Scandinavian co-operation

Finland – Sweden - Denmark – (Norway)

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Scandinavian countries

- Very close breeding schemes
- Health control system producing data for health and fertility traits
- Strict acts in animal welfare and breeding
- No genetic defects accepted
- Open breeding programs
- One AI industy company in each country
- One Breeding company in each countiry

Goal in co-operation

- All Scandinavian best bulls available for all Scandinavian breeders

- Incresing the population size (in red breed)
- Defending test capasity
- Keeping Scandinavian Red as an alternative
- Making selection more efficient
- Economical efficiency

Starting with Agreements

- Co-operation and catstrophy agreement between AI-FABA and Svensk Avel (1996)
- Production of bulls jointly owned (2001)

  FI-SE bulls born 1997-

  FI-SE-DK-NO 1999-
- Accsess to semen based on numbers of tested bulls in each country

Co-operation in Nucleus herds FI-SE

Finland: ASMO 1997 -

- Ayrshire, 70 test animals per year
- owned by FABA, AI, dairy, Svensk Avel
- imported Swedish heifers, embryo exchange

Sweden: Viken 2001

- 100 Red + 100 Holstein
- Svensk Avel, Lantmännen, Svalöf Weibull, FABA
- embryo exchange

Comparing needed

- Same bulls evaluated in each country
- Daughters spread across Scandinavia
- Same bull sires (specially FI-SE in red)
- Gene trade incresing:
  semen, embyos, live animals
- ASMO (FI) heifers with Swedish pedigree
- INTERBULL limited to bulls
  – need for more traits

NAV
= Nordic Cattle Genetic Evaluation

- Putting resources together for R&D
  - – economical efficiency
  - – know how, personell
- Routine evaluations
  - computer capasity
- GENO (Norway) left NAV 2004

Starting with…

- Different animal identification systems
– Different evaluation systems
– Different data extraction
– Different traits, TMI’s
– Different publication (standard dev.5-10)
– Different prizes (= economical pressures)

Harmonisation and compromises

- AYS and HOL separately
- ready 2004-2006
- INTERBULL-acceptance
- Working in projects: production, type traits, fertility, udder health
- Later: calving traits, other functional traits, all
- Discussion of composite traits

Composite type traits

- Udder
- Feet and legs
- Body
- different traits in different countries
- different weights
- different optimums

=> need to be harmonised !!

Production traits

- Test day model + 305d lactation model
  - FIN and DNK TD, DNK and SWE 305d
- observations on 27 phenotypic traits

  =>genetically 9 traits

  - first, second, later lactations

  - milk, protein, fat simultaneously
- complex model, computationally demanding
- Production index?

Fertility traits

- Variety of traits:
  - heifers/cows separately
- Non-return rate
  - time from calving to 1. insemination
  - time from 1. to last insemination
  - number of insemination/pregnancy
  - heat strength
  - fertility treatments

=> Fertility index ?

Udder health

- Clinical mastitis in first three lactations
  - 1. Lactation divided into two parts
- Somatic cell count and type traits as information traits
- Future: combined SCC TD model + clinical mastitis ?
- Udder health index?

Type traits

- Huge variety of traits
  - approx. 30 type traits
  - Milkability, temperament, leakage
- Mostly first lactation records
  - FIN: 40% of obs from later lact.
  - DNK: some
- Harmonisation important
  - which traits, how scored

Publication of indices

- Common base and SD
  - calculated from joint cow population
  - SD of 10 index points
  - change for ALL traits at the same time
- Common Nordic index in each trait
  - same index in DNK, FIN, SWE
  - also composite traits
- Own TMI's in each country for each bull/cow