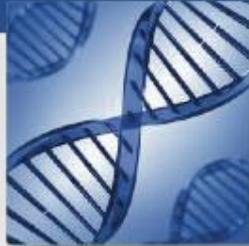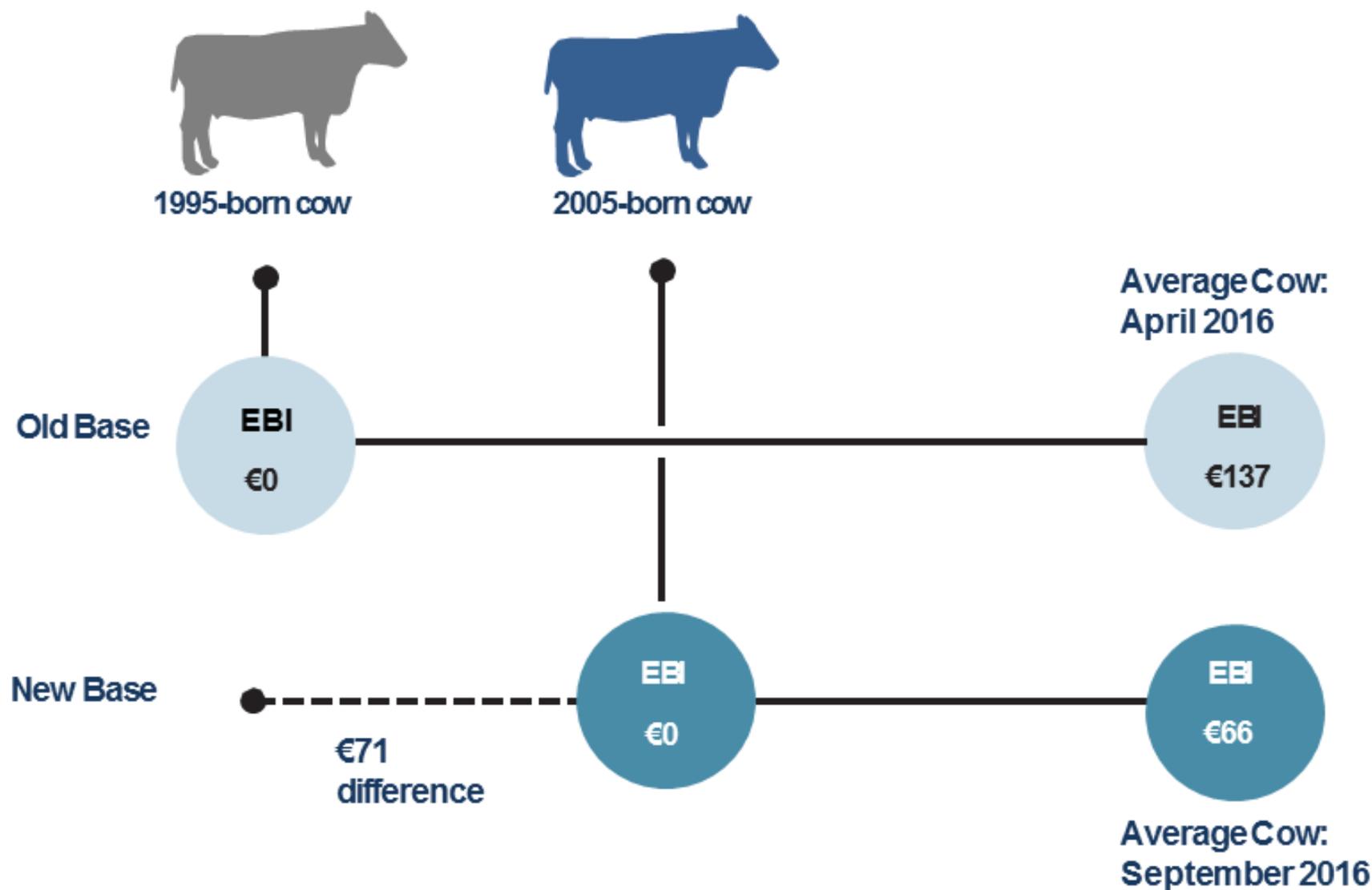# EBI Base Change & Impact on Bull Selection

Kevin Downing

Base Change

- What is the Base Cow?
  - A reference group of animals which all other animals can be compared against.
  - PTA's do not change from run to run.
- Reason for Base Change?
  - Ensure we can compare animals to the most accurate & relevant reference population.
  - No re-ranking!
  - Most countries do it!
- What does the change reflect?
  - Genetic progress for that trait.

