



IRISH CATTLE BREEDING FEDERATION

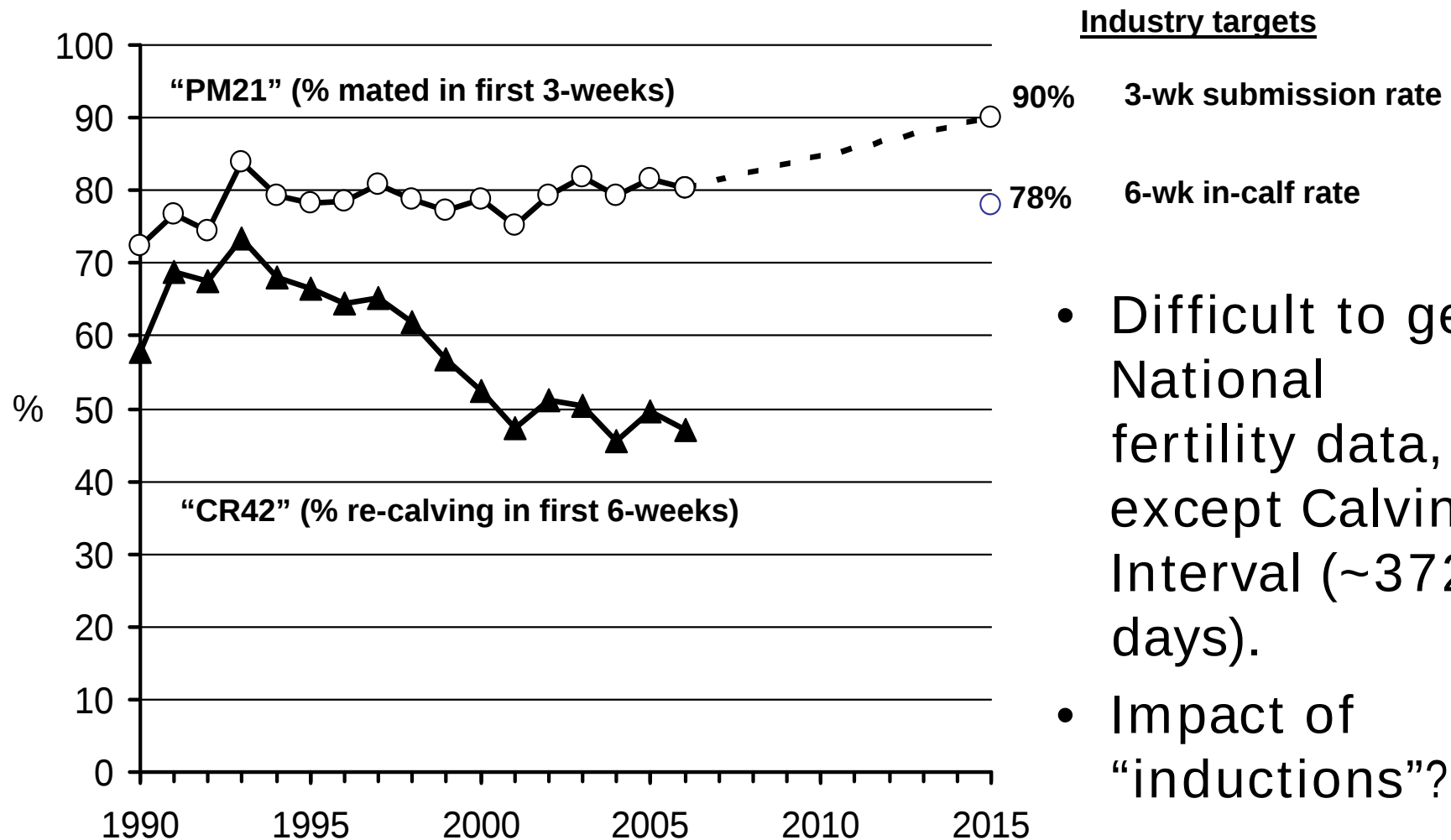
Female fertility performance.

***Feedback from NZ Trip.
20th January 2012.***

What did we see - NZ?

- Fertility performance declining at National & farm level
 - Stable in more recent years?
- Lower weighting in BW (rel to EBI).
- Focus within LIC breeding program – sire teams.
- Big debate regarding future weighting of fertility within BW.
 - Nutrition, management.....
 - Genetics seen as part of an “overall” solution.

