→ *Ida Wøyen Hamfjord, Bjørg Heringstad, Siri Furre, Hooman K. Moghadam*

→ *Genetic parameters for calving traits in Norwegian Beef-on-Dairy crosses*

→ *4. Juni 2026*

Genetic parameters for calving traits in Norwegian Beef-on-Dairy crosses

Technical session 14

Beef cattle – Genetic Evaluation and Recording

N. 343

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Background

Increasing use of Beef-on-Dairy systems internationally and in Norway

Improved economic value of surplus dairy calves

Previous research mainly based on Holstein populations

Norwegian Red: moderate body size and different breeding background

Potential differences in calving performance in calving performance in Norwegian Red Beef-on-Dairy systems

Aim of the study

The aim of the present study was to estimate heritabilities and genetic correlations for stillbirth, calving ease, calf size, and gestation length in Norwegian beef-on-dairy calves. The study further aimed to provide knowledge that may support breeding and selection strategies for improved calf survival, calving performance, and overall herd productivity.

Material and method

Norwegian Dairy Herd Recording System

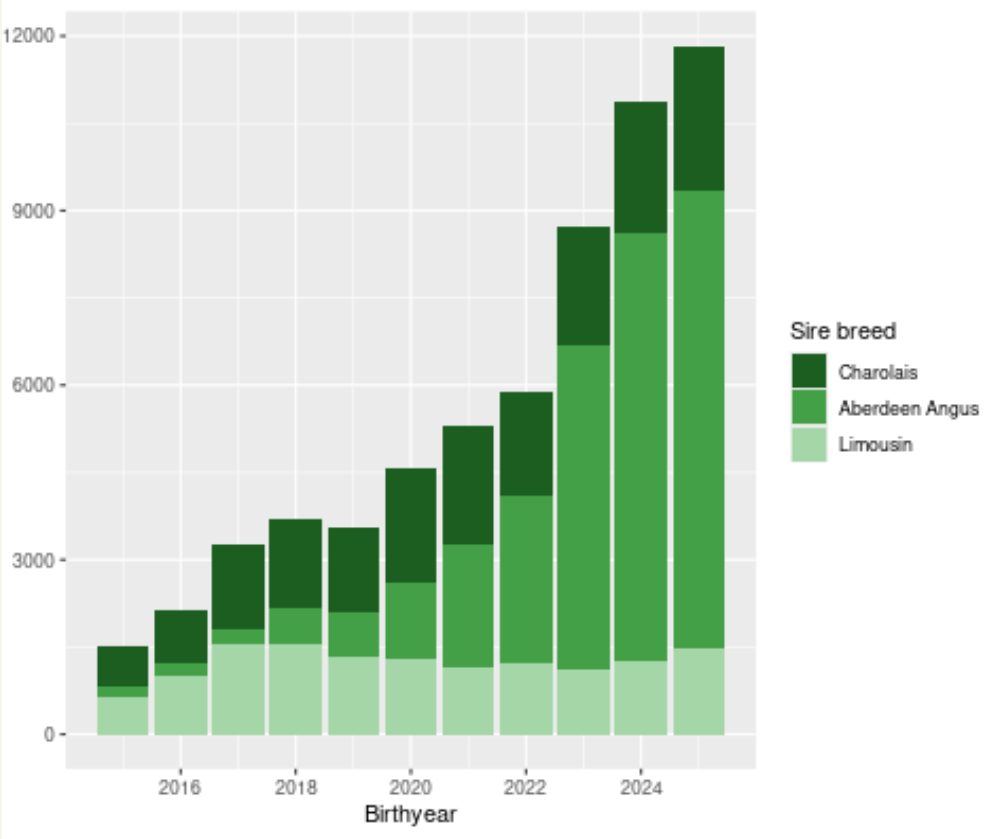
Calves born between 2016 and 2024

249,751 calves from 2,451 herds

- 205,486 Norwegian Red x Norwegian Red
- 44,265 crossbred beef x Norwegian Red
  - 23,242 Aberdeen Angus
  - 11,927 Charolais
  - 9,095 Limousin

601,869 animals in pedigree

DMU software package



Statistical model

$$Trait = \underbrace{herd * year + twinning + calf\ sex * sire\ breed + month}_{Fixed} + \underbrace{dam\ age(calf\ sex * sire\ breed)}_{Regression} + \underbrace{Animal + residual}_{Random}$$

