



# **Factors Influencing Purchase Decision of Jackfruit Products in Thiruvananthapuram District**

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## **Authors' contributions**

*This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.*

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## **ABSTRACT**

**Aim:** Jackfruit is popularly known as a poor man's fruit in the eastern and southern parts of India. In India, Kerala is the largest jackfruit-producing state. Beyond its nutritional benefits, jackfruit has received attention for its significant environmental and economic benefits, which arise from its numerous culinary applications and potential as a sustainable food supply. Understanding the factors influencing consumer purchase decisions for jackfruit products is becoming increasingly important as the global perspective on food choices moves towards healthier and more sustainable options. Considering this, the study aimed to analyse different factors influencing the purchase decision of jackfruit products in the Thiruvananthapuram district.

**Methodology:** Primary data were collected from the consumers residing in urban centres of Thiruvananthapuram district who had consumed at least one selected product. A purposive sampling method was employed to select 30 consumers for each product category, namely jackfruit chips, jackfruit ice cream, jackfruit flour, and jackfruit varatty. Secondary data were gathered from

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government reports publications, and journals. Statistical tools like the Index method, Kruskal Wallis, test and Mann-Whitney test were used for the analysis. The study was conducted from August to September 2023.

**Results:** The taste and quality of the product emerged as common variables significantly influencing the four consumer groups in their purchase decisions. Factors like brand availability, quality certification, brand image, and social media were the factors not influencing consumers, except for jackfruit ice cream, which stands out due to additional promotional activities compared to other products. The results of the Kruskal-Wallis and Mann-Whitney test highlight significant differences among consumer groups regarding variables such as taste, convenience to use, convenience to cook, and convenience to travel.

**Conclusion:** The influence of each variable on selected products showed different levels of influence. The taste and quality of the product emerge as common variables significantly influencing consumers in their purchase decisions. The results of the Kruskal-Wallis and Mann-Whitney test showed that the effects of these factors on each consumer group were not consistent.

*Keywords: Jackfruit chips; jackfruit ice cream; jackfruit flour; jackfruit varatty; factors influencing a purchase decision; index method; Kruskal-Wallis test; Mann-Whitney test.*

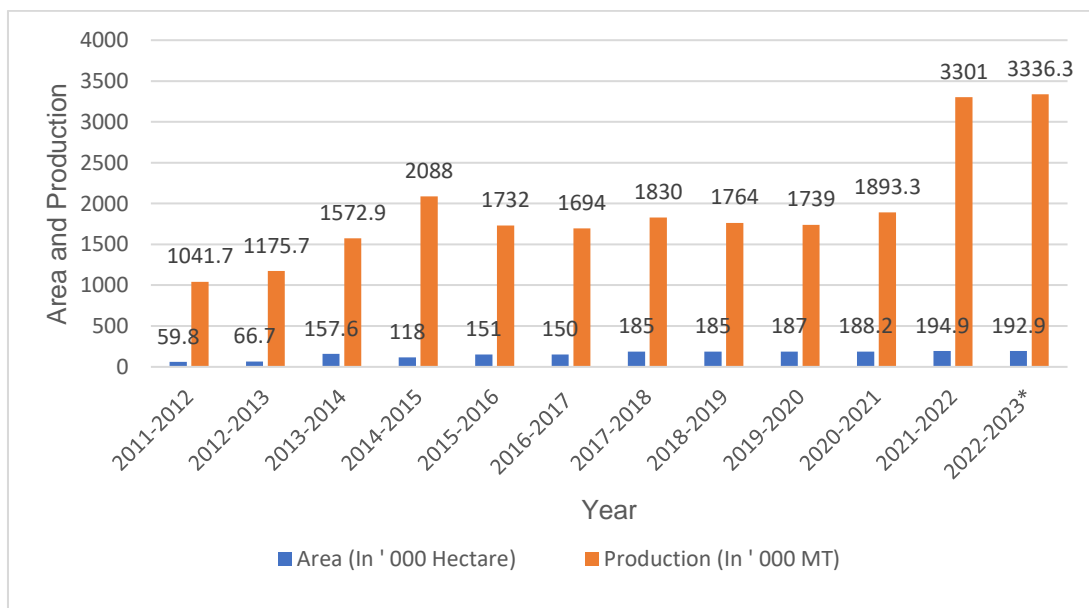
## 1. INTRODUCTION

The jackfruit, botanically known as *Artocarpus heterophyllus* Lam, is native to southern India and Southeast Asia and is the biggest tree-borne fruit in the Moraceae family. India is the world's largest producer of jackfruit, producing a remarkable 3301.04 thousand tonnes in 2021–2022 [1]. Figure 1 shows the area and production of jackfruit in India from 2011-12 to 2022-23.

