



Maximising Dairy Returns with the EBI

Kevin Downing

11th December, 2024



An Roinn Talmhaíochta,
Bia agus Mara
Department of Agriculture,
Food and the Marine



AgTech - it's in our DNA

Breeding Strategies for Maximum Returns

- EBI – does it work?
- Benefits of AI as opposed to Stockbulls
- Daughter Proven (DP) V's Genomic Selected (GS) Sires
- Sexed Semen
- Dairy Beef Index (DBI)
- Genotyping - NGP
- On-farm data recording
- Healthier cows e.g. resistance to TB

next
up...

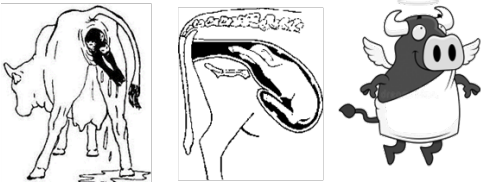
Evolution of the EBI

Performance Traits Measured

Milk & Fertility



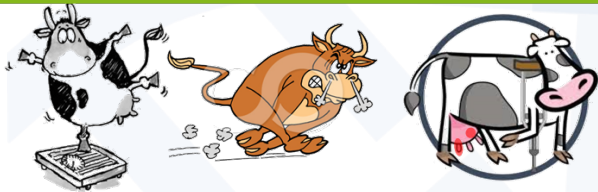
Calving



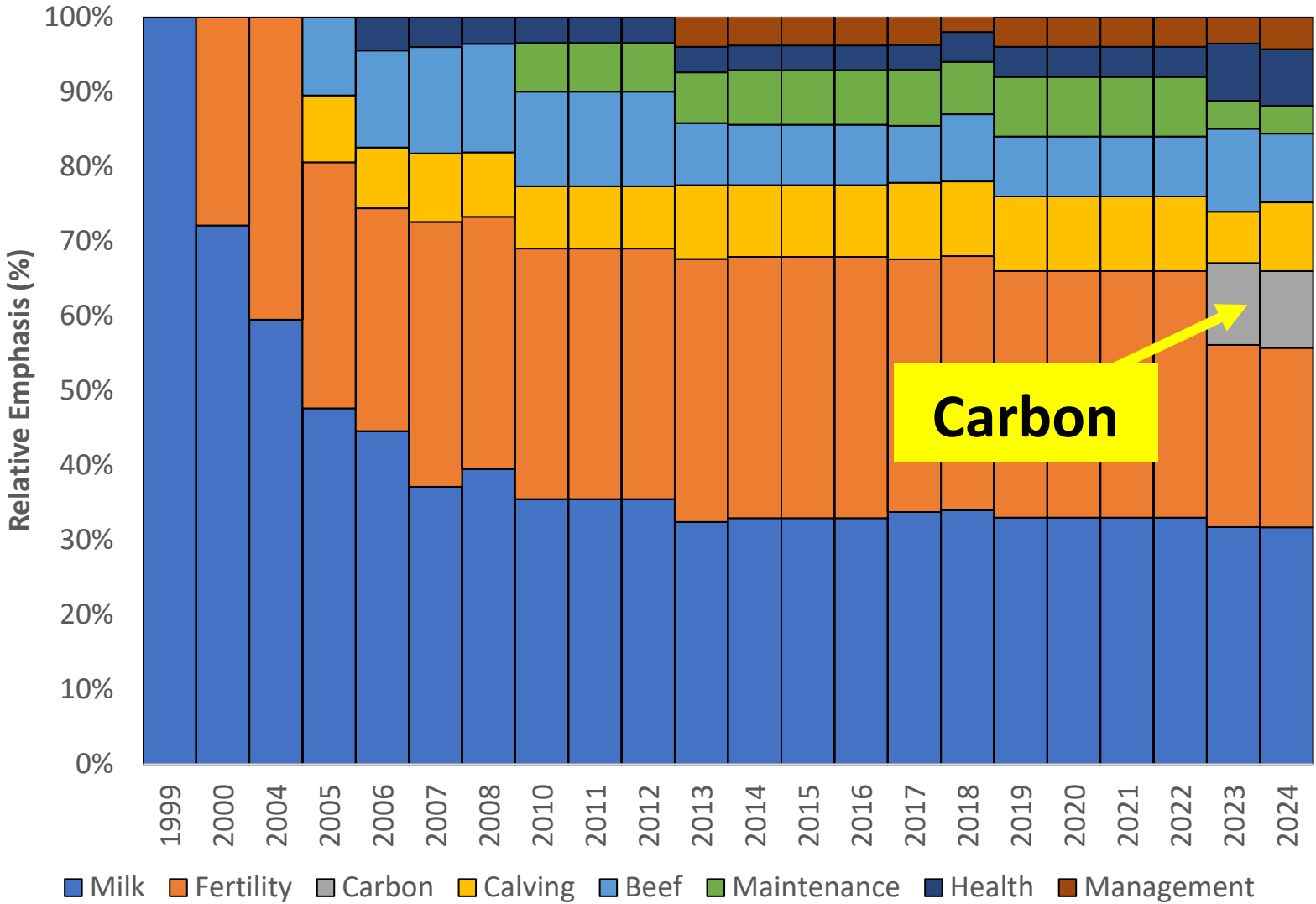
Beef



Maintenance, Management, & Health

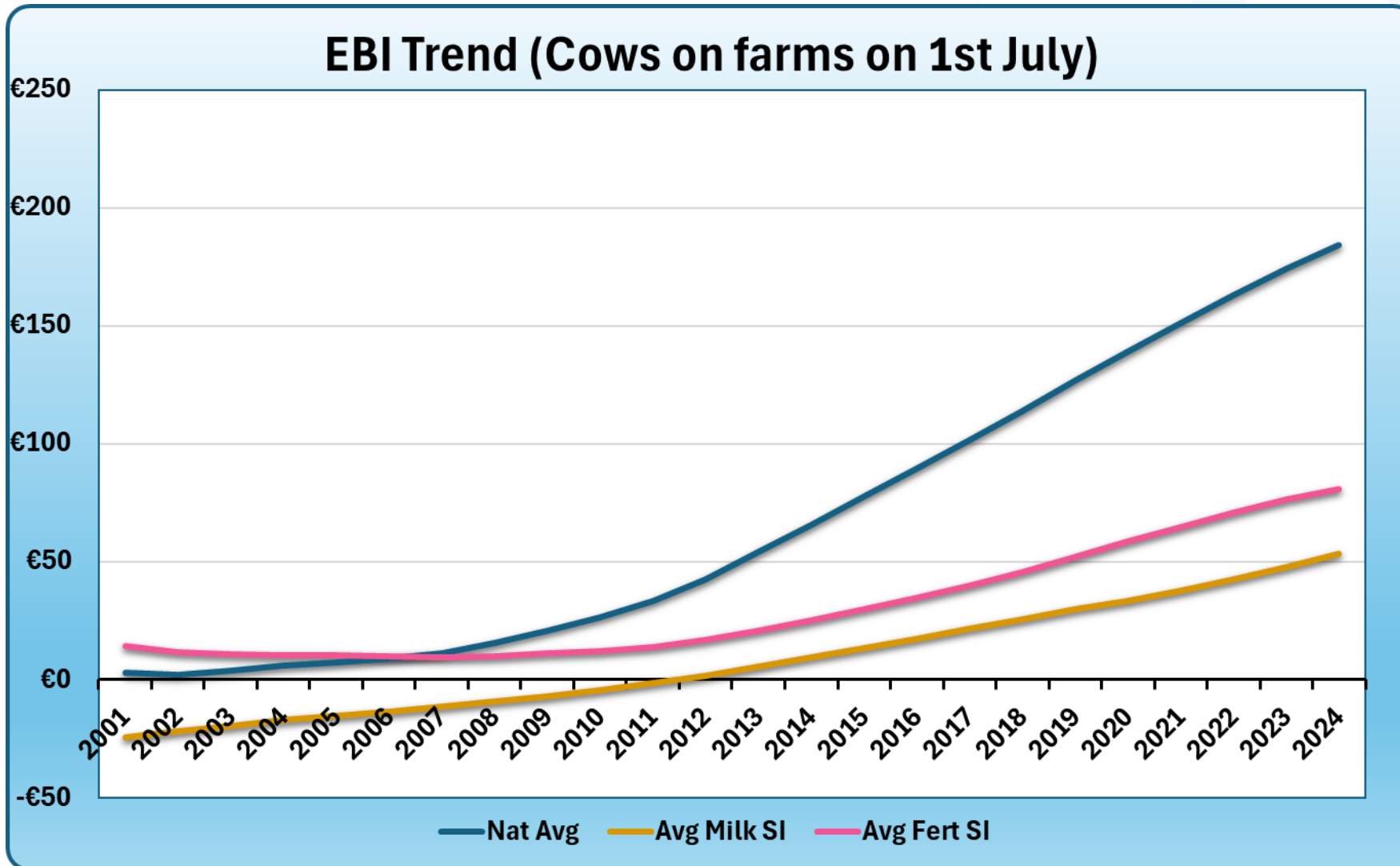


Carbon



Carbon

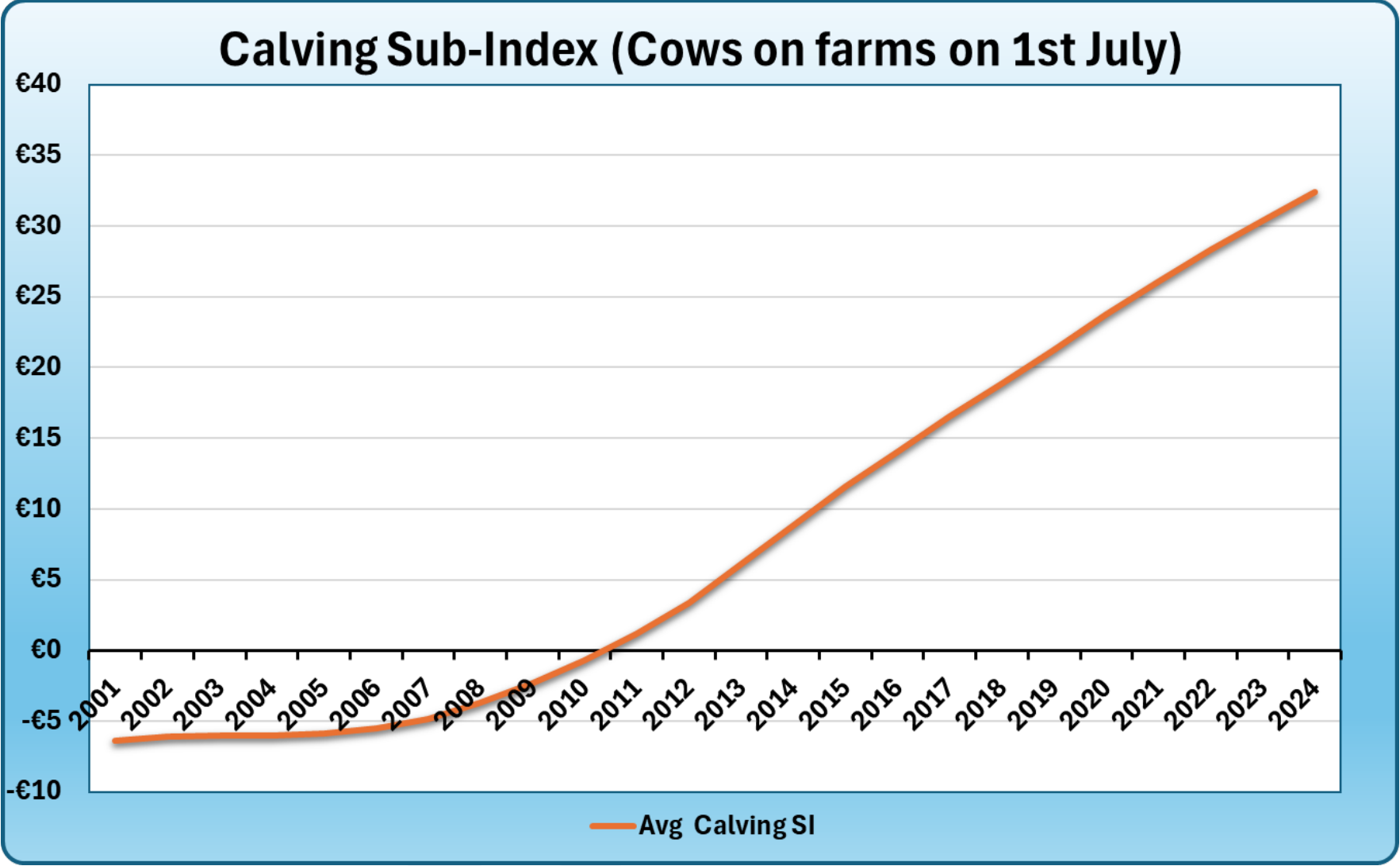
Dairy EBI Trend 2001-2024



- €1 increase in EBI = €2 increase in farm profit.
- Genetic Gain €184
 - ~€11/year = ~€20/year more profit.
- Milk Sub-Index & Fertility Sub-Index increasing at a similar rate!



