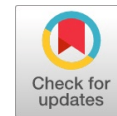


# Estimating The Engel-Kallat-Balackwell Measurement of Consumer Behavior Model for Organic Food Products



I Narsis

**Abstract:** *Purpose* The study analyses consumer purchasing behavior using the Engel-Kallat-Balackwell model, focusing on organic food products. *Objective:* This research paper's main objective is to understand customer purchasing behaviours for organic food items using a five-stage procedure developed by Engel, Kollat, and Blackwell. *Methodology:* This confirmatory study measures the five stages of consumer behaviour developed by Engel, Kollat, and Blackwell. This study was conducted among 182 respondents living in the Tiruchy urban area. *Data Analysis:* The collected primary data was finally entered for analysis using statistical software SPSS 20. The frequency distribution table was used to determine the position of respondents who participated in the study. The confirmatory analysis has been conducted to assess the influence of each stage of the consumer behaviour process on the next. *Findings:* It is found that awareness of organic food makes the consumer go further to gather more information about it, and gathering further Information about organic food has a positive effect on the consumer's evaluation process

**Keywords:** Consumer Behavior - Engel-Kallat-Balackwell model – Path analysis - Organic food product

## I. INTRODUCTION

Chemicals, insecticides, and fertilisers are not used in agriculture to grow organic products. This style of farming works at the grass-roots level, conserving the soil's potential for reproduction and regeneration, good plant nutrition, solid soil management, and the production of nutrient-rich, vibrant food that is disease-resistant. Due to its agroclimatic location, India is well-endowed with considerable potential to produce a wide range of agricultural products. This offers hope for organic producers to access the constantly expanding local market, as well as the export market.

## II. CONSUMER BUYING BEHAVIOR

Consumer behaviour has long been a hot topic in marketing, as understanding how and why consumers behave in a specific way and make confident purchasing decisions enables businesses to enhance their marketing tactics and increase their market share.

Thus, one of the challenges facing all marketers today is how to persuade people to buy their goods or services. Therefore, understanding consumer purchasing behaviour provides insight into the psychology of how consumers reason, feel, and choose among available options (such as brands, products, and retailers), as well as how the consumer's environment (including culture, family, and the media) influences them. It also reveals how consumer motivation and decision-making differ between products.

## III. ENGEL-KALLAT-BALACKWELL MODEL OF CONSUMER BEHAVIOR

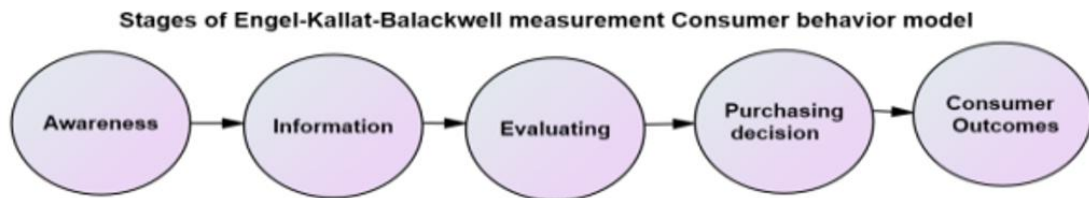
The foundational research on consumer behaviour lays the platform for quantitative research that looks at both current theories and emerging patterns in consumer behaviour. There are essentially two different types of consumer behaviour models. Modern and traditional models of consumer behaviour are also used. Economic experts created traditional behaviour models to comprehend what consumers buy based on their needs and wants. Contemporary theories of consumer behaviour place more emphasis on intentional, logical decision-making than subconscious desires or emotions. One of the top modern models for measuring customer behaviour is the Engel-Kallat-Balackwell model. There are five elements explained in this model. Awareness about the product, Information about the product, Evaluating the product, taking a Purchasing decision, and finally, consumer outcomes. The first edition of Consumer Behaviour (Engel, Kollat, Blackwell, 1968) [1] was being prepared when it became clear that several fundamental issues had slowed down development in consumer research before 1968 and were likely to do so again unless they were acknowledged and fixed, or at the very least accommodated. These issues, which were eventually addressed in an article that appeared in the Journal of Marketing Research (Kollat, Engel, Blackwell, 1970) [2], related to the evolution of what was called a research tradition or strategy of inquiry. In modelling consumer behaviour, the Engel-Kollat-Blackwell (EKB) model is well-known. It is customary to use the Engel-Kallat-Balackwell model to analyse consumer behaviour when making purchasing decisions. A complete measurement scale of perceived quality from an operations perspective, based on the traditional Engel-Kollat-Blackwell (EKB) decision-making process, was one of the key goals of the study carried out by Chao Wen et al (2014) [3] to evaluate the consumer decision-making process. The five stages of consumer behaviour used in this study are product awareness, product information, product evaluation, purchasing choice, and customer outcomes.