Updating to a 2005 Base Cow: Impact on EBI

1995-born cow

2005-born cow

Average Cow: April 2016

Old Base

EBI €0

EBI €137

New Base

EBI €0

EBI €66

€71 difference

Average Cow: September 2016

ICBF.com

Sub index impact of base change

Table 1: Genetic changes to milk & fertility sub-indexes in the new base

Trait	Change in PTA	Value of Sub-Index change (€)	Total value of EBI change (€)
Yield	-116		
Fat kg	-4.9		
Protein kg	-5.2	-€29	
Fat %	-0.015		-€71
Prot %	-0.03		
Calv. Int.	2.8	-€42	
Survival	-0.65		

- Milk ~40%
- Fertility ~60%

- Avg. Milk -12kg

- 57% of Herds are negative on M Kg

What does the New Base Cow produce?

Table 2: Base change in milk production and fertility for first calvers

First Lact.	Base for production (305-day)			Base for fertility	
	Milk yield	Fat/Prot KG	Fat/Prot %	Calv. Int.	Survival
Old base	5,192kg	196kg/171kg	3.79%/3.30%	404 days	80.0%
New base	5,743kg	224kg/195kg	3.90%/3.39%	400 days	82.5%

- 305 day figures – National herd currently at 252 days!

Selecting bulls after a base change?

- Should not influence decision making process!

- The 3-step process should be:
  1. Check your **HerdPlus EBI Report** for the genetic indexes of your herd and identify which traits you wish to improve;

  2. Select a **Team** of bulls from the **ICBF Active Bull List** that are on average better than the genetic index for the traits you wish to improve.

  3. Use the **HerdPlus Sire Advice** tool to allocate the selected bulls to the cows in your herd.

1. Use the EBI Report

- Same Herd EBI, very different Sub-Index make-up

Animal Group	Num of Cows	Milk Kg Fat % Prot %	Surv% CI Days	Milk % Cont	Fertility % Cont	Calv % Cont	Beef % Cont	Maint % Cont	Mgmt % Cont	Health % Cont	EBI €
Cows with EBI	127	-244		€ -23	€ 60	€ 22	€ -7	€ 15	€ 1	€ -2	€ 66
Missing EBI*	0	-4.8 0.09	1.1	-17.8%	46.5%	16.9%	-5.1%	11.7%	0.5%	-1.5%	
Total Cows	127	-6.0 0.05	-3.8								

Animal Group	Num of Cows	Milk Kg Fat % Prot %	Surv% CI Days	Milk % Cont	Fertility % Cont	Calv % Cont	Beef % Cont	Maint % Cont	Mgmt % Cont	Health % Cont	EBI €
Cows with EBI	88	104		€ 25	€ 15	€ 26	€ -6	€ 3	€ 4	€ 0	€ 66
Missing EBI*	0	4.2 0.01	0.7	31.9%	19.6%	33%	-7.2%	3.4%	4.8%	0.1%	
Total Cows	88	4.5 0.02	-0.5								

ICBF.com

1. Use the EBI Report

- Same Milk Sub-Index, very different for Milk Kgs

Animal Group	Num of Cows	Milk Kg Fat % Prot %		Surv% CI Days	Milk % Cont	Fertility % Cont	Calv % Cont	Beef % Cont	Maint % Cont	Mgmt % Cont	Health % Cont	EBI €
Cows with EBI	113	100			€ 10	€ 16	€ 17	€ -4	€ -1	€ 1	€ 2	€ 42
Missing EBI*	22	1.5	-0.04	0.5	19.3%	32.8%	34%	-7%	-1.6%	1.2%	4.2%	
Total Cows	135	2.6	-0.01	-0.9								

