

Follow-up on Nordic genomic breeding values for pure bred beef cattle

¹ Växa Sverige: Elisenda Rius-Vilarrasa, Andrei Kudinov and Patricia Ask Gulstrand

² Faba co-op: Jukka Pösö

³ SEGES Innovation: Kevin Byskov

⁴ Nordic Cattle Genetic Evaluation: (Gert P.A.)

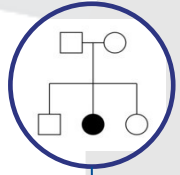


Nordisk Avlsværdis Vurdering •

Nordic Cattle Genetic Evaluation

NAV online workshop 24th September 2025

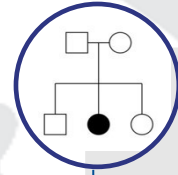
Nordic purebred beef genetic evaluation



Pedigree - Breeding values



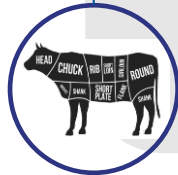
Calving traits



Genomic - Breeding values



Weight/Growth and carcass traits



Breeds: Aberdeen Angus (AAN), Simmental (SIM), Charolais (CHA), Hereford (HER), Limousine (LIM) Blonde d'Aquitaine, Highland Cattle + Other smaller breeds

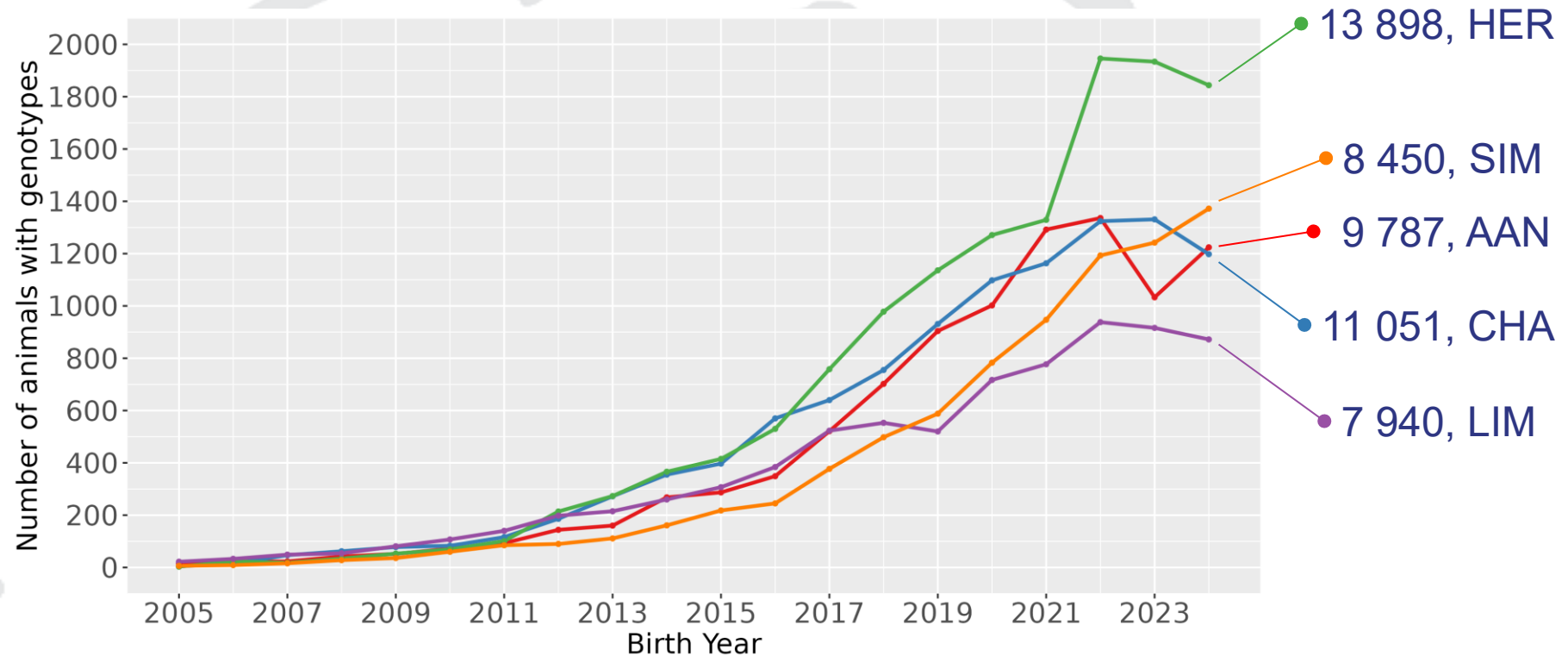
NAV



Nordisk Avlsværdis Vurdering •

Nordic Cattle Genetic Evaluation

Number of genotyped animals – breed and birth year



Ongoing developments



Explore genomic breeding values for calving traits

How to handle selective genotyping?



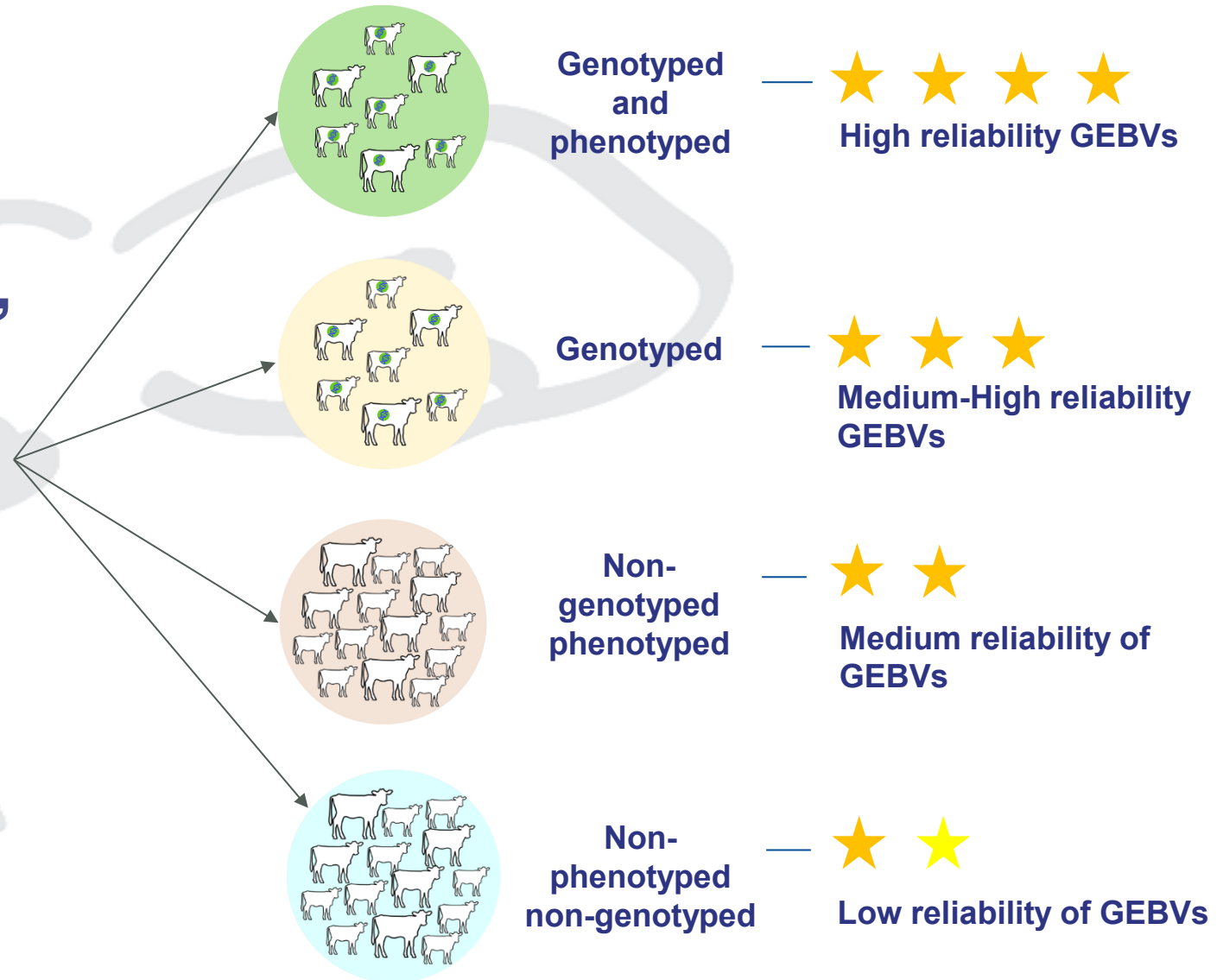
Investigate the possibility of Genomic breeding values for small population size breeds



