

FACTORS AFFECTING CONSUMER ATTITUDES TOWARDS AQUACULTURE

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ABSTRACT

Attitudes towards production processes increased their importance over food purchase decisions in recent years. This paper aims to test which factors mainly affect attitudes towards aquaculture. Factors are classified into three groups: demographic, situational, and personal and marketing influences. Using consumer survey data, factor analysis techniques were used to obtain an attitude measure from a set of scales. Different linear models and fit methods were performed with variables of the three groups of factors to test for significant effects over attitude scores. Significant effects were found with education, occupation and income. Purchase and consumption place were also found to be significant causes of differences across attitudes. Finally Consumer involvement with food safety and sustainability and generic advertising credibility have shown significant effects over attitudes towards aquaculture.

Keywords: Consumer attitudes, safety and sustainability beliefs, market conditionants.

INTRODUCTION

Attitudes are subject learned predispositions to positioning himself in a favourable or unfavourable sense towards an object [1]. Fazio [2] defined the attitudes as mental associations between an object and its evaluation. While attitude object relates to an material good, or to a behavior in relation to this one, different levels of predictive capability over the subject decisions are expected [3].

Theory of reasoned action [4] places attitude as a direct causal antecedent of the subject intentions and behavior. Models based on the Fishbein and Ajzen theory have been widely used in the study of consumer behaviour. The reasoned action theory has been used to study factors that influence adoption of food innovations in traditional cultures [5], and have been proposed as an useful tool for aquaculture marketing research [6]. Research on consumer attitudes towards aquaculture and its products may be useful to better match consumers preferences [7].

Since the mad cow disease crisis, European consumers increased their concerns towards the methods of food production, as an extrinsic key that ensures features such as technical quality and acceptable safety conditions [8,9,10]. Traditional processes in food production, and their linkages to local cultures, stand out as some of the consumer associations of ideas that contribute to a better appraisal for foods with Designation of Origin (PDO) in the European Union (EU) [11,12]. Traditional appearance of food is identified by consumers as a sign of quality [13]. In the opposite, after the beef experience, consumers tend to distrust of innovation in food production, and judge it as less real and safe than the traditional alternatives.

Attitude towards technology is related to the consumer adoption disposition, and risk expectation. From a technical point of view, risk aversion depends on the information available by consumer and his ability to interpret it [14]. Consumer will assess the available information about benefits and expected safety of new technology. The more obvious the benefits, the lower the risk aversion. Perceived risk in food technology will also be consistent with the consumer social environment opinions. Social environment influence can affect consumer attitudes towards technology, and even be stronger than other personal factors in the decisions of adopting food innovations [14,5].

Despite of being the only technique which can guarantee full traceability in seafood markets, aquaculture is perceived, in the Spanish market, as being of less quality and a bit more unsafe than extractive fishing [15]. Technology is one of the perceived risk sources in food consumption, together with chemical and microbiological hazards. Uncertainty about the consequences of a new technology in food production would adversely affects purchasing decisions [16]. According to this, an unfavourable attitude to food technology would hinder its adoption and diffusion, negatively affecting its products market positioning.

Authors aim to analyze which are relevant contributing factors in the formation of the consumer attitudes towards aquaculture, as non-traditional method of fish production. To study beliefs that give rise to an attitude towards aquaculture, and which are the factors that contribute to a more favourable attitude are main objectives of this paper.

Consumer attitudes towards aquaculture.

Effect of attitudes towards the fish productive technique on consumer decisions is as important as that of attitudes towards the product itself, as it informs consumer on aspects that he cannot assess without external assistance [17]. Information about productive methods becomes an extrinsic key to assess quality, food safety, and other product aspects, which in turn are associated with the purchase likelihood [17,9,12].

Work in the study of the "farmrised" attribute effect on seafood consumers has yielded results in both positive and negative directions. Positive effect, as a result of advertising campaigns, have been described over cultured catfish beliefs physical quality attributes [18]. Although, consumer preferences towards wild or cultured seafood significantly vary when considering different market segments [19]. Considering the whole Spanish market, aquaculture products attributes tend to be worse valued than those of the same wild species. When both sources are compared only price highlights as an advantage for the cultured species [15]. Consumers hold different perceptions with regard to aquaculture, and different attitudes toward the aquaculture activity and its species can be found at the marketplace.

