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Welfare-friendly Products: availability, labeling and opinion of retailers in Curitiba, Southern Brazil^{1,2}

Bruna Maria Remonato Franco³, Ana Paula Oliveira Souza⁴ and
Carla Forte Maiolino Molento⁵

Abstract: The market for welfare-friendly products (WFP) is increasing worldwide; however, there is a lack of information on this topic in Brazil. We investigated availability, product information and opinion of retailers about WFP in Curitiba, Southern Brazil. We visited 36 strategically located retailers, conducting product evaluation and interviews with managers. The availability of WFP, mostly eggs and chicken meat, was low; no other type of meat was available as WFP. Labeling was deficient, with little information about animal rearing systems. Labeling of regular products displaying images of happy animals was observed and may be a relevant confusing effect. Few certification seals for WFP were also observed, on organic products and free-range chickens. Welfare-friendly products costed 1.7 to 2.5 times more than regular products and great price variability was observed among retailers. Most retailers seemed not aware of the subject and considered that there is low availability of WFP to be offered in the markets. Low availability of WFP and poor label information of both regular and welfare-friendly products are barriers to better understand and meet the demand for higher welfare products. It is our perception that these are constraints for consumers to develop and perform ethical choices related to purchasing behavior.

Key-words: animal welfare, animal product, consumer market, farm animal, labeling, product availability.

1. Data de submissão: 16 de julho de 2016. Data de aceite: 21 de julho de 2017.

2. The authors wish to thank Alina Stadnik Komarcheuski, Bárbara do Rosário, Daniel Santiago Rucinke Gonzalez, Fabiana de Orte Stamm, Mariana Cortes de Lima, Michelle Galvão, Rafaella Cristina Passos da Silva, and the managers who were interviewed. We also wish to acknowledge that Ana Paula de Oliveira Souza is the recipient of a Capes (Ministry of Education, Brazil) doctorate scholarship.

3. Universidade Federal do Paraná. Curitiba, Paraná, Brasil. E-mail: brunaremonato@gmail.com

4. Universidade Federal do Paraná. Curitiba, Paraná, Brasil. E-mail: qualitebr@gmail.com

5. Universidade Federal do Paraná. Curitiba, Paraná, Brasil. E-mail: carlamolento@ufpr.br

Resumo: O mercado de produtos de maior grau de bem-estar animal (WFP) tem aumentado mundialmente; no entanto há pouca informação disponível no Brasil. O objetivo deste trabalho foi investigar disponibilidade, informação e opinião dos varejistas sobre WFP em Curitiba, Sul do Brasil. Foram visitados 36 varejistas estrategicamente localizados, para uma avaliação dos produtos e uma entrevista com o gerente. A disponibilidade de WFP era baixa, na maioria ovos e carne de aves. A rotulagem era deficiente, com pouca informação sobre sistemas de criação. Nos produtos comuns, havia imagens representando animais felizes, que podem apresentar um relevante efeito de confusão. Poucas certificações foram observadas, sendo de produtos orgânicos e frango caipira. Os produtos WFP custavam de 1,7 a 2,5 vezes mais que aqueles comuns, com grande variabilidade de preço entre os mercados. A maioria dos varejistas parecia não ter conhecimento sobre o assunto e acreditava em baixa disponibilidade de WFP para oferta. A baixa disponibilidade de WFP e a rotulagem deficiente, tanto de produtos diferenciados como daqueles comuns, são barreiras para se compreender e atender à demanda por produtos de maior grau de bem-estar animal. Esses fatores podem estar impedindo os consumidores de desenvolver e realizar escolhas éticas relacionadas ao comportamento de compra.

Palavras-chaves: animais de produção, bem-estar animal, disponibilidade de produto, mercado consumidor, produto de origem animal, rotulagem.

JEL codes: L1, L66, M3, Q1.

