Developments in G€N€ IR€LAND®
Some issues for discussion.

ICBF Board Meeting

25 February 2010.

NDP National Development Plan Transforming Ireland

G€N€ IR€LAND® Breeding future Profits

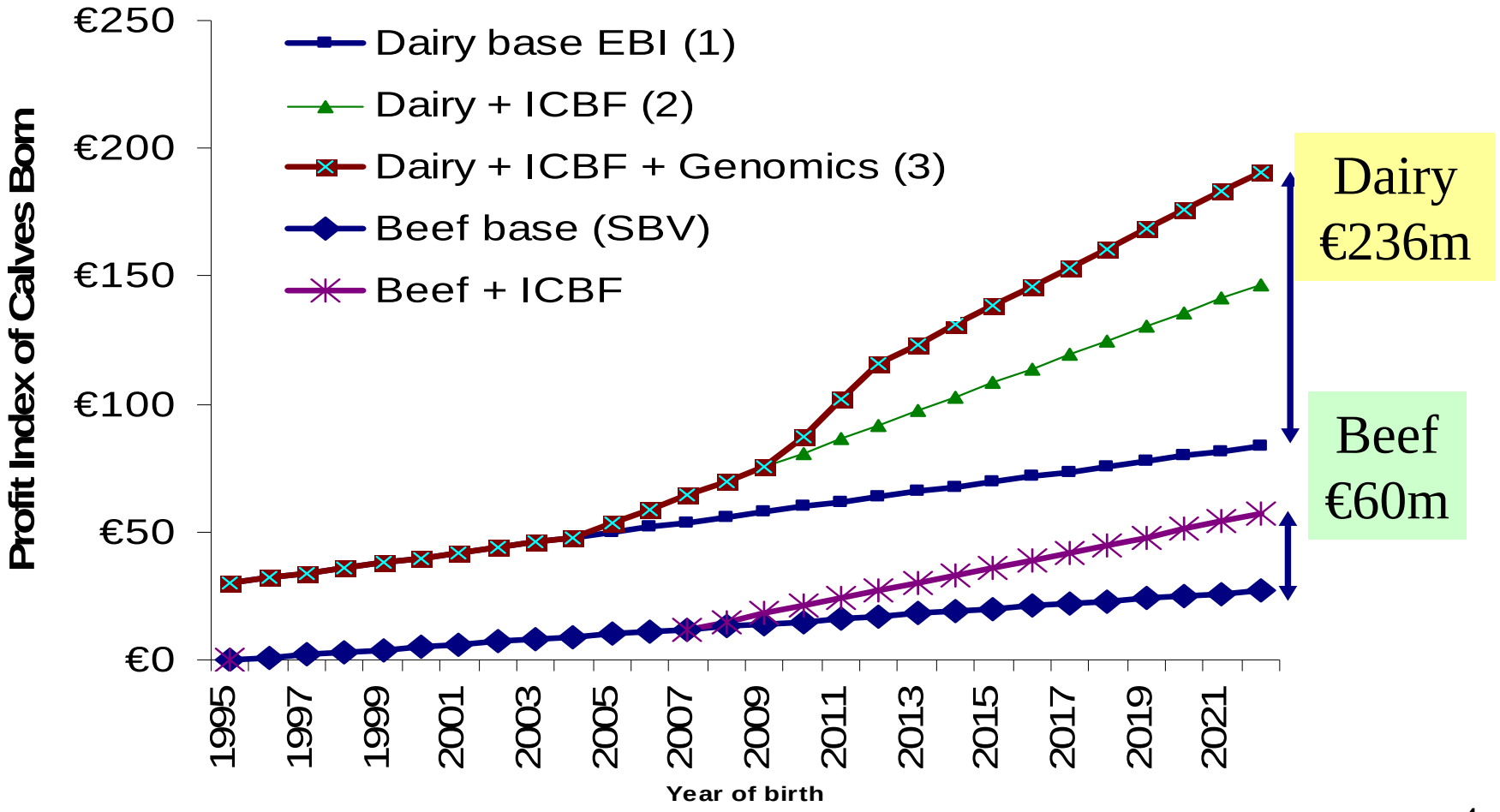
Background

- ICBF involved in breeding programs.
  - Genetic gain is our mission.
  - Relevant Research & Development.
  - Operation of G€N€ IR€LAND program.
- We undertake an annual review of these programs.
  - Communicated with members, partners, industry & Board.
- Some issues are arising.
  - Need for Board to know & to give guidance
  - Need further industry consulation before decisions.