Phenotypes

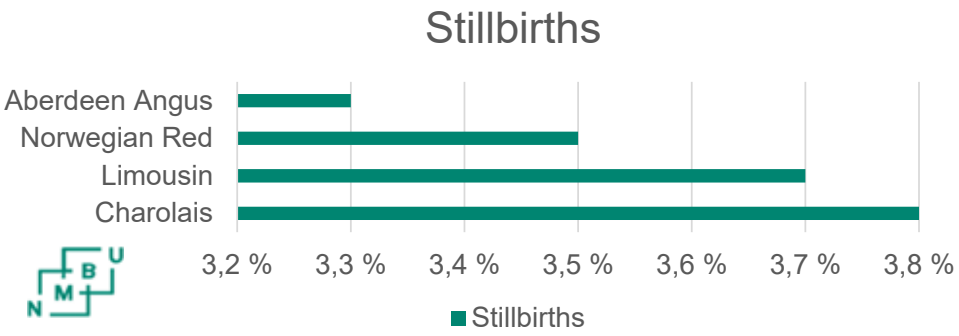
Stillbirth, calving ease, calf size and gestation length were analysed

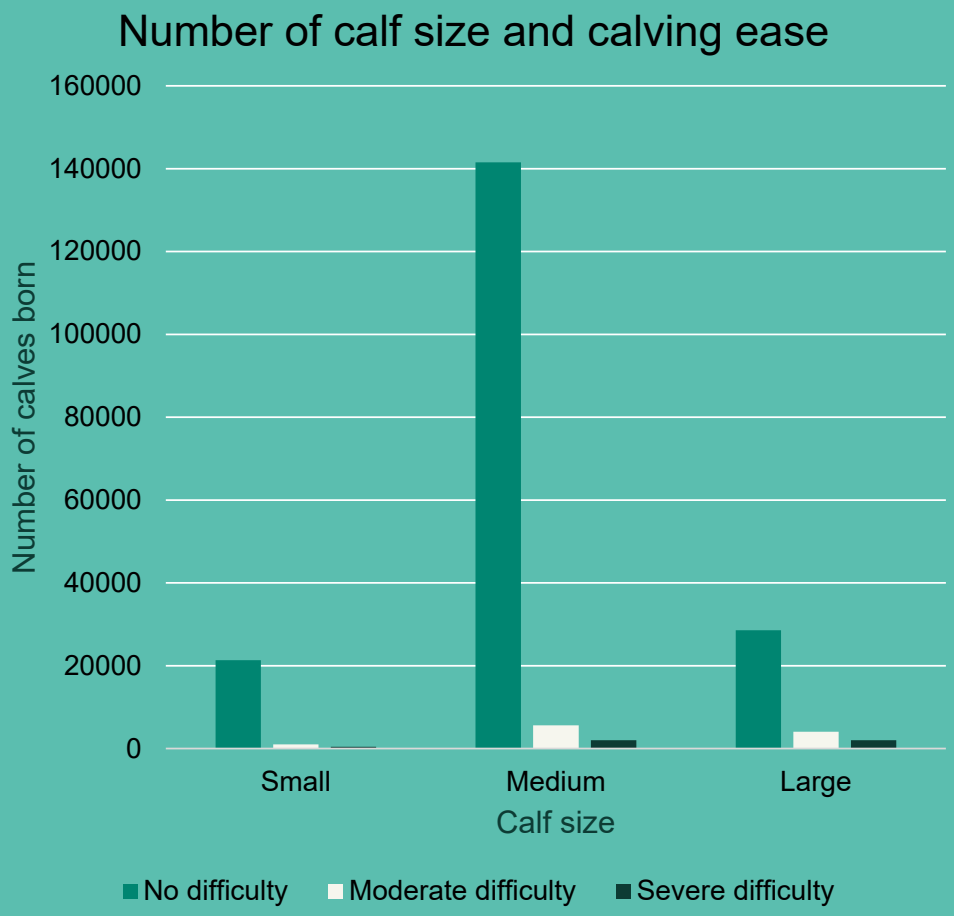
Stillbirth ranged from 3.3% to 3.8% depending on sire breed