DOI: <http://dx.doi.org/10.1590/1234-56781806-94790560101>

1. Introduction

Advances in genetics, nutrition and handling of farm animals promoted the adoption of intensive rearing practices and an increase on animal production capacity. Ethical concerns about how farm animals are raised have also emerged among consumers, which have led to demands for higher animal welfare products. Some consumers are willing to pay more for these products, but there is a gap between self-reported willingness to pay and effective purchase behavior (HARVEY and HUBBARD, 2013). Some barriers may contribute to this scenario. For example, Grunert *et al.* (2010) observed that higher animal welfare products compete with other characteristics, such as product quality, taste, food safety and price. Besides, even when consumers have expressed preferences for welfare-friendly products (WFP), low product availability on markets and poor labeling information may negatively affect purchasing behavior (HEERWAGEN *et al.*, 2013).

Changes on food consumption patterns may indicate issues to be further explored by the food industry. The increased demand for diet and light products over the last two decades in Brazil links food consumption habits to human health and quality of life (RIBEIRO and HOFFMANN, 2015). Similarly, consumers of organic products have been shown to be more influenced by cultural changes on lifestyle,

including food consumption, than by economics (GUIVANT, 2003). Following this rationale, correlation between WFP as more natural and healthier may be useful to increase this market niche.

In Brazil, the multiplicity of labeling as organic, free-range or welfare-friendly may confuse consumers. The Ministry of Agriculture, Livestock and Supply (Mapa) approves and supervises product labeling in relation to compliance with the identity and quality specific standards for each animal product. The Ministry of Health is responsible for inspecting nutritional information, and the Institute of Metrology, Standardization and Industrial Quality inspects product net weight. Organic animal production is regulated by normative IN 46/2011 and 17/2014 of Mapa, which includes general animal welfare concepts based on the Five Freedoms (MAPA, 2011, 2014). These regulations for organic production also present information about maximum stocking densities and the prohibition of animal confinement in cages or barns, practice of tethering or any kind of movement restriction. Recently, the Brazilian Association of Technical Standards published the NBR 16,389:2015, on the requirements for free-range chicken production (ABNT, 2015). Although this NBR includes information about the rearing system, slaughtering and labeling, it has no legal effect. Additional regulation for higher animal welfare systems is not available in this country.

This is the first study of WFP market in Latin America, more specifically in a country with high internal consumption of food products of animal origin. In Brazil, meat consumption in 2015, in kilograms per capita, was 11.9, 27.0 and 38.7 for pork, beef and poultry meat, respectively (OECD, 2016). Beef and poultry meat internal consumption is much higher than the world average of 6.5 and 13.2 kg/capita (OECD, 2016); Brazil is the third largest consumer of beef meat and the sixteenth of poultry meat in the world, and consumption tends to further increase.

Availability of WFP in Brazil is not known. Ingenbleek *et al.* (2012) suggested several barriers to the market share of WFP, including lack of products due to low number of producers or low interest of retailers; low level of trust in the welfare claim of products; products that do not fulfill other needs such as taste, color and easiness to prepare; higher prices of WFP; and higher marketing support of regular products. In addition, besides many people consider production in outdoor systems as welfare-friendly and better for human health and for the environment, there are criticisms about these systems when compared to modern confined systems, which must be addressed considering innovation and social ethics (HÖTZEL, 2014). According to Roe *et al.* (2005), retailers are the link between producers and consumers. Considering that retailers decide which product will be offered to the consumer (AERTS, 2013), they may play an important role to develop the market for WFP. Thus, we aimed to investigate the availability, product information and opinion of retailers about WFP in Curitiba, Southern Brazil.

