Consumers' Willingness to Purchase High Animal-welfare Beef Products in Japan: Exploratory Research based on the Theory of Planned Behavior

Takuya Washio[a], Takumi Ohashi[b] and Miki Saijo[c]
School of Environment and Society, Tokyo Institute of Technology, Ookayama, Meguro, Tokyo, Japan

Keywords: High Animal-welfare Products, Theory of Planned Behavior, Consumer Research, Online Questionnaire.

Abstract: Agricultural industry needs to face both increasing demand from a growing population and transform in order to enhance its sustainability. Animal welfare, an aspect of this transformation, is still an unfamiliar concept for consumers in Japan, although this is expected to catch up with the global trend. Researchers have been working around the world to explore consumer behavior in markets, but few such studies have been performed in Japan. This study aimed to explore consumer behavior concerning high animal-welfare products in Japan, using the Theory of Planned Behavior (TPB). An online questionnaire was used to identify consumer characteristics and perceived attributes of high animal-welfare products among 620 consumers. We found that awareness of animal welfare was still low among Japanese consumers, and was not related to demographic characteristics. Two components out of three which are considered in TPB, attitude and social norm, were likely related to consumers' willingness to purchase high animal-welfare products. Consumers' empathy with, and psychological responses to, farmers and animals are suggested to be related to their willingness to purchase.

1 INTRODUCTION

Throughout the 20th century, an effective animal production system has been built to match up with the increasing demand for farm animal products. However, the animal production system today needs to transform in order to enhance its sustainability related to issues such as environmental pollution, workers' rights, increasing public ethical concerns about farming methods, and animal welfare. A balance between efficient production and welfare of farmers and livestock is required. Good Agriculture Practices (GAP) is one guide for farmers to achieve this balance.

The definition of GAP is "practices that address environmental, economic and social sustainability for on-farm production and post-production processes resulting in safe and healthy food and non-food agricultural products" (Food and Agriculture Organization of the United Nations, 2003). The GAP is expected to benefit stakeholders in the farming industry: farmers and their families who will obtain healthy and good quality food to ensure their nutrition and nourishment, generating a value added in their products to access market in better way; consumers who will enjoy better and safe quality food with sustainable production; and the general population who will benefit from a better environment (Izquierdo et al., 2007). These concepts originated in the western world, but are becoming common global values and the basis of policies for international events.

The coming 2020 Tokyo Olympic and Paralympic Games are increasing public awareness of the food production reputation in Japan. Taking a hard look at this international event, the organizers set rules that require the farmers who aim to supply agricultural food for the Games to satisfy the standard of the Global Good Agriculture Practice (GLOBALG.A.P.) certification or the Japan GAP (JGAP) certification. The GLOBALG.A.P. is recognized internationally as a private sector standard for agricultural products, and JGAP is its local modification. Criteria in both

[a] https://orcid.org/0000-0001-8217-5397
[b] https://orcid.org/0000-0001-5977-5861
[c] https://orcid.org/0000-0002-2813-5658

Washio, T., Ohashi, T. and Saijo, M.
Consumers' Willingness to Purchase High Animal-welfare Beef Products in Japan: Exploratory Research based on the Theory of Planned Behavior.
DOI: 10.5220/0008355901300138
In *Proceedings of the 11th International Joint Conference on Knowledge Discovery, Knowledge Engineering and Knowledge Management (IC3K 2019)*, pages 130-138
ISBN: 978-989-758-382-7

standards mention animal welfare enhancements in the animal food production process by improving feeding and management processes (The Tokyo Organising Committee of the Olympic and Paralympic Games, n.d.). This is expected to be an opportunity for the issue to receive public attention and raise public awareness.

With shifting global trends, consumers in Japan are also expected to be increasingly concerned about the animal production process with regard to animal welfare (Japan Livestock Technology Association, 2011). Consumers' behavior plays essential roles, such as economic support through paying higher prices, in establishing GAP in Japanese society. However, consumer awareness and social standards for animal welfare which are important components of GAP are reportedly lower than those in Europe (Takeda et al., 2010). Thus, it is necessary to examine the present circumstances of awareness and purchasing behavior of Japanese consumers.