The cultivation of jackfruit in India has been steadily increasing from 2011-2012 to 2022-2023. The area allocated to jackfruit farming has continuously expanded from 59.8 thousand

hectares to 192.9 thousand hectares, showing that agriculture is continuing to expand. The most substantial increase in both area and production has occurred in recent years, highlighting the rising importance of jackfruit cultivation in India.

In India, Kerala took the lead in the industry with a production of 1467.11 thousand metric tonnes of jackfruit in 2021-2022 [2]. The largest market for jackfruit exports from India was the United Arab Emirates, which imported jackfruits worth 0.37 USD, with a market share of 16.03 percent, followed by the United Kingdom (13.91 percent), Nepal (11.3 percent), Thailand (10.43 percent) and Vietnam (9.57 percent) [3].



**Fig. 1. Area and production of jackfruit in India 2011-12 to 2022-2023**  
 Source: Ministry of Agriculture and Farmers Welfare, GOI. \* 2nd Advance Estimates

During 2018-19, Idukki (61 million numbers) was the largest jackfruit-producing district in Kerala, followed by Kannur (22 million number) and Thiruvananthapuram (21 million number) [4]. Jackfruit is popularly known as a poor man's fruit in the eastern and southern parts of India. On 21st March 2018, the jackfruit was declared as Kerala's state fruit. Which also highlighted the fruit's huge impact on Kerala culture. It also represents abundance, and energy, and is integral to the state's identity. After the declaration of jackfruit as the state fruit by the Government of Kerala, a few numbers of units started value addition in jackfruit. However, despite these efforts, the market remains largely unorganized, and most people are not aware of the value-added products of jackfruit and their associated health benefits. In this situation the study aims to uncover specific factors that influence consumers' purchase decisions for jackfruit products, offering information that can be used to create targeted awareness campaigns and strategic interventions.

## 2. LITERATURE REVIEW

According to the study "The brand dependence scale: measuring consumers' use of brand name to differentiate among product alternatives" by Bristow DN et al. [5], if consumers think there are differences between brands, the brand name becomes the main factor in their decision to buy or intend to buy again, and there will probably be an increase in dependence on brand names in search information.

Lunardo R, Guerin R [6] in his paper "The influence of label on wine consumption: its effects on young consumers' perception of authenticity and purchasing behaviour", studied the impact on the shopping habits and authenticity perception of young consumers. Finding the role of labels on purchasing behaviour was the paper's major objective. According to the study, it was clear that labels played a large effect, which was a component of packaging.

The article titled "Dynamics of rural consumer behaviour in Kerala" was a study conducted by Ushadevi KN [7]. The study found that consumer purchase decisions for durable goods were influenced by quality, price, brand image, and advertising, whereas decisions for non-durable goods were influenced by quality, price, and credit availability. According to the study's findings, marketers need to understand how

products are used and how rural consumers behave since using the same marketing tactics for both urban and rural consumers was insufficient. For rural consumers, marketers must develop effective rural marketing strategies.

"Impact of package elements on consumer's purchase decision" was a study by Kuvykaite R et al. [8]. The study's findings demonstrate that packaging components had a greater influence on consumers' buying decisions. They used both verbal and visual package elements in their study. Visual aspects include graphics, colours, sizes, shapes, and materials, whereas verbal elements include product information, producer, place of origin, and brand. They concluded that the package might be considered one of the most useful tools in marketing communications, requiring a deeper analysis of each component and the effects of those parts on consumer purchasing patterns.

In the book 'Principles of Marketing' Kotler and Armstrong [9], consumer buying behaviour pertains to the purchasing actions of final consumers, individuals, and households acquiring goods and services for personal consumption. The traits of consumer purchases were significantly influenced by cultural, social, personal, and psychological factors. The book also emphasised how situational elements, like attitudes, beliefs, and living circumstances, are important in influencing consumer purchasing decisions.