Animal Group	Num of Cows	Milk Kg Fat % Prot %		Surv% CI Days	Milk % Cont	Fertility % Cont	Calv % Cont	Beef % Cont	Maint % Cont	Mgmt % Cont	Health % Cont	EBI €
Cows with EBI	176	-100			€ 10	€ 53	€ 24	€ -8	€ 10	€ 0	€ 0	€ 88
Missing EBI*	1	1.5	0.11	1.4	9.4%	50.5%	22.9%	-7.9%	9.1%	-0.3%	0%	
Total Cows	177	-0.1	0.07	-3.0								

1. Use the EBI Report

- Same Milk Kgs, very different Milk Sub-Index

Animal Group	Num of Cows	Milk Kg Fat % Prot %		Surv% CI Days	Milk % Cont	Fertility % Cont	Calv % Cont	Beef % Cont	Maint % Cont	Mgmt % Cont	Health % Cont	EBI €
Cows with EBI	86	100			€ 7	€ 7	€ 17	€ -12	€ 4	€ -1	€ 6	€ 28
Missing EBI*	1	1.3	-0.04	0.5	13.6%	14%	32%	-22.2%	6.5%	-1.5%	10.2%	
Total Cows	87	2.3	-0.02	-0.1								

Animal Group	Num of Cows	Milk Kg Fat % Prot %		Surv% CI Days	Milk % Cont	Fertility % Cont	Calv % Cont	Beef % Cont	Maint % Cont	Mgmt % Cont	Health % Cont	EBI €
Cows with EBI	92	100			€ 28	€ 3	€ 24	€ -6	€ 3	€ 1	€ 1	€ 54
Missing EBI*	0	6.5	0.05	0.4	43.1%	4.7%	36%	-9%	4.7%	1.1%	1.4%	
Total Cows	92	4.6	0.02	0.1								

