

Customer Perception for Eco-Friendly FMCG Product & Factors Influencing Its Purchase

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Abstract: The study tries to estimate the existing awareness and understanding of the outlay and rewards of Eco-natural food across innumerate levels viz. generation, environmental, marketer, and consumer purchase dimensions. Eco-natural food shows many potential rewards that mainly include higher biodiversity and improved soil and water quality, enhanced profitability, and higher nutritional value as well as many potential outlay including lower yields and higher consumer prices. However, numerous important dimensions have high uncertainty, particularly the environmental performance when controlling for lower Eco-natural yields, but also yield stability, soil erosion, water use, and labor conditions. Study is an effort to identify conditions that influence the relative acceptance and performance of Eco-natural farming products, highlighting areas for increased research and policy support. Lack of sustainability, today is a leading cause of environmental decadence. Despite major increases in generation of natural food items, developing countries like India seem to follow and adapt at a slower pace. Eco-natural food has been proposed as a solution to achieving sustainable food protection. The research tries to understand the intention and perception of consumers in buying of the eco food products. The demographic profile of the consumers that purchase the eco-natural eco food products was understood in this attempt. Data were collected in supermarkets within 3 different areas NCR using mall-intercept approach. 577 respondents were interviewed using the survey method of primary data collection. The data obtained from the survey were analyzed using chi-square test, ANOVA, correlation analysis and multiple linear regression tests. Result indicated that the intention to purchase Eco-natural products were heavily influenced by the perception on Eco-natural product worth of purchase and the belief on the safety and health aspect of the product. Respondents were divided into two groups, one that of the buyers of eco food and the other of non-buyers. Among the Eco-natural buyers majority consumers believed Eco-natural food to be healthier, tastier and better as compared to non-eco traditionally cultivated food.

Keywords: Eco-natural Food, Consumer Purchase, Environmental friendly, Natural Food Products

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I. Background

The research used different designs of secondary research available, including reports of studies on human beings, including clinical trials on human beings, cohort studies, and other cross-sectional studies. The review of literature was designed to assess the strength of evidence of the nutrition-related benefits by eating the Eco-natural eco food. Further, the reviewed articles helped in providing direction towards achieving the objectives of research. Eco-natural is a label that is recognized and purchased by many consumers. Eco-natural food is the fastest-growing food sector in India. This is the most apt alternative for covering the sustainable food protection challenges. The study has the objective of understanding the rewards of eco eco-farming and find out the different variables that are leading to greater growth and awareness of ecoally cultivated food items. The following variables were assessed viz. Generation, Environment, Producers, and Consumers. The above variables have been examined first from the existing research studies available which are the quantitative literature review and then these variables were studied in depth to know the level of performance for each one. Eco-natural food is a standard method adopted by the producers where the cultivation of crops avoids the usage of artificial insecticides, pesticides or fertilizers. The study also tries to assess the benefits of consuming eco food over its non-eco counterparts, meaning which there has been inculcation of the positive effects on human health by consuming the eco-eco vegetables and foods. The review of literature includes human studies that are either random or non-random or case studies, surveys, articles and the like. The literature review indicated the hypothesis that food methods provide rich nutrients as compared to the traditional farming approach. Eco-natural food is a more sustainable alternative to current predominant traditional farming. Many studies point to the need to increase food generation to meet the needs of a growing human population (26). The requirement of natural food products is debated because of the inefficiencies in the traditional methods (27), eco yield and