The book 'Consumer Behaviour' by Schiffman et al. [10], focuses deeply on a wide range of topics, including consumer decision-making processes, motivation, perception, learning, and attitudes. The authors provided detailed explanations of each stage of the decision-making process, including problem recognition, information search, evaluation of alternatives, purchase decision, and post-purchase evaluation. Additionally, the book explored various factors that influence consumers' decision-making, ranging from individual variables to cultural and social influences.

In the study "Determinants of consumers purchasing behaviour for rice in Malaysia" by Musa et al. [11], It was observed that marital status, gender, age, employment position, and household size were the main variables that affect purchasing behaviour. Results also showed that location, and price, are other factors that influence the market's choice of brand in

addition to flavour and cooking quality, and most of the respondents are brand loyal.

Fahy and Jobber [12] in their book "Foundation of Marketing", social connections, status, and convention were examples of social choice factors. This indicates that a person's interactions with others and the effect of social values influence their decision to make a purchase. Emotions were thought to play a significant role in decision-making.

### 3. MATERIALS AND METHODS

Primary data were collected from urban consumers of Thiruvananthapuram district. For each of the four selected value-added jackfruit products, namely jackfruit chips, jackfruit ice cream, jackfruit flour, and jackfruit varatty, 30 consumers were selected by using the purposive sampling technique. Only consumers consuming at least one selected product were included. Thus, the number of sample respondents was a minimum of 30 (in case one respondent was consuming all selected value-added jackfruit products) and a maximum of 120 (in case one respondent was consuming only one of the selected value-added jackfruit products). Since not everyone used every product, a total of 43 respondents were questioned to arrive at a total of 30 respondents for each product. Data were analysed using statistical tools like the Index method, Kruskal Wallis test, and Mann-Whitney test. The study conducted was from August to September 2023.

### 4. RESULTS AND DISCUSSION

#### 4.1 Level of Influence of Factors on the Purchase Decision of Jackfruit Products

Numerous factors influence consumers' decisions to purchase Jackfruit products. It helps to customize marketing efforts and improve the whole experience of purchasing and consuming jackfruit products by finding out which variables are most important to consumers. For this data were collected on a 5-point Likert scale. The index was constructed by giving a weightage of 5 points from 5 to 1 (very highly influencing to not influencing).

Table 1 shows that culture, taste, quality, packaging size, convenience to use, convenience to travel, personal values and beliefs, and availability of product, were very highly influencing factors for consumers of jackfruit chips. This suggests that consumer

preferences were deeply influenced by these factors while making purchase decisions. Promotional factors, convenience of cooking, availability of brand, quality certification, brand image, social media influence, product review, and ratings were the factors that did not influence consumers, due to the absence of strong marketing initiatives and the absence of well-established brands in the jackfruit chips market. It was a ready-to-eat product, therefore 'convenience to cook' did not influence them. Regarding consumers of jackfruit ice cream, factors such as price affordability, product awareness, opinions of friends, taste, and quality of the product were the very highly influencing factors indicating these were the most significant factors that greatly influence consumer preferences while making purchasing decisions. Shelf life, convenience of cooking, and convenience of travelling were the factors not influencing consumers because ice cream requires no cooking and is not convenient for travel.

For consumers of jackfruit flour, Price affordability, product awareness, culture and tradition, taste, quality, shelf-life, and personal values were the very highly influencing factors for purchasing jackfruit flour indicating that these factors have a significant impact on consumer decision-making. Consumers were more likely to choose jackfruit flour when it is offered at a reasonable price, when it connects with their personal beliefs, and when it is offered with high quality and taste. It was found that certain factors were not influencing their purchase decisions. Factors such as convenience to use, convenience to travel, availability of the brand, quality certification, brand image, and social media influence were not influenced, due to the need for preparation before consumption, limited availability of brands, and lack of social media activities presence. Regarding consumers of jackfruit varatty, culture and tradition, taste, quality, convenience to use, and personal values were very highly influencing factors. Because of these factors, this traditional product was highly preferred by consumers. Consumers were not at all influenced by factors like promotional factors, packaging, convenience in cooking, brand availability, quality certification, brand image, and social media influence when deciding to purchase jackfruit varatty due to the lack of well-established brands, limited marketing activities, and consumers using varatty as a standalone product rather than as an ingredient in other preparations. The composite index indicates that

when all variables were considered together, there was an average level of influence on consumer purchasing decisions for the selected jackfruit products.

