Advances in Livestock Breeding

Agricultural Inspectorate Conference
Wednesday 2nd December, 2009

Brian Wickham
Chief Executive

Content

- Cattle – Dairy & Beef
  - Structure
    - Mission, Decisions, Funding, Benefits
  - Information System
    - Database
    - Information Services
  - Genetic Evaluations
  - Breeding Schemes
- Sheep Breeding

Sheep Ireland
www.sheep.ie

ICBF.com

Irish Cattle Breeding Federation Society Limited (ICBF)

- ***Established with interim Board in 1997***
- ***Commenced operations in 1998***
- ***Current structure in 2000***
- ***Mission:*** ***achieving the greatest possible genetic improvement in the national cattle herd - Dairy and Beef***

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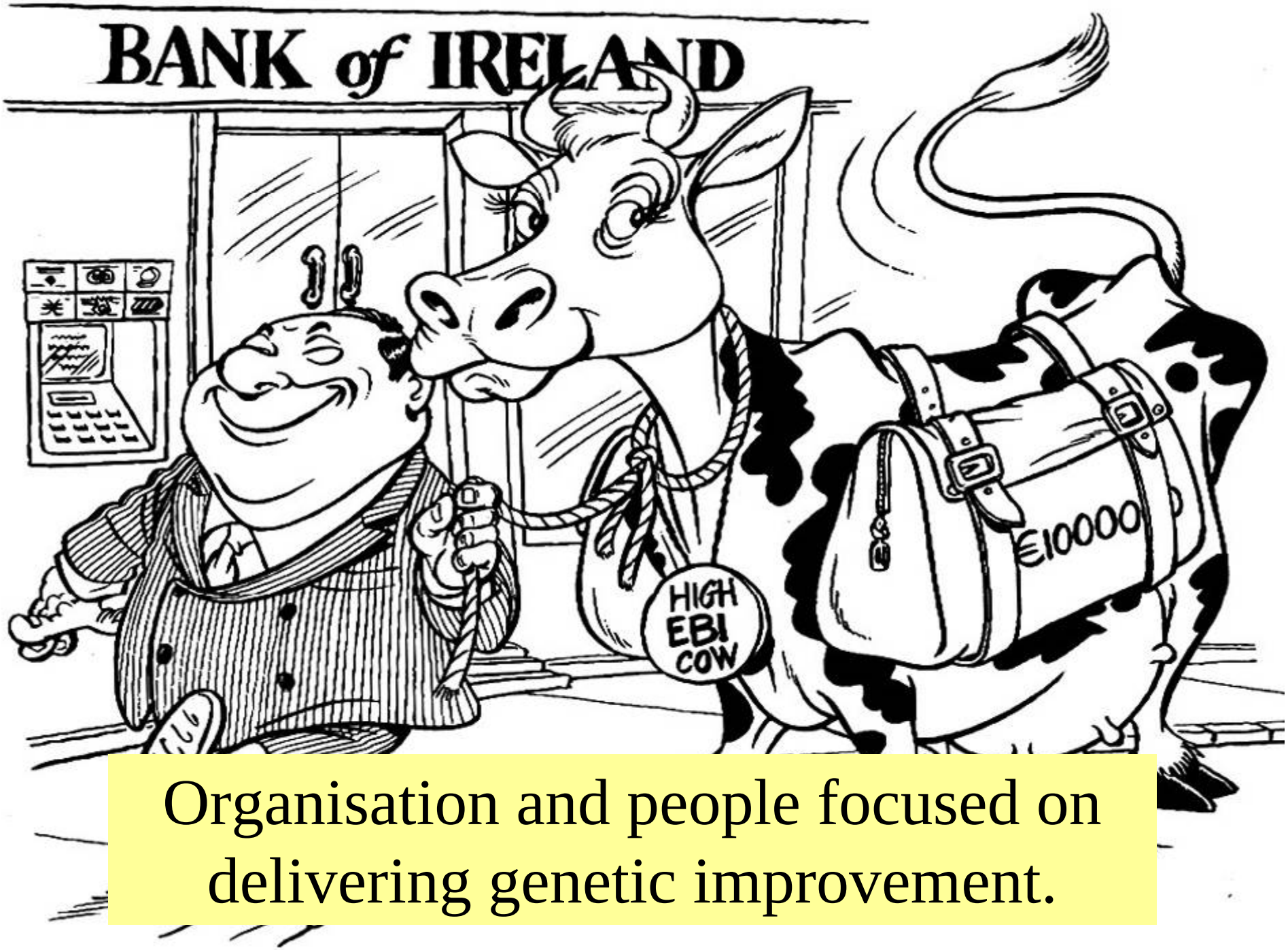
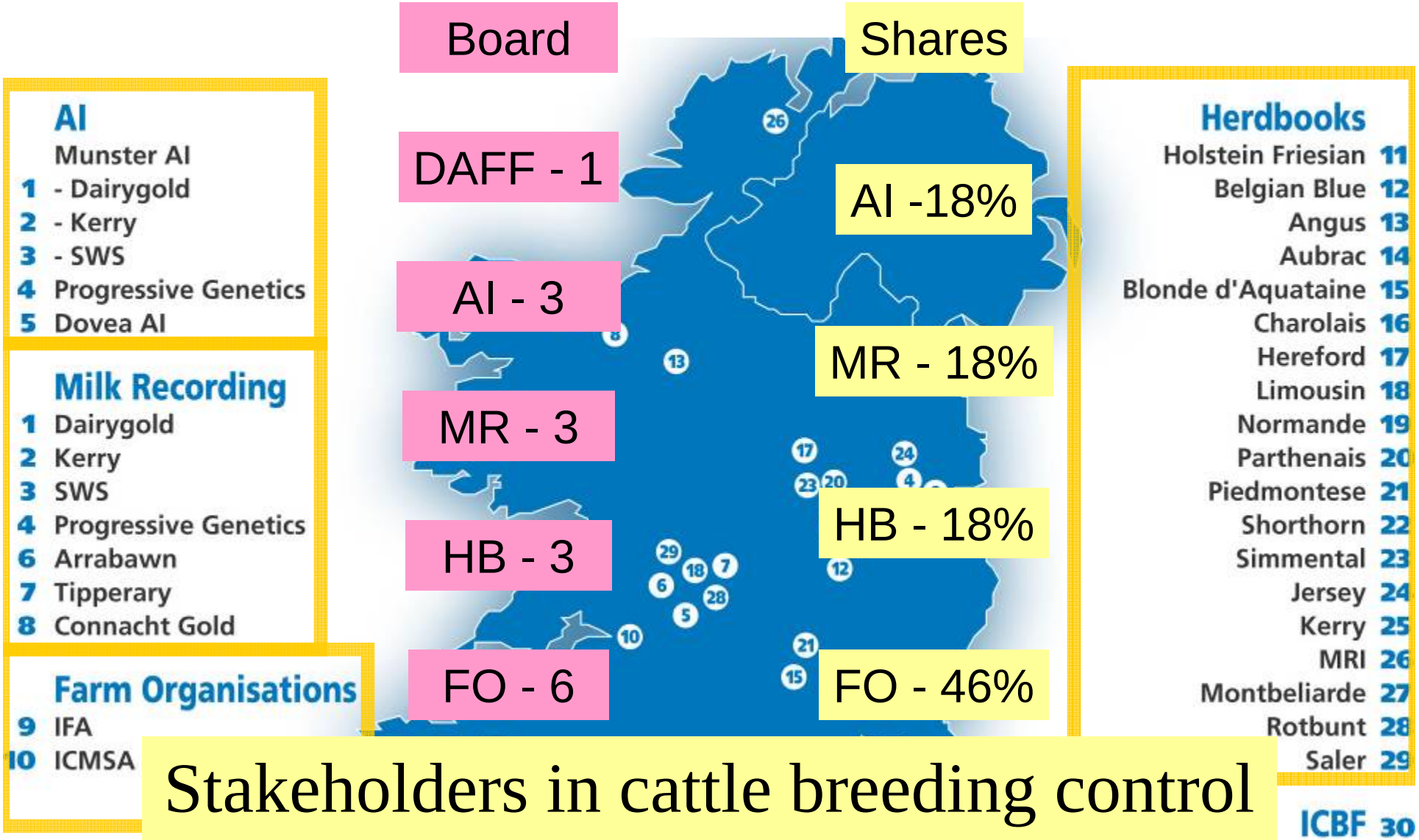