Few calving difficulties

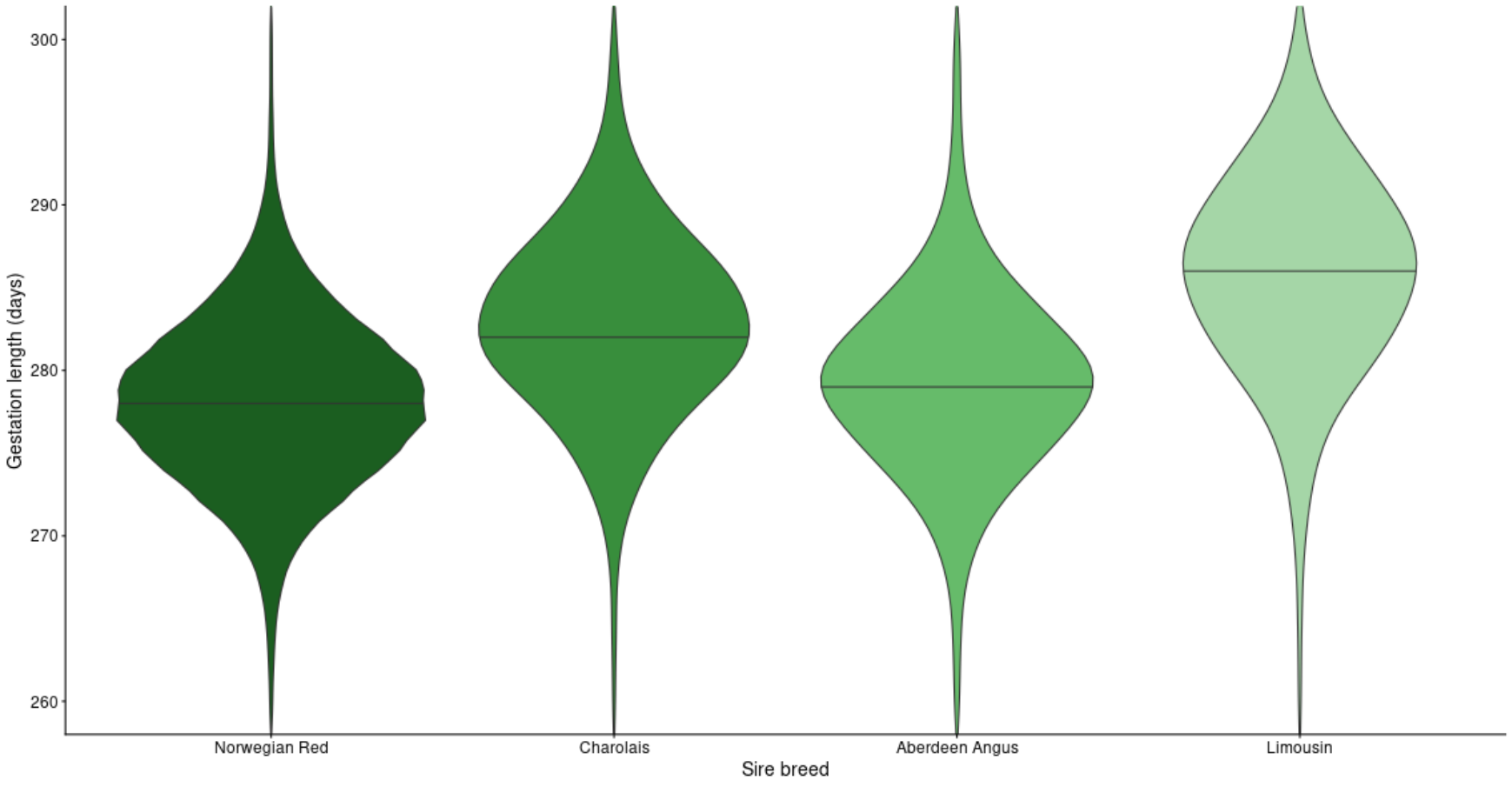
- More present in medium and large calves

