



Hierarchy of Consumer Decisions in Buying Organic Vegetables in Bandung

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Abstract

With increasing education and knowledge of the society, consumers are increasingly aware of the importance of healthy living by consuming organic products. Demand for organic products is increasing, especially after the government of Indonesia launched a program called “Go Green” in 2010 with the aim to preserve the environment. The results suggest that the reasons why consumers choose organic vegetables are clean (57.50%), easily obtained (22.50%), considered less costly for health purposes (20%). This means that consumers buy organic vegetables for the sake of their health (Deliana, 2011). Marketing of organic vegetables do not require a long marketing chain as these products are unique and have a specific market segment, thus the manufacturers not only have a selling concept but also have to make their customers satisfied with their products. The problem is that both producers and sellers do not understand the hopes, wishes, and needs of consumers for organic vegetables. This study analyzes the priority of the factors that consumers consider in deciding to buy organic vegetables in addition to finding out which vegetables are most preferred and expected by consumers. The study was conducted from April to May 2012, using the method of survey involving 35 people with a simple random sampling. The data required are primary and secondary data and analyzed using Analysis of Hierarchy Process by considering the social, economic, physical factors of organic vegetables. The results of the study are expected to be used by marketers, investors, and policy makers in marketing organic vegetables so that consumers feel satisfied and they are also loyal customers.

Keywords: Analysis of hierarchy process, consumers, organic vegetable purchase.

Introduction

With increasing education and knowledge, people are increasingly aware of the importance of healthy living. This can be seen from the growing number of people who are consuming organic products. Organic vegetables, especially leafy vegetables are most preferred because they are always available in supermarkets, and vegetables have become daily their necessities. There are many kinds of organic vegetables such as kale, water spinach, bokcoy (Chinese cabbage), green beans, carrots but are just produced in small amounts in accordance with the needs of consumers. In general, consumers who buy organic vegetables are those who are aware that the products purchased are safe for consumption (food safety attribute), environmentally friendly product (eco-labeling attribute), and have high nutritional content (nutritional value). As a result, organic vegetable producers are increasing. In 2012 alone there were around 80 producers who were certified and increased to 12.5% from the previous year (Institute for Organic Product Certification such as “Inofice” and “Mutu Agung Lestari”, 2012). Organic land in Indonesia from 2006 – 2010 showed a significant increase and in total covered 19.783 hectares which involved 1031 groups of farmers and Tasikmalaya is recorded to have most groups of farmers. A lot of producers are interested to have organic vegetable businesses as a result of the ‘Go Green’ program launched by the government in 2010, which is expected to be “Organic Food Kitchen in the World”¹. Marketing of organic vegetables do not require a long marketing

chain as these products are unique and have a specific market segment, thus the producers should not only have a selling concept but also have to make their customers satisfied with their products. The problem is that both producers and sellers do not understand the hopes, wishes, and needs of consumers for organic vegetables.

An organic farming system is run in a holistic manner starting from the input to marketing by using an eco-friendly concept^{2,3,4}. Besides that running an organic farming system is very complex because this system involves farmers, agro industry, traders, researchers, and government⁵. Therefore, the most important factor in producing organic products is farmers. Consumers also find it important to help farmers produce environmentally friendly products that suit the needs of consumers⁶.

The factors such as cultural, social and psychological influence consumer decision-making^{7,8}. Psychological factors starting from need recognition, information search, evaluation of alternatives, purchase, and post purchase behavior. Cultural factor consists of culture, sub-culture, and social class, and social factor is composed of reference group, family, status and social role. Individual factor ranges from age, occupation, economic condition, lifestyle, personality, and other concepts of self-identity. Psychological factor includes motivation, perception, learning process, confidence and attitude. From those factors, consumers’ tendency to purchase organic

vegetables is caused by social and economic factors, health factor, physical factor of organic vegetables, and packaging information. Consumers' decision to buy organic vegetables is likely influenced by a number of reasons such as usefulness to health, vegetable quality, or simply imitating other people (trend). Motivation is an important factor in their decision to buy organic vegetables. Consumers may also have other buying motives. These motives are divided into priorities which vary from time to time depending on consumers' needs and information they gain.

