

# Consumer satisfaction towards organic vegetables in Kerala

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## ABSTRACT

Consumers, nowadays are more aware of the necessity of organic vegetables in take rather than highly chemical vegetables which will cause health hazards to human beings and its cultivation hurts the environment. The purpose of the study was to analyze the level of consumer satisfaction with organic vegetables. The study was conducted in the central zone of Kerala. A sample of 60 consumers using vegetables was selected and primary data were collected by using a structured questionnaire. The level of consumer satisfaction towards organic vegetables revealed that they are moderately satisfied with the taste, nutrient value, freshness, eco-friendliness, shelf life, value for money, and source of information. However, they are moderately dissatisfied with price, availability, and marketing channels. ANOVA shows a significant difference in the level of satisfaction in the three districts. Based on Kruskal Wallis, the differences are mainly in price, quality, availability, marketing channels, source of information, and authenticity of organic nature.

**Keywords;** Consumer, organic vegetables, attitude, satisfaction

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## INTRODUCTION

Organic farming as an approach to sustainable agriculture tries to decrease environmental problems and possible health hazards caused by the residues from pesticides Organic agriculture is the most dynamic and rapidly growing sector of the global food industry (Ellis, Panyakul, Vildozo, & Kasterine, 2006). The term consumer behaviour can be defined as the behaviour that consumers display in searching for purchasing, using, evaluating and disposing of product and services that they expect will satisfy their needs. One of the objectives of the present study is to examine the consumer behaviour towards organic vegetables. As vegetables constitute a major portion of food consumption of people, changes has undergone in the nature, type and quality of vegetables consumed by them. Now a day's vegetables are used not only to add their food habit but to provide nutrient and prevent nutritious related diseases and improves physical and mental well being of consumers. In the context of changing behaviour of consumers towards vegetables, study on consumer behaviour towards organic vegetables which is very important.

### Objectives of the study

- To understand the consumer attitude towards organic vegetables
- To analyse the level of consumer's satisfaction towards organic vegetables.

## METHODOLOGY

The study was confined to three districts viz, Thrissur, Palakkad and Ernakulum representing central Kerala. The districts were selected based on the prominence of vegetable cultivation and on the expert opinion the three blocks viz, Pazhayannur, Elavanchery and Muvattupuzha were selected from Thrissur, Palakkad and Ernakulum districts respectively. Twenty vegetable consumers from each selected blocks like Pazhayanor, Elavanchery and Muvattupuzha of Thrissur, Palakkad and Ernakulum districts respectively were selected based on the snow ball sampling method. Thus the total samples of consumers were 60. Primary data were collected through pre-tested structured interview schedule from the consumers.

**Statistical tools used for the study:**

Following statistical tools were employed to analyse the data collected based on the objectives of the study. The variables of farmer behaviour towards organic vegetables were analysed with the help of statistical tools like Percentage analysis, Index method, Kruskal Wallis and One way ANOVA. The barriers were measured using Percentage analysis. Consumer behaviour towards organic vegetables is measured using the Percentage analysis, Index method, Kruskal Wallis, Kendall’s coefficient and One way ANOVA. The details of the tools used were given below.

**Index method**

Indices were calculated based on Likert Scale of summated rating.

$$Index = \frac{\sum_{i=1}^n \sum_{j=1}^q S_{ij} \times 100}{\sum_{max} S_j}$$

i= Respondents

j=Factors

S<sub>j</sub>=Score of the j<sup>th</sup> factor

S<sub>ij</sub>=Total score for the j<sup>th</sup> factor of the i<sup>th</sup> respondent

Max<sub>s</sub><sub>j</sub>=Maximum score for the j<sup>th</sup> factor

Based on the obtained index, the range was worked out using logical interpretation.

