

## **Consumer Buying Behaviour towards Organic Fruits and Vegetables**

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### **Abstract**

*In this era of globalisation, as economic growth is taking place, it has brought some negative impacts on individuals and society as a whole. Individuals are nowadays becoming aware of the environmental pollution and are getting health consciousness. The developed worlds of Europe and North America have started giving back to nature by demanding organic fruits and vegetables. The fast emerging economies of Asia like China and India are also joining this league (TechSci, 2013). But, the tendency of an individual to consume organic fruits and vegetables depends on a number of factors, such as knowledge and awareness, animal welfare, trust and visual appearance. The determination and understanding of these factors help in understanding consumer's needs, wants and demands. A lot of research has been conducted throughout the world to identify the main characteristics of the organic food consumers, their perceptions, knowledge and awareness, motivations to buy and also the factors impeding the purchase of organic food products. The aim of the present study was to know the factors that influence the buying behaviour of consumers towards organic fruits and vegetables. Structural Equation Modelling was applied to the factors explored and confirmed via exploratory and confirmatory factor analysis. The results of the study indicate that though all the factors have significant effect on buying behaviour of consumers towards organic fruits and vegetables but all the significance level of Animal Welfare is highest and the significance level of Trust on buying behaviour of consumer is lowest.*

**Key words:** *Knowledge, Awareness, Animal Welfare, Trust, Visual Appearance, Buying Behaviour*

### **I. Introduction**

The agricultural innovations have endured the technological revolution in the twentieth century. The increasing need of the society and usage of machinery had pushed traditional labour out of the farm and they have started using a large variety of chemical fertilizers and pesticides.. These techniques of farming are still prevalent and help farmers to increase the yield. But they are doing so without considering their effects on the health of individuals and environment. . In the last two decades, due to an increase in food-related diseases (Essoussi and Zahaf, 2008), individuals have started worrying about the nutritive value of food and environment (Kuhar and Juvancic, 2010). They have started thinking about the problems related to the safety and quality of food changing to lead a healthy live style (Laroche et al., 2001).

For leading a healthy lifestyle, the people nowadays focus on going —back to nature. It is believed that everything that comes from nature is good and advantageous and ensures a balance between nature and human (Chan, 2001). Since the 1990s, consumers of industrialised nations have shown attention and interest towards organic food products (Mutlu, 2007). The production of organic food means a of pesticide-free and fertilizer-free production and adhering to the standards specified by the authorities (Lampkin, 1999). The trend of organic food is now expanding from developed countries to developing countries like India and China (Techsci, 2013). The developed countries like the United States of America and the European Union generate the maximum sales of many organic products, but they are grown and exported from Asia, Latin America, and Africa. Export is the key driver for growth of organic food in India. Nowadays, there is an increase in the level of awareness and disposable income of the Indian consumers . So they are also becoming conscious about their health and organic food is gaining wide acceptability. Although the domestic market is at an infant stage, industry experts expect that in the coming years, domestic organic food market will grow at a very fast pace (Wai, 2016).

### **II. Review of literature**

**Knowledge & Awareness** Organic food is a complex concept and sometimes consumers are not really sure about the meaning of organic products (Nikoli et al., 2014). Through

appropriate knowledge, consumers can differentiate amongst the characteristics of organic food products and conventional food products (Gracia & Magistris, 2007). A study conducted in Italy by Azzurra & Paola (2009) found that respondents had difficulty in differentiating between functional, organic and regular conventional foods and they are not aware of the benefits of the organic products. Consumers need clear, accurate and reliable information, as it affects their perceptions (Shafie & Rennie, 2012), attitude and consumption level (Bonti-Ankomah and Yiridoe, 2006). Essoussi and Zahaf (2008) found that in Canada, knowledge about organic food is a pre-purchase condition. Shamsollahi et al. (2013) emphasized that knowledge and awareness about organic food has the strongest influence on consumers buying intention of organic food in Malaysia and Singapore. Kuhar and Juvancic (2010) stated that demand for organically produced food can be aroused by awareness raising programs and targeted knowledge.