Reliabilities including genomic information

NAV workshop 2024,

expectations on
genomic reliabilities
based on different
sources of information



NAV

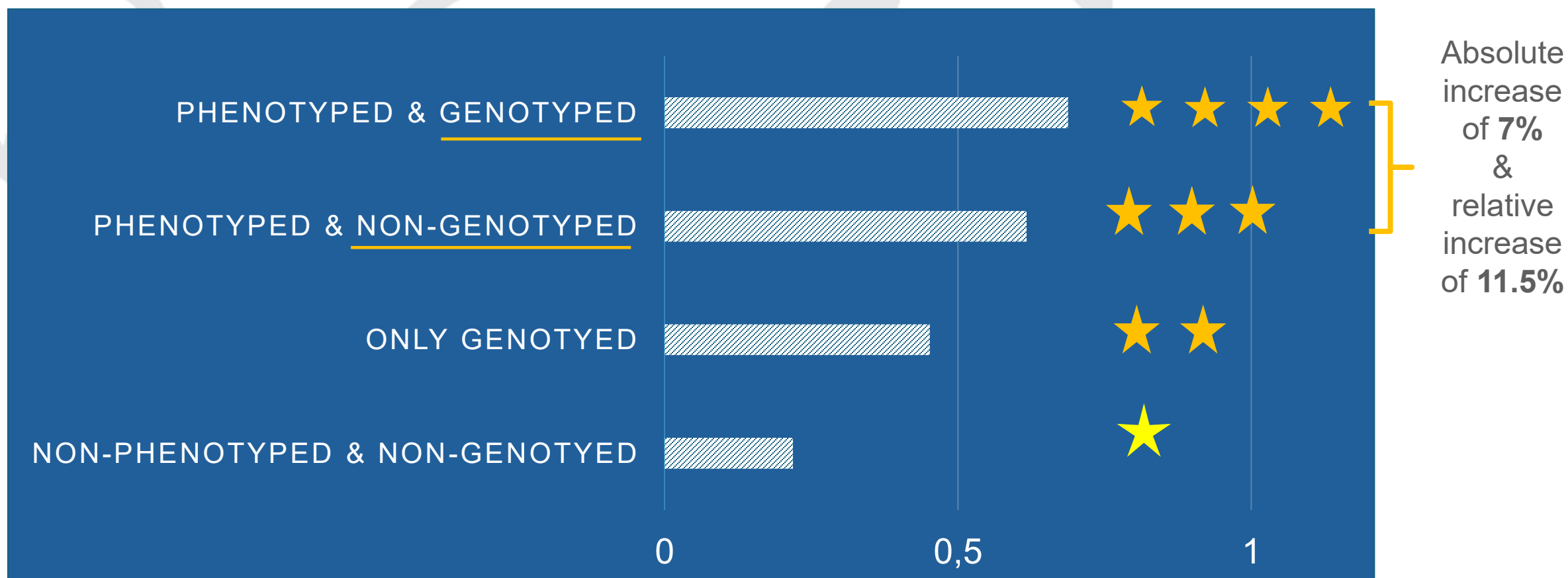


Nordisk Avlsværdis Vurdering •

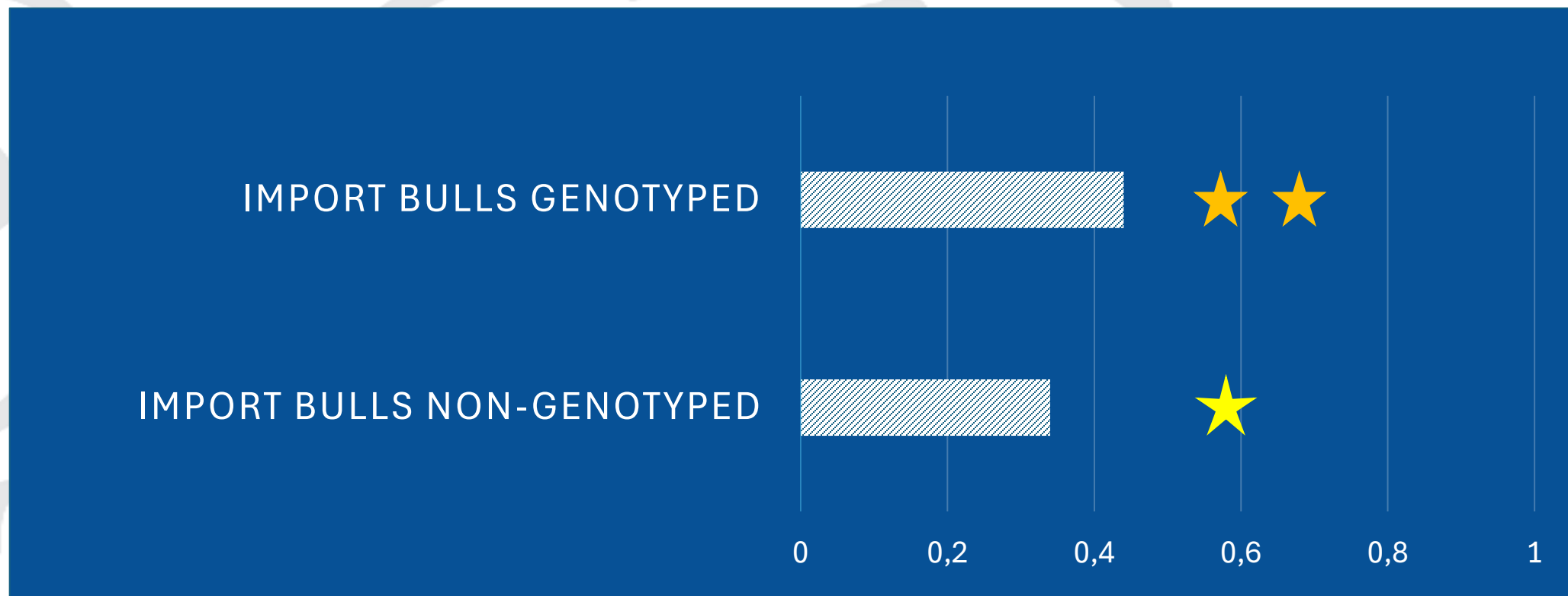
Nordic Cattle Genetic Evaluation

What do we observe?