This study aimed to investigate the factors influencing consumers' willingness to purchase high animal-welfare products in Japan using the Theory of Planned Behavior (TPB). High animal welfare products are products with the characteristics which can be enhanced their value with story and information behind them. Understanding the mechanism of consumer decision making and influence of knowledge and information management on it will contribute to creating market strategy aiming to their wide diffusion in the Japanese market. Because high animal-welfare products are not widely on sale in the Japanese market, we provide a brief description of these products. With this information, we set the context to stimulate awareness and measure the perception related to consumer behavior concerning these unfamiliar products.

2 LITERATURE REVIEW

According to the definition and characteristics of high animal-welfare products, we considered the related purchasing behavior as a part of broad ethical consumption. Thus, we designed a questionnaire based on the TPB, which is a theory well-applied in ethical consumer behavior studies. Also, we took empathy into account among the components forming consumers' willingness to purchase high animal-welfare products, according to findings from our previous study.

2.1 High Animal-welfare Products

The definition and concept of animal welfare published by the World Organisation for Animal Health (OIE) are the most generally accepted worldwide. In the OIE's Terrestrial Code, animal welfare means "the physical and mental state of an animal in relation to the conditions in which it lives and dies." The guiding principles that inform the OIE's work on the welfare of terrestrial animals include the Five Freedoms. These widely recognized freedoms were developed in 1965, and describe society's expectations for the conditions animals should experience when under human control: (1) freedom from hunger, (2) freedom from fear and distress, (3) freedom from heat distress or physical discomfort, (4) freedom from pain, injury, and disease, and (5) freedom to express normal patterns of behavior (World Organisation for Animal Health, n.d.). Animal welfare-friendly regulations and actual farming methods are based on expectations.

High animal-welfare products, which are products produced in animal-welfare friendly processes, have different characteristics from those of conventional products. Lundmark et al. (2014) concluded that existing regulations for animal welfare were not based on animal welfare and moral considerations only, but also on other aspects of the farming process and products, such as food safety, meat quality, and environmental factors. Production processes in regard to animal welfare are sometimes considered to improve the environment around animal production, and to contribute to maintaining uncultivated farmland in the countryside (Matsuki, 2016). Beef products are positioned as one of the most crucial export items in the Japanese Government's agricultural products export promotion (Ministry of Agriculture, Forestry, and Fisheries. 2019), and developing animal-welfare-friendly beef is expected to contribute to its aim. High animal-welfare products are claimed to have added values but also disadvantages.

High animal-welfare products are often mentioned with their disadvantages when compared to conventional livestock products. This can be seen in the Japanese livestock production context – high animal-welfare products tend to be more expensive and more inconvenient to purchase for consumers than conventional alternatives (Japan Livestock Technology Association, 2011). Both positive and negative characteristics of high animal-welfare products need to be mentioned when they are introduced to consumers.

2.2 Ethical Consumption

Because awareness of high animal-welfare products is still low among Japanese consumers, we tried to position them as a part of the broader range of products with similar characteristics. In relation to food products, Ethical Consumer – a Manchester-based not-for-profit and multi-stakeholder co-operative founded in 1989 – considers environmental issues such as pollution and toxins, wildlife habitats, climate change, and environmental reporting; social issues such as workers' rights, human rights, tax avoidance, corporate lobbying; and animal welfare issues such as animal testing or factory farming (Ethical Consumer, 2018). According to Carrigan et al. (2004), it is difficult to sum up the full range of activities that can possibly be included under the term "ethical consumption", but it is the conscious and deliberate choice to make confident consumption choices due to personal and moral beliefs. In the same way, high animal-welfare products are sometimes positioned as a part of organic food (Hughner et al., 2007; Makatouni, 2002). Thus, we decided to discuss consumer behavior regarding high animal-welfare products using a model often applied to ethical consumption including purchasing of organic food.