Consumers preferences for aquaculture products should increase as better these coincide with those attributes that are valuable for seafood consumers. Different studies have shown that consumers value, and are also willing to pay for, extrinsic attributes that guarantee seafood safety [20] and the use of sustainable fishing practices [21,22]. Ensuring food safety and environmental sustainability are two of the three main objectives for the development of a sustainable strategy for aquaculture in Europe [23]. Concerns about safety and sustainability of aquaculture methods are related with the consumer perceptions about industry and contribute in the formation of consumer attitudes towards aquaculture [24].

From a marketing strategy point of view, an attitude towards aquaculture index will be useful if it is related to the concepts of safety and sustainability. These are the attributes that objectively can be controlled and ensure in the aquaculture production process. The attitude concept to be used in this paper will reflect the consumers beliefs about how aquaculture contributes to these two topics in the food market. A set of lickert scales will measure, in addition to a comprehensive assessment of aquaculture, consumer beliefs about the industry levels of safety and sustainability and the health and environmental benefits arising from the cultured species consumption.

Factors affecting food purchase decisions.

Several different factors have shown significant influence on consumers food purchase behavior. Some of these factors have collected here in three major groups: social and demographic characteristics; purchase

and consumption environment; and a set of personal factors and marketing inputs. Effects from these groups of factors over the attitude towards aquaculture will be tested using different methods depending on the class, nominal or scale, of variables involved.

Consumer demographic characteristics have shown influence on the use of nutritional labels in different situations and diverse ways [25,26]. Some of these influences are result of relations between perceived food safety and consumer categories such as gender, race or age [27]. Green consumerism is also expected to be influenced by consumer demographic characteristics [24]. Consumer preferences vary depending on gender with regard to organic food consumption [28] and ecolabeled seafood [21]. Household income affects the preferences in seafood species [29] and have shown a positive effect on the willing to pay for local labeled farm raised fish [7].

Situational factors, which involve consumer experience and all stimulus at the time of choice decisions, also influence seafood consumption and purchase [30]. Three of these factors are considered here: consumption place, household purchase responsibility and fishmonger format. Price elasticity is lower among seafood consumers at restaurants than at own homes [31]. Although restaurateurs segments can hold different preferences, mostly are favourable to aquaculture products, mainly by advantages related with price [32]. Being the household responsible of fish purchase increases experience in the marketplace, which affects the situational factors influence [30]. Similar effects to those observed with frequent fish consumption [29] could be expected, and it could also affects attitude towards aquaculture.

Grocery shops formats differ in their marketing and promotional strategies. Thus, attitudes towards products may vary from one store types to another. Grocery format differences affect the likelihood of purchase new foods and may be in the causes that explain differences in the same product prices [33,34]. Traditional food stores in Europe are identified with higher quality products [35]. On the contrary, large surfaces and selfservice are associated with a more standardized quality and with the search of saving opportunities [36]. In these conditions, large grocery chains are forced to intensify promotion of their quality standards in the search for a better product appraisal [37].

Other marketing influences are related to the information received by consumer about the product and the image transmitted. Advertising and information flows in the distribution channel are included among these sources. Effects of generic advertising on the cultured species perceptions was found to be significant in the North American catfish market [18]. Store image or prestige directly affects customer satisfaction, and this affects buyer loyalty [38], some other consumer behaviors may be affected in this relationship. Satisfaction and store loyalty are also influenced by perceived service quality [39], in which the seller plays an important role.

Finally, a relevant factor which will condition a consumer attitude referring to safety and sustainability beliefs about an industry, will be his level of involvement in relation to both issues. A previous consumer concern must exist to value and seek for products that claim food safety and environmental care. Consumer must also be aware that he can be able to contribute, in both directions, with his purchasing decisions [40,41]. Former aware is going to be use in this paper as a measure for consumer involvement in food safety and sustainable consumption.