**Animal Welfare** Makatouni (2002) found that in the UK, consumers' values centered around animal welfare also, as its impact on their health is significant. In South Africa, Toit & Crafford (2003), found consumers had positive beliefs about organic food as animals are treated well. Honkanen et al. (2006) also confirmed that in Norway, animal welfare concerns had a strong impact on attitude towards organic food. In Taiwan and Greece, consideration for animal welfare is one of the significant organic food choice motive (Tsakiridou et al., 2008). Hjelmar (2011) stated that ethically minded consumers have reflexive considerations, such as animal welfare while purchasing organic products. Lee & Yun (2015) also found that in the US, the welfare of animals has a major influence on utilitarian and hedonic attitudes toward buying organic food. Teng & Lu (2016) stated that respondents who were aware of the significance of animal's well-being have a strong involvement with organic food.

On the other hand, Lockie et al. (2002) found that in Australia, increasing organic food consumption had a weak association with increasing animal welfare. Wier et al. (2008) also found that in Denmark and Great Britain, animal welfare is acknowledged by consumers but it exerts less influence on their actual buying behaviour.

**Trust** Organic food products have strong credence attributes which are difficult to judge even after purchase and consumption (Verbeke & Roosen, 2009). These products must be produced with strict adherence to the principles and standards of organic farming, (Jahn, Schramm, & Spiller, 2005). So the trust becomes a crucial factor that affects the decision to

purchase because these products are highly expensive. (Nikoli et al., 2014). Roe & Sheldon, 2007 stated that certification by a third-party help in gaining trust in organic food ().

Various studies have examined consumers trust in organic food, organic certification agencies, organic labelling and organic food sellers. In the study conducted by Krystallis & Chrysohoidis (2005) in Greece, it was found that trust in the certification influences readiness to pay for organic food. Janssen & Hamm (2012) conducted a study in six European countries and found that consumers preferred organic food products with certification logo. Oroian et al. (2017) and Essoussi & Zahaf (2008) found that in Romania and Canada, certification, labelling are the pre-requisites for building the trust of the consumers towards organic food products. On the other hand, some studies conducted in European countries have found that consumers don't trust organic certification bodies, and are doubtful of the realness of organic products (Dumortier et al. (2017)),

**Visual Appearance** The appearance of organic food is not appealing as that of regular conventional food. Especially, the green vegetables are often perforated or pierced due to the stings of insects and also have many marks around them (Deliana, 2012). The cosmetic imperfections tend to discourage consumers from buying organic products (Hughner et al. (2007). While Kuhar & Juvancic (2010) found that consumers claimed that they are often willing to forgo superior visual appearance for the organic food, but they desired the taste to be better. Consumers with higher education and a higher level of income have a strong preference for organic products and buy them in spite of poor visual quality (Tsakiridou et al., 2008).

**Consumer Buying Behavior** Consumer behaviour is —the study of individuals, groups, or organisations and the processes they use to select, secure, use, and dispose of products, services, experiences, or ideas to satisfy needs and the impacts that these processes have on the consumer and society (Hawkins et al., 2011). According to Solomon (1995), consumer behaviour is the study —of the processes involved when individuals or groups select, purchase, use or dispose of products, services, ideas or experiences to satisfy needs and desires. Schiffman & Kanuk (2007) describe consumer behaviour as —the behaviour that consumers display in searching for, purchasing, using, evaluating, and disposing of products and services that they expect will satisfy their needs. For complex products, consumers get more involved and for regular products, their involvement is generally low. It is important for

marketers to understand how consumers actually make the buying decisions and how the various factors influence their decisions (Kotler, 2002).

