



THE GLOBAL STANDARD
FOR LIVESTOCK DATA



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Network. Guidelines. Certification.

Interbeef: working together on the international evaluation for beef cattle

ECAC conference – 13/05/2021

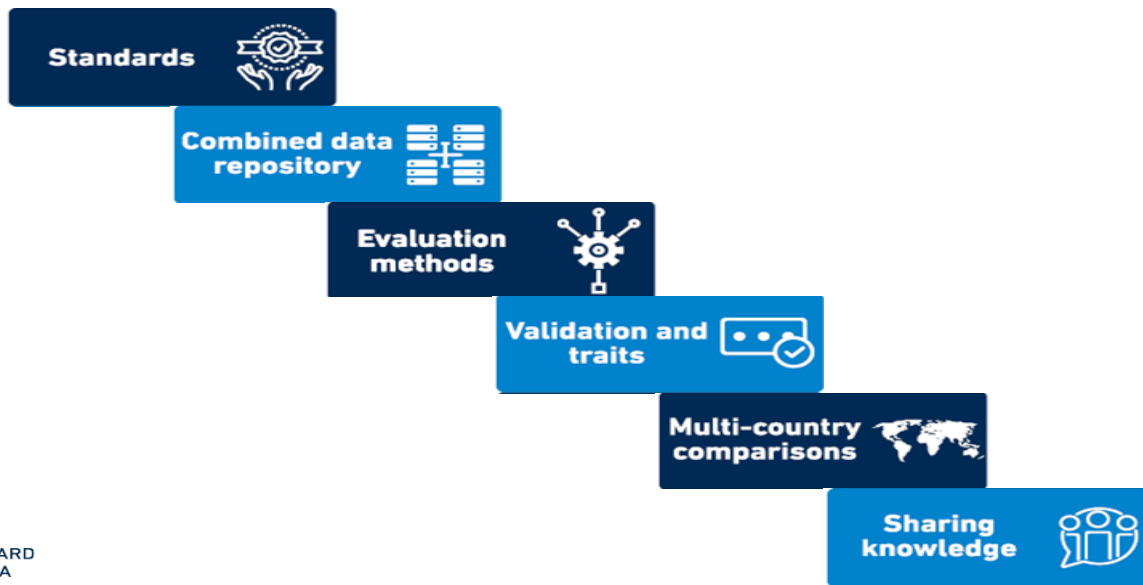
What is Interbeef?



Interbeef is a Working Group of the International Committee for Animal Recording (**ICAR**) and is a worldwide network providing genetic information services for the improvement of beef cattle.

Interbeef objective

“Developing and promoting national and international genetic and genomic evaluation of beef cattle.”



Interbeef road map

2001 EUBEEVAL

3 countries
2 breeds



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2005: pilot
weaning weight

2009: Interbeef as
WG of ICAR

2008: +6 countries

2010: Official Interbeef
eval. started

Weaning weight module

2012: calving research

2018: +2 countries +3
breeds

Genomics

2016: calving
module

Female fertility &
carcass research

2020: +2 countries



Interbeef today



- 13 countries working together



- 5 beef breeds



Aberdeen-Angus

Limousin

Charolais

Simmental

Hereford

Interbeef governance

- **Interbeef technical committee (TC)**
 - Chair : R Santilan (FRA)
 - Aim : to discuss all technical aspects of Interbeef (e.g., including new traits / country, validation methods...) & to bring recommendation to the working group.
- **Interbeef working group (WG)**
 - Chair : A Cromie
 - Aim : to develop the orientations of Interbeef based when required on the technical committee recommendations



Interbeef gear-box

- Evaluation annual schedule
 - 2 official eval. /year (Jan. & Sep.) + 1 test run / year (Apr. + 1 optional Oct.)
 - New country pilot run along the year
 - Interbull Centre as evaluation center & coordinator
- 2 TC & WG meetings / year
 - Meeting location rotates across member country
- 4 current research partners (open list)
 - VIT (DEU), VUZV (CZE), WUR (NLD), ICBF (IRL), AGBU (AUS), ITBC (SWE)
- 1 scientific advisory group
 - Prof. D Garrick (Massey uni., NZL)
 - Prof. R Veerkamp (Wageningen uni., NLD)