METHODOLOGY

Data used to study which factors affect attitude towards aquaculture come from a 3,200 consumers sample, representing Spanish seafood market, with a sampling error of $\pm 1.8\%$ (95.5% LC. $p = q = 0.5$). Interviews were conducted face-to-face, by trained pollsters, to consumers proportionally randomly selected according to the regional population, gender and age. The sample is included in a research on the

consumption of marine aquaculture species in Spain, in the framework of a collaboration agreement between the General Secretariat of Fisheries of the Spanish Ministry of Fishing and the University of Cantabria. Field work which provided the data used in this paper was conducted in November 2005.

Consumer attitude was measured with a 5 points likert scales battery reflecting five different opinions about aquaculture and consequences of its products consumption (Table I). First two scales measured consumers beliefs about safety and sustainability in the aquaculture industry. Scales 3 and 4 measured the assessment of potential benefits for the health and environment resulting from cultured species consumption. The last scale corresponds to a comprehensive assessment of aquaculture, measured by the predisposition to recommend consumption of their products to other third person. 2,349 interviewed answered the whole five scales.

Table I: Attitude Towards Aquaculture Scales.

A1	Aquaculture produces safety foods
A2	Aquaculture helps to preserve marine resources
A3	Consumption of cultured species contributes to my health care
A4	Consumption of cultured species contributes to marine resources preservation
A5	I would recommend consumption of cultured species

Principal components analysis [42] is led to reduce the five scales within a latent factor accounting for the consumer attitude towards aquaculture. Scores obtained by factor score regression method result in a standardized normal distributed attitude index for each participant. Index scores are going to be used as dependent variable in models that involve sociodemographic variables and situational factors. Confirmatory factor analysis [43] will be used for inclusion in the structural model to test the effect of consumer involvement, generic advertising and confidence in distribution channel.

Questionnaire also included interviewee demographic characteristics. Gender, age, education level, occupation and income will be the variables that will be used to test their effect over attitude towards aquaculture. initial categories in which these variables were divided are shown in table II.

Table II: Sociodemographic categories.

Gender	Age	Education	Occupation	Income
Male Female	18-29	Ill-educated	Occupied	<10.000€
	30-49	Primary	Retired	10.000-20.000€
	50-64	High school	Unemployed	20.000-30.000€
	>65	University	Housekeeper Student	30.000-40.000€ >40.000€

Consumption place was measured using dichotomous variables that took the value 1 when the interviewee consumes fish at restaurants. Another dichotomous variable was used to verify if the interviewee is the household seafood purchase responsible. The latter were asked four other dichotomous questions corresponding to the grocery formats they use to purchase seafood: hypermarket, supermarket, fish market and fishmonger. Dichotomous variables allow to register those buyers visiting different commercial formats.

Three different simple effects linear anova models [44] are tested to determine the existence of significant effects on the attitude from these non numerical variables. Demographic variables are involved as fixed factors in the first model. Seafood consumption Place and household purchase responsibility will be involved in second one. In these two models all respondents were included. Third model tests differences

in attitude depending on fish store format. In the latter only those interviewed who purchase fish at markets, 1.301 respondents, are involved.

Another set of 5 points lickert scales collected different scores about consumer involvement in safety and sustainability, generic advertising credibility and confidence in the seller and shop. Two scales collected scores on consumer consciousness of being able to contribute to food safety and environmental care with his food purchase decisions. A scale reflects the scores about credibility of a well known generic campaign for the promotion of national marine aquaculture species. Campaign slogan was "Cultured Fish, Confidence Fish", and, by the sampling time, it took seven years present at the marketplace, papers and radio stations. Latest two scales collect scores on the importance conferred by consumer to the seller suggestions and the store prestige (Table III). A total 1,072 respondents answered all five scales.

Table III: Personal and Marketing Influentials Scales.

C1	I can contribute to my health and safety with my food purchasing choices
C2	I can contribute to environment care with my food purchasing choices
AD	"Cultured Fish, Confidence Fish" ads are credible
M1	Seller suggestions are very important in my fish purchase decisions
M2	Establishment prestige is very important in my fish purchase decisions

Due to the confirmatory factor analysis properties [46], it is not necessary to have a broad collection of observations for each factor. Two observed variables per factor will be sufficient to obtain consistent and unbiassed parameter estimators when two or more factors are involved [47]. Only consumer beliefs about safety and sustainability of the aquaculture industry will be used as observed variables of the attitude construct. Both summarize a general opinion about both issues in the fish farming activity.