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**Fig. 1. Model conception**

## IV. REVIEW OF LITERATURE

The researcher attempted to apply these four constraints to consumers who use organic products. Due to the significant risk associated with purchasing expensive goods, especially organic goods, the buyer's engagement in complex purchasing behaviour is particularly high. Customers take their time studying and deciding whether to buy items, such as organic products. It becomes clear that a wide variety of inexpensive goods are available on the market. Health, quality, and the environment are the three most crucial qualities of organic products. Promotion of these advantages may show that, despite their increased cost, they still represent good value (David & Joanna 2008) [4]. Due to increased consumer awareness, more people are opting for organic food. In 2005, India adopted a policy on organic farming. Since then, the public's understanding of organic foods has grown steadily as more and more people realise the link between diet, health, and the environment. According to Renee Shaw, Hughner et al (2007) [5], several themes reflect the many justifications that customers give for choosing to buy organic food. To examine consumer behaviour in organic products using the five stages of the Engel-Kallat-Balackwell model of consumer behaviour, the current study was conducted among consumers selecting organic food products in the urban areas of Tiruchirappali district. The results of the survey by Khansa Zaman et al (2023) [6] reveal that customers' purchasing decisions about biodegradable bags are influenced by their sense of ethical self-identity. Because the subjective norm, perceived behavioural control, and attitude were found to have a significant impact on purchase intention, which in turn predicts actual consumer behaviour, the theory of planned behaviour in this study has greater implications for predicting consumer buying behaviour. The goal of Mujahid Siddiqui et al (2023) [7] study, "Consumers' Buying Behaviour Towards Agri-Food Products: A Mixed-Method Approach," is to determine the variables that can affect customer purchase behaviour in the agri-food market. This study offered a model to explain purchasing behaviour that incorporated environmental influences as well as a set of cognitive processes, based on the Stimulus-Organism-Behaviour-Consequence theory.

The research conducted by Narsis I (2009) [8] to know the impact of the relationship management on customer buying decision, he concluded that through the influence of different inner and extrinsic elements on the customer's purchasing decisions, their relationship with a particular brand may have an impact on the customer's overall purchasing decisions. The research by Jianmin Zhang et al (2020) [9] explores an extension of the EKB model that is then developed to explain the behaviours of residential energy consumption, including derived demand characteristics, habit change process, behaviour change process, internal feedback, external

stimulus factors, and environment factors. This model extension is then utilised to implement a green information system that assists residents in transitioning to alternative energy sources. The standards used by Rau, P., and Samiee (1981) [10] to assess the current state of consumer behaviour models are primarily sourced from model-building sources in diverse domains. The findings show that, despite the models' impressive scope, they are too limited from the outset to be of any use to marketing professionals. Since the models lack specificity and are therefore challenging, if not impossible to operationalize, none of them have been evaluated as a whole in their original form.

## V. OBJECTIVES

This research paper's primary objective is to understand customer purchasing behaviour for organic food items using a five-stage procedure developed by Engel, Kollat, and Blackwell. Based on the specified following goals.

1. To know the constructs developed by Engel-Kallat-Balackwellon consumer buying behavior process.
2. To identify various indicators involved in each stage of consumer buying behavior
3. To analyze the impact of consumer buying behavior stage by stage.

