of the total consumers.

5.10.1 size of the dragon fruit

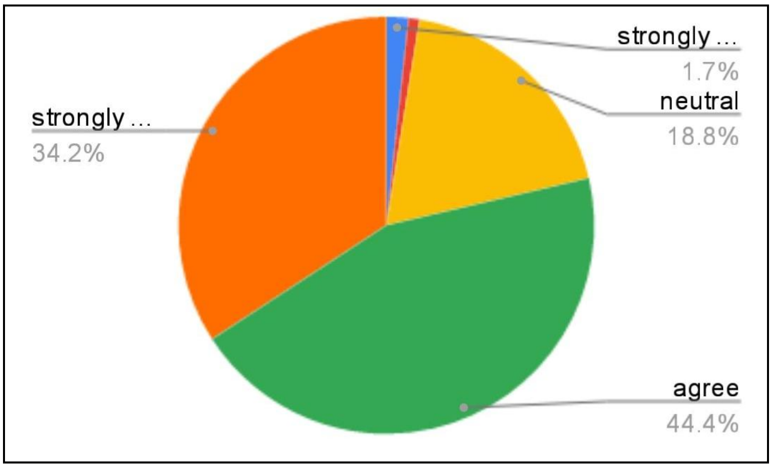


figure 5.10.1 size of the dragon fruit

It understandable clearly from figure 5.10.1 that total consumers were 120 in the case of consumer preferences. only 44.4% of the consumers were agreed for the response of size of the dragon fruit and 34.2% of the consumers were indomitably agreed for the response of size of the dragon fruit. 1.7 % consumers indomitably disagreed for the response of size of the dragon fruit while 1.6% consumers disagreed for the response of size of the dragon fruit and 18.8% consumers neutral for the response of size of the dragon fruit.

5.10.2 Flesh Colour

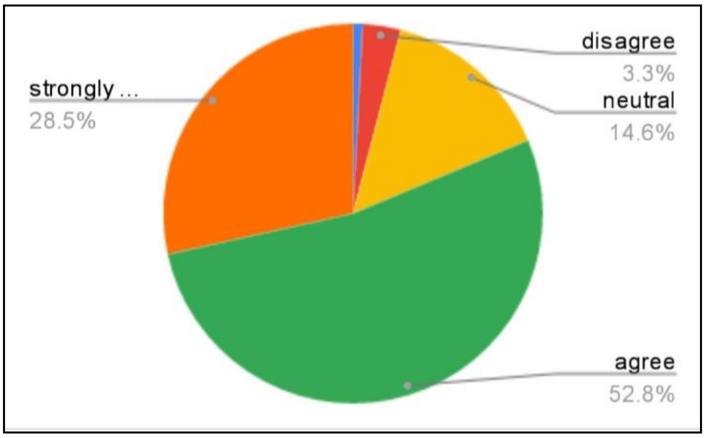


figure 5.10.2 flesh colour

It understandable clearly from figure 5.10.2 that total consumers were 120 in the case of consumer preferences. only 52.8% of the consumers were agreed for the response of the flesh colour of the fruit and 28.5% of the consumers were indomitably agreed for the response of the flesh colour of the fruit. 1.7 % consumers indomitably disagreed for the response of flesh colour of the fruit while 3.3% consumers disagreed for the response of flesh colour of the fruit and 14.6% consumers neutral for the response of flesh colour of the fruit.

5.10.3 bracts freshness

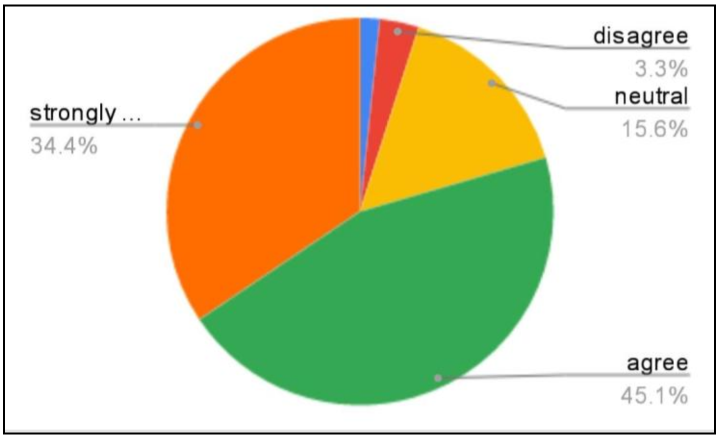
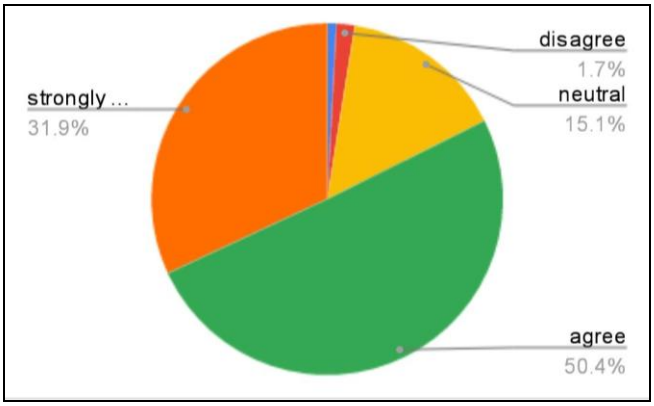


figure 5.10.3 bracts freshness

It understandable clearly from figure 5.10.3 that total consumers were 120 in the case of consumer preferences. only 45.1% of the consumers were agreed for the response of bracts freshness of the fruit and 34.4% of the consumers were indomitably agreed for the response of bracts freshness of the fruit. 1.7 % consumers indomitably disagreed for the response of bracts freshness of the fruit while 3.3% consumers disagreed for the response of bracts freshness of the fruit and 15.6% consumers neutral for the response of bracts freshness of the fruit.

5.10.4 Taste



5.10.4 taste

It indicates from figure 5.10.4 that total consumers were 120 in the case of consumer preferences. only 50.4% of the consumers were agreed for the response of taste of the fruit and 31.9% of the consumers were indomitably agreed for the response of taste of the fruit.1 % consumers indomitably disagreed for the response of taste of the fruit while 1.7% consumers disagreed for the response of taste of the fruit and 15.1% consumers neutral for the response of taste of the fruit.