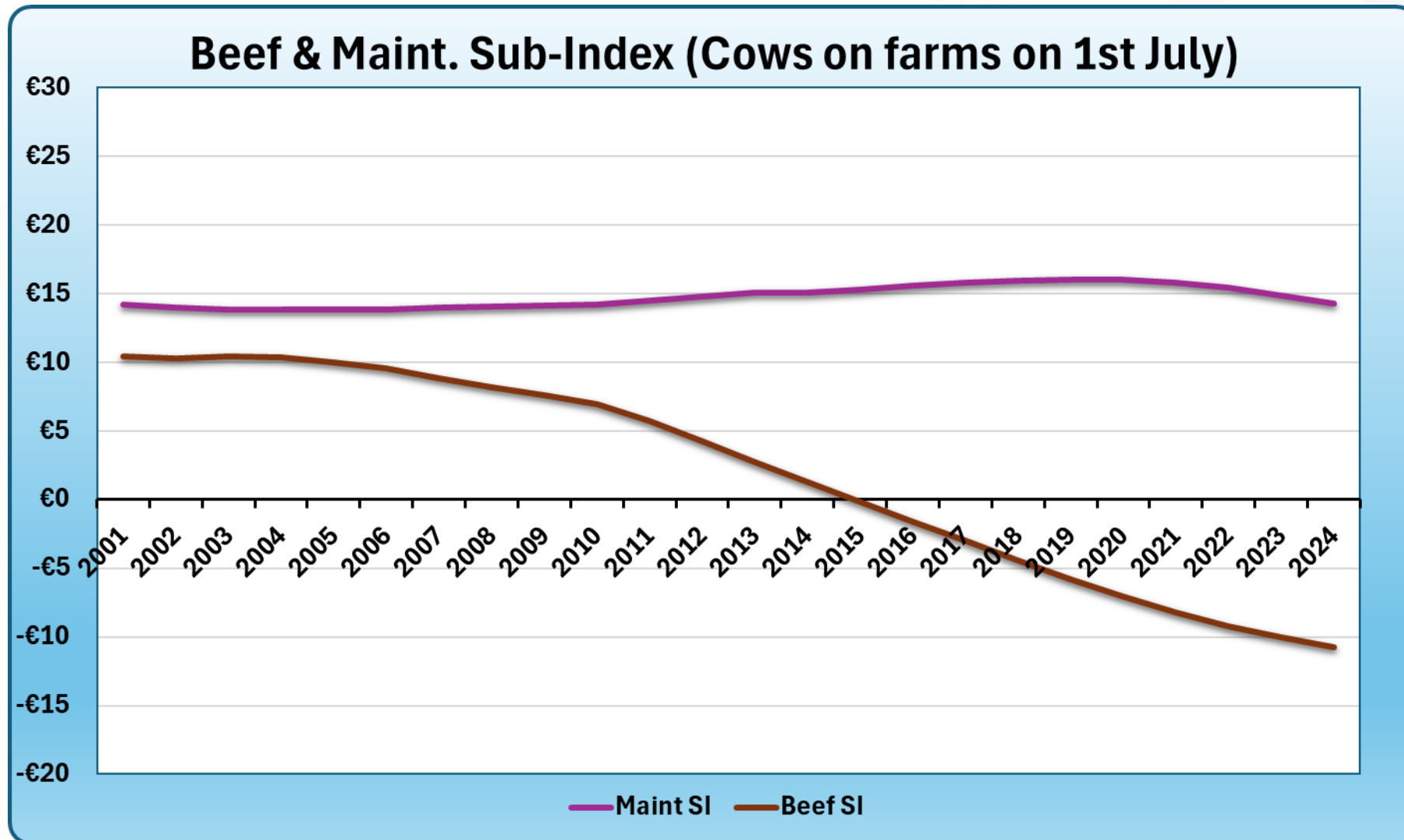
EBI – Calving Trend 2001-2024



- Calving Sub-Index increasing in a linear fashion



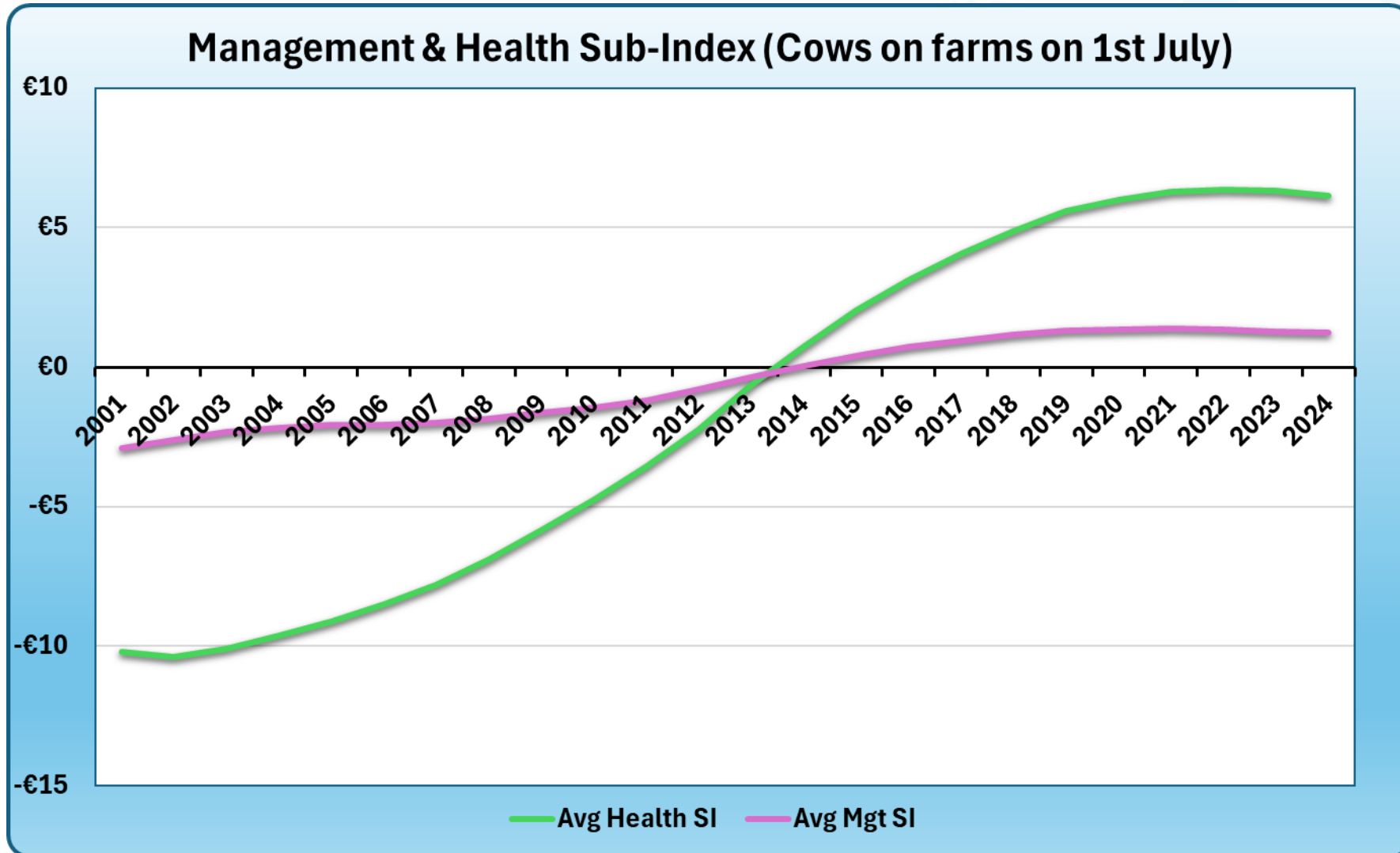
EBI - Beef & Maintenance Trend 2001-2024



