

## **Abstract**

Although the organic sector is still relatively small, the demand for organic food is increasing throughout the world. Characterization of consumer perception of and attitudes towards organic food is important to enable the development of marketing policies aimed at attracting conventional consumers to the sector. Consumer behaviour studies must be conducted specifically for different regions and countries as perceptions and attitudes vary across the world. In the present study, a questionnaire was designed for administration to consumers in Galicia (Northern Spain). The questionnaire was administered to 830 consumers in 200 establishments to obtain data about consumers perception of and attitudes towards organic food. The survey results showed that one third of responders consume organic food and that the typical profile of an organic consumers is a middle-aged, medium-high class, university-educated female living in a large village, who shops in supermarkets and preferably consume vegetables, fruit and eggs. Most people who declared that they consume organic products confuse these with home and locally produced food, indicating the potential for growth of the organic sector by providing such consumers with appropriate information. Most consumers (including conventional consumers) have a good opinion of organic food and consider that it is better for health, is of better quality than conventional food and avoid pesticide residues. However, price continues to be a barrier to the consumption of organic produce. Most respondents stated that they would consume more organic food if the price was only between 10 and 30% higher than the conventional equivalent. Finally, organic consumers in Galicia showed positive attitudes towards using local breeds in organic agriculture, both for producing food and for ecotourism and educational activities. Such activities could contribute to conserving breed biodiversity and adding value to organic farming.

**Key words:** dairy product, ecotourism, breed, motives for consumption, willingness to pay

**Abbreviations used:** GMO (Genetic Modified Organism), Spanish National Classification of Economic Activities (CNAE), IGE (Instituto Galego de Estatística), WTP (willingness to pay) ORG (organic), HL (home and locally produced food), CON (conventional)

## **Introduction**

The objectives of organic agriculture include producing food while preserving the environment and improving sustainability (Albardiaz-Segador, 2000). European Union regulations regarding organic farming forbid the use of pesticides and greatly limit the use of chemical products (including fertilizers and allopathic treatments); they also forbid the use of genetically modified organisms (GMO), promote improved grazing and animal welfare and recommend the use and conservation of local breeds (EC, 2007; EC, 2008).

Although the organic sector is still relatively small, the demand for organic food is increasing throughout the world, with growth rates of 48% in the European Union and 28% in North America in the last years (Dash and Dash, 2016; Sharma and Singhvi, 2018). In terms of marketing, it is important to identify the characteristics of organic consumers in order to be able to design strategies to attract conventional consumers to the sector. Consumers' opinions on the strengths and weaknesses of organic products and their perception of the difference between buying organic or conventional products influence the willingness to pay and constitute useful information (Dash and Dash, 2016). Moreover, identifying customer profiles and implementing market-oriented policies would allow organic farmers to become less dependent on public subsidies (Idda, Madau and Pulina, 2008).

Studies have been carried out in numerous countries worldwide to evaluate the consumer perception of and attitudes towards organic food: in Spain (Briz and Ward, 2009), Portugal (Ventura-Lucas *et al.*, 2008), Germany (Ventura-Lucas *et al.*,

2008), Italy (Chinnici, Amico and Pecorino, 2002; Idda, Madau and Pulina, 2008), Greece (Krystallis and Chryssochoidis, 2005) Romania (Oroian *et al.*, 2017), Turkey (Marangoz *et al.*, 2014) Brazil (Hoppe, Vieira and Barcello, 2013), Bangladesh (Ahmed and Rahman, 2015), India (Dash and Dash, 2016), Nepal (Aryal *et al.*, 2015), Thailand (Ueasangkomsate and Santiteerakul, 2016) and China (Sirieix, Kledal and Sulitang, 2011). Such studies must be conducted for different regions and countries as people's perceptions and attitudes vary across the world depending on cultural considerations (Ventura-Lucas *et al.*, 2008; Dash and Dash, 2016). When buying organic products, consumers in different countries are mainly influenced by gender, age, income, level of education and the presence of children in the household (Sharma and Singhvi, 2018). Consumers generally value organic products for their quality and for being better for health and the environment (Hughner *et al.*, 2007; Shafie and Rennie, 2012; Hoppe, Vieira and Barcello, 2013). However, most studies have found that price continues to be a barrier to the widespread consumption of organic products. Differences between countries have also been found in relation to frequency of consumption and willingness to pay for different products (Ventura-Lucas *et al.*, 2008; Shafie and Rennie, 2012).

The objective of this study was to characterize organic consumers in Galicia. The specific aims were to determine the profiles of organic consumers as well as their knowledge about organic products, their reasons for consuming (or not) organic food, in addition to different attitudes and habits of consumption, their willingness to pay for organic products, the value they attach to the use of local or rustic breeds for organic production and their willingness to contribute to the conservation of these breeds.

## **Methodology**

### **Sample design**

*Interview design.* The questionnaire was specifically designed for the study and included open- and closed-ended questions. A series of coded options were provided as responses to the closed-ended questions, and the consumers were asked to choose the option that best reflected their position, opinion or behavioural pattern (Marvulli, 1985). The questionnaire included 36 items divided into 4 groups: personal data, general questions about organic food, specific questions related to traditional breeds, ecotourism and farm schools and other questions (Annex 1).

*Number of samples.* According to the Spanish National Classification of Economic Activities (CNAE), there were 9202 type 47.1 (retail trade not specialized) and 47.2 (food and drink retail trade) establishments in Galicia in 2015 (IGE, 2015). In order to estimate the number of establishments that should be visited, the usual method of calculating the sample size was used, applying an expected error of 7% for a proportion of a maximum degree of indeterminacy ( $p=q=50$ ). This yielded a sample size of  $n=200$  (2.17% of establishments) in this case. In addition, the target was for at least 4 people to be interviewed each establishment chosen for data collection.