5.10.5 Price of the fruit

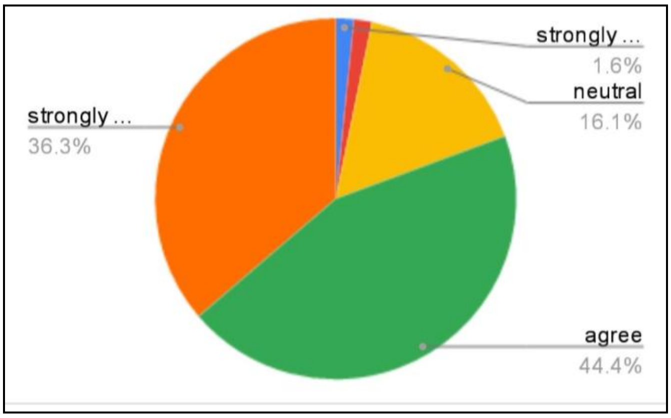


figure 5.10.5 price of the fruit

It indicates from figure 5.10.5 that total consumers were 120 in the case of consumer preferences. only 16.1% consumers neutral for the response of price of the fruit. 44.4% of the consumers were agreed for the response of the price of the fruit and 36.3% of the consumers were indomitably agreed for the response of the price of the fruit. 1.6 % consumers indomitably disagreed for the response of price of the fruit while 2% consumers disagreed for the response of price of the fruit .

5.11 FACTORS THAT INFLUENCE YOU AT THE TIME OF BUYING DRAGON FRUIT

	indomitably disagree		Disagree		Neither agrees not to disagree		Agree		indomitably Agree	
Factors	**Res**	**%**	**Res**	**%**	**Res**	**%**	**Res**	**%**	**Res**	**%**
status of consumers	**8**	6.6666666667	**2**	1.666666667	45	37.5	25	20.83333333	40	33.333333333
the store reachability	**5**	4.1666666667	4	3.333333333	40	33.33333333	60	50	28	23.333333333
Relations with the shopkeeper	**4**	3.3333333333	10	8.333333333	40	33.33333333	35	29.16666667	40	33.333333333
product quality of dragon fruits	3	2.5	3	2.5	15	12.5	55	45.83333333	45	37.5
Choices of dragon fruits	2	1.6666666667	4	3.333333333	22	18.33333333	65	54.16666667	40	33.333333333
Shopping Environment	4	3.3333333333	5	4.166666667	18	15	55	45.83333333	35	29.166666667
cleanliness of stores	5	4.1666666667	5	4.166666667	20	16.66666667	50	41.66666667	40	33.333333333
sales personnel behaviour	2	1.6666666667	2	1.66666666	25	20.83333333	55	45.83333333	45	37.5

				7						
products availability	5	4.166666667	2	1.666666667	25	20.83333333	52	43.33333333	50	41.66666667
Proper shelf display of products	2	1.666666667	4	3.333333333	20	16.66666667	55	45.83333333	35	29.16666667
Product safety	2	1.666666667	5	4.166666667	15	12.5	55	45.83333333	45	37.5
Bargain Facility	1	0.833333333	2	1.666666667	15	12.5	60	50	60	50
billing processes	3	2.5	10	8.333333333	22	18.33333333	52	43.33333333	52	43.33333333
Availability of Credit	2	1.666666667	3	2.5	18	15	50	41.66666667	48	40
product bunding processes	5	4.166666667	7	5.833333333	20	16.66666667	45	37.5	45	37.5
Replacement of the defective product	2	1.666666667	8	6.666666667	18	15	50	41.66666667	35	29.16666667
parking facilities	5	4.166666667	3		22	18.33333333	52	43.33333333	40	33.33333333

It is probably understood from table 5.11 that total consumers were 120 in the case of consumer preferences that the factor status of consumers matters 33.33% for the total consumers of the survey. The immediacy of the store factor is work indomitably agreed by 23% out of the total consumers. Relationship with the shopkeeper indomitably agreed by 33.33 percent out of the total consumers. The quality of Dragon fruits and products were indomitably agreed by 37.5% out of the total consumers. Choices of Dragon fruits were indomitably agreed by 33.33% out of the total consumers . The shopping environment in the Varanasi city is indomitably agreed by 29 percent out of the total consumers. The cleanliness of store is indomitably agreed by 33.3%. supportive sales personnel is indomitably agreed by 37.5%. products availability is indomitably agreed by 41% and neutral by 20%. The proper shelf display of products were indomitably agreed by 29%. The factor product safety is indomitably agreed by 37.5%. the bargain facility is indomitably agreed by 50% out of the total consumers. The billing information factor is indomitably agreed by 43% out of the total consumers. The Availability of Credit Factor is indomitably agreed by 40% out of the total consumers where product bunding processes is indomitably agreed by 37.5% out of the total consumers. The replacement of the defective product factor is indomitably agreed by 29% out of the total consumers and the parking facilities in the supermarkets hypermarkets is indomitably agreed by 33.3% out of the total consumers.

5.11.1 status of consumers

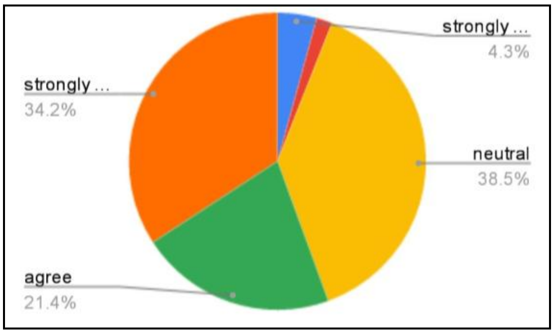
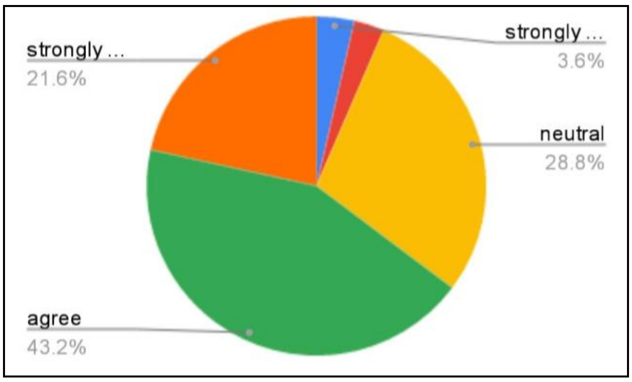


figure 5.11.1 status of consumers

It is clearly understood from figure 5.11.1 that total consumers were 120 in the case of consumer preferences. only 21.4% of the consumers were agreed for the response of status of consumers perspective and 34.2% of the consumers were indomitably agreed for the response of status of consumers perspective. 4.3% of consumers indomitably disagreed for the response of status of consumers perspective while 2% of consumers disagreed for the response of status of consumers perspective and 38.5% consumers neutral for the response of status of consumers perspective.