NZ – 6 week in-calf rate.



- Difficult to get National fertility data, except Calving Interval (~372 days).
- Impact of "inductions"?

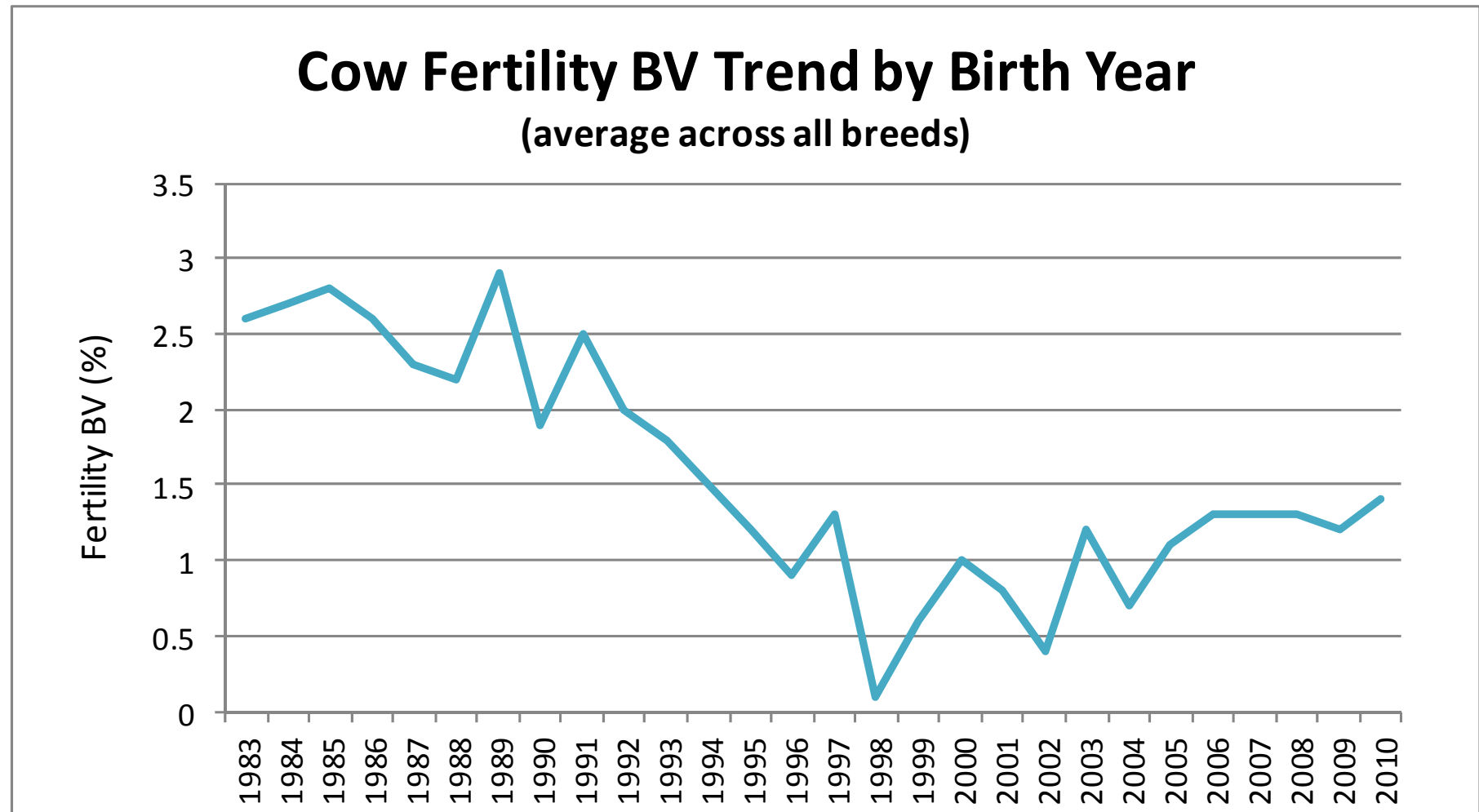
Dairy NZ, 2008

Comparison EBI & BW

Sub-Index	Trait	EBI - IRE	BW - NZ
Production	Milk	12.1%	15.0%
	Fat	4.0%	11.0%
	Protein	22.0%	38.0%
Fertility	Calving Interval	23.2%	10.0%
	Survival	11.5%	6.0%
Calving	Direct Calving Difficulty	3.5%	
	Maternal Calving Difficulty	1.6%	
	Gestation Length	4.6%	
	Calf Mortality	0.6%	
Beef	Cull Cow Carcase Weight	0.6%	
	Carcase Weight	3.7%	
	Carcase Conformation	1.5%	
	Carcase Fat	1.4%	
Maintenance	Cow Weight	6.1%	13.0%
Health	Lameness	0.3%	
	SCC	3.2%	7.0%

