

EXPLORATION OF FOOD GREEN PRODUCT INDICATORS IN INDONESIA: STUDIES ON RESPONDENTS HAVING USED FOOD GREEN PRODUCTS

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Abstract: The need for green products or green products is increasing, including food products. Along with the existence of global warming which results in vigilance for humans. The existence of green products currently still creates a paradigm confusion for the consensus. Consumer distrust, low knowledge, past experience, fluctuating income, cause confusion for consumers to consume green products. This research aims to find out how far the respondents of green product users are towards their perception of green products themselves. This research aims to find out how far the respondents of green product users are towards their perception of green products themselves. This research is an action research that explores the attitudes or perceptions of respondents who have used green products. Sample uses accidental sampling for 600 respondents in 6 provinces on Java island, namely Banten, DKI Jakarta, West Java, Central Java, East Java, and DI Yogyakarta. The analytical tool used is structural equation modeling with AMOS. All of the indicator of the green product are significant, except quality to has a tastier taste, green product to environment product, and green product to label of product, but the other indicators show that has significant, they are green product to safety, green product to price, green product to quality, green product to past experience, green product to healthy, safety to safer for animal, safety to free from added chemical substances, safety to free from genetic engineering, price to price according to the quality obtained, price to prices are more expensive than conventional foods, quality to have a higher level of freshness, environment product to better for environmental sustainability, past experience to rely on past experience rather than information about labels, health to maintain and increase endurance, health to has more nutritional content, label product to easy to read, and label product to accurate label. This indicates that the respondents did choose green products because of the needs of those who are aware of products that are healthy and environmentally friendly.

Keyword: Green product, Price, Label of Product, Environmental Product.

1. Introduction

In recent years, the consumption of organic food has been increasing, and experts in the field are foreseeing a greater growth in the next few years. The rise of the market for natural and

organic products follows a global trend of an increasing demand through greater offers for health and well-being; moreover, there is a widespread concern about the usage of chemicals and pesticides, which may have consequences to health and natural ecosystem (Golijan & Dimitrijević, 2018). On the other hand, in various studies that demographic variables such as age, income and education have been defined by organic consumers but the correlation is not too significant (weak). Premium price as an indicator of organic food consumption barrier. Securing domestic organic food supplies is the key to reducing the price gap. There is public trust promoted by the organic food industry, that organic food ingredients are safer, more nutritious, and have a better taste than conventional food ingredients. The psychological effects associated with the choice and consumption of organic foods, and may be like a religious experience for some people, are also motivating factors for buying organic food (Robert, 2012). An example of the psychological effect of halo on organic food was demonstrated by a study published in 2010 (Schuldt & Schwarz, 2010). The results of the study show that university students believe organic cakes have lower calories than conventional cakes. This effect was observed even though nutritional labels were given and showed the same identical calorie content. This effect is more visible to participants who support organic food ingredients in a strong manner and have a high concern for environmental problems. The perception that organic food is a lower-calorie or healthier food ingredient looks common in the community. The determinants of increasing the level of consumption of organic foods such as motivation, behavior, beliefs and demographic variables are important, but in understanding the potential of the organic market in order to keep growth increasing and truly becoming a mainstream market is more important. Emotional factors such as uncertainly, fear, worries, regarding consequences of the risk are external factors that can affect available information on risk. Meanwhile cognitive aspects are also important in influencing that information such as meaning, memories, generalization. The indicator makes evaluating the need for consumers to define risk perception.