5.11.2 store reachability



5.11.2 store reachability

It is clearly understood from figure 5.11.2 that total consumers were 120 in the case of consumer preferences. only 43.2% of the consumers were agreed for the response of immediacy of the store and 21.6% of the consumers were indomitably agreed for the response of immediacy of the store. 3.6% consumers indomitably disagreed for the response of immediacy of the store while 2% consumers disagreed for the response of immediacy of the store and 28.8% consumers neutral for the response of immediacy of the store.

5.11.3 Relations with the shopkeeper

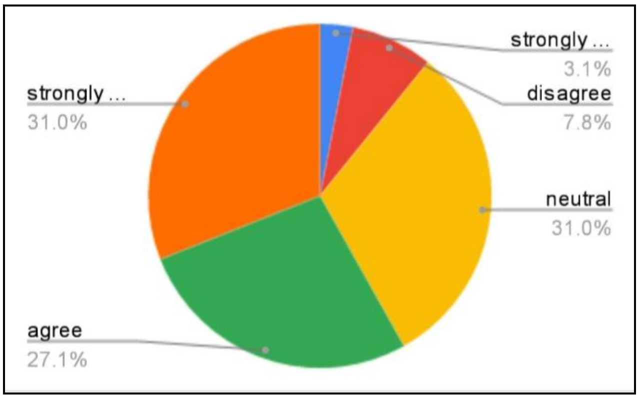


figure 5.11.3 Relations with the shopkeeper

It is clearly understood from figure 5.11.3 that total consumers were 120 in the case of consumer preferences. only 27.1% of the consumers were agreed for the response of relations with the shopkeeper and 31.0% of the consumers were indomitably agreed for the response of relations with the shopkeeper.3.1% consumers indomitably disagreed for the response of relations with the shopkeeper while 7.8% consumers disagreed for the response of relations with the shopkeeper and 31% consumers neutral for the response of relations with the shopkeeper.

5.11.4 product quality of dragon fruits

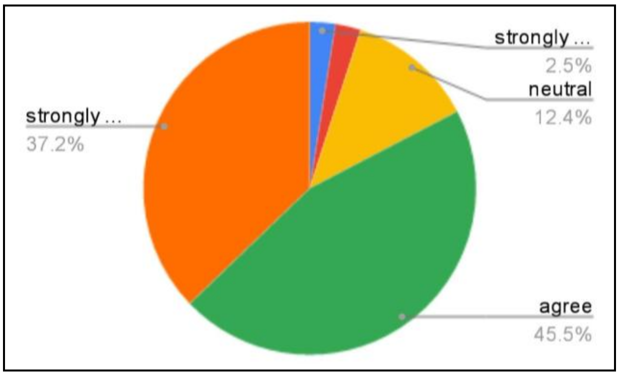


figure 5.11.4 product quality of dragon fruits

It is probably understood from the figure 5.11.4 that total consumers were 120 in the case of consumer preferences. only 45.5% of the consumers were agreed for the response of product quality of dragon fruits and 37.2% of the consumers were indomitably agreed for the response of product quality of dragon fruits. 2.5% consumers indomitably disagreed for the response of product quality of dragon fruits while 3% of consumers disagreed for the response of product quality of dragon fruits and 12.4% consumers neutral for the response of product quality of dragon fruits.

5.11.5 Choices of Dragon Fruits

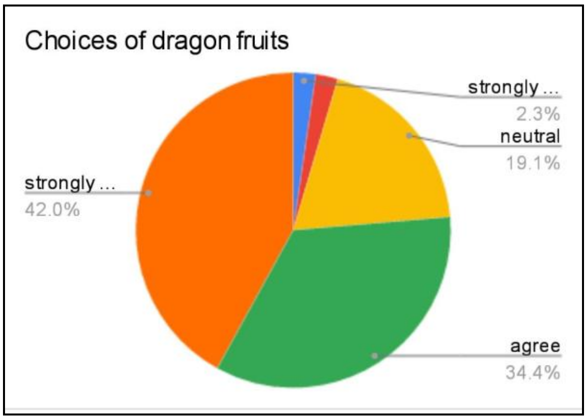


figure 5.11.5 choices of dragon fruits

It is clearly understood from figure 5.11.5 that total consumers were 120 in the case of consumer preferences. only 34.4% of the consumers were agreed for the response of choices of dragon fruits and 42% of the consumers were indomitably agreed for the response of choices of dragon fruits. 2.3% consumers indomitably disagreed for the response of choices of dragon fruits while 3% consumers disagreed for the response of choices of dragon fruits and 19.1% consumers neutral for the response of choices of dragon fruits.

5.11.6 Shopping Environment

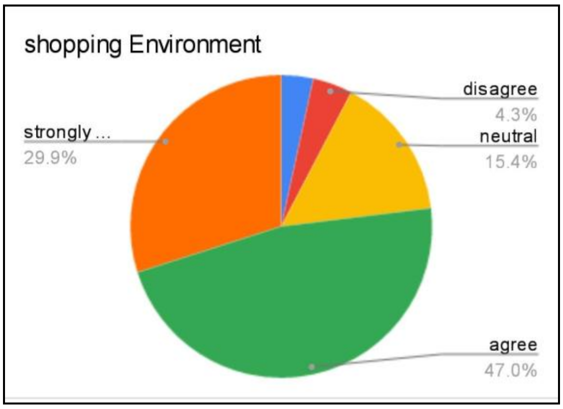


figure 5.11.6 shopping environment

It is probably understood from the figure 5.11.6 that total consumers were 120 in the case of consumer preferences. only 47% of the consumers were agreed for the response of the shopping environment and 29.9% of the consumers were indomitably agreed for the response of the shopping environment.2.3% of consumers indomitably disagreed for the response of the shopping environment while 4.3% of consumers disagreed for the response of the shopping environment and 15.4% consumers neutral for the response of the shopping environment.