consumption matters due to their positive environmental outcomes. The food produced naturally will also give nutritional health benefits as compared to the production done using insecticides, pesticides, etc. (Fig. 1 and fig. S1) (16–23). A study importantly reveals that the Eco-natural food produced in India reveals an average production gap of about 20% (22, 41). However, the impact or intensity of this is different for different types of agricultural produces and the types of crop management being used (Table 1) (16–21)]. It has been observed that the different practices lead to a range of gaps in the eco production viz. from 5 to 9% under some management practices, and as high as upto 40% under other conditions (28-31). Studies have analyzed the productivity in terms of per unit area in case of eco cultivation (9,14). Eco-natural food is more resilient and have higher yield stability (10, 11). The use of Eco-natural adoption provides advantage to higher soil Eco-natural matter, hence in higher yields (30-33). In addition, diverse techniques of production management can increase crop standardization and stability (34). However, Eco-natural systems are sometimes more prone to pest attacks (23-27), higher growth of weeds (35, 36), which all can lead to less standardization in crops produced. Agricultural land use is one of the leading drivers of lack of biodiversity (25-29), The rewards of Eco-natural management for biodiversity of wildlife on farmland are clear across different taxa (40, 41). Landscape context is an important factor (31-33) in retaining intensive food (34). The study on analyzing the impact of type of food methods on giving better eco produce have been carried out to date (Fig. 1B) (35, 36). Soil health has always been at the core of Eco-natural philosophy (37). The formation of soil and soil nutrient cycling are important supporting services for food generation (22, 29). Soil decadence and soil erosion, which affect large areas of land today because of the intensive use of croplands and rangelands, threaten current and future food generation and are a key sustainability challenge for food (38-42). Studies have also typically found reduced soil erosion from Eco-natural farms due to improved soil structure (43–45). Despite these generally positive impacts of Eco-natural management on soil parameters, the soil fauna is not seen the same way (40, 42), but it is more abundant in Eco-naturally managed soils (46-51). Studies show a lesser understanding of other variables, such as the techniques of strip cropping or crop rotation (7, 49), or of the impact of Eco-natural food on soil quality (17), which can enhance Eco-natural matter loss and soil erosion (39-41), and lead to higher soil Eco-natural matter content (52-54). In many other researches, the potential for Environment change by carbon storage in agricultural soils is debated (57, 58). Studies have also shown that in some cases food affects both human water protection and freshwater biodiversity (59-61). The limited number of studies (62-66) and the large variation in results do not permit reliable conclusions. Eco-natural management reduces pesticide loads (67-70). Food is the single biggest user of fresh water, and water shortages pose important risks to future food generation (4, 13). Improving irrigation efficiency and crop water management (71-76) thus represent key strategies for moving toward sustainable food generation. Many farmers have difficulty making a living from agriculture and often rely on off-farm income (77-81). Many authors have criticized Eco-natural food arguing that small Eco-natural and predominant producers face similar challenges (82–87). Eco-natural systems, which are often diverse mixed farming systems (88-90), can minimize risk by reducing the economic dependence on a single crop. Eco-natural food can provide other livelihood rewards, through the certifying and exporting agency (91, 93). Because of the lower use of chemicals in Eco-natural food (Table 2), this could be one of the most important advantages of Eco-natural management for farm workers, particularly in crops (94-96). Instead, large-scale Eco-natural generation often does not provide any benefit for farm workers because it is typically not Fair Trade-certified (83, 97-99). The objectives are as follows:

- * To understand descriptive statistics on the demographic characteristics of respondents who purchase Eco-natural products.
- * To understand the consumer's motivation towards buying Eco-natural food products
- * To understand the factors that influence purchase of Eco-natural eco food products.

H1: The purchase perception of consumers to buy eco food products is because of health.

H2: The intention of consumers to buy eco food products is greater because of their perceived value.

H3: The more awareness people have about Eco-natural products, the higher is the intention to purchase.

The survey was conducted using mall-intercept personal survey. Potential respondents were approached while they were shopping in supermarkets located in three different locations within NCR. The availability of Eco-natural food products within these mall locations was confirmed. 577 questionnaires were filled by respondents and collected. The questions were designed keeping the objectives in mind and to know the buying pattern and perceptual intentions on Eco-natural products. The questions in the survey included frequency in buying Eco-natural product, places preferred to shop, the type of Eco-natural products bought and the reasons for buying it. Apart from these, the consumers view-points about eco and non-eco food products were gathered on a 5 point Likert scale. The data obtained was coded and put through factor analysis so that it can be found as to what are the summary factors that are most crucial to buying of eco food items. A factor analysis using Principal Component extraction was performed as available in Table 1.

Table 1: Factor Analysis via Rotated Component Matrix

Factors and Food Items	Factor loading
Factor 1: Intention to buy Eco-Food Items	
Eigenvalues: 6.555	
Cumulative Variance Explained: 23.799 per cent	
Cronbach's Coefficient Alpha: 0.913	
I would buy if it consumes less energy/ saves energy	0.848
I would buy if I know that the farming is eco& natural	0.834
I would buy if both flora & fauna on food are treated well	0.799
I would buy if it is more nutritious for my body	0.786
I would buy if it is free from chemicals	0.774
I would buy if I have trust that it is really eco	0.754
I would buy if they are easily available	0.726
I would buy if it costs more than non-eco ones	0.630
Factor 2: Perception of Eco Food Purchase	
Eigenvalues: 2.55	
Cumulative Variance Explained: 33.461 per cent	
Cronbach's Coefficient Alpha: 0.756	
I would buy because it is worth buying having value	0.783
I would buy because buying it helps protect environment	0.686
I would buy for its better ingredients , Quality	0.599
I search for info on the whereabouts from internet	0.497
Factor 3: Eco-friendliness Level	
Eigenvalues: 1.803	
Cumulative Variance Explained: 42.978 per cent	
Cronbach's Coefficient Alpha: 0.737	
Food is better for environment	0.798
Food uses less energy	0.788
I can trust eco labels that indicate its eco-friendliness	0.698
Factor 4: Safety & health	
Eigenvalues: 1.698	
Cumulative Variance Explained: 51.544 per cent	
Cronbach's Coefficient Alpha: 0.758	
Growing food ecoally is better for health and safety	0.854