Phenotypic gestation length showed clear breed differences





Gestation length



Genetic correlations and heritabilities

Clear genetic relationships among traits

Larger calves → longer gestation and increased calving difficulty

High heritability for gestation length

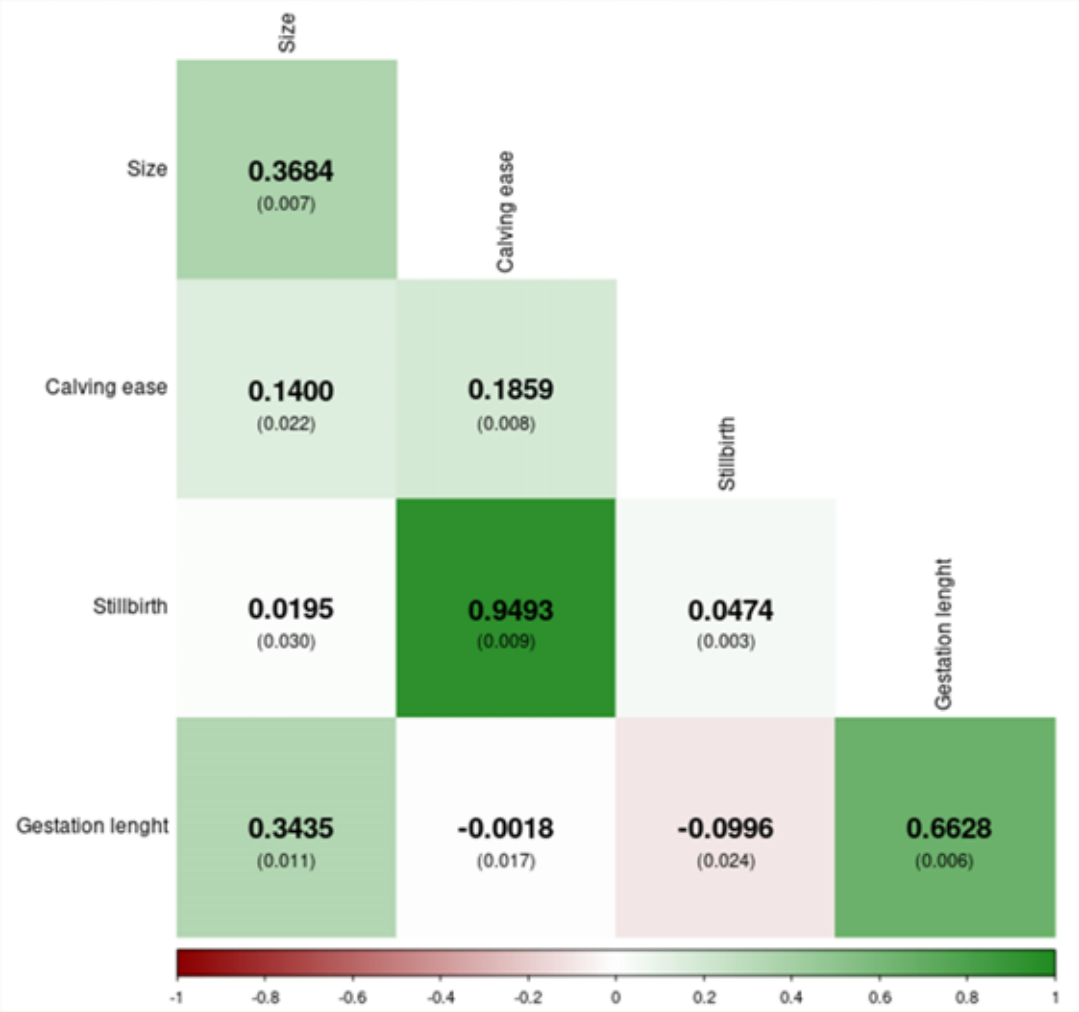
Strong calving ease – stillbirth correlation

- Possible intermediate optimum

Birth size important for calving performance

Breed differences support genetic patterns

- Angus vs. Limousin



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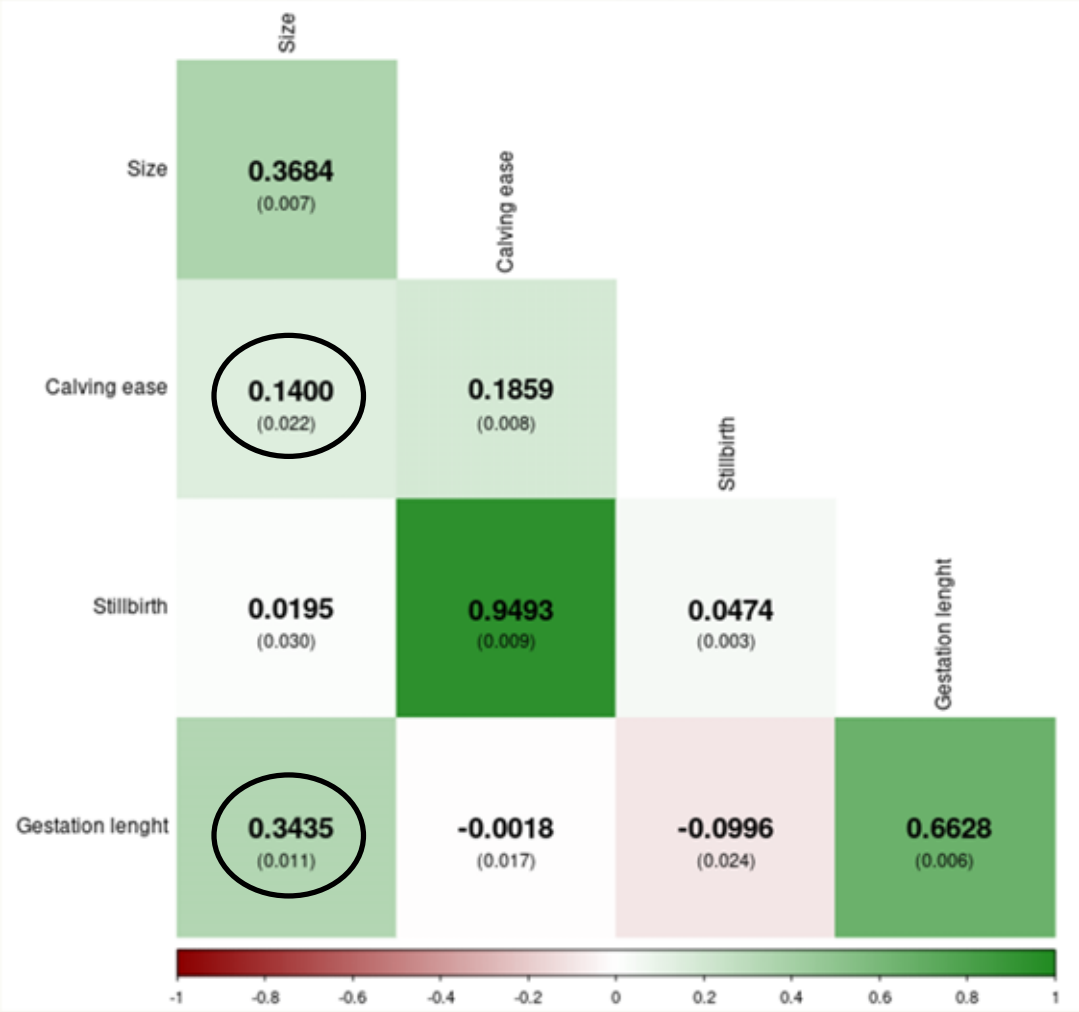

