



# Interbeef workshop

## Survey Synthesis

Andrew CROMIE (ICBF) , Eric VENOT (INRA)

Prague, June 2019



# Interbeef workshop questionnaire

**Goal: general overview of genetic/genomic evaluations within participating countries and organizations.**

## **Different aspects:**

- Overview of Breed x Amount of data (Phenotype & Genotype) in each country**
- Current status of genetic/genomic evaluations in each country**
- New traits to be taken into account in future Interbeef work**
- Other breeds?**
- Main challenges to participate to Interbeef**
- Other comments?**

# Answers

□ Questionnaire sent to all country representatives participating to this workshop

→ very short time to answer

→ 14 answers back !

→ **THANKS!**

Bravo!

# Countries and Breeds

Country / Organization	Breeds
AUSTRALIA / ABRI	20
BELGIUM / ELEVEO	1
BRAZIL / EMBRAPA	5
CZECH REPUBLIC / VUZV	5
DNK - FIN - SWE / NAV	5
FRANCE / FGE	9
GERMANY / VIT	5
IRLANDE / ICBF	6
ITALIE / ANACLI	2
MEXICO / INIFAP	2
PORTUGAL / FERA	2
SLOVENIA / Ljubjana University	2
SWITZERLAND / Mutterkuh Schweiz	6
UNITED KINGDOM / SRUC	7
<b>Total Answers: 14</b>	

# Countries and Breeds

Country / Organization	Breeds
AUSTRALIA / ABRI	20
FRANCE / FGE	9
UNITED KINGDOM / SRUC	7
IRLANDE / ICBF	6
SWITZERLAND / Mutterkuh Schweiz	6
BRAZIL / EMBRAPA	5
CZECH REPUBLIC / VUZV	5
DNK - FIN - SWE / NAV	5
GERMANY / VIT	5
ITALIE / ANACLI	2
MEXICO / INIFAP	2
PORTUGAL / FERA	2
SLOVENIA / Lubjana University	2
BELGIUM / ELEVEO	1
<b>Total Answers: 14</b>	

# Countries and Breeds

BREED	NB
CHAROLAIS	11
LIMOUSINE	10
SIMMENTAL	7
ANGUS	7
HEREFORD	6
BLONDE D'AQUITAINE	3
RED POLL	2
AUBRAC	2
BRADFORD	2
SALERS	2
BRANGUS	2
BELGIAN BLUE	2

BREED	NB
SHORTHORN	1
BRAHMAN	1
ORIGINAL BRAUNVIEH	1
GASCONNE DES PYRENEES	1
DEVON	1
GELBVIEH	1
MURRA GREY	1
WAGYU	1
PARTHENAISE	1
SIMBRA	1
ROUGE DES PRES (MAINE ANJOU)	1
SOUTH DEVON	1
SANTA GERTRUDIS	1
CACHENA	1
DROUGHTMASTER	1
LUING	1
BARROSA	1
SUSSEX	1
BAZADAISE	1
LINCOLN RED	1
HIGHLAND	1

# Performances & Genotypes

<b>PERFORMANCE</b>	<b>1</b>	<b>L</b>	<b>&lt; 10,000 records</b>
	<b>2</b>	<b>M</b>	<b>[ 10,000 - 100,000 records ]</b>
	<b>3</b>	<b>H</b>	<b>[ 100,000 - 500,000 records ]</b>
	<b>4</b>	<b>VH</b>	<b>&gt;500, 000 records</b>

<b>GENOTYPES</b>	<b>1</b>	<b>L</b>	<b>&lt; 100 animals genotyped</b>
	<b>2</b>	<b>M</b>	<b>[ 100 - 1000 animals genotyped ]</b>
	<b>3</b>	<b>H</b>	<b>[ 1000 - 5000 animals genotyped ]</b>
	<b>4</b>	<b>VH</b>	<b>&gt; 5000 animals genotyped</b>

