

Article

What Are South Korean Consumers' Concerns When Buying Eco-Friendly Agricultural Products?

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Abstract: This study aimed to analyze how perceptions of eco-friendly agricultural products affect food choice criteria, based on a sample of 225 study participants (consumers) in Sejong City, South Korea. We focused on the following criteria: Health, food safety, environmental protection, trust, reputation, nutrition, and taste. We used factor analysis to classify responses into three types of consumer attitude: Organic-minded, pesticide-free focused, and local food-minded. Then, we applied a logit analysis to determine values of agricultural products (dependent variables) and consumer attitudes toward eco-friendly agricultural products (independent variables). We found that South Korean consumers were not motivated by health or environmental protection, nor were they substantially concerned about food safety; their utmost concern was the reputation of organic products. Pesticide-free focused and local food-minded consumers placed a higher value on nutrition and taste, respectively, likely because, in South Korea, organic agriculture is a component of eco-friendly agriculture, leading to the entanglement in consumer perceptions of organic and pesticide-free products. This paper discusses how phased development strategies of organic agriculture, including the eco-friendly agricultural policy, have failed. It is therefore needed to develop and implement new policies for South Korean eco-friendly agriculture.

Keywords: eco-friendly agricultural products; consumer attitudes; organic-minded consumers; consumer values; South Korea

1. Introduction

Organic agriculture in South Korea developed differently from that observed in many other countries worldwide. The South Korean government has actively promoted eco-friendly farming, including fostering organic agriculture, as part of its policy to strengthen the competitiveness of the local agricultural market. This strategy was implemented to counter the overload of the market with imported products due to the Uruguay Round Trade negotiations in the mid-1990s. These South Korean government initiatives have prompted a remarkable growth in eco-friendly agriculture [1,2]. Environment-friendly agriculture is defined as the pursuit of both environmental protection and agricultural product safety, with the goal of engaging in sustainable agricultural production [3].

In South Korea, eco-friendly agriculture has been subject to a phased development process. Farmers originally obtained organic certification by completing low-pesticide certification, then non-pesticide certification, and finally conversion-period certification. This process was intended to facilitate conversion from conventional to eco-friendly farming, and ultimately from eco-friendly to organic farming. However, consumer confusion about the various certification levels led to the conversion-period certification for organic products being eliminated in 2006 and low-pesticide certification being removed in 2015. This multi-faceted system of eco-friendly agricultural certification has confused producers and consumers alike about the differences between eco-friendly and organic

agricultural products. This is not only a problem in South Korea; Chinese consumers are similarly confused about the differences between products labeled ‘green’ and ‘organic’ [4].

Eco-friendly farming in South Korea grew rapidly from the beginning of the government’s active policy and practical support interventions. However, the number of participating farmers has significantly declined since the abolition of low-pesticide certification in 2015. Other issues have arisen, including the use of fake eco-friendly agriculture certifications that was publicly exposed in 2016, and the finding of South Korean eco-friendly certified eggs contaminated by insecticides in August 2017 [5]. Thus, in December 2017, the South Korean government announced food safety improvements focused on reinforcing eco-friendly agriculture certifications [6]. These problems have further weakened consumer confidence in eco-friendly farming and increased pressure on organic markets and farmers.

Challenging the South Korean market for eco-friendly agricultural products is also the concept of local food, itself a rapidly growing market. In the early 2000s, local food attracted great attention in South Korea and many other countries as an alternative market. At the regional level, local governments tried to differentiate between non-locally grown agricultural products and those grown locally.

The present study aimed to ascertain consumers’ awareness of eco-friendly agricultural products in Sejong Special Self-governing City (hereafter designated as Sejong), which has implemented various initiatives concerning eco-friendly agriculture. In 2012, Sejong was launched as a site for decentralization of the South Korean national government, involving the relocation of national government offices, government-run research institutes, and other public institutions. In response to the changing demographics, the local government implemented a local food campaign [7] to establish community connections between the original and new residents. In 2015, the first local food store in Sejong (Sing-sing Market) was founded, followed by a second branch in 2017. ‘Sing-sing’ means ‘freshness’ in South Korean. Around 200 farmers joined Sing-sing market in 2015; the number of participating farmers reached 320 in 2016, and around 1000 in December 2018. The cumulative sales reached 46 million USD in December 2018 [8].