2. Materials and methods

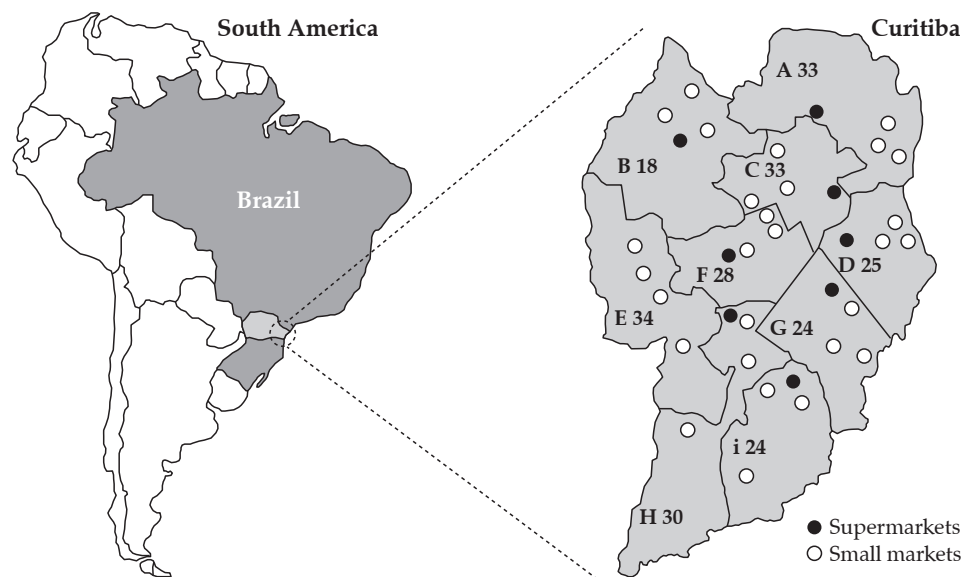
A qualitative research was conducted in December 2013 in Curitiba, the capital of the State of Paraná, Brazil (25°25'42"S, 49°16'24"W), with 1,879,355 inhabitants (IBGE, 2015). The sampling method was adapted from a similar research that included main food retailers from the European Union (ROE *et al.*, 2005; ROE and MURDOCH, 2006). From a total of 252

retailers registered in Curitiba, 36 were visited in the nine regions of the city, following its administrative regional division, according to the Institute of Urban Research and Planning (Figure 1; IPPUC, 2013). We visited a sample of main supermarkets and small markets; in each region, four retailers were randomly sampled, consisting of one supermarket and three small markets, following the IPPUC list of supermarkets and small markets (Figure 1). The only exception was CIC regional, where there was no supermarket, thus four small markets were sampled. Supermarkets sampled included five of the seven main food retailers in Brazil.

Visits were conducted in two stages on a single day in each retailer. The first stage had the purpose to assess the availability of WFP on the shelves and to collect label information on how the animals were raised. This information was obtained by observing descriptions or images of animal rearing system displayed in labels and shelves, label identification of a website where consumers could get more information about the product and the presence of a certification seal. We also observed whether there were logos or sentences that could imply higher welfare characteristics. In this stage, the prices of differentiated and regular products were registered. The second stage consisted of an interview with the manager of each supermarket and small market. The interview aimed to understand the point of view of retailers about current situation and market perspective for WFP. The participation was voluntary and 11 managers of 36 markets visited answered the questionnaire; most managers were not present during the visit. The intention was to focus on individual perceptions of managers about WFP.

Data was analyzed by descriptive statistics and normality was tested by Shapiro-Wilk. Comparisons between WFP availability and regional population income was analyzed through the Pearson correlation coefficient, which was considered strong if $0,60 \leq R < 0,90$, as described by Callegari-Jacques (2003). Comparisons between the prices of welfare-friendly and regular products were done by unilateral Mann-Whitney test and t-test for non-parametric and parametric data, respectively.

Figure 1. Distribution of food retailers visited in the nine regions of Curitiba, State of Paraná, Brazil (IPPUC, 2013); A, regional of Boa Vista; B, Santa Felicidade; C, Matriz; D, Cajuru; E, CIC; F, Portão; G, Boqueirão; H, Pinheirinho; I, Bairro Novo; the total number of supermarkets and small markets in each administrative regional is also shown



Source: The authors.