## VI. HYPOTHESIS (ALTERNATIVE)

**Ha1:** Awareness of organic food makes the consumer go further to gather more information about it.

**Ha2:** Different information about organic food positive effect on consumer's evaluation process of buying organic products.

**Ha3:** Consumers' assessment of organic food positively affects the consumer's purchase decision.

**Ha4:** The purchase decision of the consumer in the process of buying organic food products has a positive outcome.

## VII. METHODOLOGY

This confirmatory study aims to measure the five stages of consumer behaviour developed by Engel, Kollat, and Blackwell. This study was conducted in the urban area of Tiruchirappalli district, Tamil Nadu, and included respondents who consume any organic food products.

**Data Collection:** The researcher has utilised both primary and secondary data sources. Primary data, such as questionnaires, should be employed to understand the consumers' buying behaviour process when consuming organic food products.

**Sampling Method:** The researcher intends to adapt a Non-probabilistic sampling method, namely a purposive sample, to select the sample from the infinite population of the study. Purposive sampling selects sample members from well-defined criteria based on the



researcher's expertise and knowledge, convenience sampling chooses its sample members based on proximity to the researcher (OBILOR, Esezi Isaac 2023) [11]. **Sample size:** To achieve in-depth analyses and better estimation accuracy, the researcher is likely to use a large sample for this study. This study comprises 182 sample respondents from diverse backgrounds, including age, Education, Gender, Monthly income, and Occupation. To achieve the Research objective of this study, primary data will be employed. **Structure of the questionnaire:** Structured questionnaires are those that contain specific, predefined, and concrete questions pertaining to the topic, which are in the researcher's favour when gathering data. The closed-ended, open-ended, multiple-choice, and five-point Likert scale rating items would be included in the structured questionnaires that would be framed and constructed. The questionnaire consists of two parts. Part one related to measuring the demographic details of respondents, and part two related to measuring the consumer's buying behaviour process. There are five demographic questions, including Age, Gender, Education, Occupation, and Income, measured on nominal, interval, and ratio scales. There are eighteen consumer buying behaviour process indicators measured using a five-point Likert scale (1 as 'strongly disagree' and five as 'strongly agree'). **Data analysis:** The collected primary data was finally entered for analysis using statistical software SPSS 20. The frequency distribution table was used to determine the position of respondents who participated in the study. The confirmatory analysis has been conducted to assess the influence of each stage of the consumer behaviour process on the next, rather than to identify the emerging indicators within the eighteen consumer buying behaviour indicators.

**Table. I: Distribution of Sample Respondent based on Personal and Demographic Profile**

Demographic factors	Levels	Frequency	Percent	Cumulative Percent
Gender	Male	103	56.6	56.6
	Female	79	43.4	100.0
	Total	182	100.0	
Age	Below 35	54	29.7	29.7
	36 - 45	61	33.5	63.2
	46 - 60	30	16.5	79.7
	61 and above	37	20.3	100.0
	Total	182	100.0	
Education	Primary//Secondary/Higher Secondary level	48	26.4	26.4
	College Level	69	37.9	64.3
	Professional degree	65	35.7	100.0
	Total	182	100.0	
Employment	Government sector	55	30.2	30.2
	Private Sector	65	35.7	65.9
	Self-employed	62	34.1	100.0
	Total	182	100.0	
Income	Below Rs.25,000	47	25.8	25.8
	Rs 25,001 - 40,000	36	19.8	45.6
	Rs40,001 - 55,000	38	20.9	66.5
	Rs . 55,001-70,000	44	24.2	90.7
	70,001 and above	17	9.3	100.0
	Total	182	100.0	

## VIII. DEMOGRAPHIC FACTORS.

The study was conducted among consumers residing in the urban area of Tiruchirappali District. The study comprises 182 sample consumers, who are the respondents, aiming to understand their buying behaviour process when purchasing any organic product. They are classified according to their Age, Gender, Income, Education and Occupation. This personal Demographic classification is necessary to understand the level of respondents who have participated in the study, to carry out further analysis. The table above displays the frequency distribution of sample respondents based on their demographic variables. Male respondents make up 56.6 per cent of the 182 sample respondents, while female respondents make up the remaining 43.4 per cent. 33.5 per cent of respondents fell within the 36 to 45 age range among the four levels of respondent age classification. 37.9% of survey participants have completed at least a bachelor's degree. Additionally, it was found that 34.1 per cent of respondents were self-employed, and 35.7 per cent worked in the private sector. Five levels of income were assigned to them. 25.8 percent of respondents have a monthly income of less than Rs. 25,000.