*Sample selection.* A stratified two-stage sampling model was applied. Each sample was selected independently in each stratum in which Galicia was divided. The units for the first stage were establishments registered in CNAE in 2017 and the units for the second stage were consumers. The criteria for stratification were based on demographics according to population of the area: stratum 1 (S1): population less than 2,000 inhabitants; stratum 2 (S2): population between 2,000 and 5,000 inhabitants; stratum 3 (S3): population between 5,000 and 10,000 inhabitants; stratum 4 (S4): population between 10,000 and 20,000 inhabitants; stratum 5 (S5): population between 20,000 and 50,000 inhabitants; stratum 6 (S6) inhabitants: large council areas (the seven cities in Galicia: A Coruña, Ferrol, Santiago de Compostela, Lugo, Ourense, Pontevedra and Vigo). In addition, councils were also divided in *substrata* by considering the degree of urbanization, following the proposal of Eurostat: densely populated areas (DPA), groups of contiguous councils, each with a demographic density

of more than 500 population/km<sup>2</sup> and an overall population of at least 50,000); intermediately populated areas (IPA, groups of councils each with a density higher than 100 population/Km<sup>2</sup>, but excluding those in densely populated places, the population of the entire area should be at least of 50,000 or the area must be contiguous to a densely populated place) and scarcely populated places (SPA, groups of councils not classified as densely populated or intermediate populated places) (IGE, 2017). The establishments (n=200) were selected within each stratum and substratum with a probability proportional to their population, resulting in S1 ZIP=2, S1 ZPP=8, S2 ZIP=2, S2 ZPP=22, S3 ZIP=5, S3 ZPP=23, S4 ZIP=25, S4 ZPP=12, S5 ZIP=20, S5 ZPP=11, S6 ZDP= 70. Once the number of establishments of each type was known, the addresses were randomly selected and provided by the IGE (Instituto Galego de Estatística). Within each establishment, people were also randomly selected for questioning (Lohr, 1999). When the consumer was from a different council area, the interview was assigned to the corresponding stratum.

## **Empirical application**

### **Data collection**

A total of 830 interviews were conducted between January and October 2017, in 200 establishments. The questionnaire was administered by interviewing consumers when they were leaving the establishments. All interviews were performed by the same interviewer (Ruth Rodríguez).

### **Statistical analysis**

Data were analysed using SPSS (version 24). Interviews (n=830) were initially intended to be classified by organic and conventional consumers/responses. A total of 24 people responded that they do not know whether they were organic or conventional consumers or declined to answer (*do not know/no answer*) and were excluded from the analysis. Moreover, on analysing the responses given to questions 13-15 and 35-36 (see S annex 1), we realised that 305 respondents considered that they were organic

consumers when in fact they consumed home or locally produced food bought in local markets or produced at home. For this reason, the respondents were finally classified as *organic* consumers (ORG, n=288), *conventional* consumers (CON, n=213) and *home and locally produced food* consumers (HLP, n=305).

All variables were analysed by cross-tabulation, and differences were considered significant at  $p < 0.05$  (Chi-square test). Customer group (ORG, HLP, CON) was considered the grouping variable and all other variables were considered dependent variables (S Annex 1).

## **Results and discussion**

### *General data*

General information about the consumers questioned in the survey is presented in Figure 1. People who thought (and stated) that they consume organic food although they actually consume “environmental friendly” home and locally produced (HLP) food were the most numerous group, accounting for 40% of responders. Organic (ORG) consumers (including people who consume at least one organic product in their diet) represented one third of responders, and the “only conventional” (CON) consumers were the least numerous group (26%). Data produced by the Spanish government indicate that 29% of people in Spain consume organic food, a figure that has increased by 3% since 2011 (MAGRAMA, 2014). Within Europe, organic consumers represent 34.1% of consumers in Italy (Chinnici, Amico and Pecorino, 2002), 27.4% in Germany (Ventura-Lucas *et al.*, 2008), 20.1% in Portugal (Ventura-Lucas *et al.*, 2008), while Switzerland has the highest per capita consumption of organic food world wide (280 Euros), followed by Denmark (220 Euros) and Sweden (200 Euros) (FiBL, 2018). As in our study, other authors have indicated that consumers display a high level of confusion in identifying organic products (Hughner *et al.*, 2007; Briz and Ward,

2009). In Europe, organic products are subject to European Union regulations and must meet certain criteria to qualify for an official EU label, which appears on the product; however, most consumers are unaware of this (Pivato, Misani and Tencati, 2008). Furthermore, variables such as the level of market development, the use of other positively associated food terms (e.g. “cage-free” and “natural”) and the product category (e.g. farmed salmon) serve to heighten consumer confusion (Krystallis and Fotopoulos, 2002; Aarset *et al.*, 2004; Mauleón, 2014).

Analysis of the profile of the organic consumers revealed that more women consumed organic food than men (37.3% vs 32.9%). Regarding age, most of the respondents who consume organic food were between 25 and 54 years old, with the highest proportion in the 45-54 year age group (41.3%). These data are consistent with those obtained in other studies carried out in Spain by MAGRAMA (2011, 2014) and other European countries (Krystallis and Chryssochoidis, 2005), which have shown that organic consumers tend to be women of age 34 to 54 years old and, within Spain, who usually live in Northern Spain, usually in large cities. The main organic consumers across Europe are also middle-aged women (Chinnici, Amico and Pecorino, 2002; Generalitat de Catalunya, 2015). Although younger consumers tend to have more positive attitudes towards organically grown food, older consumers are more likely to be purchasers, and the discrepancy is attributed to the higher price of organic food and lower purchasing power of younger people (Krystallis and Chryssochoidis, 2005; Hughner *et al.*, 2007).