It is safer to eat	0.839
Factor 5: Availability of Eco Product	
Eigenvalues: 1.086	
Cumulative Variance Explained: 68.095 per cent	
Cronbach's Coefficient Alpha: 0.765	
It is easy to locate shops of eco produce	0.881
I know where to buy based on promotions	0.863
Extraction Method: Principal Component Analysis.	
Rotation Method: Varimax with Kaiser Normalization.	
a. Rotation converged in 6 iterations.	

Based on the factor analysis output, the most important factors were labelled and some factor items were deleted in order to reach the minimum coefficient alpha of 0.7. Further, the Pearson Correlation test was used for the testing of hypotheses.

Five hundred and seventy seven respondents participated in the survey. Majority were female (63.8%) and their ages ranged between 18 to 50 years and above. The mean of age for the sample was 36.5 years old. The sample was predominantly Indians in northern part of India and near NCR. Most respondents (39.4%) were married with kids and 87.1% indicated that they have no chronic illnesses. The demographic profile of respondents is presented in Table 2 below:

Table 2: Demographic Profile

Items	Number	Percentage (%)
Gender		
Male	63	33.6
Female	113	65.8
Ethnicity		
North Indian States	82	47.3
West Indian States	61	35.5
South Indian States	20	10.3
East Indian States	13	6.3
Age		
18-24	25	13.1
25-30	35	10.8
31-40	67	39.9
41-50	34	18.2
51 and above	15	6.5
Marital Status		
Single	67	35.9
Married	34	21.2
Married with kids	68	38.4
Level of Education		
Diploma	37	20.9
Bachelor	56	31.6
Master	39	22
PhD	4	2.3
Professional	10	5.6

There were 6 six categories of consumers and the first three groups of respondents. Category 1 - those who have not bought Eco-natural food and not thinking of buying Eco-natural food; Category 2 - those who have not bought Eco-natural food and thinking of buying in the near future; and finally Category 3 - those who have not bought Eco-natural food and plan to buy in the next 30 days. The first 3 categories were regarded as non-buyers of Eco-natural products. Category 4 are among those who used to buy Eco-natural food but no more now, Category 5 are those who buy Eco-natural food but not regularly and finally Category 6 are those who buy Eco-natural food on regular basis.

Table 3: Groups according to eco-purchase

Categories	Frequencies	%	Consumer Type
Category 1: I have never bought eco foods and I am not thinking about buying eco foods now	36	20.3	Non buyer
Category 2: I have never bought eco foods and I am thinking about buying eco foods sometimes in the near future	49	27.7	Non buyer
Category 3: I have never bought eco foods and I am definitely planning to buy eco foods in the future	4	2.3	Non buyer
Category 4: I used to buy eco foods, but I no longer buy them, I might start buying them again	33	18.6	Started again buyers
Category 5: I buy eco foods, but not regularly	46	26	Occasional buyer
Category 6: I buy eco foods on most trips to marketplace	7	4	Regular buyer

In order to examine the volume and type of Eco-natural products consumed, respondents in Categories 4, 5 and 6 (refer to Table 4) were further examined their level of Eco-natural product consumption. Their buying pattern is examined by looking at the type and volume of products that they bought in every shopping trip. The respondents were asked to report the portion of products that they buy which were Eco-natural and non-Eco-natural. The measurement used was in percentage; 1) below 50% products bought were Eco-natural or 2) above 50% products bought were Eco-natural. Table 4 gives the summary of buying score of Eco-natural food products among those in Category 4, 5 and 6. Eco-natural products were mainly bought by Eco-natural food buyers from predominant markets followed by natural and whole food supermarket (Figure 1). Only 3 respondents indicated that they bought their supply straight from the farmers and remaining 85 respondents has no experience at all with the places of buying Eco-natural food products.