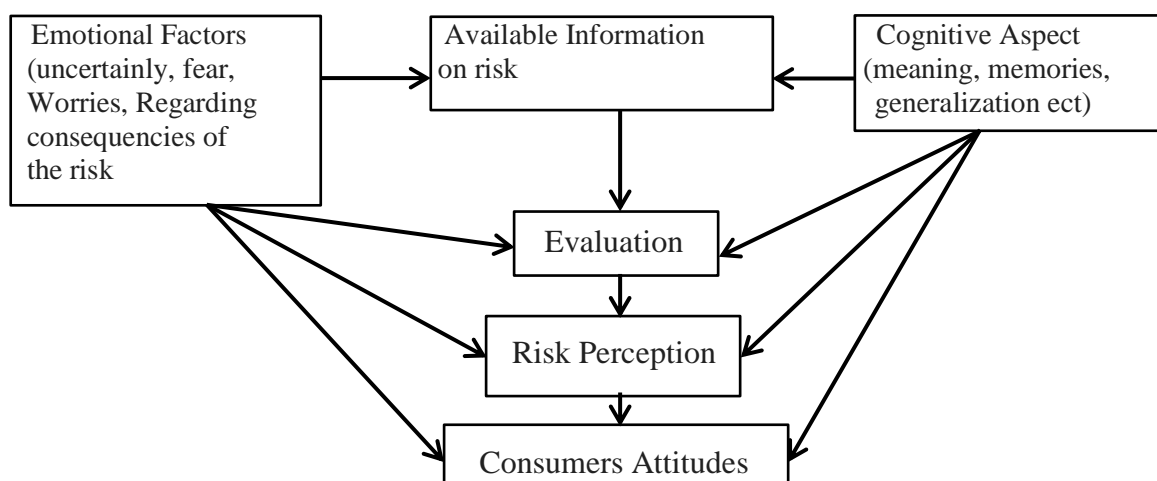


Figure 1. Model for consumers attitudes (Magkos et al., 2006)

The process of purchasing organic food is finally important to know to detect consumer behavior so that producers will be able to carry out strategies that consumers can adopt. Exogenous factors in the form of a market environment, public legal standards, private control, and food quality and safety levels are important in influencing product related factors

and consumer related factors. Product characteristics, perceived attributes, values and attitudes, social demographic become variables in determining consumer preferences in making decisions about purchasing organic products.

Organic products in scientific articles are often also called green products on a broad scale, meaning the definition can be used as a reference in that organic food is also part of green products.