Why ICBF's interest in breeding programs?

- Genetic Gain is dependant on;
  - Collection of performance data, e.g., milk, beef, calving, fertility…the ICBF database.
  - Profit Indexes that identify the best animals, e.g., EBI & €uro-Star.
  - Breeding programs that ensure the best animals are used to breed the next generation, e.g., G€N€ IR€LAND.

What is the impact of genetic gain?



ICBF work in dairy breeding programs?

- 2001. Optimal breeding program – 100 bulls & 100 daughters.
- 2004. Where are the best bulls for Ireland?
- 2005. Launch of G€N€ IR€LAND.
  - ICBF providing a “frame-work” for progeny testing.
  - AI companies &/or breeders own bulls.
- 2009. Role of genomics in breeding programs.
- 2010. Research project on balancing genetic gain versus genetic diversity.

ICBF work in beef breeding programs?

- 2005. Optimal breeding program – 100 bulls & 100 daughters.
  - Focused on maternal traits.
- 2007. Launch of G€N€ IR€LAND.
  - ICBF providing a “frame-work” for progeny testing.
  - AI companies &/or breeders own bulls.
- 2010. Research project to “scale-up” beef breeding programs.
  - Develop a breeding program for each breed.

ICBF's investment in breeding programs.

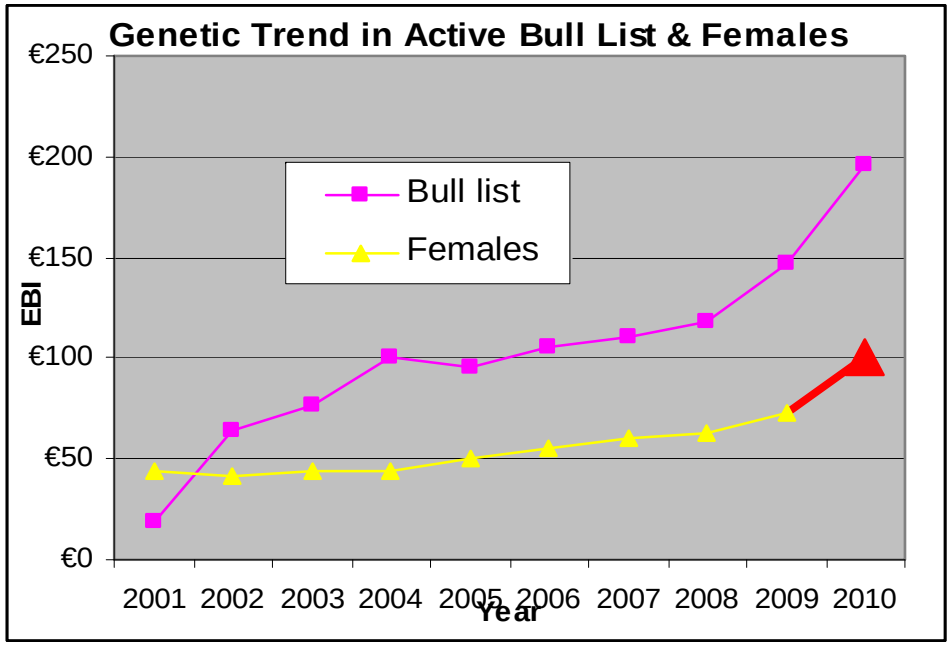
- ICBF invests some €1 million per year in its breeding program activities. Funded by:
  - ***NDP.*** Monies used for farmer support payments.
  - ***DAFF Grant & Tag Contributions.*** For breeding program development (research, database, publicity, staff & support).
  - ***Sponsorship – mainly FBD.*** Monies used for providing farmer recognition & rewards & incentives.
  - ***Service fees.*** Charges to bull owners.
- Other partners in the industry are making investments in breeding programs.

Dairy Breeding – Some background information.

- Slight drop in number dairy cows from 2007 – 2009.
- Increase in number of dairy replacements, especially in 2009.
- 11%/year increase in AI bred replacements, up from 100k in 2006 to 140k in 2009.
- Expecting further increase in dairy replacements in 2010 - both AI & stock bull bred.
- Dairy industry is “gearing-up” post-quota.
- EBI is very well established - a key tool for profitable farming.

