



Comparison of Gestation Length Across Countries

Introduction

In accordance with the Interbull new traits' pipeline introduced in 2021, countries were requested to fill in the Performance Recording, Evaluation and Publication database (PREPdb) (Interbull Centre, 2026), reporting information on any potential new traits that could be of interest for an international evaluation. After reviewing the information, three main trait groups stood out, namely gestation length (ges), metabolic diseases and claw health trait groups (Nazari and Palucci, 2025).

The urge for having research run for such traits, lead into the pilot research run in October 2024. Results of across-country correlations, correlations of estimated breeding values (EBVs) and reliabilities were promising. Thus, after an official data call for new traits including in MACE official test run in May 2025, direct gestation length was introduced and implemented in Interbull MACE run (Nazari and Palucci, 2025). For the December routine MACE 2025, four countries and four different breeds participated into the evaluation. This report will address exclusively challenges, achievements, and results of the official December 2025 Routine MACE run for direct gestation length.

Challenges and achievements

Direct vs Maternal traits

One of the challenges regarding ges trait was low estimates for across-country correlations among some countries (Nazari and Palucci, 2025). In order to understand the root cause of the problem, Interbull Centre initiated an extensive exchange of information with the countries involved until the reason for such low correlations was resolved, as those countries had submitted maternal gestation length while all the other participating countries had provided the direct trait (Nazari and Palucci, 2025).

Due to the low correlation between maternal and direct traits, the low values were justified and all countries were requested to submit direct gestation length to include more harmonized and transparent trait in to the international evaluation, as there was more information and demand for the direct trait (Nazari and Palucci, 2025).

After resolving this challenge, and re-estimating the correlations, all across-county correlation values became high and promising (Nazari and Palucci, 2025).





Results of December MACE routine run 2025

Summary of statistics of heritability and sire standard deviations (sd) for all four breeds of Holstein (HOL), Red Dairy Cattle (RDC), Jersey (JER), and Brown Swiss (BSW) for gestation length are presented in Table 1.

Table1. Summary of statistics of heritability and sire standard deviation (sire sd) for direct gestation length.

Breed	Country ¹	Heritability	Sire sd
HOL	AUS	0.355	2.76
	NLD	0.071	5.87
	NZL	0.488	2.96
	USA	0.110	1.59
RDC	AUS	0.355	2.83
	NOR	0.463	12.55
	NZL	0.488	2.94
	USA	0.110	1.72
JER	AUS	0.355	2.72
	NZL	0.48	3.08
	USA	0.1100	1.60
BSW	AUS	0.3545	3.27
	USA	0.110	1.95

¹AUS=Australia, NLD=the Nederland, NZL=New Zealand, USA=United States of America, NOR=Norway

The result of correlation estimates for all four breeds of HOL, RDC, and JER breeds for direct gestation length are presented in Table 2-4. Correlation for BSW breed and between only two counties of AUS and USA was estimated as 0.867.

Table2. Correlation estimations for direct gestation length in HOL breed.

HOL				
	AUS	NLD	NZL	USA
AUS	1			
NLD	0.9772	1		
NZL	0.9670	0.980	1	
USA	0.9697	0.996	0.9767	1

Table3. Correlation estimation for direct gestation length in RDC breed.

RDC				
	AUS	NOR	NZL	USA
AUS	1			
NOR	0.962	1		
NZL	0.966	0.963	1	
USA	0.956	0.985	0.954	1





Table4. Correlation estimation for direct gestation length in JER breed.

JER			
	AUS	NZL	USA
AUS	1		
NZL	0.948	1	
USA	0.970	0.947	1

Moreover, correlations of EBVs and reliabilities between the September test run 2025 and December routine run 2025, was high and promising for all four breeds and participating countries.

Conclusion and next steps

To conclude, the new traits' MACE research run for new traits and especially for direct gestation length showed promising results which led to the official MACE run for "ges" trait. The next steps include the potential inclusion of metabolic and claw health traits in the official MACE run. Offering an official test run for these two trait groups would require a slightly higher level of participation from MACE countries and organizations; therefore, this is targeted for implementation in the near future.

In the meantime, Interbull Centre will continue reviewing the new information submitted by participating countries through PREPdb to promptly identify any additional traits or trait groups that may be suitable for international evaluation. To support this process, Interbull Centre kindly renews its invitation to all countries and organizations to continue completing the PREPdb "Other Traits" electronic form. Further developments may also include the addition of new traits and the extension of Interbull services for these traits, such as GMACE and Intergenomics.

References

Nazari, A., and V. Palucci. 2025. Interbull Portfolio: Expansion of Traits. Interbull Bulletin (61):1-9.

Interbull Centre. 2026. PREPdb – Performance Recording, Evaluation and Publication database [Online]. Interbull Centre- Department of Animal Biosciences, Swedish University of Agricultural Sciences, Uppsala, Sweden. Available: <https://prep.interbull.org/> [Accessed date 2026/02/15].

