ICAR

ICAR & IDF/ISO CONFERENCE ANALYTICAL WEEK 2019 PRAGUE CZECH REPUBLIC

ICAR 2019 17 – 21 June
IDF/ISO 2019 21 – 25 June

INTERBEEF

Interbeef workshop

Survey Synthesis

Andrew CROMIE (ICBF) , Eric VENOT (INRA)

Prague, June 2019
(updated after the workshop)

INRA SCIENCE & IMPACT

ICBF.com

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?

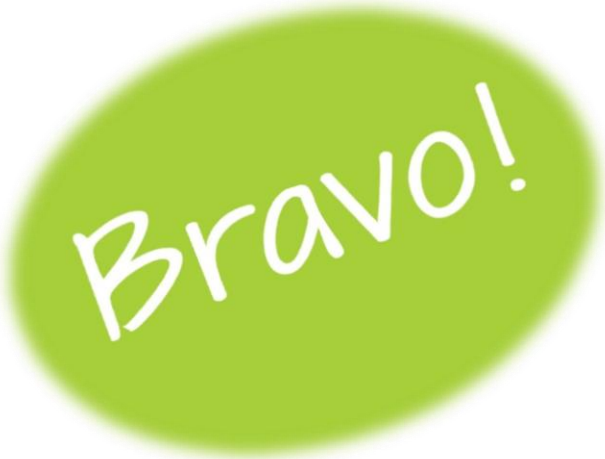
Answers

- Questionnaire sent to all country representatives participating to this workshop

➔ very short time to answer

➔ 15 answers back !

➔ **THANKS!**



Countries and Breeds

Country / Organization	Breeds
AUSTRALIA / ABRI	20
BELGIUM / ELEVEO	1
BRAZIL / EMBRAPA	5
CZECH REPUBLIC / VUZV	16
DNK - FIN - SWE / NAV	5
FRANCE / FGE	12
GERMANY / VIT	11
IRLANDE / ICBF	19
ITALIE / ANACLI	2
MEXICO / INIFAP	2
PORTUGAL / FERA	2
SLOVENIA / Lubjana University	2
SOUTH AFRICA / SA SB and AIA	22
SWITZERLAND / Mutterkuh Schweiz	6
UNITED KINGDOM / SRUC	7
Total Answers: 15	

Countries and Breeds

Country / Organization	Breeds
SOUTH AFRICA / SA SB and AIA	22
AUSTRALIA / ABRI	20
IRLANDE / ICBF	19
CZECH REPUBLIC / VUZV	16
FRANCE / FGE	12
GERMANY / VIT	11
UNITED KINGDOM / SRUC	7
SWITZERLAND / Mutterkuh Schweiz	6
BRAZIL / EMBRAPA	5
DNK - FIN - SWE / NAV	5
SLOVENIA / Lubjana University	2
PORTUGAL / FERA	2
MEXICO / INIFAP	2
ITALIE / ANACLI	2
BELGIUM / ELEVEO	1
Total Answers: 15	

Countries and Breeds

BREED	NB
CHAROLAIS	12
LIMOUSINE	10
ANGUS	9
SIMMENTAL	8
HEREFORD	8
BLONDE D'AQUITAINE	6
SALERS	5
AUBRAC	4
BELGIAN BLUE	4
HIGHLAND	4
SHORTHORN	4
GASCONNE DES PYRENEES	3
RED POLL	3
PARTHENAISE	3
WAGYU	2
ROUGE DES PRES (MAINE ANJOU)	2
PIEMONTESE	2
BRANGUS	2
SUSSEX	2
GELBVIEH	2
GALLOWAY	2
BRAUNVIEH	2
DEXTER	2
BRADFORD	2
SOUTH DEVON	2
SANTA GERTRUDIS	2

BREED	NB
BARROSA	1
BAZADAISE	1
BEEFMASTER	1
BONSMARA	1
BORAN	1
BRAHMAN	1
CACHENA	1
DEVON	1
DRAKENSBERGER	1
DROUGHTMASTER	1
HUGENOOT	1
KERRY	1
LINCOLN RED	1
LUING	1
MURRA GREY	1
NGUNI	1
PINZGAUER	1
PIN-ZYL	1
ROMAGNOLA	1
ROTES HÖHENVIEH	1
SENEPOL	1
SIMBRA	1
STABILISER	1
TULI	1
UCKER-MÄRKER	1