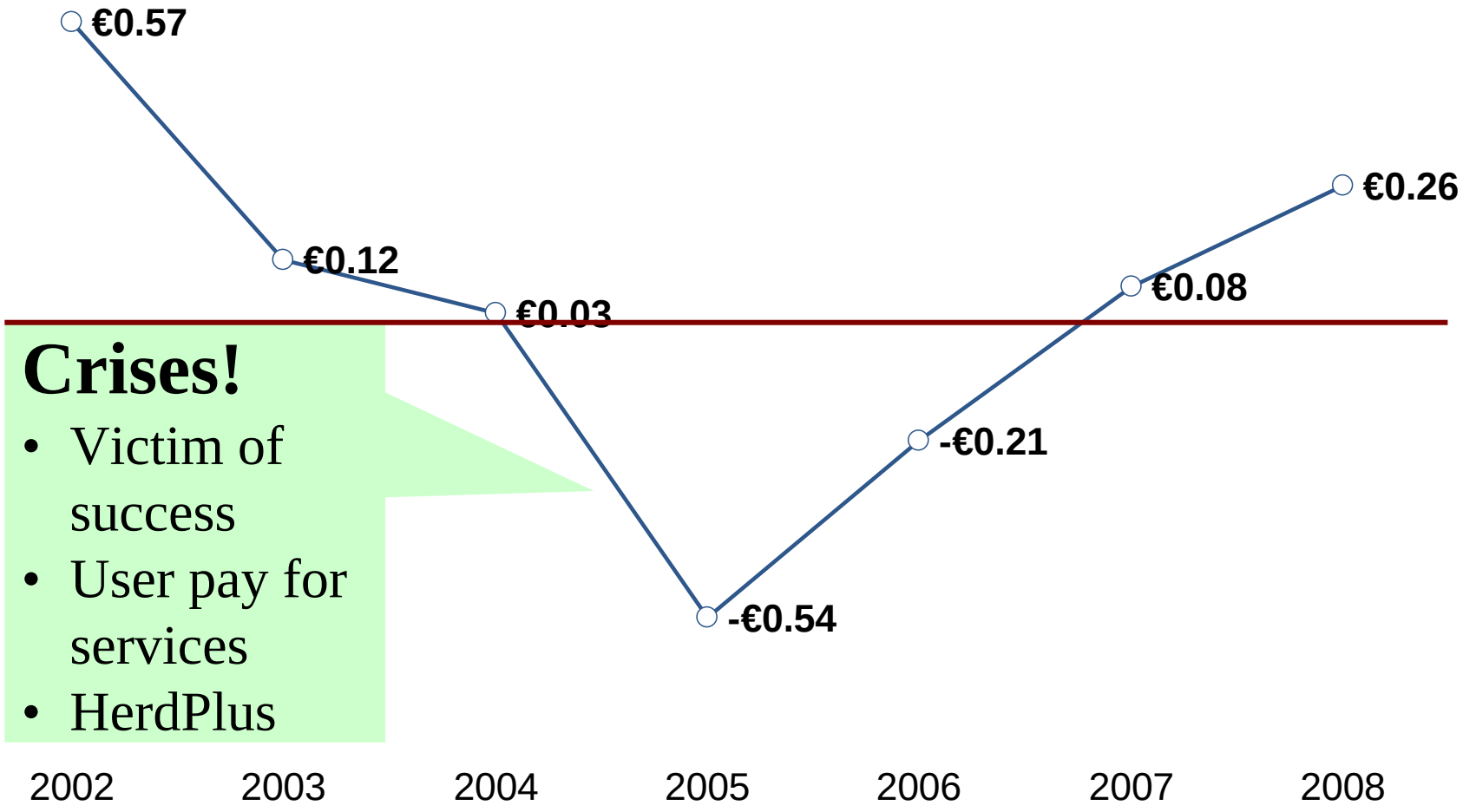
Organisation and people focused on delivering genetic improvement.

MEMBERS, BOARD & SHARES - ICBF



Stakeholders in cattle breeding control decision making.

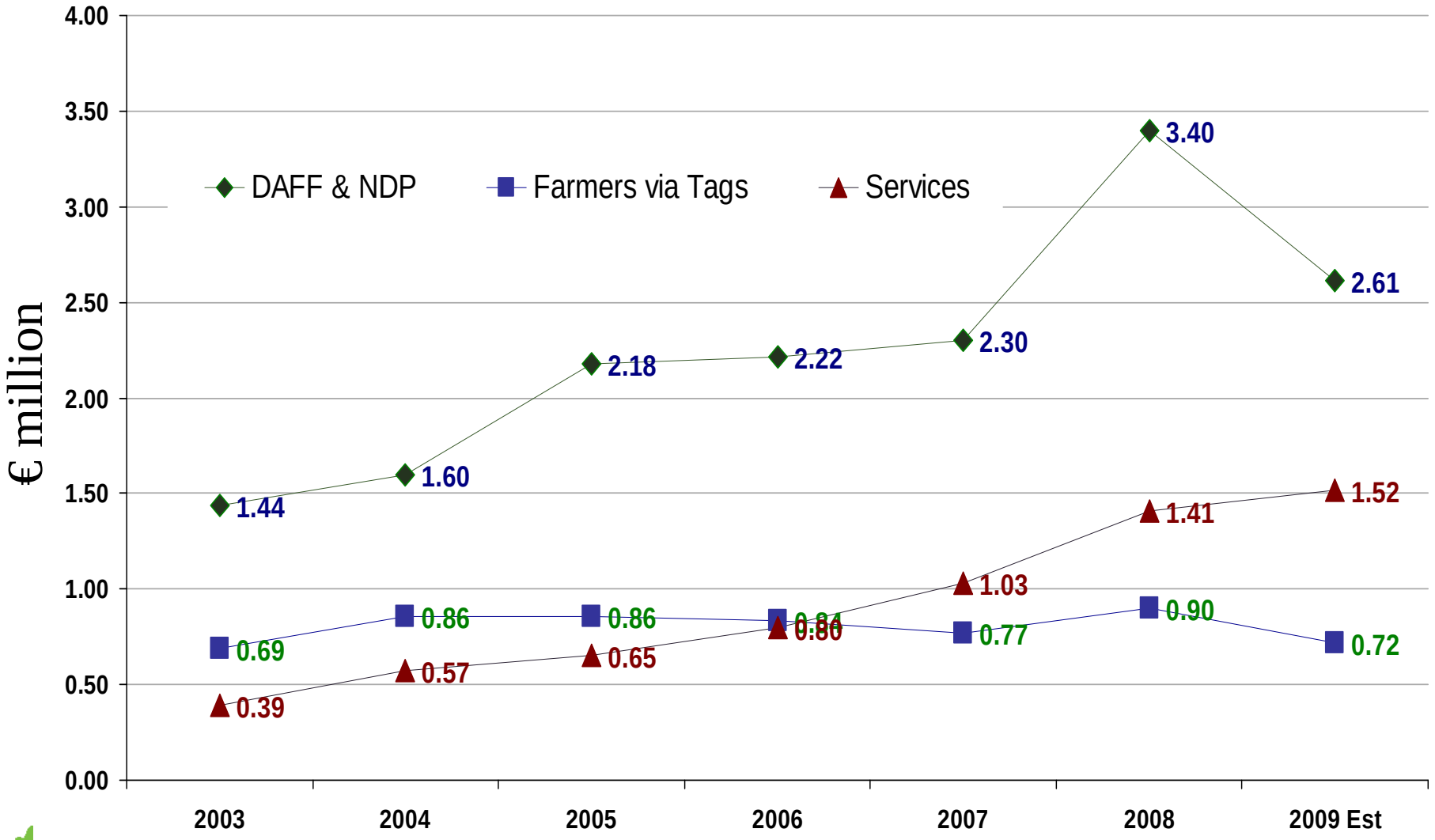
Annual Financial Results 2002 to 2008 (€ million).



