IRISH CATTLE BREEDING FEDERATION

The contribution of animal recording to the profitability of Irish farms.

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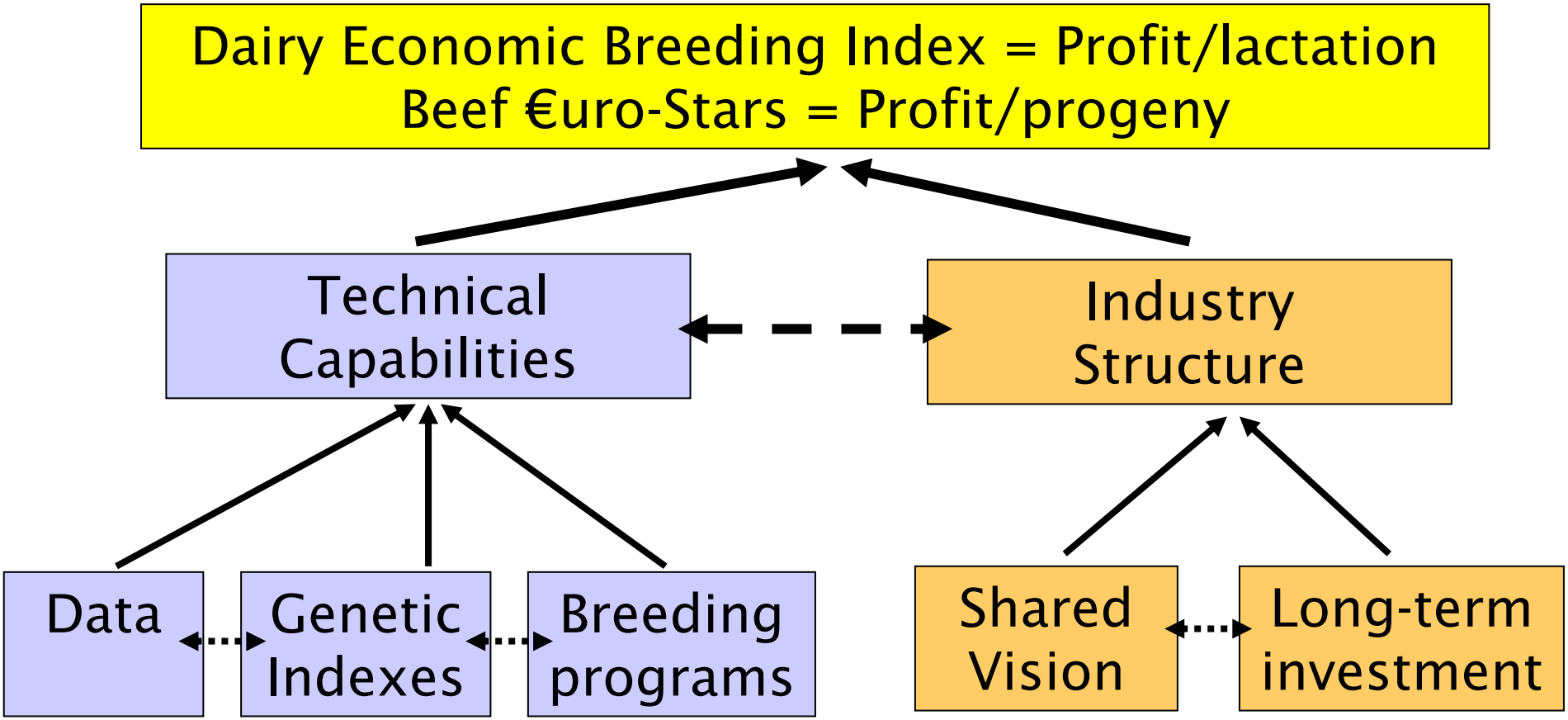
NDP National Development Plan Transforming Ireland

