



IRISH CATTLE BREEDING FEDERATION

ICBF Beef Industry Meeting.



Agenda

1. Euro-Star index material.
 - Reference animals for presenting stars.
2. Dairy Beef Index.
3. Evaluation queries – General.
4. International data.
5. Genomics & parentage verification.
6. Process for coding bulls
7. GEN€ IRELAND Bull breeding program.
8. Tully progeny commercial test.
9. Sexed Semen project – Update.
10. AOB.

1. Euro-Star Index Material.

- Meeting of Euro-Star Implementation Group last Tuesday.
- Two major issues discussed;
 - Stars for CD% evaluations.
 - Presentation of maternal index (to acknowledge cow and cow+calf contributions).

i. Stars for CD% evaluations.

- Farmers had bought into stars, but were now going “over-board” on requirement to have 4 & 5 star bulls (within breed) for CD%. Problem compounded by;
 - Small movement in CD% = large difference in stars.
 - Bull at 7% same as bull at 17% (in terms of stars). Big difference economically.
- Farmers were purchasing “easy-calving” bulls that were average for overall index.

ii. Presentation of Maternal Index.

- Farmers looking for 4 & 5 star maternal bulls, not clear on cow and cow+calf contributions.
- Need to clearly identify performance for both parts of index.
- Consider alternative names for index and sub-indexes.

Example Bull - AYR (Rossiter)

http://herdplus.icbf.com/bull-search/view/animalId/4 ICBF Bull Search				
Euro-star Index	Maternal Graphics	Terminal Graphics	Linear Type	Pedigree
Star Rating (within Angus breed)	Economic Indexes	€uro value per progeny	Index reliability	Star Rating (across all beef breeds)
★★★★★	Maternal	€270	66% (High)	★★★★★
★★★★★	Terminal	€44	76% (High)	★★★☆☆
☆☆☆☆☆	Dairy Beef	€	% (N/A)	☆☆☆☆☆
Star Rating (within Angus breed)	Key profit traits	Index value	Trait reliability	Star Rating (across all beef breeds)
Expected progeny performance				
★☆☆☆☆	Calving difficulty (% 3 & 4) Breed ave: 2.18%, All breeds ave: 5.04%	2.60%	91% (V High)	★★★★★
★★★★★	Docility (1-5 scale) Breed ave: 0.00, All breeds ave: 0.01	0.11 scale	89% (V High)	★★★★★
★★★★★	Carcass weight (kg) Breed ave: 6.88kg, All breeds ave: 22.69kg	25kg	78% (High)	★★★★★
★★★★★	Carcass conformation (1-15 scale) Breed ave: 0.91, All breeds ave: 1.91	1.04 scale	76% (High)	★★★★★
Expected daughter breeding performance				
★★★★★	Daughter calving difficulty (% 3 & 4) Breed ave: 6.48%, All breeds ave: 5.19%	5.3%	38% (Low)	★★★★★
★★★★★	Daughter milk (kg) Breed ave: 7.37kg, All breeds ave: 0.37kg	26.1kg	72% (High)	★★★★★
★★☆☆☆	Daughter calving interval (days) Breed ave: -4.55 days, All breeds ave: -0.13 days	-3.79days	40% (Average)	★★★★★

Recommendations.

- Drop stars for calving difficulty.
 - Publish just index and breed averages.
 - Apply to both direct and maternal.
 - Keep stars for other key profit traits.
- Change name of maternal index to replacement index.
 - Include Euro-values and bar-charts for maternal and progeny values.

Within	Economic Indexes	Index	Rel%	Across
★★★★★	Terminal Index	€44	76% (High)	★★
★★★★★	Replacement Index	€270	66% (High)	★★★★★
	€ Rel%			
	Maternal Traits: €195 55%			
	Progeny Traits: €48 79%			
	-150 -100 -50 0 50 100 150 200 250			
★★★★★	Dairy Beef	€100	66% (High)	★★★★★
Within Breed Average CD %	Calving Difficulty % (CD %) (% of expected very difficult or vet assisted calvings)	%	Rel%	Across Breeds Average CD %
+2.18%		+2.60%	91% (V.High)	+5.04%
Expected Progeny Performance				
★★★★★	Docility (1-5 scale) Breed ave:0.00, All breeds ave:0.01	0.11 scale	89% (V.High)	★★★★★
★★★★★	Carcass Weight (Kg) Breed ave:6.88kg, All breeds ave:22.69kg	+25 Kg	78% (High)	★★★
★★★★★	Carcass Conformation (1-15 scale) Breed ave:0.91, All breeds ave:1.91	+1.04 scale	76% (High)	★
Expected Daughter Breeding Performance				
Within Breed Average CD %	Daughter Calving Difficulty % (% daughters expected to have very difficult or vet assisted calvings)	%	Rel%	Across Breeds Average CD %
+6.48%		+5.3%	38% (Low)	+5.19%
★★★★★	Daughter Milk (Kg) Breed ave:7.37kg, All breeds ave:0.37kg	26.1Kg	72% (High)	★★★★★
★	Daughter Calving Interval (Days) Breed ave:-4 55 days, All breeds ave:-0 13 days	-3.79 Days	40% (Average)	★★★★★