5.11.7 cleanliness of stores

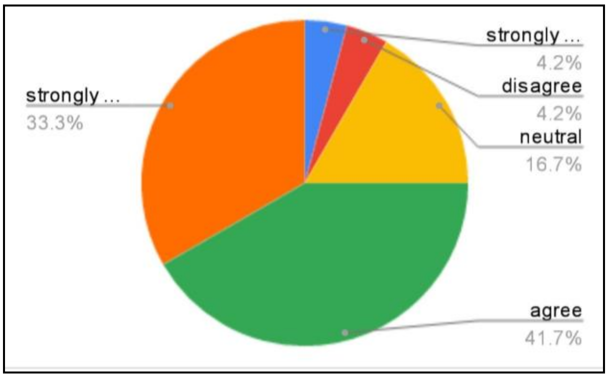
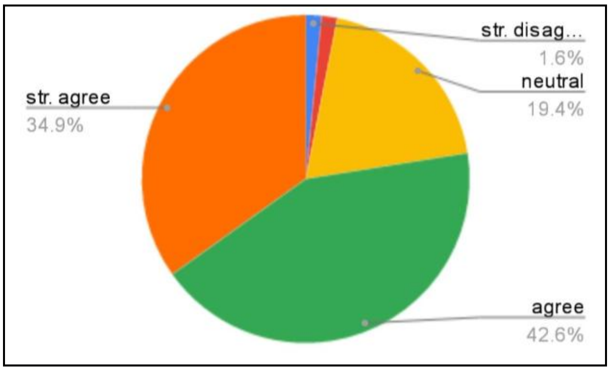


figure 5.11.7 cleanliness of stores

It is probably understood from the figure 5.11.7 that total consumers were 120 in the case of consumer preferences. only 41.7% of the consumers were agreed for the response of cleanliness of stores and 33.3% of the consumers were indomitably agreed for the response of cleanliness of stores. 4.2% consumers indomitably disagreed for the response of cleanliness of stores while 4.2% consumers disagreed for the response of cleanliness of stores and 16.7% consumers neutral for the response of cleanliness of stores.

5.11.8 sales personnel behaviour



5.11.8 sales personnel behaviour

It is probably understood from the figure 5.11.8 that total consumers were 120 in the case of consumer preferences. only 1.6% of consumers indomitably disagreed for the response of sales personnel behaviour while 2% of consumers disagreed for the response of sales personnel behaviour and 19.4% consumers neutral for the response of sales personnel behaviour. 42.6% of the consumers were agreed for the response of sales personnel behaviour and 34.9% of the consumers were indomitably agreed for the response of sales personnel behaviour.

5.11.9 products availability

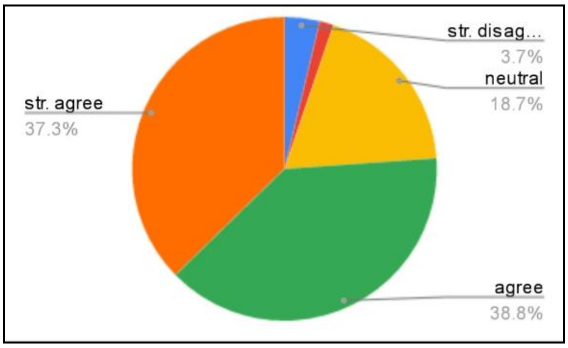
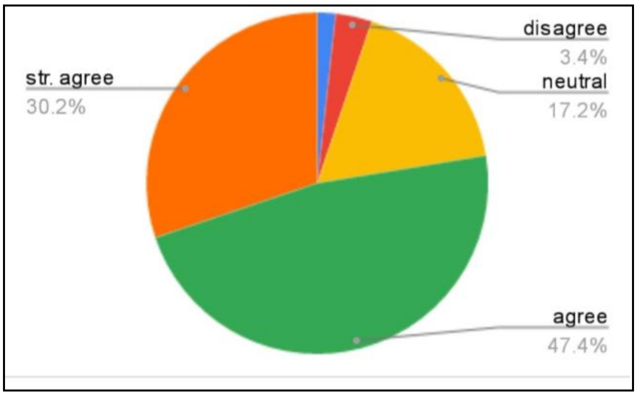


figure 5.11.9 products availability

It is probably understood from the figure 5.11.9 that total consumers were 120 in the case of consumer preferences. only 3.7% consumers indomitably disagreed for the response of products availability while 2% consumers disagreed for the response of products availability and 18.7% consumers neutral for the response of products availability. 38.8% of the consumers were agreed for the response of products availability and 37.3% of the consumers were indomitably agreed for the response of products availability.

5.11.10 Proper shelf display of products



5.11.10 proper shelf display of products

It is showed from figure 5.11.10 that total consumers were 120 in the case of consumer preferences. only 1.6% consumers indomitably disagreed for the response of proper shelf display of products while 3.4% consumers disagreed for the response of proper shelf display of products and 17.2% consumers neutral for the response of proper shelf display of products. 47.4% of the consumers were agreed for the response of proper shelf display of products and 30.2% of the consumers were indomitably agreed for the response of proper shelf display of products.