Considering educational levels, our results show that consumers with higher levels of education buy more organic food. Respondents with university-level education made up the highest proportion (47.1% organic consumption) and those with low levels of education constituted the lowest proportion (2.9%) of organic consumers. Consumers with lower educational levels were often not aware that they were consuming conventional food or thought they were consuming organic food rather than home and/or locally produced food. Other studies have also observed that organic

consumers are more likely to be more highly educated (Chinnici, Amico and Pecorino, 2002; Padel and Foster, 2005; MAGRAMA, 2011; Hoppe, Vieira and Barcello, 2013; Generalitat de Catalunya, 2015; Oroian *et al.*, 2017). Briz and Ward (2009) reported a negative relation between knowledge and organic purchasing, with better informed consumers having real motives for buying organic products and rely less on their own perceptions.

Organic food is more frequently consumed in towns of population 5,000-10,000 and in towns with more than 20,000 inhabitants than in other areas (although the difference is not statistically significant). These findings are consistent with those of other studies carried out in Spain showing that organic consumption is highest in towns with 10,000-50,000 inhabitants and lowest in large cities of more than 100,000 inhabitants (MAGRAMA, 2007; Generalitat de Catalunya, 2015).

Among the respondents, organic consumers included high proportions of married people (37.1%) or people living with partners (44.9%) and a relatively low proportion of divorced people (26.7%). No differences were found in relation to “number of family members”, “having children or not”, “age of the children” or “number of children”. By contrast, other studies have observed that people with are more likely to be organic consumers (Hughner *et al.*, 2007; MAGRAMA, 2011; Sharma and Singhvi, 2018) as having children greatly changes family eating habits and parents take great interest in diet (Hughner *et al.*, 2007). Although no differences were found for the “number of family members working”, “family income” was a significant factor: organic consumers include a higher percentage people with a high family income. Similar results have been found in other studies (Chinnici, Amico and Pecorino, 2002; Padel and Foster, 2005; Roitner-Schobesberger *et al.*, 2008; MAGRAMA, 2011), situating organic consumers in the high-medium class.

Considering the frequency of shopping, those consumers who always do the shopping or more frequently than other members of family tended to buy more organic products than those respondents who only occasionally go shopping.

When questioned

about purchasing criteria, organic consumers focused more on “quality” and “freshness” of the food than the other groups of consumers. Our results differ from those of Krystallis and Chryssochoidis (2005), who found that in terms of the most important criteria considered when buying food, the greatest importance (>80%) was given to price, taste, certification of production method, nutritional value, environment, raw materials and origin.

Regarding the “1<sup>st</sup> place for purchase” for general food shopping, there were no differences between groups, and in all cases supermarket was the first (75%) and only choice (60%) for most respondents. Krystallis and Chryssochoidis (2005) also reported that organic consumers can also be considered typical supermarket consumers.

When organic consumers were asked where they specifically buy organic food (Figure 2), the main “1<sup>st</sup> place for purchase” option (25.4%) was the supermarket, followed by small shops (22.6%), specialized shops (16.3%) and local markets (15.3%). For general shopping, half of the respondents did not have a “2<sup>nd</sup> place for purchase” of organic food. There is no agreement in the published surveys about where organic consumers buy organic food. Thus, while in some studies report that supermarkets or hypermarkets are the main establishments where the products are bought (MAGRAMA, 2011; Sirieix, Kledal and Sulitang, 2011), other studies have found that consumers mostly buy organic food in specialised shops (Mauleón, 2014; Generalitat de Catalunya, 2015) and other findings differ depending on the country considered (Ventura-Lucas *et al.*, 2008). Long-term organic consumers appear to tend to buy in specialized and delicatessen shops, because of the higher quality of the products, or because they find more variety than in supermarkets and

hypermarkets (MAGRAMA, 2007) or they even find that the organic products more reliable (Sirieix, Kledal and Sulitang, 2011). Within Europe, in Scandinavia and the UK organic products are mainly sold in supermarkets, while in Germany and The Netherlands they are sold in more expensive, specialised shops (Wier and Calverley, 2002).

### *Knowledge about organic food*

Many studies have found that consumers are not clear as to the definition of organic food, even those consumers who say that they consume organic products (Hughner *et al.*, 2007). The responses to this question are shown in Figure 3. ORG consumers provided more accurate definitions of organic food than CON, with HLP in an intermediate position. Few people defined organic food very well (3.5, 1.6 and 1.4 % for ORG, HLP and CON respectively) or well (21.3, 24.6, 17.0%), and almost half of the respondents (particularly CON) displayed poor or very poor knowledge about organic food. These findings are very similar to those of other surveys carried out in Spain (Cobo and González-Ruiz, 2001; Mauleón, 2014; Generalitat de Catalunya, 2015) and other countries (Bhatta *et al.*, 2008; Aryal *et al.*, 2015), i.e. that although most consumers (generally up 90%) state they know what organic agriculture is or have heard about it, only a very low number of respondents display very good (< 5%) or good (27-41%) knowledge about organic agriculture. These observations clearly show that more education and further information are needed to promote organic food consumption. The level of knowledge about organic farming influences the willingness of consumers to purchase the products (Cobo and González-Ruiz, 2001; Mauleón, 2014).