Table 4: Eco Food Items - per category

Types of Eco Food	Purchase > 51%	Purchase < 51%
Rice, grain, cereal or bakery products	22% (n=39)	7.5% (n=31)
Eco fruits and vegetables	21.5% (n=38)	22.6% (n=40)
Eco dairy products	15.8% (n=20)	17.5% (n=31)
Eco meat, poultry or eggs	20.8% (n=37)	19.7% (n=35)

Table 5: Reasons of purchase

Reasons of Buying	n	%
<i>Eco fruits and vegetables</i>		
Healthier	71	34.5
Less chemical in production	61	28.8
Natural	70	28.2
Fresher	58	27.1
Environmentally friendly	44	19.2
Family influence	32	12.4
<i>Eco Dairy products</i>		
Less chemical in production	32	12.4
Healthier	45	19.8
Fresher	45	14.1
Natural	44	15.3

On top of asking respondent on how much (more or less than 50%) would they spend in buying Eco-natural food products, respondents were also asked on the reasons that influences their decision to buying Eco-natural food. The reasons for all four favourite categories of Eco-natural food product were shown in the table 5. Most of the respondents reported that they choose to buy Eco-natural food products because they perceived Eco-natural food as very healthy, fresher and natural. Some demographic characteristics and buying behaviour of consumers influence their attitude towards Eco-natural products. This is consistent with the previous study (Pearson, 2002) which indicated that quality, taste, freshness, healthy diet, family preferences and habits are the most important food-choice factors. Using ANOVA it showed that there is significant interaction effects ($p=0.02$) between influence of knowledge on government action towards respondents according to gender. The effect is depending on the role of government in supporting local agricultural sector as well as keeping the food supply safer. When respondents were asked to indicate their level of knowledge or familiarity on government action and role related to agricultural generation, 26% claimed to be very sure that they are very knowledgeable on the issues related to environment. In addition to that 31.6% respondents also claimed to be very sure on the action taken by government in controlling the pollution (Table 6 and 7). About 9% of respondents claimed that they are not knowledgeable at all about the environment issue as well as the action taken by government in controlling the pollution (11.3%).

Table 6: Awareness of eco-food products

Level of Awareness		Frequency	Percent	Cumulative Percent
Not at all		16	9	9
Somewhat		115	65	74
Very		46	26	100
Total		177	100	

Level of Knowledge	Frequency	Percent	Cumulative Percent
Not at all	20	11.3	11.3
Somewhat	101	57.1	68.4
Very	56	31.6	100
Total	177	100	

Table 7: Hypotheses Test results

Hypothesis	r-value	p-value	Results
Hypothesis 1: The more people believe that consuming eco products as safe and healthy, the higher their intention to purchase eco products.	0.302	0	Supported

Hypothesis 2: The more people believe that eco product farming as						
environmental friendly, the higher their intention to purchase the products.			0.32	0		Supported
Hypothesis 3: The more people perceive the worth of buying eco						
products, the higher the intention to purchase the products.			0.453	0		Supported
Hypothesis 4: The more information that people have about eco						
products, the higher the intention to purchase the products.			0.041	0.295		Not
						Supported

Respondents were asked to indicate if they are willing to pay a higher price for Eco-natural food products and how much extra are they willing to pay whether less than half, more than half or more than 100% of the predominant food price. Of the respondents only 6.8% (n=12) are willing to pay more than 100% of the predominant product price, 46.3% (n=82) are willing to pay more than half of the predominant product price and 44.6% (n=79) are willing to pay only less than the price charged for predominant produce product. However, with regards to respondents willingness to buy more of Eco-natural food if it is cost less in the future, 76.8% or 136 respondents exhibit their willingness to buy more and only 6.8% (n=12) do not want to buy more of Eco-natural food product in the future if it outlay less. A significant probability of future purchases of Eco-natural food product was indicated with their type of occupation (p=0.11). Pearson correlation tests were used to examine the individual relationships between the independent variables (perception on Eco-natural product worth of purchase, belief on the friendliness of Eco-natural products to the environment, belief on the safety and health aspects of Eco-natural products and availability of Eco-natural product information) and the dependent variable (intention to purchase Eco-natural products). The tests indicated that 3 independent variables (all except for availability of Eco-natural product information) were significantly related to intention to buy Eco-natural products. However, the strength of the relationships varies from weak to strong. Table 8 showed the summary results. Multiple linear regression tests using standard regression method were conducted to find which determinants that could explain the intention to purchase Eco-natural food products according to their level of importance. Before the results of the analysis were discussed.