5.11.11 Product Safety

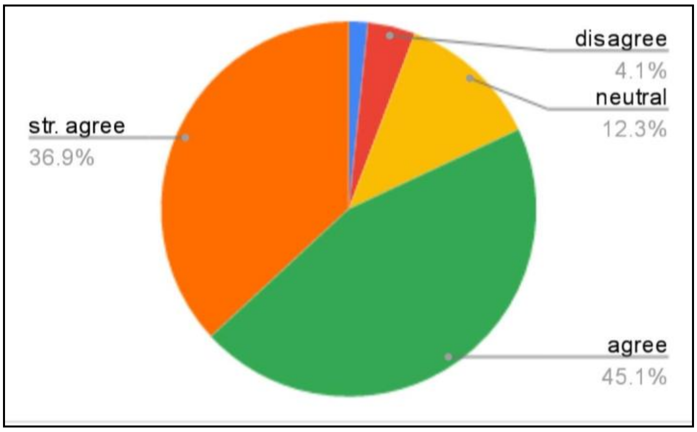


figure 5.11.11 Product Safety

It is probably understood from the figure 5.11.11 that total consumers were 120 in the case of consumer preferences. only 45.1% of the consumers were agreed for the response of product safety and 36.9% of the consumers were indomitably agreed for the response of product safety.1.6% consumers indomitably disagreed for the response of product safety while 4.1% consumers disagreed for the response of product safety and 12.3% consumers neutral for the response of product safety.

5.11.12 Bargain Facility

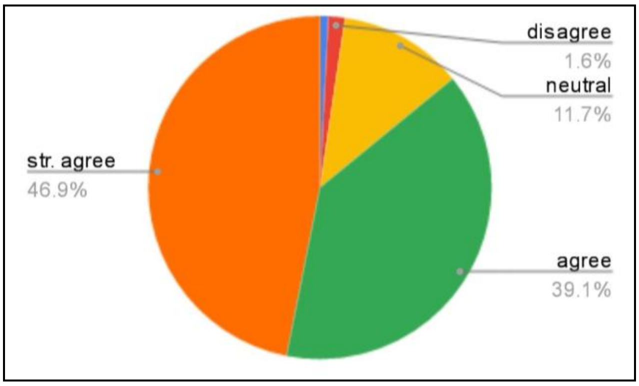


figure 5.11.12 bargain facility

It is showed from figure 5.11.12 that total consumers were 120 in the case of consumer preferences. only 39.1% of the consumers were agreed for the response of bargain facility and 46.9% of the consumers were indomitably agreed for the response of bargain facility.1% of consumers indomitably disagreed for the response of bargain facility while 1.6% of consumers disagreed for the response of bargain facility and 11.7% consumers neutral for the response of bargain facility.

5.11.13 billing processes

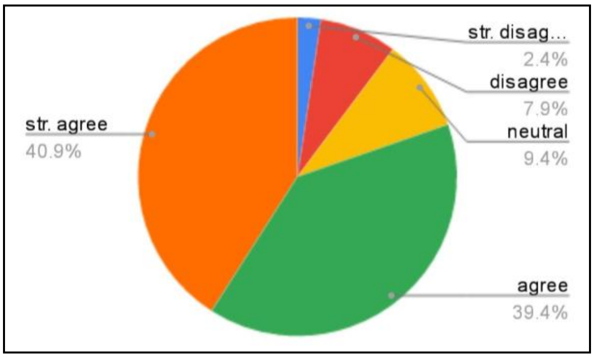


figure 5.11.13 billing processes

It understandable clearly from figure 5.11.13 that total consumers were 120 in the case of consumer preferences. only 39.4% of the consumers were agreed for the response of billing processes and 40.9% of the consumers were indomitably agreed for the response of billing processes.2.4% of consumers indomitably disagreed for the response of billing processes while 7.9% consumers disagreed for the response of billing processes and 9.4% consumers neutral for the response of billing processes.

5.11.14 Availability of Credit

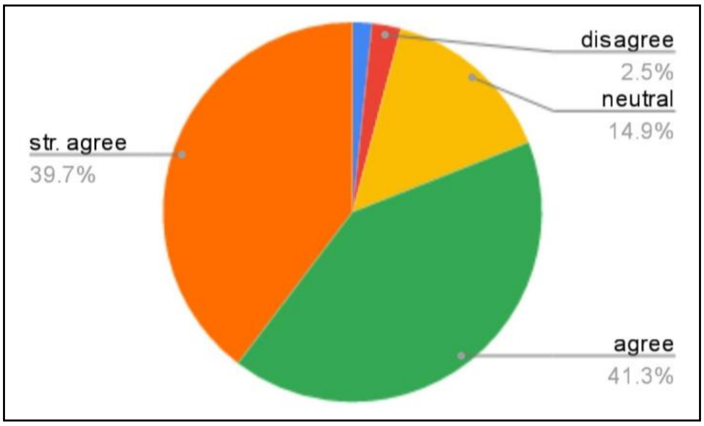


figure 5.11.14 Availability of Credit

It understandable clearly from figure 5.11.14 that total consumers were 120 in the case of consumer preferences. only 41.3% of the consumers were agreed for the response of Availability of Credit and 39.7% of the consumers were indomitably agreed for the response of Availability of Credit.2.4% of consumers indomitably disagreed for the response of Availability of Credit while 2.5% consumers disagreed for the response of Availability of Credit and 14.9% consumers neutral for the response of Availability of Credit.

5.11.15 product bunding processes

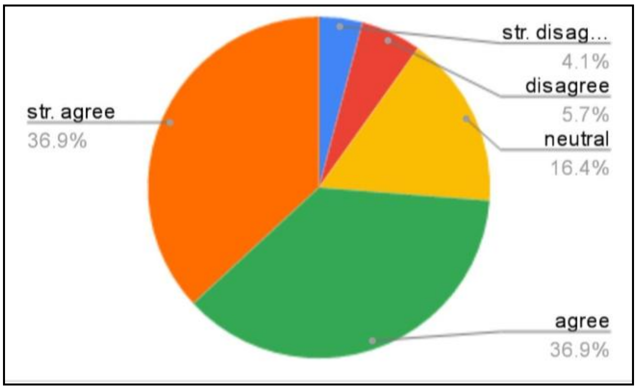


figure 5.11.15 product bunding processes

It understandable clearly from figure 5.11.15 that total consumers were 120 in the case of consumer preferences. only 36.9% of the consumers were agreed for the response of product bunding processes and 36.9% of the consumers were indomitably agreed for the response of product bunding processes. 4.1% of consumers indomitably disagreed for the response of product bunding processes while 5.7% consumers disagreed for the response of product bunding processes and 16.4% consumers neutral for the response of product bunding processes.