Implementation.

- If agreed, propose to implement immediately (April 2013 evaluation).
- Priority publications;
 - ICBF bull search
 - Herdbook catalogues.
 - Expectation that template would be used in “entirety” by all herdbooks.
 - Others....



2. A beef index for dairy cows



Background

- Currently **60%** of dairy cows are bred to dairy bulls
- Increase in the dairy cow population of 4-5% per annum from 2011 → **1.65 million by 2020**
- Substantial increase in beef cross calves from the dairy herd
- **Sexed semen** → reduction in the use of dairy bulls
→ increase proportion bred to beef bulls

Objective:

Develop a breeding index for dairy farmers → select beef bulls



Requirements for developing an index

1. Knowledge of the traits of interest
2. Genetic parameters for the traits:
 - Heritability estimates
 - Genetic variation
3. Economic values for each traits

Traits influencing decision

1. Calving difficulty
2. Calf mortality
3. Gestation length
4. Calf price

Calving difficulty

- Accounts for costs associated with:
 - labour, vet
 - dead calf, dead cow
 - barren cow
 - Loss in milk
 - Reduced reproductive success
- Also...
 - For each 1% increase in calving difficulty assumes that cow numbers reduced by 5%

Gestation length

Accounts for:

- Loss in milk sales
- Change in the feed budget

Calves Sold

- Economic value **implicitly assumed** within the EBV of calf price
- **Mortality rate** for each bull is included in the economic value

Results to date...

- Average value €61.63
- Range - € 382 to €215

breed	DBI
AA	109
BA	34
BB	9
CH	43
HE	99
LM	70
PI	66
SA	114
SH	81
SI	65

Results to date...

- Average value €61.63
- Range - € 382 to €215

breed	DBI	Calf_Diff	CalfValue	GestLength
AA	109	2.2	23	0.2
BA	34	6.4	56	4.4
BB	9	10.5	114	0.4
CH	43	8.2	101	3.0
HE	99	3.8	45	1.1
LM	70	5.3	66	3.9
PI	66	4.6	42	2.4
SA	114	2.6	39	1.1
SH	81	3.2	20	0.9
SI	65	5.8	71	3.0

Example list of 20 "Active" Bulls.

