

# Genetic evaluation of gestation length in Italian Holstein breed

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## Aims

- Setup a routine genetic and genomic evaluation of gestation length (GL)
- Variance components estimation (VCE) for direct and maternal GL
- Investigation on the genetic relationship between GL and other economically important traits

## Materials and methods

**DATA:** 5,607,119 calvings from 2004 onwards; GL between 260-305 days; minimum observations per contemporary group: 10.  
**Genetic evaluation:** Multiple-trait (first and later parities) repeatability linear animal model.  
**Model validation:** LR method on first crop bulls.

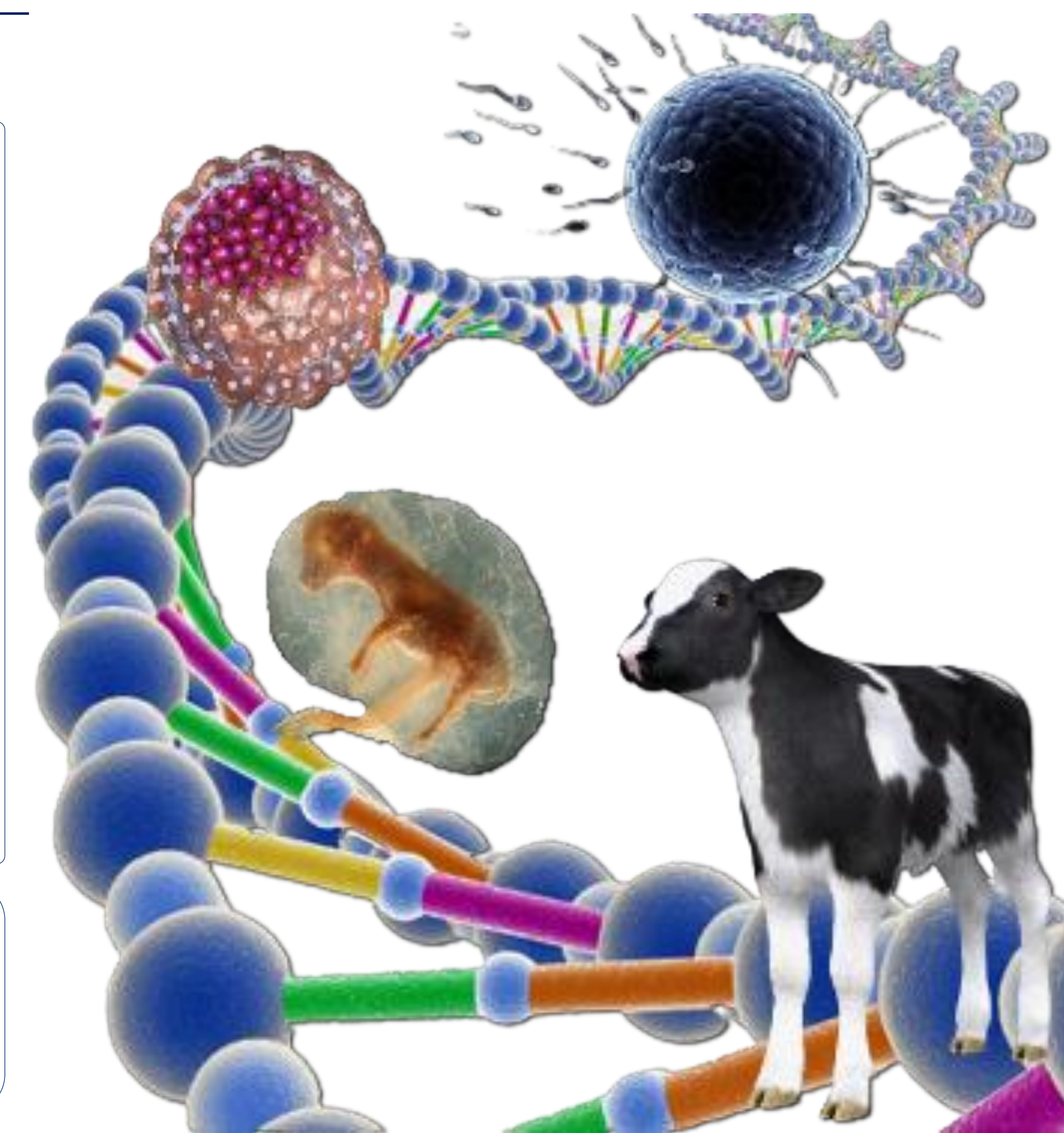
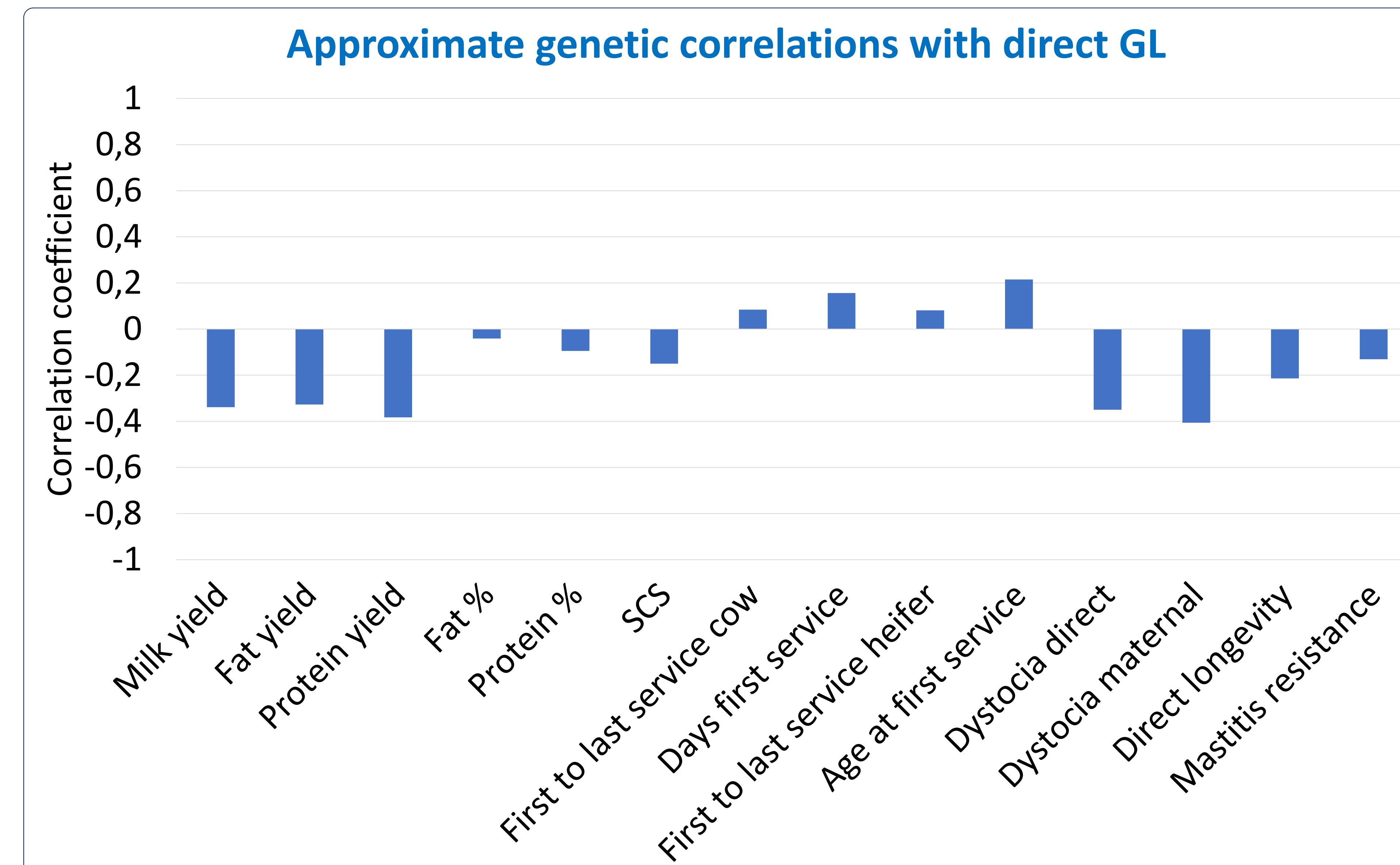
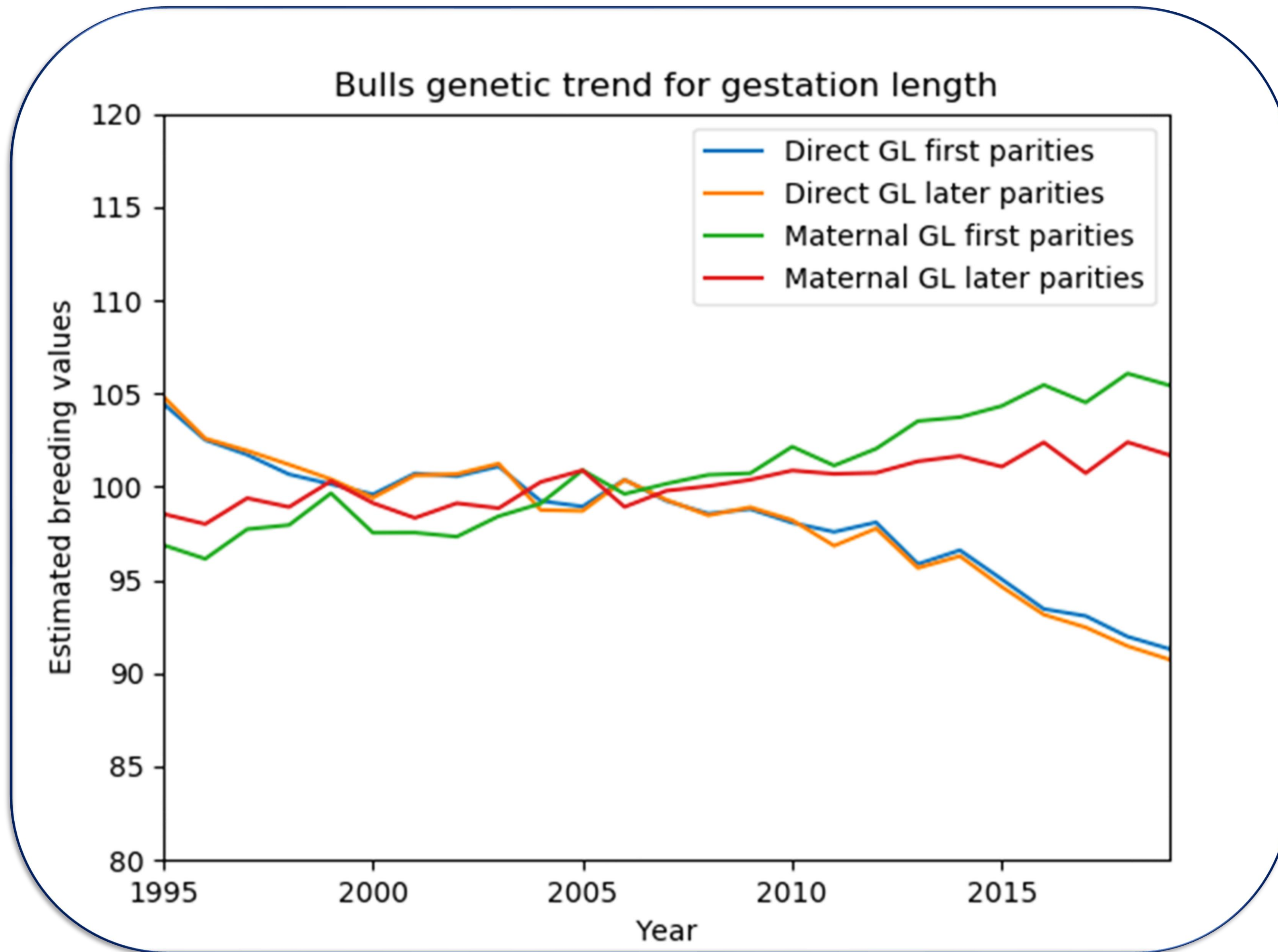
	dGL1	dGL2+	mGL1	mGL2+
dGL1	0.43 (0.005)	0.92	-0.50	-0.29
dGL2+		0.35 (0.004)	-0.29	-0.22
mGL1			0.08 (0.003)	0.85
mGL2+				0.06 (0.002)

Heritability on diagonal, genetic correlations above diagonal, posterior standard deviations in brackets.  
 d = direct effect; m = maternal effect; 1 = first parities; 2+ = later parities.

	Bias	Dispersion	Correlation	Reliability
dGL1	0.036(0.032,0.040)	0.957(0.953,0.960)	0.944(0.941,0.946)	0.617(0.606,0.629)
mGL1	0.003(-0.006,0.011)	0.902(0.894,0.910)	0.784(0.777,0.790)	0.186(0.182,0.191)

LR validation results: bootstrap applied to 31 first crop bulls. Confidence intervals in brackets.

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## Conclusions

- Gestation length is suitable for genetic selection in both its components, direct and maternal.
- The identified statistical model is stable and suitable for routine genetic evaluation.
- A deeper analysis on the possible consequences of selecting for GL in Italian holstein is in progress.