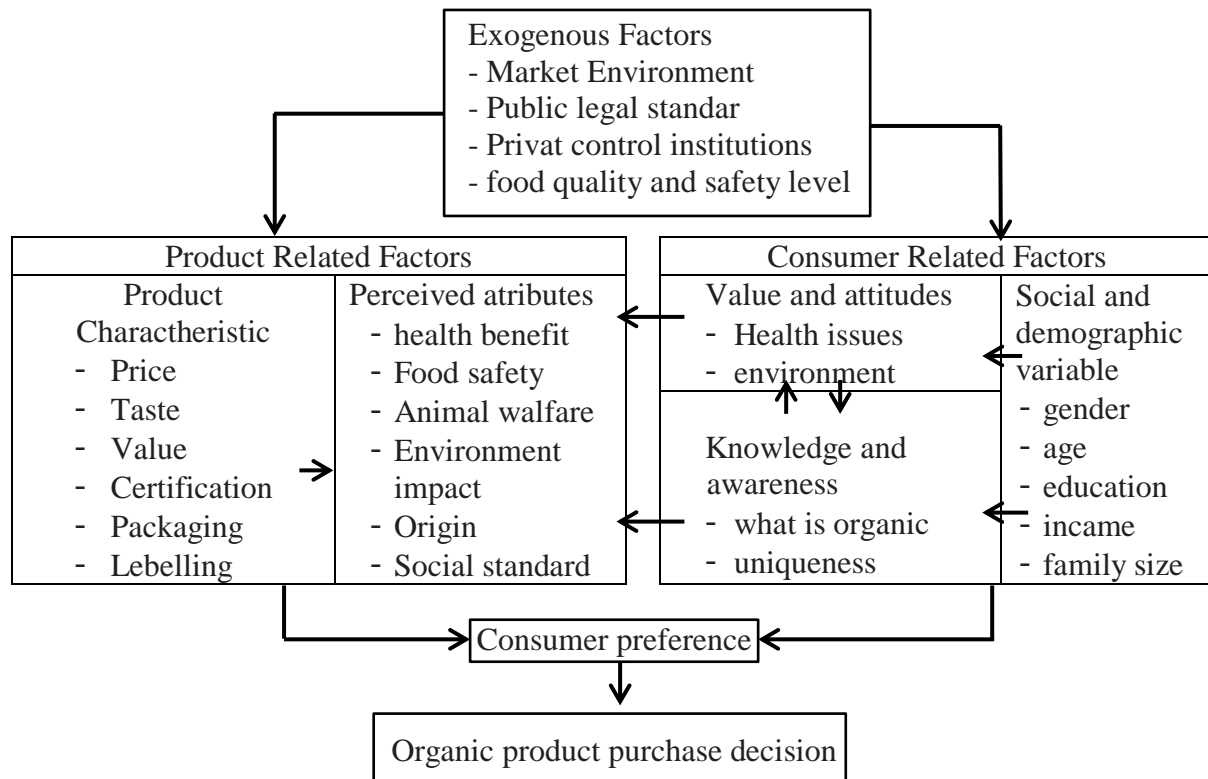


Figure 2. Flowchart showing organic product purchase decision (Mat, 2011)

Badan Standarisasi National indonesia (BNSI) sets national standards for the term "organic". Organic is a labeling term that states that a product has been produced in accordance with the standards of an organic farming system and is certified by an accredited Organic Certification Agency.

Organic is a food that is developed with special methods. There are organic vegetables, organic fruit, even organic meat. What is meant by organic plants (vegetables and fruit) are plants that are developed on land that are clean of chemical elements and do not contain pesticides. The land must be declared chemical free for 5 years before being used as land for organic plants. Similarly, organic meat (such as chicken and beef), must come from chickens or cows that have never been injected with certain growth hormones. And even these livestock are only allowed to consume natural foods (worms, seeds, and grass) and water that is free of pesticides (Zaller et al., 2016). This belief has triggered an increase in demand for organic food even though it has more expensive prices and a lack of scientific evidence (Mie et al., 2017). For this reason, this study will explore and increase the variety of research in the field of food green products.

2. Theory and Hypothesis Development

Most consumers emphasize the quality aspects of traditional foods such as freshness and taste (Wijaya, 2019). Fruit and vegetables, for example, freshness is generally an important criterion to look for, consumers in Thailand are more likely to buy organic fruits and vegetables if they meet these criteria (Pattweekongka et al., 2019). Quality is good, but it does not have well-defined attributes because it consists of many other ingredients such as sensory attributes (appearance, texture, taste and aroma), nutritional value, safety determinants, chemical content, mechanical properties, functional properties and defects (Shafie & Rennie, 2012a). Sensory analysis is the main thing for consumers in determining their choices because microbial and toxicological safety and nutritional value do not look visible (Simeone & Marotta, 2010). Taste will continue to be a major consideration in consumer food selection, especially after the experience of consuming food (Shafie & Rennie, 2012b). Although sensory evaluation of organic food tastes better than conventional food, it produces inconsistent research results (Fillion & Arazi, 2002), many buyers believe that organic food tastes better (Roitner-Schobesberger et al., 2008).

2.1. Health

It must be recognized that there is an increase in the consumption of organic food because of the diffusion of environmental awareness and concerns about the environment, and quality of life, because these products are seen as a fundamental component of healthy, sustainable and better quality (Joshi & Rahman, 2015). The study by Padel & Foster, (2005) identified that healthy food tends to be consumed as one of the main reasons why consumers choose organic food. Therefore, health is considered as one of the main reasons for buying organic food (Curvelo et al., 2019). Thus, the first research hypothesis is as follows:

H1: Health positively affects the consumption of organic food

2.2. Quality

Perception of product quality can be associated with intrinsic and extrinsic (Espejel et al., 2007). Intrinsic is closely related to the physical nature of the product, while extrinsics are outside the product and the externality part of the product quality. It is important to emphasize that quality issues related to expectations before buying, and post-purchase are all based on the assumption that consumers cannot verify their own quality, but must believe other people's judgment in solving problems such as food free of pesticides and high nutritional value (Saitone & Sexton, 2010). In the De Toni et al., (2017) the intrinsic quality of organic products correlates strongly with appearance and freshness, and is associated with indications of packaging or the use of "green seals" provided by credible institutions is an important factor increasing the perception of food quality. Thus, the second research hypothesis is as follows:

H2: Quality positively influences consumption of organic food

2.3. Price

Organic foods are usually valued at 20-30% higher than conventional foods. This premium is very important for consumers whose income is enough to feed their families (Chandrashekar, 2014). The suitability of the selling price is always compared to the evaluation carried out by the buyer. This also refers to the comparison between prices evaluated at market standard prices, making it possible to identify the balance, profits and losses felt by consumers (De Toni et al., 2017). The perception of more expensive organic products seems to be an obstacle in carrying out purchase intentions (Curvelo et al., 2019).

However, when organic food consumers compare the prices of these products with conventional products and identify higher benefits and percentage prices, they continue to purchase organic food (Rödiger & Hamm, 2015). Thus, the third research hypothesis is as follows:

H3: Prices positively affect the consumption of organic foods

2.4. Label

Concern about global climate change raises new interest in the value of ecolabel efforts to help achieve a sustainable lifestyle (Ibanez, 2016). Companies using certification and ecolabelling for various reasons, (Fuerst & McAllister, 2011) argue that ecolabelling helps companies improve their competitive position, improve reputation, access new markets, increase market share and offer other economic benefits. On the other hand, not all ecolabels are successful, companies still have to focus on delivering the right message, namely that their products are environmentally friendly, so it can be said with certainty that ecolabel is a valuable tool for companies to help communicate their efforts to customers and differentiate what they offer from other available products (Horne, 2009).

Thus, the fourth research hypothesis is as follows:

H4: Labels positively affect the consumption of organic food

2.5. Environmental

Environmental awareness or consumption describes the acquisition phase, which shows consumers' preferences for products, services, companies and policies that are environmentally friendly (P. Govender & L. Govender, 2016). This aspect is supported by the attitude of individual mobilization relating to environmental care and consumption practices. In addition, it has also been observed that health conscious consumers prefer products that show environmental awareness and emphasize waste reduction and recycling, so consumers seek benefits at the time of purchase (Onditi, 2016). Thus, the fifth research hypothesis is as follows:

H5: Environmental awareness positively influences consumption of organic food

2.6. Product safety

Demand for organic food continues to increase due to consumer perceptions that organic food is healthier and safer than conventional food (Magkos et al., 2006). The importance of information relating to food safety to consumers about the health benefits and / or dangers of organic food products, to optimize the impact on health and minimize risks. Consumers also have higher hopes for the benefits of organic food for the environment, animal welfare, worker safety and security, nutrition, and health benefits (Hughner et al., 2007).

Thus, the sixth research hypothesis is as follows:

H6: Products safety positively affect the consumption of organic foods

2.7. Past experience

Regardless of the claims made by marketers about the safety of the product's environment and the quality contained in the label, customers can rely on their past experience in buying and using organic food (Lian, 2017). Considering that the information provided on product labels may not always be clear and may even be confusing to customers (Grunert et al., 2014). The experience of consumers themselves with organic food may be

very important in shaping perceptions in particular of organic food which will lead to the intention of buying in the future. Thus, the seventh research hypothesis is as follows:

H7: Past experience has a positive effect on consumption of organic food

3. Research methods

This study uses accidental sampling of 600 respondents who use organic food products in 6 provinces in Indonesia, namely DKI Jakarta, Banten, West Java, East Java, DI. Yogyakarta and Central Java.