ICAR2012

Recording, profit & Ireland

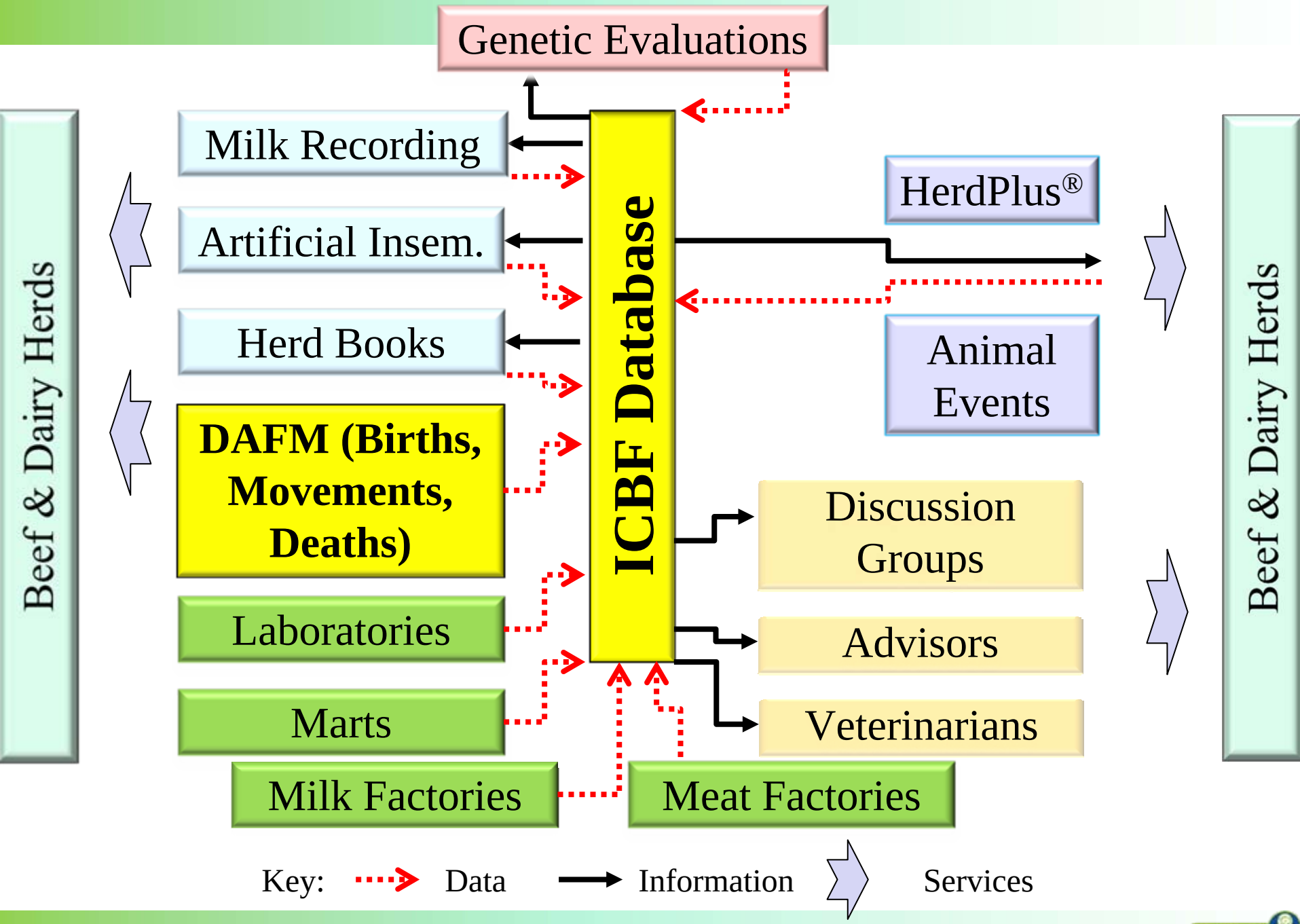
- Using Irish cattle breeding as an example.
- Trends in data recording.
- Benefits of data recording;
  - Genetic analysis.
  - Phenotypic analysis.
- Summary.

Genetic Gain in Ireland.



Increases in data recording.

- ICBF central database.
  - Industry structure.
    - Shared vision & long-term investment.
  - Technical capabilities.
- Growth in milk and beef recording.