2. ICBF Active Bull List – Website or App
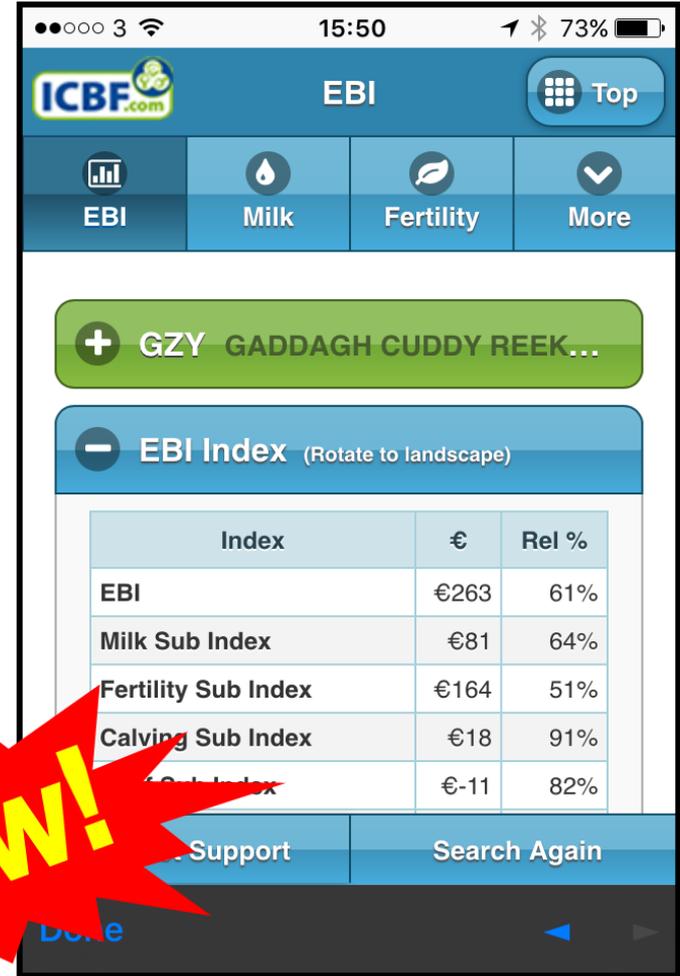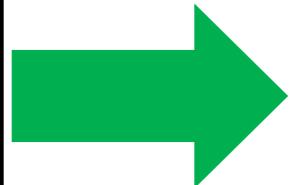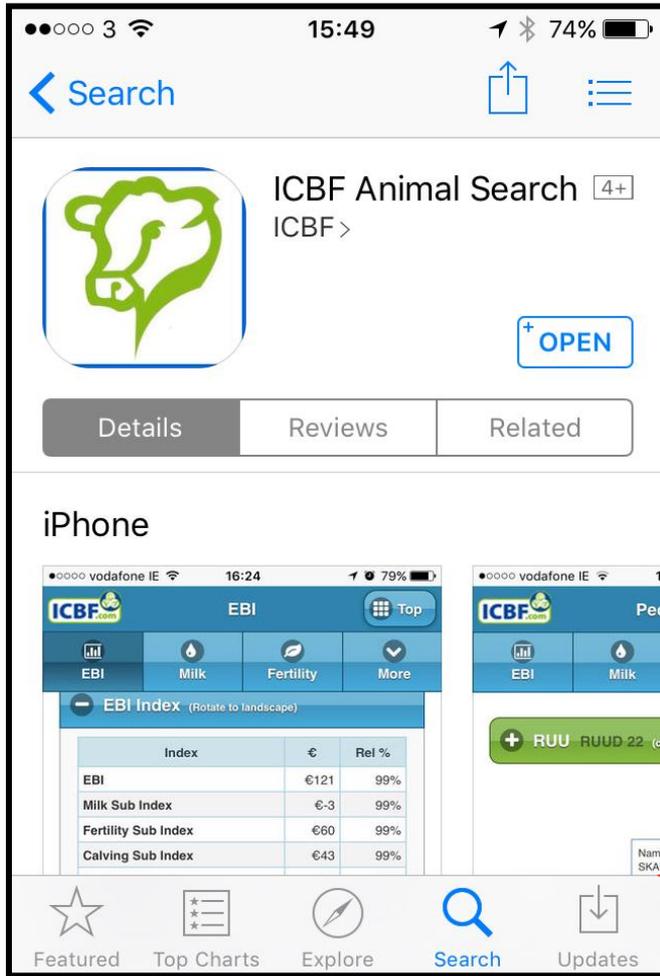
3. Sire Advice – For a balanced herd!

- Minimise Inbreeding.
- Minimise difference between Prod. & Fert. sub index.
- Minimise variation on milk kgs

Summary

- Updating base cow by 10 years.

- EBI scaled back by €71 - No re-ranking.

- Bull selection should not happen without knowing the PTA for the different traits. Use your EBI Report!!

- Provided you are selecting bulls with a figure that is better than the herd index, progress will be made.

- Team of bulls is vital (min 5).

- Use the ICBF Active Bull List and Sire Advice tool to help achieve your breeding goal.

Mindset change is required for this to happen!