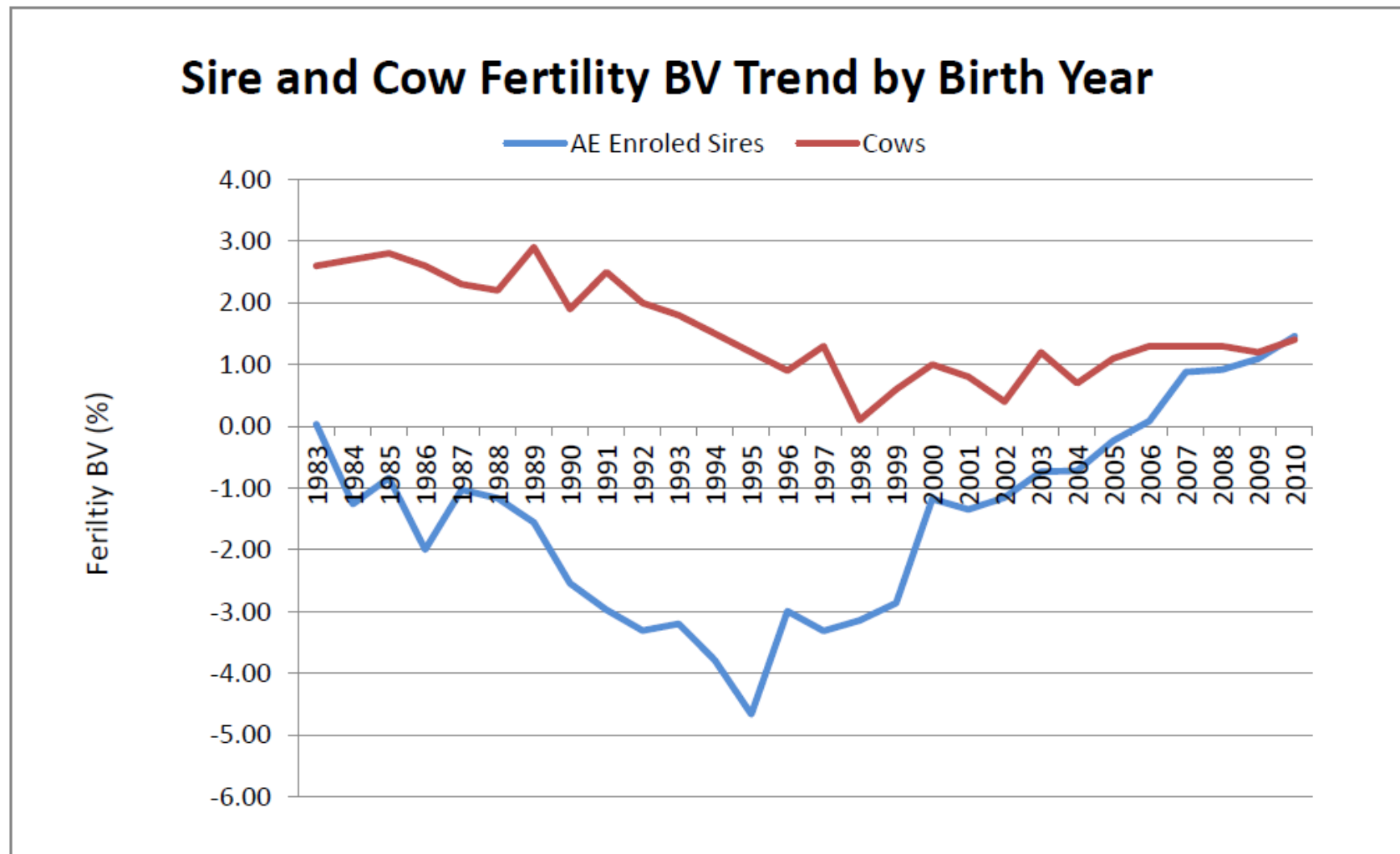


NZ – Genetic Trends.



