

Finland, pioneer in health recording and breeding for health

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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: Mtt-Alkiokeskus
 Color:
 Animal ID: 7455118

Translation of breeding values to
 phenotypic values

Int.ID: FIN000000042802
 Owner: Kaikkien kso:ten yhteiset sonnit

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

Trait	Daughters Reliability	
Production	159	92
Functional	102	85
Health	163	68
Conformation	71	

Total merit index: 23		12.05.2008				
		80	90	100	110	120
Production	109					
Milk-kg	112					
Fat-%	89					
Fat-kg	102					
Prot.-%	95					
Prot.kg	112					
Persistence	117	non-pers.				persistent
Fertility	103					
ICF	99					
IFL (heifers)	110					
IFL (cows)	101					
AIS (heifers)	114					
AIS (cows)	106					
NRR (heifers)	112					
NRR (cows)	101					
Fertility treatments (1st lact.)	98					
Fertility treatments (2nd lact.)						
Fertility treatments (3rd lact.)						
Fertility treatments	99					
Birth						
Calving						
Still birth sire	105					
Still birth mgs	102					
Calving index (sire)	100					
Calving index (mgs)	114					
NRR (male fertility)	100					