Performance of the
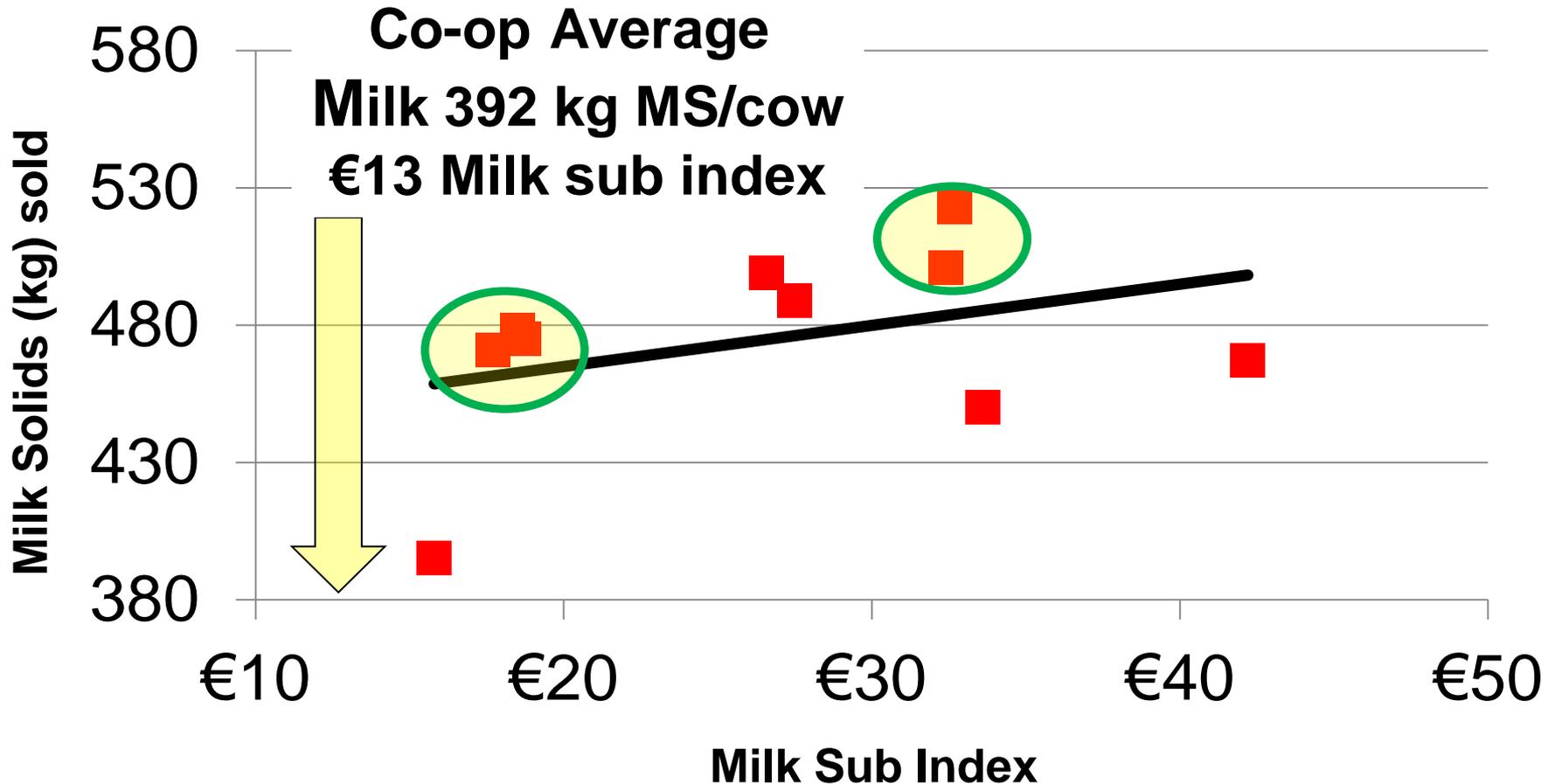
Teagasc Dairygold Demo farms

Adrian O'Callaghan

Teagasc Mallow

Teagasc / Dairygold Demo Farms

	EBI	Milk €	Fert €	Milk Kg	F + P Kg
May '16	171	56	86	113	19
Sept '16	97	27	41	-3	9
			6 wk. Calv 78%	506 kg MS/Cow 6420 l @ 4.22%F & 3.66% P	

Milk Solids sold vs. Milk Sub Index
Dairygold Demo Farms 2016 est.