We chose Sejong residents for our research for the following reasons: (1) They provided an opportunity to study the new markets developing from the establishment of the Special Self-governing City; (2) we could take advantage of the expansion of the consumer market developed by the increase in consumers moving from other cities; and (3) we could study an area where eco-friendly agriculture was being actively promoted locally. In our study, consumers in Sejong’s urban and rural areas were asked to describe their values related to buying eco-friendly agricultural products, under the above-mentioned conditions.

2. Literature Review and Theoretical Framework

2.1. Determinants for Consumption of Organic Agricultural Products

Many studies on organic or eco-friendly agricultural products have focused mainly on the determinants for consumption and aimed to identify consumer motivations in purchasing organic agricultural products [9–12]. Although much research has been undertaken, there remains an attitude-behavior gap in the organic food market, and the primary determinants of any given organic food purchase remain difficult to understand [13]. While this limitation still exists, many studies showed that product attributes affect product quality, value, and purchase intentions [14–16]. However, these studies focused on consumer attitudes toward eco-friendly agricultural products by exploring values used by consumers when choosing these products, revealing that such values affect consumers’ agricultural purchase intentions. Some studies have focused on data about consumer attitudes toward organic food, and have categorized consumers based on purchase proportion or purchase frequency: Those categories include heavy [16], high [17], and frequent consumers [18]. In particular, heavy consumers were strongly motivated to purchase organic food based on value perception [16,18]. On the other hand, there are some attempts to represent consumer behavior from a Giffen perspective in terms of not a traditional approach [19–21].

Other studies explored interactions between local food and organic agricultural products [22–25]. Local food is an alternative market, regarded by consumers as premium [26]. Zander and Hamm [27] showed that ‘regional production’ is one of the most important ethical attributes of organic food in consumer purchase decisions for consumers focused on emerging ethical values. On the other hand, and although both organically and locally produced foods are important in purchase situations [25], another case showed higher consumer preferences for locally produced than for organic products [24]. In addition, locality is increasing as a salient point for competitiveness in global organic food markets [23].

In the present study, we divided consumers into three types based on their attitudes toward eco-friendly agricultural products. The effect of these attitudes on consumers’ criteria when choosing eco-friendly agricultural products was also explored. We concluded that the relationship between consumer attitudes and purchasing decisions in South Korea differs from that found in other countries.

2.2. Theoretical Framework

Generally, seven values operate when consumers are choosing eco-friendly agricultural products: Health, food safety, environmental protection, trust, reputation, nutrition, and taste.

First, consumers select eco-friendly agricultural products because they perceive them as healthier than conventional agricultural products [13,28–42].

Second, demand for food safety is a major reason for selecting organic products [15,16,30,31,34,36,38,43–46], mainly as a reaction to food contamination scandals [47,48]. There are consumer concerns about food safety in developing Asian countries [49,50]. In other countries, third-party eco-friendly agricultural products inspire consumer trust, combining food safety with third-party certification of organic agricultural products [15]. In addition, the root causes of the organic agriculture movement lie in food safety concerns. In Japan, rapid economic growth in the 1970s brought serious pollution problems, which increased interest in agricultural products without excessive chemical contaminants, and led to the development of organic agriculture by TEIKEI (in Japan), a direct partnership between rural producers and urban consumers [51]. Food safety remains an important issue for Japanese organic agriculture.

