Effect of inbreeding and estimation of genetic parameters for heifer mortality in Austrian Brown Swiss cattle

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Summary

• Mortality of juvenile heifers highest within the first 30 days after calving
• Inbreeding significantly affects juvenile mortality in Austrian Brown Swiss
• Heritability 2% (linear model) for total mortality before first calving
• Further monitoring of inbreeding and juvenile mortality suggested

Aims

- Estimation of inbreeding depression on survival of Austrian Brown Swiss heifers
- Genetic analysis for heifer mortality

Data

- Data extracted from national data base
- 69,571 Austrian Brown Swiss heifers
- Mortality defined as binary trait (1 or 0)
- Died in selected periods
- Periods 2-30 d, 31-180 d, 181-day before first calving (max. 1200 d) and full period

Analysis

- Linear animal model, ASReml software
- Effects: herd*year of birth (random) year*month of birth, parity of dam, calving ease (fixed) inbreeding coefficient (linear, quadratic) animal (random; 203,894 in pedigree)

Results

- Excluding slaughtered and exported animals, mortality rates were 3.2% during the first 30 days and 9.3% for the full period
- Significant inbreeding depression (linear) in all defined periods
- Heritabilities ranging from below 0.01 to 0.02 (full period)