Co-op Average
Milk 392 kg MS/cow
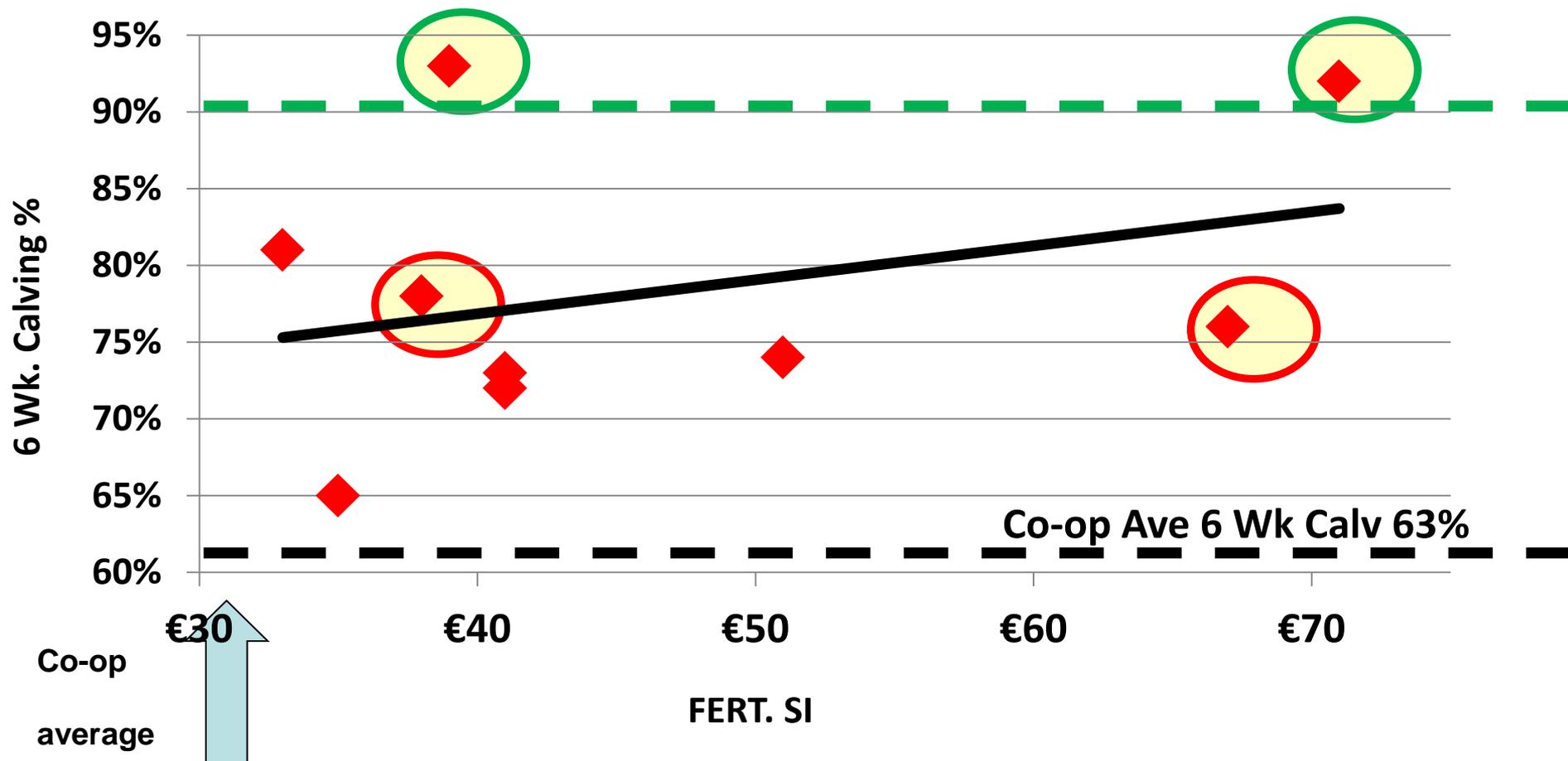**€13 Milk sub index**