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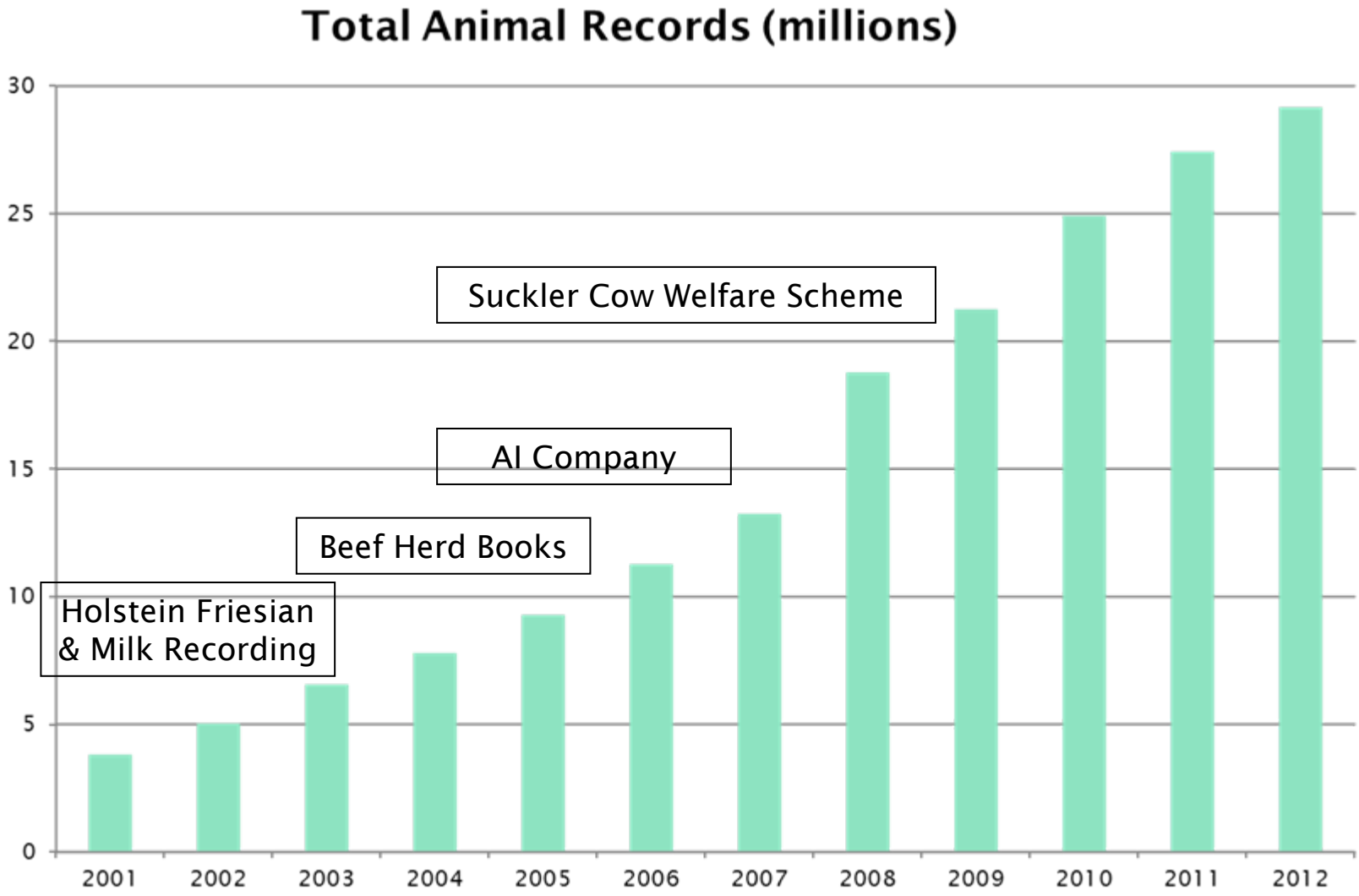


Benefits of data recording.

- Genetic trends.
  - Fertility as an example.
  - Dairy Economic Breeding Index
  - Beef Suckler Beef Value

Recording & profit. Fertility example.

High index Holstein route not the answer

Peter Young

Very disappointing results from three year trial

EIGHT of the twenty-three empty cows were scanned in calf at 30 days. Embryo loss struck to see the eight repeat near the end of the breeding season.

That's is the hardest pill to swallow for Jack Kennedy, Flor Flynn and the rest of the team that put in huge effort into getting the cows in calf. "It was hugely disappointing. The cows were well fed since they went out day and night on March 10, and they settled very well," said Jack. There was just one embryo loss last year. The biggest problem for them, and for all farmers, is that there is still little known in terms of answers.

Feeding more meals is not the solution. The three-year trial clearly shows that there is no effect of feeding level on fertility.

The 96 cows were spilt into three herds. Each herd contained half-high genetic merit cows (RBI 00 X) and half-Medium merit (RBI 00 y). The herds were fed either

- 400kg meal (Low concentrates, LC)
- 800kg meal (medium concentrates, MC)
- 1500kg meal (high concentrates HC)

The average infertility rate for the different levels of meal was 23 per cent, 25 per cent and 22 per cent respectively.

Pregnancy to first service for both groups was just 35 per cent

1).

This year's fertility results

infertility.

swer for helping to select cows with higher fertility.

These cows were bred in Ireland and bought from farmers. The previous high merit cows had been bought in from Holland and France.

"However it shows that nationality has nothing to do with it. The results clearly show that poorer fertility is linked to high index Holstein percentage, in the cows

Table 1

Milk production for medium and high merit cows (1998-2000)

	High merit	Medium merit
1998	1,498	1,213
1999	1,675	1,464
2000	1,770	1,564

Table 2

	Current trial (1998-2000)		Previous trial (1995-1997)	
	HGI	MGI	HGI	MGI
Submitted in 1st 3 weeks (%)	88	90		
Calving to service interval (days)	77	77	70	71
Calving to conception interval (days)	93	90	86	88
Pregnancy 1st service (%)	49	57	41	53
Pregnancy 2nd service (%)	42	44	37	58
Services/cow	1.83	1.68	1.75	1.7
Infertile rate (%)	17	12	23	6
Percentage Holstein (%)	88	60	92	52

