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DIFFERENCES AND SIMILARITIES IN THE PROCESSING OF ORGANICALLY AND NON-ORGANICALLY PRODUCED (SEMI)-HARD CHEESE

- ANALYSIS BASED ON EXPERT INTERVIEWS WITH ARTISANAL CHEESE DAIRY STAFF IN THE MÜNSTERLAND REGION IN GERMANY

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Abstract: The study compares the production of organic and non-organic artisanal (semi-)hard cheese and examines the producers' understanding of the term "gentle processing". Guided interviews were conducted with four experts from two organic and two non-organic artisanal on-farm-dairies in the Münsterland region. The interviews were evaluated on the basis of the structured content analysis according to Mayring. Both expert groups described similar steps in their cheese production. As differences in cheese processing, the experts stated the use of additives, the storage time of the milk and the cheese care. Moreover, differences in the technological pre-treatment of the milk could be identified. This study is the first to investigate differences and similarities in the processing of (semi-)hard cheese in organic and non-organic dairies.

Introduction: The demand for organically produced dairy products in Germany is growing and with it the production of processed organic dairy products, such as cheese [1]. The EU-Regulation for organic food processing gives only little detailed information on the allowed processing steps, with a focus on restricting food additives [2]. But the question is if there are more differences between the production of organic and non-organic dairy products and how these relate to gentle processing. The production of cheese can be done in an industrial setting, where technological pre-treatment processes like microfiltration or standardisation take place [3]. But there are also artisanal cheese dairies, which were in focus of this study.

Material and methods: Guideline-based expert interviews between 20 and 45 minutes each were conducted with four experts from each of the artisanal cheese dairies in the Münsterland region in Spring 2019. The sample consisted of two non-organic and two organic cheese dairies. A quantitative questionnaire was used to collect the general data and to supplement the responses to the guideline interview. The evaluation of the interview transcripts was based on the qualitative structuring content analysis according to Mayring [4]. The summaries based on the deductively formed category system were presented in the form of a pair comparison, whereby the cheese dairies were differentiated according to organic certification and dairy cattle.

Results: All experts surveyed consider their cheese to be a gently manufactured product. Differences between organic and non-organic cheese are identified in the differing use of additives. They do mention some points where the cheese-making process can still be optimized, e.g. in the quality of the feed, or in fewer pumping operations during the manufacturing process. Three out of four experts mentioned the desire for a hay drying system as they are on-farm-dairies and wish to improve feed quality, which in turn impacts cheese quality. Furthermore, the pumping processes destroy important fat molecules present in the milk according to the experts. The experts use the term gentle processing to indicate that the original product (milk) is maintained by the use of thermal / mechanical force and by compliance with the legally required standard values, e.g. during heating. All experts from the artisanal cheese dairies surveyed are of the opinion that full manual processing is gentler than industrial processing. Full results are shown in Table 1.

Discussion: One non-organic dairy uses the adjuvant lysozyme against Clostridia. This bacterial strain often leads to contamination in the feed, which could cause cheese defects later in the process [5]. Improved stable hygiene and hygiene during the milking process could limit the contamination by clostridia, so there is less need to use lysozyme [6].

Both experts from the organic cheese dairies rate the processing of raw milk as particularly gentle compared to cheese made from pasteurized milk. In addition, they consider the consumption of food in its original state or with a low degree of processing to be healthier than highly industrially produced food. The experts point out differences in the processing of food. One expert speaks of good and bad forms of processing using the example of an industrially produced strawberry yoghurt made with aroma from sawdust and carob bean gum compared to an on-the-farm produced yoghurt with fresh strawberries.

Although all the experts surveyed consider their cheese to be a gently produced product, they do cite optimisation potential before and during the processing process. The survey of all four cheese dairies shows that feed quality can be seen as an important indicator of milk / cheese quality. Low-quality feed (according to the interviewed experts e.g. silage and concentrated feed) can cause cheese defects in the subsequent processing of the milk into cheese, which are reflected in the taste and appearance of the cheese. The quality of the feed could have an effect on the quality of the milk / cheese regardless of the certification of the cheese dairy. The difference is that a non-organic cheese dairy has the possibility to reduce cheese defects by using certain additives [3].

Limiting factors of this study were the survey period and the number of cheese dairies investigated. The many similarities in the processing on the artisanal level between organic and non-organic processing of (semi)-hard cheese provide an incentive for further research. An analysis of industrial cheese processing compared to artisanal production could reveal further differences apart from the use of additives in the non-organic sector.

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