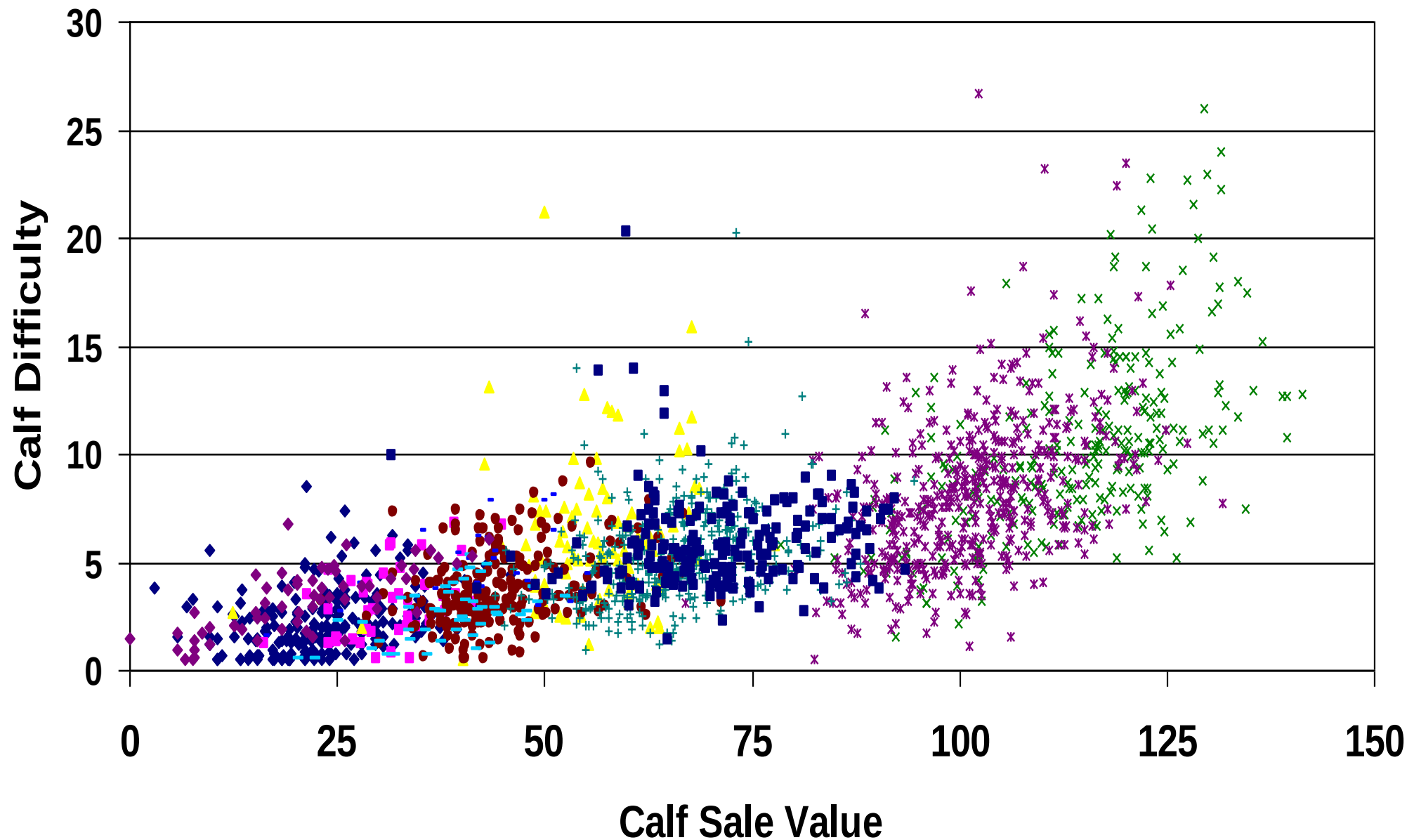
Code	Brd	ANIMAL_NAME	Dairy Beef	Rel	CD%	GL Days	Mort	Calf Value
PBO	AA	PROUD BOY OF DUNLEVER	€160	94	0.5	-2.3	-0.43	€27
CGW	AA	CARRIGROE MARLOW	€154	96	0.5	-1.1	-0.21	€24
BFF	AA	BREANROSS FAITHFUL	€153	96	0.5	-1.3	-0.72	€22
EOB	AA	EDMUNDO OF BALLINULTY	€151	99	0.6	-1.7	-0.54	€22
LYM	AA	LISLANEY MICK	€151	98	0.5	-2.2	-0.91	€18
DJH	BB	DRIMEEN JOSEPH	€149	95	3.7	-0.2	-0.44	€95
EOC	AA	EARL OF CREROGUE	€149	91	0.6	-2.1	-0.99	€18
CF43	CH	DOONALLY DONALD	€148	87	3.6	2.4	-0.54	€100
JSN	AA	JESANA NAPOLEON	€146	96	0.8	-0.1	-0.74	€26
KIW	BB	KILANETIG IRWIN	€144	97	3.8	0.8	0.03	€96
RTE	HE	RATHCOR LEO	€144	87	2.5	1.7	-0.13	€62
CTE	AA	CARTRONROE ERNIE	€144	86	0.7	-0.3	-0.16	€21
MTL	AA	MINIT OF LISS	€142	92	0.9	-1.1	-0.91	€21
LRH	AA	LAHEENS RICHARD	€141	99	0.8	-1.5	-0.85	€17
RUH	AA	ROOSE ULAH	€139	94	0.5	-0.5	-0.55	€11
SVJ	SI	SEAVIEW JORDAN	€139	87	3.7	1.3	-0.49	€90
SFL	BB	DU STORDEUR FLANEUR	€136	95	5.6	-1.5	-0.17	€123
YBM	AA	BALLYCAHER MAKER	€136	92	1.2	0.4	0.46	€27
TCH	HE	TREETOP CHALLENGER	€135	87	2.2	0.5	-0.85	€42
CM1	AA	CARKER MAJOR	€133	93	1.5	0.3	-1.12	€30

Results to date...