Measures of fertility needed in index

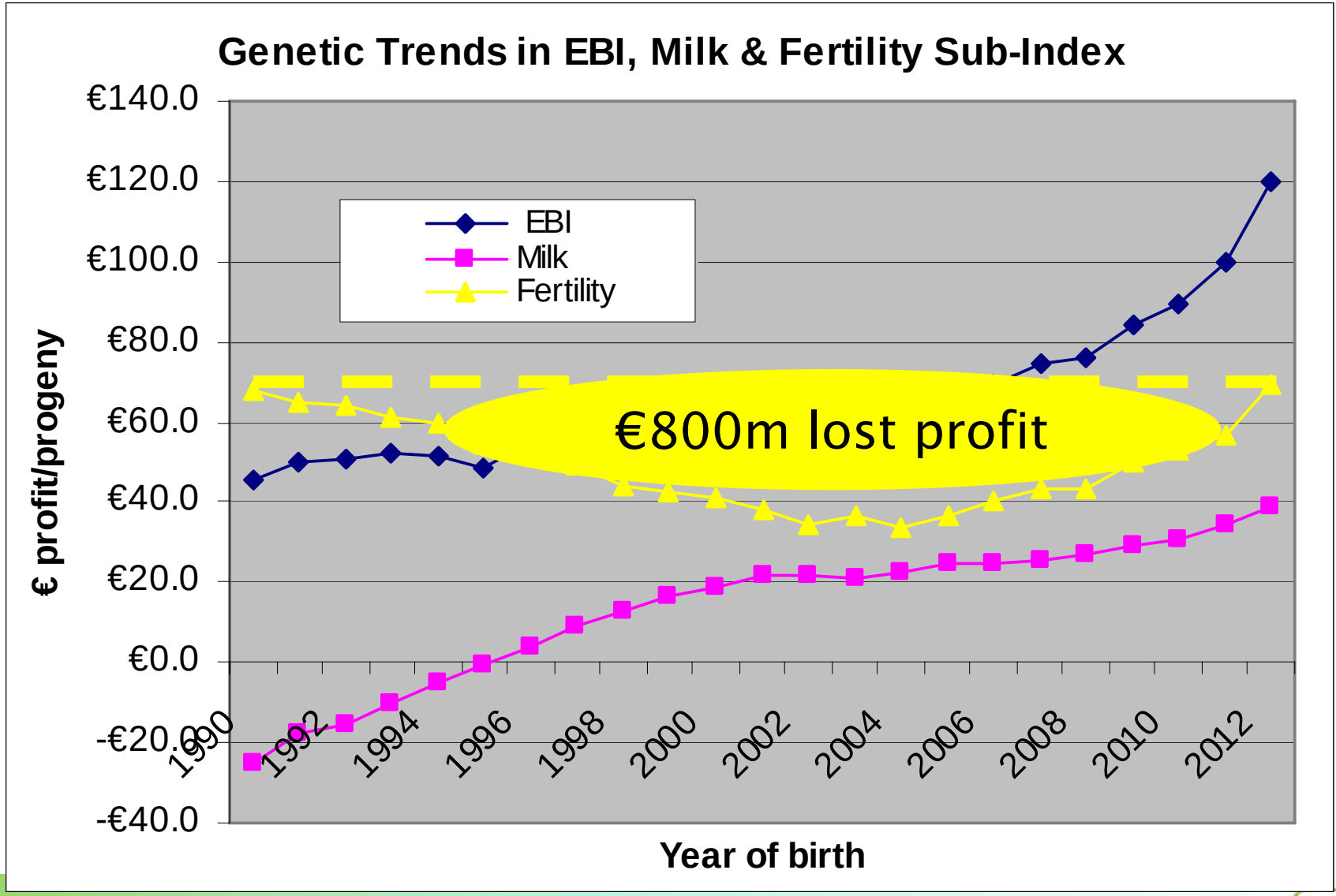
IRISH farmers desperately need an Index that includes measures of fertility.

The Moorepark research increases the urgency of the new index being drawn up by the ICBF and due to be released in late November.