Structural modeling with latent variables presents two different levels of analysis. A measurement model is required to define the factors whose relationship is going to be studied, linking each latent variable with the corresponding scales used to collect consumers observations. Two measurement models must be formulated. One for the exogenous, independent variables, and another for the endogenous or dependent.

Measurement model for the exogenous variables sets out as follows,

$$\begin{aligned}
 C1 &= \lambda_1 \text{CINV} + \delta_1 \\
 C2 &= \lambda_2 \text{CINV} + \delta_2 \\
 AD &= \lambda_3 \text{ADCRE} + \delta_3 \\
 M1 &= \lambda_4 \text{MKTPL} + \delta_4 \\
 M2 &= \lambda_5 \text{MKTPL} + \delta_5
 \end{aligned}$$

Where CINV is the consumer involvement in safety and sustainability on his food choice decisions, ADCRE is the credibility attributed to the generic advertising campaign and MKTPL are influences from elements of the distribution channel. The λ parameters reflected the factor loadings intensity and the δ accounts for the random disturbance associated with each equation. λ_1 , λ_2 and λ_3 are set to 1 to define the measurement scale of each latent variable [46,43].

In a similar way, the measurement model for the endogenous variable is set out as follows,

$$\begin{aligned}
 A1 &= \lambda_6 \text{ATT} + \delta_6 \\
 A2 &= \lambda_7 \text{ATT} + \delta_7
 \end{aligned}$$

Where ATT represents the attitude towards aquaculture and parameters are interpreted in the same that their equivalents in the measurement model for exogenous variables.

Finally, the structural model that connects the latent variables is described by the following equation,

$$ATT = \gamma_1 \text{CINV} + \gamma_2 \text{ADCRE} + \gamma_3 \text{MKTPL} + \zeta$$

Where γ represents the regression parameters which record the causal effects from the independent variables on the attitude, and ζ is the random disturbance.

Fitment is going to be performed using the SPSS AMOS 7.0 statistical package distribution free algorithm [48]. This procedure uses a chi-square test for equality of distributions which may not be rejected in order to consider the relations described in the model as valid to explain the observed behavior. Also computes the regression parameter estimators and factor loadings, and a t significance test for each parameter.

RESULTS

Attitude towards aquaculture index is first computed. Principal components analysis will verify whether its reduction match with observed data. Index is going to be used as a dependent variable in the models that prove effects on attitude towards aquaculture from demographic variables and situational factors.

Scales used to measure attitude presented sufficient statistical association allowing to reject the Bartlett sphericity test, which verifies whether the correlation matrix could be the identity. Other association indices such as a correlation matrix determinant close to zero, and and Kaiser – Meyer – Olkin test with value close to one, offer satisfactory results for factor reduction. A single principal component, which accounted for the 63.58% of total variance, summarizes the information of the five scales (Table IV). Consistency between opinions on aquaculture safety and sustainability, and its overall assessment, is derived from this result. Both topics are related to the consumer perceptions about the seafarming activity, and effects on their seafood purchase decisions can be expected. Factor scores regression method would estimate an index of attitude towards aquaculture for each sample member. The attitude index computed in this way is standardized normally distributed. So, ANOVA distributional assumptions for the dependent variable are not violated.

Table IV: Principal Components Analysis Results.

Association tests		Component	Eigenvalues	% of Variance	Loadings
Determinant	0.079	A1	3.179	63.584	0.855
KMO	0.787	A2	0.726	14.514	0.851
Bartlett's	6496.839	A3	0.520	10.406	0.772
df	10	A4	0.417	8.334	0.707
sig.	0.000	A5	0.158	3.162	0.794

Effects from gender, age, education level, occupation and household income on the attitude scores variability are tested using a simple effects anova linear model. A first test leads to determine which social and demographic variables result in significant effects on the attitude (Table V). Test does not allow to reject independence between attitude towards aquaculture and education level and household income. A second test discusses this influence with new dichotomous variables whose categories correspond to the greatest differences observed according to the original categories (Table VI).

Table V: ANOVA Test for Sociodemographic Effects.