2.3 Theory of Planned Behavior

The TPB is a significant theory applied in consumer behavior studies. The theory argues that attitudes toward the behavior, can subjectively shape individual's intentions to perform behaviors of different kinds, together with perceptions of behavioral control, account for considerable variance in actual behavior (Ajzen, 1991). Attitude is the first factor that influences the individual's intentions concerning a behavior. An individual's beliefs or evaluation of the result caused by a behavior are considered to form attitude. The subjective norm is an individual's perception about the particular behavior, which is influenced by the judgment of important others. The social phenomenon, reputations, and expectations regarding the individual from others around are considered to form this component. Behavioral control is an individual's perceived ease or difficulty of performing a particular behavior. It is supposed that perceived behavioral control is determined by the total set of accessible control beliefs. Affordability, such as cost or convenience perceptions, is considered to represent this component in terms of food consumption.

2.3.1 Consumer Behavior and the Theory of Planned Behavior

The TPB is often applied to explain consumer behavior in choosing products related to sustainability in production, such as organic food or ethical products. Ma et al. (2012) applied this theory to explain young female consumers' purchase behavior in the USA. They concluded that belief about the fair-trade concept and product attributes, attitudes toward fair-trade purchases, and perceived behavioral control in regard to fair-trade purchases were all important factors in determining consumers' intentions to purchase fair-trade products. Voon et al. (2011) tried to explain consumers' purchasing behavior in Malaysia using the TPB. They analyzed answers from 406 respondents in Kuching, the capital city of the largest state in the country. They concluded that subjective norms exerted significant positive effects on willingness to pay, while the effect of affordability was not significant. They found a set of factors driving consumers' purchase behavior for organic food. We decided to follow this study's procedure because it is one of the few examples of such research conducted in Asia. At the same time, we considered the possibility of modifying the model using new components.

The TPB is a theoretical model which is "open to the inclusion of additional predictors" (Ajzen, 1991), and so research has been conducted to improve explanation of consumer behavior by including new components. Shaw and Shiu (2002, 2003) applied this theory as an initial framework to explain decision-making of ethical consumers in the UK by placing "ethical obligation" and "self-identity" into the model. McEachern et al. (2007) applied this theory to explain ethical purchasing behavior and attitudes relating to particular brands of high animal-welfare products. They concluded that consumers' moral obligations toward food-animals as well as consumer location influenced ethical brand choice. Thus, we established the eligibility of model modification with newly introduced components.

2.4 Empathy

Hoffman (1990) defined empathy as an individual's affective response more appropriate to someone else's situation than to one's own. Empathy is considered to influence consumers' ethical decision-making or prosocial behavior. Mencl and May (2009) concluded that the experience of having empathy for the objective positively affected ethical decision-making. Davis et al. (1999) demonstrated that traits

and emotional reactions typically associated with the empathy construct can play an essential role in the strategic thinking that precedes a decision to deliberately encounter a needy target. Verhofstadt et al. (2016) concluded that empathy of the support provider appeared to play a meaningful role in social support interactions. Some types of support provision were related to both the affective and the cognitive components of empathy. The structure of empathy has also been argued.

Empathy can be separated into two different cognitive responses. Stern (1994) argued that the effects of advertising dramas are caused by empathy and sympathy. Here, empathy and sympathy were described as below:

To summarize, empathic participation is a fusion with another in pleasure or pain ("I am this person"), whereas sympathetic/ antipathetic spectatorship is a positive/ negative identification with another ("I am like/unlike this person"). Empathy thus involves less differentiation between the self and the other, while sympathy allows for more differentiation and more detachment.

Stern and Escalas (2003) found that sympathetic responses mediate the effect of an advertising drama form on empathy responses, with both sympathy and empathy directly enhancing positive attitudes to an advertisement. Following their findings, Tamaoki (2015) examined the effects of empathy and sympathy on consumers' willingness to pay for ethical products in Japan. They analyzed answers from 736 respondents in Nara Prefecture, Japan, and found a set of empathetical factors affecting consumers' purchase behavior concerning ethical products. Also, in our previous study, empathy and sympathy were important factors that influenced consumers' willingness to purchase high animal-welfare products. We conducted a questionnaire for senior high school students in Tokyo. According to keywords extracted from the descriptive answers, factors with the strongest influence on respondents' willingness to purchase high animal-welfare products were empathy for livestock, empathy for farmers, and expectations of added value such as taste or nutrition. Although there is a limitation that high school students are not primary household purchasers, this suggested that there was a need for our analysis to consider the psychological factors affecting empathy (Washio et al., 2019). We, therefore, tried to extend the TPB model by including empathy as an interim factor influencing consumers' ethical consumption between the two factors of subjective norms and behavioral intentions.