### **III. Hypothesis**

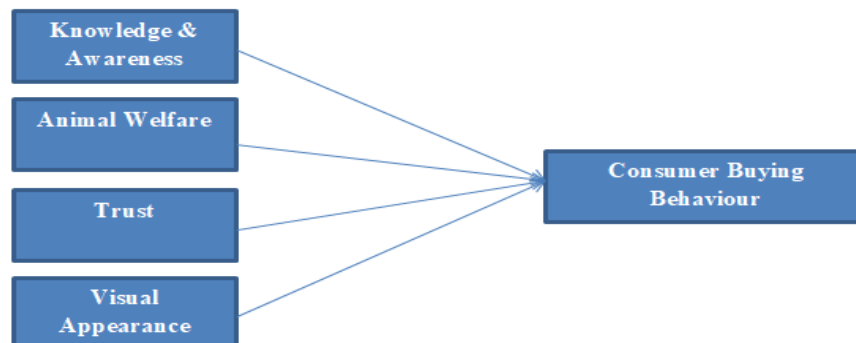
H1: “Knowledge & Awareness has a significant influence on behaviour of consumers towards Organic Fruits and Vegetables”

H2: “Animal Welfare has a significant influence on behaviour of consumers towards Organic Fruits and Vegetables”

H3: “Trust has a significant influence on behaviour of consumers towards Organic Fruits and Vegetables”

H4: “Visual Appearance has a significant influence on behaviour of consumers towards Organic Fruits and Vegetables”

### **IV. Research Model**



### **V. Objective of the Study**

To identify the factors that affect consumer’s buying behaviour towards organic fruits and vegetables.

### **VI. Research Methodology**

**Data Collection:** The study is conducted to detect the elements affecting buyers’ readiness to spend money for organically grown fruits and vegetables items within Delhi. In the present study, respondents were selected through purposive sampling method. A well-structured,

self-administered questionnaire was prepared to record respondent's perception. A depth interviews method was conducted from 280 respondents to gather primary data for the study. A proportionate sampling method was adopted as the number of consumers buying organic fruits and vegetables varies depending upon their demographic and non-demographic factors. In overall 24 statements were selected and buyers were asked to give their responses on "5-points likert scale" wherein "5" means "strongly agree" and "1" means "strongly disagree. The collected data were scrutinized and processed through IBM SPSS version 21 which includes measuring the reliability of the scale with the help of "Cronbach's alpha" and sample adequacy was tested through KMO test. A further, factors were extracted by applying "principle component analysis" and "rotation Varimax" method and accepting the factors having Eigen value more than one. Further, a Structural Equation Modeling technique was applied to testing the hypothesis.

#### Demographic Details

Characteristics	Frequency	Percentage
<b>Gender</b>		
Female	150	53.6
Male	130	46.4
<b>Age</b>		
20 - 25 years	121	43.2
26 - 30 years	68	24.3
31 - 35 years	63	22.5
36 - 40 years	11	3.9
above 40 years	17	6.1
<b>Education</b>		
Diploma/certificate	2	.7
Graduate	53	18.9
Post Graduate	218	77.9
Others	7	2.5
<b>Children In Family</b>		
Yes	145	51.8
No	135	48.2

<b>Annual Family Income (INR)</b>		
below 5,00,000	53	18.9
5,00,000- 10,00,000	112	40.0
10,00,000- 15,00,000	59	21.1
15,00,000- 20,00,000	27	9.6
20,00,000- 25,00,000	12	4.3
25,00,000 - 30,00,000	8	2.9
above 30,00,000	9	3.2

**VII. Data analysis and Interpretation**

**Reliability test**

The first step in the analysis is to check the internal reliability of the data and for this Cronbach’s Alpha test is conducted. The value derived from this test measures the reliability of the scale. In other words, it checks the closeness and relatedness of the items belonging to a particular group. As per the recommender level of “Cronbach’s Alpha”, the value of the reliability test should be more than 0.70. In the present study, the value mentioned in table 1 is 0.941 which is far above the benchmark marked for checking and validating the internal reliability of the dataset. (Nunnaly, 1978)

In addition to the reliability test conducted above, one more test was conducted to verify the adequacy of the sample data selected from population. Therefore, for the purpose of verifying the sufficiency of the data selected, “Kaiser-Meyer-Olkin test of Sampling” was conducted. The value of KMO is 0.904 (table 2) which is well above the recommended threshold value of 0.70, this suggests that the sample drawn for generalisation of the result is adequate.

