

ICBF

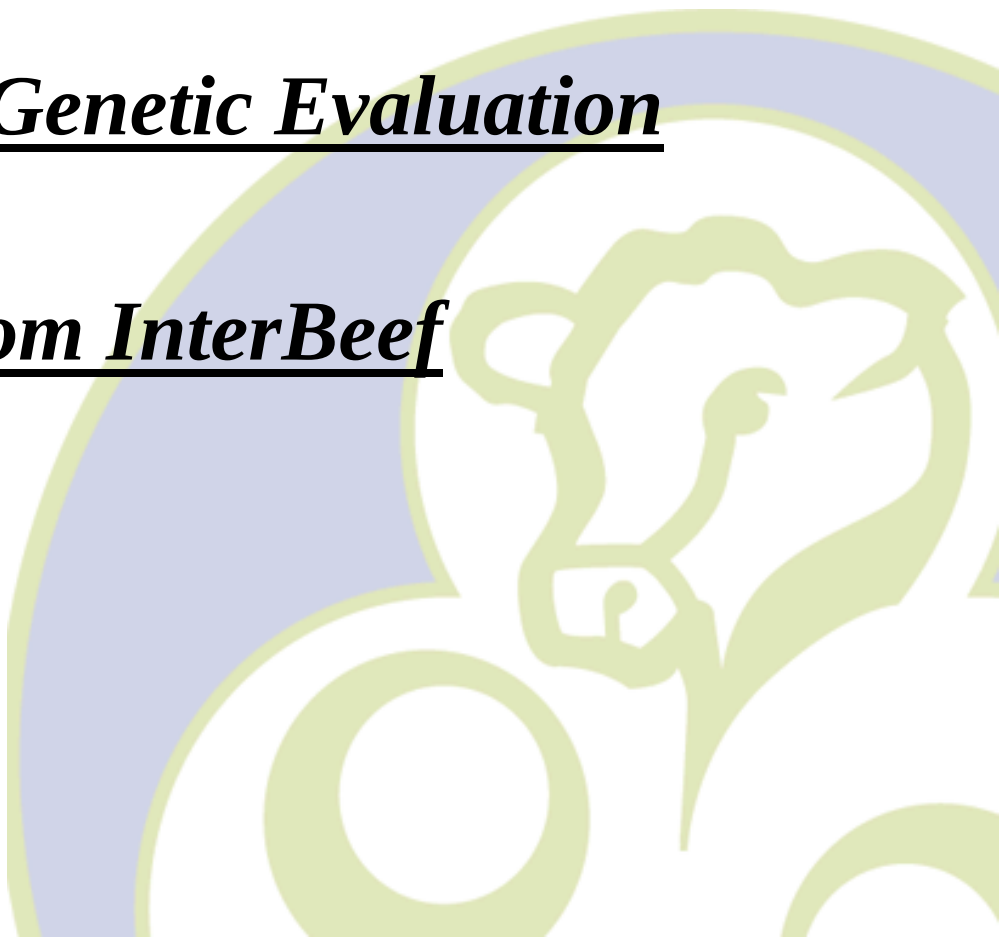
Beef genetic Evaluation

Expectations from InterBeef

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25th Jan 2010



On the menu

- *Quick overview of Irish beef specificities*
 - *ICBF current Beef Genetic Evaluation*
 - *Our expectations from InterBeef*
- 

Overview of the Irish Beef Specificities



Profile of Beef Calving herds



Type of herd (cows)	Count of herds	Count of cows calved	Average Nb cows	
			Ped.	Xbred
BEEF Xbred only	40,482	503,270	n/a	12
BEEF Ped & Xbred	5,905	126,512	4	17
BEEF Ped & Xbred + DAIRY	967	17,712	4	14
BEEF Ped only	702	5,028	7	n/a
BEEF Ped only + DAIRY	214	1,061	5	n/a

- Pedigree herds
 - Small size
 - Substantial linkage with commercial herds
- Commercial herds
 - ~30% of replacement ≤ dairy herds