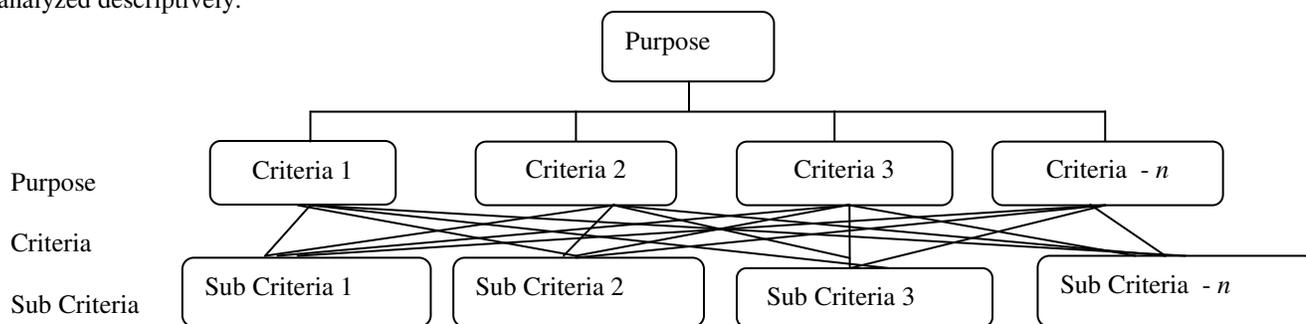
Material and Methods

The method used in this study is survey involving a random sample of 35 mothers with varied levels of education and income and they are from Cibeuying Kidul District. The study was conducted from April to May 2012 in Bandung West Java. Data was obtained from mothers in Focus Group Discussion to determine the criteria and sub-criteria that play a role in any consideration of their purchase of the organic vegetables. The focus group discussion showed a lot of criteria which were then divided into four criteria along with other sub-criteria. Later, an AHP based on the problem and questionnaire divided into two sections were made. The first section is related to the level of priority between two factors of the criteria, and the second one deals with finding out the priority between two factors of the sub-criteria. The data from the interview are tabulated, than the data was analyzed. Meanwhile, the data concerning the most preferred organic vegetables and respondents' expectation are analyzed descriptively.

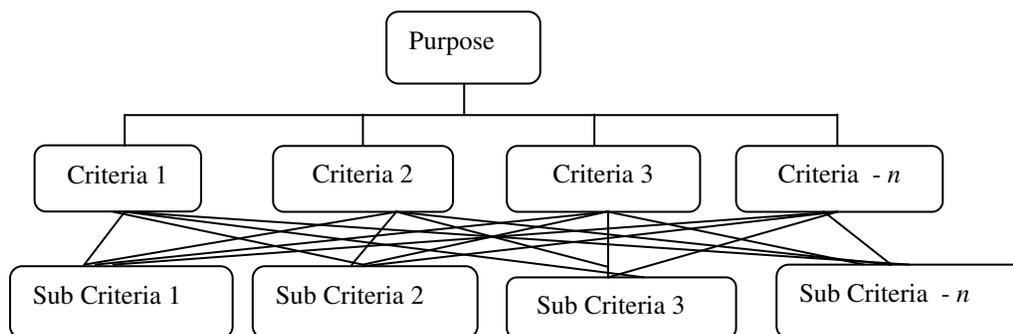
In using *Analytic Hierarchy Process (AHP)* there are basic principles that must be understood which are as follows i. decomposition is the process of starts from hierarchical structure or network from the problem investigated. AHP contains main purposes criteria, and sub-criteria. Figure-1 Shows the hierarchical structure of consumers' decision in buying organic vegetables and fixed factors based on the previous literature. After decomposition, continue to ii. comparative judgement; iii. Synthesis of priority and iv. Logical consistency.

Results and Discussion

Respondent Characteristics: All of the respondents are mothers and their reason for buying organic vegetables is for their family consumption. The average ages of the respondents are below 30 (17.15%), 31 – 35 (31.43%), 36-40 (22.85%) and over 40 (28.57%). The finding is in accordance with saying that the age group of 35 –45 consumed most organic vegetables⁹. Therefore, the younger age group was found to be below average. The average education of the respondents is junior high school (14, 28%), senior high school (57.15%) college (28.57%). Several research findings reveal that organic vegetables are consumed mostly by those with higher education with various reasons⁹⁻¹¹. The average income the families earn less than 4 million (14.28%), 4-6 million (22.86%) and above 6 million (62.85%). The average children the families have 2 children (51.42%), 3–4 children (45.72%), more than 4 (2.86 %).



