

## Genetic and Herd Effects on Milk Composition

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This study is part of the Milk Genomics Initiative, which focuses on the genetic background of detailed milk composition. As part of this study, three test-day morning milk samples were collected from 1953 Holstein-Friesian heifers located on 398 commercial herds in the Netherlands. Genetic (heritability) and herd effects were estimated for somatic cell count (SCC), pH, freezing point, urea content and the percentage of fat, protein, and lactose, using an animal model. Milk yields were available from test-day records. Coefficient of variation was very low for pH, freezing point and lactose percentage (1 to 3%), and moderate for yield of milk, fat, protein and lactose (around 20%). Coefficient of variation was high for log-transformed SCC and urea content (28 and 33%), while heritability for these two traits was low: 0.08 for log-transformed SCC and 0.14 for urea content. Heritability was highest (around 0.60) for percentage of fat, protein and lactose, and lower (around 0.40) for yield of milk, fat, protein and lactose. Herd effects explained 58 percent of total variation in urea content, but only 1 percent of variation in log-transformed SCC. For other traits, herd effects were between 5 and 10 percent. Analyses show that genetic effects are in general more important than herd effects. An exception is milk urea content, which is more affected by herd than by genetic effects.