

PREDICTION OF PEOPLE'S PURCHASE PRACTICES OF ORGANIC PRODUCTS USING DATA MINING

Krishan Prasath,

Assistant Professor,

Department of Computer science and Engineering,
Karpagam College of Engineering,
Coimbatore,India.

Mohanagowri.K,

Assistant Professor,

Department of Computer science and Engineering,
Karpagam College of Engineering,
Coimbatore,India.

Gurusamy.G,

Assistant Professor,

Department of Computer science and Engineering,
Karpagam College of Engineering,
Coimbatore,India.

Abstract: With the increase availability of organic products at the consumer markets the consumers attitude towards has changed positive towards them. But with initial rush of consumer purchase waning the real motives behind the consumers preference towards organic food is getting exposed. This article aims to understand the real reasons the people buy organic products and the factors that hinder the adoption of organic products by the consumers. The availability of organic food at popular outlets seems to help their adoption by consumers who would otherwise skip organic products but the same availability with higher price also drives away potential buyers. This research as stated above will be aimed at the number of factors that hinder the purchase and also analyze the pricing of organic products and its contribution towards consumers avoiding organic products.

Keywords: Organic Product Products, Consumers Desire, Pricing, Consumer Awareness, Impact of Price, Data Mining

I. INTRODUCTION

The hot topic of discussion around dinner tables these days tend to be organic products and the consumer feeling the need to boast about their eating habits [1]. The total volume of organic products produced during the year 2013 – 2014 amounts to around 1.24 million MT of which 194,088 MT were for exports. This translates to almost a million plus tons of organic products for domestic consumption [2]. This trend signifies the change in consumer preference towards organic products. This change in preference will in the long run lead to better consumer awareness about organic products and will lead to healthier lifestyle choices.

There is a problem of correctly identifying what healthier lifestyle is, as companies has jumped on the bandwagon of organic products and are labeling products as organic products without fully understanding what an organic product is [3]. With controversy ranging over the labeling issue the general consumers' awareness of what an organic product is incomplete [4] at best. Coupled with all these and the consumers' desire to buy organic products [5], creates a

situation where in a standardization effort is needed to bring order across the sector.

An average consumer on the other hand is highly interested in buying organic products as shows in a study conducted by this author [5]. From that analysis it is evident that consumers are very much interested in buying organic products. It is also identified that the availability of organic product in the supermarket is plentiful.

The pricing expectations of consumers needed to be studied to fully understand what the consumer is willing to pay for an organic food product? And is there any relation between the availability of the product and the usage of the same when there is a price difference between the organic and non-organic product. These questions prompted this author to conduct a detailed analysis on these questions and this article details the findings of the study. It is generally held belief that organic products are of higher cost and people will buy organic product if they feel that the price outweigh the cost. But to what extent the consumer is willing to pay more to buy an organic product over non-organic product is not available and hence this research.

As part of a series of research this article also analyzes the role pricing plays in decision making by the consumers when purchasing organic products.

II. SELECTION OF COIMBATORE CITY FOR ANALYSIS

The city of Coimbatore was selected as it aligns with this authors' goal of identifying marketing techniques for better marketing the organic products for the residents of Coimbatore. Understanding the consumers of Coimbatore will provide invaluable knowledge about the consumers and their attitude and what is hindering the adoption of organic products by majority of the residents and will help in developing a marketing technique that will answer the problems and will help spread the adoption of organic products within Coimbatore.

Coimbatore also provides a population that is more diverse than what can be achieved from other places and Coimbatore provides the author to sample consumer from different language background, different religious background and consumer who have different mother tongue. Coimbatore is also a place where the consumer from other cities have come to reside providing this author with a golden opportunity in understanding the views of other city residents without conducting the survey in each city.

Coimbatore city also provides a population that is more diverse in employment and age among others. And by conducting a survey in Coimbatore it is possible to develop a framework that can be easily adapted to other cities.

III. SAMPLE SIZE AND ANALYSIS

From the city of Coimbatore a population size of 500 was selected for analysis. A simple random sampling technique was used in selecting the sampling population. The analysis was conducted in two stages. With stage one deal with analysis of why consumers buy organic products? And what percentage of the population buys the product and the clusters were created based on consumers buying pattern. In the second stage of analysis the percentage of consumer who have an interest in buying organic products are selected and analyzed what percentage of them do not buy organic products. From this analysis those who have interest in organic products but are not buying organic products are selected and analyzed further.

