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Production system and seasonal effects on textural properties of two-month ripened goat's cheese

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ABSTRACT

Since the 1990s, there has been a revival in goat rearing and a resumption in the making of goat's cheeses in the Province of Trento. Given this, and the local interest in maintaining the production and its traditions, a qualitative description of the goat's cheeses is desirable. In this study, texture profile analysis, TPA, was used to examine the variability of the rheological properties, depending on production system and season, in raw milk semi-cooked paste goat's cheese, ripened for two months, as the Trento Goat Cheese of Traditional Agrifood Products (D.M. n. 350, 1999).

Cheeses from two production systems, intensive and extensive, were considered. The first was represented by a dairy farm with a complete rearing-processing cycle; the farm practices intensive rearing of about 200 goats without grazing. The extensive system was represented by a cooperative dairy cheese plant, collecting milk from 36 farms, with a mean of 9 female goats (range: 1 to 66) each; the animals gathered in a single flock during summer and grazed on mountain pastures. The dairy farm made cheese with commercial starter, while the cooperative uses a self-produced starter. The cheeses were made between May and August, the period of peak milk yield, and ripened for two months. A total of 24 forms, homogeneous in weight and size, were collected, one from each batch, three per month for the four months of the trial, from both dairy. Each form was cut into two vertical halves and the central 7 cm portion of each was removed. This was in its turn cut into horizontal halves, and 3 samples of 2 cm in height were taken from the centre towards the rind, with a core sampler 2 cm in diameter. Each core sample was TPA tested using a Lloyd Instruments TA Plus with a load cell of 1000N. The TPA data were processed by Nexigen-Ondio software version 4.5 and underwent repeated-measurement multivariate statistical analysis utilising the SPSS program. The cheese from the intensive system was significantly harder (105.8 vs. 79.1 N) and less cohesive (0.151 vs. 0.177) than the extensive one and tended to require more chewing. As regards season, the cheeses were softer (84.9 vs. 100.0 N), less elastic (225.0 vs. 291.7 %) and rubbery (13.3 vs. 16.8 N) in spring than in summer; in fact in summer they required greater effort to chew and then swallow (0.297 vs. 0.186 J).

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