**Table 1 Reliability Statistics**

Cronbach's Alpha	N of Items
.941	24

**Table 2 :KMO Test**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy	.904
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**Factor analysis**

The aim behind conducting the present research was to explore the elements responsible for inducing the readiness of buyers to pay for organically grown fruits and vegetables products. Therefore, to determine the elements that impact the readiness of buyers to pay for organically grown foodstuffs, factor analysis was conducted. Factor analysis is done in order to reduce the statements mentioned in questionnaire into few related factors. In the present context, the statements were tested through “Exploratory Factor Analysis” and the statements were clubbed to form few related factors.

Table 3 presents the outcomes of conducting Exploratory Factor Analysis wherein it can be observed that for all the statement, the value of factor loading ranges between 0.753 and 0.859. These values of factor loading indicate that the selected statements are adequate enough to make a common factor. Moreover, the values of communalities are also adequate enough to conduct further analysis. In the present study, the value of communalities (after extraction) ranges from 0.598 to 0.875, These value shows the relatedness of the items taken in the scale to explore the factors affecting readiness to spend money for organically grown fruits and vegetables items and anything above 0.4 is acceptable(Hair et al., 2010),

All the factor with eigen value more than 1 are considered for further analysis and in this study only five factor are there that have eigen value more than 1, rest all are rejected as they were unfit for further analysis.

The results of EFA analysis shows the present of five factors which were further assigned names on the basis of review of literature done earlier. These factors are: “Knowledge & Awareness”, “Animal Welfare”, “Trust”, “Visual Appearance” and “Consumer Buying Behavior”.

**Factor 1: Knowledge & Awareness**

This factor measures the level of knowledge and awareness of the respondents for organically grown fruits and vegetables products. Initially, total six items were kept under knowledge and awareness. After conducting EFA, two item of questionnaire was rejected as the value of factor loading of that statement was below the recommended level. Moreover, consistency of this variable was analysed by applying Cronbach’s Alpha test and in the present research, this

value was 0.853 (Table 3) which is an acceptable value for measuring the internal consistency of the items.

**Factor 2: Animal Welfare**

Animal welfare refers to the concern for well-being or treatment given to the animals while producing fruits and vegetables products. In this present study, total five statements were considered to be representing the Animal welfare connected to organically grown fruits and vegetables products. Here, the result of consistency check shows the value of Cronbach's Alpha as 0.844 (Table 3) which is an acceptable value for measuring the internal consistency of the items.

**Factor 3: Trust**

Trust measures the level of faith consumers have for organic fruits and vegetables products on the readiness of shoppers to buy organically grown foodstuffs. In the present study, total four statements were considered to be representing the level of trust for organically produced fruits and vegetables items. Here, the result of consistency check shows the value of Cronbach's Alpha as 0.807 (Table 3) which is a satisfactory value for calculating the internal reliability of the items.

**Factor 4: Visual Appearance**

Impact of Visual Appearance of organically grown fruits and vegetables products on buying behaviour of consumers is measured through this factor. In the present study, total five statements were considered to be representing the visual appearance of organically grown fruits and vegetables products. Here, the outcome of consistency check shows the value of Cronbach's Alpha as 0.753 (Table 3) which is an adequate value for calculating the internal reliability of the items.

**Factor 5: Consumer Buying Behavior towards Organicfruits and vegetables products**

This factor measures the level of consumer buying behavior towards organic fruits and vegetables products. Overall five statements were there for measuring consumer buying behavior. Under this factor, the value of the result after applying Cronbach's Alpha test was 0.859 (Table 3) which is an adequate value for calculating the internal reliability of the items.

One the factors are extracted under "Exploratory Factor Analysis", the next step is to conduct confirm the above extracted factors. For confirmation of these factors, Confirmatory Factor

Analysis was conducted. This test was applied to calculate and validate the reliability, validity and fitness of the measurement model.

Further, validity of the construct is tested via “convergent validity” and “discriminant validity”. The relatedness of items with its construct is verified through convergent validity test

There are two indicators of convergent validity, namely, “Composite Reliability (CR)” and “Average Variance Explained (AVE)”.