# Performances & Genotypes

BREED	NB	PERFORMANCE			GENOTYPES		
		Mean	Min	Max	Mean	Min	Max
SHORTHORN	1	3	3	3	1	1	1
BRAHMAN	1	2	2	2	4	4	4
ORIGINAL BRAUNVIEH	1	2	2	2	3	3	3
GASCONNE DES PYRENEES	1	3	3	3	1	1	1
DEVON	1	2	2	2	1	1	1
GELBVIEH	1	2	2	2	1	1	1
MURRA GREY	1	3	3	3	1	1	1
WAGYU	1	2	2	2	4	4	4
PARTHENAISE	1	3	3	3	1	1	1
SIMBRA	1	3	3	3	1	1	1
ROUGE DES PRES (MAINE ANJOU)	1	3	3	3	1	1	1
SOUTH DEVON	1	3	3	3	1	1	1
SANTA GERTRUDIS	1	2	2	2	1	1	1
CACHENA	1	1	1	1	1	1	1
DROUGHTMASTER	1	1	1	1	1	1	1
LUING	1	2	2	2			
BARROSA	1	1	1	1	1	1	1
SUSSEX	1	2	2	2			
BAZADAISE	1	2	2	2	1	1	1
LINCOLN RED	1	2	2	2			
HIGHLAND	1	2	2	2			



# Performances & Genotypes

BREED	NB	PERFORMANCE			GENOTYPES		
		Mean	Min	Max	Mean	Min	Max
RED POLL	2	2	2	2	1	1	1
AUBRAC	2	3	1	4	1	1	1
BRADFORD	2	2	2	2	3	1	4
SALERS	2	4	4	4	1	1	1
BRANGUS	2	3	2	3	2	1	3
BELGIAN BLUE	2	3	1	4	3	2	3

# Breed x Country combinations Performances

BREED \ COUNTRY	AUS	BRA	CZE	DNK	FRA	GER	IRL	ITA	MEX	SLO	SWI	UK
CHAROLAIS	3	2	2	3	4	1	1	2	3	1	1	
LIMOUSINE	3		2	3	4	1	1	3		1	2	3
ANGUS	4	3	2	3		1	1				2	
SIMMENTAL	4		2	3		1	1		3		2	
HEREFORD	4	3	2	3		1	1					
BLONDE D'AQUITAINE	2				4							2

PERFORMANCE	1	L	< 10,000 records
	2	M	[ 10,000 - 100,000 records ]
	3	H	[ 100,000 - 500,000 records ]
	4	VH	>500, 000 records

# Breed x Country combinations

## Genotyped animals

Étiquettes de lignes	AUS	BRA	CZE	DNK	FRA	GER	IRL	ITA	MEX	SLO	SWI	UK
CHAROLAIS	2	1	1	1	2	1	4	2	1	1		
LIMOUSINE	2		1	1	2	2	4	3		1	3	1
ANGUS	4	3	1	1		1	4				2	
SIMMENTAL	2		1	1		1	4		1		3	
HEREFORD	4	3	1	1		1	3					
BLONDE D'AQUITAINE	1				2							

GENOTYPES	1	L	< 100 animals genotyped
	2	M	[ 100 - 1000 animals genotyped ]
	3	H	[ 1000 - 5000 animals genotyped ]
	4	VH	> 5000 animals genotyped

# Birth - Calving

Breed \ Country	AUS	BRA	CZE	DFS	FRA	GER	IRL	ITA	MEX	SLO	SWI	UK
Charolais	2	2	2	2	1	3	1	3	1,5	2	2	
Limousin	2	4	2	2	1	3	1	3		2	1,5	1,5
Angus	1	2	2	2	4	3	1				2	
Simmental	2	2	2	2	4	3	1		1,5		2	
Hereford	2	1	2	2	4	3	1				4	

1	Genomic evaluation
1,5	Genomic evaluation in development
2	BLUP genetic evaluation
3	R&D - Plan to implement
4	no plan

# Weaning weight

Breed \ Country	AUS	BRA	CZE	DFS	FRA	GER	IRL	ITA	MEX	SLO	SWI	UK
Charolais	2	2	2	2	1	2	1	2	1,5	2	2	
Limousin	2	4	2	2	1	2	1	2		2	1,5	1,5
Angus	1	2	2	2	4	2	1				2	
Simmental	2	2	2	2	4	2	1		1,5		2	
Hereford	1	1	2	2	4	2	1				4	

