



# Interbeef Update

ICAR, Edinburgh,  
15<sup>th</sup> June 2017.



# Interbeef – Background.

- International genetic evaluation of beef cattle.
- Based on using countries pedigree and **phenotype** data => International EBV's (*Phocas, 2005*).
  - Countries own models, variances & correlations.
- Currently includes 10 countries, 3 breeds (LM, CH & SI) & 4 sets of traits (Wean wt, Calving, Female fertility & Carcass).
- Research capacity provided by members.
- Database & routine services provided by the Interbull Centre.
- WG chaired by Andrew Cromie (IRE) and TC chaired by Eric Venot (FRA).



## Total number of records (CH, LM & SI)

<b>Interbeef</b>	<b>Jan 2016</b>	<b>Jan 2017</b>
Number of countries	10	10
Number of evaluation breeds	2	3
Number of country-breed-trait combinations	18	22
Number of animals in the pedigree database	25,389,096	28,256,603
Number of submitted national estimated breeding values	7,472,166	7,977,376
Number of international estimated breeding values	57,996,544	61,142,008
Number of distributed international estimated breeding values	1,108,658	1,344,841



# Current Work.

- New calving evaluations - CZK
- Use of cross-bred data – IRE
- New female fertility evaluations – DEU.
- Updated agreements, including code of practice document – ICAR.
- IDEA (genotypes + recessives) – ITBC.