New Zealand Animal Evaluation Unit, 2011

NZ – Sire breeding program.



What did we learn – from an Irish perspective?

- The critical importance of fertility.
 - High fertility = high profit.
- The need to keep focused on this trait at research & industry level.
- That the Irish dairy industry is well positioned to capitalise on potential gains.
 - Coming from a low base.....!
 - Genetics has a key role to play (ICBF & Teagasc).

Ireland – Current fertility status.

Parameter	Average	Target
Calving Interval (days)	402	365
6 wk calving rate (%)	52%	70%
Median calving date	09-Mar	20-Feb
Calves per cow per year	0.85	0.95
Pregnant to 1st service (%)	53%	60%
Submission rate (%)	60%	90%

ICBF, 2012.

- Irish and NZ 6 week calving rates are similar.

Ireland – Female fertility trends.

	2006	2007	2008	2009	2010	2011
Calving Interval Days	397	398	396	401	401	403
Six-week calving rate %	0.51	0.50	0.52	0.53	0.52	0.52
Median Calving Date	18/03	18/03	15/03	13/03	09/03	09/03

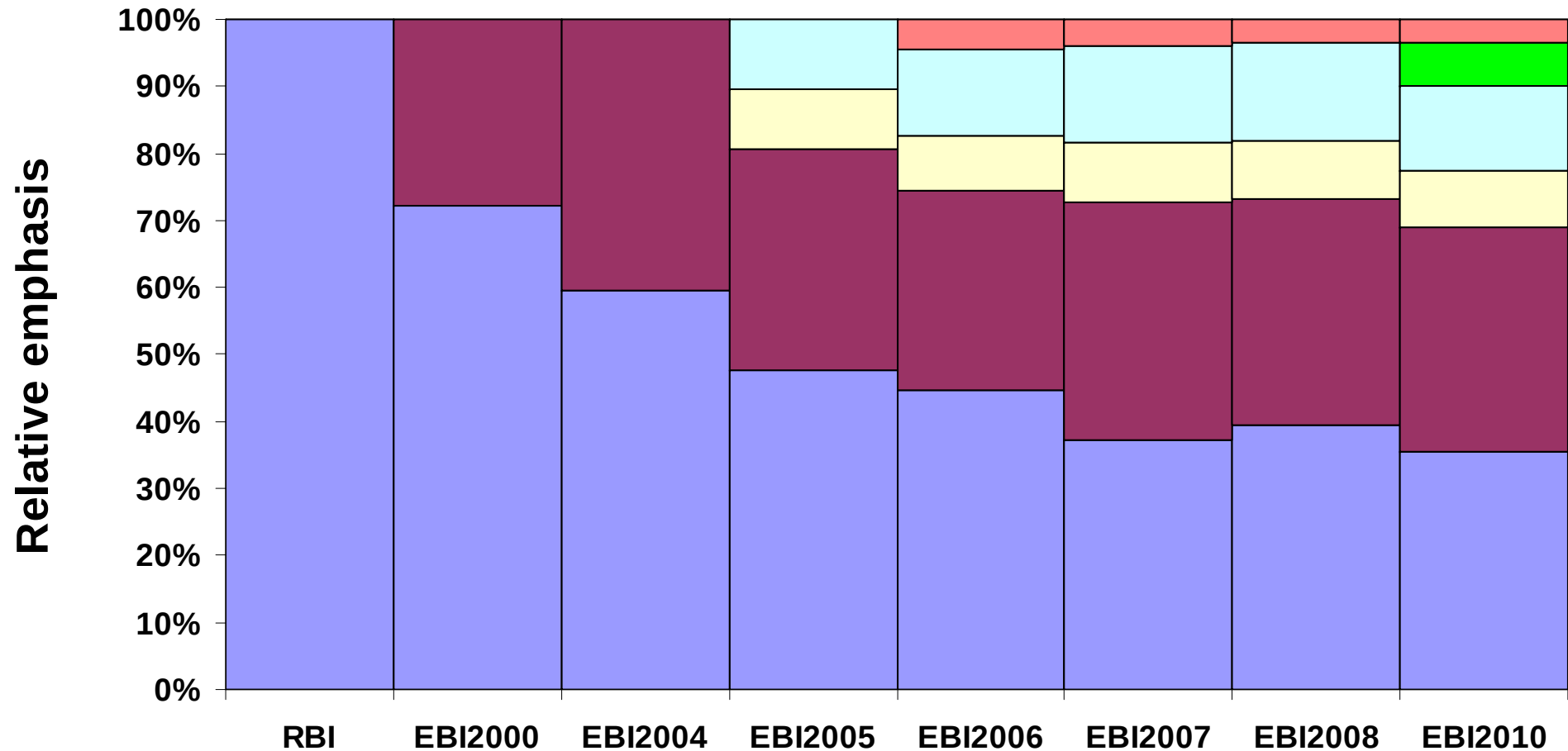
ICBF, 2012.