**Figure -1
 Problem Decomposition**



**Figure-2
 Consumer's Decision in Purchasing Organic Vegetables**

Table-1
Weight within Criteria

Criteria	Social and Economic	Health	Physical condition	Packaging Information	Weight	Priority
Social Economic	1	5	1/2	4	0.3605	2
Health	1/5	1	1/4	1/3	0.4011	1
Physical condition	2	4	1	2	0.0727	4
Information	1/4	3	1/2	1	0.1654	3

CI = 0.0897 CR = 0.0097

Consumers’ Consideration Factors in Deciding to Purchase Organic vegetables: The hierarchical structure of the problem that looks at consumers’ decision to purchase organic vegetables is shown in figure-2. After the hierarchy is arranged, the next step is to make comparisons between elements with respect to the influence of the elements on the level above them. Figure -2 Consumers’ Decision in Purchasing Organic vegetables.

Next, weighting and priority calculation is according to AHP method, and Eigen value calculation (CR) is done to see the consistency of respondents’ evaluation. If CR is < 0.100, this means that the respondents’ evaluation is consistent, and if CR is > 0.100 this means that the respondents’ evaluation is not consistent¹². The first level of hierarchy with the aim of consumer decision-making in the purchase of organic vegetables are influenced by four factors; namely, social and economic factor, physical factor of the organic vegetables, health factor, and packaging information. From the AHP calculation in table-1, consumer decision-making in the purchase of vegetables is mostly dominated by health factor (0.4011), followed by social and economic factors (0.3605), information in the packaging (0.1654) and physical condition of the organic vegetables (0.0727)

This can be understood because consumers generally buy organic vegetables for health reason. The second hierarchy, social and economic reasons, indicates that organic vegetables are relatively expensive compared to ordinary vegetables^{13,14}. Packaging attribute is another factor which provides consumers with vitamin and chemical content, weight and supplier. The physical condition of vegetables is not important for consumers since they are aware that in organic farming not all vegetable pests can be eradicated.

For the weighted sub-criteria, calculation similar to that of the criteria is made. Therefore, social and economic sub-criteria such as income weight (0.4000), lifestyle (0.4000), and price (0.2000) are found. Income weight and lifestyle are the same because purchasing organic vegetables has become a trend and prestige among middle to high society. The consumption of organic products has spread worldwide and the demand is increasing¹⁵. This can be seen from the increasing demand of organic products in supermarkets in Germany¹⁶. The other research shows people’s willingness to pay for organic vegetables ranges from 32% to 50% higher than inorganic vegetables¹⁷.

Health sub-criteria are first dominated by dietary reason (0.5000) followed by vegetarian reason (0.2500) and environmentally friendly product (0.2500). Some studies do not directly state that consumers choose organic products for dietary reason even though it related to health. Generally consumers choose organic vegetables for health reason^{18,19,20}. Vegetarian and eco-friendly reasons have the same value because consumers think that these two reason are equally important. This is in line with another research saying that a person’s behavior to live a healthy life is based on eco-friendly products and tendency to consume organic products^{10,18,20}.

Physical condition of organic vegetables as sub-criteria puts most emphasis on chemical content (0.5122), appearance (0.3603) and type of vegetable (0.1274). Chemical content both fertilizer and pesticide are an important factor for consumers to consider when purchasing organic vegetables without paying attention to the appearance of vegetables. Consumers say that organic vegetables are crunchy and taste sweet compared to conventional ones²¹. Although consumers admit that it is difficult to differentiate the taste of organic and conventional vegetables. Types of vegetables become consumers’ last alternative because one organic vegetable can be substituted by other organic vegetables.

Information in the packaging as sub-criteria puts most weight on the organic label (0.5392), followed by trademark (0.0297) and information of weight (0.0163). Several studies reveal that organic labels are very important for consumers to convince them that the products they buy are genuinely organic. All organic vegetables have to have a logo ‘Organic Indonesia’ which has green color, but it costs a lot of money to obtain this organic certification; as a result, the vegetables in the market are simply labeled free from pesticide or free from chemical fertilizer or free from both. Trademark is also important for consumers because they are usually familiar with the trademark of the products they have been purchasing. Weight of vegetables is not too important for consumers as they can easily estimate it. Other research reveals that eco-label is quite effective to motivate consumers in buying organic products which results in increased market share. Eco-label has had positive response from consumers who are aware of environmentally friendly products, particularly in developing countries²²⁻²⁵. Woman and younger age groups also respond to this.