Third, environmental protection is one of the original values underpinning organic agriculture. Multiple previous studies have discussed its importance in consumer selection of eco-friendly agricultural products [12,13,16,28,29,33,34,39,52–56]. Environmental protection involves issues such as “maximal use of local resources and recycling of organic material, avoidance of nitrogen leakage, and reduced use of fossil resources in transportation”, including, specifically, ethical values of “enhancing biological diversity” [28] (p. 208). These environmental and health issues are referred to as “reflection traits” [28].

Fourth, trust is an important value in product purchasing, particularly when purchasing organic products [15,33,57]. There are two types of trust concerning eco-friendly agricultural products: Trust in the products themselves, and trust in the certification system for the products, markets, and brands. In the former case, Stoltz et al. [33] focused on organic product-specific information. In the latter case, Ellison et al. [57] stressed the consumers’ positive attitude toward “organic labeled products to be more trustworthy” (p. 142). Lee and Hwang [16] and Zeithaml [14] also referred to the relationship between certification and quality as relevant. Additionally, some producers and marketing groups have participated in social justice activities, such as animal welfare and fair trade, to gain consumer trust.

Fifth, reputation is noteworthy when choosing agricultural and other commodities. Axelrod [58] mentions that “a reputation is typically established through observing the actions of that player when interacting with other players” (p. 150). Reputation conferred by a “brand name” and “level of advertising” affects quality perception, so “the consumer may prefer to use those cues” [14] (p. 12). In eco-friendly agricultural markets, this reputation is often also based on personal recommendations; in South Korea, such recommendations are often passed on via online communities of mothers. This kind of reputation is strongly related to trust in purchasing decisions.

Sixth, nutrition is a major criterion when measuring agricultural product quality and selecting products [59], and it is particularly important when choosing eco-friendly products [60,61]. Whether buying strawberries or biscuits, consumer perception of nutritional value based on organic labeling tends to promote organic purchases [34,57].

Seventh, taste is important in agricultural product choice [57,59,62]. Some researchers refer to it as a specific value of eco-friendly agricultural products [28,29,33,49,52,60,61,63–66]. Taste is a commonly considered food quality aspect, and it is an observation trait [28], or sensory quality [63]. Depending on product type, and based specifically on taste value, consumers are more likely to purchase healthy organic-labeled products than conventional products [57].

Therefore, we focused on these values when determining the criteria South Korean consumers use when selecting eco-friendly agricultural products, i.e., health, food safety, environmental protection, trust, reputation, nutrition, and taste. The purpose of our study was to analyze how South Korean consumer perception of these products affects the values they use in food choices (Figure 1).