- Against a back-drop of; (i) previous shortage of replacements and (ii) increasing herd-size (+ 2 - 3%/year).

Genetics of fertility

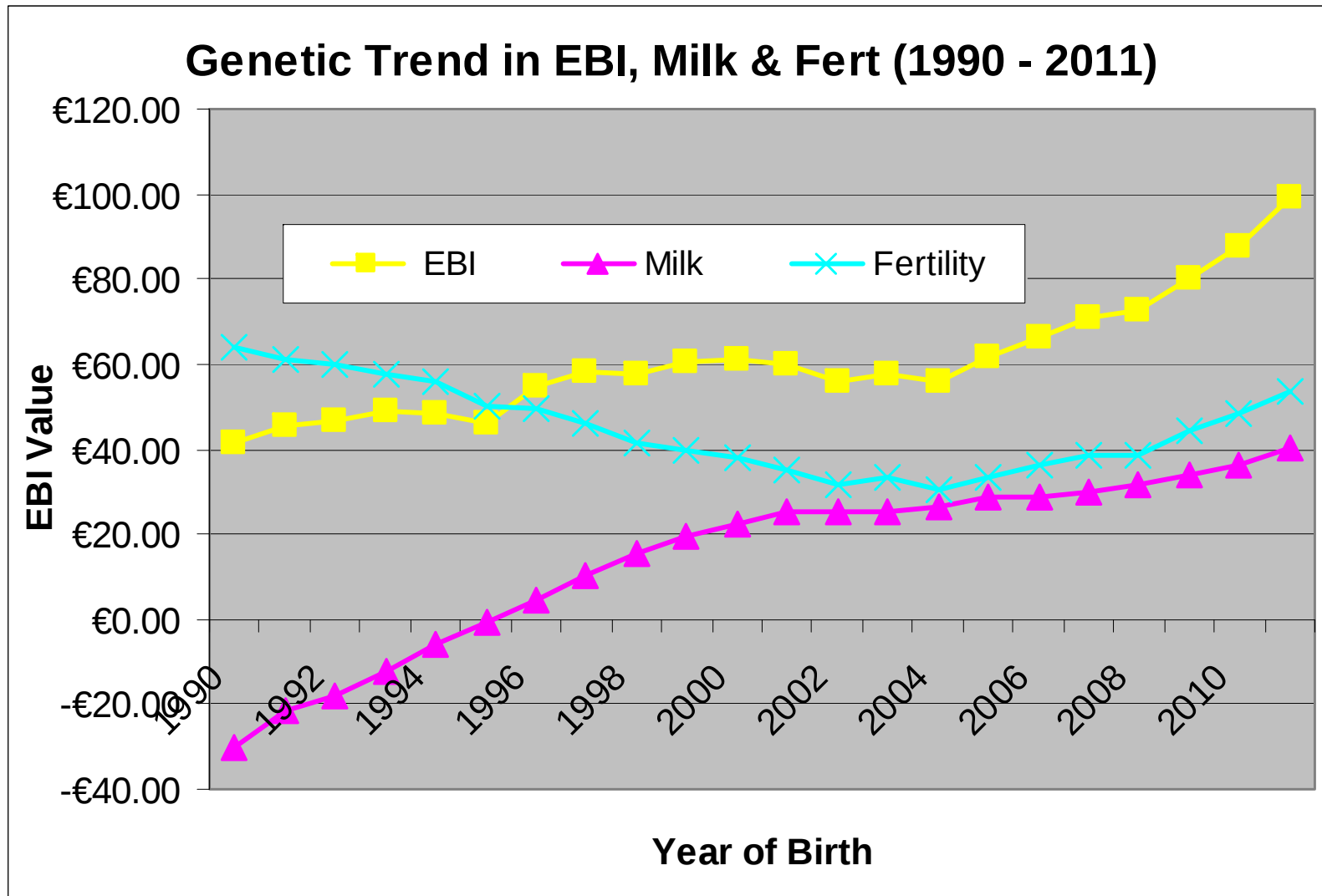
- Introduced in 2001. Updated 2005.
- Included into EBI in 2001.
- Latest improvements (Dec 2011).
 - Insemination data.
 - More data, e.g., non MR herds.
 - Relationship between milk & fertility.
 - Better evaluation model.
- More accurate fertility proofs.
 - Major effect on herd, cow and young bull proofs.