Crises!

- Victim of success
- User pay for services
- HerdPlus

Trends in ICBF Funding



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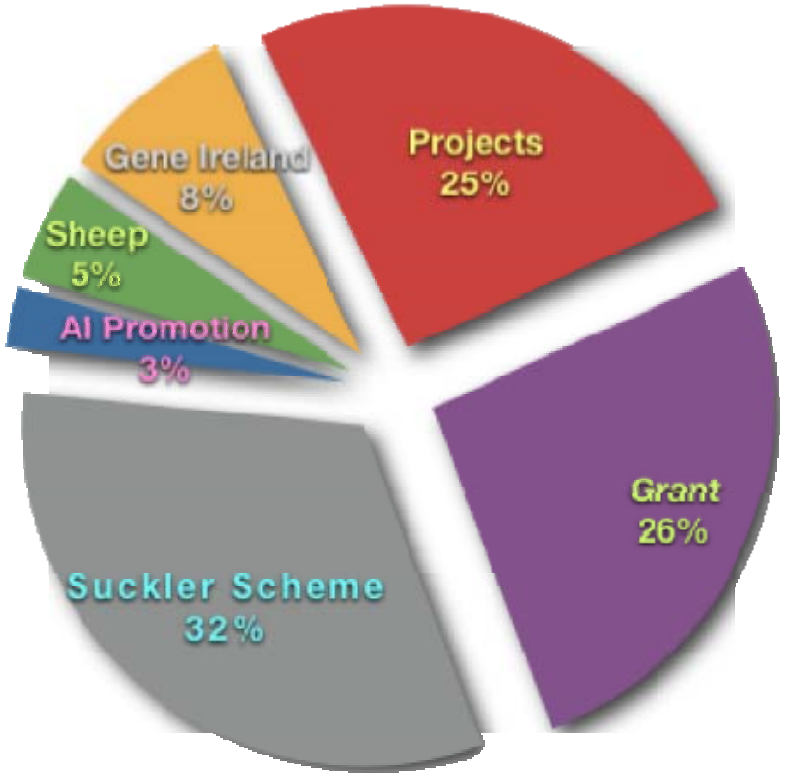
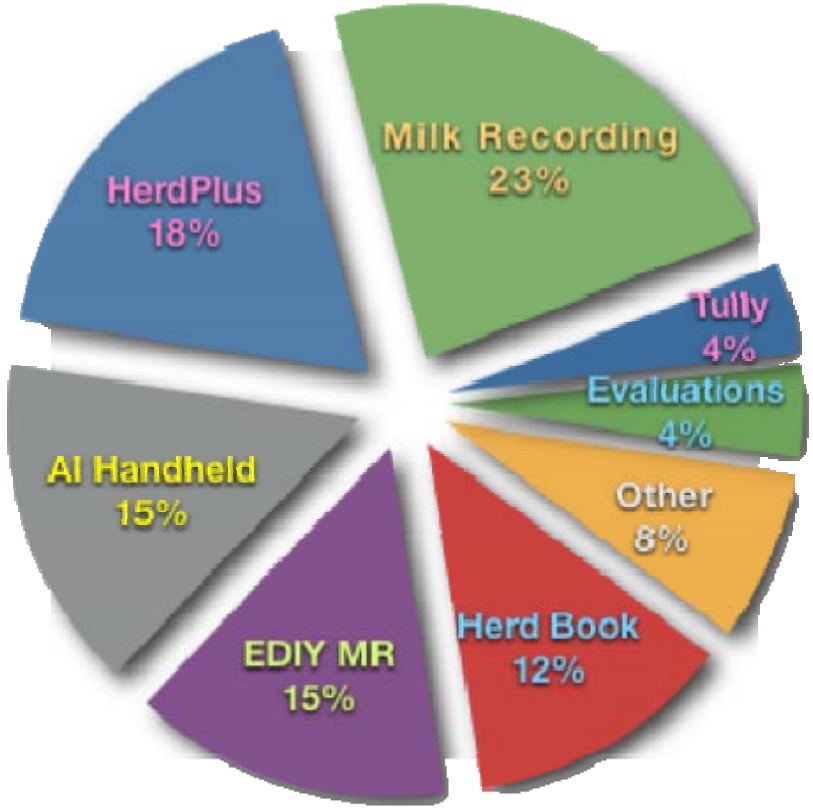
DAFF & NDP Funding in 2008.



Service Income in 2008.



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Ref: Grant Assistance Proposal 19th June 2009. Publications section www.icbf.com

Benefits to Stakeholders

- State
  - cost savings (€1.35)
  - taxation (€2.27m)
  - research, education, knowledge transfer
- Community
  - Industry – processors, suppliers
  - Consumers
  - Society
- Farmers
  - Service users – now & future
  - Non users of services - now & future
- Breeding Industry

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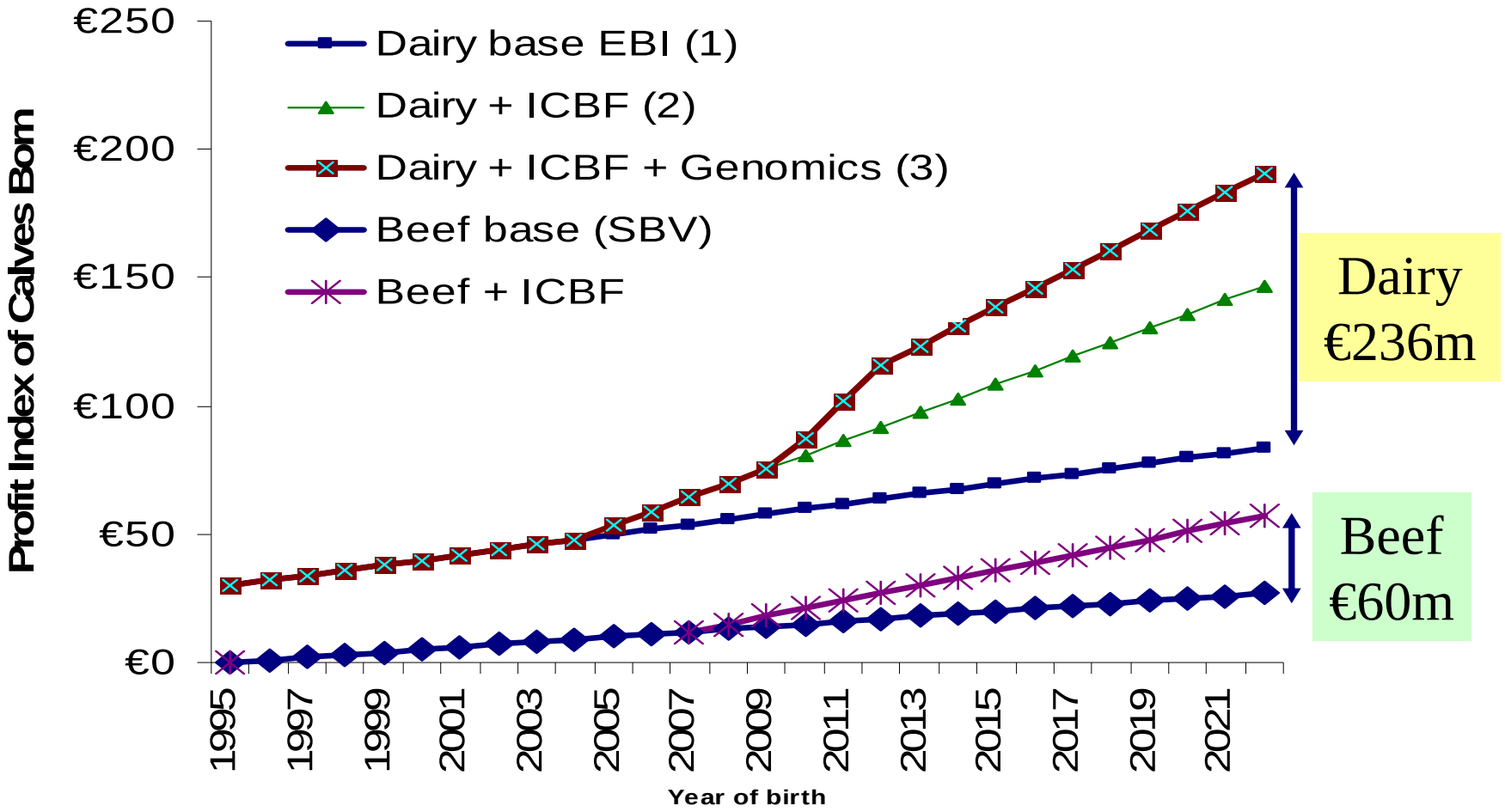
Projected Impact of ICBF on Genetic Gain of Dairy & Beef Calves Born in Ireland.



