



Do consumers prefer local animal products produced with local feed? Results from a Discrete-Choice experiment

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1. Introduction

Many studies have revealed a high consumer preference and willingness-to-pay for local food (Feldmann and Hamm, 2015). Nonetheless, there is very little research on whether consumers accept the use of imported feed for animal products labelled as ‘local’. Europe is heavily dependent on protein-rich feed from South America and the US (Watson et al., 2017) and this dependency holds particularly for the animal production hot spots in the Netherlands and North-Western Germany (Van Grinsven, Spiertz, Westhoek, Bouwman, & Erisman, 2014), and the organic sector.

Soybean cultivation in Brazil and Argentina is linked to deforestation, savannah removal, and land grabbing (Boerema et al., 2016; Smaling, Roscoe, Lesschen, Bouwman, & Comunello, 2008). Most German consumers do not know that locally produced animal products in Germany are often produced with imported feed and that these imports are associated with negative environmental or social effects (Uhl and Schnell, 2014; Wägeli, Janssen, & Hamm, 2016). In the EU, research and cultivation of domestic protein plants have been increasingly promoted. The German Federal Ministry of Food and Agriculture (BMEL) has started a protein strategy to reduce the proportion of imported soya (BMEL, 2016). Nonetheless, producing animal products with local feed in Europe is usually more expensive than using imported protein feed due to comparative disadvantages in production costs (Kaltenecker, Kemper, Schaack, & von Schenk, 2017). Therefore, local production chains are only economically feasible for a farmer if either public subsidies are paid to the farmers, or higher prices for animal products produced with local feed can be achieved in the market.

Currently, most animal products sold in Germany are not labelled with any information about the feed used in the production process and only a few studies with limited samples have considered placing emphasis on local feed origin. Wägeli et al. (2016) showed that there is a high potential demand for such labelling, at least in the organic market sector. The present paper is not limited to the organic food segment and analyses if German consumers prefer a local feed labelling on local food. For this purpose, a Discrete-Choice experiment (DCE) was applied for the product categories ‘eggs’, ‘milk’, ‘pork cutlets’ and ‘beef steaks’. In the framework of the DCE for labelling the local feed origin, the

German label ‘Regionalfenster’ was used (see Chapter 3 and Fig. 1). In this paper, the term ‘local’ is used throughout rather than the word ‘regional’. ‘Regional’ in the word ‘Regionalfenster’ has not been changed since this is the proper name of this labelling.

The study also aims to understand how two labels with distinct, but potentially complementary characteristics – local (product & feed) and organic - interact (Costanigro, Kroll, Thilmany, & Bunning, 2014). We also aimed to provide insights into reasons explaining consumer preferences for animal products produced with local feed. For this purpose, data regarding consumer behaviour (e.g. buying frequency of organic products) and attitudes (e.g. local consciousness) were collected and integrated in the applied logistic regression models. Hempel and Hamm (2016) showed that organic-minded consumers have strong preferences for local products. This study tests if these findings can be transferred to local feed and to conventional consumers as well.

2. Consumers’ preferences and motives for local food and scale development

From previous studies (e.g. Feldmann and Hamm, 2015; Köster, 2009), it is known that consumer preferences for local food are driven by a number of motives. According to Feldmann and Hamm (2015), some consumers criticize increasing imports in the national food market. This group regards local food as a more environmentally and climate friendly alternative. Furthermore, consumers also express greater trust in local food products, as local food was perceived as safer and easier to trace its origin (Burchardi, Schroeder & Thiele, 2005; Darby, Batte, Ernst, & Roe, 2008; Nganje, Hughner, & Lee, 2011; Yue and Tong, 2009). Brown, Dury, and Holdsworth (2009) concluded that individuals who regularly make sustainable food choices often do so for more altruistic reasons. Altruistic attitudes towards local food dealt with support of the local economy and community through social relationships and/or proximity (Bean and Sharp, 2011; Burchardi et al., 2005; Dunne, Chambers, Giombolini, & Schlegel, 2011; Roininen, Arvola, & Lähteenmäki, 2006; Yue and Tong, 2009). Wägeli et al. (2016) showed that the use of local feed in the production of animal products likewise addresses some of these motives, in particular “support of the local region”, “short distances of transport” and “food

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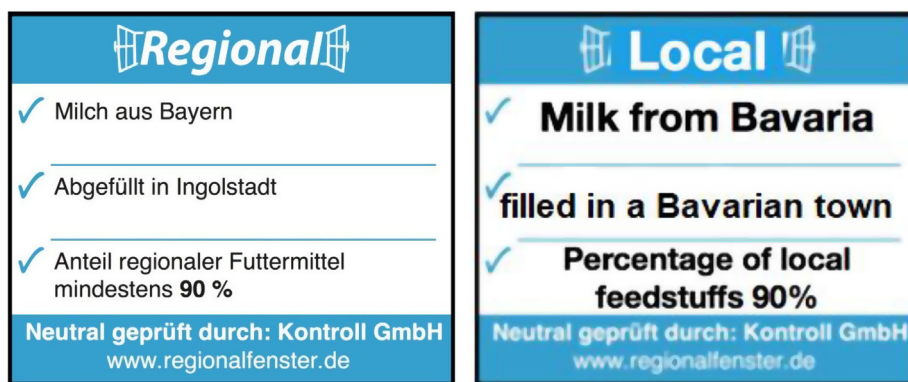


Fig. 1. Regionalfenster (original and translated).

safety". In this context, this study focuses on the impact of the construct 'local consciousness' on the preference for a local feed labelling.