The analytical tool used is Structural Equation Modeling (SEM), using the simantec scale 1 (low) to 5 (high), with its mathematical function:

$$Y_1 = a + b_1S + b_2P + b_3Q + b_4PE + b_5H + b_6L + e \quad (1)$$

$$Y_2(S) = a + b_1KeP1 + b_2KeP2 + b_3KeP3 + e \quad (2)$$

$$Y_3(P) = a + b_1HP1 + b_2HP2 + e \quad (3)$$

$$Y_4(Q) = a + b_1KP1 + b_2KP2 + e \quad (4)$$

$$Y_5(E) = a + b_1PR1 + e \quad (5)$$

$$Y_6(PE) = a + b_1PM1 + e \quad (6)$$

$$Y_7(K) = a + b_1K1 + b_2K2 + e \quad (7)$$

$$Y_8(L) = a + b_1LP1 + b_2LP2 + e \quad (8)$$

The research by Convirmatory Factor Analysis (CFA) and hypothesis estimation models built using SEM are:

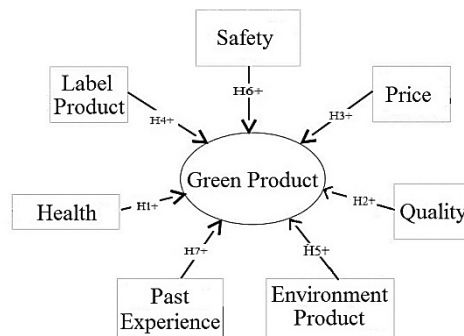


Figure 3. Model research

4. Result and Discussion

4.1. Result

The results of this study were conducted from March to August 2018. Obtained demographic results of respondents with sample (n) 600 respondents the results are listed as in Table 1.

Table 1. Demographic Characteristics of Respondents (n = 600)

Atribute	Level	Jumlah	%
Gender	Male	386	64,33
	Female	214	35,67
Age	16-18	14	2,33
	19-24	46	7,67
	25-35	101	16,83
	36-50	148	24,67
	51-65	291	48,50
Statues	Married	408	68

	Single	192	32
Job classification	Government employees	142	23,67
	Private employees	98	16,33
	Student	84	14
	Entrepreneurship	199	33,17
	Pension	77	12,83
Education	Primary school	0	0
	Junior high school	73	12,17
	Senior High School	81	13,50
	Diploma	136	22,67
	Bachelor	214	35,67
	Postgraduate	96	16
Salary	< 1 million rupiahs	29	4,83
	1 – 2 million rupiahs	137	22,83
	2 – 3 million rupiahs	119	19,83
	3 – 4 million rupiahs	226	37,67
	> 5 million rupiahs	89	14,83

Description of Respondent's Perception of Organic Food

Measurement of this indicator of respondents' perceptions in this study was adopted from (Bruschi et al., 2015). The results show that the anchor deviation is close to the mean so the distribution is a normal distribution. Complete in Table 2.

Table 2. Respondent Answers Distribution

Variabel	Indikator	Mean	Sd
Health (K)	Maintain and increase endurance (K1)	4.47	0.51
	Has more nutrition (K2)	4.35	0.61
Quality (KP)	Have a tastier taste (KP1)	2.71	0.85
	Has a higher level of freshness (KP2)	4.12	0.70
Price (HP)	Price according to the quality obtained (HP1)	3.94	0.66
	Prices are more expensive than conventional foods (HP2)	2.06	0.75
Label (LP)	Easy to read (LP1)	2.94	0.66
	Accurate label (LP2)	3.18	0.88
Environmental (PR)	Better for environmental sustainability (PR1)	4.76	0.44
Safety (KeP)	Safer for animal safety (KeP1)	3.88	0.78
	Free from added chemical substances (KeP2)	4.53	0.51
	Free from genetic engineering (KeP3)	4.59	0.51
Past experience (PM)	Rely on past experience rather than information about labels (PM1)	4.35	0.61

Structural Equation Modeling

Based on the criteria adopted from (Ferdinand, 2006), it can be concluded that the results of the analysis using structural equation modeling (SEM) results are very good, except for CMIN / DF where the signal is ≤ 0.30 but the SEM output is 0.385, but the position this is still in the marginal range because it approaches the prerequisites. Complete in Table 3.