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A partnership sharing costs & benefits

- Three way partnership:
  - Government
  - Farmers
  - Breeding Industry
- Full cost recovery funding model
- Multiple beneficiaries

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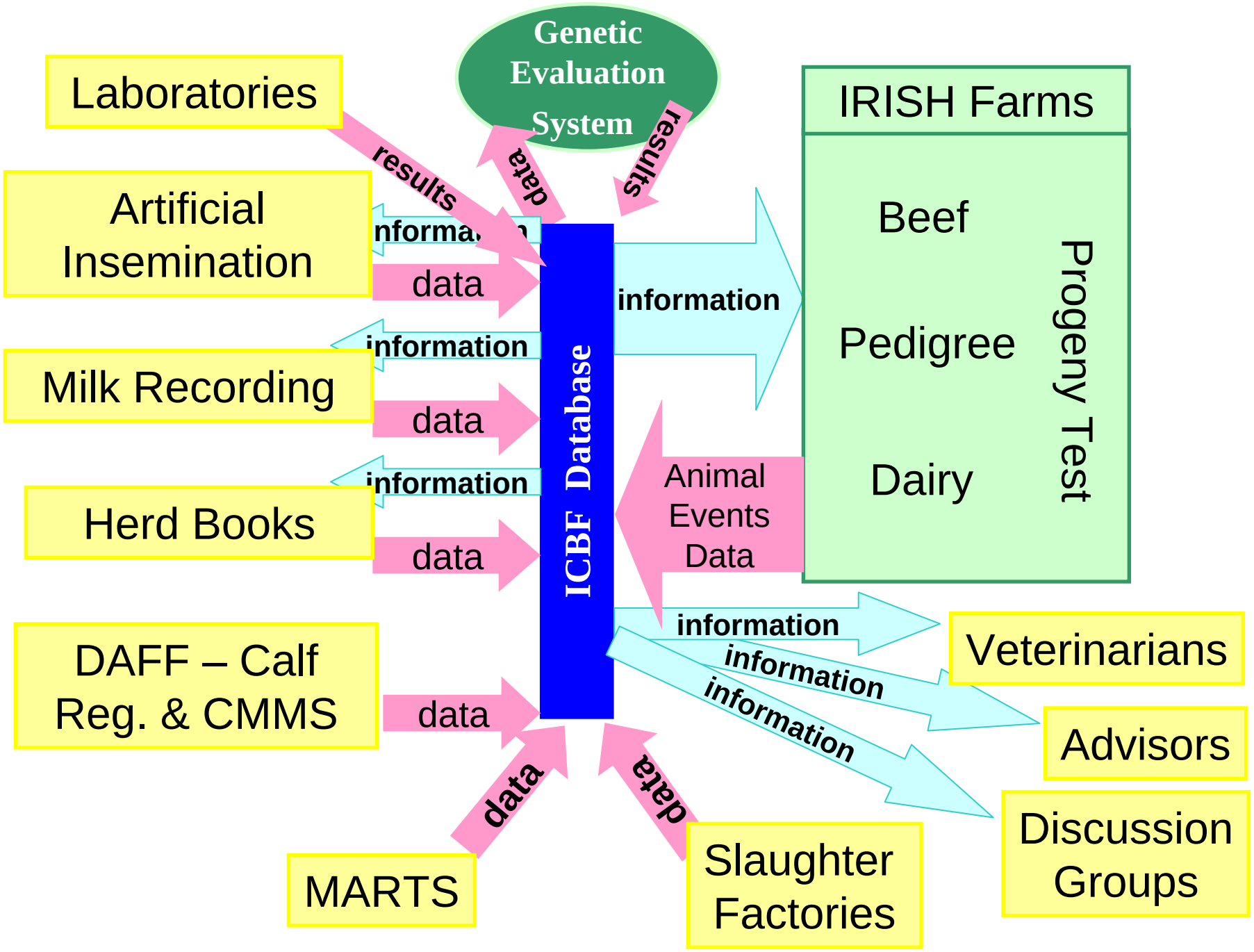
Genetic Evaluation System
Laboratories
Artificial Insemination
Milk Recording
Herd Books
DAFF – Calf Reg. & CMMS
MARTS
Slaughter Factories
Discussion Groups
Advisors
Veterinarians
IRISH Farms
Beef
Pedigree
Dairy
Progeny Test
ICBF Database
Animal Events Data
results
data
results
information
data
information
data
information
data
data
data
information
information
information
information

Animal Events
Data Collection from Farms

- Paper or Electronic
- Single entry & multiple users
  - Official Calf registration
  - Pedigree registration
  - Milk recording
  - AI
  - Genetic evaluation
  - Research
  - Suckler Cow Welfare Scheme