- Cow size increasing in the last 3-4 years
- Beef sub index continues to decline albeit at a slower rate!



EBI – Health & Management Trend 2001-2024



- Gains in Health sub-index have flat-lined or declined slightly.
- Similar trend in Management sub-index



EBI is delivering higher performance

2023 KPI's by Herd EBI

KPI Metric (2023)	Btm 20%	Average	Top 20%	Diff.
Average EBI	€117	€178	€231	€53
Herds	2,268	14,118	2,267	
Dairy Cows	80	99	146	
Milk Litres per Cow	5,018	5,060	5,501	442
Butterfat %	4.12	4.26	4.45	0.20
Protein %	3.41	3.50	3.63	0.12
Kgs Milk Solids / Cow	388	404	457	53
Milk Price (cpl)	40.84	42.01	44.09	2.07
6-Week Calving Rate	60	68	81	12
Calving Interval (days)	398	384	369	-16
AI Bred Repl. %	45	58	92	35
Kg CO2 / Kg FPCM	0.942	0.918	0.849	-0.069

- Herds in the Top 20% on EBI are delivering **+53kg MS** per cow, have better fertility (**-16 days Calv. Int.**, **+12% 6wk calving**) & produced **0.069Kg** lower CO₂e than the average herd.
- Equivalent to **€345** more per cow (assuming €6.50/kg MS) or **€34,000** for the average herd!

With similar management EBI is delivering

2023 KPI's for Large Herds (>200 cows) by EBI

KPI Metric (2023)	Btm 20%	Average	Top 20%	Difference
Average EBI	€143	€200	€240	€40
Herds	207	1,107	206	
Dairy Cows	293	301	296	
Milk Litres per Cow	5,676	5,442	5,451	10
Butterfat %	4.22	4.46	4.61	0.15
Protein %	3.49	3.62	3.70	0.08
Kgs Milk Solids / Cow	449	452	466	14
Milk Price (cpl)	43.21	44.40	45.23	0.83
6-Week Calving Rate	59	73	84	10
Calving Interval (days)	401	383	370	-14
AI Bred Repl. %	61	79	94	15
Kg CO2 / Kg FPCM	0.933	0.875	0.825	-0.05

- Herds in the Top 20% on EBI are delivering **+14kg** MS per cow, have better fertility (**-14** days Calv. Int., **+10%** 6wk calving) & produced **0.05Kg** lower CO₂e than the average herd.
- Equivalent to **€91** more per cow (assuming €6.50/kg MS) or **€27,350** for the average of the large herd!

EBI is selecting for a more profitable & environmentally efficient cow!