Reliability of Genomic Breeding Values for birth weight

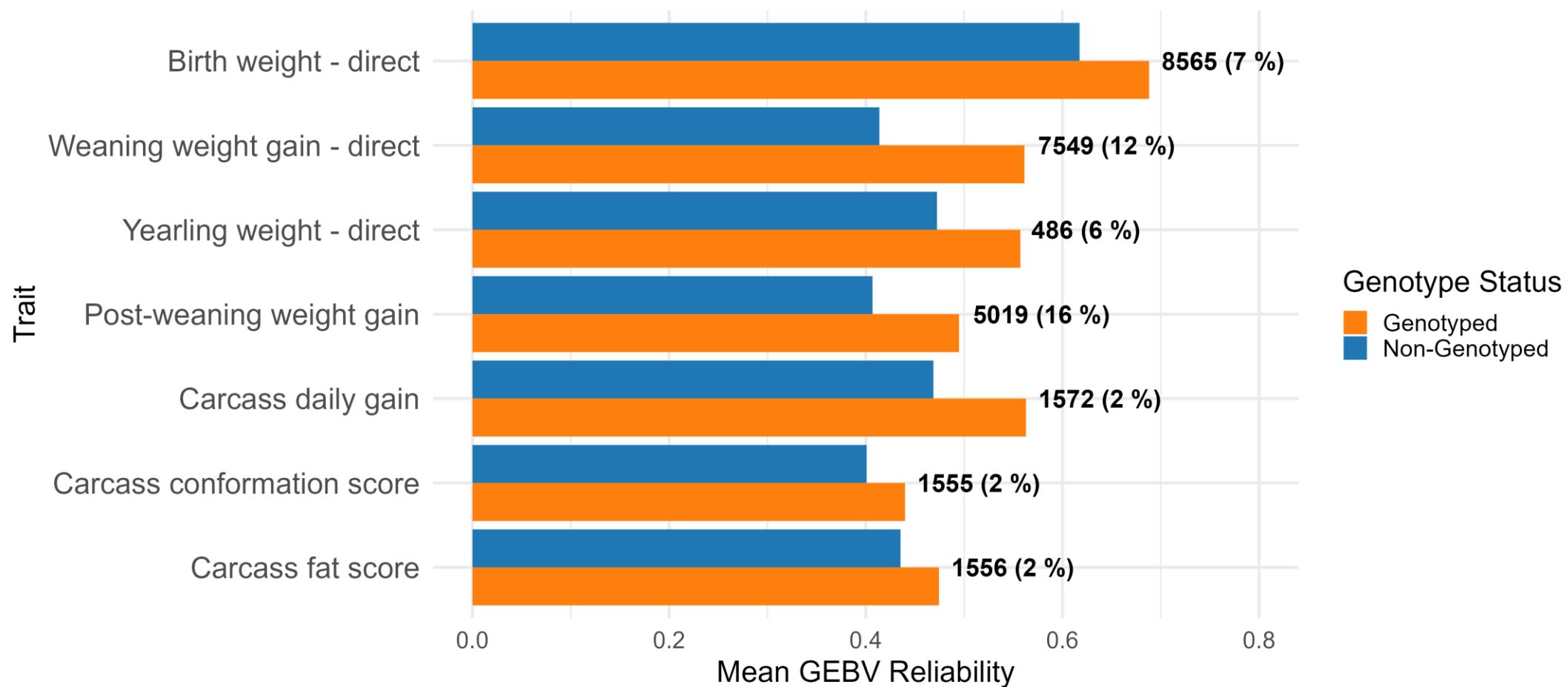


Reliabilities of imported bulls with no phenotype data for **slaughter daily gain**



(ex. AAN)