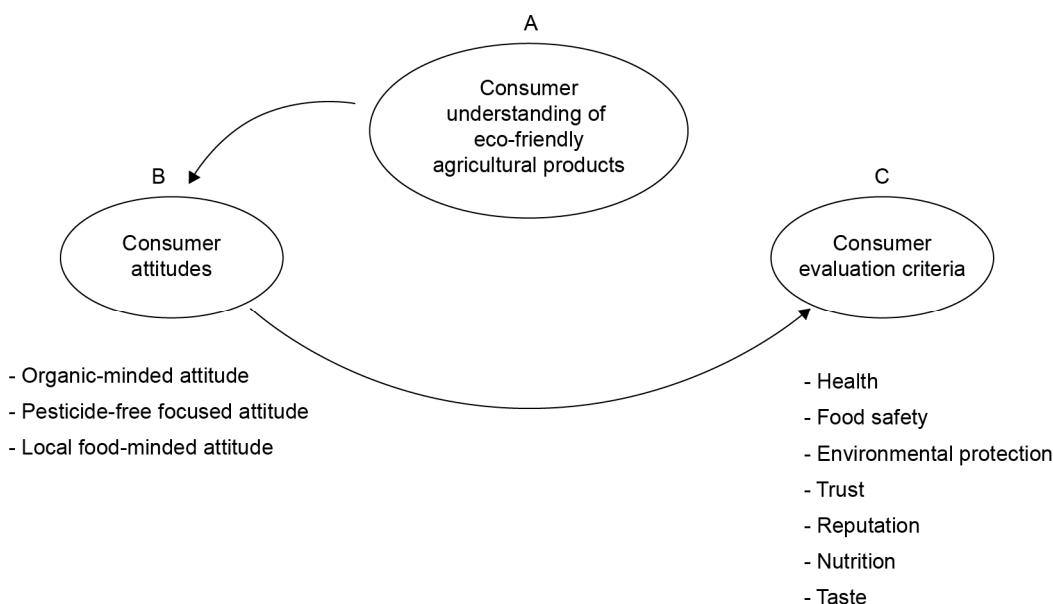


Figure 1. Theoretical framework depicting South Korean consumer perceptions of eco-friendly agricultural products, and attitudes underlying their criteria for purchasing food products.

3. Materials and Methods

Based on a questionnaire, we conducted a survey to collect data about consumer purchases of eco-friendly agricultural products in Sejong, South Korea. The survey period was from 4 to 11 October 2016; 330 participants, aged 20 years or older, were randomly selected from three urban regions and three rural regions of Sejong. Of 330 total respondents, 225 with experience in purchasing eco-friendly agricultural products were used in the analysis; the target recruitment number was based on a sample size calculated during the questionnaire. We employed a five-level Likert scale to measure consumer attitudes toward eco-friendly agricultural products, and a dummy variable (1 or 0) for consumer evaluation criteria using means and frequency in SAS (SAS Institute Inc., Cary, NC, USA). To determine how participants viewed eco-friendly agricultural products, we asked them about seven agricultural product categories: Seasonal, organic-certified, co-operative, pesticide-free certified, local food, non-certified pesticide-free, and locally certified eco-friendly products. The survey questions allowed for multiple responses.

We used two statistical methods in our analysis. Firstly, factor analysis was used to classify responses into three types of consumer attitudes. Next, a logit analysis was applied to determine agricultural product value as the dependent variable and the type of eco-friendly agricultural product purchased as the independent variable.

We assumed that these consumer attitudes would depend on their understanding of eco-friendly agricultural products, including organic products. Therefore, consumer understanding of these products was divided into three types (organic-minded, pesticide-free focused, and local food-minded), and we examined how consumer attitudes affected the criteria used in choosing products. Since this is a consumer-based survey, IRB approval is not required for submission. All subjects gave their informed consent for inclusion before they participated in the survey.

4. Results

4.1. Descriptive Statistics

The demographic and socioeconomic characteristics of study participants are described in Table 1. The mean age (\pm standard error of the mean) was 43.82 ± 11.13 years, and mean family size was 3.41 ± 0.91 . Of the 225 individuals used in the analysis, 124 (55.1%) were urban and 101 were rural residents in Sejong; 182 (80.9%) were married and 43 were unmarried; 114 (50.7%) had children under 18 years and 111 had no children; 97 (43.1%) were office workers and 128 non-office workers; most were university graduates (129; 57.3%); and the most frequent monthly income level was 4 to 4.5 million won (69; 30.7%; Table 1).

Table 1. Demographic and socioeconomic characteristics of consumers.

	Classification	Frequency (Number)	Percentage (%)
Residential area	Urban	124	55.1
	Rural	101	44.9
Marital status	Married	182	80.9
	Unmarried	43	19.1
Children under 18 years	Yes	114	50.7
	None	111	49.3
Occupation	Office job	97	43.1
	Non-office job	128	56.9
Education level	Middle school graduate	6	2.7
	High school graduate	74	32.9
	University graduate	129	57.3
	Graduate degree	16	7.1
Monthly income per household ^a	≤ 2 mil	7	3.1
	2 mil to 2.5 mil	12	5.3
	2.5 mil to 3 mil	27	12.0
	3 mil to 3.5 mil	28	12.4
	3.5 mil to 4 mil	47	20.9
	4 mil to 4.5 mil	69	30.7
	5 mil to 6 mil	19	8.4
	6 mil to 7 mil	12	5.3
	≥ 7 mil	4	1.8

^a mil = million won. One million won is approximately 830 USD.