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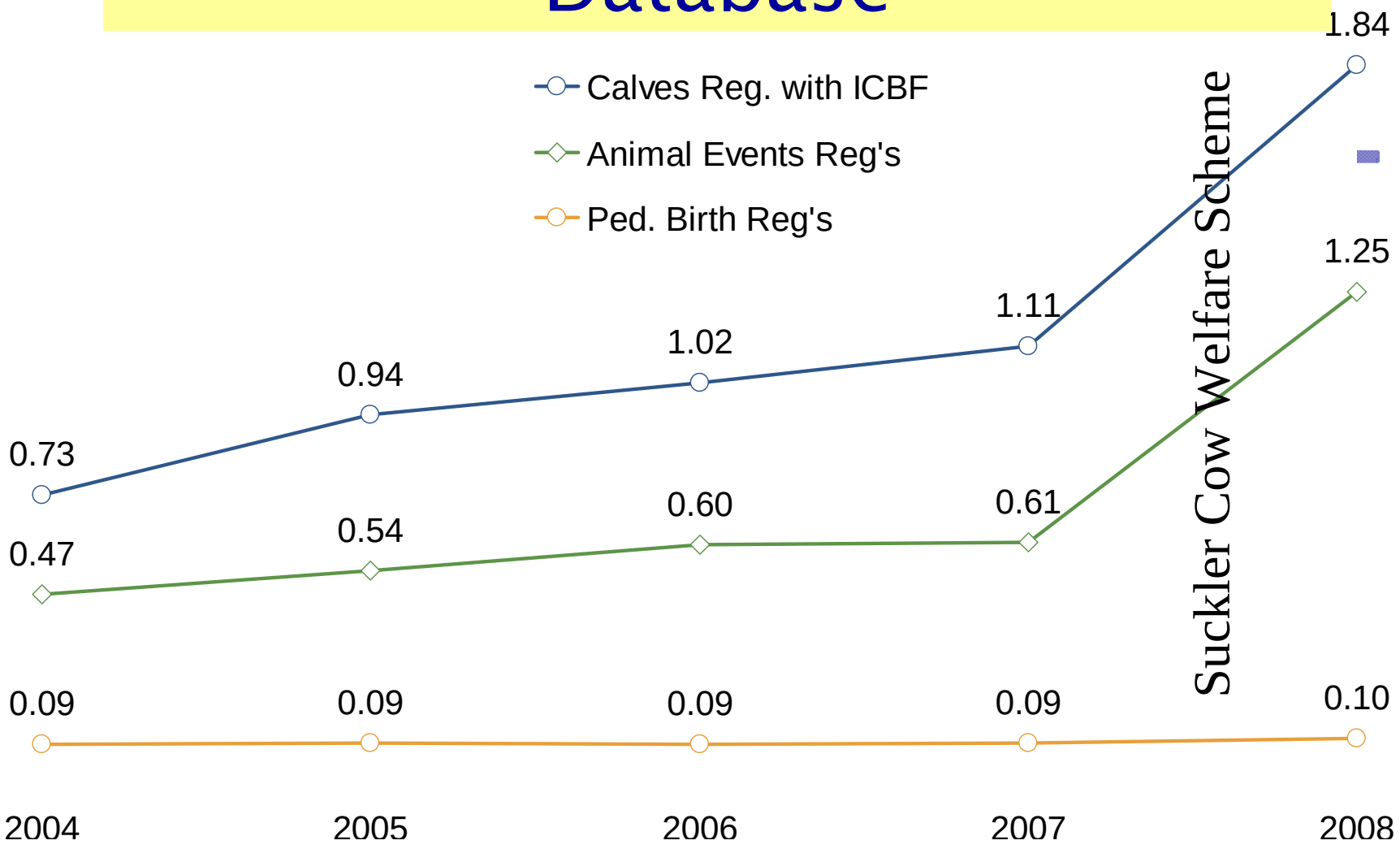
Growth of Participation in ICBF Database



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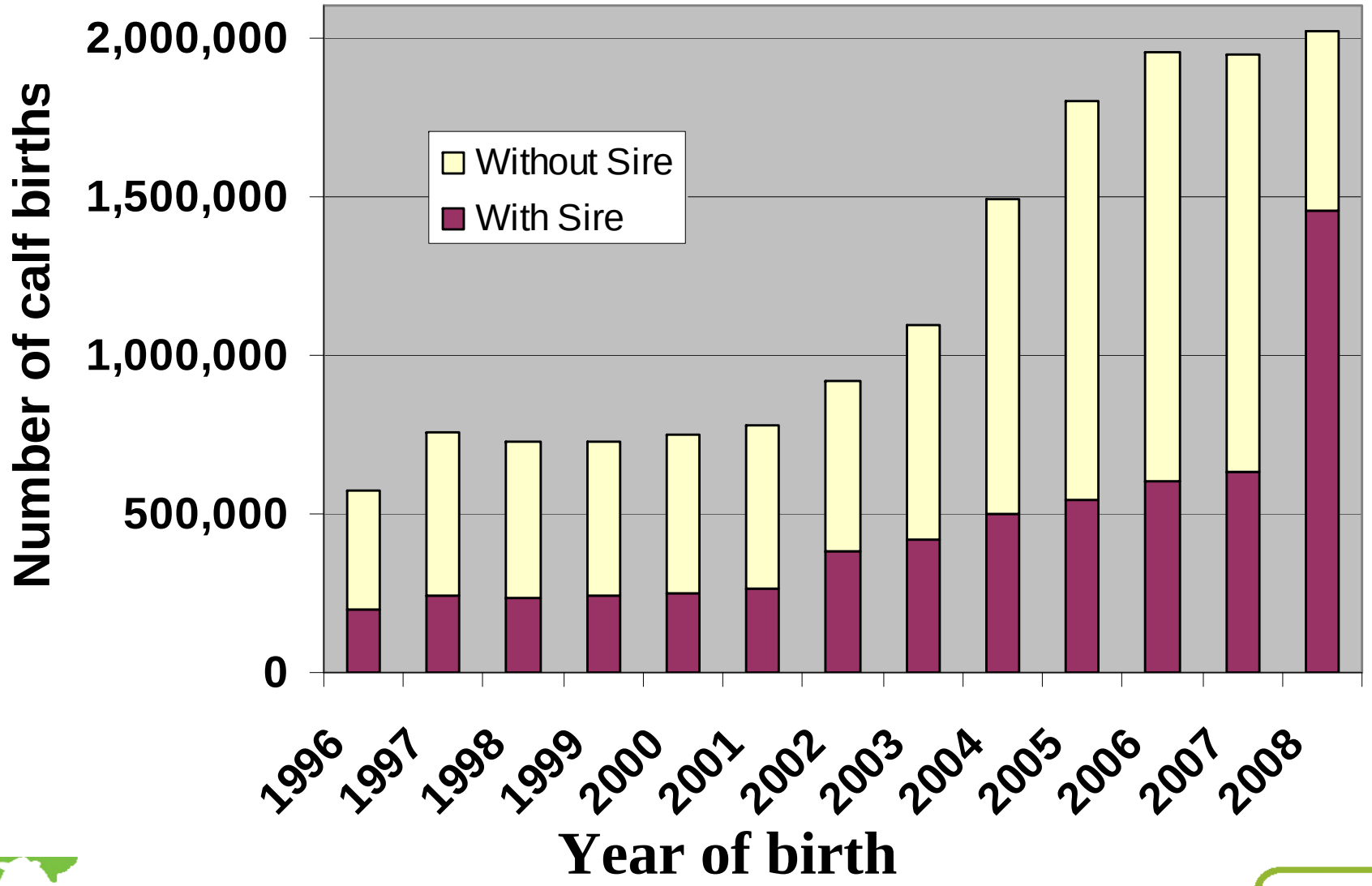
Sire Identification Trend



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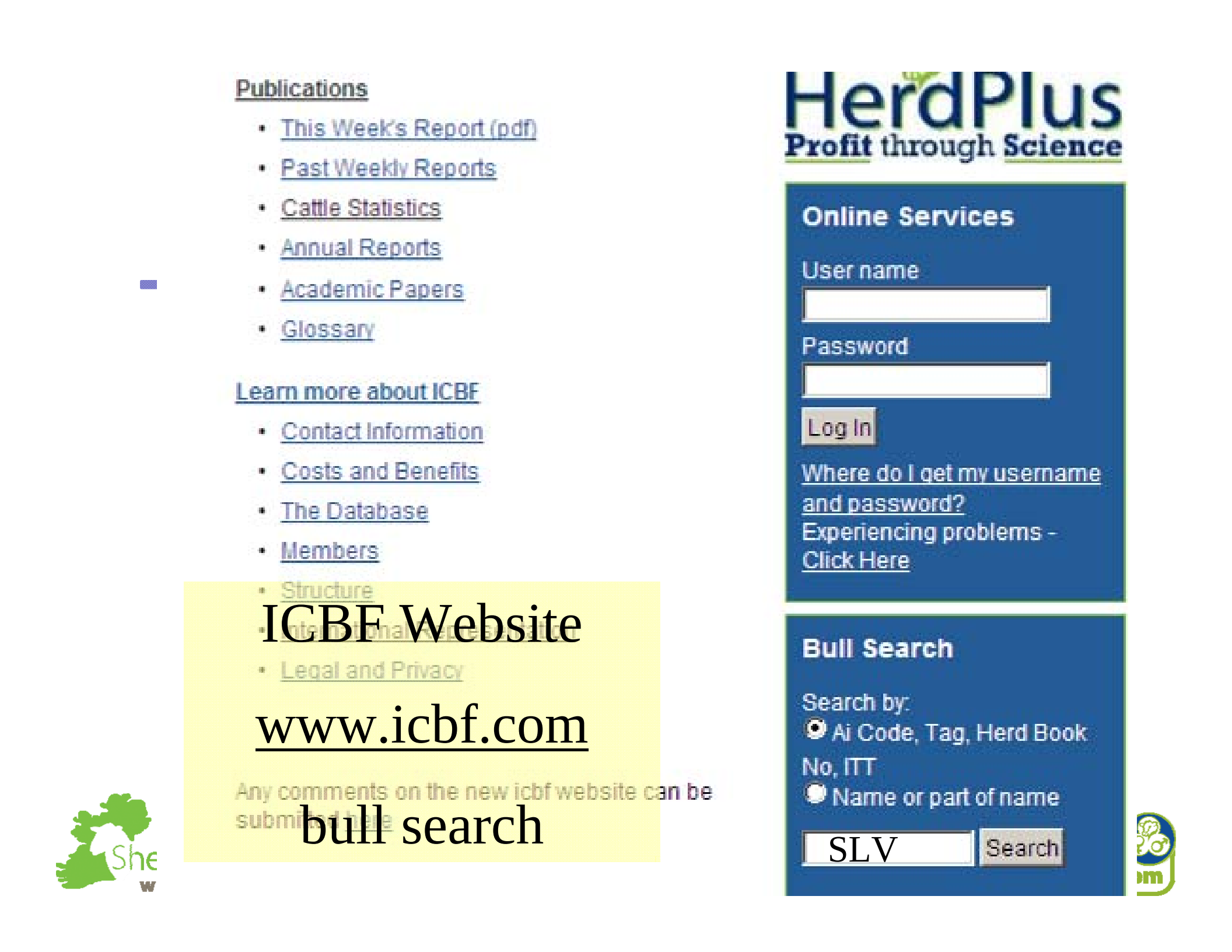
Information Services