3 OBJECTIVES

From the literature review, TPB was considered to be appropriate to the examination of consumer behavior on high animal-welfare products, and there was scope to include empathy in the discussion. The present study investigated determinants of willingness to purchase high animal-welfare beef products in the three greater urban areas in Japan. We set the objectives as below:

- To measure awareness of the concept of animal welfare.
- Using TPB to explore the factors influencing willingness to purchase high animal-welfare products.
- Using TPB to explain how empathy influences the consumer behavior.

3.1 Data

Data used for the present study were as follows:

Period: 25–26 March 2019
Type of data collected: online questionnaire through a market research company
Target: Consumers aged 20–69 residing in Tokyo, Osaka, and Nagoya Prefectures (evenly allocated to gender and age layers)
Screening: eligibility to eat beef products (e.g. allergy and religion)
Total sample size: N = 620

In this paper, high animal-welfare beef products are defined as beef products produced throughout an animal-welfare conscious process from feeding through to food processing.

All 620 samples were used in our analysis because, firstly, the online survey did not allow responses with missing answers to be submitted; and, secondly, because no strange answer patterns or outliers were found when checking complete individual data.

3.2 Methodology

The questionnaire consisted of two parts: the first measured standard sociodemographic measures; and the second was a brief description of animal welfare. The description included the definition of animal welfare, examples of animal-welfare-friendly farming methods, regulations related to animal welfare used in the EU and USA, animal welfare corporate trends in Japan, claims for the need to build a market environment encouraging consumers' active choices, expected increases in cost, expected improvements in farmers' differentiation and financial advantage, and expected advantages in

conserving the natural environment. After presenting the description, we measured perceptions of attitudes, subjective norms, and affordability of high animal-welfare products and empathy for livestock and farmers.

The questionnaire was primarily based on the original questionnaires of Voon et al. (2011) and Tamaoki (2015), and our literature review. We translated their questionnaire into Japanese and also modified some of the questions to adjust for the animal welfare products and the cultural background of Japan. We made repeated translations and had them reviewed by other Japanese native speakers until we had confirmation that Japanese people would easily understand the translated version.

The details of measurements follow. First, sociodemographic data were measured. We measured gender, age, habitat place (prefecture), marital status, child status, number of people in the household, net household income, occupation, and education background. The demographics of the samples are presented in Table 1.

Second, we presented a description of animal welfare. The description was created by the author, mainly based on information presented on the web site of the Ministry of Agriculture, Forestry, and Fisheries of Japan. Later, we asked about initial awareness of animal welfare, and then perceptions of attitudes, subjective norms, affordability of high animal-welfare products, and empathy for livestock and farmers, which were measured using 40 items. Each variable was measured using a five-point Likert scale.

All analyses were conducted using IBM SPSS Statistics 25 and Microsoft Excel 365.

4 RESULTS

The chi-square test was used to determine the sociodemographic effects on consumer awareness of the animal welfare concept. However, there were only three sociodemographic variables that showed statistically significant differences between the two consumer groups (Table 1).

Table 1: Sociodemographic variables (selected) (N = 620).