Based on the concept of ethnocentrism, Shimp and Sharma (1987) introduced the concept of consumer ethnocentrism. This is defined as "the beliefs held by consumers about the appropriateness of purchasing products originating in a foreign country". Consumers with a strong consumer ethnocentrism are more likely to buy local products (van Ittersum, 2001; Sharma, Shimp, & Shin, 1995; Shimp and Sharma, 1987). The construct 'consumer ethnocentrism' can be measured by the consumer-ethnocentrism-scale (CET-scale). This scale consists of 17 items which evaluate agreement versus disagreement on a 7-point Likert-scale (see e.g. Orth, & Firtsosová, 2003). On this foundation, Balling (2000) and Staack (2002) developed local consciousness scales that represent a condensed, modified variant of the CET-scale. Based on these two studies and the item battery applied by Wägeli (2014), we created an adapted local consciousness scale consisting of nine items as presented in Section 4.4.

Due to overlaps in the associations with organic and local food products, and the determinants for organic and local food purchases (e.g. environmental friendliness), consumers who regard one of the product attributes important are more likely to favour the other as well (Miroso and Lawson, 2012; Robinson-O'Brien, Larson, Neumark-Sztainer, Hannan, & Story, 2009). Along these lines, Hempel and Hamm (2016) showed that organic-minded consumers have stronger preferences and higher estimated WTP-values for local products. For this reason, and to test if the mentioned findings can be transferred to local feed as well, this study looked at the preference for organic products. For this purpose, respondents' answers for the buying frequency of organic food and the buying frequency at organic shops were combined to create an organic scale (OS) that displays the preferences for organic food (see Section 4.4.).

3. 'Regionalfenster' as carrier for a local feed labelling in the DCE

In 2014, the label 'Regionalfenster' (literally regional window) was introduced for locally produced food in Germany. Stakeholders and initiators were food producers, local food initiatives, retailers, and control bodies. These are organized in the 'Regionalfenster e.V.'. In 2017, the 'Regionalfenster' had 760 licencees and more than 4000 products carried the label (Regionalfenster, 2017a). Furthermore, the German federal government plans to expand and strengthen the Regionalfenster approach (see <https://www.cdu.de/koalitionsvertrag-2018>). A recent study of the Thünen institute (Zander, 2018) revealed that consumers are willing to pay a price premium of about 20% for carrots and strawberry jam if these products are labelled with the 'Regionalfenster'. In the mentioned study, brand awareness of the 'Regionalfenster' was about 30%.

The label is characterised by criteria that include a clear definition of the region of origin (namely administrative district, definition of a

distance from the place of production, federal state, or natural boundary), a precise allocation of the ingredients to the region, and transparent control through a neutral, three-step inspection system (Regionalfenster, 2017b). In a Germany-wide survey (Hermanowski et al., 2014) consumers (N = 2018) were asked about when they consider a food product as local. About 37% indicated a German federal state, whereas 25% stated a definition of local food that refers to the distance between the point of production and the point of purchase, with specifications ranging from zero to 100 km. Fifteen per cent defined the term local by landscape boundaries and approximately 7% by the name of a city or town. Only a minority of 9% considered a German origin on the whole as local. The found consumer perception of the term local fits well together with the regulation of the 'Regionalfenster' association that stipulates that the use of the label is reserved to local regions that are smaller than Germany. In this context an additional labelling of the local feed origin is allowed only if 100% of all feedstuffs stem from local production (see Fig. 1). For the DCE, the 'Regionalfenster' was used as the carrier for a local feed labelling.

It is to highlight that this study did not only focus on the 100%-local feed labelling. Notwithstanding the 'Regionalfenster' guidelines, lower local feed shares of 90% and 75% were considered in the DCE as well. On one hand, it can be assumed that a local feed share of 75% appears within reach for many farms through minor efforts because the predominant part of the feeding rations can be covered by locally produced carbohydrate-rich feed grain. On the other hand, the last 10%, respectively 25% of the ration that is the protein-rich component, represents a distinct problem. Despite of the efforts made by the German ministry's protein strategy, it is still not possible to fully cover the German poultry industry's demand for soybeans with domestic protein sources (Witten, Paulsen, Weißmann, & Bussemas, 2017) So far, how consumers react to feed labellings that indicate local feed shares below 100% has not been considered. One could hypothesise that consumers may be satisfied with lower local feed shares. Therefore, we analyse if there is a turning point where the WTP no longer increases substantially.

4. Methodological background

4.1. Data collection methods

Cross-sectional consumer data was collected using a quantitative survey approach in which consumer choice experiments were conducted to measure the importance of different levels of local feed for eggs, milk, pork cutlets and beef steaks. Choice experiments have been shown to reduce social desirability bias (Huang, 2006; Kreuter, Presser, & Tourangeau, 2008; Tourangeau, Couper, & Steiger, 2003), as individuals often display socially desirable preferences to interviewers (Phillips and Clancy, 1972). Computer-Assisted Self-Interviews (CASI) were conducted with 1602 consumers in conventional retail shops in

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