4.2. Classification of Consumers Based on Their Attitude Toward Eco-Friendly Agricultural Markets

Table 2 shows that three factors were extracted and that the factor analysis yielded a satisfactory cumulative proportion of 0.5231. Factor 1 was obtained from seasonal products and organic certified products, Factor 2 was from co-operative products and pesticide-free certified products, and Factor 3 was from local food, uncertified pesticide-free products, and locally certified eco-friendly products. Therefore, Factor 1 referred to here as organic-minded attitude, Factor 2 as pesticide-free focused attitude and factor 3 as local food-minded attitude.

The result of the classification of consumer attitudes toward South Korean eco-friendly agricultural markets is a special situation, which is different from other countries while being consistent with the eco-friendly farming policy implemented in Korea. In this context, it can be seen that consumer perceptions can change depending on what policies the government pursues.

Table 2. Classification of consumers based on their perception of eco-friendly agricultural products according to factor analysis.

Classification			Factor 1	Factor 2	Factor 3
Attitude	Product				
Organic-minded	Seasonal	0.78	0.15	-0.06	
	Organic certified	-0.69	0.34	-0.06	
Pesticide-free focused	Co-operative	0.08	0.80	0.05	
	Pesticide-free certified	0.09	-0.63	0.06	
Local food-minded	Local food	0.16	0.02	0.78	
	Uncertified pesticide-free	-0.39	-0.15	0.56	
	Locally certified eco-friendly	-0.03	0.02	0.48	
Eigenvalue		1.3472	1.2606	1.0538	
Proportion		0.1925	0.1801	0.1505	
Cumulative		0.1925	0.3725	0.5231	

Table 3 shows how consumer perceptions and consumer evaluation of eco-friendly agricultural products were classified in the analysis. Among study participants, 157 (69.8%) of the consumers surveyed identify organic products as being eco-friendly agricultural products, 176 (78.2%) consumers categorize pesticide-free products as being eco-friendly agricultural products, and 121 (53.8%) consumers classify local food as being eco-friendly agricultural products. Therefore, it is most common in South Korea to identify pesticide-free products as being eco-friendly agricultural products. However, pesticide-free agricultural products are not generally understood as organic products in other countries, but rather more like conventional agricultural products.

The classification used to evaluate and select eco-friendly agricultural products are generally health, food safety, environmental protection, trust, reputation, nutrition, and taste. When consumers of South Korean eco-friendly agricultural products choose agricultural products, the criteria they value is health ($n = 156$) and food safety ($n = 128$) ranked first and second, respectively. On the other hand, environmental protection ($n = 78$), trust ($n = 52$), reputation ($n = 37$), nutrition ($n = 44$), and taste ($n = 47$) are not so much considered eco-friendly agricultural choice values.

Table 3. Classification of consumer perceptions and their evaluation of eco-friendly agricultural products.

Classification		Yes Number (%)	No Number (%)
Consumer perception of eco-friendly agricultural products ($n = 225$)	Organic-minded attitude	157 (69.8)	68 (30.2)
	Pesticide-free focused attitude	176 (78.2)	49 (21.8)
	Local food-minded attitude	121 (53.8)	104 (46.2)
Consumer evaluation of eco-friendly products ($n = 225$)	Health	156 (69.3)	69 (30.7)
	Food safety	128 (56.9)	97 (43.1)
	Environmental protection	78 (34.7)	147 (65.3)
	Trust	52 (23.1)	173 (76.9)
	Reputation	37 (16.4)	188 (83.6)
	Nutrition	44 (19.6)	181 (80.4)
	Taste	47 (20.9)	178 (79.1)

4.3. Consumer Attitudes and Determination Variables

First, we used a logit regression model to analyze the collected data. Table 4 shows the impact of organic food market consumer perceptions on determination values.