**Kruskal – Wallis test**

The Kruskal – Wallis one way analysis of variance by ranks is an extremely useful test for deciding whether the independent samples are from different populations. It will explain whether the differences amongst samples signify genuine population differences or whether they represent merely random samples from the same population. The Kruskal – Wallis test statistic H was computed using the formula:

$$H = \frac{12}{N(N+1)} \sum_{j=1}^k \frac{R_j^2}{n_j} - 3(N + 1)$$

Where,

- K = Number of samples
- n<sub>j</sub> = Number of observations in j<sup>th</sup> sample
- N =  $\sum n_j$ , the number of cases in all samples combined
- R<sub>j</sub> = Sum of ranks in j<sup>th</sup> samples

**ANALYSIS AND DISCUSSIONS**

**Socio-Economic profile of consumers**

Socio economic status is the measure of economic and social prospects of the individuals. It indicates the social position of an individual with respect education, income and occupation. In order to examine the socio-economic characteristics of the respondents, seven indicators, viz., sex, age, education, occupation, family type and monthly family income are considered and they are given in Table 5.1

**Table 1 Socio-economic profile of sample consumers**

Sl. No	Characteristics	Thrissur	Palakkad	Ernakulam	Total (n=60)
1	<b>Gender</b>				
1.1	Male	12 (60)	10 (50)	14 (70)	36 (60)
1.2	Female	8 (40)	10 (50)	6 (30)	24 (40)
2	<b>Age level (Years)</b>				
2.1	Below 30	1 (5)	2 (10)	3 (15)	6 (10)
2.2	30-40	-	4 (20)	6 (30)	10 (16.67)
2.3	40-50	6 (30)	7 (35)	-	13 (21.67)
2.4	50-60	6	6	5	17

		(30)	(30)	(25)	(28.33)
2.5	Above 60	7 (35)	1 (5)	6 (30)	14 (23.33)
3	<b>Educational level</b>				
3.1	Below high school	4 (20)	2 (10)	8 (40)	14 (23.3)
3.2	Up to 12 <sup>th</sup> standard	8 (40)	10 (50)	7 (35)	25 (41.67)
3.3	Graduation	7 (35)	7 (35)	5 (25)	19 (31.67)
3.4	Post Graduation	1 (5)	1 (5)	–	2 (3.3)
4	<b>Family size</b>				
4.1	Joint family		2 (10)		2 (3.3)
4.2	Nuclear family	20 (100)	18 (90)	20 (100)	58 (96.67)
5	<b>Occupation</b>				
5.1	Agriculturist	1 (5)	2 (10)	7 (35)	10 (16.67)
5.2	Private employee	12 (60)	10 (50)	6 (30)	28 (46.67)
5.3	Govt.employee	6 (30)	7 (35)	5 (25)	18 (30)
5.4	Student	1 (5)	1 (5)	2 (10)	4 (6.67)
6	<b>Average monthly income(In Rs)</b>				
6.1	10000-20000	7 (35)	4 (20)	0	10 (16.67)
6.2	20000-30000	13 (65)	11 (55)	19 (95)	43 (71.67)
6.3	30000-40000	0	5 (25)	1 (5)	6 (10)
6.4	Above 40000	0	1 (5)	0	1 (1.67)

Source: Primary data

Note: Figures in Parenthesis represents percentage to total

Table 1 reveals that majority of the respondents (60 percent) were male. 28.33 percent of respondents were in the age group of 50-60 years. Regarding the educational level of respondents, 41.67 percent of the respondents were qualified up to 12<sup>th</sup> standard. 96.67 percent respondents belongs nuclear family. Regarding occupation of respondents, (46.67) were private employees. Most of the respondents (71.67 percent) were having income of ₹ 20000-30000 monthly.

#### Average monthly expenditure for vegetables

Monthly expenditure incurred for vegetables is different for consumers. Spending nature of consumers for vegetables is given in Table 2.

**Table 2 Average monthly expenditure incurred for vegetables by consumers**

Sl.No	Average monthly expenditure for vegetables	Thrissur	Palakkad	Ernakulum	Total (n=60)
1.	Below 500	5 (25)	6 (30)	3 (15)	14 (23.33)
2.	500-1000	12 (60)	11 (55)	15 (75)	38 (63.33)

3.	1000 and above	3 (15)	3 (15)	2 (10)	8 (13.33)
	Total	20(100)	20(100)	20(100)	60(100)

Source: Primary data

Note: Figures in Parenthesis represents percentage to total

From table 5.2 it could be understand that majority of the respondents (63.33 percent) were spending about ₹500 to 1000 per month for purchasing vegetables.

### Periodicity of purchasing vegetables

Frequency of purchasing vegetables can be considered as an indication towards preference for fresh vegetables and importance they assigned in their day to day life.