5.11.16 Replacement process

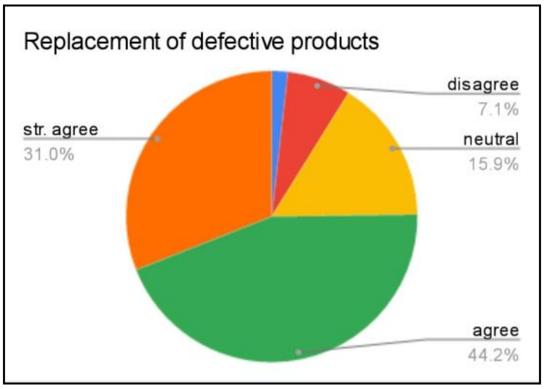


figure 5.11.16 replacement process

It is indicated from the figure 5.11.16 that total consumers were 120 in the case of consumer preferences. only 2.4% consumers indomitably disagreed for the response of replacement process while 7.1% consumers disagreed for the response of replacement process and 15.9% consumers neutral for the response of replacement process. 44.2% of the consumers were agreed for the response of replacement process and 31.0% of the consumers were indomitably agreed for the response of replacement process.

5.11.17 parking facilities

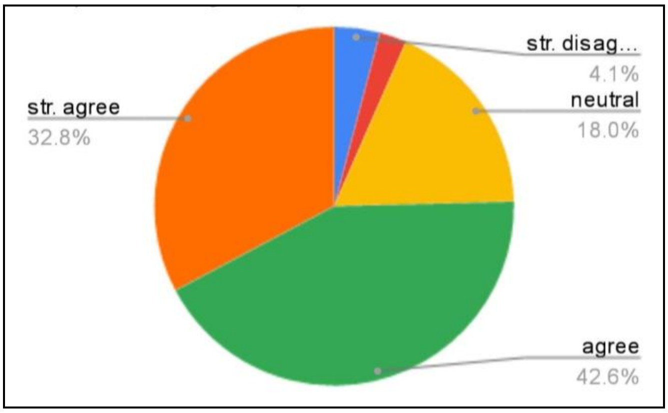


figure 5.11.17 parking facilities

It understandable clearly from figure 5.11.17 that total consumers were 120 in the case of consumer preferences. only 42.6% of the consumers were agreed for the response of parking facilities and 32.8% of the consumers were indomitably agreed for the response of parking facilities. 4.1% of consumers indomitably disagreed for the response of parking facilities while 2.5% consumers disagreed for the response of parking facilities and 18.0% consumers neutral for the response of parking facilities.

5.12 PROBLEMS FACED BY YOU AT THE TIME OF BUYING DRAGON FRUITS

	Feedback		**Feedback**	
FACTORS	**Yes**	**%**	**No**	**%**
inconveniency of location	35	29.16666667	85	70.83333333
home delivery	75	62.5	55	45.83333333
selling of Counterfeited Products	50	41.66666667	70	58.33333333
The attitude of sellers	50	41.66666667	70	58.33333333
space management in the stores	50	41.66666667	70	58.33333333
billing processes	50	41.66666667	70	58.33333333
poor after-sales service	45	37.5	75	62.5
Intermittent supply of dragon fruits	85	70.83333333	35	29.16666667
product quality of dragon fruits	90	75	30	25
Rate Factor	90	75	30	25

It is probably understood from table 5.12 that total consumers were 120 in the case of consumer preferences that 29% out of the total consumers give positive feedback about inconveniency of location. The factor home delivery is positive feedback with 62.5%. The factor selling of Counterfeited Products is given positive result by 41% out of the total consumers where 58% out of the total consumers give negative feedback about this. The non cooperative attitude of sales give positive feedback 41% of the total consumers. The space management in the stores factor is given positively feedback by 41% out of the total consumers. The billing processes has given positive feedback for 41.6 % out of the total consumers. The poor after sales service factor is feedback with positive 37.5% out of the total consumers. The Intermittent supply of dragon fruits factor is given positive feedback by 70% out of the total consumers. The product quality of dragon fruits factor is given positive feedback by 75% out of the total consumers. The rate factor is given positive by 75% out of the total consumers.

5.12.1 inconveniency of location

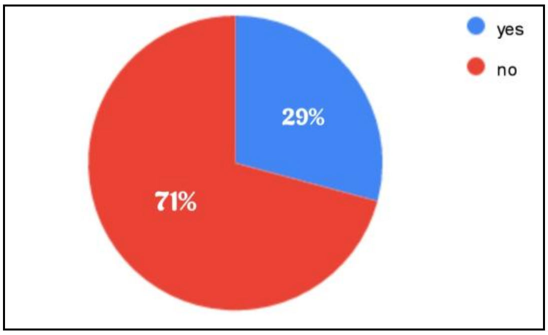


figure 5.12.1 inconveniency of location

It understandable clearly from figure 5.12.1 that total consumers were 120 in the case of consumer preferences that consumers of dragon fruits suffer from the respect of inconveniency of location only 29%

consumers give a positive response and 71% respondent give a negative response in the matter of inconveniency of location.

5.12.2 home delivery

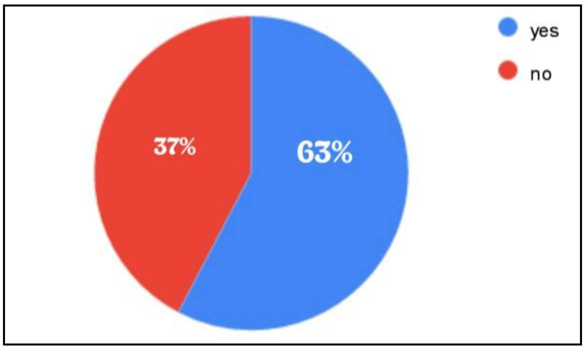


figure 5.12.2 home delivery

It shows from figure 5.12.2 that total consumers were 120 in the case of consumer preferences that the delivery of dragon fruits make an important role with the proper supply chain and management of dragon fruit in Varanasi district. 63% respondent accept that there is home delivery of dragon fruits in their city while 37% of consumers send that they have proper home delivery in their area.