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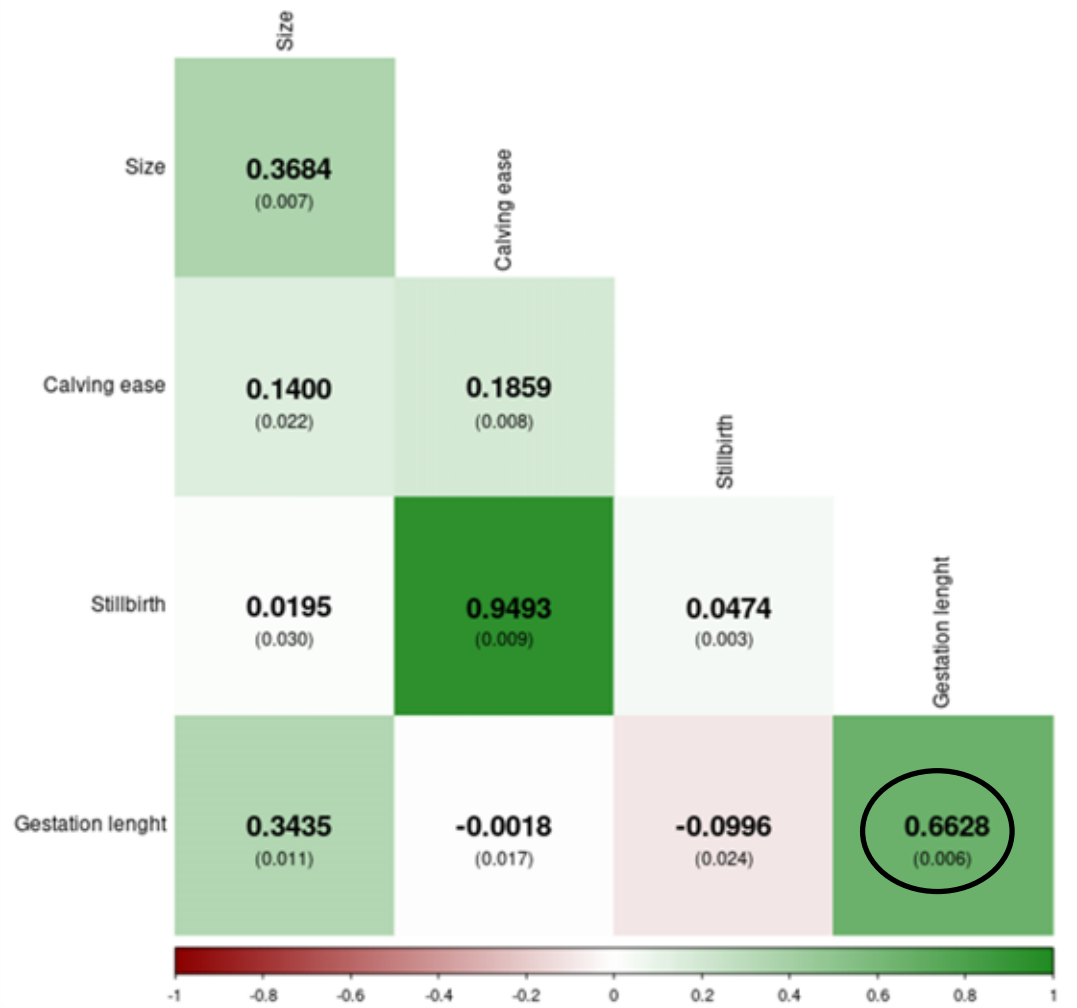