**Table 3 Frequency of purchasing vegetables by consumers**

Periodicity of purchasing	Thrissur	Palakkad	Ernakulum	Total (n=60)
Daily	12 (60)	15 (75)	17 (85)	44 (73.33)
Twice in a week	8 (40)	5 (5)	3 (15)	16 (26.67)
Weekly	-	-	-	-
Total	20 (100)	20 (100)	20 (100)	60 (100)

Source: Primary data

Note: Figures in Parenthesis represents percentage to total

Table 3 revealed that 73.33 percent respondents were daily purchasing the vegetables. It might be an indication of consumer preference towards fresh vegetables.

### Source of purchase of vegetables

The information regarding preferred source of produce of farmers will help the producers to stream line their distribution channel. Consumers were depending more than one source for purchase of vegetables. Table 5.4 shows the different sources of purchase preferred by sample consumers.

**Table 4 Source of purchase of vegetables by consumers**

Source of purchase	Thrissur	Palakkad	Ernakulum	Total (n=60)
Own farm production	10 (50)	13 (65)	8 (40)	31 (51.67)
Direct from neighbor farms	14 (70)	9 (45)	12 (60)	35 (58.33)
Wholesale market	6 (30)	2 (10)	4 (20)	12 (20)
Retail market	14 (70)	18 (90)	20 (100)	52 (86.67)

Source: Primary data

Note: Figures in Parenthesis represents percentage to total

It could be observed that majority of the respondents (86.67 percent) are depending on retail markets. They opined that convenience, proximity and availability were the major reason for same preferred. It can also be noticed that 51.67 percent depend on own farm production and 58.33 percent purchased vegetables from neighbor farms. This result indicates the consumer preference towards own farm products either from their own farms or direct from neighbor farms.

### Attributes that influence the purchase of vegetables

The important attributes which are influencing the consumers for the purchase of vegetables are given in table 5.5.

**Table 5 Attributes that influence the purchase of vegetables by consumers**

Attributes	Thrissur	Palakkad	Ernakulum	Total (n=60)
Price	20(100)	20(100)	20(100)	60(100)
Freshness	18(90)	19(95)	16(80)	53(88.33)
Nutrient value	17(85)	17(85)	18(90)	52(86.67)
Hygiene	20(100)	20(100)	20(100)	60(100)
Taste	4(20)	5(25)	7(35)	16(26.67)
Chemical Pesticide free	15(75)	17(85)	18(90)	50(83.33)
Organic nature	7(35)	6(30)	16(80)	29(48.33)
Quality Certification	4(20)	3(15)	6(30)	13(21.67)
Packaging	5(25)	6(30)	9(45)	20(33.33)

Source: Primary data

Note: Figures in Parenthesis represents percentage to total

Among the attributes listed in table 5.5 all the respondents irrespective of regions were opinioned that price and hygiene (100 percent) are the important attributes which they looked for while purchasing the vegetables. This shows that consumers are both price and health conscious.

Consumers are looking into the freshness (88.33 percent) and nutrient value of vegetables. Chemical and pesticide free vegetables are also an attribute of consumers looking for. It can infer from the above analysis that there is enough market potential for organically cultivated vegetables.

#### Awareness about Organic vegetable

The awareness level of selected consumers about organic vegetables is depicted in table 5.6.

**Table 6 Awareness of consumers about Organic vegetables**

Aware or not	Thrissur	Palakkad	Ernakulum	Total (n=60)
Yes	20 (100)	20 (100)	20 (100)	60 (100)
No	-	-	-	-
Total	20 (100)	20 (100)	20 (100)	60 (100)

Source: Primary data

Note: Figures in Parenthesis represents percentage to total

Table 6 shows that all the consumers were aware about the organic vegetables. Organic vegetable is not a new concept for the people. It may be due to the increased awareness programme conducted by government and other organizations.

#### Consumer attitude towards organic vegetables

Consumer attitude is a composite of a consumer's beliefs, feelings and behavioural intentions towards some object. Understanding consumer attitude towards organic vegetable can help the producers to take decisions on organic vegetable farming and even organic farmer can determine the market potential of their vegetables. For this purpose different statements related to organic vegetables were selected and data collected on 5 point scale of Likert summated rating. An attitude index was constructed by giving weightages of 5 points from 5 to 1 (highly favourable and highly unfavourable). For the purpose of interpretation index score was rated as follows.