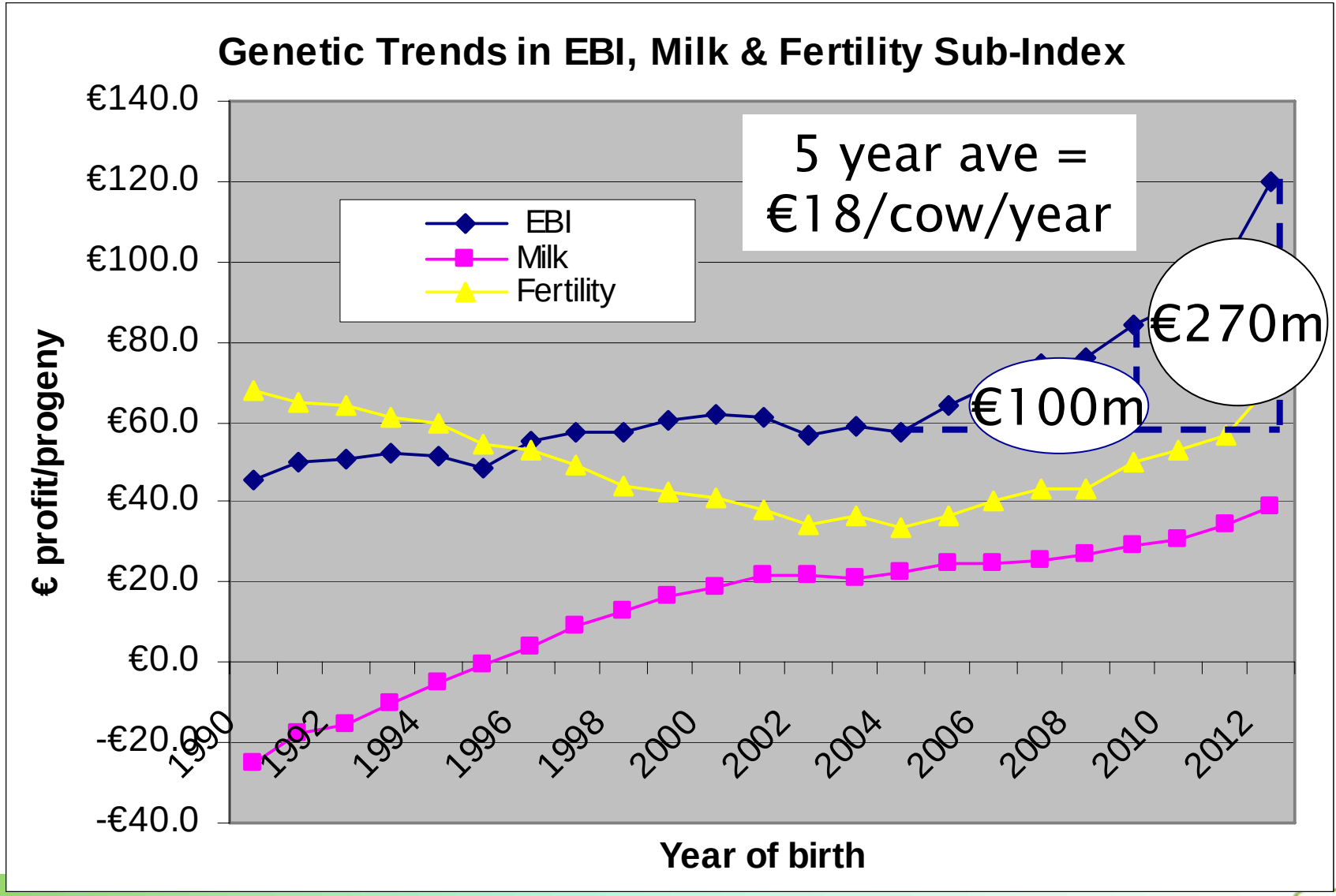
For the first time the index will be produced that will include traits linked to fertility.

"Other countries are starting to record traits that are linked to fertility. With our compact calving system the need in Ireland is much greater," said ICBF geneticist Dr.