- To Service providers – all web based
  - Milk recording: lab link, EDIY system & support, reports
  - Herd Book: registration, on-line HB, catalogues
  - AI: handheld, bull codes, genetic evaluations, procurement
  - Teagasc: client data, discussion groups
- To Farmers
  - Web access: animal events, milk recording reports, suckler scheme
  - HerdPlus®: paper or electronic, user pay, whole herd, reports, profiles, sire advice, breeding chart, notebook – growing rapidly
  - GROW®: beef linear scoring & weight recording, all breeds, pedigree & commercial, 150 to 300 days, contract scorers, handheld system
- To Public
  - Website – ***www.icbf.com:*** bull search, publications, weekly update, annual reports, statistics, international

Genetic Evaluations

- Breeding Objectives
  - Dairy: profit, EBI, sub-indexes (milk, fertility, calving, health, beef)
  - Beef: profit, SBV, sub-indexes (calving, weanling export, beef carcass, replacement value [milk & fertility, calf quality])
- Genetic Evaluations
  - Data: Irish from database – dairy, beef and crosses, international via Interbull or direct
  - Tools: Genetic evaluation software – Standard is Mix99 (MTT Finland), milk production NRS, HF Linear – Edinburgh Univ.
  - Models: Animal model, Across breed, Fixed effects, Multi-trait
  - Trait sets: milk production, calving, beef, dairy linear, beef linear, calving interval & survival, health
  - Presentation: dairy and beef standards, index traits in "€", €uro-Star format, PTAs and reliabilities, active bull lists
  - Continuous Improvement Process: annual cycle of consultation, research, consultation, implementation, review


Publications
This Week's Report (pdf)
Past Weekly Reports
Cattle Statistics
Annual Reports
Academic Papers
Glossary
Learn more about ICBF
Contact Information
Costs and Benefits
The Database
Members
Structure
International Activities
Legal and Privacy
Any comments on the new icbf website can be submitted here
HerdPlus
Profit through Science
Online Services
User name
Password
Log In
Where do I get my username and password?
Experiencing problems - Click Here
Bull Search
Search by:
Ai Code, Tag, Herd Book No, ITT
Name or part of name
SLV
Search
ICBF Website
www.icbf.com
bull search

Beef Bull €uro-Star Evaluation

ICBF Genetic Evaluations Service « Search Again

€uro-Star Rating (ICBF, Aug 2009)

AI Code:	SLV	Breed:	CH (100%)	Sire:	ORIENTAL / FR5898106514
Animal Name:	BOVA SYLVAIN	Owner:		Dam:	JACOBINE / FR7194109870
Date of Birth:	25-APR-2001	Date of Evaluation:	Aug 2009	MGS:	ERUDIT / ERU
National ID:		€uro-star Index	Calving Traits	Weanling	Beef Carcass	Milk and Fertility
International ID:	CHLFRAM007121181092	Pedigree	Prev Eval			

Blups

% Rank	Within Breed		Index	Data rel	Across Breed	% Rank
70	★★★★	Suckler Beef Value	€110	90%	★★★★★	87
		Beef Value				
6	★	Calving Traits	€ -27	91%	★	2
81	★★★★★	Weanling	€ 91	93%	★★★★★	96
72	★★★★	Beef Carcass	€ 133	94%	★★★★★	94
		Replacement Value				
80	★★★★	Milk & Fertility	€ -135	46%	★★	19
58	★★★	Calf Quality	€ 289	94%	★★★★★	91
		Other Key Traits				
4	★	Difficulty Calving	13.04%	98%	★	1
		Docility	%	%		
79	★★★★	Milk (Maternal Wean Weight Kg)	-5.66	38%	★★	19

Data Rel: 40% - 60% = Ave 20 - 40% = Below Ave <20% = Poor

Help on understanding Percentiles - Click Here

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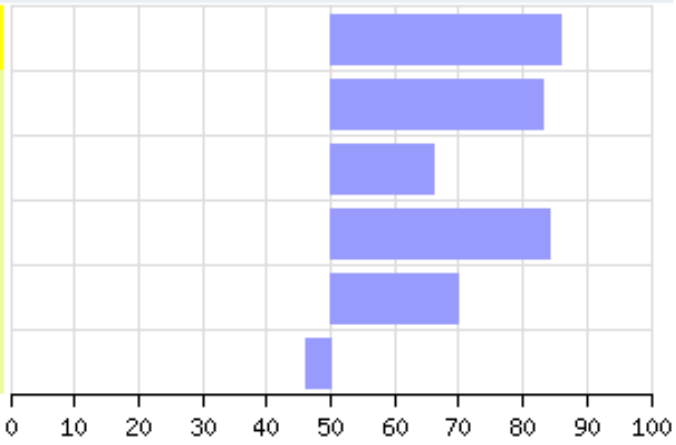
Dairy Bull EBI Evaluation

ICBF Genetic Evaluations Service « Search Again

AI Code:	GMI	Breed:	HO (100%)	Sire:	RINGBROOK N-B MASCOT / SBM
Animal Name:	GALTEE MERCI ET	Owner:	NATIONAL CATTLE BREEDING CNTR	Dam:	21838
Date of Birth:	01-SEP-1992	Date of Evaluation:	Aug 2009	MGS:	SIR C VALOR / 650
National ID:		EBI Summary	Milk	Fertility	Calving	Beef
International ID:	HOLDEUM001021231601	Health	Type	Pedigree	Prev Eval	

Help on understanding EBI, PTA's and Breeding Values - Click Here

Index	Euro	Rel
EBI	106	99%
Milk Sub Index	67	99%
Fertility Sub Index	25	99%
Calving Sub Index	21	99%
Beef Sub Index	-5	99%
Health Sub Index	-2	99%



Index	PTA	Rel	Percentile
	174	99%	More
	11	99%	More
	10	99%	More

Calving Sub Index	PTA	Rel	Percentile
ir. Calv Diff. (%)	3.34	99%	
at. Calv Diff (%)	10.00	99%	
st Len (Days)	-2.15	99%	