The concept of Genetically Modified Organisms (GMOs) is important in relation to organic food as their use is forbidden in organic production (EC, 2007). We therefore considered it important to ask people about GMOs (Figure 3). The ORG consumers generally knew more about transgenic food (nearly half of respondents defined it very well) and they stated that “would buy more organic food knowing they are free of GMO” (nearly

90%). The HLP group displayed a slightly lower level of knowledge (41.3 %) about GMO, although they also expressed a wish to buy transgenic free organic food. On the contrary, the CON group knew considerably less (16.9%) about GMOs and attached little importance to them in food (54.9%). These findings may be related to consumer perception of GMOs, which are usually seen as overly manipulated and altering nature, while organic food is seen to preserve the natural qualities of the environment (Tenbült *et al.*, 2004). Interest in production processes also leads consumers to reject certain types of technology, and the use of GMO has met with considerable consumer resistance in Europe (Bredahl, Grunert and Bech-Larsen, 2000). In fact the resistance to GMO products is also common in other European countries (de Almeida *et al.*, 2006). Thus, studies comparing attitudes to genetically modified food and organic food have found that consumers have positive attitudes towards organic food (Magnusson *et al.*, 2003; Arvola A. Vassallo M. Dean M. Lampila P. Saba A. Lahteenmaki L. Shepherd, 2008) while they are quite negative about GMOs (Tenbült *et al.*, 2004).

#### *Frequency of organic food consumption*

Although we recognise that the HLP are not organic consumers, we evaluated frequency of consumption of organic products in both ORG and HLP consumers (Figure 4), as we consider HLP as potential organic consumers. ORG consumers reported that they mostly eat vegetables, tomatoes, fruit and eggs (42.4%, 38.9%, 40.2% and 39.2% respectively many times a week plus every day) while jam and wine (8% and 6.2% respectively every day or many times a week) were the least consumed products. HLP consumers stated that they preferably consume the same items (vegetables, tomatoes, fruit and eggs 55%, 49.5%, 48.5% and 52.4% respectively many times a week or every day) while the other foodstuffs are eaten in lower proportions. The significantly higher consumption of organic food within the HLP than the ORG group seems to be due to the widely held belief that all food produced at home or bought in local markets is organic. In general, our findings are consistent with those

of many other studies that have found that organic consumption is mainly of vegetables and fruit followed by eggs (Chinnici, Amico and Pecorino, 2002; Krystallis and Chryssochoidis, 2005; Ventura-Lucas *et al.*, 2008; MAGRAMA, 2014; Mauleón, 2014; Generalitat de Catalunya, 2015). Organic milk and dairy products, meat, bread and cereals and oil are less frequently consumed and very few people consume organic wine (Chinnici, Amico and Pecorino, 2002; Generalitat de Catalunya, 2015).

#### *Reasons for consuming (or not) organic products*

The reasons for organic consumption given by ORG and HLP consumers were examined (Figure 5). In general, consumers have a good opinion of organic products, awarding high scores to most of the possible reasons for consuming organic food. Few respondents consumed organic products out of curiosity. HLP consumers attached more importance than ORG to flavour, while HLP consumers placed more emphasis on health and quality aspects and to a lower degree to the environment. The positive image of organic products has also been mentioned by other authors (Ventura-Lucas *et al.*, 2008; Marangoz *et al.*, 2014; Mauleón, 2014), and in general researchers found that people value organic products because they perceive them as being healthier, of better quality and contributing to environment protection (Idda, Madau and Pulina, 2008; Sirieix, Kledal and Sulitang, 2011; MAGRAMA, 2014; Mauleón, 2014; Ahmed and Rahman, 2015; Ueasangkomsate and Santiteerakul, 2016). Some authors also mentioned other secondary factors such as e.g. promoting animal welfare, not containing GMOs, preservation of traditions, support for rural systems and the local economy, evocation of nostalgic feelings and traditions or curiosity (Hughner *et al.*, 2007; Ueasangkomsate and Santiteerakul, 2016). Our findings are consistent with these results. Organic consumers appear to place more emphasis on health aspects and quality and although environmental concerns have been demonstrated to have a favourable influence on consumer attitudes, they are not a driving factor (Hughner *et al.*, 2007).

Reasons for not consuming organic food given by CON consumers were examined (Figure 5). “Excessive Price” (mean=5.6; score: 1-10), “Lack of habit” (5.3) and “I do not trust that it is organic” (4.2) were awarded the highest scores; on the contrary “not knowing that organic exist” (1.3) and “not having an attractive appearance” (1.5) were awarded the lowest scores. Most studies indicate that people find organic products too expensive to buy or to buy frequently (Ventura-Lucas *et al.*, 2008; Dupupet, Valor and Labajo, 2010; Sirieix, Kledal and Sulitang, 2011; MAGRAMA, 2014; Mauleón, 2014; Puelles-Gallo, Llorens-Marín and Talledo-Flores, 2014; Generalitat de Catalunya, 2015). Apart from price, other reasons for not consuming organic products are ignorance, not finding the products, not trusting that products are organic and limited variety (MAGRAMA, 2007, 2011; Nielsen, 2010; Sirieix, Kledal and Sulitang, 2011; Puelles-Gallo, Llorens-Marín and Talledo-Flores, 2014; Aryal *et al.*, 2015; Generaliat de Catalunya, 2015). The lack of trust in the authenticity of organic food deserves special attention. Consumers cannot directly judge whether organic products are authentic as “organic” is not an attribute that consumers can simply verify in a product (Pivato, Misani and Tencati, 2008). Some European studies have found that consumers tend to distrust certification bodies, leading them to question the authenticity of organic products (Canavari *et al.*, 2002; Aarset *et al.*, 2004). The skepticism of consumers will diminish if they believe that producers or retailers are able and willing to monitor their organic suppliers and ensure that organic standards are respected (Perrini *et al.*, 2010). When CON consumers were asked if they would be interested in consuming organic products in the future, 46.5% answered positively.