The first dependent variable we considered was health value. Consumers worldwide usually believe that eco-friendly agricultural products are healthier than other products. However, our analysis indicated that study participants do not share this perception of higher health value, for any of the three categories. In addition, none of our control variables significantly affected the study participants' perceptions of health value. However, 69.3% of the 225 participants recognized health as important in their selection of eco-friendly products. This perception did not change, even when participants self-identified as members of groups with more specific concerns regarding types of eco-friendly agricultural products. We expected more concern about health value, especially in the organic-minded participants group, but none of the three groups showed differences in attitude.

We found that the perceptions of organic-minded and pesticide-free focused participants were not significantly affected by our dependent variables, and the value of environmental protection, the second dependent variable considered, was less important to local food-minded participants. Only 34.7% of the participants recognized environmental protection as important when selecting eco-friendly products. In addition, control variables showed that the urban participants did not consider environmental protection important. However, we found that larger family groups did take environmental protection into account. The other control variables showed no significant impact on environmental protection. Environmental protection is not considered at all in the local food market. In Korea's unique agricultural markets, local food preferences have been shown to negatively affect environmental protection; South Korean consumers consider it more important from where food comes than the growing conditions. Therefore, local food does not necessarily reflect eco-friendly agricultural product values.

Our analysis revealed a negative impact of organic-minded and local food-minded attitudes on safety, the third dependent variable, but no effect from the pesticide-free focused attitude. Although the safety value was significantly affected by the number of family members, the other control variables had no significant effect. Although organic products are generally considered safe, this was not the case for participants in our research. This is possibly because of the *Escherichia coli* contamination of organic vegetables scandal that has reoccurred globally since 2011. Ironically, it can be interpreted that South Korean consumers have a reduced trust in the safety of eco-friendly products.

Reputation was the fourth dependent variable considered. The reputation value was positively affected by participants identified as organic-minded, while pesticide-free focused and local-food minded attitudes had no significant effect on reputation. Additionally, considering control variables, participants with office jobs had a negative perception of reputation. However, reputation was not significantly affected by the other control variables. Therefore, organic-minded participants judged the reputation of eco-friendly agricultural products as important.

All three independent variables and seven control variables had no effect on trust, the fifth dependent variable. Therefore, study participants did not value trust when choosing eco-friendly agricultural products, regardless of their attitudes towards them.

The value of nutrition, the sixth dependent variable, was not significantly affected by organic-minded and local-food minded attitudes, but a pesticide-free focused attitude did significantly affect participant perception. The control variables for age and family size positively and negatively affected the nutrition value, respectively. Other control variables had no significant effect on consumer choice. Thus, the pesticide-free focused participants regarded nutrition as important. However, nutrition is often discussed in the context of conventional agricultural products [59]. The lack of research into consumer perceptions of nutrition in eco-friendly agricultural products draws into question the appropriateness of focusing South Korean eco-friendly agricultural policies on pesticide-free products.

Table 4. Effect of consumer attitudes on the determination values.