Profile of Breed Combinations

Calves born 2008 in beef herds

		Breed of bulls								
		CHA	LIM	AAN	HER	SIM	BBL	SHT	BAQ	SAL
Breed of cows	CHA	168419	52559	9711	4651	11170	7807	1245	1156	1123
	LIM	90048	120731	12487	5357	11618	12827	1610	1701	1304
	AAN	52017	31193	28814	5129	6742	5914	1473	685	834
	HER	62654	40474	10428	27400	12246	5949	1464	965	656
	SIM	67216	40954	7923	5309	32844	7326	856	1114	818
	BBL	20460	17111	4314	1890	2958	7349	478	621	317
	SHT	13597	8754	2844	1675	1992	1373	7207	219	386
	BAQ	1472	1550	311	128	238	494	17	1793	69
	SAL	2385	1122	275	111	194	193	57	24	1952

- Large level of crossbreeding in the Suckler herds

Where to

**Slaughtered in Ireland
(69%)**



**Live Export
(15%)**



**Replacements
(16%)**



ICBF Beef Genetic Evaluation



Databases

2 Main databases in Ireland for Cattle

(a) Department of Agriculture - CMMS

- Regulation of farming practises
- Monitoring of cattle movements
- Animal health

(b) ICBF – Genetic database

- Nightly update from CMMS
- Ancestry & data recording



Data Collected

Type of data stored in ICBF	Source	Traits Measured
Pedigree data	CMMS, Herdbooks, AE	Sire and dam Ancestry
Calving Performance	Central PT, AE	Calving Difficulty, Gestation, Mortality
Carcass data	Meat Factories	Carcass weight, conformation, fat
Weaning Weights	Marts & on-farm recording	weight at 150-300 days
Liveweights	Marts & on-farm, Tully	weight at 300-600 days
Linear Scores	On-farm, Tully	14 linear traits
Feed Intake	Tully & Teagasc	KG daily DM intake
Fertility/Survival	Animal Events, AI handhelds	culling reasons, inseminations

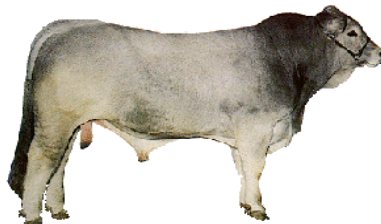


Data on ICBF database



provided by Dr. Robert Kropp

	Pure and crossbred	Pure	% Pure
Charolais	835552	84429	10%
Limousine	786289	57450	7%
Angus	664078	28735	4%
Hereford	643652	24974	4%
Simmental	406929	21980	5%
Belgian Blue	320282	2858	1%
Shorthorn	55435	4770	9%
Blonde Aq	26348	2206	8%
Saler	18777	2373	13%
Aubrac	7316	1496	20%
Piemontese	3244	274	8%
Partenaise	1988	216	11%
Romagnola	1471	14	1%
11 Others	1612	44	3%



provided by Dr. Robert Kropp



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Evaluation details

- 1 Beef evaluation: 12 beef traits + 7 predictors
- 1 Linear traits evaluation: 13 traits + 3 predictors
- 1 Calving evaluation: calving (d+m), mortality, gestation length
- 1 Docility evaluation: 2 traits