3. Results and discussion

3.1. Product availability

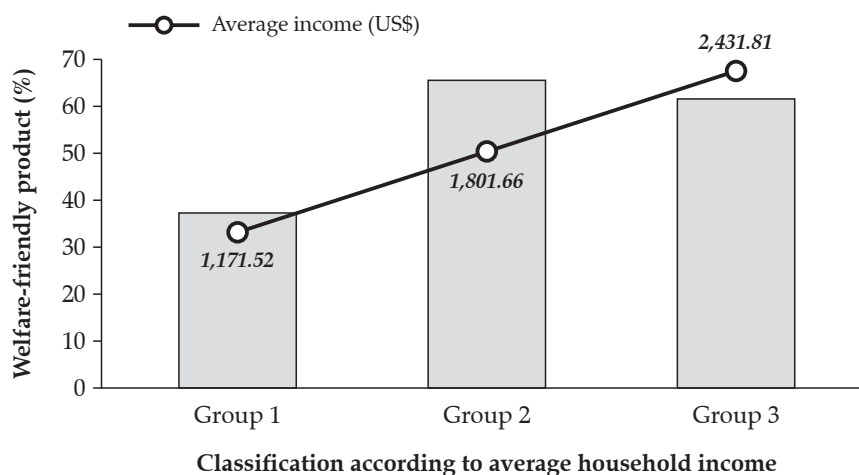
A total of 52.8% (19/36) of retailers maintained some kind of WFP, including eggs (41.7%, 15/36), poultry meat (38.8%, 14/36) and milk (8.3%, 3/36). One possible barrier to the availability of WFP is the higher price of these products when compared to regular ones (INGENBLEEK *et al.*, 2012), which may restrict consumption by lower income population. As observed by Lagerkvist and Hess (2011), in a meta-analysis of consumer willingness to pay (WTP) for farm animal welfare, there is a positive relationship between WTP and respondent income. Average household income in Curitiba differed within the nine regionals (IPPUC, 2010), thus we expected variation on product availability due to the consumer profile in each region. This was partially confirmed in our study, since we observed a tendency of decreasing product availability in regionals with lower household income ($R = 0.618$, $P = 0.076$; Figure 2). We suggest further investigation in a wider sample in order to confirm this trend.

The purchase decision depends on consumer perceived sacrifice to obtain the product, which

includes product price (TEAS and AGARWAL, 2000). We observed significant difference between the prices of welfare-friendly and regular products (Table 1). In Curitiba, WFP costed 1.7 to 2.5 times more than regular ones in 2013. In face of higher production costs, with consequent higher product prices, consumers need to be willing to pay more for WFP. Although several studies have reported consumers are willing to pay for animal welfare (LAGERKVIST and HESS, 2011), there is a gap observed between an individual responding as a citizen, who states to be concerned about animal welfare, and the same individual as a consumer, when deciding to buy those products. According to Harvey and Hubbard (2013), this gap may have different causes, such as inaccurate labelling, lack of information about animal production, low availability of WFP and concerns with other products attributes. In our study, a narrow variety of each type of product may also contribute to this scenario, which seems highly restricted by product availability. A better understanding of motivations of Brazilian consumers who buy WFP may provide information that will help the development of this market.

Besides egg, broiler chicken meat and milk observed as WFP, no other product, such as beef, pork,

Figure 2. Availability of welfare-friendly product in 36 retailers located in nine regions of Curitiba, State of Paraná, Brazil according to classification by average household monthly income in December 2013; Pearson Correlation Test, $R = 0.618$ and $P = 0.076$; group 1 refers to regionals Bairro Novo, Boqueirão, CIC and Pinheirinho; group 2 refers to Boa Vista, Cajuru and Portão; group 3 refers to Matriz and Santa Felicidade; dollar conversion rate in December 2013: 1 USD = 2.35 BRL



Source: Original data.

