

Consumers' perceptions of organic food processing – first insights in milk and juice processing

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Abstract - Little research has been done on consumers' expectations and preferences related to processing technologies. This is also the case for processed organic food. Nevertheless, consumers may have specific expectations of processing in organic food. Thus, this study explores consumers' knowledge, expectations, and opinions of processing technologies in organic foods. Focus group discussions were conducted with occasional buyers of organic products. For organic products, participants preferred physical technologies over thermal technologies, because 'nothing is added to or changed the product'. However, they showed a great uncertainty regarding the complexity and opacity of the topic. Thus, communicating processing technologies in a transparent way is crucial to ensure a further growth of and trust in the organic market.

INTRODUCTION

Worldwide, increasing market shares for organic foods is no news. Whereas the market growth for organic processed and convenience food is a more recent development, especially in wealthy countries (Willer *et al.*, 2019). Yet, there is a general alienation between producers and processors on the one hand and consumers on the other hand. Looking at the literature, several scientists studied consumers' perceptions of organic products, e.g. Schleenbecker and Hamm (2013) and Shafie and Rennie (2012). However, little has been done on consumers' expectations and preferences related to processing technologies (Lee *et al.*, 2017). Schleenbecker and Hamm (2013) suggest to take consumers' expectations and preferences on quality and transparency into account when developing processing technologies for organic products. Thus, this study aims at exploring consumers' knowledge, expectations and opinions of selected processing technologies in organic foods. To accomplish this, we conducted eight focus group discussions with occasional organic product consumers in two European countries.

METHODS

For this study, focus group discussions (8 groups, overall n=80) were conducted in Germany (Hamburg and Berlin) and in Switzerland (Bern) in February and March 2019. The population for each group consisted of participants representing a diversity of common socioeconomic criteria and buying organic products at least once every two weeks.

The discussions started with investigating consumers' general knowledge and expectations of processed organic products in comparison to non-organic processed products. In order to not overload participants with test products, two well-known products were selected: milk and orange juice. For these two products, specific processing technologies, e.g. homogenisation, pasteurisation, ultra-high temperature treatment (UHT), concentration, and high pressure pasteurisation (HPP), were then discussed.

The focus group discussions were fully transcribed and first 'roughly' coded based on deductive categories derived from the guiding questions of the focus group guideline. Second, 'refined' inductive categories were derived from the data itself and the material was coded again. Afterwards, the material was analysed through a qualitative content analysis, following a thematic approach from Kuckartz (2007).

RESULTS

The analysis of the material is still under way and thus, we only present first insights at this point in time.

Knowledge and expectations of food processing

When asking participants for thoughts on processed food in general, concepts like additives, artificial flavours and preservatives, E-codes, and chemicals dominated the discussion; often in a negatively connotated way. Specific processing technologies, e.g. deep-freezing and pasteurisation were only mentioned at the side. When asked for advantages, participants agreed on processed products being time-savers, convenient, easy to portion, and enable consumption of a non-seasonal variety of goods. These positive aspects also held true for most participants for processed *organic* products. Participants expected processed organic products to have organically produced ingredients, no additives, artificial flavours or preservatives, and as little ingredients and processing steps as possible.

Milk: Homogenisation

Whether milk should be homogenised or not, seems to be mainly a matter of habits and age. Participants mostly preferred homogenised milk over non-homogenised milk claiming that they are used to it, respectively never saw non-homogenised milk. Moreover, homogenisation as a mere physical treatment was in line with participants' idea of organic processing because the product did not change its nature. How-

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ever, few participants preferred non-homogenised milk because it reminded them of their childhood or they preferred a more natural product.

Milk: Pasteurisation, microfiltration, UHT

Discussing shelf life for organic milk, we presented three types of processed milk to the participants: pasteurised, extended shelf life (ESL), e.g. microfiltrated milk, and UHT milk. Which type of milk participants consumed depended primarily on life style and habits, nutritional values only came second. Participants viewed microfiltrated ESL milk, which is also called 'fresh milk', as a good alternative to just pasteurised milk due to a longer shelf life. Yet, participants disagreed with the term 'fresh milk' when milk is microfiltrated and indeed longer lasting. In fact, they expected more transparency and information from *organic* products. UHT milk was the most contested: participants either stated that UHT milk is not in line with their idea of *organic* processing or they only bought it out of habit or convenience, emphasizing that the organic nature of the animal husbandry matters more than technology and nutritional values.

Orange juice: Direct juice versus concentrate

After presenting the processing steps of direct juice and concentrate to the participants, most participants clearly preferred as little processing as possible and hence direct juice. Accordingly, organic juice from concentrate was mostly perceived as negative and not in line with their idea of 'organic'. However, some participants mentioned the environmental benefit of transporting only concentrate instead of juice or fruits. Others emphasized that rather than the technology, either taste is decisive or that the fruits were grown organically.

Orange juice: High pressure pasteurisation (HPP)

Besides a fresh and a pasteurised orange juice, we presented a HPP-treated juice to the participants. Participants were generally very positive towards HPP. They did not perceive pressure of 6000 bar as problematic as long as the nutritional values are kept and convenience increases due to a longer shelf life. Participants rather had environmental concerns, e.g. the presumably high energy use of HPP. Moreover, the PET bottles, which are needed for this technology, were sometimes mentioned as not in line with their idea of 'organic' or not environmentally friendly. Participants would rather prefer recyclable glass bottles.

DISCUSSION AND CONCLUSION

Summing up, for occasional organic buyers, specific processing technologies were mostly not included in their concept of 'organic'. They rather thought about animal welfare and production conditions being free of antibiotics, pesticides, and fertiliser. Here, it should be mentioned, that it might be worthwhile to discuss processing technologies with regular organic consumers who may think and act in a different way. When participants were asked which technologies they would prefer for organic products, they mostly chose physical technologies over thermal technologies because 'nothing is added to or changed the product'. When con-

sumers faced a trade-off, many of them tended to choose convenience over quality or naturalness.

Moreover, participants showed a great uncertainty regarding the complexity and opacity of the topic and often digressed from technologies to discussing what 'organic' means to them. Yet, a great uncertainty and a lack of knowledge do not imply that consumers generally do not care about processing technologies. On the contrary, consumers expect information and transparency from organic products, as was already suggested by Beck (2006). Thus, to ensure further growth of the organic market, it is crucial to include consumers when developing processing technologies and install credible and transparent ways of communication.

ACKNOWLEDGEMENT

The authors acknowledge the financial support by funds of the Federal Ministry of Food and Agriculture (BMEL) based on a decision of the parliament of the Federal Republic of Germany via the Federal Office for Agriculture and Food (BLE) under the Federal Programme for Ecological Farming and Other Forms of Sustainable Agriculture as well as by transnational funding bodies, being partners of the H2020 ERA-net project, CORE Organic Cofund, and the cofund from the European Commission.

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