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Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.504(a)	0.254	0.24	0.59853
a Predictors: (Constant) SAFETY_HEALTH, PRODUCT_INFO, ENVIRONT_FRIENDLY,PERCEIVED_WORTH				
b Dependent Variable: INTENTION_TO_PURCHASE				

Table 10: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	19.974	5	3.996	11.152	.000(a)
	Residual	59.107	165	0.359		
	Total	79.078	170			
a Predictors: (Constant), SAFETY_HEALTH, PRODUCT_INFO, ENVIRONT_FRIENDLY, PERCEIVED_WORTH						
b Dependent Variable: INTENTION_TO_PURCHASE Table 11. Coefficients						
Model		Unstandardized Coefficients	Std. Error	Standardized Coefficients	t	Sig.
1	(Constant)	1.876	0.374		5.019	0
	PERCEIVED_WORTH	0.334	0.071	0.361	4.708	0
	ENVIRONT_FRIENDLY	0.152	0.068	0.166	2.232	0.037
	SAFETY_HEALTH	0.113	0.072	0.118	1.575	0.127
	PRODUCT_INFO	-0.012	0.052	-0.016	-0.231	0.838
a Dependent Variable: INTENTION_TO_PURCHASE						

Based on the results, the overall MLR model with four predictors of perception on Eco-natural product worth of purchase, belief on the friendliness of Eco-natural products to the environment, belief on the safety and health aspects of Eco-natural products and availability of Eco-natural product information have worked well in explaining the variation in intention to purchase Eco-natural products ($F=11.151$; $d.f. =5$; $p=.000$). From Table, perception on Eco-natural product worth of purchase was found to exert significant positive influence on intention to purchase Eco-natural products ($t=4.708$; $p=0.000$; $\beta=0.361$). Similar effect was also found in the other dependent variable; belief on the safety and health aspects of Eco-natural products. The relationship of the variable to intention to purchase Eco-natural products was positive and significant ($t=2.232$; $p=0.027$; $\beta=0.166$). The proportion of explained variance as measured by R-Squared for the regression is 25.3% as depicted in Table 9. The beta values given in Table 11 seemed to indicate perception on Eco-natural product worth of purchase ($\beta=0.361$) as more important predictor of intention to purchase Eco-natural products than belief on the safety and health aspects of Eco-natural products ($\beta=0.166$). The other dependent variables were not found to be significantly related to intention to purchase Eco-natural products. It can be concluded that many of respondents are unable to answer the questions on stage of changes towards Eco-natural food. This may be due to misunderstanding of what was being asked and also due to unable to remember purchases which they may have forgotten. Other reasons could be that respondents were answering questions without serious focus which could happen to any number of questions. When groups of people were clustered together based on their buying score, this may result in the blending of two people who have some real differences but given small numbers this is unlikely noticeable. Similarly, those who had experienced with Eco-natural food but has stopped buying for quite sometimes with those who never had experienced before may have real differences. When consumer decided whether to buy Eco-natural or not, it clearly involved a complex set of factors that cannot easily be interpreted. In Malaysia, the Eco-natural food is considered at the introductory stage where not all many people are aware about. The interest to conduct this study is to have better understanding among urban Malaysian consumers' choice of food products. This helps to distinguish shoppers at different point including those who buy no Eco-natural food. Many studies indicated that one major factor that considered to be the barrier to Eco-natural food consumption is its price (Fotopoulos and Krystallis, 2002; McEachern and McClean, 2002). In this present study, women were more likely than men to agree that they would purchase more Eco-natural foods if they were less expensive and more available. As mentioned by Beardworth et al. (2002) this is commonly assumed the role of women and the household food purchasers and "gatekeepers". Consumers perceived Eco-natural food contain health rewards contribute as an important attributes in this study. Most respondent among buyers of Eco-natural food believed that Eco-natural food is healthier compared to predominant grown food. This is consistent with previous study (Chinnici et al., 2002; Pearson, 2002) that discovered health and the natural content of food have been found to be essential in food choices of Eco-natural consumers. In this study respondents also perceived that Eco-natural food products as environmentally friendly contribute, which accord with previous research that found out that environmental concerns and perceived environmental rewards are related to positive Eco-natural food attitudes (Harper and Makatouni, 2002 and Lockie et al., 2002). Given the broad range of possible factors that influences Eco-natural food decision making, there are others that might considered as barriers to Eco-natural food consumption among Malaysian instead of price. For instance, knowledge on Eco-natural food as well as action taken by the government either to inform or to create awareness has not reach the satisfactory level in encouraging sustainable consumption with Eco-natural food. Therefore, knowing how consumer perceived Eco-natural food product by understanding the reasons of buying would probably help the marketers of Eco-natural food to establish a proper communication message. Hopefully the intended message would be appealing for consumers who fall within the same category of buyers who exhibit their interest towards Eco-natural food products. In addition, education of consumers must become one of the first objectives for Eco-natural producers.

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