Table 1. Prices of regular and welfare-friendly products in 19 food retailers in Curitiba, State of Paraná, Brazil, December 2013; dollar conversion rate in December 2013: 1 USD = 2.35 BRL

Product	Price in US\$ (number of retailers)		Increase (%)	P
	Regular	Welfare-friendly		
Egg (unit)	0.14 ± 0.02 (36)	0.27 ± 0.09 (15)	92.9	$P < 0.0001$
Broiler chicken (kg)	3.13 ± 0.93 (36)	5.50 ± 1.14 (14)	75.9	$P < 0.0001$
Milk (l)	0.97 ± 0.07 (36)	2.10 ± 0.97 (3)	115.0	$P = 0.0384$

Source: Original data.

goat or sheep meat, and dairy products different from milk, were available. Kjaernes *et al.* (2008) observed higher availability of eggs, followed by milk, and then poultry in European Union. Roe and Murdoch (2006) observed that free-range products were most frequently available in the United Kingdom (egg, bacon/sausage, whole chicken), followed by organic products (dairy, meat). As observed in a recent review, consumer attitudes and perceptions about higher animal welfare products are strongly influenced by variables related to lifestyle and to individual experiences and familiarity with the agricultural sector (VANHONACKER and VERBEKE, 2014). Profiles of consumers of welfare-friendly poultry products indicated that they perceive these products as more palatable and healthy (CASTELLINI *et al.*, 2008; VANHONACKER and VERBEKE, 2009). A similar perception was observed

for organic pork meat consumption (GRUNERT *et al.*, 2004). In Curitiba, consumers have expressed concerns about the use of antibiotics and organoleptic characteristics of broiler chicken meat (BONAMIGO *et al.*, 2012); such consumption characteristics may help to explain the availability of free-range and organics poultry products in visited retailers.

Rearing conditions may influence purchase behavior of consumers from different countries in different ways. As an example, in the United States of America, the consumer's demand for forage finished beef has increased (UMBERGER *et al.*, 2009), leading to a potential market niche. However, lack or very low availability of WFP from ruminants observed in our research may be a consequence of a common perception about rearing conditions in Brazil. Regular beef and dairy products may be perceived by Brazilian

consumers as more natural or with higher welfare due to predominant rearing system, with access to pasture. In these cases, demands for higher-welfare products may be lower. In the case of pork meat, reasons for lack of welfare-friendly in our study were not clear. They may be related to indifference and, as a primary obstacle, unawareness of Brazilian consumers about pig production systems (DE BARCELLOS *et al.*, 2011); reasons may also be related to the level of pork meat consumption in Brazil, that is 2.5 to 3.0 times lower than the consumption of poultry and beef meat (MAPA, 2013). In general, our results suggest that the difficulty to find WFP in Curitiba represents a barrier for those consumers who are concerned about how animals were raised.

3.2. Labeling

Thirty-two types of WFP were available on visited food retailers and the respective label information about animal rearing system is presented in Table 2.

As observed in Table 2, information provided by labels in our study did not seem to clearly inform consumers about animal production systems, mainly in poultry meat and milk. Consumers use certain cues to find products that fits their interests, that are mostly related to product origin, production method and healthfulness (GRUNERT and AACHMANN, 2016), and label information may be an important tool to provide such cues. Considering that food purchasing decision involves little information processing and minimal time expenditure (VANHONACKER and VERBEKE, 2014), clear and precise information is essential to consumer decision-making. In the specific case of WFP, label can take different formats to inform about animal rearing conditions (KEHLBACHER *et al.*, 2012) and to allow consumers to understand the circumstances in which animals were reared, since the

majority of consumer is distant from animal production systems. Again, availability seems to be a key-problem, in terms of quantity and quality of information offered to consumers.

Most of welfare-friendly egg packages displayed in their labels pictures of the farming system and a brief description of how birds were reared (Table 2). Considering the six companies that informed a website, one website did not exist, reducing the chances of consumers to obtain further information about the product. All certified eggs were organic, and none was certified by a specific welfare scheme. Although Brazilian organic product legislation includes animal welfare, this attribute may appear as secondary or absent for consumers who are not aware of the referred legislation.

In products containing information about the housing system, there was significant variation in the level of details given by the companies. In relation to welfare-friendly poultry meat, information about rearing system was predominantly by images (Table 2), displaying free-range broiler chickens. Most of labels presented a website, which offered information about feeding, no usage of antibiotics, hormones and growth promoters, outdoor access, life span and the ability to express natural behavior. Some websites displayed photos and videos of the production systems. In poultry meat, the products that displayed a specific label for animal welfare also displayed the organic certification seal. As for milk, all products observed were organic, belonging to the same brand, and they presented no information about rearing system.