## IX. RELIABILITY AND VALIDITY

Assuming the anticipated path model is accurate, there is a 4.779 percent chance that there will be a discrepancy greater than 606.706. The mismatch in the anticipated structural model is  $606.906 / 127 = 4.779$  degrees of freedom. For the path mode, the CFI is.974, GFI is.595, AGFI is.699, RMR is 0.207, and IFI is 604. The "p value" for testing the null hypothesis that the root mean square error of approximation (RMSEA) in the population is less than 05. The estimated root mean square error of approximation (RMSEA) is 144. It is concluded that not all the fit indices are within the acceptable range. The five stages of consumer buying behavior indicators achieved a reliability score of cronbach's Alpha 0.841. Gliem & Gliem (2003) [12] presented in the table can be a guide to evaluate the reliability coefficient. Suppose Cronbach's Alpha value is greater than .90. In that case, it is Excellent, Greater than .80 is Good, Greater than .70 is acceptable, greater than .60 is Questionable, Greater than .50 is Poor, and Less than .50 is Unacceptable. It is concluded that all eight perceived value indicators achieved strong indices for path analysis.



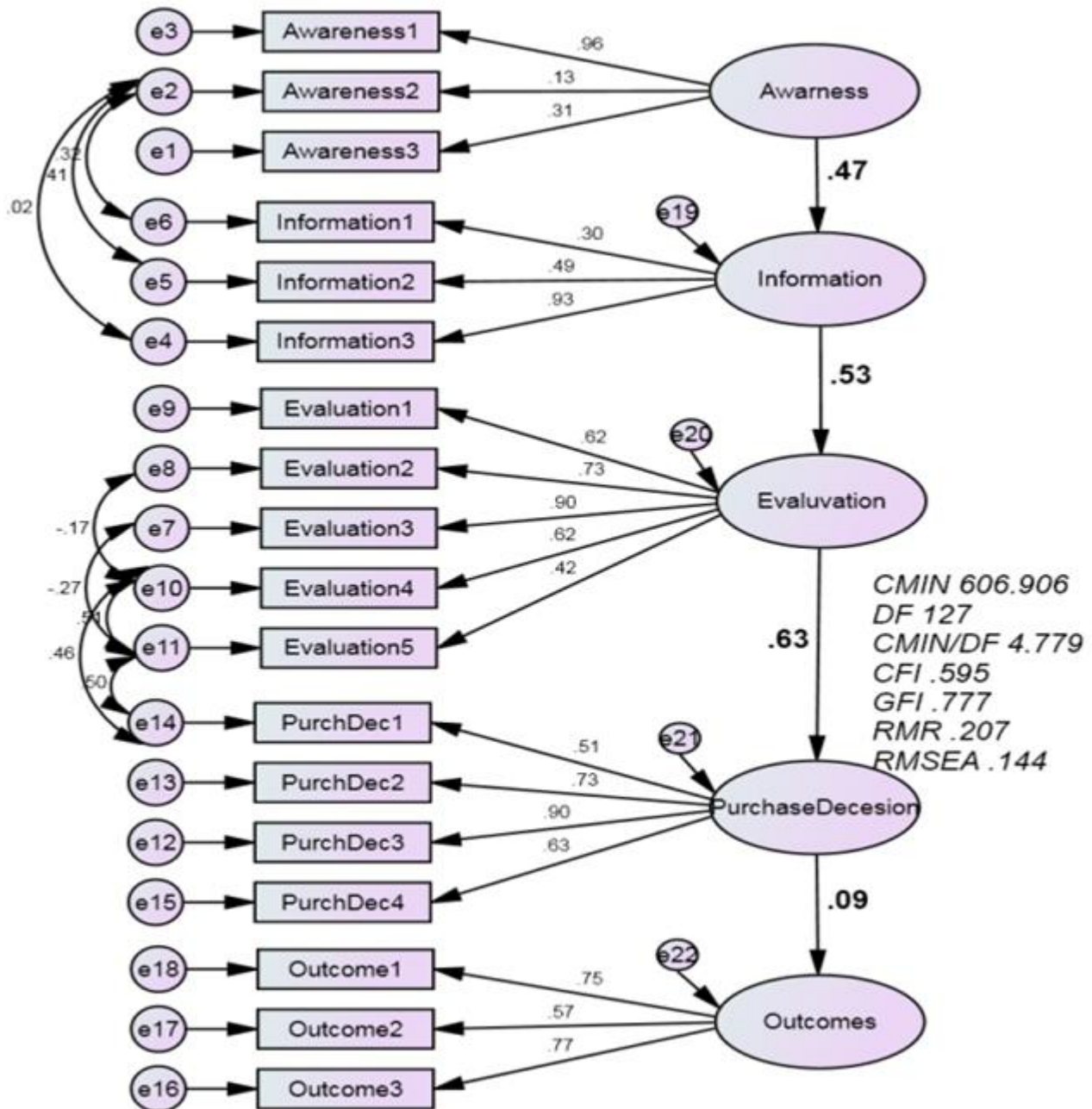


Fig. 2. The Path model shows the influence of the consumer buying behaviour process in each stage.

Table. II: Standardized regression weights for consumer buying behaviour process indicators

Indicators	Latent	Beta	S.E.	T value	Sig
The impression, attitudes, and beliefs surrounding the use of organic products have grown.	Consumer Awareness	.313	.153	2.277	.023
Products are raised in harmony with the environment.		.130	.071	1.590	.112
Labels and items for organic products are easier to recognise.		.956	Reference Point		***
Based on necessity, I am purchasing organic products.	Gathering Information	.931	Reference Point		***
I'm seeking feedback on the benefits of using organic products.		.494	.064	6.350	***
