

Suitability of the milk of East Friesian, Polish Merino and East Friesian x Polish Merino sheep for rennet cheese production

S u m m a r y

The aim of the study was to compare the quality and suitability of the milk of East Friesian and Polish Merino sheep and their crossbreds with 75% share of Friesian breed for making curd and ripening (semi-hard) cheese. Observations were made on samples of bulk milk obtained from Friesian (Fr), Polish Merino (M) and crossbred ewes (FrM) with 75% Friesian genotype, milked from 68 to 103 days of lactation during the summer feeding period. Milk from the ewes of each genetic group was collected separately in a cold store (4-6°C), and processed into two types of rennet cheese (curd and ripening cheeses), four times at 7-day intervals. The milk was evaluated for technological quality. Analysis was performed on the chemical composition of milk, cheese and whey, the profile of milk protein fractions, milk urea level, and the retention of milk components in cheese. The milk of Merino ewes had the highest ($P \leq 0.01$) content of solids, protein and fat (19.20, 5.89 and 7.66%, respectively) in relation to Fr (16.86, 4.98 and 6.15%) and FrM milk (17.48, 5.10 and 6.56%), while FrM milk contained significantly more solids than Fr milk ($P \leq 0.05$). The lactose content of milk was similar in compared genetic groups (Fr – 4.83, M – 5.13 and FrM – 4.84%). The profile of milk protein fractions was similar in all the genotypes, with casein, albumins and globulins accounting for 74.4, 12.3 and 6.1% milk proteins on average. Milk urea level for M (8.9 mmol/l) was lower than for Fr and FrM milk (9.6 mmol/l each). No differences were found in the technological quality of milk and the retention of milk components in cheese. The highest yield of curd cheese and semi-hard cheese was obtained from the milk of Merino ewes (29.16 and 17.59%, respectively), followed by 25.2 and 15.4% on average for Fr and FrM milk. Semi-hard cheese from Fr milk contained significantly more solids (69.24%) than that obtained from M (63.12%) and FrM milk (61.83%). There was no effect of sheep genotype on the composition of whey left after milk processing in different types of cheese.