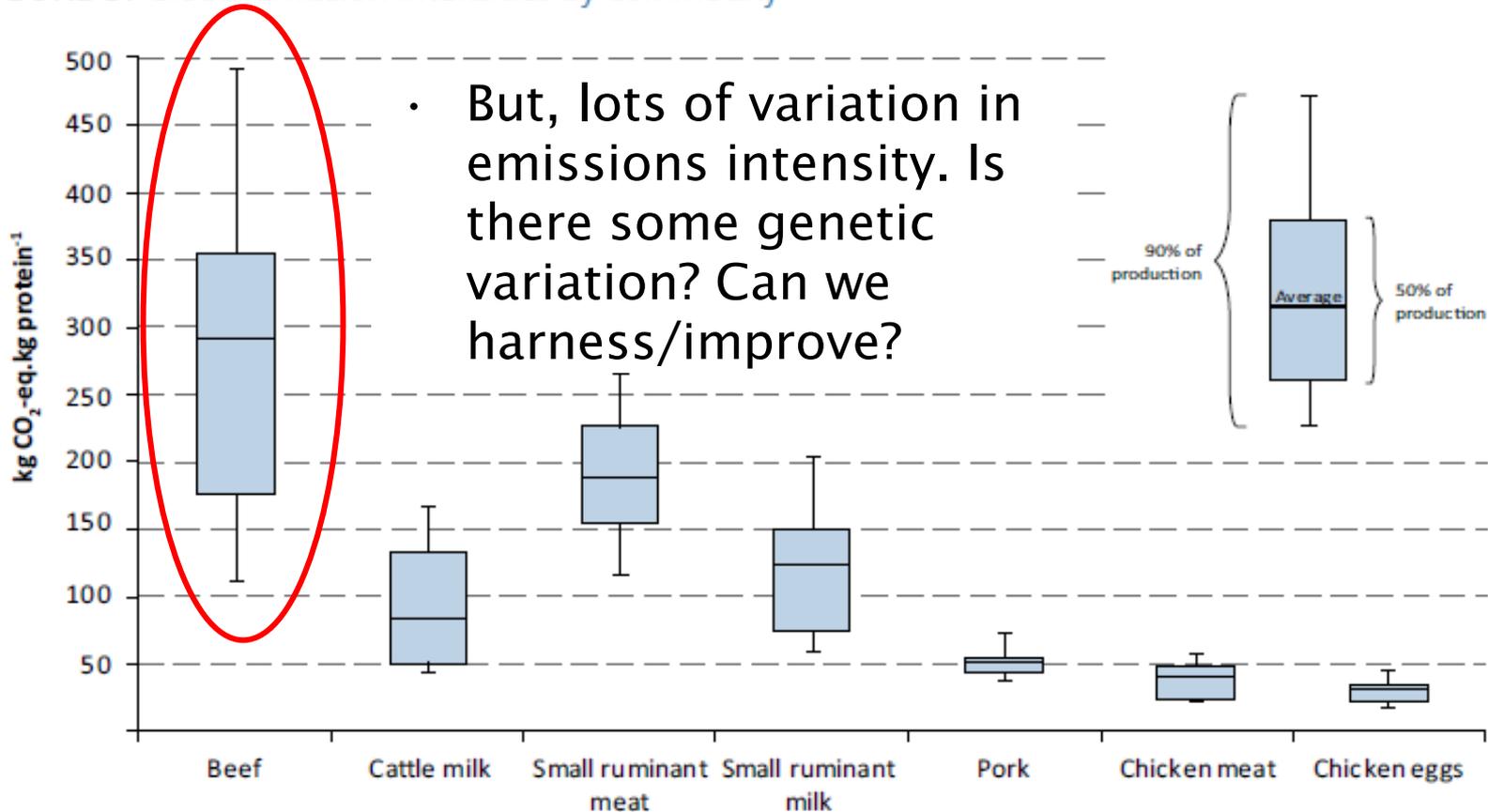


# Future Work.

- Workshop to identify priority areas.
  - New phenotypes + genotypes, especially methane
    - Rob Banks (AUS).
  - Data harmonisation – Japie van Der Westhuizen (RSA).
  - Integration of Interbeef EBV's and National EBV's – Ross Evan (IRE).
  - More breeds, traits & countries – AUS/IRE/ITBC.

# Challenge; The Beef Cow!

FIGURE 3. Global emission intensities by commodity



Source: GLEAM. FAO, 2013

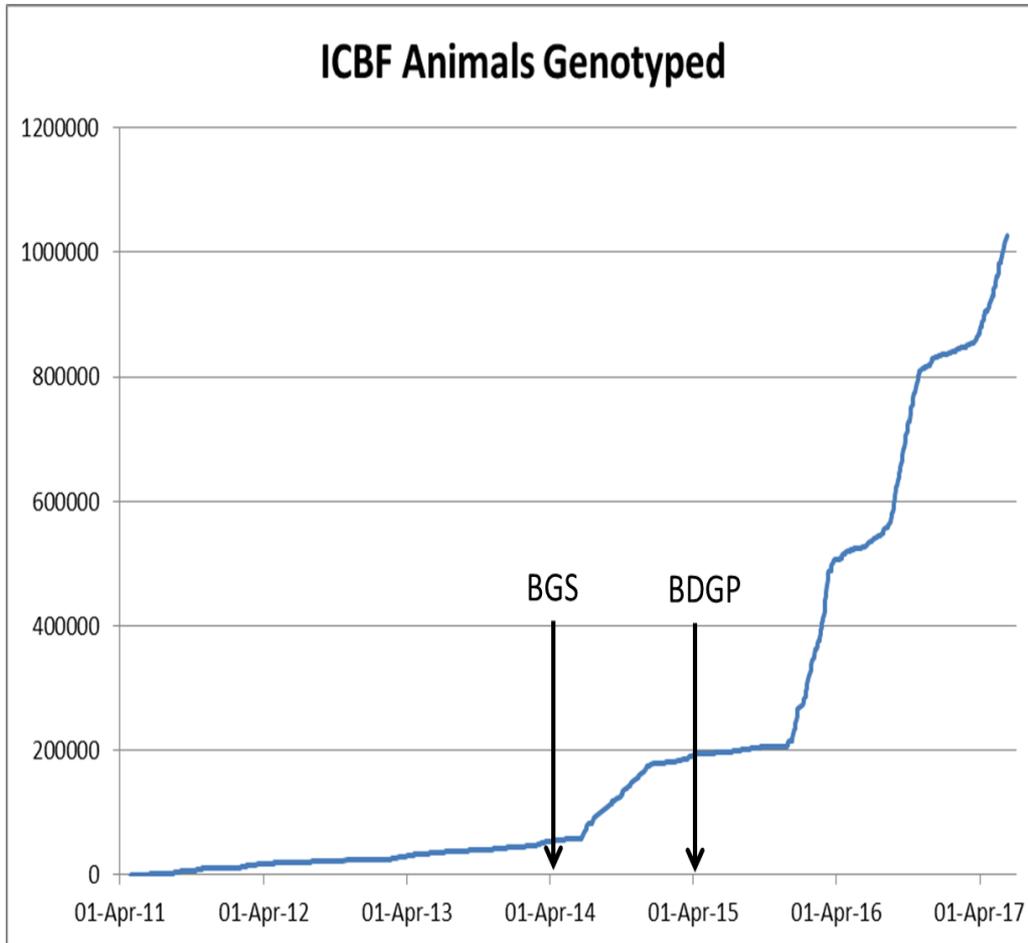
# Genetic parameters in Australian Beef Cattle (de Haas et al., JAM 2016)