Genetic Trends - EBI

- Genetic Gain in EBI has accelerated. Why?
  - Introduction of G€N€ IR€LAND in 2005.
  - Implementation of genomics research.
  - Changes in foreign breeding programs.



- Genetic gain is now close to optimal (€30/cow/year). Worth ***€30 million/year*** to dairy industry.
  - Net profit increase of €1800/year (for a 60 cow herd)
- Excellent return on investment.

(i) Issue - Scale of Program

Year of Test	FR	HO	JE	MO	MY	NR	RB	XB	**Total**	Bull List
2005		30							**30**	
2006	9	41							**50**	
2007	4	47		1	1		1		**54**	2009
2008	14	62	3		1	2			**82**	2010
2009	7	47	9			1	1		**65**	2011
2010	2	12	10			2		6	**30**	*2012*
Total	36	257	22	1	2	5	2	6	**331**	

- Program peaked in 2008 – 82 bulls tested. These bulls are now on 2010 Active Bull List.
- 2009 & 2010 – drop in scale of program.
  - Fewer bulls supplied
  - No issue with recruiting herds
- Consequential effects for future genetic gain and farmer/industry profit.

(ii) Issue – Need for genetic diversity

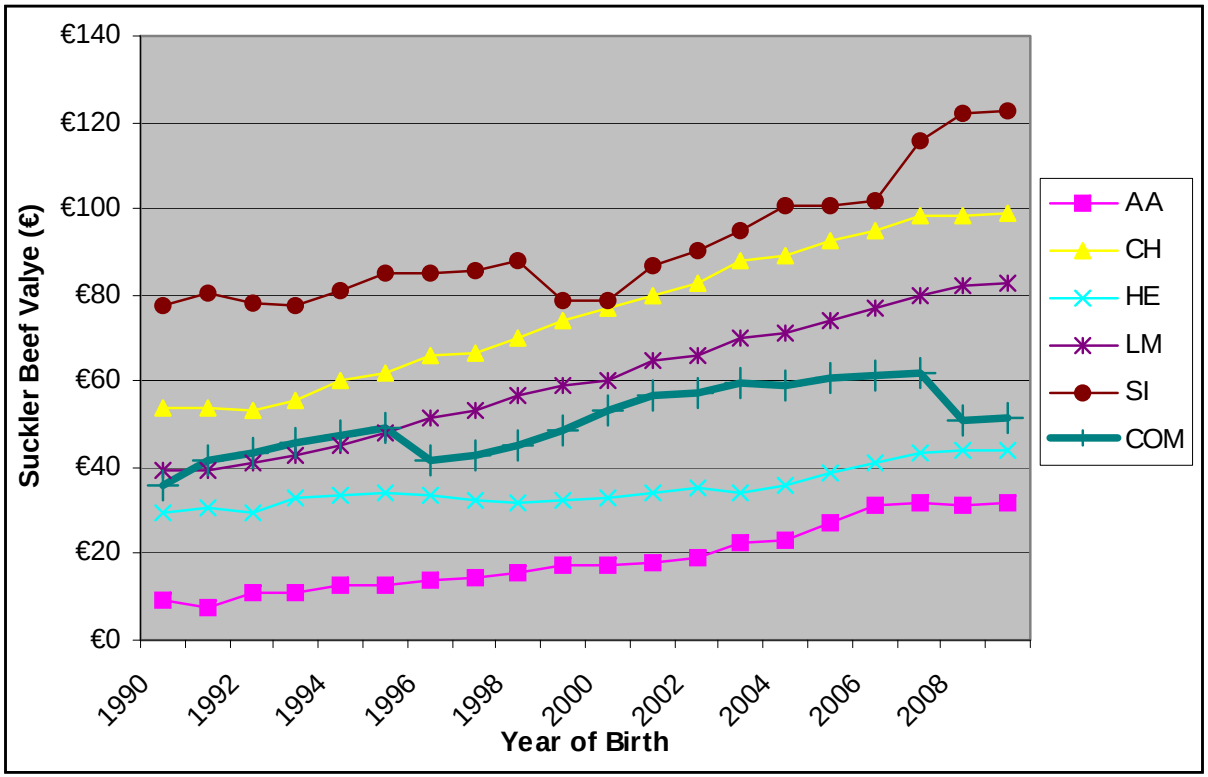
- ICBF Active Bull List 2010.
  - Over half of the list are OJI sons.
  - Downside of rapid genetic gain is that related animals are selected as parents of next generation.
  - Need to balance genetic gain against genetic diversity (identify “out-cross” animals).
  - Research to provide advice/support for breeders & AI industry re: suitable animals for future breeding programs.
  - This will require ICBF to extend its sire advice to identify suitable matings for elite cows.

