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

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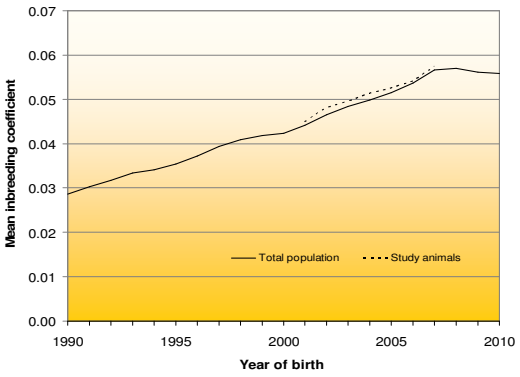
Aims

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

Development of average inbreeding in Austrian Brown Swiss



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)

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**

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)