Finland, pioneer in health recording and breeding for health

Jukka Pösö
Faba Breeding
Breeding for yield increases health problems

- Strong antagonistic genetic associations
- Finnish Ayrshire:
  - 0.40 – 0.60 between yield and mastitis
  - 0.40 – 0.60 between yield and fertility disorders
- Health and fertility need to be included in breeding programme
Health as breeding objective

- Health problems cause economic losses
  - Large economic value in TMI
- Major reasons for involuntary culling
  - Mastitis & impaired fertility
- Animal welfare issues more important
  - Ethical aspects of breeding work
Low heritability

• Traits measured as 0/1
• BUT: large variation in daughter groups
  – Asmo Sale: less than 1% daughters treated for mastitis in 1st lactation
  – Worst bull: over 25 % daughters with mastitis
• Large daughter groups needed for reliable EBV
Somatic cell count

- Indicator trait for clinical mastitis
  - Easier to record (milk recording)
  - Higher heritability (10-15%)

- BUT
  - Genetic correlation to mastitis only ~ 0.60
    (i.e. same as between yield and mastitis)

- Best option: use both mastitis and SCC
Health recording in Finland

• Since 1982
• Veterinary made diagnoses & treatments
• Common data base
  – information on production, inseminations, health, conformation etc
• 2008 onwards: hoof trimming data
• Currently around 6 million obs
• 200 000 new health records per year
Health data used

- For management purposes
  - Health reports for farms
  - Reports for local veterinarians

- For breeding
  - Udder health
  - Fertility disorders
  - "other treatments" (mostly metabolic disorders)
Udder health evaluation

• Joint Nordic evaluation (NCGE)
• Clinical mastitis
  – Early mastitis in 1st lactation
  – Lactations 1-3
• Somatic cell count
  – Lactations 1-3
• Fore udder attachment & Udder depth
Daughter fertility evaluation

- Joint Nordic evaluation (NCGE)
- Several fertility measures
  - Heifers
  - Cows
- Fertility disorders
  - Lactations 1-3
Evaluation for other diseases

• Joint Nordic evaluation (2008 onwards)
• Subindex: other diseases
  – Reproductive disorders in early lactation
  – Reproductive disorders in late lactation
  – Metabolic disorders
  – Feet and leg disorders
  – Lactations 1-3
Finnish TMI

• Health traits included since 1990
  – Udder health
  – Daughter fertility
• Large genetic improvement in yield and conformation in Finnish Ayrshire
• At the same time
  – Slow improvement of udder health
  – No impairment in daughter fertility
Asmo Sale Et AAA 42802 C

Born: 22.01.2003, Jokioinen
Breeder: Mitt-Alkiokeskus
Color: 
Animal ID: 7455118

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Translation of breeding values to phenotypic values

Int.ID: FIN000000042802
Owner: Kaikkien kauteen yhteiset sonnit

Sire: K.Kelli AAA 40347 C
PGS: N.Vemen AAA 38824 C
PGD: Äty 2 1074146 AAA
Dam: Vega 50-1030867 AAA
MGS: Backgård AAA 40499 B
MDG: Vega 164 1030857A
MGG: Hydlsa AAA 39674 B

Total merit index: 23

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