- Less than 30- Highly unfavourable (HUF)
- 30-50 - Moderately Unfavourable (MUF)
- 50-70 -Indifferent (I)
- 70-90 - Moderately Favourable (MF)
- 90 and above- Highly favourable (HF)

**Table 7 Consumer attitude towards organic vegetables**

Statements	Thrissur		Palakkad		Ernakulum		Total (n=60)		Rating of	Kruskall wallis	
	Score	Index	Score	Index	Score	Index	Score	Index		H	Asymp.sig

									index		
Organic vegetables are less perishable than inorganic vegetables	73	73	92	92	88	88	253	84	MF	13.902**	0.001
Organic vegetables are more cheaper than inorganic vegetables	20	20	20	20	20	20	60	20	HUF		
Organic vegetables are good quality vegetables	100	100	100	100	100	100	300	100	HF		
Organic vegetables are affordable for common men	45	45	53	53	58	58	156	52	I		
Availability of organic vegetables are proper	58	58	48	48	52	52	158	52	I		
Organic vegetables are more nutritious than conventionally produced vegetables	80	80	95	95	92	92	267	89	MF	25.030**	0.000
Organic farming conserves soil and less negative impact on environment	80	80	92	92	90	90	262	87	MF	17.502**	0.000
Organic vegetables contains less pesticide residue than inorganic vegetables	80	80	90	90	85	85	255	85	MF	13.111**	0.001
Source of information on organic vegetables are adequate	48	48	49	49	45	45	142	47	MUF		
Composite index	584	64.89	639	71	630	70	1853	68.63	I		

Source: Primary data

(HF-Highly Favourable. MF- Moderately Favourable, I-Indifferent, MUF-Moderately Unfavourable, HF- Highly Unfavourable

All the respondents highly favoured that organic vegetables are good quality vegetables. They opined that it is more nutritious and chemical free. Consumers have moderately favourable attitude towards shelf life of organic vegetables, nutrient value, environmental friendliness and chemical free nature of the organic vegetables. However, they were having an indifferent attitude for affordability and availability of organic vegetables. They were moderately unfavoured towards the source of information of organic vegetables. They opined that information regarding organic vegetable is not adequate. Consumers showed highly unfavourable attitude towards the price of organic vegetables. They opined that price of organic vegetables are more than inorganic vegetables and it is not affordable for common men.

**Consumer satisfaction towards organic vegetables and inorganic vegetables**

Here the consumer satisfaction measures how the organic vegetables can meet or surpass a consumer’s expectation. Consumer satisfaction is important because it provides farmers with a measure that they can use to manage and improve their decisions on organic vegetable farming.

For this purpose different statements related to organic vegetables were selected and data collected on 5 point scale of Likert summated rating. A satisfaction index was constructed by giving weightages of 5 points from 5 to 1 (highly satisfied and highly dissatisfied). For the purpose of interpretation index score was rated as follows.

- Less than 30- Highly Dissatisfied (HDS)
- 30-50 – Moderately Dissatisfied (MDS)
- 50-70- Resigned (R)
- 70-90 – Moderately Satisfied (MS)
- 90 and above- Highly Satisfied (HS)

Kruskal wallis and one way ANOVA was applied to test the hypothesis that the obtained ranks provided by the consumers in the three districts do not differ significantly.

Here the consumer satisfactions towards organic and inorganic vegetables are given in Table 5.8 and 5.9.

**Table 8 Level of consumer satisfaction towards organic vegetables**

Statements	Thrissur		Palakkad		Ernakulum		Total (n=60)		Rating of index	Kruskal wallis	
	Score	Index	Score	Index	Score	Index	Score	Index		H	Asymp.sig
Price	40	40	56	56	52	52	148	49.3	<b>DS</b>	9.528**	0.009
Taste	80	80	80	80	80	80	240	80	<b>MS</b>		
Nutrient value	80	80	80	80	80	80	240	80	<b>MS</b>		
Freshness	70	70	80	80	66	66	216	72	<b>MS</b>	9.746**	0.008
Shelf life	100	100	80	80	80	80	260	86.67	<b>MS</b>	59**	0.00
Availability of vegetables	34	34	60	60	46	46	140	46.67	<b>MDS</b>	31.145**	0.000
Marketing channels	40	40	56	56	40	40	136	45.33	<b>MDS</b>	42.909**	0.000
Eco-friendliness	80	80	64	64	60	60	210	70	<b>MS</b>	29.893**	0.000
Hygiene	80	80	74	74	48	48	202	67.33	<b>MS</b>	51.729**	0.000
Source of information	76	76	66	66	68	68	210	70	<b>MS</b>	9.391**	0.009
Authenticity of organic nature	44	44	56	56	58	58	158	52.67	<b>R</b>	24.278**	0.000
It gives value for money	100	100	80	80	80	80	260	86.67	<b>MS</b>	59**	0.000
Composit index	844	70.33	832	69.33	764	63.67	2440	67.78	<b>R</b>		