Reliability of phenotyped animals by genotyped status



Numbers in parentheses = proportion genotyped over non-genotyped

Increased relationship information with genotypes

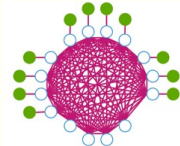
In numbers



Pedigree BLUP



+



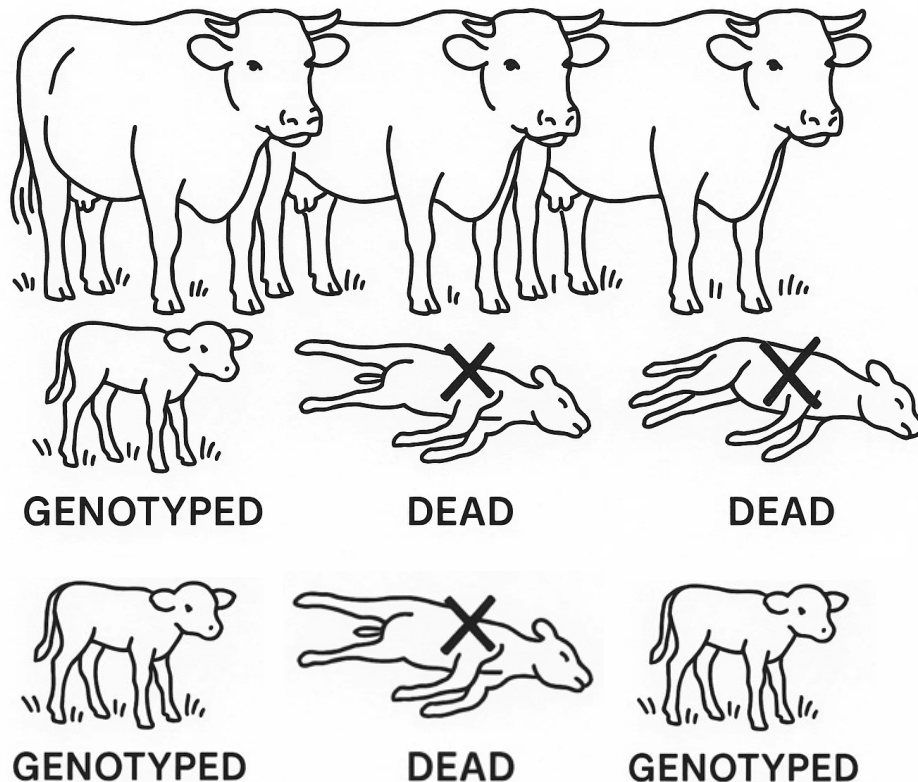
Singel step - GBLUP

	Increased relationship information
FIN x DNK	69 (times)
FIN x SWE	21
SWE x DNK	52

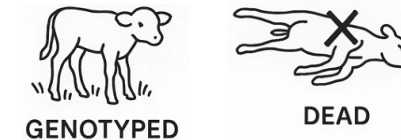
Genomic information reveal animal relationships that pedigree alone can't capture

Genomic breeding values for calving traits

SELECTIVE GENOTYPING



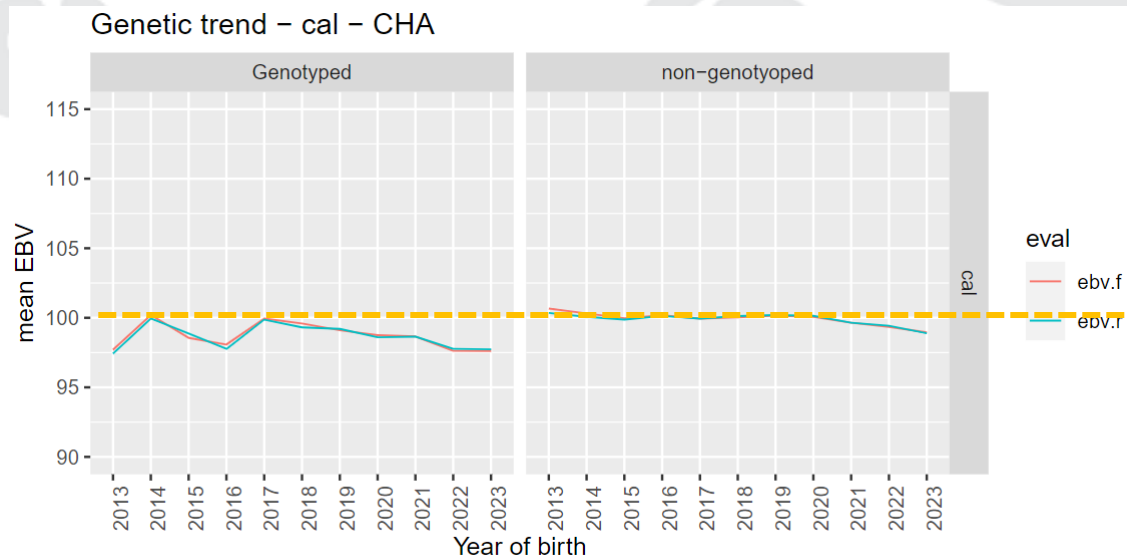
- Genotype only a portion of the individuals in the population – only animals that are born alive