Consuming organic products is in vogue.		.304	.056	3.908	***
Organic products are highly regulated and guaranteed to be safe.	Evaluating the product	.903	Reference Point		***
More recent than typical food.		.726	.059	11.484	***

Indictors	Latent	Beta	S.E.	T value	Sig
The environment is less contaminated when using organic goods.		.616	.054	9.209	***
It is a positive representation of using organic products.		.616	.061	9.333	***
All organic goods from certified organic farming are available.		.425	.067	5.457	***
The family members have no reservations about using organic products.	Purchase Decision	.902	Reference Point		***
Organic goods are easier to find on the market.		.732	.059	11.272	***
Organic food was of excellent quality and taste.		.515	.051	7.769	***
Organic goods don't cost a lot.		.635	.047	9.302	***
Protecting resources for future generations.	Outcomes	.771	Reference Point		
Aid your neighbourhood's small farmers.		.568	.094	7.262	***
Support the sustainable and organic movements.		.754	.092	9.218	***

\*\*\*Significant at 0.001 level

## X. RESULT AND DISCUSSION

Consumer awareness of organic food products is comprised of three key indicators. They are Labels and items for organic products that are easier to recognise. Products are raised in harmony with the environment, and the impression, attitudes, and beliefs surrounding the use of organic products have grown. It is revealed that the awareness indicators “The impression, attitudes, and beliefs surrounding the use of organic products have grown” and “Labels and items for organic products are easier to recognise” significantly predicted the consumer awareness. It is revealed that when consumer awareness regarding organic food products goes up by 1 standard deviation, their consideration of “Labels and items for organic products are easier to recognise”. Goes up by 0.956 standard deviations.