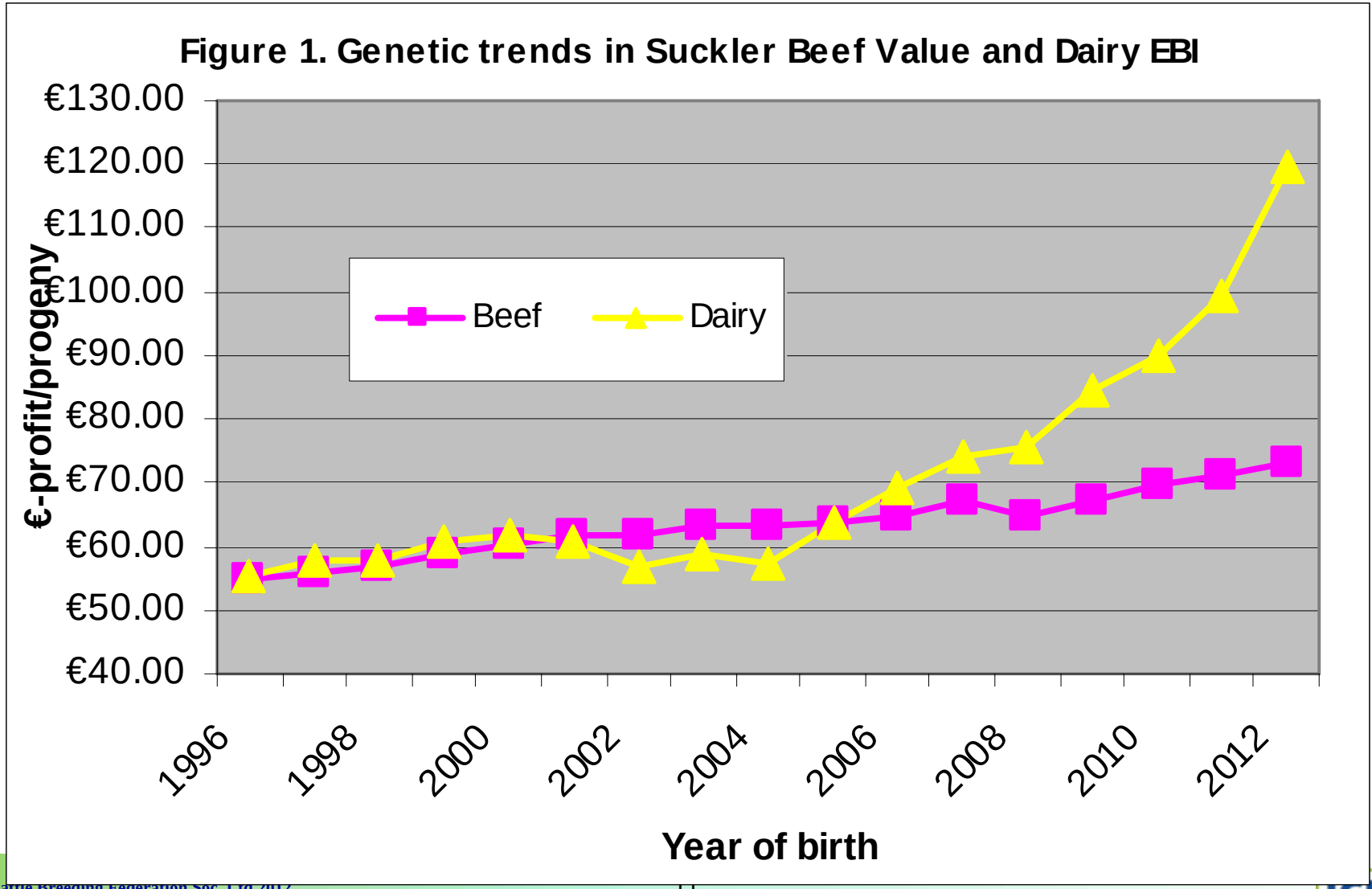
Fertility: Lack of data cost Irish farmers and industry €800 million over 20 years.



EBI: Where we are now. Genetic Gain worth €100m to-date & €270m over next 5 years.



Genetic gain in beef = 20% of gain in dairy.



Challenges in beef.

- Fragmented industry structure.
  - Lack of “shared vision”.
  - Little evidence of long term investment, e.g., breeding programs.

Benefits of data recording.

- Phenotypic trends.
  - Milk recording.
  - Beef recording.

ICBF & Milk processor report

- Report require shared vision!
- Combines data from;
  - ICBF database (cows, calving….) & milk processor database (milk, fat, protein, SCC
- Valuable benchmark tool for ***ALL*** farmers.

Dairygold

Dairy Herd Performance Report

Jan - Dec 2011

Herd Owner: KEVIN DOWNING
Designator: IE1510137 / D2690749
Supplier Number: 550049 / Winter

ICBF.com
LoCall 1850 600 900

Table 3: Dairygold/ICBF Performance Score Card

	Your Herd	Dairygold Average	Dairygold Top 10%	Your Rank out of 100	Your Star Rating [1]
Milk performance for 2011 (Jan - Dec) based on Dairygold data					
Fat + Protein (Kg/cow) Average Fat and Protein yield per cow for your herd	512	448	527	81%	* * * * *
Litres per Cow per Day Avg litres of Milk per cow from Jan - Dec 2011	17.24	16.02	19	62%	* * * *
Fat % to end December 2011 Weighted average Fat % from Jan - Dec 2011	4.34	3.99	4.19	100%	* * * * *
Protein % to end December 2011 Weighted average Protein % from Jan - Dec 2011	3.57	3.46	3.57	95%	* * * * *
Average Milk Price (cpl) Incl. VAT Average milk price received from Jan - Dec 2011, (Includes Bonuses/Penalties, Excludes Levies)	38.6	37.3	39.1	81%	* * * * *
SCC (,000 cells/ml) The weighted average Somatic Cell Count for Jan - Dec 2011	131	n/a	128	90%	* * * * *
Fertility & Calving data based on HerdPlus 2011 Calving Report					
Calving Interval (days) Average number of days between successive calvings for cows calved during the period	434	427	400	43%	* * *
Days to calve 50% of cows Start **21/01/2011** - Median **28/02/2011**	39	48	28	81%	* * * * *
Total Dairy Replacements Dairy Females born in the period **(53)** as a proportion of eligible cows **(131)**	40%	39%	52%	52%	* * *
%AI bred replacements %female calves born in the period from dairy AI **(53)** as a proportion of eligible cows **(131)**	40%	28%	40%	90%	* * * * *
EBI Statistics based on the latest HerdPlus EBI report 2012					
Herd EBI (2012) Average EBI for Cows **(112)** with EBI data	€ 121	€ 71	€ 100	95%	* * * * *
Yearly EBI Gain (2012-2013) Gain in Herd EBI based on; 0-1yr old, 1-2yr old & 22% replacement rate	€ 6	€ 4.5	€ 9	75%	* * * *
EBI of 2011 Inseminations Weighted Average EBI of dairy AI bulls recorded in Spring 2011	€ 201	€ 166	€ 207	87%	* * * * *