The reliability of the variables is tested through the values of “Composite reliability”. As per the results shown in table 3, the value of CR for all the variables namely, “Knowledge & Awareness”, “Animal Welfare”, “Visual Appearance”, “Trust” and “: Consumer Buying Behavior” is 0.815, 0.781, 0.779, 0.757and 0.827 respectively. All the values are more than 0.70 which indicates their adequacy in explaining the construct (Hair et al., 2010).

Moreover the value of AVE in the present study is greater than 0.05 for all the constructs which make it adequate in justifying the convergent validity of the dataset. In addition to this, Discriminant validity is tested to verify the level of distinctness among the constructs. Here, the value of AVE is greater than its corresponding values of MSV for all the constructs which clearly indicates the presence of discriminant validity (Gaskin, J. & Lim, J., 2016).

**Table 3. Factor Analysis**

<b>Factors</b>	<b>Factor Loading</b>	<b>Cronbach’s <math>\alpha</math></b>	<b>Composite Reliability</b>	<b>Average Variance Extracted</b>	<b>Maximum Shared Variance</b>
<b>Knowledge &amp; Awareness</b>	.662	0.853	0.815	0.521	0.223
	.619				
	.705				
	.746				
	.762				
	.681				
<b>Animal Welfare</b>	.715	0.844	0.781	0.553	0.387
	.781				
	.781				
	.750				
<b>Trust</b>	.782	0.807	0.779	0.557	0.321
	.812				
	.799				

	.789				
<b>Visual Appearance</b>	.821	0.753	0.757	0.564	0.297
	.712				
	.814				
	.711				
	.802				
<b>Consumer Buying Behavior</b>	.791	0.859	0.827	0.561	0.487
	.835				
	.911				
	.826				
	.736				

The above section validates that reliability and validity of the measurement model and the below given section checks the fitness of the model.

The table 4 given below indicates that all the indices of goodness of fit confirms the fitness of the model (CMIN/DF = 1.847, CFI = 0.937, Pclose = 1.000, GFI = 0.875, NFI = 0.878, TLI = 0.926, RMSEA = 0.074). This noticeably demonstrates fitness of the measurement model and makes the dataset fit for structural equation model. Further, this table present the fitness indices of structural equation model.

**Table 4. Summary of Model Fit and Structural Model**

<b>Model Fit Index</b>	<b>CMIN/DF</b>	<b>CFI</b>	<b>GFI</b>	<b>NFI</b>	<b>TLI</b>	<b>RMSEA</b>
Measurement Model	1.847	0.937	0.875	0.878	0.926	0.074
Structural Model	1.573	0.943	0.899	0.885	0.933	0.084

Table 5 presents the results of structural equation model where all the four relationships are significant and the significant level of Animal Welfare is highest on the buying behaviour of the consumers for organically grown fruits and vegetables products. However the significance level of Trust on buying behaviour of consumer is least.

**Table 5: Structural Equation Model**

DV	<---	IDV	Standardized regression weight	S.E.	C.R.	P	Hypothesis
BB	<---	KA	0.163	0.054	2.682	0.007	Accepted (H1)
BB	<---	AW	0.585	0.068	7.744	***	Accepted (H2)
BB	<---	T	0.111	0.038	2.924	0.041	Accepted (H3)
BB	<---	VA	0.164	0.051	2.343	0.019	Accepted (H4)

**VIII. Conclusion**

The study was conducted with the objective to identify the factors affecting consumer’s buying behaviour towards organic fruits and vegetables. While going through the factor analysis, 24 statements of buying behaviour were clubbed together under five identifiable factors. These factors show no such cross loading among each other. The factors identified were further named as Knowledge & Awareness, Animal Welfare, Trust, Visual Appearance and Consumer Buying Behavior.

It has observed that, non-demographic factors do influence the buying behaviour of consumer towards organic fruits and vegetables. One of the most important factors that influence the buying behaviour of consumers towards organic fruits and vegetables is their concern for animal. This implies that, a person who has concern about the treatment given to the animals is more likely to have positive buying behaviour towards organic fruits and vegetables. Another factor that contributes to establish positive buying behaviour for organic fruits and vegetables is the level of knowledge and awareness of the consumers. This is followed by the impact of visual appearance and trust on organic fruits and vegetables.

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