Trait	$\sigma^2_a$	$\sigma^2_p$	MeP	RPM	RGM	DMI	WT
MeP	49.7	166.9	<b>0.30</b> ( <b>0.06</b> )	0.65 (0.11)	0.55 (0.14)	<b>0.83</b> (0.05)	<b>0.80</b> (0.06)
RPM	12.9	84.7	0.71 (0.02)	<b>0.19</b> ( <b>0.05</b> )	0.98 (0.02)	0.04 (0.17)	-0.01 (0.17)
RGM	11.8	96.7	0.62 (0.02)	0.94 (0.00)	<b>0.15</b> ( <b>0.05</b> )	0.00 (0.18)	0.00 (0.18)
DMI	0.1	0.2	0.70 (0.02)	0.00 (0.04)	-0.10 (0.03)	<b>0.39</b> ( <b>0.06</b> )	0.98 (0.01)
WT	415.4	1010.6	0.67 (0.02)	0.00 (0.04)	0.03 (0.03)	0.93 (0.01)	<b>0.41</b> ( <b>0.06</b> )

\* Heritabilities on diagonal, genetic correlations above diagonal, phenotypic correlations below diagonal

- *Corallia Manzanilla-Pech, EAAP 2016.*

# Genotyping details



Class	Total
Female	851,718
Male	156,544
Dairy Female	49,988
Dairy Male	61,134
Beef Female	801,679
Beef Male	90,347
AI bull	5,114

Chip	Num_SNPs	%
LD	7k	0.29%
HD	780k	0.63%
50K	50k	1.92%
IDBv1	16k	3.68%
IDBv2	18k	19.14%
IDBv3	53k	72.24%

# International Collaboration.



**BREEDPLAN<sup>®</sup> used in many countries  
by some breeds - for example:**

Breed	No. of Countries	Countries
Hereford	8	Australia, New Zealand, Namibia, UK, USA, Canada, Argentina & Uruguay
Angus	5	Australia, New Zealand, UK, Canada, Argentina
Brahman	4	Australia, USA, South Africa, Namibia
Simmental	5	Australia, New Zealand, UK, South Africa, Namibia



# International Collaboration – Draft Plan

- ABRI-BreedPlan to participate within ICAR Interbeef.
  - Charolais, Limousin, (HE & AA).
  - Current service (IDEA => EBV's) and new research partner (EBV's, phenotypes).
  - Post-doc placed at AGBU.
- Proposal for matching project & post doc from Ireland and Interbull Centre.
  - Discussions with ICAR & Interbull re: project.
  - Create “project group” of two post-docs + key people.
- Commence work within ICAR-Interbeef re: other breeds (AA and HE).

# Crucial link to other ICAR Groups.



- Interbull – Reinhardt Reents.
- DNA Working Group – Brian van Doormal.
- Feed & Gas – Roel Veerkamp.
- New data – Steve Siebert.
- Breed Associations – Suzanne Harding.
- Documentation & Standards – Brian Wickham.



# Summary.

- “Much done, a lot more to do!”
- Developments with AGBU-ABRI-Breedplan particularly exciting.
- Thank you to all volunteer participants, ICAR and ITBC staff.