	Calf price	Gestation Length	Calving Difficulty
Calf price	1		
Gestation length	0.17	1	
Calving difficulty	0.70	0.18	1

Calf prices

	2009		2010		2011	
	Female	Male	Female	Male	Female	Male
AaX	102	141	100	135	187	214
BbX	225	271	220	265	301	328
ChX	209	256	197	248	305	351
HeX	128	176	128	169	223	257
LmX	145	184	146	182	234	267
SiX	172	213	165	212	264	287



Results to date...

- Dairy beef index favours selection on bulls with:
 1. good calving difficulty
 2. High calf price
 3. Short gestation length
- More research:
 - Functionality of bulls

3. Evaluation Queries.

- We have received many. Linked to fact that commercial farmers are now purchasing on basis of stars.
- Clear pattern; genuine “anomalies”, e.g., CD% stars, versus those that arise from poor underlying data.
 - Example stock bulls, breeder proven bulls & AI bulls.
 - Only way to address is through; (i) Data Quality Index, (ii) GENE IRELAND breeding program.
- Please forward queries as they arise. Priority given to those that have good underlying data.



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International data



Background

- Importing new (very good) bull
 - No records (yet) in Ireland
 - Breeding values regressed towards breed average
- First genetic evaluation(s) don't reflect genetic potential of newly imported bull

Using foreign breeding values

- Foreign breeding value = new trait
 - Breeding value = phenotype
 - Accuracy ~ number of progeny
 - Genetic correlation to account for across country GxE
- No post-process
 - Breeding value account for Irish records AND genetic potential abroad

Current status

- Weaning weight
- Milk (mat. Wean. Wt.)
- Muscle
- Skeletal
- Direct calving ease
- France
 - CH, LM, BA, SA, AU, PA, MA
- UK
 - CH, LM, SI, HE, BB
- Belgium
 - BB

Current numbers

	Breed	Beef	Calving
F	Aubrac	4790	4637
R	Blonde d'Aquitaine	2008	1705
A	Charolais	17863	11558
N	Limousin	10355	9887
C	Parthenais	2683	2670
E	Rouge des Pres	809	113
	Salers	6058	5607
U	Angus	1318	1844
K	Belgian Blue	534	748
	Charolais	168	300
	Hereford	216	279
	Limousin	1425	2408
	Simmental	582	768
BEL	Belgian blue		201