#### *Perception of differences between organic and conventional food*

Consumer perception about differences between organic and conventional food is shown in Figure 6. ORG and particularly HLP consumers responded similarly, perceiving that organic food is “very different” or “quite different” from conventional food. On the other hand, a higher proportion of CON consumers found no difference

or little difference between both type of food, in accordance with the findings of other studies (Ventura-Lucas *et al.*, 2008). Some studies have found that consumers perception of organic products depends on the frequency of organic consumption, with organic consumers having a more positive impression of these products (Mauleón, 2014; Dash and Dash, 2016). This may explain why ORG consumers interviewed in the present study have a higher opinion of the products than reported by CON consumers. In fact 75% of people who consume or have consumed organic food find differences relative to conventional food (MAGRAMA, 2007). The proportion was even higher in our study, in which less than 6% of ORG consumers said that they found no difference between both foods. However, the HLP consumers believed that they were consuming organic products even when they were not. These consumers expressed positive opinions of the products they are consuming because of taste and of being home-produced. These people are potential organic consumers because they are interested in organic products; however, they need more information to be able to distinguish organic and other types of food.

#### *Willingness to pay (WTP) for organic food*

Data on WTP for organic food is presented in Figure 6. Most ORG consumers stated that an increase in price relative to conventional food of between 10-30% would be a fair price for organic food. Most HLP consumers would be willing to pay 0 or 10-30% more than for conventional food, and in the case of CON more than 30% for all types of food responded they would not to pay extra money to purchase organic food.

Overall, the WTP for organic food shown by ORG consumers in our study is consistent with the findings of other surveys in Spain (Albardíaz-Segador, 2000; Gil Roig, Gracia Royoz and Sánchez García, 2000; MAGRAMA, 2007), and other countries (Krytallis and Fotopoulos, 2002; Krystallis and Chryssochoidis, 2005; Menon, 2008; Urena, Bernabeu and Olmeda, 2008), in which organic consumers have been found to be willing to pay more (ranging from 5 to 60 %) to buy organic food, although

the amount differs significantly according to the type of product. Overall, organic fruits and vegetables (and to a lesser extent eggs and meat) are perceived as different from other products, and consumers exhibit the highest WTP extra for these products (Gil Roig, Gracia Royoz and Sánchez García, 2000; Krystallis and Chryssochoidis, 2005).

The increasing number of individuals who are willing to pay more for environmentally friendly products is perhaps the most convincing evidence supporting the growth of ecologically favourable consumer attitudes (Laroche, Bergeron and Barbato-Forleo, 2001). However, price continues to be a barrier to consumers (Gil Roig, Gracia Royoz and Sánchez García, 2000; Nielsen, 2010; Generalitat de Catalunya, 2015), and the gap between the prices must be reduced to favour increased consumption of organic food. Consumers who are well informed about what organic food is are willing to pay more to buy organic products because they attach less importance to price (Albardíaz-Segador, 2000; Nielsen, 2010; Puelles-Gallo, Llorens-Marín and Talledo-Flores, 2014). This may explain why although HLP consumers think that organic food is very different from conventional produce, it is ORG consumers who are willing to pay most of the three groups. Hence, better knowledge about organic products reduces sensitivity to the price and increases WTP (Nielsen, 2010; Aryal *et al.*, 2015). Marketing and publicity are thus necessary to increase the level of knowledge and WTP (Albardíaz-Segador, 2000). Maxwell (2002) concluded that it is not only price that influences purchasing intention but also understanding how price is determined. Thus, justification of price affects consumers perception and WTP. Quality, security and trust usually play an important role in WTP for organic products; consumers are willing to pay more for organic products because they perceive these products as being of higher quality and as safer foods that they can trust more than their conventional equivalents. If consumers are not absolutely sure that the food products they purchase are indeed organic, they will be unwilling to pay more than standard prices (Krystallis and Chryssochoidis, 2005). In addition to price, the other main

barriers to purchase of organic products are low variety, lack of availability, lack of trust and lack of information. Marketing strategies such as increased exposure and lower prices, combined with additional information about the advantages of organic products could help to overcome these barriers (Puelles-Gallo, Llorens-Marín and Talledo-Flores, 2014).

#### *Importance of external appearance*

The consumers were also questioned about the importance of external appearance and whether they would buy organic food with aesthetic defects (Figure 7). CON consumers attached more importance to appearance than ORG and HLP; moreover the CON group gave a lower percentage of positive responses about buying organic products with aesthetic defects (61.5%) than the ORG (87.9%) and HLP consumers (85.3%). This is an important point to take into consideration as organic products are more natural and sometimes have aesthetic defects, such as e.g. not being all of same size or being deformed, which do not affect the quality of the product (Albardíaz-Segador, 2000). In fact, rejection of aesthetic defects has also been mentioned by other authors who found that consumers are unwilling to accept the blemishes or imperfections often present in organic produce (Albardíaz-Segador, 2000; Bhatta *et al.*, 2008; Ventura-Lucas *et al.*, 2008).