The consumer gathering information to learn more about organic food products consists of three indicators: consuming organic products is in vogue, I'm seeking feedback on the advantages of using organic products, and purchasing organic products based on necessity. The table indicates that all the consumer information criteria were significantly predicted. The highest standardized score of 0.931 happened on “Based on necessity, purchasing organic products”. It is found that when consumer interest in gathering additional information about the organic food product goes up 1 standard deviation, their consideration of “Based on necessity, purchasing organic products” goes up by 0.931 standard deviation.

Consumer prefer for trail for using organic food products that is evaluation consist of five indicators such as, The environment is less contaminated while using organic goods, More recent than typical food, Organic products are highly regulated and guaranteed to be safe, It is a positive representation of using organic products and All organic

goods from certified organic farming are available. The third stage of the consumer behaviour process consists of five indicators that emerged under consumer evaluation. All the indicators significantly predicted the consumer evaluation process of consuming organic food products. It is found that when consumer readiness to evaluate organic food products increases by one standard deviation, their evaluation indicator on “Organic products are highly regulated and guaranteed to be safe” increases by 0.903 standard deviations.

Based on the evaluation of the organic product, the consumer is ready to make a purchasing decision. It involved four indicators: organic food was of excellent quality and taste, Organic goods are easier to find on the market, family members don't have any reservations about using organic products, and Organic goods don't cost a lot. The four consumer purchasing decision indicators significantly emerged to predict the latent constructs. It is revealed that when consumers’ Purchase Decision over buying organic food products goes up by 1 standard deviation, “The family members do not have any reservations about using organic products” goes up by 0.902 standard deviations.

The outcomes, which include supporting sustainable and organic movements, aiding your neighbourhood's small farmers, and protecting resources for future generations, are all outcomes of their experience with using organic food products. The three indicators significantly predicted the consumer's outcome. The highest standardized regression weights happened on “Protecting resources for future generations”. It is revealed that when consumers experience outcomes after buying an organic food product. Goes up by 1 standard deviation, their final outcome is “Protecting resources for future generations”, goes up by 0.771 standard deviations

Table. III: H.ypothesis test result summary

Hypothesis	Beta	S.E.	C.R.	Sig.	Result	Inferences
Ha1	.467	.233	2.444	.015	Accept	Awareness of organic food prompts consumers to seek out more information about it.
Ha2	.530	.0.90	6.134	***	Accept	Information about organic food has a positive effect on the consumer's evaluation process.

Hypothesis	Beta	S.E.	C.R.	Sig.	Result	Inferences
Ha3	.631	.082	8.436	***	Accept	Organic food evaluations by consumers influence those consumers' purchasing choices favourably.
Ha4	.091	.071	1.004	.315	Reject	The purchase decision in the consumer buying behaviour process of organic food products does not yield a positive outcome.

Results of the hypothesis test are shown in the above table. Based on the hierarchy created by Engel, Kallat, and Balackwell, the hypothesis is formulated. Theoretically, it has been demonstrated that customer knowledge of organic food products prompts consumers to proceed to the next stage of the purchasing process, which involves gathering more information before making a purchase. Before making a purchase choice, consumers assess all organic food products in the second step of the purchasing process. In the third step, consumers evaluate organic products before making a purchase. Ultimately, their results determine whether they keep using the organic food product or not.

**Ha1:** The probability of getting a critical ratio as large as 2.444 in absolute value is .015. The regression weight for consumer awareness of organic food products in predicting their interest in gathering additional Information is significantly different from zero at the 0.05 level. It is confirmed that consumer awareness increases by one standard deviation, and consumers showing interest in gathering additional information increase by 0.467 standard deviations. It is concluded that Awareness of organic food prompts consumers to seek further information about it.

**Ha2:** The probability of getting a critical ratio as large as 6.134 in absolute value is less than 0.001. The regression weight for consumer interest in gathering additional Information in the prediction of the Evaluation of an organic product is significantly different from zero at the 0.001 level. It is found that when consumer interest in gathering additional information increases by 1, the consumer's readiness to evaluate the organic product increases by 0.53 standard deviations. It is concluded that Information about organic food has a positive effect on consumers' evaluation process.