Variable	Description		Awareness of animal welfare		Total	p-value
			Yes	No		
Gender	Female	Frequency	35	275	310	n.s.
		%	11.3	88.7	100.0	
	Male	Frequency	24	286	310	
		%	7.7	92.3	100.0	
Age	20–29	Frequency	17	107	124	n.s.
		%	13.7	86.3	100.0	
	30–39	Frequency	11	113	124	
		%	8.87	91.1	100.0	
	40–49	Frequency	9	115	124	
		%	7.26	92.7	100.0	
	50–59	Frequency	10	114	124	
		%	8.06	91.9	100.0	
	60–69	Frequency	12	112	124	
		%	9.68	90.3	100.0	
Prefecture	Tokyo	Frequency	45	333	124	n.s.
		%	11.9	88.1	100.0	
	Osaka	Frequency	11	135	124	
		%	7.5	92.5	100.0	
	Aichi	Frequency	3	93	124	
		%	3.1	96.9	100.0	
Perception of farmers in close relationship	Yes	Frequency	11	12	23	0.000
		%	0.48	0.52	100.0	
	No	Frequency	48	549	597	
		%	8.4	91.6	100.0	
Farm experience	Within 5 years	Frequency	15	24	39	0.000
		%	38.5	61.5	100.0	
	When I was in elementary/high school	Frequency	14	86	100	
		%	14.0	86.0	100.0	
	Another opportunity than above	Frequency	5	39	4.4	
		%	11.4	88.6	100.0	
	Never	Frequency	25	412	437	
		%	5.7	94.3	100.0	
Perception of farming-related topic on media (i.e. TV show or newspaper)	Strongly agree	Frequency	10	16	26	0.000
		%	38.5	61.5	100.0	
	Agree	Frequency	13	72	85	
		%	15.3	84.7	100.0	
	Neutral	Frequency	21	164	185	
		%	11.4	88.6	100.0	
	Disagree	Frequency	12	216	228	
		%	5.3	94.7	100.0	
	Strongly disagree	Frequency	3	93	96	
		%	3.1	96.9	100.0	
Total		Frequency	59	561	620	,
		%	9.5	90.5	100.0	

n.s. = not significant ($p > 0.05$)

Table 2: Components and scale reliability for consumers' perception (N = 620).

Factors and questionnaire items	Component								Cronbach's Alpha
	1	2	3	4	5	6	7	8	
Empathy for farmers [a]									**.903**
I felt as though the beef cows' situation and problems are happening to me. [a]	.953								
I felt as if the beef cows' feelings are my own. [a]	.915								
I experienced feeling as if the situation and problems around the farmers, who are working on animal welfare practice, were really happening to me. [a]	.640								
I felt as if the feelings of farmers working on animal welfare practices were my own. [a]	.484						.397		
I tried to understand the beef cows' feelings. [a]	.434								
Attribute perception									**.857**
Consuming high animal-welfare products positively affects my health. [a]		.812							
Purchasing high animal-welfare products improves the quality of my life. [a]		.712							
Purchasing high animal-welfare improves the quality of farmers' lives. [a]		.695							
Purchasing high animal-welfare products improves the welfare of livestock. [a]		.675							
High animal-welfare products taste better. [a]		.649							
Concerns about Food Production Processes									**.820**
I am concerned about the type and amount of nutrition in the food that I consume daily. [a]			.890						
I am concerned about food additives. [a]			.759						
I care about cholesterol and fat. [a]			.710						
I am concerned about how food is processed. [a]			.513						
Trust									**.818**
If there is a certificate system for high animal-welfare products, I can trust the nature of the products. [a]				.762					
I trust that those selling (or will be selling) organic food are honest about the animal welfare related to their products. [a]				.713					
I trust the information on high animal-welfare product labels. [a]				.687					
I trust the producers of high animal-welfare products are practicing animal welfare concerned production. [a]				.686					
Willingness to purchase									**.782**
I am willing to buy high animal-welfare products even though choices are limited. [a]					.799				
I am willing to buy high animal-welfare products because the benefits outweigh the cost. [a]					.788				
I would still buy high animal-welfare products even though conventional alternatives are on sale. [a]					.778				
I do not mind spending more time searching for organic food. [a]					.554				
Affordability									**.726**
The stores where I frequently shop do not sell a variety of high animal-welfare products. [b]						-.718			
High animal-welfare products are only available in limited stores/markets. [a]						.648			
High animal-welfare products are beyond my budget (or will be beyond my budget shortly). [a]						.622			
Buying high animal-welfare products is highly inconvenient. [a]						.570			
Only consumers with higher income can afford organic food. [a]						.437			
Sympathy for farmers									**.849**
I try to understand the situation and problems of farmers working on animal welfare practices. [a]							.975		
I try to understand the motivation of farmers working on animal welfare practice							.626		
Subjective norms									**.710**
(Shortly,) My loved ones expect me to purchase more high animal-welfare products. [a]								.815	
(Shortly,) My close friends and family consume organic food. [a]								.365	

[a] Scale used: 1 (strongly disagree) to 5 (strongly agree)
[b] Scale used: 1 (strongly agree) to 5 (strongly disagree)
Principal component analysis; Promax rotation with Kaiser normalization; loadings less than 0.35 are not shown.
KMO = 0.933

Table 3: Correlations between factors.