Some expressions are used worldwide as slogans to identify WFP (VEISSIER *et al.*, 2008). In our study, the expression “free-range” was commonly used to distinguish welfare-friendly eggs from regular ones. In these situations, consumers may not obtain a clear understanding on which level of animal welfare the

Table 2. Labeling information about rearing system characteristics of 32 welfare-friendly products in food retailers in Curitiba, Brazil, in December 2013

Labeling information	Products			
	Egg	Poultry Meat	Milk	Total
Certification scheme (welfare-friendly or organic)	40.0% (6/15)	35.7% (5/14)	100.0% (3/3)	43.7% (14/32)
Rearing system information	80.0% (12/15)	0.0% (0/14)	0.0% (0/3)	37.5% (12/32)
Image of rearing system	80.0% (12/15)	71.4% (10/14)	0.0% (0/3)	68.7% (22/32)
Company's website	40.0% (6/15)	71.4% (10/14)	0.0% (0/3)	50.0% (16/32)

Source: Original data.

product fits. Based on this, the technical standard NBR 16389:2015 was developed in a partnership between private and public initiatives to establish requirements for production, slaughtering, processing and identification of free-range chickens in Brazil. As the NBR is not a legislation, it may be enforced through a governmental requirement for companies to follow the NBR in order to be allowed to use the term “free-range” on labels. This potentially leads to clearer labeling and reduced misuse of this term by companies.

Reference to animal welfare seems to be an important issue, not only for WFP, but also for regular ones. During visits on food retailers, we observed that some regular products presented in their labels cues of positive aspects of housing systems in relation to animal welfare; however, with no connection to the real quality of life of the animals involved. Pictures depicting happy, satisfied and smiling animals were found, and they may provide a misconception about the farming system. These findings demonstrate the need for labels to display accurate information about housing systems, so that consumers can make conscious choices, based on actual information. It also indicates the need for strengthening labeling regulation and inspection to prevent companies from using images that are not consistent with the farming conditions employed.

The adoption of welfare certification labels may also increase the availability of products with improved animal welfare standards (VEISSIER *et al.*, 2008); this is a market niche to be further explored in Brazil. Animal welfare certification for poultry chain at farm level is scarce in this country (SOUZA and MOLENTO, 2015). It is our perception that in other animal production chains in Brazil welfare certification is also scarce. According to McNerney (2004), by specifying the desired characteristics to be attended by the producers, markets add value to products related to high animal welfare. In this regard, retailers may be an agent to develop the market of welfare-friendly certified products, by demanding it from the companies and producers from whom these products are acquired. For example, the Assured Food Standard certification scheme penetration in the United Kingdom (UK) is high, covering 90.0% of poultry and pig producers, 82.0% of dairy and beef cattle, and 65.0% of lamb (AFS, 2012). The AFS scope covers food safety, traceability and animal welfare throughout the production chain, and the significant number of

farms reached by this scheme may be explained, at least in part, by retailers demands in UK (VEISSIER *et al.*, 2008). Thus, it seems important to understand the perceptions of retailers regarding welfare-friendly market in Brazil, in order to set strategies to increase the availability of these products.

3.3. Retailer attitudes and perceptions

A total of 2/11 of interviewed retailers believed there are sanitary barriers when purchasing WFP. This is caused mainly because some products, like free-range eggs, are also acquired directly from informal producers; thus, they are not in accordance to local regulation of food safety. For this reason, retailers consider they may suffer sanctions on regulatory inspections. Respondents also informed difficulties regarding the absence of invoices and the need of payment in cash for those informal producers.