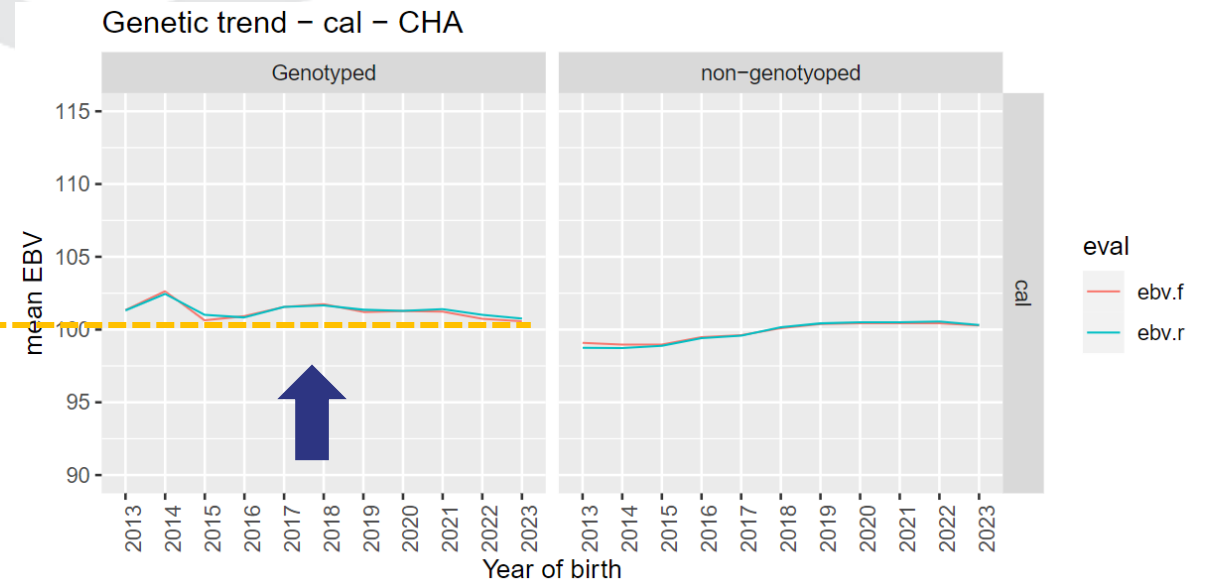
- Overrepresentation of extreme phenotypes
 - Calving breeding values for cows only from successful calvings
- Leads to “bias” in the estimation of breeding values
- Reduced reliability

Genomic breeding values for calving index – under revision

Pedigree BLUP – Genetic trend EBVs



ssGBLUP – Genetic trend GEBVs



NAV



Nordisk Avlsværdis Vurdering •

Upward shift in the genetic trend for
genotyped animals when using
genotype data

Nordic Cattle

What's next?

- **Genomic reliabilities for weight/growth and carcass traits – February 2026**
- **Harmonize breed definitions across countries – revise genetic groups**
- **Validate genomic breeding values for calving traits**
- **Validate genomic breeding values for BAQ and HLA**



ACCGGCGGCA GGGGT
GCTGACGTGAGATCAG
AAGCGGGGATG CGTA
CGGGCTACTACGGCA
ACGTGGGCAGCTGTAC
ACGCGAGTGGAGCGT
GCTAGGTACGTGGAG
GTGCACGTGATTGGA
AAGGCCGGCTGCGTA
ACGGTAGTGAGGTAG
GCGTTTCGGTATC GGA
ACTCCCCCAATCCATC

Thank you