Development of EBI

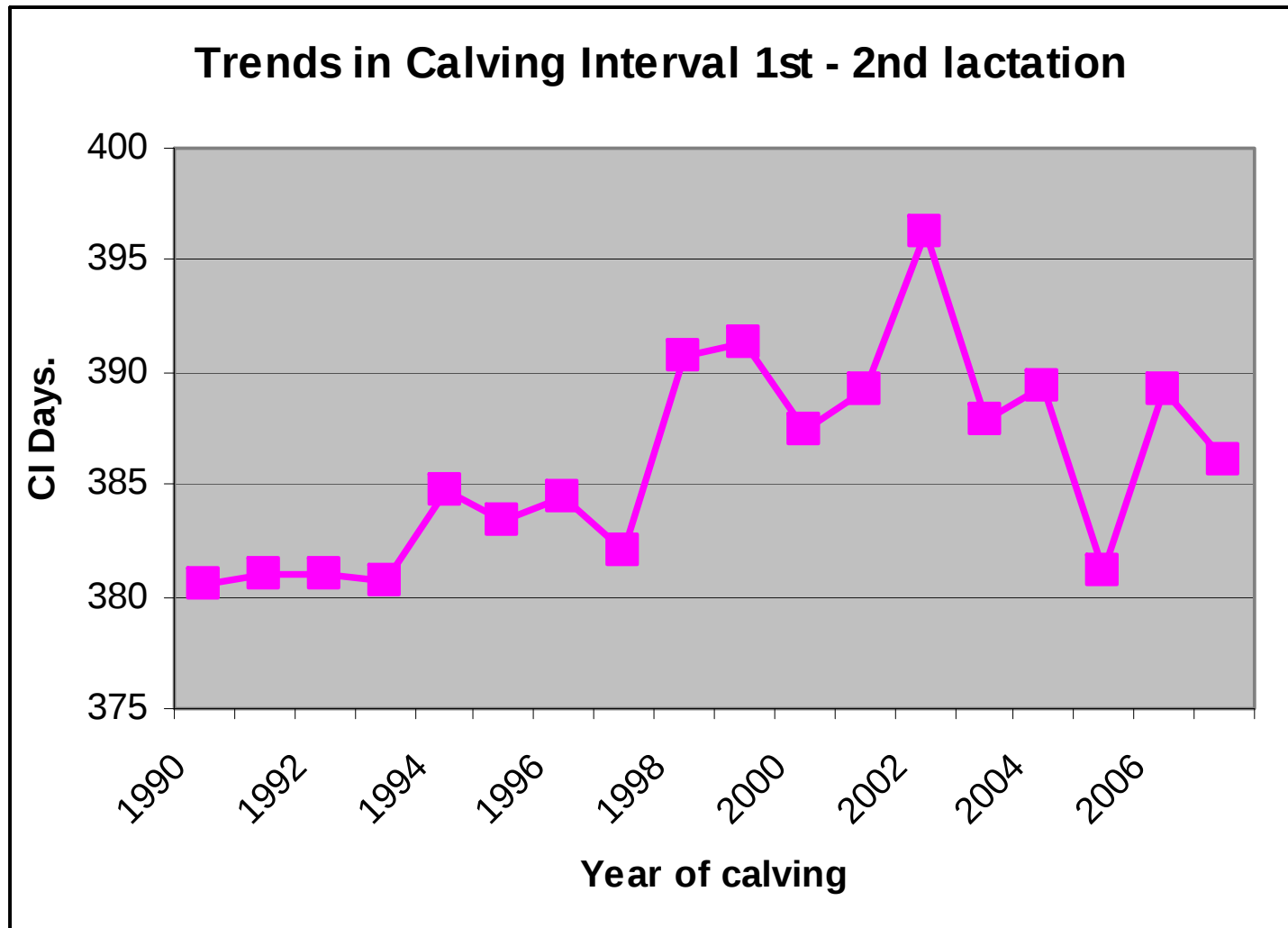


■ Milk ■ Fertility ■ Calving ■ Beef ■ Maintenance ■ Health

Ireland – Genetic Trends.