Performances & Genotypes

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

GENOTYPES (genotyped animals with more than 20 progeny and their own performance)	1	L	< 100 animals genotyped
	2	M	[100 - 1000 animals genotyped]
	3	H	[1000 - 5000 animals genotyped]
	4	VH	> 5000 animals genotyped

Performances & Genotypes
Breeds in at least 2 countries

BREED	NB	PERFORMANCE			GENOTYPES		
		Mean	Min	Max	Mean	Min	Max
CHAROLAIS	12	2,4	1	4	1,5	1	3
LIMOUSINE	10	2,7	1	4	2,0	1	3
ANGUS	9	2,6	1	4	1,8	1	4
SIMMENTAL	8	2,6	2	4	1,8	1	3
HEREFORD	8	2,4	1	4	1,8	1	4
BLONDE D'AQUITAINE	6	1,8	1	4	1,4	1	3
SALERS	5	2,2	1	4	1,2	1	2
AUBRAC	4	1,8	1	4	1,3	1	2
BELGIAN BLUE	4	2,0	1	4	1,5	1	2
HIGHLAND	4	1,3	1	2	1,0	1	1
SHORTHORN	4	1,8	1	3	1,0	1	1
GASCONNE DES PYRENEES	3	1,7	1	3	1,3	1	2
RED POLL	3	1,7	1	2	1,0	1	1
PARTHENAISE	3	1,7	1	3	1,3	1	2
WAGYU	2	2,0	2	2	2,5	1	4
ROUGE DES PRES (MAINE ANJOU)	2	2,0	1	3	1,5	1	2
PIEMONTESE	2	1,0	1	1	1,0	1	1
BRANGUS	2	2,5	2	3	2,0	1	3
SUSSEX	2	2,0	2	2	1,0	1	1
GELBVIEH	2	2,0	2	2	1,0	1	1
GALLOWAY	2	1,0	1	1	1,0	1	1
BRAUNVIEH	2	2,0	2	2	2,0	1	3
DEXTER	2	1,0	1	1	1,0	1	1
BRADFORD	2	2,0	2	2	2,5	1	4
SOUTH DEVON	2	2,5	2	3	1,0	1	1
SANTA GERTRUDIS	2	1,5	1	2	1,0	1	1

Performances & Genotypes
Breeds in 1 country

BREED	NB	PERFORMANCE			GENOTYPES		
		Mean	Min	Max	Mean	Min	Max
BARROSA	1	1,0	1	1	1,0	1	1
BAZADAISE	1	2,0	2	2	1,0	1	1
BEEFMASTER	1	3,0	3	3	2,0	2	2
BONSMARA	1	4,0	4	4	3,0	3	3
BORAN	1	2,0	2	2	1,0	1	1
BRAHMAN	1	2,0	2	2	4,0	4	4
CACHENA	1	1,0	1	1	1,0	1	1
DEVON	1	2,0	2	2	1,0	1	1
DRAKENSBERGER	1	3,0	3	3	3,0	3	3
DROUGHTMASTER	1	1,0	1	1	1,0	1	1
HUGENOOT	1	2,0	2	2	1,0	1	1
KERRY	1	1,0	1	1	1,0	1	1
LINCOLN RED	1	2,0	2	2			
LUING	1	2,0	2	2			
MURRA GREY	1	3,0	3	3	1,0	1	1
NGUNI	1	2,0	2	2	1,0	1	1
PINZGAUER	1	2,0	2	2	1,0	1	1
PIN-ZYL	1	1,0	1	1	1,0	1	1
ROMAGNOLA	1	1,0	1	1	1,0	1	1
ROTES HÖHENVIEH	1	1,0	1	1	1,0	1	1
SENEPOL	1	1,0	1	1	1,0	1	1
SIMBRA	1	3,0	3	3	1,0	1	1
STABILISER	1				1,0	1	1
TULI	1	2,0	2	2	1,0	1	1
UCKER-MÄRKER	1	1,0	1	1	1,0	1	1

Breed x Country combinations Performances

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

* Crossbred animals not included

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

Breed	AUS	BRA	CZE	DNK	FRA	GER	IRL*	ITA	MEX	SLO	SWI	UK	ZAF
ANGUS	4	3	1	1	1	1	2				2		1
AUBRAC			1		2		1						
BLONDE D'AQUITAINE	1		1		3	1	1						
CHAROLAIS	2	1	1	1	3	1	3	2	1	1			1
HEREFORD	4	3	1	1	1	1	2						1
LIMOUSINE	2		1	1	3	2	3	3		1	3	1	
SALERS	1		1		2	1	1						
SIMMENTAL	2		1	1		2	4		1		3		