	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	83.252	16	5.203	5.608	0.000
Intercept	2.923	1	2.923	3.151	0.076
Gender	0.259	1	0.259	0.280	0.597
Age	3.486	3	1.162	1.252	0.289
Education	21.837	3	7.279	7.845	0.000
Occupation	2.812	5	0.562	0.606	0.695
Income	27.872	4	6.968	7.510	0.000
Error	2022.723	2180	0.928		
Total	2106.150	2197			
Corrected Total	2105.975	2196			

Table VI: Estimated Marginal Means for Education Level and Income.

		Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Education Level	Ill-educated	-0.213	0.099	-0.407	-0.019
	Primary	0.153	0.066	0.023	0.283
	High school	0.155	0.059	0.039	0.270
	University	0.271	0.055	0.163	0.378
Household Income	<10.000€	-0.100	0.048	-0.195	-0.006
	10.000-20.000€	-0.097	0.051	-0.198	0.004
	20.000-30.000€	-0.018	0.064	-0.142	0.107
	30.000-40.000€	0.194	0.099	0.000	0.388
	>40.000€	0.477	0.126	0.231	0.724

Dichotomous categories have been identified from the highest differences in estimated marginal means obtained for each variable in the first test. University level studies and household income level higher than 40,000 euros annually offered the highest values. Marginal means begin to be positive at primary education levels, although an important peak appears when reach university level. Concerning household income, positive attitude starts to occur when income is higher than 30,000 annual euros. Education level category is 1 if the interviewee holds university degree, 0 otherwise. Similarly, household income is 1 for more than 30.000 euros annually. Test shows significance in both factors (Table VII).

Table VII: ANOVA Test for Reduced Sociodemographic Effects.

	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	46.919	2	23.459	24.997	0.000
Intercept	9.892	1	9.892	10.540	0.001
Education	16.252	1	16.252	17.317	0.000
Income	25.219	1	25.219	26.871	0.000
Error	2059.056	2194	0.938		
Total	2106.150	2197			
Corrected Total	2105.975	2196			

Attitude increases from a marginal mean close to zero up to 0,221 in respondents with higher education. With the income attitude grows from negative to positive values when household revenues are above 30,000 annual euros (Table VIII).

Table VIII: Estimated Marginal Means for Dichotomous Education Level and Income.

		Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Education Level	0	0.030	0.051	-0.070	0.131
	1	0.221	0.038	0.147	0.295
Household Income	0	-0.064	0.023	-0.110	-0.019
	1	0.316	0.072	0.175	0.456

Two different tests were used to study effects from situational factors. First test results (Table IX) show significance with consumption place, but not with the fish purchase responsibility.

Table IX: ANOVA Test for Consumption Place and Fish Purchase.

	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	41.254	2	20.627	21.137	0.000
Intercept	0.364	1	0.364	0.373	0.542
Place	40.769	1	40.769	41.778	0.000
Purchase	0.636	1	0.636	0.651	0.420
Error	2289.382	2346	0.976		
Total	2330.718	2349			
Corrected Total	2330.637	2348			

Expected marginal mean is higher among those interviewed who consume fish in restaurants, and show negative attitude those who only consume fish at their homes (Table X).

Table X: Estimated Marginal Means for Consumption Place and Fish Purchase.

		Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Consumption Place	Home	-0.119	0.028	-0.175	-0.064
	Restaurant	0.145	0.030	0.086	0.203

Store type rose significance in three of the studied formats. There are no differences in buyers attitudes in traditional fishmongers (Table XI).

Table XI: ANOVA Test for Effects from Store Format.

	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	31.013	4	7.753	7.495	0.000
Intercept	2.503	1	2.503	2.420	0.120
Hipermarket	13.318	1	13.318	12.875	0.000
Supermarket	6.679	1	6.679	6.457	0.011
Fish Market	5.982	1	5.982	5.783	0.016
Fishmonger	0.066	1	0.066	0.064	0.800
Error	1340.583	1296	1.034		
Total	1372.247	1301			
Corrected Total	1371.596	1300			

The biggest difference occurs with hypermarket, being the the sole format in which negative attitudes are hold by no buyers. Contrary, buyers at supermarket and traditional fish markets show worse attitude levels than those consumers which never buy fish at these class of stores (Table XII).

Table XII: Estimated Marginal Means for Store Format.

		Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Hypermarket	No	-0.072	0.033	-0.136	-0.008
	Yes	0.236	0.063	0.113	0.359
Supermarket	No	0.141	0.045	0.054	0.229
	Yes	-0.013	0.057	-0.125	0.098
Fish Market	No	0.143	0.039	0.066	0.219
	Yes	-0.014	0.063	-0.139	0.110

Finally, model testing effects from consumer involvement in food safety and sustainability, generic advertising credibility and influences in the distribution channel is fitted. The Chi square test allows to reject the hypothesis of independence among the latent variables, as well as between these and observed scales. Other goodness of fit indices such as GFI, close to one, and RMR, close to zero, show satisfactory values [49] (Table XIII).

Table XIII: Structural model Independence test and goodness of fit indices.

Chi square test	$\chi^2 = 10.027; df = 9; \alpha = 0.348$
GFI	0.995
RMR	0.012

Parameters values and significance tests show that attitude towards aquaculture is affected positively by consumer involvement and generic advertising credibility. In the opposite, influential in distribution, collecting seller suggestions and shop prestige, shows no significant effects over the attitude (Table XIV).

Table XIII: Parameter estimates and significance tests.

Structural Model	
ATT = 0.247 CINV + 0.346 ADCRE + 0.047 MKTPL + ζ	
T sig. (0.000) (0.000) (0.313)	
Exogenous measurement model	Endogenous measurement model
I1 = 1 CONS + δ_1 T sig. (fixed)	
C2 = 0.471 CONS + δ_2 T sig. (0.000)	A1 = 1 ATT + ϵ_1 T sig. (fixed)
AD = 1 ADCRE T sig. (fixed)	A2 = 0.908 ATT + ϵ_2 T sig. (0.000)
M1 = 0.925 MKTPL + δ_4 T sig. (0.000)	
M2 = 1 MKTPL + δ_5 T sig. (fixed)	

CONCLUSIONS

Results allow to conclude that an attitude towards aquaculture seems to be a consistent construct in seafood consumer behaviour. This attitude towards the sea farming technique can be measured through safety and sustainability beliefs about its methods and the consequences of consume its products. Both

topics are related in this concept of attitude, affecting consumers perceptions and preferences [24]. results also suggest that opposing opinions such as “aquaculture is safe but pollutant” or “it is sustainable but unsafe” are not frequent in this market.

Education level and household annual income positively affect attitude towards aquaculture. The highest the two sociodemographic variables, the greater the attitude index scores. Education level determines consumer capacity to understand information that handles about the new technology, increasing or decreasing risk aversion [14].

Consumption at restaurants also has a positive impact on attitude, probably as a result of a good acceptance of the cultured species among the restaurateurs [32]. As services suppliers, employees in restaurants are perceived quality transmitters. A favourable restaurateur attitude towards cultured species seems to be reflected in their customers. Similarly, hypermarkets promotional effort and complete identification of their products [37] could be in the origin of the best attitude towards aquaculture among those interviewed who purchase at these fishmongers. Quantity and quality of information received by consumers appears in the formation of their attitudes, stressing its nature of learned behaviors.

Generic advertising positive effects on aquaculture perception [18] are also confirmed in these results. These effects will depend primarily on advertising credibility. Most generic campaigns are supported by public institutions, which increases seafood consumers confidence [19,21]. Messages from the authorities, and the confidence that they show when transmitting information to society about aquaculture, are part of the social dimension factors that determine risk aversion towards new food technology [14]. Thus, generic advertising favours attitude towards aquaculture in a double way. No significant results have been observed with the variable that reflected influences at the distribution channel, nor with the fact of being the household seafood purchaser. This suggests that the contact with the selling point, which affects other purchase behaviors [33,34], does not contribute in the attitude towards aquaculture formation. Further indeep research should be conducted in this direction, as it obviously affects and drive purchase decisions.

Finally, a consumer involvement in food safety and environmental sustainability issues favors his attitude towards aquaculture. Consumer aware of his ability to contribute in both topics with his purchasing decisions were introduced as parts of the processes described for nutritional [40] and environment friendly labels [41] usage. Grouped in a latent variable they have proved to be cause for positive variation in the attitude scores. Further research on this topics can offer interesting implications for the development of a differentiated marketing strategy for cultured species [6].

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