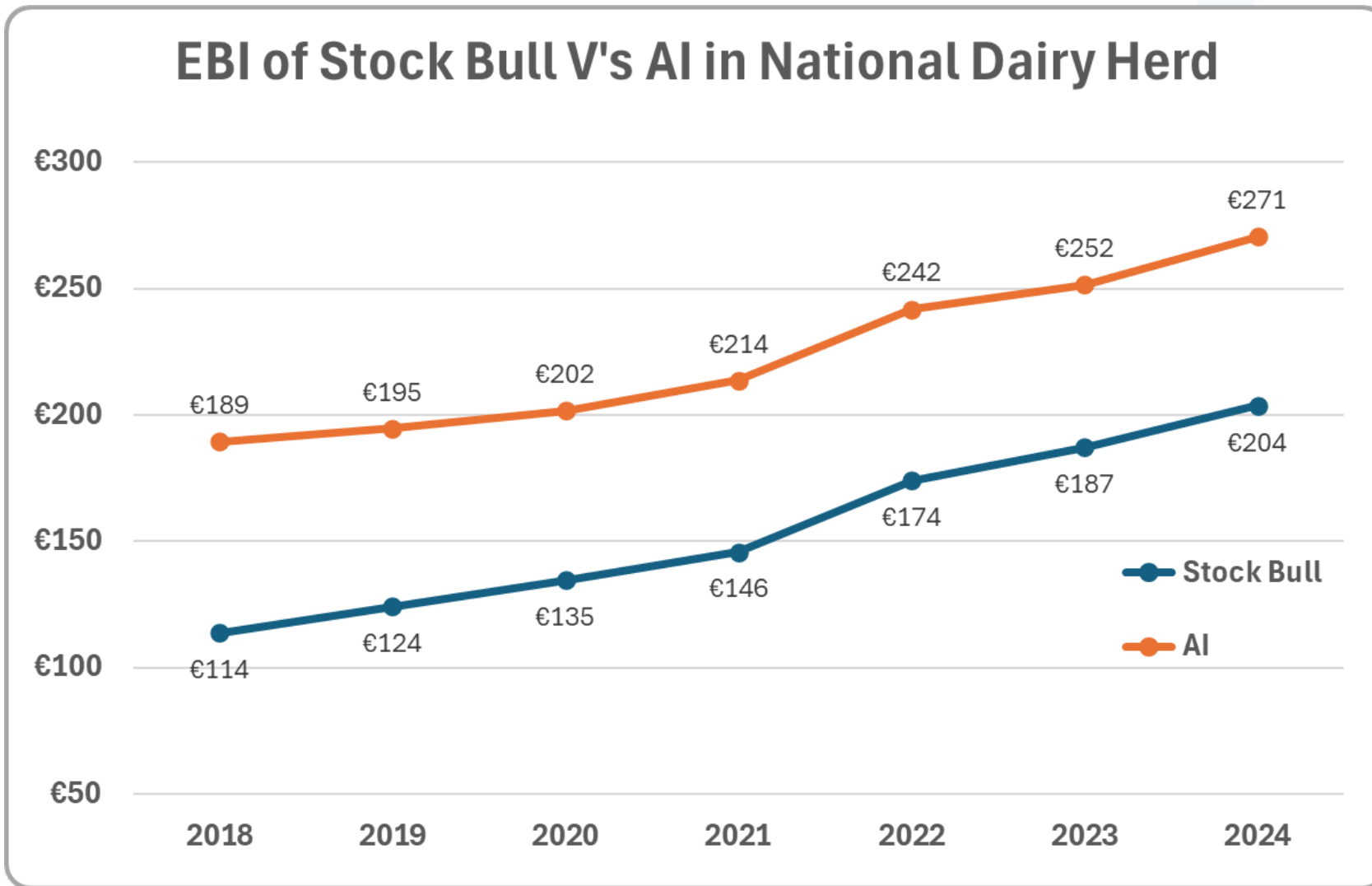
What if ?



What if exercise	Btm 40%	Top 20%		
Average EBI	€139	€231	Kg Milk Solids Difference	(C) Assuming 35% gain from genetics
(A) Number of Dairy Cows	81	149		
(B) Kgs Milk Solids / Cow	388	457	69	24
(D) Total Milk Solids (A x B)	31,428	68,093		
(E) Kgs MS/Cow with improved genetics (B + C)	412			
(F) Total Solids with improved genetics (A x E)	33,384			
Milk Solids Difference (D - F)	1,956			
Financial Difference @ €6.50/kg MS	€12,715			

At National level = €57m
How could we make this happen?

EBI of Progeny from Stock Bull V's AI



- AI usage continues to increase – now at 70% of dairy replacements
- Consistently ~€67 of a difference between AI & SB