Herds included.

- Analysis of data from 2009, 2010 & 2011 (14.8k dairy herds).
- Spring calving herds only.
- Herds broken into 3 groups.
  - Not milk recording (65% herds),
    - <= 1 test/year from 2006-2011.
  - Yes milk recording (32% herds).
    - 4 or more tests/year from 2006-2011.
  - Started milk recording in 2010 (3% herds).
    - 4 or more tests/year in 2010 & 2011.
- Is there difference in performance between these 3 groups of herds?

Analysis undertaken.

- Traits analysed; Milk, fat, protein, SCC & CI Days.
- SAS Proc Mixed & LSMEANS.
- Corrected for in model; year, herd size, region, milk processor, sire genetic merit, breed make-up of herd.

Results – 2009, 2010 & 2011 data combined.

Group	Milk kg	Fat kg	Prot kg	SCC	CI Days	€/cow
1NOmr	4454.5	176.9	153.4	264	407.8	
2YESmr	4795.6	192.6	165.9	246.2	404.4	€103.7
3STAR mr 2010	4680.9	185.9	161.4	250.6	403.2	€93.4

- What are the benefits of milk recording?
  - Compared to "no milk recording", more F+Pkg, less SCC, better female fertility (~€100/cow/year).
- How much of this is directly due to recording?

Results – 2009, 2010 & 2011 data separated.

- What is the "immediate" benefit of milk recording?

	No MR			Yes MR			Start MR		
Year	Ptn kg	SCC	CI Days	Ptn kg	SCC	CI Days	Ptn kg	SCC	CI Days
2009	143.3	275.6	406.6	156.6	263	402.5	157.7	275.7	406.4
2010	156.6	271.4	407.5	170.5	250	404.7	165.3	252.2	401.5
2011	160.3	245	409.4	170.6	226	406	161.1	223.8	401.6
Diff	**17.0**	**-30.6**	**2.8**	**14.0**	**-36.2**	**3.5**	**3.4**	**-51.9**	**-4.8**

- Bigger reduction in SCC (-22k cells/ml).
- Not clear for other traits.
- Need more data to evaluate true impact of "direct/immediate" effect of recording.

The key question?

- The contribution of animal recording to the profitability of Irish farms.
  - Is it just animal recording, or is there another component?
- Taking similar dataset. Start milk recording herds excluded. 14.0k herds.
  1. Non milk recording herds (67% herds)
  2. Milk recording only (5%)
  3. Milk recording & ICBF HerdPlus (5%)
  4. Milk recording, ICBF HerdPlus & discussion group (new entrant). (10%)
  5. Milk recording, ICBF HerdPlus & discussion group (established participant). (13%)

Data + knowledge = profit.

	M kg	F kg	P kg	SCC	CI Days	€/cow
1. No mr	4452.1	176.7	153.3	264.3	407.9	
2. Yes mr	4692.3	186.2	160.3	265	410.7	**-€1.4**
3. Yes mr hp	4862.4	193.6	167.7	244.2	403.5	**€122.5**
4. Yes mr hp dg_new	4735.3	189.9	163.5	246.7	403.7	**€101.5**
5. Yes mr hp dg_estab	4844.1	196.7	169.1	238.7	401.9	**€155.0**

- Data on its own is of limited value.
- Data + ***knowledge*** = profit.
  - Knowledge comes from data + technical support + information sharing + experience…….
- Additional EBI difference of €50/cow = ~€200/cow.

Is there similar evidence from beef?