1	Genomic evaluation
1,5	Genomic evaluation in development
2	BLUP genetic evaluation
3	R&D - Plan to implement
4	no plan

# Carcass

Breed \ Country	AUS	BRA	CZE	DFS	FRA	GER	IRL	ITA	MEX	SLO	SWI	UK
Charolais	2	3	2	2	1	3	1	3	3	4	2	
Limousin	2	4	2	2	1	3	1	3		4	4	1
Angus	1	2	2	2	4	3	1				2	
Simmental	2	4	2	2	4	3	1		3		2	
Hereford	1	2	2	2	4	3	1				4	

1	Genomic evaluation
1,5	Genomic evaluation in development
2	BLUP genetic evaluation
3	R&D - Plan to implement
4	no plan

# Female Fertility

Breed \ Country	AUS	BRA	CZE	DFS	FRA	GER	IRL	ITA	MEX	SLO	SWI	UK
Charolais	2	4	2	2	2	2	1	3	1,5	2	4	
Limousin	2	4	2	2	2	2	1	3		2	4	1
Angus	1	3	2	2	4	2	1				4	
Simmental	2	4	2	2	4	2	1		1,5		4	
Hereford	1	3	2	2	4	2	1				4	

1	Genomic evaluation
1,5	Genomic evaluation in development
2	BLUP genetic evaluation
3	R&D - Plan to implement
4	no plan

# Other traits?

Étiquettes de lignes	AUS	BRA	CZE	DFS	FRA	GER	IRL	ITA	MEX	SLO	SWI	UK	TOTAL
Complex traits (Feed efficiency, Methane)				1	1	1	1	1	1				6
Female Fertility	1		1							1			3
Carcass	1		1									1	3
Meat quality				1			1				1		3
Temperament				1	1								2
Cow longevity				1		1							2
Heat Stress								1	1				2
Conformation				1						1			2
Carcass traits									1				1
post weaning gain		1											1
Cow weight							1						1
Calving			1										1
Resilience											1		1
Drinking ability of calves				1									1
Youngstock survival				1									1
Crossbred										1			1
Parasite resistance		1											1
Morphology at weaning					1								1
Multitrait Model	1												1



# Other breeds?

BREED	BRA	CZE	DFS	FRA	GER	IRL	MEX	SWI	TOTAL
Blonde d'Aquitaine			1	1	1	1			4
Salers				1	1	1			3
Aubrac				1		1		1	3
Belgian Blue			1			1			2
Bradford	1						1		2
Simangus							1		1
Original Braunvieh								1	1
Wagyu						1			1
Piemontese						1			1
Italian breeds							1		1
Parthenaise						1			1
Brangus	1								1
Red Brangus							1		1
Charbray							1		1
Santa Gertrudis							1		1
Galloway (Calving)					1				1
Simbrah							1		1
Grauvieh								1	1
Angus		1							1
Highland			1						1

# Challenges (& Interests)?

Country	Challenges	Interest
BRA	Fees & Arguments to convince decision makers to take part in ICAR	
BRA	cost of overseas traveling	
CZE	Interest of breeders	
DFS	Lack of resources / number of traits	
DFS	Development of Genomic evaluation	
DFS		Evaluations of 'hard to measure' traits
DFS		Use of Interbeef results
FRA		Definition of guidelines for beef cattle performance recording
GER		Combination of National and Interbeef EBVs
GER		Pedigree synchronisation
GER		Publication of international top lists of animals
GER		Building up phenotypic and genomic database
IRL	Interbeef integration on national evaluations	
ITA	Fees	
ITA		Phenotypes exchange
MEX		International identification. Creating the genetics links among countries.
MEX	Financial support.	
MEX	Explanation of benefits to the breeders and users germplasm.	
MEX		Consolidation of datasets,
MEX		Research and developments of new traits.
MEX	Building selection indexes.	
PRT		Latest advances in breeding techniques
SLO	Fees	
SLO	Human resources	
SWI	Human resources	
UK	Fees	
AUS	Genetic linkage	
AUS	Absence of North and South America beef populations	
AUS	Limitation to "simple" multitrait model	
AUS	Fees	

# Conclusion

- 14 answers => thanks again!
  - these answers show
    - different trait evaluation status depending on the country
    - different new breed of interest
    - convergence on traits to study
- ⇒ This workshop is the good place to discuss the different beef challenge, exchange our experiences and put in place collaborations that can take multiple shapes: methods, data exchange....

Enjoy !