#### 4.2 Association Between Consumer Groups

The Kruskal-Wallis test is used to analyse the association between the groups of consumers towards each variable.

Table 2 shows that factors such as taste, convenience to use, convenience to cooking, and convenience to travel vary significantly. For all other factors, there was an association between consumers, suggesting that these variables were influencing four selected products in the same way.

#### 4.3 Differences Among Consumer Group Pairs

The Mann-Whitney test was used to discover which specific product combinations exhibit significant differences. The components that show a significant difference in Kruskal-Wallis

results were analysed using the Mann-Whitney test to determine which two independent groups significantly differed.

Table 3 revealed that, for the variable taste, there was a significant difference in consumers' opinions between product pairs JC & JF, JI & JF, and JF & JV. This suggests that the factor 'taste' was not influencing consumers of these three pairs similarly in making a decision. For the variable convenient to use, there was a significant difference in consumer opinion between the combinations JC&JI, JC&JF, and JF&JV. The significant differences show that while making purchasing decisions, people consider the variable convenience to use differently. Because jackfruit flour and ice cream need to be prepared or refrigerated to be consumed. Regarding the variable convenient to cook, the four combinations such as JC&JF, JC&JV, JI&JF, and JI&JV showed a significant difference. Indicating that this variable was not influencing consumers in the same way. This difference was due to its various culinary applications, since flour and varatty were used for cooking

**Table 1. Level of influence of factors on the purchase decision of jackfruit products**

| Statements                      | Level of Influence<br>(VHI- Very Highly Influencing, HI- Highly Influencing, AI- Average Influencing, LI- Less Influencing, NI- Not Influencing) |                     |                 |                   |
|---------------------------------|--|---------------------|-----------------|-------------------|
|                                 | Jackfruit chips  | Jackfruit Ice cream | Jackfruit Flour | Jackfruit Varatty |
| Affordability of price          | AI   | VHI                 | VHI             | AI                |
| Awareness of the product        | HI   | VHI                 | VHI             | AI                |
| Culture and tradition           | VHI  | AI                  | VHI             | VHI               |
| Opinions of friends             | HI   | VHI                 | AI              | HI                |
| Promotional factors             | NI   | LI                  | AI              | NI                |
| Taste                           | VHI  | VHI                 | VHI             | VHI               |
| Quality                         | VHI  | VHI                 | VHI             | VHI               |
| Packaging                       | AI   | HI                  | AI              | NI                |
| Packaging size                  | VHI  | HI                  | AI              | HI                |
| Shelf-life                      | AI   | NI                  | VHI             | AI                |
| Convenience to use              | VHI  | AI                  | NI              | VHI               |
| Convenience to cook             | NI   | NI                  | AI              | NI                |
| Convenience to travel           | VHI  | NI                  | NI              | HI                |
| Personal values and beliefs     | VHI  | HI                  | VHI             | VHI               |
| The Sociable nature of salesmen | HI   | AI                  | AI              | HI                |
| Availability of product         | VHI  | HI                  | AI              | HI                |
| Availability of brand           | NI   | AI                  | NI              | NI                |
| Quality certification           | NI   | AI                  | NI              | NI                |
| Brand image                     | NI   | AI                  | NI              | NI                |
| Social media influence          | NI   | LI                  | NI              | NI                |
| Product review and ratings      | NI   | LI                  | LI              | LI                |
| <b>Composite Index</b>          | <b>AI</b>  | <b>AI</b>           | <b>AI</b>       | <b>AI</b>         |