Table-2
Partial Weight from Each Sub Criteria

Criteria	Weight	Priority	Criteria	Weight	Priority
Income	0.1442	2	Diet	0.2005	1
Lifestyle	0.1442	2	Vegetarian	0.1002	3
Price	0.0721	5	Ecofriendly product	0.1002	3
Type of vegetable	0.0092	10	Trademark	0.0492	6
Physical appearance	0.0262	9	Weight information	0.0270	8
Chemical content	0.0372	7	Organic label	0.0891	4

Table-2 shows consumer decision-making in purchasing organic vegetables from the highest to the lowest. The highest is dietary factor, followed by lifestyle, income, vegetarian, eco-friendly product, organic label, price, trademark, chemical content, weight information, physical appearance of vegetables and type of vegetable.

Most preferred Organic Vegetables and Purchase Frequency: Types of organic vegetables are limited including cabbage, bokchoy, caisim, lettuce, water spinach, spinach, celery, spring onion, carrot, green bean, and tomato. The existing organic vegetables are just free from pesticide, chemicals, or both. Organic vegetables are not that simple, but should follow the principles of organic farming which is oriented towards health, ecology, justice and protection². The following are vegetables according to the respondents' preference – spinach and water spinach (8.59 %), tomato (22.85%) and lettuce (20 %). Other vegetables are carrot (34.27%) and green bean (14.29%). Organic carrot and tomato are most liked because these vegetables are often used for juice, but lettuce is mostly used for salad.

Purchase frequency or repurchase decision starts from need recognition, purchase intention, purchase and outcome without involving information search. Average purchase of organic vegetables includes less than 10 times (65.71%), 10 – 20 times (20%) and daily (14.28%). Average money spent on organic vegetables is from Rp. 25.000 to Rp.50.000 for every purchase. Therefore, if purchase is done every week, the money spent on organic vegetables is between Rp.187. 500. 000 and Rp. 375.000.000 per month or around 4.86 % of the family income if a family earns around Rp. 8.000.000. The market segment of organic vegetables is from the middle to upper classes because organic vegetables are more expensive than conventional vegetables. Income has a positive correlation with the purchase of organic products⁹, however, some studies reveal the opposite which says that income does not influence the purchase of organic vegetables^{10,26}.

The purchase frequency of organic vegetables is influenced by income level education and intention of purchasing organic vegetables. In Nigeria reveals that consumers are willing to pay more for organic vegetables such as cucumber (23 %) and Ugwu (fluted pumpkin), for health and good quality reasons¹³. Other finding say that high price of organic vegetables are

caused by additional costs such as risk of failure, upkeep, cost of change, cost of usage, cost of search, and cost monitoring¹⁴.

Consumer Expectation of Organic Vegetables: Organic vegetables in the market do not satisfy consumers because they still doubt if the vegetables are genuinely organic. The packaging simply reads free from chemical fertilizer, free from inorganic pesticide, or free from both. Also there is no label 'organic Indonesia'. Therefore, consumers expect that organic vegetables should be given an eco-label with "organic Indonesia logo on the packaging (37.14%), easily obtained (20%), product information in the packaging (27.71%) and affordable price (17.15%). Field research result is in line with that of the previous studies which reveal that farmers involved in organic farming have not followed the rules and regulations²⁷. From the other side, quality and product safety are important in addition to convenience in shopping¹⁷.

Conclusion

Consumer decision in purchasing organic vegetables is done in stages starting from health factor, socio-economic situation, the information in the packaging, and the physical appearance of organic vegetables. Therefore, producers of organic vegetables need to consider these factors in their marketing strategy. The most preferred organic vegetables are carrot and tomato because these vegetables are widely used for juice, while lettuce is used for salad. What consumers expect most is that there should be an eco-label 'Organic Indonesia'. The government is also expected to supervise food safety implementation for example by regulating organic logos on products so that consumers are sure that the vegetables they consume are organically cultivated. Consumers are also willing to pay higher which will result in the better welfare of the farmers.

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