5.12.3 selling of Counterfeited Products

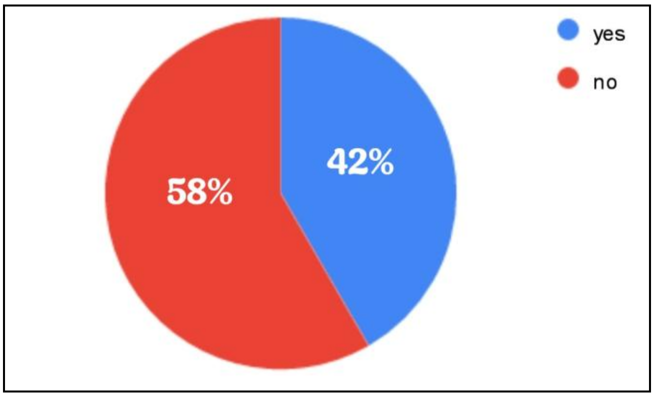


figure 5.12.3 selling of Counterfeited Products

It is probably understood from figure 5.12.3 that total consumers were 120 in the case of consumer preferences that out of the total responses 42% of the consumers accept the selling of Counterfeited Products while 58% of the consumers give a negative response with the respect of selling of counterfeited products.

5.12.4 attitude of sellers

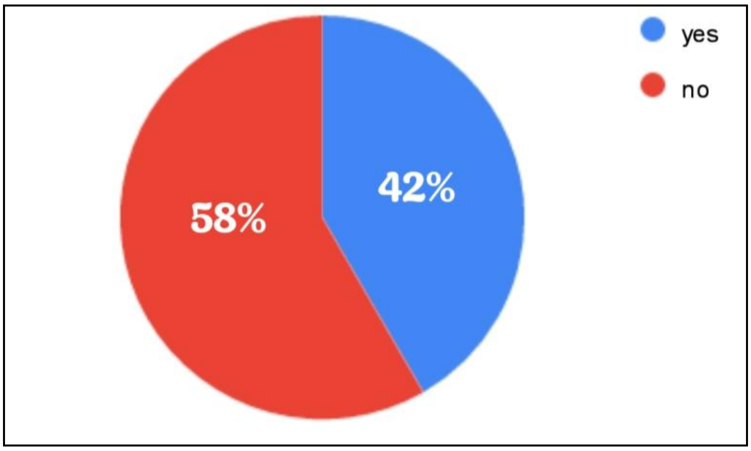


figure 5.12.4 attitude of sellers

It understandable clearly from figure 5.12.4 that total consumers were 120 in the case of consumer preferences that in the Varanasi district there is an attitude of sellers it creates a big bad with impact on the consumers therefore 42% consumers out of the total were agreed that they have faced non-cooperative attitudes of sales whereas 58% of out of the total consumers have a negative approach about this factor.

5.12.5 space management in the stores

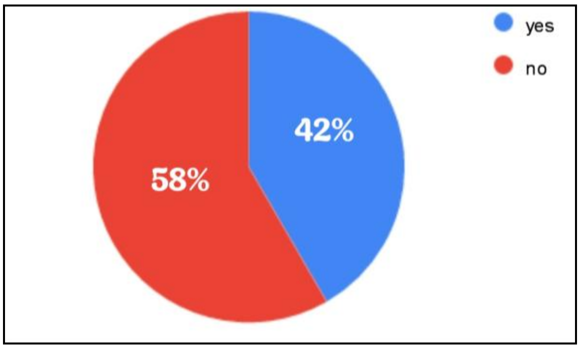


figure 5.12.5 space management in the stores

It understandable clearly from figure 5.12.5 that total consumers were 120 in the case of consumer preferences that in the supermarket's malls and other markets where dragon fruits have to be sold there is a problem of space management in the stores out of the total responses 42% consumers were agreed that there is space management in the stores in the supermarkets and 58% consumers tell us that there is proper space management in the places where dragon fruits have to be sold.

5.12.6 billing processes

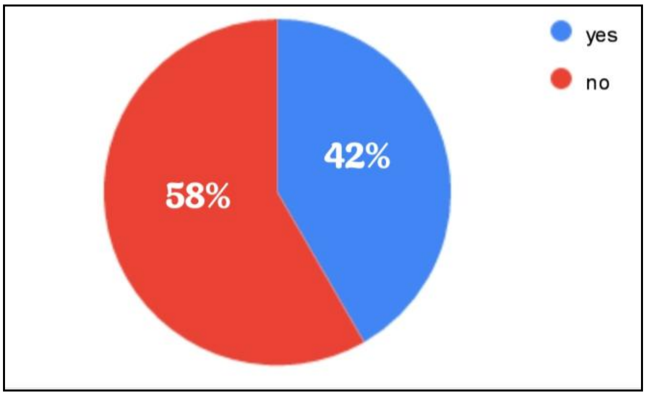


figure 5.12.6 billing processes

It is probably understood from figure 5.12.6 that total consumers were 120 in the case of consumer preferences that 42% out of the total consumers have faced a billing processes in the various types of markets where dragon fruits have to be sold while 58% of the consumers tells us that there is no factor about the billing processes. They didn't have faced this type of problem.

5.12.7 Poor After Sales Services

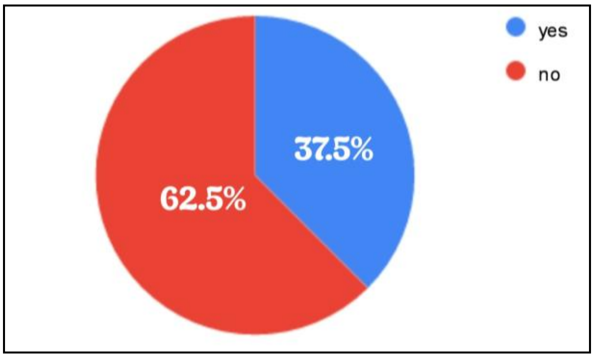


figure 5.12.7 poor after-sales services

It understandable clearly from figure 5.12.7 that total consumers were 120 in the case of consumer preferences that out of the total consumers 37.5% consumers accept that the sales-service quality is not good but 62.5% of the total consumers say that the sales service is not poor where the dragon fruits are sold.