Table 3. Goodness of Fit Index

Goodness of Fit Index	Terms *	Result	Remark
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Probability	$\geq 0,05$	0,467	Good
X ² statistic	Approaching 0	84,51	Good
RMSEA	$\leq 0,08$	0,08	Good
GFI	$\geq 0,90$	0,98	Good
CMIN/DF	$\leq 0,30$	0,325	Marginal
TLI	$\geq 0,90$	0,981	Good
CFI	$\geq 0,90$	0,993	Good

* The measurement of the Goodness of Fit is based on (Ferdinand, 2006)

SEM with the help of the AMOS application program is used to analyze relationships between latent variables. SEM can also estimate the path values of each variable relationship (Kline, 2016). By using SEM analysis, all hypotheses in this study can be tested with path analysis. Each hypothesis can be tested by comparing using student t, then $t\text{-student} > t\text{-table}$, it can also compare the value of the critical ratio (CR) and the t-table value for a particular degree of freedom (df). If the CR value is greater than the t-table value in certain df, the construct relationship tested can be stated significantly at a certain probability level, which is < 0.05 . But within the limits of social science it still tolerates hypotheses that are significant at the level of 0.10 (Sekaran & Roger, 2016). According to (Ferdinand, 2006) the general rule commonly used is if the CR is absolute 2.0 then the hypothesis is supported or not rejected.

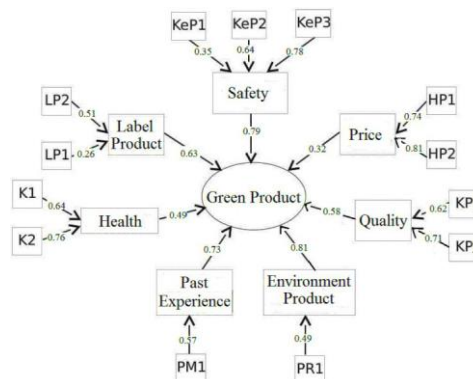


Figure 4. Structural equation modeling of green product

Table 4. Student t-test results

No.	Structural Relations	<i>t-value</i>	Remark
1	Green Product → Safety (S)	2.864**	Supported
2	Green Product → Price (P)	3.266*	Supported
3	Green Product → Quality (Q)	2.342**	Supported
4	Green Product → Environment (E)	1.576	Not
5	Green Product → Past Experience (PE)	3.251*	Supported
6	Green Product → Healthy (H)	2.872**	Supported
7	Green Product → Label (L)	1.692	Not
8	Safety ← KeP1	2.611*	Supported
9	Safety ← KeP2	2.005***	Supported
10	Safety ← KeP3	2.421**	Supported
11	Price ← HP1	-2.648**	Supported
12	Price ← HP2	-4.732*	Supported
13	Quality ← KP1	1.314	Not

14	Quality <KP2	2.352**	Supported
15	Environment <PR1	3.630*	Supported
16	Past Experience <PM1	4.259*	Supported
17	Health < K1	3.625*	Supported
18	Health < K2	2.684**	Supported
19	Label < LP1	2.249**	Supported
20	Label < LP2	2.135**	Supported

Information:

*p < 0.01; **p < 0.05; ***p < 0.1

4.2. Discussion

Business failure is an important problem for companies in the 21st century, and green business is becoming a global concern as a way out to solve these business problems (Cui et al., 2019). Companies that are pioneering a green innovation strategy can achieve and maintain a competitive advantage to achieve green innovation performance (Saputra, 2013), and this will help companies achieve greater efficiency and build and strengthen their core competencies. (Albort-Morant et al., 2016). At the consumer level, green products as part of innovation, especially organic food towards health, support the research statement (Yenipazarli & Vakharia, 2017) which states that eco-friendly products create higher environmental benefits while providing economic returns to consumers and companies alike. although the factor of higher price, lower quality, or reduced performance, is the contractionary force of green products (Olson, 2013). However, respondents in general in this study appreciated that green products, especially organic food, were able to maintain and increase endurance, and were believed to contain more nutrients than conventional products. This is traced to the results of research which states that the quality of green products, especially organic food, has a higher freshness, and is believed to be able to provide environmental sustainability without genetic engineering, chemical content for human and animal safety. Public health impacts will have an impact on sustainability, and evaluation will encourage consumer purchasing preferences for green products (Cho & Baskin, 2018). Environmental awareness will create a Green self identity that has a positive impact on perceived values, which leads to higher behavioral intentions (Confente et al., 2020). Environmental awareness will create a Green self identity that has a positive impact on perceived values, which leads to higher behavioral intentions (Delgado-Verde et al., 2014), all of that in order to create a perceived consumer effectiveness (PCE) which has a positive effect on environmental attitudes which results in a pro-environmental commitment (Cho et al., 2013).