	1	2	3	4	5	6	7	8
Empathy for farmers	1							
Attribute perception	.441**	1						
Health and environment concerns	.342**	.425**	1					
Trust	.269**	.607**	.368**	1				
Willingness to purchase	.600**	.575**	.469**	.403**	1			
Affordability	.076	.243**	.106**	.308**	-.042	1		
Sympathy for farmers	.620**	.558**	.361**	.450**	.511**	.126**	1	
Subjective norms	.474**	.579**	.426**	.412**	.609**	.075	.471**	1

Note: **correlation significant at $p < 0.01$

Exploratory factor analysis (EFA) was applied to identify and confirm the factors within each component (Table 2). Factors were extracted with the method of Maximum Likelihood, and Promax rotation was used due to a high correlation between factors. Items with loading smaller than 0.35 were eliminated from further analysis. Likewise, items loaded with more than one factor were assigned to the factors where they achieved the highest factor loadings. The Kaiser–Meyer–Olkin (KMO) measures of sampling adequacy had a value of 0.933 and Bartlett's test of sphericity was significant ($p < 0.01$), indicating that the data were suitable for factor analysis. Eight factors with eigenvalues greater than one were extracted. Although several items were dropped due to low factor loadings, most of the remaining items that were expected to measure a similar construct did indeed load the same factor.

In order to assess the reliability of the items in measuring the factor, Cronbach's alpha value for each factor was calculated (Table 2). Reliability was assured because the Cronbach's alpha values, in the range of 0.71–0.90, exceeded the minimum threshold of 0.70. Also, correlations among the factors ranged from -0.04 to 0.76 (Table 3).

5 CONCLUSION AND FUTURE RESEARCH

5.1 Conclusion

The results suggested that, in the three greater urban areas, consumer awareness of animal welfare concepts was still low, as argued almost 10 years ago (Takeda et al., 2010).

The EFA resulted in seven factors other than willingness to purchase being extracted, and we named each factor as follows: trust in high animal-welfare product claims, concerns about food production processes which form the consumers' attitude to animal welfare products, subjective norms, affordability of high animal-welfare products, empathy with farmers, and sympathy bfor farmers. Trust in high animal-welfare product claims is the perception of trust in the products' attributes and reliability of the information with the products. Concerns about food production processes is the perception of concerns in food nutrition, ingredients or how the food is processed. These two components are considered to form the consumers' attitude towards high animal-welfare products.

Subjective norms are the perception of expectations from loved ones and social phenomena towards the purchasing of the products.

Affordability of high animal-welfare products is the perception of behavioral control such as price or accessibility to the products.

Empathy with farmers and sympathy for farmers are emotional reaction of the consumers' toward the farmers and cattle. Consumers' sympathy for farmers' situation, efforts, and motivation may influence the consumers' willingness to purchase. At the same time, some consumers might have similar reaction to farmers like

As the correlation among the other factors extracted and willingness to purchase, all the factors showed some correlation except affordability. This suggests that attitude and subjective norms concerning high animal-welfare products may positively affect consumers' willingness to purchase them. However, consumers' perceptions of affordability of high animal-welfare products did not influence Japanese urban consumers' willingness to purchase them. It suggests that this perception was not in measurable stage because of the limited actual products in Japanese market today. Also, the positive effects of consumers' empathy with and sympathy for farmers were suggested in their willingness to pay.

5.2 Implications

In order to explore how to improve consumers' willingness to purchase high animal-welfare products, we conducted a questionnaire survey on sociodemographic, awareness of animal welfare, perceptions of attitudes, subjective norms, affordability of high animal-welfare products, and empathy with livestock and farmers. Consumers' awareness was not related to their sociodemographics. However, perceptions about farmers' existence due to close farming experience in the near past, and perceptions from media exposure concerning farming-related issues on TV or newspapers may relate to consumers' awareness of animal welfare.

