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CONSUMERS' PERCEPTIONS OF ORGANIC FOOD PROCESSING – FIRST INSIGHTS INTO MILK AND JUICE PROCESSING

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Abstract: The project “ProOrg” aims at developing a code of practice (CoP) for organic processors because they lack a guide for selecting appropriate technologies for organic processing. When developing processing technologies for organic products, consumers’ expectations and preferences on quality and transparency should be taken into account. Thus, this part of the project aims at exploring consumers’ knowledge, expectations and opinions of selected processing technologies in organic foods. Consumers knew very little about processing technologies and rather focused on organic production of raw material. Asking participants for their preferences for specific processing technologies often overstrained their judgement, even though some basic information was provided. We argue that organic food processors have to undertake responsibility by anticipating consumer expectations and by processing in line with overall organic principles.

Introduction: Worldwide, increasing market shares for organic foods is no news, but for organic processed and convenience food, it is a more recent development, especially in wealthy countries (Willer and Lernoud, 2019). Yet, processors lack a guide for the selection of appropriate technologies and innovations in line with the organic principles. The project ProOrg aims to close this gap by developing a Code of practice (CoP) for organic food processors. When developing processing technologies for organic products, one should take consumers’ expectations and preferences on quality and transparency into account (Schleenbecker and Hamm, 2013). However, little research has been done so far on consumers’ expectations and preferences related to processing technologies in organic food. Thus, this part of the project aims at exploring consumers’ knowledge, expectations and opinions of selected processing technologies in organic food.

Material and methods: Since little prior research exists regarding consumers and processing technologies in organic food, qualitative focus groups (FG) as an explorative method are chosen to collect primary data. FGs are carefully planned discussions following a structured, yet variable set of guiding questions (Lamnek, 2005). FGs are so-called ad-hoc groups which usually lead to more lively and controversial discussions, obtaining rich and content-related results. FGs usually

create a natural and relaxed atmosphere which encourages participants to express their opinions, and thus, obtaining realistic results (Lamnek, 2005).

For this study, we conducted nine focus group discussions with nine to 11 participants in Germany and Switzerland. The population of each group consisted of participants representing a diversity of common socioeconomic criteria and buying organic products at least once every two weeks. In our case, FGs lasted for 90 minutes. They were conducted in March 2019 and moderated by the scientist herself according to a loosely structured discussion guideline and some tables with basic information to enable and facilitate the discussion. The discussions started with investigating consumers' associations 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, we discussed specific processing technologies. For milk we discussed homogenisation (preventing a separation of fat and water), pasteurisation (heating), ultra-high temperature treatment (UHT) and for juice: concentration (withdraw water and flavours), and high-pressure preservation (HPP) (Polyethylenterephthalat (PET) bottles are put under water and exposed to high pressure which kills harmful microorganisms while vitamins are kept and shelf life increases). Questions asked within the FGs were "What do you associate with this processing technology?", "Is this processing technology in line with your idea of "organic"?", "Is this processing technology "careful"?", "Which processing technology would you prefer for organic milk/orange juice?".

The audio recorded material was verbatim transcribed. These transcripts were used for a structured qualitative content analysis (Kuckartz, 2016). Thematic categories were built according to the topics and subtopics of the discussion guideline. Sub-categories were e.g. general associations with a certain processing technology, preferred processing technology for organic milk or orange juice. Additional categories were built based on emerging topics discussed in the FGs, such as trade-offs between convenience and quality. Since no major differences were observed between the German and Swiss FGs, both groups were analysed together.

Results: This section presents first the associations and expectations of processed organic food and second, participants' opinions and preferences for different processing technologies for organic milk and orange juice.

Associations and expectations of processed food

When asking participants for their ideas on processed food in general, concepts like additives, artificial flavours, preservatives, E-codes, and chemicals dominated the discussion, often negatively connotated. Participants mentioned a general uncertainty concerning processed foods and aspects related to it: origin of ingredients, packaging, or CO₂ footprint. Specific processing technologies were only mentioned at the side. When asked for advantages, participants agreed on processed products being time saving, 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. They expected organically produced ingredients, no additives, artificial flavours or preservatives, and as little ingredients and processing steps as possible. Moreover, participants clearly associated transparent and environmentally sustainable value chains with organic foods.

Milk: Homogenization, microfiltration, UHT

The type of milk participants usually consumed depended primarily on lifestyle or habits. Thus, most participants favoured homogenised milk because they were used to it, whereas others preferred non-homogenised milk because it reminded them of their childhood, or they preferred a more natural product. Homogenisation as a mere physical treatment was in line with participants' idea of organic processing. Discussing shelf life for organic milk, most participants viewed microfiltrated ESL milk, which is also called 'fresh milk', as a good alternative to pasteurised milk due to a longer shelf life.

UHT milk was the most debated: either it contradicts participants' idea of *organic* processing or it was bought out of habit or convenience.

Orange juice: Juice from concentrate, HPP

After giving some information on the different processing steps of juice, most participants clearly preferred as little processing as possible and hence direct juice. Accordingly, organic juice from concentrate was mostly perceived as negative and contradicted their idea of 'organic'. Some participants mentioned the environmental benefit of transporting only concentrate instead of juice. Looking at shelf life, participants were generally very positive towards HPP. They did not perceive pressure of 6000 bar as problematic as long as the nutritional values were kept and shelf life increased. Participants rather had environmental concerns: the presumably high energy use of HPP and the necessary PET bottles. Generally, for many participants the organic production of the fruits or nature of the animal husbandry mattered more than the technology or nutritional values.

Discussion: Consumers knew very little about processing technologies and rather focused on organic production of raw material. Asking participants for their preferences for processing technologies often overstrained their judgement, even though some basic information was provided. Concluding that consumers are not interested in food processing might be rash: already Román *et al.* (2017) found out that food naturalness is important to consumers: in raw products, during processing, and in final products. Hence, we argue that organic food processors have to anticipate consumers' expectations, and develop measures for processing in line with organic principles while increasing transparency and sustainability of food labelling and value chains.

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