* Crossbred animals not included

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	ZAF
ANGUS	1	2	2	2	4	3	1				2		2
BLONDE D'AQUITAINE			2		1	4	1						
CHAROLAIS	2	2	2	2	1	3	1	3	1,5	2	2		2
HEREFORD	2	1	2	2	4	3	1				4		2
LIMOUSINE	2	4	2	2	1	3	1	3		2	1,5	1,5	
SALERS			2		2	4	1						
SIMMENTAL	2	2	2	2	4	3	1		1,5		2		

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	ZAF
ANGUS	1	2	2	2	4	2	1				2		2
BLONDE D'AQUITAINE			2		1	2	1						
CHAROLAIS	2	2	2	2	1	2	1	2	1,5	2	2		2
HEREFORD	1	1	2	2	4	2	1				4		2
LIMOUSINE	2	4	2	2	1	2	1	2		2	1,5	1,5	
SALERS			2		2	2	1						
SIMMENTAL	2	2	2	2	4	2	1		1,5		2		

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	ZAF
ANGUS	1	2	2	2	4	4	1				2		2
BLONDE D'AQUITAINE			2		1	4	1						
CHAROLAIS	2	3	2	2	1	3	1	3	3	4	2		3
HEREFORD	1	2	2	2	4	4	1				4		2
LIMOUSINE	2	4	2	2	1	3	1	3		4	4	1	
SALERS			2		2	4	1						
SIMMENTAL	2	4	2	2	4	3	1		3		2		

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	ZAF
ANGUS	1	3	3	2	4	2	1				4		3
BLONDE D'AQUITAINE			3		2	2	1						
CHAROLAIS	2	4	3	2	2	2	1	3	1,5	2	4		2
HEREFORD	1	3	3	2	4	2	1				4		2
LIMOUSINE	2	4	3	2	2	2	1	3		2	4	1	
SALERS			3		2	2	1						
SIMMENTAL	2	4	3	2	4	2	1		1,5		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?

Traits	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
Carcass traits	1								1			1		3
Meat quality				1			1				1			3
post weaning traits		1											1	2
Cow longevity				1		1								2
Conformation				1						1				2
Temperament				1	1									2
Female Fertility	1									1				2
Heat Stress								1	1					2
Mature weight							1						1	2
Muscular development			1											1
Morphology at weaning					1									1
Longevity													1	1
Resilience											1			1
Linear scoring			1											1
Crossbred										1				1
Yearling weight			1											1
Youngstock survival				1										1
Drinking ability of calves				1										1
Multitrait Model	1													1
Parasite resistance		1												1

Other breeds?

BREED	BRA	CZE	DFS	FRA	GER	IRL	MEX	SWI	TOTAL
Blonde d'Aquitaine		1	1	1	1	1			5
Salers		1		1	1	1			4
Aubrac				1		1		1	3
Belgian Blue			1			1			2
Bradford	1						1		2
Piemontese		1				1			2
Brangus	1								1
Galloway (Calving)					1				1
Simbrah							1		1
Red Brangus							1		1
Santa Gertrudis							1		1
Charbray							1		1
Simangus							1		1
Grauvieh								1	1
Wagyu						1			1
Highland			1						1
Braunvieh								1	1
Italian breeds							1		1
Parthenaise						1			1

Challenges (& Interests)?

Country/Organization	Challenges	Interest
BRA	Fees & Arguments to convince decision makers to take part in ICAR	
BRA	cost of oversees traveling	
CZE	Interest of breeders	
DFS	Lack of ressources / 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 accross countries
GER		Building up phenotypic and genomic database
IRL	Interbeef integration on national evaluations	
IRL	National pedigree completness	
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 ressources	
SWI	Human ressources	
UK	Fees	
AUS	Genetic linkage	
AUS	Absence of North and South America beef populations	
AUS	Limitation to "simple" multitrait model	
AUS	Fees	
ZAF	Fees	
ZAF	Interbeef integration on national evaluations	
ZAF	Lack of ressources to maintain international ID	
ZAF	interpretation of ITB EBV when major countries for the breed not included	

Conclusion

- 15 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 right place to discuss the different beef challenge, exchange our experiences and put in place collaborations that can take multiple shapes: methods, data exchange….

Enjoy !