Classification		Dependent Variables					
		Health	Food Safety	Environmental Protection	Reputation	Trust	Nutrition
Independent variables	Organic-minded attitude	-0.85 * (7.27)	0.00 (0.00)	-0.15 (0.20)	1.38 * (12.37)	0.31 (0.82)	0.20 (0.28)
	Pesticide-free focused attitude	-0.52 (2.21)	-0.20 (0.28)	0.47 (1.75)	0.08 (0.02)	-0.27 (0.45)	0.92 * (5.33)
	Local food-minded attitude	-1.15 * (13.99)	0.27 (0.74)	-0.68 * (4.81)	-0.59 (1.81)	-0.28 (0.70)	0.26 (0.54)
Control variables	Residential area: dummy (urban = 1, rural = 0)	0.26 (0.72)	0.32 (1.01)	-0.88 * (7.52)	-0.18 (0.17)	0.15 (0.19)	-0.54 (1.97)
	Age (number)	-0.02 (1.04)	0.03 (2.73)	-0.00 (0.08)	0.04 (3.74)	0.04 (3.59)	0.05 * (5.38)
	Marital status: dummy (married = 1, single = 0)	0.74 (1.18)	-1.30 (3.60)	0.80 (1.35)	-0.61 (0.53)	-0.25 (0.11)	-0.62 (0.61)
	School age children: dummy (yes = 1, none = 0)	0.04 (0.01)	0.04 (0.01)	-0.32 (0.46)	0.94 (2.30)	0.00 (0.00)	0.47 (0.69)
	Family members (number)	0.30 * (3.89)	-0.28 (3.38)	0.37 * (5.34)	-0.25 (1.56)	0.10 (0.38)	-0.38 * (4.23)
	Occupation: dummy (office job = 1, non-office job = 0)	0.63 * (3.19)	-0.29 (0.60)	0.08 (0.05)	-1.06 * (4.16)	0.04 (0.01)	0.09 (0.05)
	Education: dummy (university graduate = 1, non-university graduate = 0)	-0.00 (0.00)	-0.03 (0.01)	-0.13 (0.12)	0.57 (1.31)	-0.50 (1.51)	-0.04 (0.01)
	Monthly income: dummy (>4 mil = 1, ≤4 mil = 0)	-0.08 (0.06)	-0.17 (0.25)	-0.39 (1.37)	1.36 * (7.32)	-0.25 (0.49)	0.80 (3.81)
	N	225	225	225	225	225	225
Model fit	Likelihood ratio (df, prob) ^a	34.34 (11, 0.0003)	52.67 (11, 0.0001)	48.40 (11, 0.0001)	148.97 (11, 0.0001)	72.92 (11, 0.0001)	104.66 (11, 0.0001)
	Predicted Probabilities	71.2	65.7	70.2	79.4	60.6	67.4
							91.96 (11, 0.0001)
							65.2

^a df, degrees of freedom; prob, probability. * prob < 0.05.

The value of taste, the seventh dependent variable, was positively affected by the local food-minded attitude, but was not significantly affected by organic-minded and pesticide-free focused attitudes; the control variables also had no effect on this value. According to previous studies [57,61,62], taste is considered by consumers when choosing conventional products. Therefore, South Korean consumers concerned with choosing local food use different criteria from those concerned with choosing eco-friendly products; the former group does not reflect the values of the majority of eco-friendly agricultural product consumers in South Korea.

The likelihood ratio, used to determine model compliance, was found to be statistically significant in all seven models. The predicted probabilities were found to be high, ranging from 60.6 to 79.4.

5. Conclusions

We analyzed the perceptions of three groups of South Korean consumers (organic-minded, pesticide-free focused, and local food-minded) toward eco-friendly agricultural products based on data surveyed from 225 study participants. Our analysis showed a common attitude across the three groups. First, in general, these three groups were not motivated by health, environmental protection values, or food safety. Organic-minded consumers placed a high value on the reputation of organic products, while pesticide-free focused and local food-minded consumers valued nutrition and taste most highly, respectively, when choosing eco-friendly agricultural products. Pesticide-free focused and local food-minded consumers used these values to select eco-friendly over conventional agricultural products, i.e., they used the same selection criteria for both product types. This is crucial when creating and designing agricultural policies.

In most countries, the market for agricultural products is divided into organic and conventional products but, in South Korea, the market is divided into four categories: Organic, pesticide-free, local food, and conventional products. Thus, the eco-friendly and conventional agriculture markets in South Korea are not differentiated, which is an obstacle to the expansion of the organic and pesticide-free markets.