What is interesting in this study is that the amygdala in the form of past experiences such as illness is a strong perception when compared to the product label printed on the product packaging. People who want to be healthy, tend to return to the stage of purchasing environmentally friendly products. The amygdala varies in each emotional experience in both healthy and mood-impaired populations, which suggests its central role in emotional phenomenology (Anderson, 2007), it will provide a person's emotional experiences and perceptions to change the situation (Brooks et al., 2017). It means that past experiences are needed to anticipate future events (Jończyk et al., 2019). So it is important past experiences in shaping future affective reactivity (Pichon et al., 2015).

The next discussion regarding the insignificant product label indicator means that respondents need to be given a more complete explanation of green product knowledge,

because even though it is healthy, sufficient knowledge is needed to consume green products, especially environmentally friendly organic food. According to Gerke & Janssen, (2017) labels must be made more attractive, clear, and have a product certification so that buyers are interested in reading the labels on the product packaging. It is important for companies that consumers participate in promoting environmentally friendly products in order to reduce pressure from large producers from abroad (Chen & Liu, 2020), and do not let consumers become skeptical, because consumers who are skeptical of labels are more difficult to persuade (Cho & Taylor, 2020). Green advertising campaigns should emphasize not only environmental stewardship and utilitarian benefits, but also psychological brand benefits. (P. Hartmann & Apaolaza-Ibáñez, 2012). Green advertising campaigns should emphasize not only environmental stewardship and utilitarian benefits, but also psychological brand benefits. (Elgaaied-Gambier et al., 2018), because emotional, conditional and social values will create an accelerated purchase of eco-friendly products (Gonçalves et al., 2016)

It is also interesting that respondents do not believe in the sustainable development of green products, especially organic food, towards environmental sustainability. Knowledge management may be required at certain phases such as during promotion, it is necessary to explain the process from input to output management to green products, so that customers are aware and care about environmental protection, and buying environmentally friendly products is not the result of new economic trends and education (Tsai et al., 2012). To overcome the lack of trust from consumers, companies that tend to be pro-active in producing green products must be supported by market freedom, laws, active government, non-government organizations, and freedom of the press. (J. Hartmann & Uhlenbruck, 2015).

5. Conclusion

Safety, price, and quality, past experience, and health, affect the food green product, except the environment, and the label, does not directly affect the food green product. Meanwhile animal safety, additives, and genetic engineering influence the perception of safety products. Price conformity, and significant premium prices on the price of a food green product. The freshness of food green products affects consumer perceptions, while delicious flavors are not significant. Perception of past experience compared to the label printed on the product is also significant. Increasing endurance, and a lot of nutritional content, affect consumer perceptions of health on a food green product. Easy to read, and label accuracy affects the perception of labels for consumers.

Recommendation

First, the results of the research show that the environment and labels have no effect on the food green product, so information from research results contained in the label of food green products is needed, and grammar is easier to understand for consumers. Second, the results of the research show that delicious taste does not affect the food green product, it is necessary to innovate a food green product in creating a variety of flavors.

Research Limitations And Future Research Suggestions

This study has not discussed the demand effect. Even though the demand effect is the basis in determining the formation of supply effects. Producers need to create products that are tailored to the needs of consumers, so that product strategies both differentiation and cost leadership can be grand strategies to improve company performance. This research needs to

be followed up with supply effects in various dimensions, so that green products, especially organic food, are more complete as a reference for knowledge for consumers.

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