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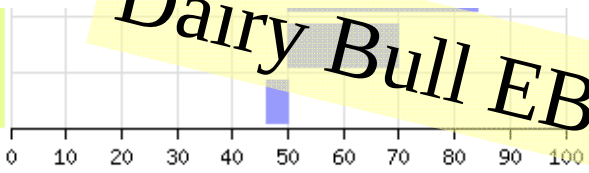
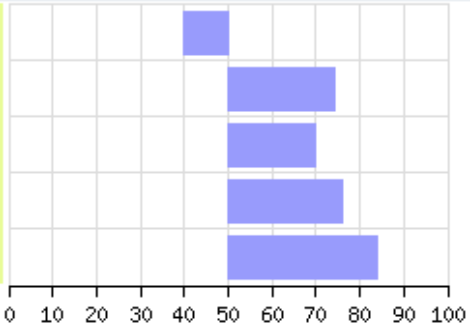
Dairy Bull EBI Evaluation

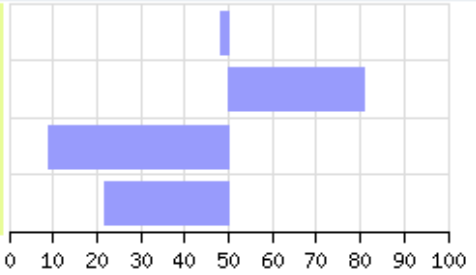
Beef Sub Index	-5	99%
Health Sub Index	-2	99%



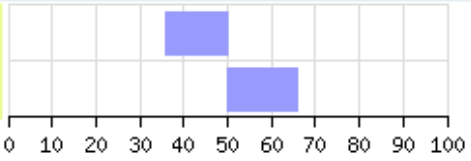
Milk Sub Index	PTA	Rel	Percentile
Milk (Kg)	174	99%	More
Fat (Kg)	11	99%	More
Prot (Kg)	10	99%	More
Fat (%)	0.08	99%	More
Protein(%)	0.08	99%	More



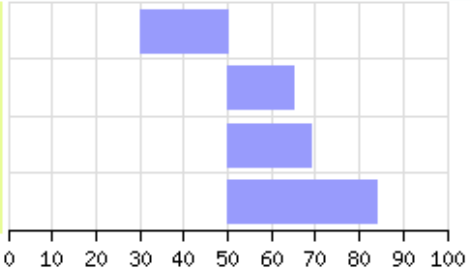
Calving Sub Index	PTA	Rel	Percentile
Dir. Calv Diff. (%)	3.34	99%	Harder
Mat. Calv Diff (%)	10.00	99%	Harder
Gest Len (Days)	-2.15	99%	Longer
Calf Mort (%)	-0.61	99%	Higher



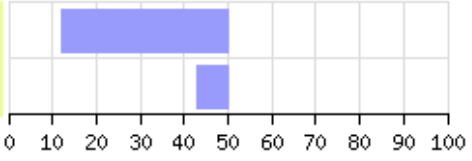
Fertility Sub Index	PTA	Rel	Percentile
Calv Int (Days)	-0.98	99%	Longer
Survival (%)	1.17%	99%	Longer



Beef Sub Index	PTA	Rel	Percentile
Cull Cow (Kg)	-2.31	99%	Heavier
Carc Wgt (Kg)	-0.04	99%	Heavier
Carc Conf (Grade)	-0.50	99%	Better
Carcass Fat (%)	0.08	99%	Fatter

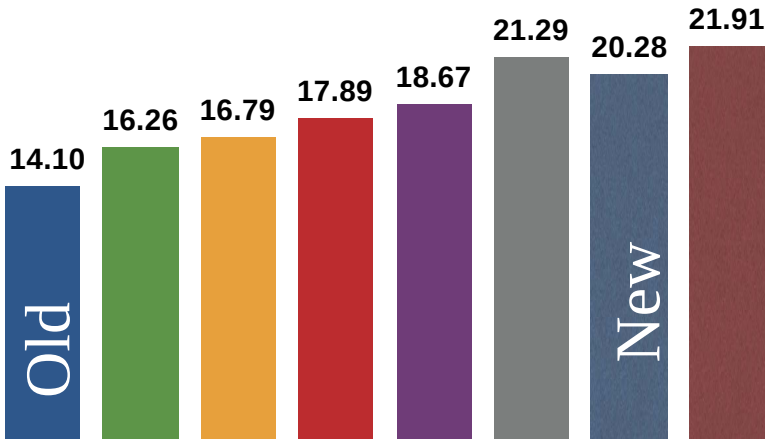


Health Sub Index	PTA	Rel	Percentile
Lameness (Locomotion)	-.94	98	Better
Udder(SCC)	.02	99	More



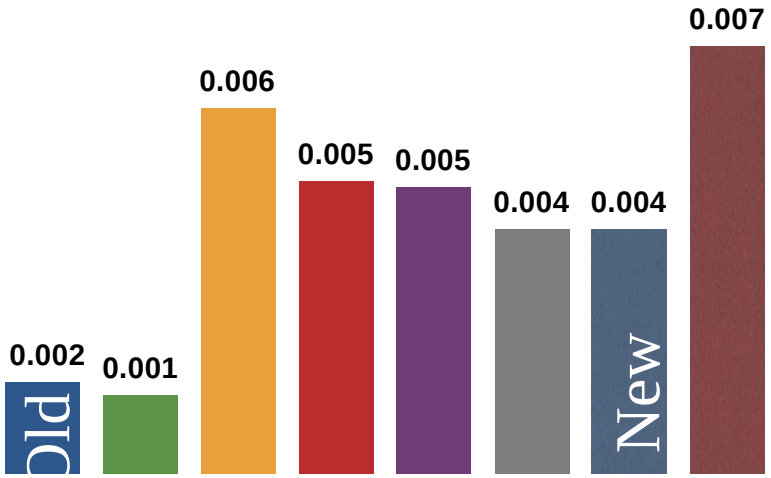
Breeding Scheme – Evaluation of Options for Using Genomic Selection

Genetic gain



Cost

Inbreeding – less is better



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Research Results -

- Genotype 500 young bulls/year.
- Progeny test best 100 of these with 100 milk recorded daughters.
- Use best bulls (proven & genomically selected) to breed dairy replacements.
- Extra genetic gain, increased inbreeding, & lower cost.

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Key Messages to Dairy Farmer

- Genomics is a technology for increasing the rate of genetic improvement.
- The best of the GS bulls should be considered for breeding herd replacements.
- Use GS bulls in teams to reduce risk.