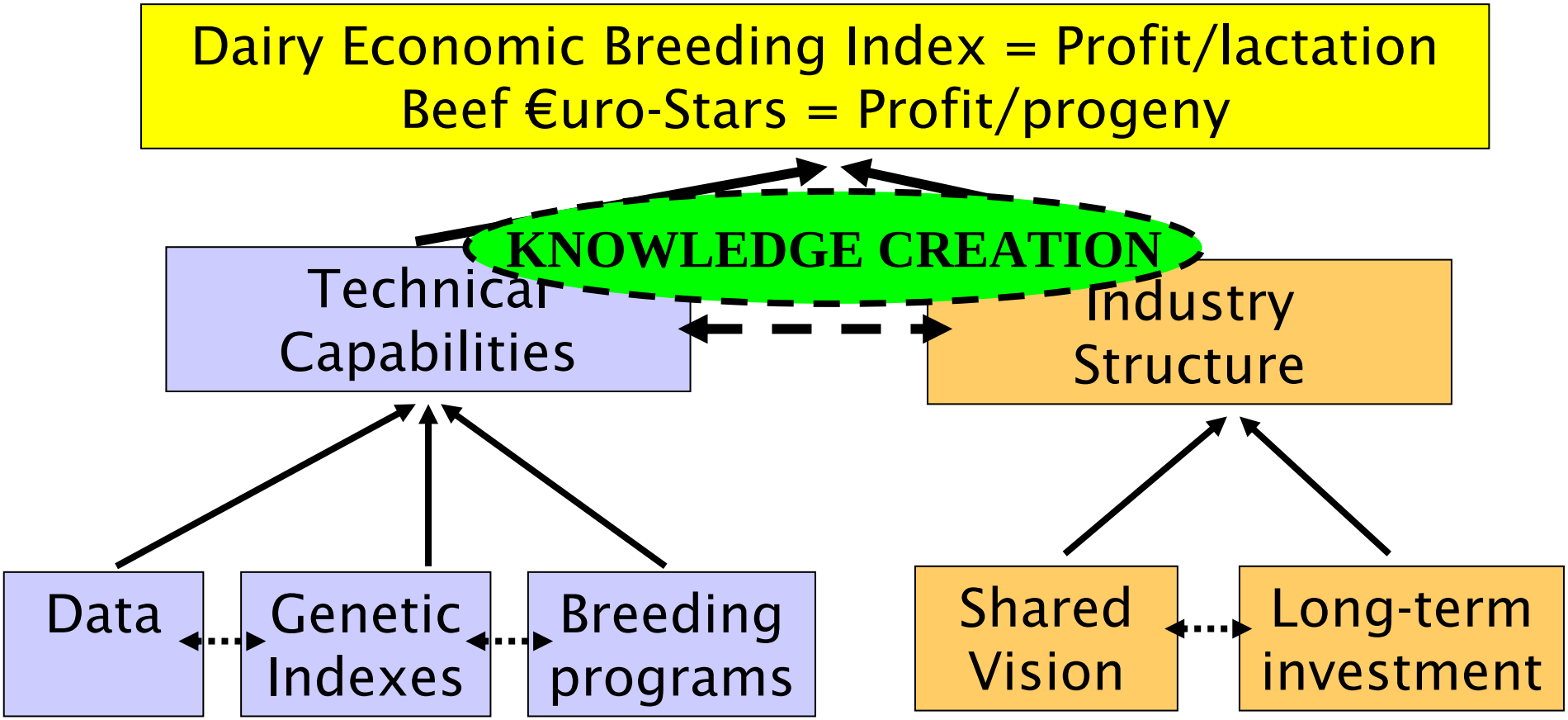
- Carcass weight & value data.
  - 634k animal records from 29.4k herds.
- SAS Proc Mixed & LSMEANS.
  - Correcting for carcass type, breed, sire genetic merit, year, dam age, herd size, parity.
- Four herd groupings identified.
  - No recording,
  - Suckler Cow Welfare scheme (SCWS)
  - SCWS + HerdPlus
  - SCWS + HerdPlus + weight recording.
- Is there any variation in performance?

Data + knowledge = profit.

	Herds	Animals	Carc wt	Carc Value	€/anim
1. No recording	4,792	75,544	341	€1,076	
2. SCWS	18,325	363,828	348	€1,106	**€30**
3. SCWS hp	5,856	167,716	352	€1,119	**€43**
4. SCWS hp wr	509	26,252	363	€1,155	**€79**

- Similar trends for beef.
  - Knowledge comes from data + technical support + information sharing + experience…….
- Additional SBV difference of €20 = €100/animal slaughtered.

How do we create knowledge?



Knowledge creation in Ireland.

- ICBF (vision, leadership, systems….)
- Teagasc (Research, B&T, discussion groups…..).
- Department of Agriculture (Suckler cow welfare scheme, Beef Technology Adoption programs…..).
- Service providers (industry meetings, key staff, technicians….)
- Wider industry (milk & meat processors, Animal Health Ireland, Irish Farmers Journal……..)

Summary.

- The level of animal recording in Ireland has increased dramatically over past 10 years.
  - ICBF database (shared vision).
- Compelling evidence that data + ***knowledge*** = increased profitability.
  - €200/cow in dairy (€200m across industry).
  - €100/animal in beef (€150m across industry).
- The challenge for Ireland going forward. To continue increases in data recording and ensure greater knowledge creation across the industry.