This article is an outcome of one such analysis. This analysis specifically deals with the consumers who like to buy organic products but are not buying organic products. This analysis

will bring context to the question of why they are not buying the organic products.

IV. QUESTIONNAIRE AND DATA COLLECTION

To answer the questions that have been framed for analysis a questioner was created that collected details from the respondents on various parameters. The questioner was divided into two sections with each section answering specific criteria.

Section one of the questioner deals with the respondents general information and the second section deals with the respondents preference towards organic products and his/her view on organic products and their buying habit and the reasons they are not buying the organic products. This section consists of questions that help the author understand the consumers' reasons that prevent them from buying organic products.

A. General Information

General information section gathered personal information like Age, Monthly Income and Education Qualification. This sections is used as a pivot point with which the analysis is been conducted. This section provides the author with grouping options that make the analysis easier to understand and also will provide classification of data based on users preferences.

For example consumers who like to buy organic products are grouped and that grouping information is available in this section. With this data it is possible to create a clear classification that will fulfill the requirements of this study.

B. Consumer Preference Information

This section provides the contextual information to the section above and will help explain the reason the users is not buying the product. This section collects the details in such a way that the data can be represented in clusters which makes the reasoning easier.

The questions in this section deals with users knowledge about organic products, their willingness to buy the products and what criteria they use for rejection and one such criteria that is used in this analysis is price of the product.

This section also collects details that will help this author in understand how tolerant are the consumers? Like if a factor that they use for buying the product is changed what they will do. This tolerance limit can be a major factor for the

consumers' decision in purchasing the product. One such criterion that has been taken up for study in this section is price.

V. DATA ANALYSIS

From the analysis of the data it is evident that there is a general awareness about the organic products and the desire to buy organic products is also present with the sampled population. This can be observed from the figure displayed below.

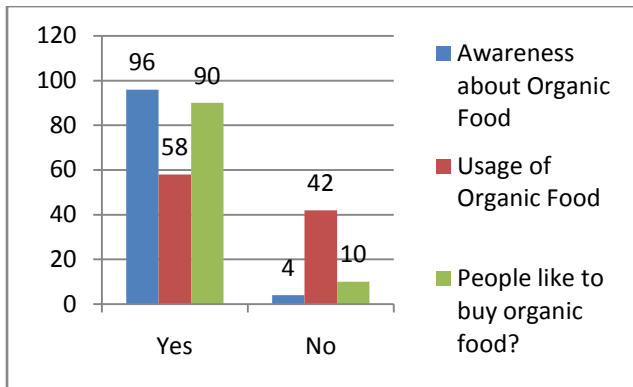


Figure 1: General awareness and usage of organic product.

From the figure 1 it is evident that an overwhelming majority (96%) of the consumers are aware of organic products. It can also be inferred from figure 1 that there is a considerable reduction in the usage of organic products among the responded consumers. As only 58% of the respondents said that they use organic products. From the surveyed data it can be observed that about 90% of the consumers like to buy organic products and there is a considerable percentage (10%) of the consumers who simply do not wish to buy organic products. The following figure details who among those who know about organic product do not wish to buy them.

From Figure 1 we can infer that out of the entire sample size 10% of the consumers do not want to buy organic products. And from the data it is identified that there are 10% of the consumers are the consumers who knew about the organic products and are still not buying those products. This 10% of the consumers are the ones that are of importance to this research. Because these are the consumers who know well about the organic products, its benefits but still are not using them. Consumers who are not aware of the organic products are of no importance in this article as they are by default excluded as with the hypothesis that they did not know about it as such they are not buying but consumers who know and are not buying required further investigation to fully understand the reasons behind their decision of not buying organic products.

In order to understand their behavior an in-depth analysis with various factors has been proposed, those analyses will be published in future articles. One such analysis is does the price of the organic product plays any role in consumers not choosing them? This article will detail this analysis and will summarize its findings.

Of the 10% of consumers identified from above, Majority of customers (81%) will buy organic products if the costs of both organic and non organic products are same. And a considerable number of customers (19%) will still not buy organic products for these customers price is not a factor as demonstrated by this analysis.

It can easily be inferred from the data that majority of the consumers (95%) of those consumers who are current not buying any organic products will not in future too buy any organic product if the cost of the organic item is costlier than the regular product. Only 5% of the consumers are willing to buy them in future irrespective of the organic product being costlier than the regular product. From the collected data it was observed that if the cost of the organic product is 10% costlier, then none of those consumers who are currently not buying any organic products will buy purchase organic products in future. These same customers when asked will they buy an organic product if there is a price difference in the range of 5%, 10%, 20%, 30% 50% their response is displayed in the following figure. From the collected data it is clearly evident that a majority of the people (94%) will still prefer to buy organic product if the difference is 5%. But the cost seems to outweigh the benefits of the product around midway mark (20-30%) mark were majority of the people have a negative reaction towards the organic products due to price. The following figure shows the income composition of the sampled population and it can be inferred from the available data that the sampled population represents a majority of the available population.