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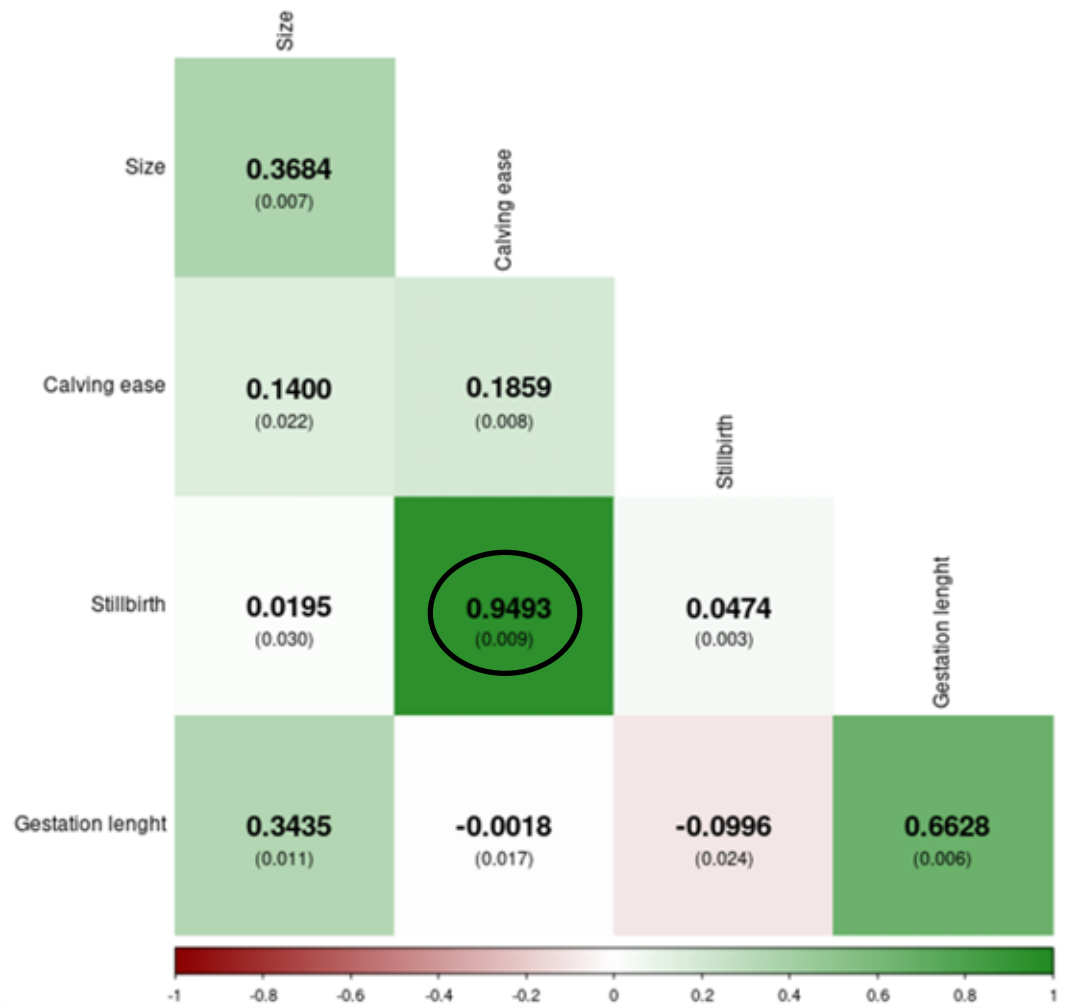