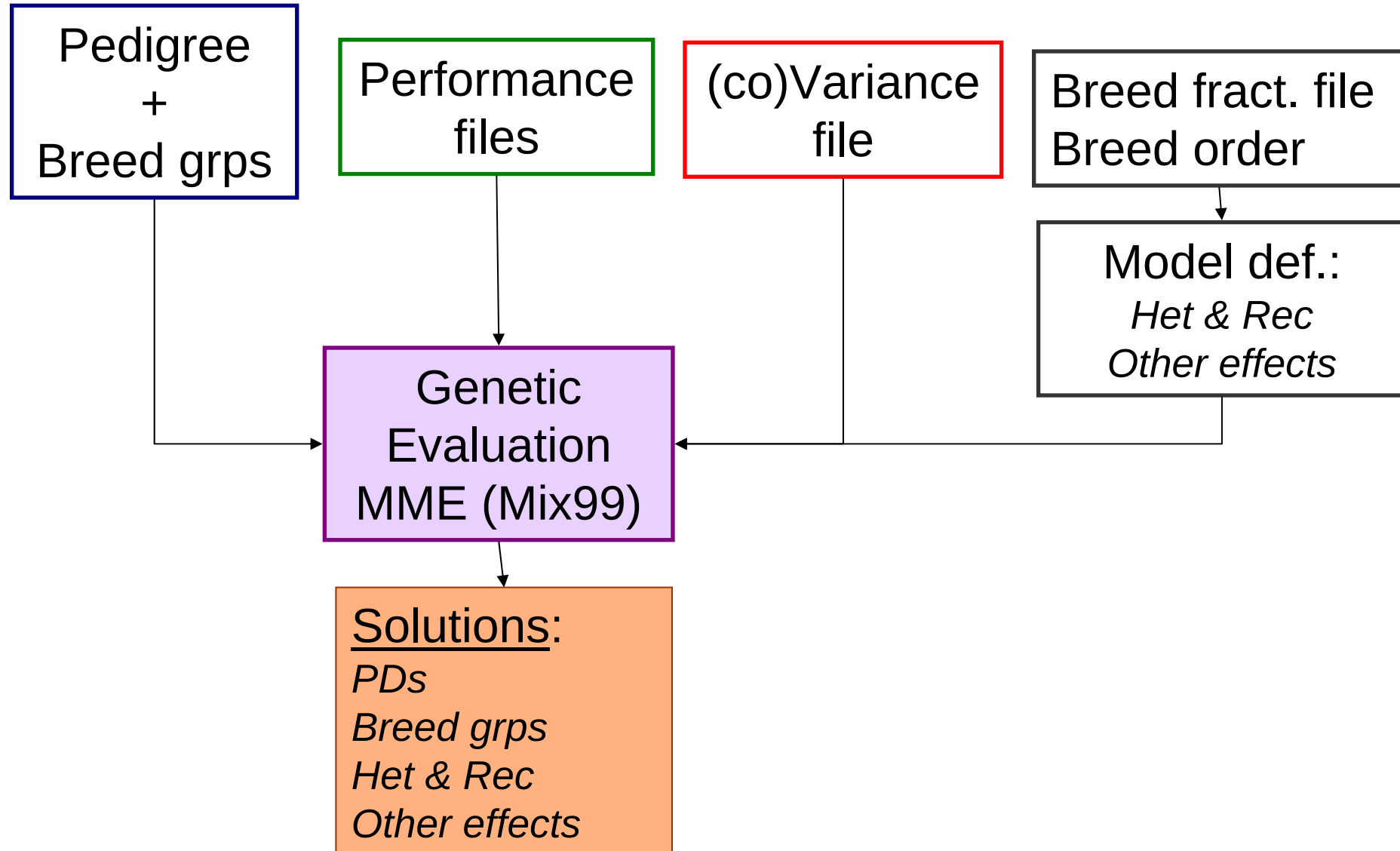
Evaluation details

Index	Traits	Sex fixed effects	Age	Parity of dam	heritability
Calving Traits Index €	calving difficulty	Male, Female	dam >500 days	1 - 9	0.23
	gestation	Male, Female	dam >500 days	1 - 9	0.39
	mortality	Male, Female	dam >500 days	1 - 9	0.01
Weanling export Index €	weaning weight	Male, Female	150-300 days	1,2 3+	0.44
	mart price per kg	Male, Female	150-300 days		0.4
Beef Carcass Index €	liveweight	Male, Female	300-600 days		0.51
	feed intake	Male	300-600 days		0.49
	7 linear type traits	Male, Female	150 - 600 days		0.28 - 0.36
	carcass weight	heifer, bull, steer	300 <875 (1200 if male)		0.54
	carcass conformation	heifer, bull, steer	300 <875 (1200 if male)		0.59
	carcass fat	heifer, bull, steer	300 <875 (1200 if male)		0.31
Milk & Fertility Index €	age at 1st calving	Female	427 - 1281 days	1	0.28
	maternal calving difficulty	Female	dam >500 days	all	0.04
	maternal weaning weight	Female	150-300 days	1,2 3+	0.05
	calving interval	Female	300-600 days	1	0.05
	survival	Female	450 days post calving	1	0.02
	lifespan	Female	all parities <20	1	0.04
	cull cow carcass wt	Female	874 - 4000 days	all	0.4

Evaluating Xbred / Across Breed

- Pedigree breed groups
 - To capture breed effect from founders to animal
 - Need Pedigree file + Breed
- General Heterosis & Recombination effects
 - 0 to 1 (covariates in model)
 - Need Pedigree file + Breed fraction file + Breed order

Evaluating Xbred / Across Breed



Evaluation output: CF52



ICBF Genetic Evaluations Service

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€uro-Star Rating (ICBF, Aug 2009)