Source: Compiled from primary data

**Table 2. Association between consumer groups**

| Variables                       | H value | P value |
|---------------------------------|---------|---------|
| Affordability of price          | 2.39    | 0.50    |
| Awareness of the product        | 1.014   | 0.80    |
| Culture and tradition           | 6.164   | 0.10    |
| Opinions of friends/ relatives  | 3.123   | 0.37    |
| Promotional factors             | 2.593   | 0.46    |
| Taste                           | 8.272*  | 0.04    |
| Quality                         | 1.932   | 0.59    |
| Packaging                       | 1.907   | 0.59    |
| Packaging size                  | 4.841   | 0.18    |
| Shelf-life                      | 5.168   | 0.16    |
| Convenience to use              | 12.557* | 0.01    |
| Convenience to cook             | 46.643* | 0.00    |
| Convenience to travel           | 46.074* | 0.00    |
| Personal values and beliefs     | 3.099   | 0.38    |
| The Sociable nature of salesmen | 2.285   | 0.52    |
| Availability of product         | 5.41    | 0.14    |
| Availability of brand           | 3.951   | 0.27    |
| Quality certification           | 2.252   | 0.52    |
| Brand image                     | 5.896   | 0.12    |
| Social media influence          | 6.452   | 0.09    |
| Product review and ratings      | 2.607   | 0.46    |

Source: Compiled from primary data; Note: H-value – Chi-square, P-value- Asymptotic significance. \* Significant at 5 % level

**Table 3. Differences among consumer group pairs**

| Products | Taste   |         | Convenience to use |         | Convenience to cook |         | Convenience to travel |         |
|----------|---------|---------|--------------------|---------|---------------------|---------|-----------------------|---------|
|          | H value | P value | H value            | P value | H value             | P value | H value               | P value |
| JC&JI    | 435.5   | 0.776   | 320.5*             | 0.045   | 361.5               | 0.061   | 78.5*                 | 0.000   |
| JC&JF    | 318.5*  | 0.023   | 266.0*             | 0.005   | 95.5*               | 0.000   | 198.5*                | 0.000   |
| JC&JV    | 450.0   | 1.000   | 433.0              | 0.788   | 150.5*              | 0.000   | 246.0*                | 0.001   |
| JI&JF    | 331.0*  | 0.041   | 377.0              | 0.262   | 163.0*              | 0.000   | 232.0*                | 0.001   |
| JI&JV    | 435.5   | 0.776   | 329.5              | 0.062   | 235.5*              | 0.001   | 134.5*                | 0.000   |
| JF&JV    | 318.5*  | 0.023   | 264.0*             | 0.004   | 339.5               | 0.079   | 359.5                 | 0.155   |

Source: Compiled from primary data; Note: JC-Jackfruit chips, JI- Jackfruit ice cream, JF- Jackfruit flour, JV- Jackfruit varatty; H-value – Test statistic, P-value- Asymptotic significance. \* Significant at 5 % level

purposes. In the case of convenience to travel, a significant difference was between the combinations JC&JI, JC&JF, JC&JV, JI&JF, and JI&JV. This suggests that there was no association among consumers of this pair. Because ice cream melts easily, it may not be suitable for travel, flour cannot be considered as a ready-to-use product, and varatty requires careful handling to maintain its taste, making it less convenient for travel.

## 5. CONCLUSION

The influence of each variable on selected products showed different levels of influence. The taste and quality of the product emerge as common variables significantly influencing consumers in their purchase decisions. Brand

availability, quality certification, brand image, and social media, on the other hand, had a poor impact, except for jackfruit ice cream, which stood out due to additional promotional efforts. Consumer choices were also influenced by product availability, the friendly attitude of salespeople, the opinions of friends, and package size to a certain extent. Enhancing consumer awareness is key to fostering purchase decisions. Targeted marketing initiatives across traditional and social media along with attractive marketing campaigns could effectively communicate the benefits of jackfruit products. Furthermore, Expanding the range of branded value-added jackfruit products and developing an effective distribution system across Kerala would improve accessibility,

ensuring that a bigger customer base can easily acquire these products.

## 6. LIMITATIONS

This study explored consumer behaviour towards value-added jackfruit products and may have encountered biases in data collection due to consumer prejudice. The study was confined to the urban centres of Thiruvananthapuram district only so findings cannot be generalised. The data exhibited limited variation since the number of respondents is a maximum of 30 for each product.

## 7. IMPLICATIONS OF THE STUDY

This study provides valuable insights businesses can use to adjust their product offerings and marketing strategies. The findings play a crucial role in guiding product development, allowing businesses to better match customer demands with their product offers. Entrepreneurs can use the study findings to strategically position their jackfruit products in the market, by highlighting specific features that align with consumer preferences and create a unique brand identity.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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