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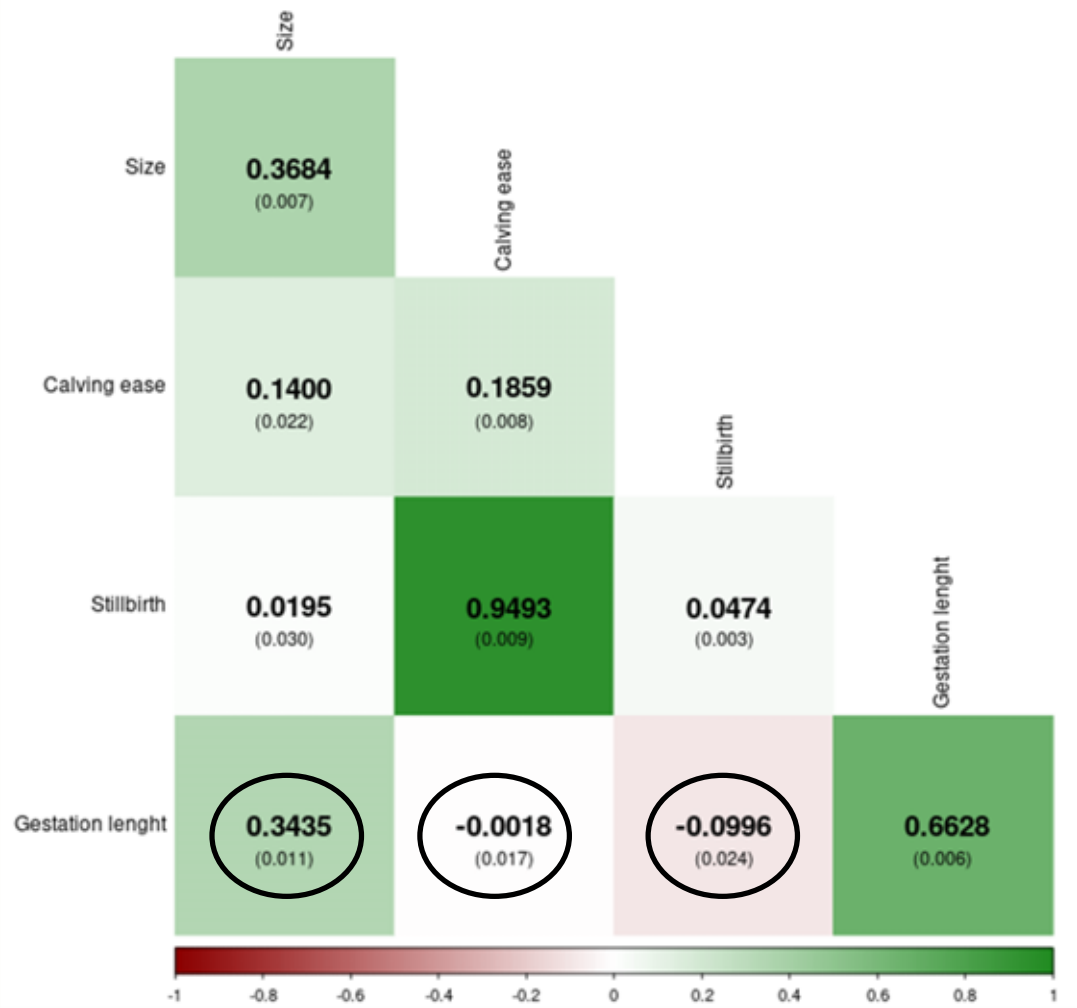

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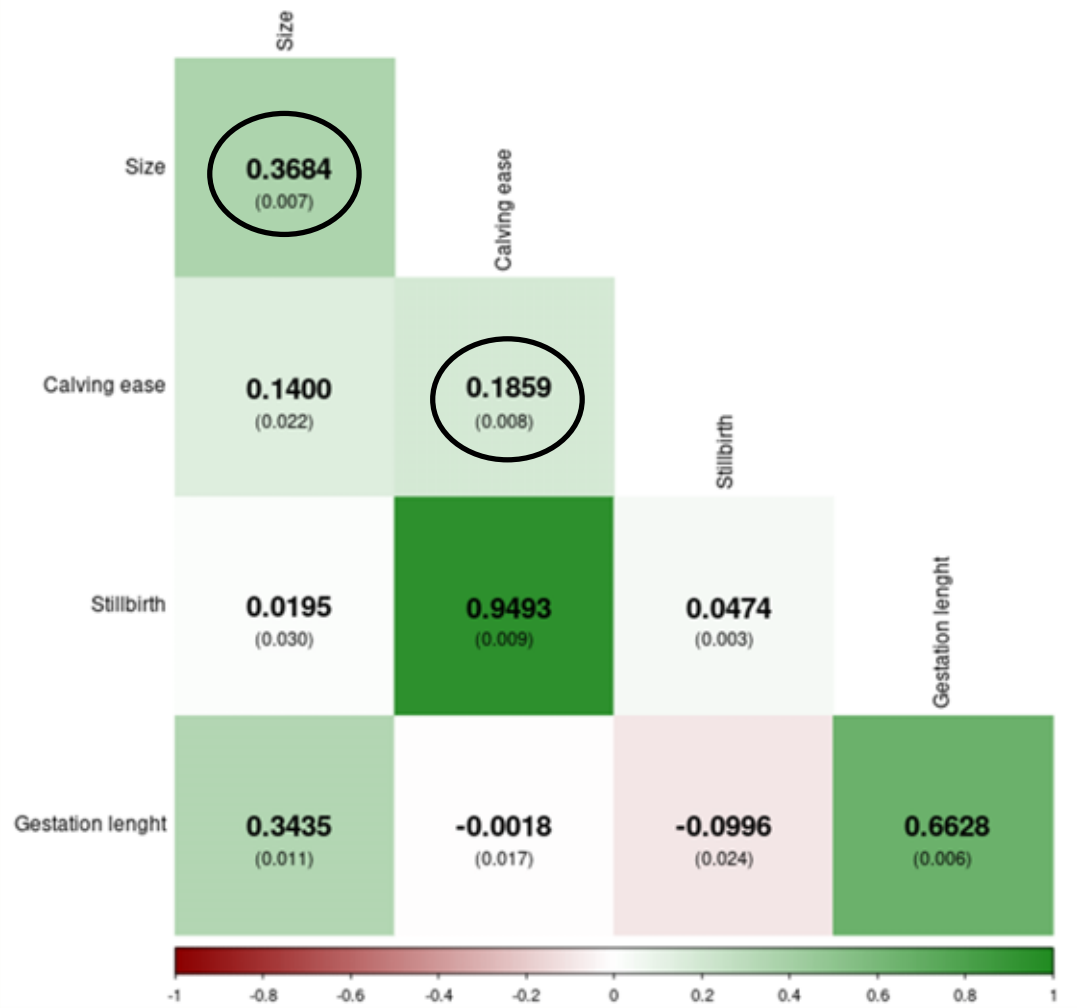