The most significant reason underlying the results discussed above is the inclusion of organic within Korean eco-friendly agriculture, causing organic and pesticide-free products to become entangled in consumer perceptions; consumers therefore conflate the two product types. The South Korean government has attempted to induce a phase change from eco-friendly to organic agricultural methods under the heading of ‘eco-friendly agriculture’. The purpose of this approach was to gradually facilitate farmers’ entry into organic agriculture while guiding them through the eco-friendly stages of low pesticide, pesticide-free, and organic agriculture. This gradual approach appears necessary because farmers accustomed to chemical pesticides and fertilizers find it difficult to shift directly to organic agricultural methods. Additionally, certification-based subsidies had a decisive effect on farming practices [64]. However, the ultimate goal of transferring to organic agriculture, and the original intention behind eco-friendly agriculture, has been lost during this process. In other words, the phased development strategies of organic agriculture policy have ultimately failed.

This failure means that the development and implementation of new policies for South Korean eco-friendly agriculture are required. The priority should be to abolish existing policies regarding pesticide-free products. The South Korean government must create a foundation for promoting organic and eco-friendly agriculture separately with the latter positioned as a different system of agricultural production. In other countries, such as the United States and Japan, these systems are defined very differently. We believe that organic agriculture must maintain its own identity, which is concerned with regional environmental protection, safe food production, pursuit of biodiversity, restoration of local communities, and similar activities. The organic agricultural values mentioned in this paper should be re-examined to convey the fundamental spirit and philosophy of organic agriculture to consumers.

An additional issue discovered through this research is consumer confusion about local food concepts. The aim is to encourage the purchase of locally produced and seasonally available food, to achieve solidarity between regional producers and consumers through direct contact. In fact, “local

orientation and the specifications of organic products" is an essential part of organic agriculture [28] (p. 208). However, despite many local efforts, the concept of local food has not developed as expected in South Korea. Currently, local food remains a small section within conventional cooperative supermarkets or as a niche market, except in some very rare cases such as the Sejong Sing-sing market. This situation departs from the original concept of local food.

The concept of local food is better reflected through community supported agriculture (CSA)-based organizations, but has similar limitations there. In particular, CSA is a part of a thriving organic agriculture movement that aims to revitalize local communities through local production and consumption of regional goods [1]. CSA was started under TEIKEI, a partnership between producers and consumers implemented since the 1970s in Japan, and which took root in the US and European countries in the mid-1980s. Currently, CSA is active in many countries, including Southeast Asia, where it is applied in various ways, depending on regional conditions. However, the Korean government has approached the local food concept in general, and CSA in particular, from a business perspective. They have promoted CSA to select consumer groups and local farmers groups across South Korea, but have not considered different regional conditions or local community needs. The local food movement has been most successful as a grassroots movement, whereas the South Korean government is focused on the CSA as a public and business-focused project, ignoring the importance of local movements, and thereby adding to consumer confusion.

A solution lies in the government supporting and promoting local food movements at the community level by accepting each community's diversity and autonomy. At the same time, change is needed in consumer perceptions of the local food concept. Currently, consumers look at local food in the same way as conventional agriculture. Education is needed about the distinct differences between the local food component of organic and conventional agriculture.

Finally, solidarity must be built between producers and consumers of organic agriculture to foster mutual understanding. This alliance "can push ahead with an agenda for greater production of organic food as well as fostering re-connection within the food system" [28] (p. 209). A close relationship between organic farmers and consumers is necessary to protect the regional environment, to produce safe products, and help consumers understand the value of those practices. This understanding is necessary to make organic agriculture sustainable, based on its original values.

Our study indicates that the classification of consumer attitudes in South Korean eco-friendly agricultural markets is a special situation, which differs from other countries while being consistent with the eco-friendly farming policy implemented in the country. In this context, it is clear that consumer perceptions can change depending on government policy. While there have been various debates concerning consumer perceptions of eco-friendly agricultural products, the perceptions of South Korean consumers are shown quantitatively through our study to place a low importance on food safety, environmental protection, and trust. Nonetheless, our study has some limitations, through generalizing its results of a small section of consumers in one area (Sejong) to the whole of South Korea. Further research based on an expanded study area applying a mixed quantitative and qualitative research approach is therefore needed.

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