

F09: Behavioral perspectives on consumers' sustainable food choices

Session Chair: Katarzyna Stasiuk
Room: B: Atlas, R: Atlas 2 (max. 80)

Breeding by intervening: Exploring the role of associations and deliberation in consumer acceptance of different breeding techniques

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New plant breeding techniques may play an important role in the production of sustainable, high quality consumer foods. New plant breeding techniques such as gene-editing can be used for developing crops resilient to climate change, thereby protecting food security against extreme weather conditions such as extreme drought (Shi et al., 2017). In addition, new breeding techniques may increase yield, reduce the need for pesticide and fertiliser, and thus may also contribute to the reduction of agricultural greenhouse gas emissions (Smyth & Wesseler, 2022). In spite of the potential sustainability gains previous DNA based breeding techniques, most notably genetic modification, have been hardly allowed in the EU as a consequence of substantial resistance from consumers. To avoid similar resistance, it is crucial to understand if and under what conditions and for what purposes consumers may accept the next generation of plant breeding techniques, such that they can be implemented and contribute to a sustainable way of agriculture.

Most past research has considered elaborated responses of consumers on gene techniques. Given that consumers are found to have limited knowledge of breeding techniques, in reality they often rely on quick associative responses when evaluating breeding techniques. Associations may thus play an important role in understanding how consumers evaluate breeding techniques. Associations with plant breeding techniques are however hardly investigated. Therefore, this study explored the role of associations in consumer evaluations of (new) breeding techniques and how associative responses compare to deliberative responses by conducting six focus groups. A total of 45 participants in 3 European countries: the Netherlands (n=16), Italy (n=16), and Czech Republic (n=13), participated in 6 focus groups. Each focus group examined consumer associations and deliberations of six breeding techniques through individual tasks and group discussion. The breeding techniques examined were 1) Cisgenesis (variant of genetic modification); 2) Transgenesis (variant of genetic modification); 3) Conventional breeding; 4) CRISPR-CAS9 (subtype of gene-editing); Synthetic biology (synthetically composed genes) and 6) Marker-assisted breeding (non-invasive breeding tool). Associations were measured through a written spontaneous word listing task. Deliberations were derived through content coding of the transcripts from the group discussion. When participants rely on spontaneous associations, they evaluate gene-editing similarly compared to genetic modification. However, after information provision and group discussion,

participants differentiated between these techniques, and they preferred gene-editing over genetic modification. Perceived naturalness was the main reason for the different levels of acceptance. Naturalness already occurred in the spontaneous associative responses, where genetic breeding techniques were associated with artificiality, whereas conventional technique (cross pollination) was associated with nature. These findings show that beliefs about naturalness remain crucial in understanding how consumers evaluate breeding techniques, they also highlight the importance of associations. We show that initial associations may obscure differences between new breeding techniques in the eye of the consumer, which unchecked may lead to re-emergence of the debate and potential rejection of these new techniques.