Performance of Stock Bull V's AI Progeny

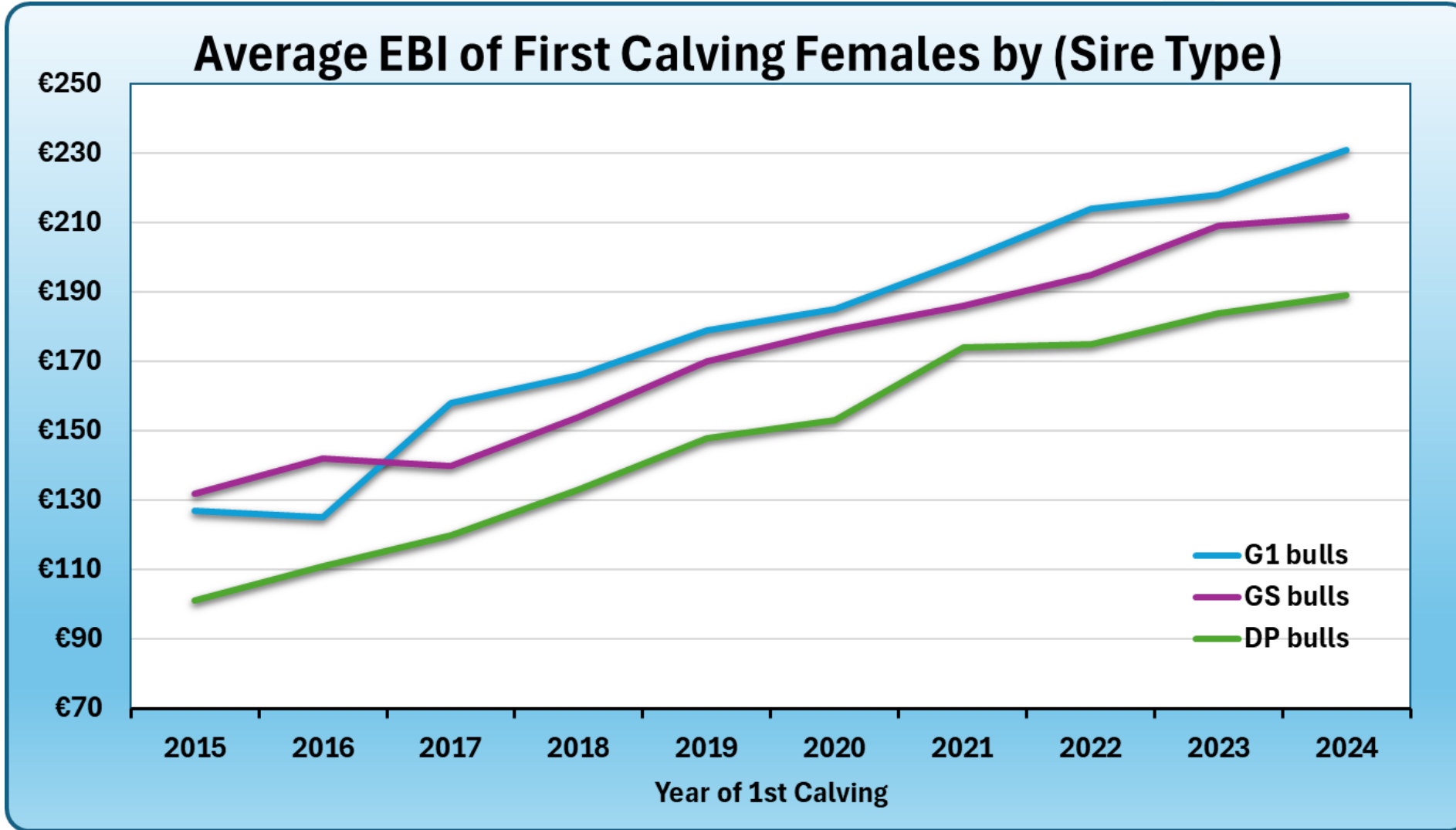


		Cows	Milk Kg	Kg Solids	DIM	Calv Int
Average 2020 & 2023	AI	602,308	6,601	516	295	380
	Stock Bull	123,234	6,536	491	296	385
	Difference		-65	-25	1	5