#### *Valuing local or rustic breeds for organic production and willingness to contribute for their conservation*

Maintaining biodiversity, including genetic resources, for food and agriculture is another of the main key points in making organic agriculture sustainable. When consumers were asked if they would value the use of local or rustic breeds, in example “for organic dairy milk production other breeds different than Holstein-Friesian”, both ORG and HLP showed great interest (ca. 54% positive responses), although CON were also interested (38% positive responses) (Figure 8). It is well known that there is increasing interest in local products (Albardíaz-Segador, 2000), a preference that is partly justified

by tradition and evocation of the past. Many organic consumers associate organic products with preservation of tradition (Cicia *et al.*, 2006), and part of this tradition involves using local or traditional breeds (Nauta *et al.*, 2009). Following the same reasoning, the consumers in our study were very interested in “knowing which breed was used for organic dairy production” and showed “WTP for milk products produced by breeds other than Holstein-Friesian”. This can be taken advantage of as a marketing tool, especially in small farm systems which transform their own products, which have gate shops or are dedicated to tourism activities. In a similar study carried out in Finland with the aim of determining whether Finnish consumers would buy beef produced from indigenous breeds (Finncattle) even if they had to pay higher prices, Tienhaara *et al.* (2015) found that 72% of respondents chose to support conservation of the breeds and 40% to pay extra for the meat. The reasons given for this choice were taste, support for farmers, naturalness and participation in the conservation of the breed (Tienhaara, Ahtiainen and Pouta, 2015).

Another way of contributing to breed conservation, apart from using the animals for organic production (of e.g. milk), is to use them in cultural or leisure activities, which includes both ecotourism and farm schools. Data on ecotourism, perception of breeds used and WTP for breed conservation are presented in Figure 9. The first questions were aimed at discovering whether the attitudes of the different groups of consumers vary in relation to ecotourism. More ORG and HLP consumers have heard about ecotourism than CON, and more ORG followed by HLP have visited ecotourism establishments. The same tendency was observed in those consumers who have never visited such establishments, CON were the least interested in going in the future and if they did visit, they would do so less often. The consumers were then asked about their perception of animals and breeds used in ecotourism establishments. The responses followed a similar trend: ORG consumers valued having animals and traditional breeds more

positively and were also willing to pay a greater amount of extra money than CON, with HLP in an intermediate position.

Most indigenous breeds are adapted to particular habitats or production systems and although they may not be as productive as other breeds they represent an important resource for meeting present and future breeding objectives (Medugorac *et al.*, 2009). In our opinion, these breeds represent a genetic patrimony that should be preserved, and ecotourism establishments could play an important role in providing such protection. This was the thinking behind determining whether consumers value having different breeds available and whether they would pay for this. Cultural value may be considered a tool in adding economic value to local breeds, and diverse products can be sold at higher prices, in order to improve the profitability of local breeds and minimize the threat of extinction (Gandini and Villa, 2003).

Regarding children's activities, the percentage of ORG consumers who organize extracurricular activities was higher than in other categories, and these consumers were also more interested in sending children to visit school farms (giving marks above 8). A high percentage of ORG consumers also reported that they positively value traditional breeds, followed in lower proportions by HLP and CON. In general, most respondents (ca. 70%) in all categories would pay extra to help protect traditional breeds in school farms and to educate children about protecting them, and the percentage is higher than WTP for having traditional breeds in ecotourism establishments.

## **Conclusions and Policy implications**

Overall, the survey findings indicate that approximately one third of respondents consume organic food, as previously found in Spain and other European countries. The typical profile of an organic consumer is a middle-aged, medium-high

class, university-education woman, who lives in a large village, shops in supermarkets and preferably consumes vegetables, fruit and eggs. Interestingly, a large number of people who declared that they were organic consumers confused organic with home and locally produced food. This indicates the potential for growth of the organic sector if such consumers are provided appropriate information. Most consumers (including conventional consumers) have a favourable opinion of organic food, highlighting that it is better for health, is of better quality and does not contain pesticide residues. However, price continues to be a barrier to increased consumption; most consumers say that they would consume more organic food if the price was closer (only 10-30% higher) to that of the equivalent conventional products. Finally, organic consumers in North Spain have a positive attitude towards using local breeds in organic agriculture, for both food production and for ecotourism and educational activities, which could contribute to conserving breed biodiversity and adding value to organic farming.

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Figure 1. General data (%) regarding organic (ORG), home and locally produced (HLP) and conventional (CON) food consumers in Galicia. N: number of samples; DK/NA: Don't know/not answered. \*:  $p < 0.05$ ; \*\*:  $p < 0.01$ ; \*\*\*:  $p < 0.001$ ; NS: not significant.

Figure 2. General data about the establishments where organic consumers buy organic food. DK/NA: Don't know/not answered.

Figure 3. Level of knowledge about organic food and Genetically Modified Organisms in organic (ORG), home and locally produced (HLP) and conventional (CON) food consumers in Galicia. N: number of samples; DK/NA: Don't know/not answered. \*:  $p < 0.05$ ; \*\*:  $p < 0.01$ ; \*\*\*:  $p < 0.001$ ; NS: not significant.

Figure 4. Frequency of consumption of organic (ORG) and home and locally (HLP) produced food in Galicia. N: number of samples; DK/NA: Don't know/not answered. \*:  $p < 0.05$ ; \*\*:  $p < 0.01$ ; \*\*\*:  $p < 0.001$ ; NS: not significant.