AI Code:	CF52	Breed:	CH (100%)	Sire:	HERMES / HME	
Animal Name:	DOONALLY NEW	Owner:	NATIONAL CATTLE BREEDING CNTR	Dam:	INTRUSE / 7193100567	
Date of Birth:	18-JAN-1997	Date of Evaluation:	Aug 2009	MGS:	CAMPAGNARD / 1887109836	
National ID:		Euro-star Index	Calving Traits	Weanling	Beef Carcass	Milk and Fertility
International ID:	CHLFRAM007197126709	Pedigree	Prev Eval			

[Blups](#)

% Rank	Within Breed		Index	Data rel	Across Breed	% Rank
97	★★★★★	Suckler Beef Value	€142	99%	★★★★★	99
		Beef Value				
17	★	Calving Traits	€-22	99%	★	5
99	★★★★★	Weanling	€118	99%	★★★★★	99
99	★★★★★	Beef Carcass	€181	99%	★★★★★	99
		Replacement Value				
1	★	Milk & Fertility	€-303	94%	★	1
99	★★★★★	Calf Quality	€427	99%	★★★★★	99
		Other Key Traits				
9	★	Difficulty Calving	11.30%	99%	★	2
		Docity	%	%		
3	★	Milk (Maternal Wean Weight Kg)	-10.8	94%	★	1

Data Rel: 40% - 60% = Ave

20 - 40% = Below Ave

<20% = Poor

Evaluation output: CF52

Aug 2009	2020	1217	730	10401	733	720					
Average Carcass Performance											
	Weight (kg)		Conformation (EUROP scale)		Fat (1-5 scale)						
	Progeny	Herd Mates	Progeny	Herd Mates	Progeny	Herd Mates					
Aug 2009	406	381	R+	R+	3	3					
Information on Dams of Progeny (Cows Mated to the Sire)											
	Dam Avg Carcass Index (€)	Dam Avg PTA Carcass Weight (kg)	Average % in Dams By Breed								
			AA	BA	BB	CH	FR	HE	HO	LM	SI
Aug 2009	33	8	10	0	2	26	1	4	7	13	11

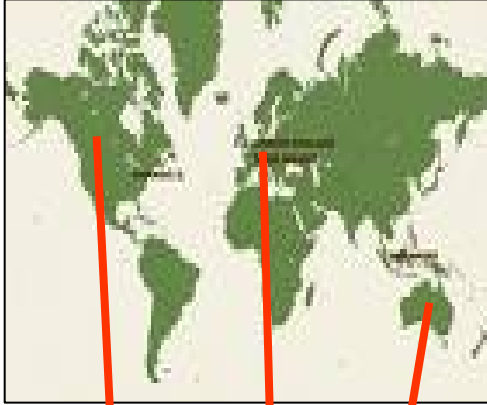
Ireland expectations from InterBeef



InterBeef & Ireland

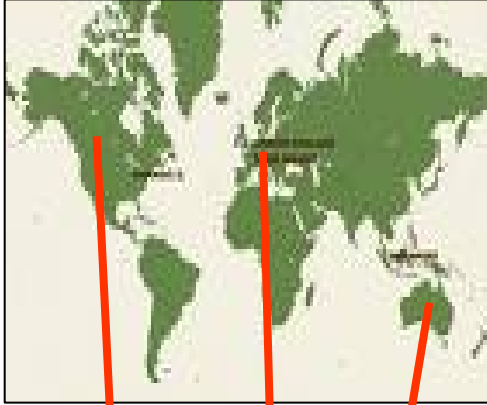
- **International genetic evaluation for beef cattle**
 - Rank all animals evaluated on each member country's scale
- **Relevant to :**
 - Breeds with larger populations in country of origin and low numbers in Ireland (eg, CHA, LIM, HER, SIM, BAQ...)
- **Relevant for :**
 - Traits which have low recording levels in Ireland but are strongly recorded abroad (eg, weaning weight)

Working with foreign EBVs ^{1/2}



- **Conversion formulae**
 - Done 2006-2008
 - CHA & LIM
 - Calving / Weaning / Linears
- Gives a converted EBV / estimated r_g between countries
- Needs strong genetic link between countries
- Post treatment in GE process

Working with foreign EBVs 2/2



- **Correlated traits**
 - Done 2008-present
 - 7 French & 3 UK breeds
 - Weaning
- Multi-trait model (Mix99)
- Streamlined in GE process

Bonaiti, B. and D. Boichard. 1995. Accounting for foreign information in genetic evaluation. Interbull Bull. 11.