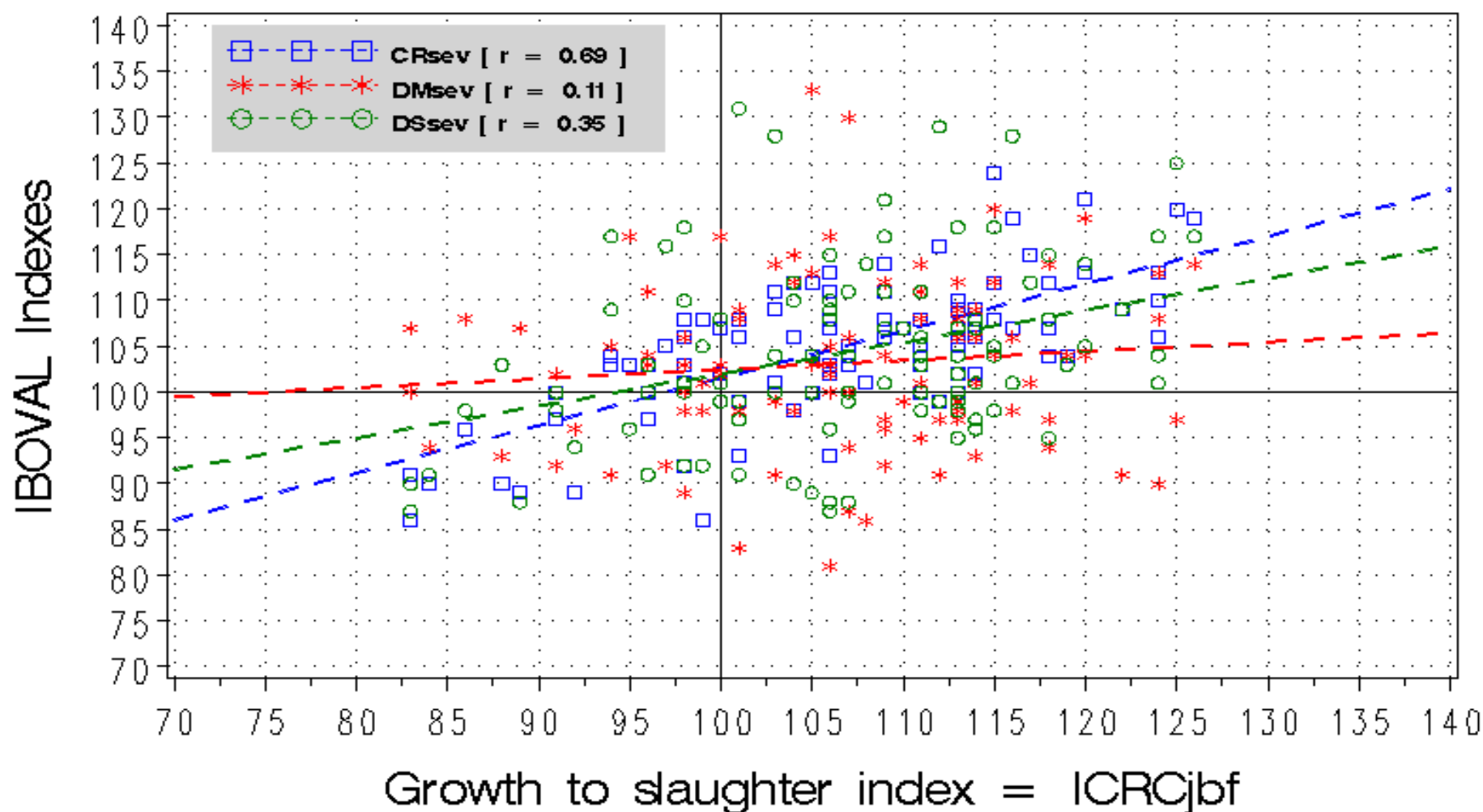
New 2013 data

- France : Slaughter indexes
 - ICRCjbf 'carcass weight / age at slaughter
 - CONFjbf carcass conformation EUROP
 - Data collected from factory on purebred males slaughtered between 10.5 and 25 months
- UK Limousine
 - Docility
- Test eval. April 2013 & August 2013

CORRELATION BETWEEN FRENCH INDEXES

INDEXES AT WEANING vs COMMERCIAL SLAUGHTER INDEX

BREED = LIMOUSINE 99 A.I. BULLS



InterBeef

- Across country genetic evaluation
 - Using phenotypes
 - Accounting for GxE across countries
- Breeding values reflect genetic potential of animals using multiple countries data
- Currently
 - 2 breeds : LIM & CHA
 - 8 countries : FRA, IRL, GBR^{LIM}, SPA^{LIM}, SWE, FIN, DNK, CZE

InterBeef traits

- Weaning weight
 - Test evaluation done in March 2013
 - Routine service in 2013
- Calving traits (scores and mortality)
 - Research in progress 2013
- Integration of crossbred data
 - Research in progress 2013
- Carcass traits
 - Planning in progress

Conclusion

- Importance of foreign EBVs in Irish genetic evaluation
- 
 - V. good working relation with France and UK Limousine – Foreign EBVs up to date.
 - InterBeef moving to routine evaluations
- 
 - Breedplan EBVs – last update Aug. 2011

5. Genomics & parentage verification.

- Five beef herdbooks have moved to using genomics for parentage verification.
 - Charolais, Limousin, Simmental, Hereford & Belgian Blue. ~4k ped beef males currently being genotyped.
- All taking up ICBF, Teagacs and DAFM (BDP) offer, with residual paid by herdbook and/or farmer.
- General approach of using ICBF to print cards/letters with cards then returned to ICBF or HB office.



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6. AI Sire Health Regulations



Health Certification of AI Sires – Recap



Issue 1:

Breeder applying for a code on a Bull that does not have proper Health Certification.

DAF Decision

‘SI No 19 of 2009 stipulates that imported semen must be accompanied by an animal health certificate and a zootechnical certificate.

Therefore, it would be acceptable for the Herd Books to request details of the Intra trade certificate.’