- Loss of €163/cow or €16,300 for the average 100 cow herd.
- Why do we continue to breed replacements from stock bulls?

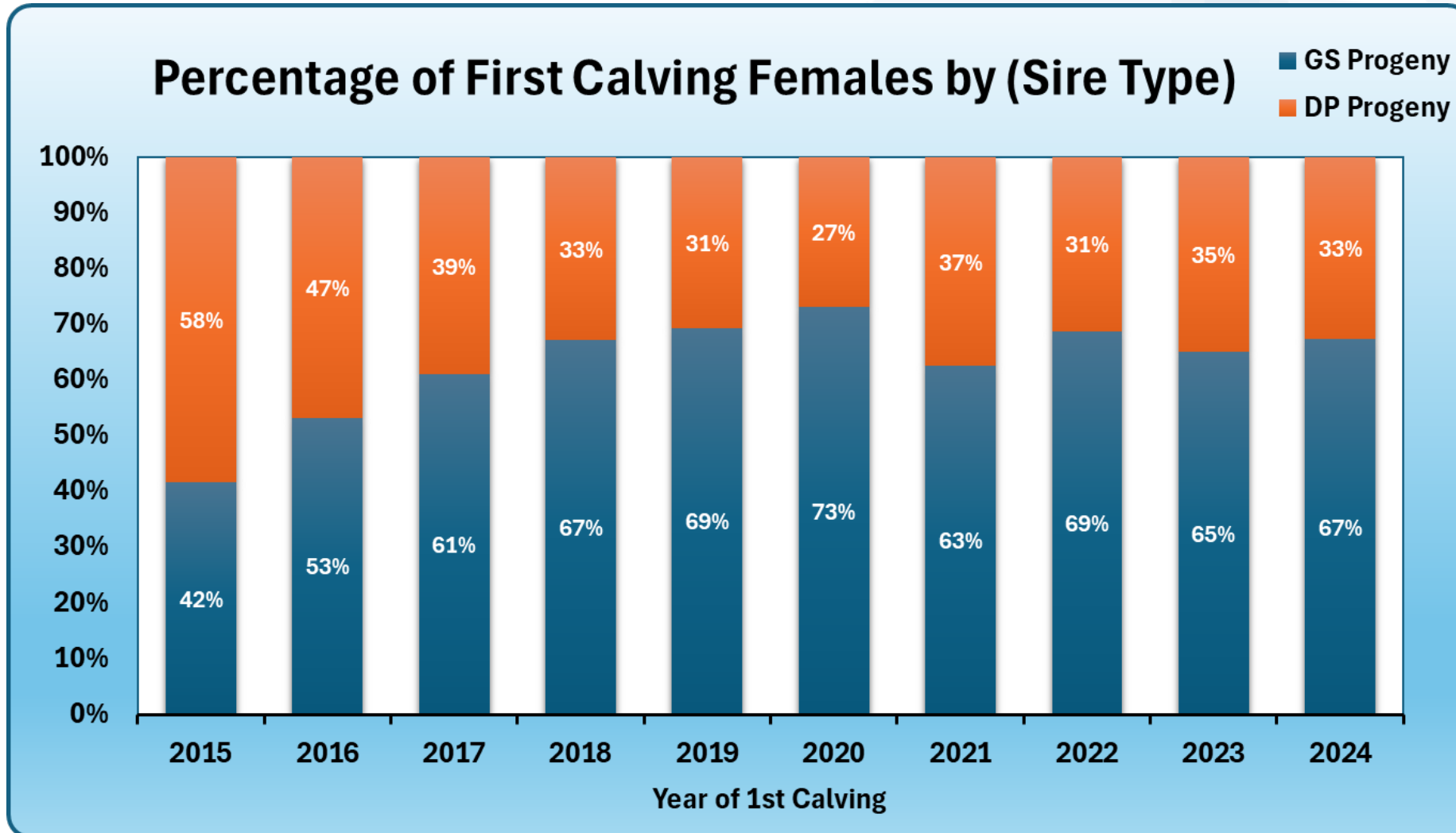
Selecting younger GS sires or Daughter Proven Sires?