**Ha3:** The probability of getting a critical ratio as large as 8.436 in absolute value is less than 0.001. The regression weight for consumer readiness in predicting their purchase decision of the organic food product is significantly different from zero at the 0.001 level. It is concluded that when consumer readiness to evaluate an organic food product increases by one standard deviation, their Purchase Decision increases by 0.631. It is concluded that Consumers' assessment of organic food has a positive effect on consumers' purchase decisions

**Ha4:** The probability of getting a critical ratio as large as 1.004 in absolute value is .315. The regression weight for the consumer purchasing decision of organic food products in predicting their outcomes is not significantly different from zero at the 0.05 level of significance. It is revealed that when consumer purchasing decisions increase by one standard deviation, outcomes increase by 0.091. It is concluded that the purchase decision in the consumer's buying behaviour process for organic food products does not yield a positive outcome.

## XI. FINDINGS

1. This research paper's main objective is to understand customer purchasing behaviours for organic food items utilising a five-stage procedure created by Engel-Kallat-Balackwell, based on the following goals.

2. Out of 182 sample respondents, 56.6% are male. Out of the four-level classification of respondent age, 33.5 per cent of respondents are between the ages of 36 and 45.

3. It is found that 35.7% of respondents were working in the Private sector, and 34.1% of respondents were self-employed. Their income is classified into five levels. 25.8 per cent of respondents earn a monthly income below Rs. 25,000

4. It is found that not all the fit indices are within the acceptable range. The five stages of consumer buying behaviour indicators achieved a reliability score of Cronbach's Alpha 0.841.

5. It is found that when consumer awareness regarding organic food products goes up by 1 standard deviation, their consideration of "Labels and items for organic products are easier to recognise". Goes up by 0.956.

6. It is found that when consumer interest in gathering additional information about the organic food product goes up 1 standard deviation, their consideration of "Based on necessity, purchasing organic products" goes up by 0.931.

7. It is found that when consumer readiness to evaluate organic food products increases by one standard deviation, their evaluation indicator on "Organic products are highly regulated and guaranteed to be safe" increases by 0.903.

8. It is revealed that when consumers experience the outcomes after buying an organic food product. Goes up by 1 standard deviation, their final outcome is "Protecting resources for future generations", goes up by 0.771

9. It is found that awareness of organic food prompts consumers to gather more information about it, and gathering further Information about organic food has a positive effect on the consumer's evaluation process.

10. It is found that Consumers' assessment of organic food has a positive effect on consumers' purchase decisions, and the consumer's buying behavior process of organic food products does not have a positive outcome

## XII. CONCLUSION

This short-term research found that people are more inclined to purchase organic goods. The above findings lead us to conclude that the state and central governments should take action to increase the productivity of agricultural land through the use of organic farming, including organic manure and fertilisers.

To enrich the soil's productivity while minimising any adverse effects on the environment, and to meet the demand for agricultural products. By raising public awareness through various programs and commercials on TV and other channels, it is



crucial to promote the trend towards consuming organic food. Additionally, it is essential to move forward with providing subsidies for organic producers. Marketers might launch unique promotions to attract buyers of organic food, as well as upscale stores and packages to cater to all customers.

### MANAGERIAL IMPLICATION

The organic food industry must better understand the range of consumer motivations, perceptions, and attitudes toward organic foods and their consumption to effectively serve both its long-term interests and those of other stakeholders in the food marketing industry.

### DECLARATION

Funding/ Grants/ Financial Support	No, I did not receive.
Conflicts of Interest/ Competing Interests	No conflicts of interest to the best of our knowledge.
Ethical Approval and Consent to Participate	No, the article does not require ethical approval or consent to participate, as it presents evidence that is not subject to interpretation.
Availability of Data and Material/ Data Access Statement	Yes, this research was conducted using primary data collected from the sample respondents. All personal and demographic information, as well as their opinions on core questions, are strictly confidential. This data is used only for a research paper.
Authors Contributions	I am the sole author of the article.

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