Action:

Breed Societies may request the Intra trade certificate before clearing a Bull for ICBF to issue an AI Code on.

Health Certification of AI Sires – Recap



Issue 2:

Breeder attempting to pedigree register a calf from an AI Bull that was never approved (has no AI Code).

DAF Decision

In relation to Issue 2, where calves sired by such bulls are on the ground, Article 1 of Council Directive 87/328 refers:

“Member States shall ensure that, without prejudice to animal health rules, there is no prohibition, restriction or impediment on the acceptance of pure-bred female animals of the bovine species for breeding purposes and the acceptance of pure-bred bulls for natural service.”

Herd Book Organisation concerned may block entry of such animals (where animal health rules have been compromised) into the herd book

Action:

Breed Societies should inform their members about these two updates.

DNA Archive

- **Storage of straws from new AI Bulls**
 - Commenced for all Bulls coded from Jan 2011.
 - Good response from AI Companies.
 - > 250 straws received to-date.
 - @ 80% of all requested straws.
 - Remaining 20% not received are 'S' coded Bulls
- **Update**
 - **Accepting 1 straw from 'S' coded Bulls instead of €57 fee in 2013.**
 - **We will be requesting 'S' bulls and all other bulls in June.**





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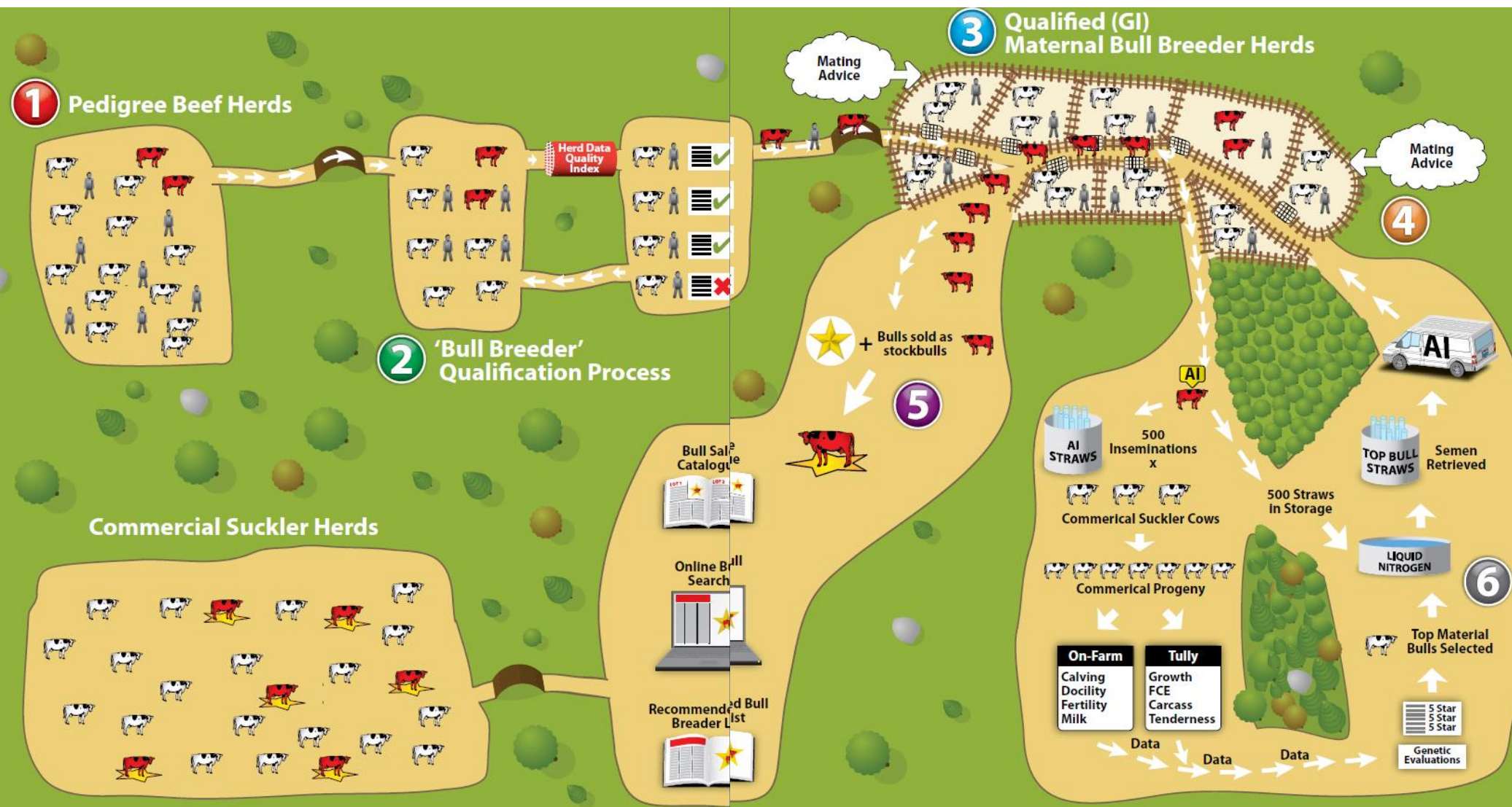
7. GEN€ IRELAND Maternal bull program