Beef Breeding – Some background information.

- Total suckler cows dropped by 6% in 2009 (14% drop for heifers).
- Analysis of 700,000 calvings from Suckler beef herd:
  - 80% of calves by stock bulls. Of these ¼ are by non-registered stock bulls.
  - 50% of stock bulls are AI bred.
  - AI companies are "market" focused; (i) dairy beef, (ii) weanling & (iii) maternal (a poor third).
- SBV is in place – getting established.
- Beef industry is in crisis. How much can breeding contribute to improving profitabilty?

Genetic Trends – SBV (€)

- Current rate of gain = ~€5/cow/year.
- Optimal rate of gain = €20 / cow / year
- Difference is worth €15 million annually to Irish beef farmers.



- Achieving this level of gain will require an optimal program (100 bulls per year) focusd on SBV.

(iii) Issue – Number & Quality of Bulls.

Year	Data	AA	BA	BB	CH	LM	PT	SI	Total
2007	Count				3	3		2	**8**
	SBV				84%	83%		95%	**86%**
	M&F				88%	65%		33%	**65%**
2008	Count	1	1	3	2	4	1	3	**15**
	SBV	98%	32%	33%	70%	67%	65%	69%	**60%**
	M&F	99%	85%	90%	95%	82%	3%	56%	**60%**
2009	Count			1	4	4		1	**10**
	SBV			64%	97%	81%		99%	**87%**
	M&F			90%	64%	95%		72%	**80%**
Total	**Count**	**1**	**1**	**4**	**9**	**11**	**1**	**6**	**33**
	SBV	**98%**	**32%**	**41%**	**87%**	**76%**	**65%**	**83%**	**75%**
	M&F	**99%**	**85%**	**29%**	**79%**	**82%**	**3%**	**51%**	**67%**

- Progeny testing ~ 10 bulls/year.
- Av index = €123 (75th percentile on SBV & 67th percentile on Milk & Fertility).
- Only 4 beef bulls now on progeny test.
- ***In contrast to dairy, we are making slow genetic gain.***

(iv) Issue – Breed development programs.

- Unlike dairy (one main breed), in beef we have many breeds (~10 in total).
- ICBF have engaged with individual Breed Assns and AI companies on breed development.
  - Lists of top breeders, bulls, top cows….
  - Definite appetite but limited engagement …
- Herdbooks have worked hard to ensure 105 high index bulls in latest Tully intake.
  - Can we get the best of these bulls into G€N€ IR€LAND?
- How do we manage/direct/lead these programs?

(v) Issue – Beef Breeding infra-structure.

- Optimal program = 100 bulls * 100 daughters = 10,000 heifers per year.
- Currently ~ 170,000 heifer replacements per year.
- ~20% of these are AI bred = 35,000 AI bred heifer replacements per year.
- Progeny test heifers will be 25-30% of total AI bred beef replacements.
- Is this feasible?
  - Displacement of proven bull product.
  - Will farmers use “test” bulls.

(vi) Some Issues – long term vs short term benefits

- Optimal program = 100 bulls per year.
- Program focused on maternal traits.
- Not consistent with current commercial AI business.
  - Limited market for maternal bulls &/or bulls to breed stock bulls.
  - Focus is on dairy-beef and weanling market.
  - Low turn-over of beef bulls.
- In an optimal beef program, the primary role of AI is to breed high index stock bulls for use in National herd and for progeny testing.
- How do we create a profitable beef breeding program for farmers, breeders, herdbooks, AI companies & wider industry?

Summary thoughts & comments.

- Achieving optimal genetic gain for farmers, breeders and industry will require;
  - Greater flexibility within the industry – a collective sharing of costs, risks and benefits.
  - Additional industry investment – to give longer-term benefits.
  - An increased role for ICBF in the breeding programs.
- Is this desirable?
- Discussion……..