According to 4/9 of respondents, the offer of WFP is low, caused by low production of both small producers and big companies. They also believed that if more products were available, they would certainly be sold, because there is consumer demand. However, opinions about the increase of consumers demand for WFP was divided. Half of respondents (6/11) believed demand will not increase and the others believed otherwise, as long the products are available to consumers. The latter also mentioned that product demand is higher than the offer. Consumers demand for higher welfare product is strictly related to the knowledge about animal production (INGENBLEEK *et al.*, 2012; SPOOLDER *et al.*, 2011). Recent studies have reported low levels of knowledge of Brazilians regarding the conditions of farm animals (BONAMIGO *et al.*, 2012; FRANCO, 2014; QUEIROZ *et al.*, 2014; HÖTZEL *et al.*, 2017), thus there is a genuine need for actions on consumer education to be developed by private initiative, governmental and non-governmental bodies in Brazil. As observed by Hötzel *et al.* (2017), some practices of industrial farming that were not known by respondents were reject due to negative effects on animal welfare and product quality, as well by the loss of naturalness. The expected increase in knowledge will probably lead to increases in the demand of welfare-friendly products. In addition, consumers sense of responsibility may increase when the connection between food production and consumers is made in a more local,

personal and emotional approach (COLE *et al.*, 2009). Thus, involvement of local producers may benefit the development of this market.

Respondents mentioned that the region of Curitiba is a significant factor to product availability (3/8). According to them, people who live downtown look for practicality and, in more distant regions where most of families live, demand for WFP would be higher. This information was not confirmed in our results, but if there is a perception that each region may have different characteristics, this should be further studied and considered by retailers when deciding which products to offer, as observed by Font-i-Furnols and Guerrero (2014).

Retailers (7/11) believed that consumers buy WFP because it is perceived as healthier, which is similar to data from Spain (MIRANDA-DE LA LAMA *et al.*, 2013). Consumers are concerned about the use of growth promoters, chemotherapeutics and other drugs, which may be perceived by them as a risk to health and food safety (VERBEKE *et al.*, 2007). As an example, in 2014 Mapa allowed the inclusion of the sentence “no use of hormones, according to the Brazilian legislation” on the label of broiler chicken products. According to Mapa (2004), it is forbidden to administer hormones to broilers. The inclusion of this information on label was a demand from the poultry sector due to a perception of Brazilian consumers that growth hormones are used in broiler chickens. Potential solutions to rebuilt consumer confidence in food safety include traceability, labelling, segmented communication, transparency and public involvement (VERBEKE *et al.*, 2007). Thus, the inclusion of a sentence on label does not seem enough to change consumer opinion about the use of hormones when transparency and public involvement are lacking. Welfare-friendly products, like organic and free-range broiler chickens, may have an advantage, since it is common sense that there is reduced or no use of drugs in these systems.

Some respondents (3/10) were skeptical about a demand of higher welfare products, mentioning that consumers, especially young ones, are not concerned about animal welfare. In fact, young adults are distant from agriculture issues, which means that industry needs to better communicate with them (GRANDIN, 2014), instead of simply not offering higher welfare products. According to Aerts (2013), the food chain is retail driven, and consumer is more decision-taker than

decision-maker. It is important to focus on those that have the power to promote changes on market. Thus, retailer education about WFP seems to be essential to increase high animal welfare product availability and marketing.

4. Conclusion

For the first time hindrance factors for the consumption of WFP are described in Brazil, and this is also a first glimpse on these issues in Latin America. Low product availability and inaccurate product information were the main restrictions to WFP market in Curitiba. Likewise, inappropriate welfare-related information observed on regular products may confuse consumers; additionally, low knowledge levels of retailers seem to be constraints to the development of the WFP chain. More research is needed to understand reasons for low availability of WFP, since this is a major limiting factor for an increase in the number of farms maintaining higher welfare systems. The restrictions identified are probably limiting the development and practice of ethical choices on purchasing behavior, especially by those consumers already inclined in doing so. The information presented in this paper may be useful to motivate improvements in regular and welfare-friendly product labeling. This in turn may motivate retailers to increase WFP availability, so that consumers may be better able to understand and differentiate the welfare standards in different products, as well as to find those products that satisfy their specific ethical concerns. An effective approach to this goal may be through the official control of food product labelling in Brazil, fostering the improvement of the amount and clarity of animal welfare information provided on the label of all animal products.

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