Figure 5. (A) Reasons given by organic (ORG) and home and locally produced (HLP) consumers in Galicia for consuming organic food and (B) reasons given by conventional (CON) consumers in Galicia for not consuming organic food. *P* denotes a statistically significant difference between ORG and HLP consumers. N: number of samples; DK/NA: Don't know/not answered. \*:  $p < 0.05$ ; \*\*:  $p < 0.01$ ; \*\*\*:  $p < 0.001$ ; NS: not significant.

Figure 6. Perceived differences between organic and conventional food and willingness to pay in consumers of organic (ORG), home and locally produced (HLP) and conventional (CON) food in Galicia. N: number of samples; DK/NA: Don't know/not answered. \*:  $p < 0.05$ ; \*\*:  $p < 0.01$ ; \*\*\*:  $p < 0.001$ ; NS: not significant.

Figure 7. Importance given to external appearance of organic food in consumers of organic (ORG), home and locally produced (HLP) and conventional (CON) food in Galicia. N: number of samples; DK/NA: Don't know/not answered. \*:  $p < 0.05$ ; \*\*:  $p < 0.01$ ; \*\*\*:  $p < 0.001$ ; NS: not significant.

Figure 8. Valuing local breeds for organic production by consumers of organic (ORG), home and locally produced (HLP) and conventional (CON) food in Galicia. N: number

of samples; DK/NA: Don't know/not answered. \*:  $p < 0.05$ ; \*\*:  $p < 0.01$ ; \*\*\*:  $p < 0.001$ ; NS: not significant.

Figure 9. Valuing local breeds for ecotourism and farm schools by consumers of organic (ORG), home and locally produced (HLP) and conventional (CON) food in Galicia. N: number of samples; DK/NA: Don't know/not answered. \*:  $p < 0.05$ ; \*\*:  $p < 0.01$ ; \*\*\*:  $p < 0.001$ ; NS: not significant.

	N	ORG	HLP	CON	p		N	ORG	HLP	CON	p
N	288	305	213				288	305	213		
Gender					*						**
Female	520	37,3	39,2	23,5		Family income	14	28,6	42,8	28,6	
Male	286	32,9	35,3	31,8		0-400	40	20,0	37,5	42,5	
Age					*	400-600	95	27,4	35,8	36,8	
<25 years	90	23,3	40,0	36,7		600-1000	103	30,1	37,9	32,0	
25-34 years	146	38,4	34,2	27,4		1000-1500	131	39,0	30,5	30,5	
35-44 years	187	40,6	42,3	17,1		1500-2000	107	43,0	37,4	19,6	
45-54 years	138	41,3	35,5	23,2		2000-2500	78	41,1	39,7	19,2	
55-64 years	140	37,1	35,0	27,9		2500-3000	78	48,7	38,5	12,8	
> 65 years	102	24,5	40,2	35,3		3000-4000	29	44,8	48,3	6,9	
NA	3	33,3	33,3	33,3		>4000	131	29,8	42,7	27,5	
DK/NA						DK/NA					
Educational level					***	Frequency of shopping					*
University degree	293	47,1	38,6	14,3		Always	374	37,4	38,3	24,3	
Advanced level secondary education	113	41,6	34,5	23,9		Frequently	286	39,5	36,4	24,1	
Vocational training	151	27,8	39,7	32,5		Occasionally	124	25,0	39,5	35,5	
Compulsory Secondary Education	84	31,0	38,0	31,0		Never	21	19,0	38,1	42,9	
Primary Studies	127	26,0	37,0	37,0		DK/NA	1	0,0	100,0	0,0	
No studies	35	2,9	40,0	57,1		1st Purchase criteria					***
NA	3	33,3	0,0	66,7		Quality	375	45,1	36,0	18,9	
Population					NS	Price	139	15,1	40,3	44,6	
Less than 5,000 inhabitants	141	27,0	46,8	26,2		Freshness	137	38,0	32,8	29,2	
Between 5,000 and 10,000 inhabitants	121	41,4	32,2	26,4		Naturalness	55	38,2	54,5	7,3	
Between 10,000 and 15,000 inhabitants	78	28,2	50,0	21,8		Origin	32	34,4	37,5	28,1	
Between 15,000 and 20,000 inhabitants	68	32,4	39,7	27,9		None	17	17,6	29,4	53,0	
More than 20,000 inhabitants	121	38,0	33,9	28,1		DK/NA	16	31,3	50,0	18,7	
A Coruña	70	35,7	44,3	20,0		Establishment	14	14,3	57,1	28,6	
Ferrol	17	53,0	23,5	23,5		Brand	11	36,4	9,1	54,5	
Lugo	33	60,6	33,3	6,1		Other	10	20,0	50,0	30,0	
Ourense	28	21,4	35,7	42,9		2nd Purchase criteria					***
Pontevedra	21	66,7	14,3	19,0		Price	209	35,9	36,8	27,3	
Santiago	37	35,1	43,3	21,6		Freshness	194	42,7	35,1	22,2	
Vigo	71	32,4	25,4	42,2		Quality	138	28,3	44,2	27,5	
Civil status					NS	DK/NA	108	17,6	37,0	45,4	
Married	350	37,1	36,3	26,6		Naturalness	50	52,0	42,0	6,0	
Single	282	33,3	37,6	29,1		Origin	53	49,0	45,3	5,7	
Living with partner	80	44,9	41,3	13,8		Brand	27	37,0	26,0	37,0	
Widower	48	33,3	37,5	29,2		Establishment	24	37,5	20,8	41,7	
Divorced	45	26,7	44,4	28,9		Other	3	33,3	66,7	0,0	
NA	1	0,0	100,0	0,0		None	0	0,0	0,0	0,0	
Family members					NS	1st place for purchase					NS
1 member	137	33,6	42,3	24,1		Supermarket	608	33,9	39,6	26,5	
2-3 members	386	38,3	33,7	28,0		Hypermarkets	82	41,5	25,6	32,9	
4-5 members	259	32,8	42,9	24,3		Small shops	51	41,2	39,2	19,6	
More than 5 members	23	34,8	26,1	39,1		Local markets	41	51,2	31,7	17,1	
Children					NS	DK/NA	16	18,9	37,6	43,5	
Yes	453	37,8	37,3	24,9		Producers	3	33,3	66,7	0,0	
No	351	33,3	38,2	28,5		Other	3	33,3	33,3	33,3	
NA	2	0,0	0,0	100,0		Consumer groups	1	0,0	100,0	0,0	
Age of children					NS	Specialized shops	1	100,0	0,0	0,0	
Less than 18 years	194	40,8	37,6	21,6		2nd place for purchase					***
Between 18 and 39 years	193	36,8	36,8	26,4		DK/NA	488	32,4	34,6	33,0	
40 years on	105	29,5	40,0	30,5		Small shops	115	40,0	44,3	15,7	
Number of children					NS	Local markets	96	43,8	41,6	14,6	
1 child	177	39,0	33,9	27,1		Supermarket	55	43,7	32,7	23,6	
2-3 children	255	37,3	40,0	22,7		Hypermarkets	28	28,6	53,5	17,9	
4-5 children	6	0,0	50,0	50,0		Producers	7	28,6	42,8	28,6	
Number of family members working					NS	Other	6	16,7	83,3	0,0	
1 member working	261	33,7	39,1	27,2		Specialized shops	6	50,0	50,0	0,0	
2-3 members working	388	40,0	37,6	22,4		Consumer groups	5	80,0	20,0	0,0	
More than 4 members working	19	42,1	31,6	26,3							