Interbeef genetic model



- Animal Model using Across-Country Interactions
 - uses raw phenotypes from several countries
 - Computes across-countries co-variances
 - Caters for each country model specificities

Genet. Sel. Evol. 37 (2005) 361–380
 © INRA, EDP Sciences, 2005
 DOI: 10.1051/gse:2005006

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Original article

Investigation of three strategies for an international genetic evaluation of beef cattle weaning weight

Florence PHOCAS^{a,b*}, Kath DONOGHUE^b, Hans Ulrich GRASER^b



Interbeef evaluations

- Using Interbull international ID format
 - Duplicates / alias ID can also be recorded
- Data call for pedigree and phenotypes prior to eval.
 - Automated process for upload / file checks
- Evaluation
- Post-evaluations results and reports provided



Interbeef evaluations

EBV computed



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Aberdeen-Angus

Limousin

Charolais

Simmental

Hereford



	Aberdeen-Angus	Limousin	Charolais	Simmental	Hereford
Countries	5	13	12	5	5
Wean. wt	368,000	4,285,000	6,766,000	401,000	246,000
Calving		6,973,000	11,344,000	367,000	



Interbeef output

- Interbeef computes EBVs and reliabilities
 - Publication follows agreed Interbeef publications rules
- 13 countries = 13 scales of EBVs and Reliabilities
 - Difference in ranking across scales = $G \times E$



				
	Irish scale		French scale	
	EBV	Rank	EBV	Rank
bull A	40.2	1	32.4	2
bull B	35.4	2	38.5	1
bull C	20.3	3	23.4	3
bull D	-10.2	4	-6.2	5
bull E	-16.3	5	-2.4	4

Interbeef traits to come



- Female fertility: age at 1st calving, Number of successful calvings

- Pilot run 2021



- Carcass: carcass weight & carcass quality, Age at slaughter

- Pilot run 2021



- Consolidation of Hereford and Angus data with Abri-Breedplan & AGBU (AUS)



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Interbeef genomics

- Genomic predictions r^2 | # of animals genotyped
 - May be a challenge for smaller country / population
- Interbeef project for a single-step genomic (SSGBlup) across-country evaluation for beef
 - Pooling resources is beneficial (e.g. dairy: GMACE, InterGenomics)
 - Enhancing genetic gain using genomics in each member country



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Interbeef genomics

- Optimal scenario: sharing genomic information in a central repository
 - Genotypes or Genotype informations
 - Alongside the currently shared phenotypes and pedigree
- Aim: to investigate the feasibility of SSGBlup in the Interbeef context
 - 4 year PhD lead by Renzo Bonifazi (WUR, NLD)
 - Using Interbeef Limousine weaning weights and genotypes across 5 countries



Interbeef genomics



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- First results presented EAAP 2020 – 1-4/12/2020 – Session 64 – ‘International single-step genomic evaluations in beef cattle’
 - SSGBlup for Interbeef is feasible
 - Substantial gains (+5.8%) in accuracy for SSGBlup over pedigree Blup.



Estonia & Interbeef



- Estonia joined the Interbeef new country pilot run in November 2020
 - Limousin (weaning weight & calving)
 - Angus (weaning weight)
- Estonia is joining the April 2021 Interbeef test runs
 - Limousin, Charolais, Angus, & Hereford
 - Weaning weight & calving traits
- Test run results to be discussed within Estonia
 - If satisfactory, Estonia can join the official Interbeef run from September 2021.



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Conclusion

- Interbeef process is well established
 - Automated / secure / independent
 - On-going research
 - Optimising genetic gain in national breeding programs
 - Vibrant community
- Estonia is a welcome new member to the Interbeef community!