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Application of fundamental principles of sensory analysis to support the quality control of PDO products based on expert panel evaluations

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A quality control based on sensory analysis is particularly important in the case of PDO products because the perceived quality is one of the key elements to support competitiveness and profitability.

In this study, we consider Trentingrana cheese, a variety of the PDO Grana Padano, exclusively produced in a restricted mountain region in northern Italy, where it represents the most important dairy product.

Since 11 years, the Trentingrana Consortium supervises the production of cooperative dairies in two phases: Firstly, official inspectors classify cheese wheels on-site as “first quality”, “second quality” or “discarded” and, secondly, “first quality” wheels are sampled every 2 months within each dairy and assessed by a panel of experts for 7 sensory attributes. Based on the results of the assessment, dairies receive a price premium or penalty depending on a quality index, which is the weighted average of the scores assigned to each sensory attributes for the sampled wheel [1].

In the frame of the research project “Quality aspects of Trentingrana production chain” supported by Autonomous Province of Trento (Italy), we improved the Consortium procedure by implementing its scientific sensory approach.

The data set collected over 8 years and the evaluation procedures applied by the Consortium were critically analyzed: A few critical points were then highlighted and the corresponding solutions were suggested (e.g., the application of a real experimental design, the definition of sensory specifications for attributes, the implementation of a systematic judges’ training and performance check). Here, we describe the improvement obtained by the implementation of some proposed changes to demonstrate how the applications of fundamental principles of sensory analysis improved the quality control system. With this work, we would like to provide methodological hints for the proper implementation of sensory analysis for the quality control in productive contexts

[1] Bittante et al. Monitoring of sensory attributes used in the quality payment system of Trentingrana cheese. *Journal of dairy science* (submitted Feb. 2011)

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