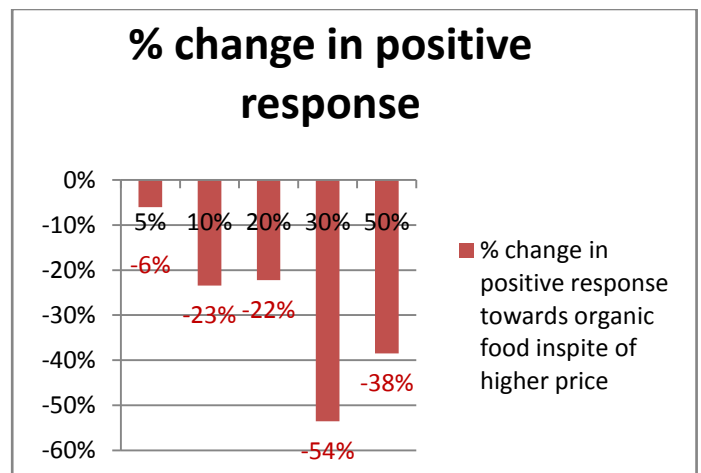


Figure 2: % change in peoples' response towards price change in organic products.

As displayed in the figure above the percentage of change in peoples' preference happens drastically when the price of the product varies from 20% to 30% and from the previous mentioned figures it is evident only 16% of the people will buy products that are 50% costlier than their non-organic product. The price difference of 5% and 10% doesn't affect the consumers preference to a greater extent for the people in the income brackets other than >50,000. When this derived insight is applied to the sampled products that have been identified in the section two of this article almost all of them are cost more than 50% and their change of sales are slim at best.

This observation holds valuable information for organic product manufacturers. This author collected pricing of various items and the list as follows. Prices were retrieved from organicgarden[8] a specialized online retailer for organic goods and from Amazon[9] an online retailer for normal goods.

Table 1: Cost of organic and other products.

Product Name	Price	Organic / Non-Organic
Hue-Organic Shampoo (200 ml)	Rs 416 (Offer price Rs 208)	Organic
Dove Nourishing Oil Care Shampoo (200 ml)	Rs 180	Non-Organic
Organic Soap-Sandal	Rs 199 (Offer Price Rs99)	Organic
Park Avenue Storm Soap	Rs40	Non-Organic
Cow Ghee(500ml)	Rs 536	Organic
Sancheti Yashoda Brand pure Gawa ghee (500ml)	Rs345	Non-Organic

In order to put them in perspective the following tables lists the same organic products with the cost difference factor with offer prices.

Table 2: Price variation of organic products over other products.

Category	Price Variation
Shampoo	15%
Bath Soap	147%
Ghee	55%

From table 2 we can infer that none of these products can ever be sold to those consumers who are currently not buying organic products. As almost all products are more than 10% costlier, where in none of those surveyed were interested in buying any product which costs more than 10%.

VI. CONCLUSION

Though people are aware of organic products and its benefits there is a general mistrust about the product among the general public. This coupled with the higher price of the organic products hinder the possible sale of the same. Findings of this research suggest that consumers who are avoiding organic products do so mainly due to the price difference. As shown in this paper it is clearly evident that organic products costs considerably more than non organic products. And with consumers not willing to spend 5% more than other products these good for health products instead of being sold are left in the shelves of supermarkets. And from the sampled products it has been observed that all of the sampled products cost more than 50% than their non-organic counterparts. This creates such a situation where in only 16% of the entire population is willing to purchase products that are costlier.

This when coupled with the results of general population results states that almost 60% of consumers are not consuming the healthier option due to one reason or the other. In order to make these organic products reach mass market either a country wide campaign encouraging consumers to choose healthier option irrespective of cost has to be undertaken or producers must find alternative mean to reduce cost.

This analysis brings forth a number of interesting questions that along with original questions that were conceived will be taken up for analysis in the second stage of the analysis with wider population and sample base. One take away point that is evident from this analysis is the people's awareness towards organic products has increased considerably and they are willing to purchase the organic products if it is affordable and available.

VII. ACKNOWLEDGMENT

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