- Progeny from G1 sires are over €30 higher in EBI on a consistent basis.
- This equates to over €60 more profit / daughter.



Trends in GS v's DP progeny calved (2015 - 2024)



- Progeny from GS sires account for about two-thirds of the heifers calved down each year.
- Has remained static for the last 7 years!
- Is there an opportunity to increase this level?

Genomic (GS) bulls V Daughter Proven (DP) ranked on EBI (Nov '24)

Top 20 Genomic (GS) Bulls				
Rank	Code	Bull Name	EBI	REL%
1	FR8709	(IG)OLCASTLETOWN MOJO	€375	68
2	FR5816	(IG)CLOONIGNEY PINATUBO	€359	59
3	FR9959	KNOCKATRISNA CANELO SRM	€359	57
4	FR9813	AGHERNBRIDGE BOROCCO SRM	€356	61
6	FR9816	LAHARN BRUNO	€356	58
7	FR9819	CHERRYHILL TROOPER	€355	57
8	FR9966	(IG)VADENHILL SHOEMARK SRM	€354	60
9	FR8466	(IG)DERRYMELEEN EXUDE SRM	€351	68
10	FR8881	BARRONSTOWN ROGER	€351	67
13	FR8893	GLENABOY ALLSTAR SRM	€349	67
14	FR1194	(IG)SULAN QUEST	€348	57
15	FR7398	(IG)GLENCROW ROMEL SRM	€347	69
16	FRX224	(IG) MODELIGO NUTMEG	€347	64
17	FR1185	(IG)KILLAVALLA LINESMAN	€347	59
18	FRX287	BOHERCASS BAZZ	€346	60
19	FR9844	PROSPECLODGE HARRY	€346	59
20	FR7929	(IG)TANKARDSROCK TEAK	€345	72
22	FR7907	(IG)GREENHILLS BALLINTOSIG	€345	70
24	FR1786	COOLNASOON BLAZE SRM	€345	57
25	JEX302	LAURAGH LEO	€345	57
AVERAGE			351	62

Top 20 Daughter Proven Bulls				
Rank	Code	Bull Name	EBI	REL%
5	FR7293	(IG)CRAIGTOWN OBERON	€348	78
11	FR6469	TINNAKILL NAVIGATOR	€342	89
12	FR7296	(IG)CAPPAUNIAC ARAMAX	€341	80
21	FR7014	(IG)DEANSGROVE SADIO SRM	€336	88
23	FR6484	RIVERSIDE PIVOTAL 874 SRM	€335	90
32	FR6981	ROCHEMOUNT LAD	€331	87
36	FR6481	BROWNEY BARNÁ SRM	€330	89
37	FR7257	(IG)KILDRINAGH IVANT	€329	83
44	FR5845	LEHENA TERRY	€325	82
45	JE6694	ROOVESBRIDGE COPENHAGEN	€325	85
47	FR6439	(IG)OAKFARM BEHINS ZEUS	€324	88
54	FR7038	DUNGORMAN EDDIE SRM	€321	83
56	FR7047	(IG)BAURAVILLA PISTOL SRM	€320	88
68	JEX152	DIGGS HARDCOPY	€315	73
69	FR6987	SHANDANGAN REX	€315	82
81	FR7110	(IG)PARKDUV OSORNO	€312	84
86	FR6430	(IG)GHARBHCHOILL FISHER SRM	€310	85
87	FR6616	DROUMNACARA LILY DYLAN SRM	€310	87
95	FR6628	CULLOHILL SAMIR SRM	€308	86
99	FR7017	(IG)SEAFORT EAGLE	€307	84
AVERAGE			324	85

- There is €27 difference between the daughter proven and GS bulls!
- This equates to about 2-3 years of genetic gain.
- Genomic Bull have higher EBI's and produce more profitable progeny.

Take Home Messages

- High EBI delivers more profit at farm level.
- Big gains to be made at a national level.
- Good progress is being made but we can go faster.
- Need to use more AI and less stock bulls.
- More focus on young genomic sires.