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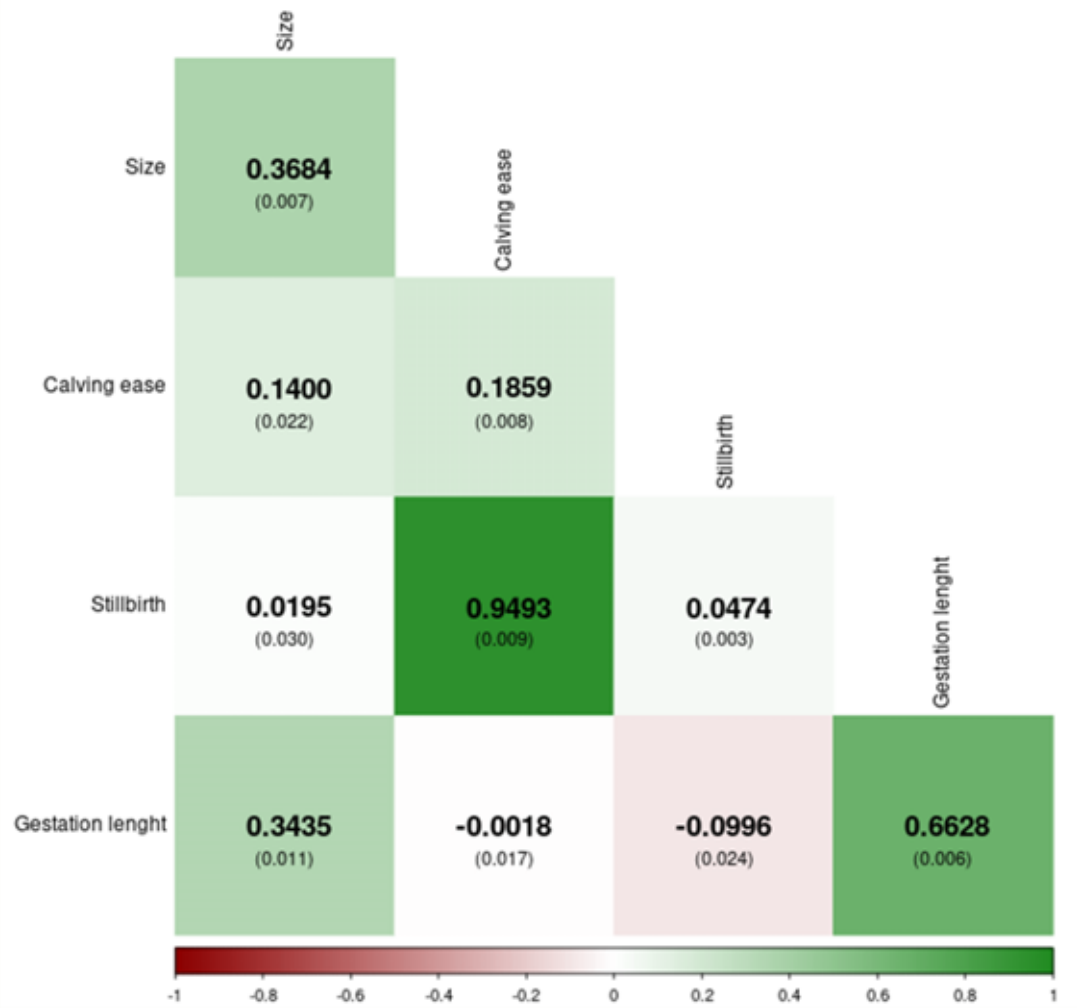

Future steps

Inclusion of Hereford and Simmental

Potential inclusion of Blonde d’aquitaine

Expantion of the dataset

Genotyping of BoD animals

Estimation of heterosis effect in the crossbred populations

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Thank you for your attention!

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Variance components and heritabilies

	σ_a^2	σ_e^2	h^2
Calf size	0.0866 ± 0.0218	0.1738 ± 0.0151	0.33 ± 0.007
Calving ease	0.0206 ± 0.0099	0.1045 ± 0.0074	0.16 ± 0.008
Gestation length	18.8123 ± 0.2213	9.7421 ± 0.1349	0.66 ± 0.006
Stillbirth	0.0014 ± 0.0010	0.0291 ± 0.0010	0.05 ± 0.003