The results also suggested that affordability in relation to purchase behavior of high animal-welfare products of consumers who reside in these three urban areas could not be measured at this stage because of a lack of actual purchase experiences. Also, sympathy for farmers or beef cows, or understanding of or empathy with the social backgrounds of farmers and cattle can be a trigger for consumers in purchasing high animal-welfare beef products.

This study has the limitation that we did not explain the consumers' decision-making structure in

order. Contents and characteristics of information to be presented to the consumers in order to introduce the products need to be investigated. In the future, we plan to extend TPB to explain Japanese consumers' behavior by including empathy in the model. Influences of the empathic response to product-related information are suggested from this study. Clarifying the structure in consumers' decision-making using empathy may give useful insights in designing effective diffusion and promotion in Japan.

At the same time, it will also be necessary to investigate the relationship between consumer characteristics, content of information presented, and consumers' willingness to purchase high animal-welfare products. By considering the contents of the information and its propagating channel, the findings can help in designing promotional tactics and measures.

ACKNOWLEDGMENTS

This research is supported by the Center of Innovation under the Japan Science and Technology Agency.

REFERENCES

Ajzen, I. 1991. The theory of planned behavior. *Organizational Behavior and Human Decision Process*, *50*(2), 179–211.

Carrigan, M., Szmigin, I., Wright, J., 2004. Shopping for a better world? An interpretive study of the potential for ethical consumption within the older market. *Journal of Consumer Marketing*, *21*(6), 401–417.

Davis, M. H., Mitchell, K. V, Hall, J. A., Lothert, J., Snapp, T., Meyer, M. 1999. Empathy, expectations, and situational preferences: personality influences on the decision to participate in volunteer helping behaviors. *Journal of Personality*, *67*(3), 469–503.

Escalas, J. E., Stern, B. B., 2003. Sympathy and empathy: emotional responses to advertising dramas. *Journal of Consumer Research*, *29*(4), 566–578.

Ethical Consumer, 2018. Why shop ethically? Retrieved May 29, 2019, from https://www.ethicalconsumer.org/why-shop-ethically

Food and Agriculture Organization of the United Nations, 2003. FAO - Committee on Agriculture (17th Session). Retrieved June 11, 2019, from http://www.fao.org/3/y8704e/y8704e.htm

Hoffman, M. L., 1990. Empathy and justice motivation. *Motivation and Emotion*, *14*(2), 151–172.

Hughner, R. S., McDonagh, P., Prothero, A., Shultz, C. J. I., Stanton, J., 2007. Who are organic food consumers? A compilation and review of why people purchase organic food. *Journal of Consumer Behaviour*, *6*(2–3), 94–110.

Izquierdo, J., Fazzone, M. R., Duran, M., Al, E., 2007. Guidelines "Good Agricultural Practices for Family Agriculture". In *Departmental Program on Food and Nutritional Security*. Food and Agriculture Organization of the United Nations (FAO), Santiago.

Japan Livestock Technology Association, 2011. Feeding management guidelines for beef cattle complementary with the concept of animal welfare [in Japanese]. Retrieved May 29, 2019, from http://www.maff.go.jp/j/chikusan/sinko/pdf/beef_cattle.pdf

Lundmark, F., Berg, C., Schmid, O., Behdadi, D., Röcklinsberg, H., 2014. Intentions and values in animal welfare legislation and standards. *Journal of Agricultural and Environmental Ethics*, *27*(6), 991–1017.

Ma, Y. J., Littrell, M. A., Niehm, L., 2012. Young female consumers' intentions toward fair trade consumption. *International Journal of Retail and Distribution Management*, *40*(1), 41–63.

Makatouni, A., 2002. What motivates consumers to buy organic food in the UK?: Results from a qualitative study. *British Food Journal*, *104*, 345–352.

Matsuki, Y., 2016. *Farming based on animal welfare in Japan and the world (first volume)*, Yokokendo. Tokyo.

McEachern, M. G., Schröder, M. J. A., Willock, J., Whitelock, J., Mason, R., 2007. Exploring ethical brand extensions and consumer buying behaviour: The RSPCA and the "Freedom Food" brand. *Journal of Product and Brand Management*, *16*(3), 168–177.