5.12.8 Intermittent supply of dragon fruits

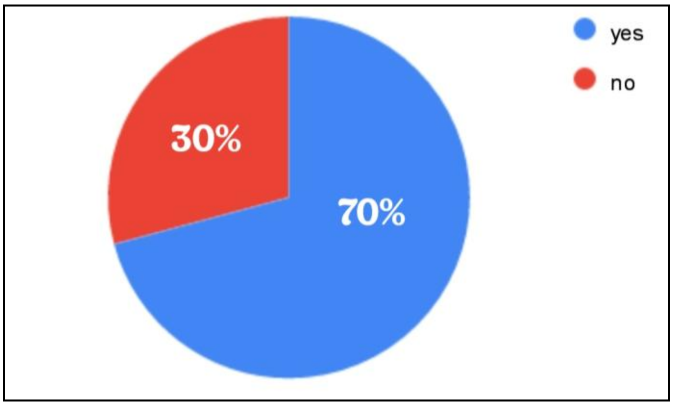


figure 5.12.8 Intermittent supply of dragon fruits

It understandable clearly from figure 5.12.8 that total consumers were 120 in the case of consumer preferences that 70% of the total consumers said positively about the factor of Intermittent supply of dragon fruits while 30% of the total consumers give a negative response about Intermittent supply of dragon fruits.

5.12.9 product quality of dragon fruits

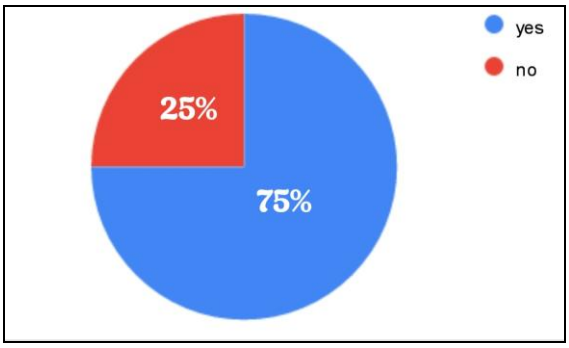


figure 5.12.9 product quality of dragon fruits

It shows that from figure 5.12.9 that total consumers were 120 in the case of consumer preferences that the quality of dragon fruits keep importance for the consumers. Out of the total responses of 120 consumers in this questionnaire, 75% out of the total consumers said positively about the product quality of dragon fruits while 30% out of the total respondent's negative responses about the factor of product quality of dragon fruits.

5.12.10 Rate Factor

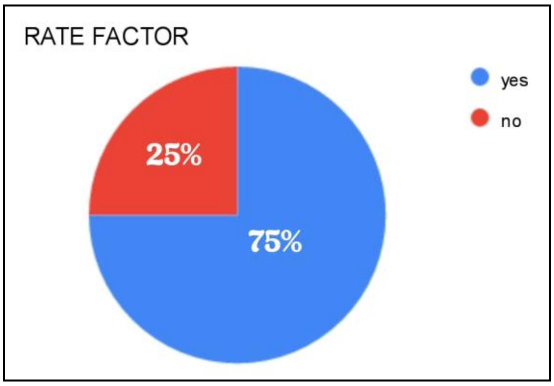


figure 5.12.10 Rate Factor

It is understandable clearly from figure 5.12.10 that total consumers were 120 in the case of consumer preferences that the rate factor of dragon fruits keeps importance for the selling purposes of dragon fruits. 75% out of the total consumers said about this factor have the importance for the marketing of dragon fruits whereas 25% of total consumers give negative answers for the factor of rate factor of dragon fruits.

Chapter - 5

SUMMARY AND CONCLUSION

We can see that the dragon fruit growers earn extra income if they prioritize planting the types for which each demand and promoting charge are high. The farmers of Dragon fruits need to I have to select accurately the types for Dragon fruits production. The markets of Dragon fruits are constrained in Varanasi. It has a problem with the supermarkets and hypermarkets of Varanasi. It needs to have to be increased nook and nook in the district. Dragon fruits retailers have to point out the fantastic of Dragon Fruits and what are the hygienic parameters that ought to be maintained at the time of import and export of dragon fruits. The behaviour income personel is developing a massive influence on clients then the income and different personnel have to have excellent skills for the promoting activities.

A deterministic mannequin is proposed in this paper to help dragon fruit farmers with their choice making on crop allocation for special species of dragon fruits. Consequently, it can furnish them with a long-term overview via companies of manufacturing eventualities that may want to occur, such as (1) fee adjustments (e.g., rate of the red-skin red-flesh dragon fruit); (2) modifications in demand (e.g., demand of the yellow-skin white-flesh dragon fruit); (3) necessities for land restrictions for every kind of crop, and (4) the effect on of the preliminary state. All eventualities are variations from a baseline situation of the real dragon fruit manufacturing prerequisites in Varanasi supposed to supply insights.

CONCLUSION

As with different sparkling fruit furnish chains, the dragon fruit chain faces challenges due to inherent uncertainties such as demands, value, and yield. This is the fundamental drawback of the deterministic approach. Therefore, future lookup to deal with randomness and uncertainty for dragon fruit cultivation ought to contain stochastic programming or strong optimization. The method can be generalized to different comparable clean fruit furnish chains.

The developing nearby and international demand for dragon fruit makes it a very promising enterprise in the Varanasi district. It offers so many possibilities in phrases of commercial enterprise ventures, research, improvement and extension collaborations. Dragon fruit developing has been increasing in extraordinary areas in the Varanasi district. These plantations have attracted a constant circulate of vacationers and plant lovers, boosting the agriculture tourism potentials of these areas.

Post-harvest practices are integral to the profitable advertising of dragon fruit. Harvesting and Post-Harvest managing operations for dragon fruit in the Varanasi are influenced by using technical and more technical elements such as cultural requirements, the step of harvest, inherent product characteristics, prevailing ambient environment, and transport and storage requirements. Minimizing post-harvest losses can make a bigger assembly the needs for clean fruits. Along with this, post-harvest infrastructure and administration ought to be given sufficient attention.

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