Ireland – Calving Interval Trends.



Hi vs Low Fertility Study.

	High Fertility	Low Fertility
Fertility sub index	€94	-€70
Calving to service interval (days).	76	78
Pregnancy rate to 1st & 2nd service (%)	83%	50%
6 week in calf rate (%)	72%	41%
Calving to conception interval (Days)	86	114
Number services per cow	1.8	2.9

Cummins & Butler 2011

Strain Comparison (09-11)

Genotype	North American	New Zealand
EBI (€)	104	131
Milk subindex (€)	49.1	57.7
Fertility subindex (€)	44.1	63.6
Calving date (Day of year)	26-Feb	23-Feb
24 day submission rate (%)	77	88
Serves (No./cow)	2	1.9
Pregnancy rate to 1 st service (%)	41	50
42 day pregnancy rate (%)	49	65
Embryo mortality (%)	10	6
Final pregnancy rate (%)	75	85

Horan, Buckley & Butler, 2011

New fertility index - Cows

CATEGORY of new Fertility index	No of Cows	FERT SI new	FERT SI old	Phenotypic calving interval					Avg Civ
				CIV1	CIV2	CIV3	CIV4	CIV5	
FERTSI €100+	129,084	€118	€94	375	375	376	379	375	376
FERTSI €50 - €100	542,110	€71	€59	385	385	384	385	385	385
FERTSI 0 - 50	546,629	€27	€23	399	399	397	398	399	398
FERTSI -50-0	205,470	-€20	-€18	423	425	421	418	423	422
FERTSI < -50	42,621	-€68	-€62	457	460	454	448	457	455

New fertility index - Herds

Cows	Top 10%	Mid 10%	Btm 10%	Diff
EBI	€116	€97	€35	
Fertility Sub Index	€95	€59	€7	€88
6 week calving rate	62.1	56.2	46.0	16%
CI Days	379.8	391.3	412.5	33 days
Median calving date	28/02/11	04/03/2011	09/03/2011	9 days

- Top 10% herds getting close to desired industry targets for 2020 (70% 6 wk calving rate & 20 Feb MCD).

Practical advice.

- Keep a focus on fertility within your breeding program.
 - Select bulls with fertility Sub index of €120+
 - Cross-breeding also an option.
 - Don't listen to notion that we're breeding milk out of cows.....
 - Use GS bulls – proofs are stacking up.
- Keep replacement heifers from early calving cows.
 - Seems plausible....impact on genetic gain?
Part of a research project on fertility in 2012.

ICBF Active Bull List 2012.

Rk	Code	Brd	EBI	Rel%	Proof	Milk	Fert
1	NFT	HO	€271	69%	DP-IRL	€72	€176
2	BGJ	HO	€255	47%	GS	€92	€149
3	LHZ	HO	€254	57%	GS	€78	€158
4	RVJ	FR	€241	73%	DP-IRL	€11	€185
5	HYZ	HO	€241	47%	DP-INT	€85	€153
6	MDW	HO	€240	49%	GS	€51	€175
7	LLK	HO	€238	61%	GS	€66	€144
8	VBV	HO	€236	41%	GS	€96	€129
9	PCG	FR	€234	48%	GS	€93	€130
10	THF	HO	€233	45%	GS	€90	€125

Where next?

- Major focus on fertility performance.
- Key outcome from Curtains & Ballydague reviews.
- Closer scrutiny of reproductive traits.
 - Next generation herd.
- Role of Genomics.
- Wider industry approach, e.g., AHI.

Summary.

- Fertility is a key driver of profit.
- Sub-optimal in Ireland, New Zealand and all other countries.
- We have “turned the corner” from a genetics standpoint. These animals are now starting to enter herds.
- Must keep the focus on fertility at herd, industry and research level.

Its wasn't all work!