Mencl, J., May, D. R., 2009. The effects of proximity and empathy on ethical decision-making: An exploratory investigation. *Journal of Business Ethics*, *85*(2), 201–226.

Ministry of Agriculture, Forestry, and Fisheries, 2019. About livestock products export [in Japanese]. Retrieved from http://www.maff.go.jp/j/chikusan/shokuniku/attach/pdf/tikusan_butuno_yusyutu-76.pdf

Shaw, D., Shiu, E., 2002. An assessment of ethical obligation and self-identity in ethical consumer decision-making: a structural equation modeling approach. *International Journal of Consumer Studies*, *26*, 286–293.

Shaw, D., Shiu, E., 2003. Ethics in consumer choice: a multivariate modeling approach. *European Journal of Marketing*, *37*(10), 1485–1498.

Stern, B. B., 1994. Classical and vignette television advertising dramas: structural models, formal analysis, and consumer effects. *Journal of Consumer Research*, *20*(4), 601–615.

Takeda, K., Fukuma, M., Nagamatsu, M., Abe, N., 2010. Attitudes of consumers towards animal welfare products in Japan. *Proceedings of the 44th Congress of the International Society for Applied Ethology*, 203.

Tamaoki, S., 2015. Empathy and ethical consumption [in Japanese]. *Shokei-gakuso: Journal of Business Studies*, *61*(3), 181–194.

The Tokyo Organising Committee of the Olympic and Paralympic Games, n.d. *Tokyo 2020 Olympic and*

Paralympic Games Sustainable Sourcing Code (3rd edition). Retrieved from https://tokyo2020.org/en/games/sustainability/data/sus-procurement-code3_EN.pdf

Verhofstadt, L., Devoldre, I., Buysse, A., Stevens, M., Hinnekens, C., Ickes, W., Davis, M. 2016. The role of cognitive and affective empathy in spouses' support interactions: An observational study. *PLoS ONE, 11*(2), e0149944.

Voon, J. P., Ngui, K. S., Agrawal, A., 2011. Determinants of willingness to purchase organic food: An exploratory study using structural equation modeling. *International Food and Agribusiness Management Review*, *14*(2), 103–120.

Washio, T., Saijo, M., Ito, H., Takeda, K., Ohashi, T., 2019. Development of a theoretical model to explain consumers' willingness to purchase animal welfare products in Japan. *Proceedings of the 53rd Congress of the International Society for Applied Ethology*、305.

World Organisation for Animal Health, n.d. About animal welfare. Retrieved May 29, 2019, from http://www.oie.int/en/animal-welfare/animal-welfare-at-a-glance/

APPENDIX

The description provided in the questionnaire (translated)

A. There is a concept called "animal welfare."
B. According to the Ministry of Agriculture, Forestry and Fisheries, this is considered to be "farming methods suitable to livestock comfort."
C. In animal-welfare-friendly farming, farmers let livestock express normal patterns of behavior by widening their cages, or
D. let livestock be free from fear and distress by not removing horns/tails.
E. At the same time, animal-welfare-friendly farming is a practice to improve food safety,
F. it is prohibited to treat with too many antibiotics.
G. In the EU or the USA, farming regulations and laws have been revised to be animal-welfare-friendly.
H. Among EU countries, certifications and standards for high animal-welfare products have been developed, and are widely recognized in markets.
I. Certification of standards including animal welfare has been set as a requirement for the food supplied in the 2020 Olympic and Paralympic Games.
J. There are also retail and food-maker companies that have animal welfare requirements in their procurement codes,
K. moreover, there are co-ops selling high animal-welfare products.
L. There are needs for maintenance of a consumer-centered market environment which encourages active choices, from the viewpoint of consumer protection,
M. moreover, there are efforts to introduce a certification system for animal-welfare-friendly farms or products.
N. High animal-welfare products may be priced higher than conventional products,
O. moreover, this expected to increase farmers' profits.
P. Increasing the sustainability of farming with animal welfare is expected to contribute to maintaining terrestrial environments such as mountainous regions.