Source: Primary data

(HS-Highly Satisfied, MS-Moderately Satisfied, R-Resigned, MDS-Moderately Dissatisfied, HDS-Highly Dissatisfied)

Table 8 reveals that consumers were not highly satisfied with any of the feature of the organic vegetables and they were moderately satisfied with taste, nutrient value, freshness, shelf life and that organic vegetable gives value for money. Organic vegetables are tasty vegetables and it contains nutrient value and it is fresh vegetable. Shelf life of the organic vegetables is more when compared to inorganic vegetables. Source of information and eco friendliness are also moderately satisfied by the consumers. Consumers are resigned to hygiene and authenticity of organic nature of vegetables. Consumers were moderately dissatisfied with price, availability and marketing channels of the vegetables.

**Table 9 Level of consumer satisfaction towards inorganic vegetables**

Statements	Thrissur		Palakkad		Ernakulum		Total (n=60)		Level of SI
	Score	Index	Score	Index	Score	Index	Score	Index	
Affordable Price	68	68	64	64	56	56	188	62.67	<b>R</b>

Taste	60	60	72	72	74	74	206	68.67	R
Nutrient value	54	54	36	36	34	34	124	41.33	MDS
Freshness	78	78	76	76	48	48	202	67.33	R
Shelf life	36	36	44	44	32	32	112	37.33	MDS
Availability of vegetables	100	100	100	100	100	100	300	100	HS
Marketing channels	100	100	100	100	100	100	300	100	HS
Eco-friendliness	34	34	38	38	30	30	102	34	MDS
Hygiene	54	54	52	52	32	32	138	46.00	MDS
Source of information	100	100	100	100	100	100	300	100	HS
It gives value for money	88	88	94	94	76	76	258	86.00	MS
Composite index	772	70.18	776	70.55	682	62.00	2230	67.58	R

Source: Primary data

(HS-Highly Satisfied, MS-Moderately Satisfied, R-Resigned, MDS-Moderately Dissatisfied, HDS-Highly Dissatisfied)

Table 9 clearly depicts that availability of vegetables, marketing channels and source of information are highly satisfied by the consumers. Because inorganic vegetables are available in the nearest markets at any time. Information about inorganic vegetable is available from the various sources like neighbor farms, friends and relatives etc. Consumers were moderately satisfied that inorganic vegetables which gives value for money. They have resigned stage in respect to price, taste and freshness of the inorganic vegetables as it changes in every time. Consumers were moderately dissatisfied with nutrient value, shelf life, eco-friendliness and hygiene features of inorganic vegetables and authenticity of organic nature. Even though organic manures are used in conventional farming, high level usage of chemicals and pesticides made the vegetables as inorganic in nature.

The satisfaction of consumer gets from organic and inorganic vegetables significantly vary in the three districts. Consumers vary in their behaviour and their satisfaction level also different according to their socio- economic characteristics.

Based on the Kruskal Wallis, it can be inferred that difference in satisfaction is due to the difference in price, quality, availability, marketing channels, source of information and authenticity of organic nature.

### CONCLUSIONS

This session could be concluded that consumer behaviour towards organic vegetables shows a preference for consuming organic vegetables. Consumers are aware about the advantages of organic vegetables and adverse effects of inorganic vegetables. They prefer organic vegetables as they are health conscious but the high price of organic vegetables is discouraging them from the purchase of organic vegetables. Attitude and satisfaction level of consumers towards organic vegetables shows significant difference among consumers. Strategies for marketing the organic vegetables have to be formulated with exclusive outlets for organically grown crops so as to increase their trust in the labeled organic vegetables.

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