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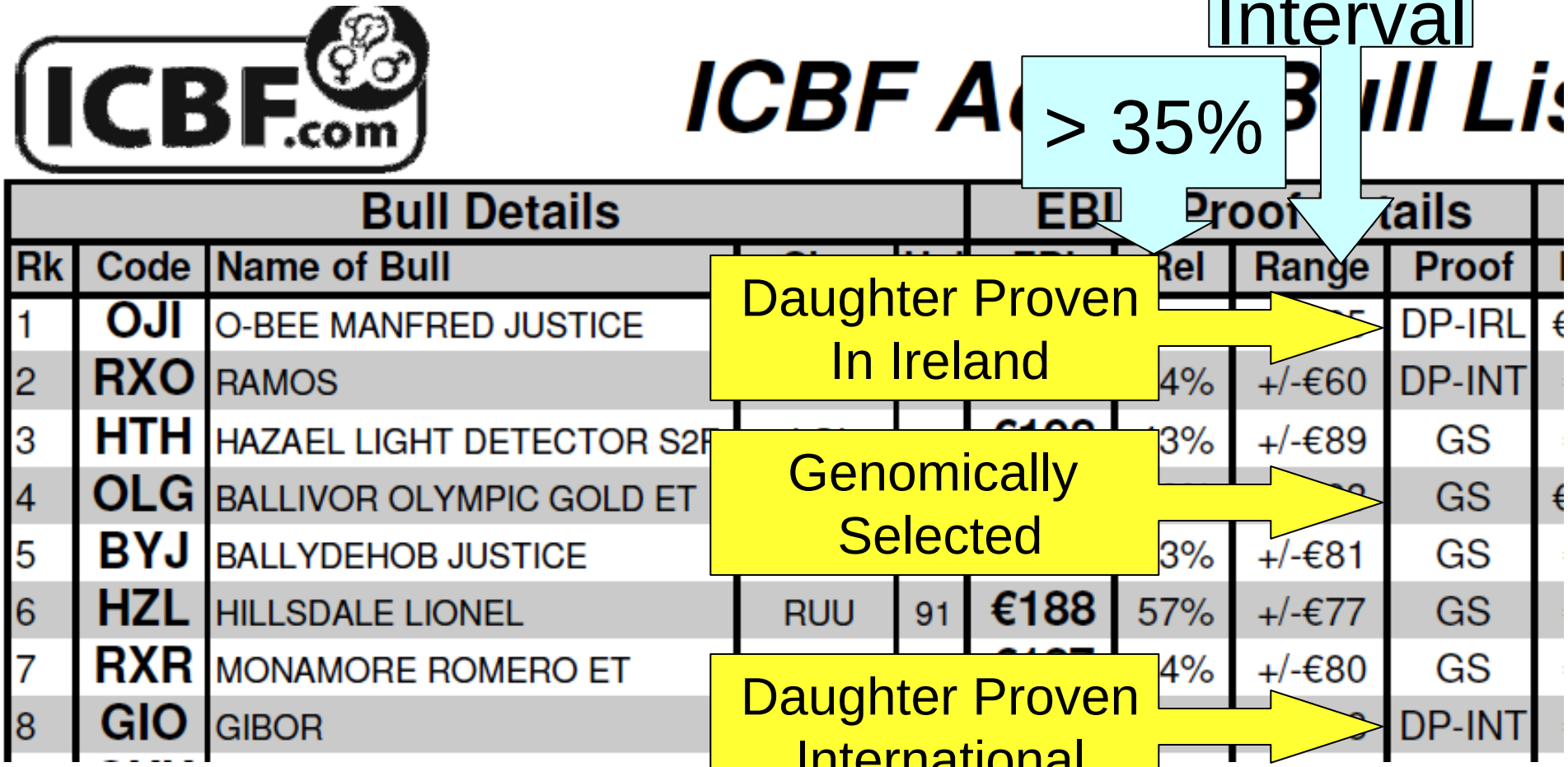
ICBF Active Dairy Bull List



Bull Details					EBI	Proof	tails		
Rk	Code	Name of Bull				Rel	Range	Proof	
1	OJI	O-BEE MANFRED JUSTICE						DP-IRL	€
2	RXO	RAMOS				4%	+/-€60	DP-INT	
3	HTH	HAZAEL LIGHT DETECTOR S2F				3%	+/-€89	GS	
4	OLG	BALLIVOR OLYMPIC GOLD ET						GS	€
5	BYJ	BALLYDEHOB JUSTICE				3%	+/-€81	GS	
6	HZL	HILLSDALE LIONEL	RUU	91	€188	57%	+/-€77	GS	
7	RXR	MONAMORE ROMERO ET				4%	+/-€80	GS	
8	GIO	GIBOR						DP-INT	

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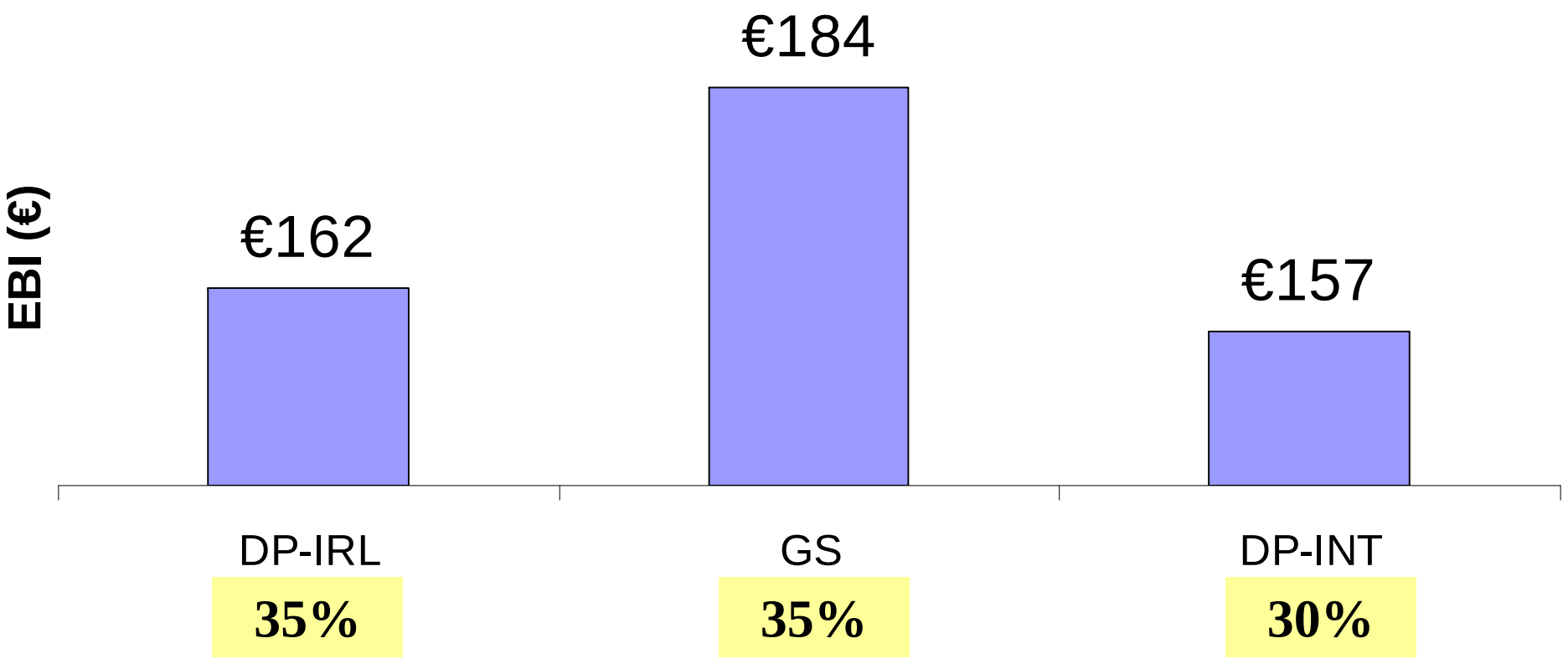
Ireland is leading Europe in Use of Genomics in Dairy Cattle Breeding!

Recorded inseminations March & April 2009



% of inseminations

GS bull semen exported to UK!

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Future Priorities - Genomics

- Streamline genotyping
- Streamline genetic evaluation process
- Expand training population through collaboration – more bulls & breeds – key role for Interbull
- Research beef – 500K SNP chip, across breeds, seeking collaborators

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G€N€ IR€LAND®

- Procurement & Progeny Test
- Dairy & Beef
- Tully
- Multiple Breeds
- Multiple AI Companies – semen & field service
- Many herds
- Evolving rapidly to reach optimum

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Sheep Breeding

- Structure
  - Interim Board, contract with ICBF
  - DAFF grant & NDP funding
- Strategy
  - Review, 20 recommendations – identification, database, recording, genetic evaluation, MALP, CPT, …
- Progress
  - One year, database established, MALP 2nd year, CPT started, services to breeders, within breed evaluations moving to across breed

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Conclusions

- Animal breeding is a unique and powerful tool for improving the profitability of cattle and sheep farming in Ireland.
- Irish animal breeding has been transformed through a unique partnership between farmers, the breeding industry and DAFF.
- New technologies, market imperatives and economic pressures are providing the motivation for this transformation to be continued.
- Continued investment will give excellent returns.
- The model established for animal breeding has potential to achieve substantial progress in plant breeding, animal health and product quality.

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