Objectives of GEN€ IRELAND MBBP

1. Identify the top maternal bulls across all the breeds and subsequent progeny testing to identify the best bulls
2. Reward herds that consistently provide high quality data for genetic evaluations – Herd Data Quality Index (HDQI)

GENE IRELAND MBBP



Herds signed up-to-date

❖ 100 herds

❖ Breakdown by breed of pedigree females in the program (n = 3338)

Breed	AA	BB	SA	CH	HE	LM	PT	BA	SH	SI
Pedigree females	235	57	259	843	374	1229	89	11	6	235

1. Data assessment and validation:

➤ Information herds have received to date:

➤ Herd Data Quality Index (HDQI)

- How to access the HDQI online
- What traits need to be recorded and how to record them
- Birth weight tape and recording chart

➤ Beef breeding chart

- Missing pregnancy data

➤ Information leaflet outlining all aspects of the program

Herd Data Quality Index

Herd Summary Data

Name	JIM FARMER	Beef Pedigree HDQI: 71.28%			
Address	DEMENSE	Whole Herd Pedigree Commercial			
	TULLAMORE	Beef Cows (at Year End)	43	21	22
	CO OFFALY	Calf Registrations	46	36	10
Herd Designator	IE1234567	AI Bred Registrations	36	30	6
Index generated on	05-FEB-13	ET Registrations	17	17	0
Reporting Period	01-FEB-12 to 01-FEB-13	Youngstock (250-500 days old, at Year End)	22	20	2

1. Overall HDQI herd score

Herd Scorecard - Pedigree Animals

	Birth Events				Pre and Post Weaning Events					10. Average
	1. Insemination	2. Sire Recording	3. Calving Survey	4. Birth Weights	5. Pre-Weaning Weight	6. Calf Docility	7. Calf Quality	8. Linear Score	9. Post-Weaning Weight	
Events / Calves (A)	36	36	36	36	20	20	20	20	31	
Completeness	5	36	18	32	20	20	20	18	23	
% of (A) Complete = (B)	13.89	100	50	88.89	100	100	100	90	74.19	79.66
Timely (within 21 days)	2	21	13	18	11	20	20	18	22	
% of (A) Timely = (C)	5.56	58.33	36.11	50	55	100	100	90	70.97	62.89
Overall Score ((B + C)/2)	9.73	79.17	43.06	69.45	77.5	100	100	90	72.58	71.28

2. Overall completeness score

3. Overall timeliness score

❖ HDQI will be the starting point for inclusion of data for genetic evaluations in the future

Breeding chart

Jumbo	Animal Number	Calving Date	Lact	Last Served	Last Bull	Num Serves	Last Preg Diag	Days InCalf	Exp. Calv. Date	Comments/ Actions
8783	FR1930708783		0	07-DEC-11	IE191567160454	10	17-FEB-12	403	14-SEP-12	
1115	IE241280281115	06-NOV-11	2	20-FEB-12	RMX	3	15-JUN-12	328	28-NOV-12	
655	IE241280210655	20-OCT-11	6	04-MAR-12	UTL	3	27-APR-12	315	11-DEC-12	
1117	IE241280211117	10-JAN-12	1	04-MAR-12	UTL	3	15-JUN-12	315	11-DEC-12	
1208	IE241280211208	09-FEB-12	1	07-MAR-12	RHN	1	15-JUN-12	312	14-DEC-12	
1101	IE241280221101	12-NOV-11	2	09-MAR-12	RHN	3	27-APR-12	310	16-DEC-12	
1169	IE241280241169	10-JAN-12	1	11-MAR-12	RHN	2	27-APR-12	308	18-DEC-12	