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1st place for purchase	N	%
Hypermarkets	17	5,9
Consumer groups	4	1,4
Producers	32	11,1
Local markets	44	15,3
Small shops	65	22,6
Specialized shops	47	16,3
Supermarket	73	25,4
Other	3	1,0
DK/NA	3	1,0
Total	288	100

2nd place for purchase	N	%
Hypermarkets	8	2,8
Consumer groups	9	3,1
Producers	18	6,3
Local markets	25	8,7
Small shops	42	14,6
Specialized shops	17	5,9
Supermarket	28	9,7
Other	1	0,3
DK/NA	140	48,6
Total	288	100

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	ORG	HLP	CON	<i>p</i>
N	288	305	213	
Organic food definition				***
Very well	3,5	1,6	1,4	
Well	21,3	24,6	17,0	
Medium	30,0	24,9	21,2	
Bad	28,5	30,2	16,0	
Very bad	16,7	18,7	44,4	
Total	100	100	100	
Do you know transgenic food?				***
Yes	87,5	70,2	44,6	
No	10,4	24,9	45,1	
DK/NA	2,1	4,9	10,3	
Total	100	100	100	
Transgenic definition				***
Very well	49,4	41,3	16,9	
Well	0,3	1,0	0,9	
Medium	14,9	10,2	5,6	
Bad	9,0	7,2	5,6	
Very bad	26,4	40,3	71,0	
Total	100	100	100	
Would you buy organic food knowing they are transgenic free?				***
Yes	88,2	83,6	54,9	
No	4,5	5,9	17,4	
DK/NA	7,3	10,5	27,7	
Total	100	100	100	

		Cereals	Cheese	Eggs	Fruit	Jam	Meat	Milk	Oil	Tomatoes	Vegetables	Wine	Yoghurt
Frecuency of consumption													
ORG (n=288)	Every day	6,9	4,2	7,6	14,9	4,2	2,1	8,0	10,4	8,0	10,8	1,0	6,6
	Many times a week	9,4	12,5	31,6	25,3	3,8	15,3	6,9	10,8	30,9	31,6	5,2	13,2
	Many times a month	12,2	14,9	24,0	32,7	11,1	16,7	10,1	9,7	31,3	32,0	7,6	17,0
	Less than once a month	16,7	21,9	11,1	16,3	20,5	19,8	16,0	14,2	14,2	12,8	14,2	18,4
	Never	54,8	46,5	25,7	10,8	60,4	46,1	59,0	54,9	15,6	12,8	72,0	44,8
	DK/NA	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
	Total	100	100	100	100	100	100	100	100	100	100	100	100
HLP (n=305)	Every day	6,2	4,3	12,8	21,3	3,9	4,3	8,9	8,9	17,7	22,0	2,0	4,9
	Many times a week	4,9	8,5	39,6	27,2	6,9	18,7	5,2	6,9	31,8	33,0	3,6	7,9
	Many times a month	10,5	13,1	20,7	23,3	9,8	15,1	5,2	5,9	21,3	22,0	8,9	12,1
	Less than once a month	11,1	15,7	5,9	17,7	15,1	13,4	10,5	10,2	14,8	12,5	11,8	13,4
	Never	65,0	65,1	18,7	8,2	62,0	46,2	67,9	65,8	12,1	8,2	71,4	59,4
	DK/NA	2,3	2,3	2,3	2,3	2,3	2,3	2,3	2,3	2,3	2,3	2,3	2,3
	Total	100	100	100	100	100	100	100	100	100	100	100	100
<i>p</i>		**	*	**	**	**	*	**	**	***	***	NS	**