❖ Captures missing pregnancy data

Herds signed up-to-date

❖ Data collection visit

❖ Weight, docility & functionality records

- Linear scorer has been allocated to collect data

➤ Data collected on all pedigree animals

- Additional information on breeding females
- Udder traits – Teat placement & size, udder suspension
- Other traits – evidence of c-section, cow in milk, width & length of pelvis, condition score
- Suitability as a bull breeder

➤ Visits taking place at present

- 14 herds visited to date

2. Herd visit

❖ Visits begin next week

❖ ICBF staff visiting farms

➤ Focusing on:

- Overview of the program
 - Outline the steps involved
 - Outline the role of the committee
- How to improve your HDQI score
- What traits need to be recorded
- How to record traits online
- Benefits of the program

Breed committees

- ❖ First meeting - 11th April
 - Simmental breed
 - Others to follow (LM, BB, PT etc)

- ❖ Important to finalise names for breed committee's asap:
 - 2 pedigree farmers
 - 2 commercial farmers
 - 2 Herdbook representatives

Promoting the program

- ❖ Information sent to all pedigree breeders which includes:
 - Leaflet outlining all aspects of the program
 - Frequently asked questions section
 - Application form
 - Overview of the HDQI
 - Examples included
 - Available to all pedigree breeders
- ❖ Article in this week IFJ
- ❖ Website is complete
- ❖ Herdbooks have an important role in farmer participation i.e. website etc.
- ❖ Any suggestions welcome?



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8. GEN€ IRELAND progeny test at Tully



Summary of intakes

Progeny slaughtered to date

- ❖ 77 bulls (dob: 1st Aug – 30th Sept 2011)
 - Slaughtered: Dec 2012
- ❖ 58 bulls (dob: 1st Oct - 30th Nov 2011)
 - Slaughtered: March 2013

Progeny on test

- ❖ 50 bulls (dob: 1st Dec 2011 – 31st Jan 2012)
 - Started test: 11th March 2013
 - Latest live-weight: 545 kg
 - Due to be slaughtered: June 2013

Latest intake

- ❖ 65 bulls (dob: 1st Mar 2012 – 30th April 2012)
 - Due to start test: 15th Apr 2013

Data collected in Tully

- ❖ 90-day testing period

- ❖ Traits recorded:

- Average daily gain (kg/day)
- Feed conversion efficiency (DMI/ADG)
- Linear scores
- Scanned muscle and fat depth (mm)
- Scrotal circumference (cm)
- Kill-out rate

Factory data collected

- ❖ Carcass grades
- ❖ Carcass weight
- ❖ Primal yields
 - British specification
 - 21 different cuts
- ❖ PH measurements of the carcass/striplein
 - Hourly
- ❖ NIRS spectra images at 4-6 points on the carcass

Factory data collected cont'd

❖ Meat eating quality

- Collect in conjunction with Teagasc
- Traits recorded:
 - Colour of loin
 - Visual marbling of the loin
 - Composition analysis – Intramuscular fat %, protein % & moisture %
 - Cook loss and shear force measurements
 - Samples of the striploin are archived for potential sensory and tenderness analysis.

Performance information from latest intake.

Table 1. Performance information on 58 bulls slaughtered in March 2013

	Highest	Lowest	Average
Final live-weight (kg)	838	560	696
Dry matter intake (kg/day)	15	9.6	12.5
Feed conversion efficiency (dmi/adg)	7.3	4.7	6
Average daily gain (kg)	2.8	1.4	2.1
Carcass weight (kg)	478	320	412
Kill-out rate (%)	65	54	59

Performance information cont'd

Range in carcass conformation and fat scores for 58 bulls

	E=	E-	U+	U=	U-	R+
2-	1	1				
2=	1	1	4	1		
2+	1	1	9	3		1
3-		1	9	1	3	1
3=		2	5	1	2	
3+		1	3	1	1	3

- ❖ Full report is available on the Tully section of ICBF website
(www.icbf.com)

9. Sexed Semen

- Project underway.
- Significant implications for beef, especially beef from dairy herd (AI and/or stock bulls).
- Beef component to trial.
 - Easy calving beef from dairy herd. ~3k straws. Cows only (~100 herds).
 - Suckler herd (sexed females and sexed males). ~4.4k straws. Heifers & cows (~70 herds).
- Beef elements will commence in mid-May and continue into Autumn.