Milk Solids (kg) sold

Milk Sub Index

Milk Solids sold vs. Milk kg PTA
Dairygold Demo Farms 2016 est.
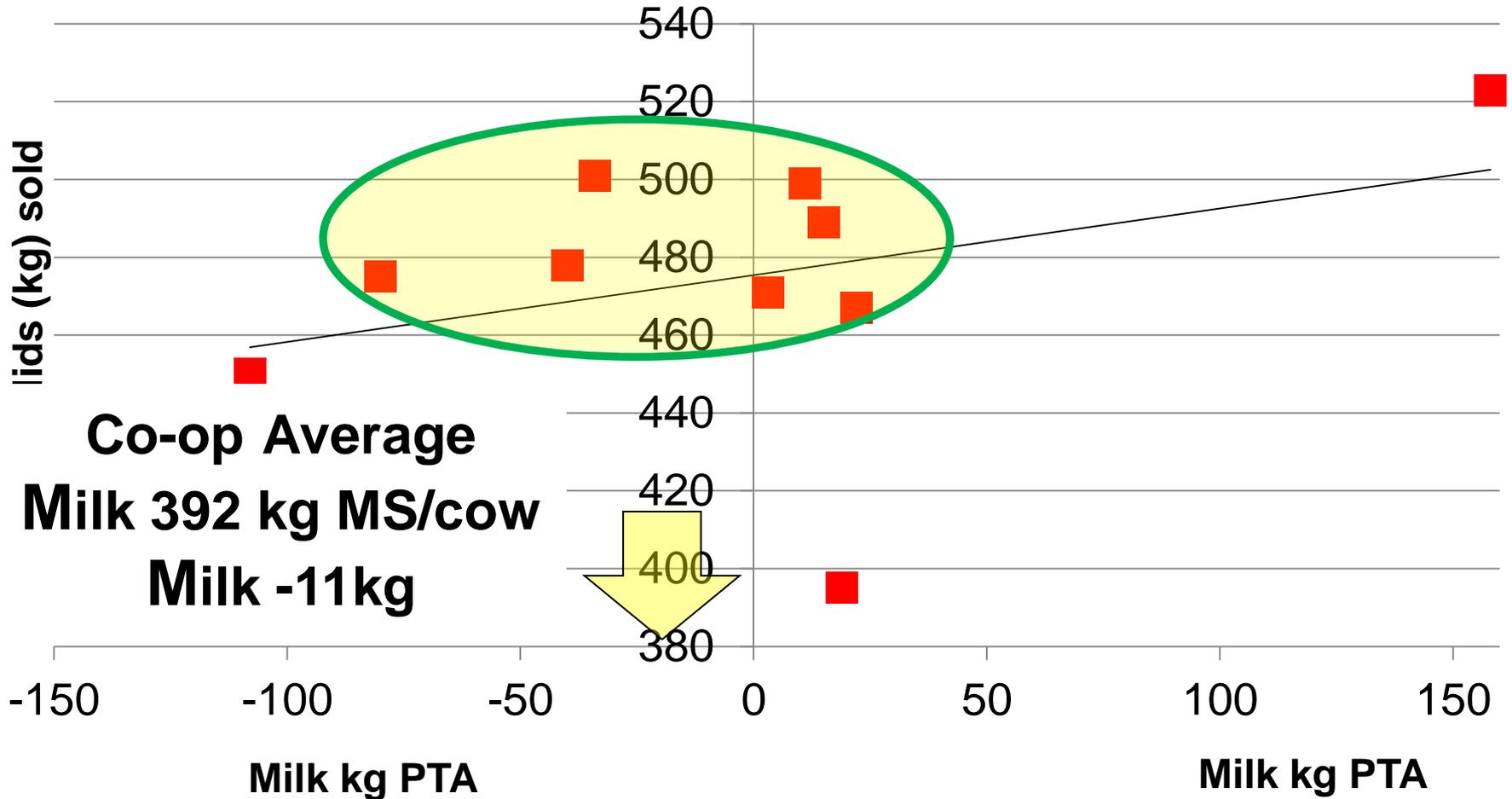
Fertility sub index vs. 6 week calving rate
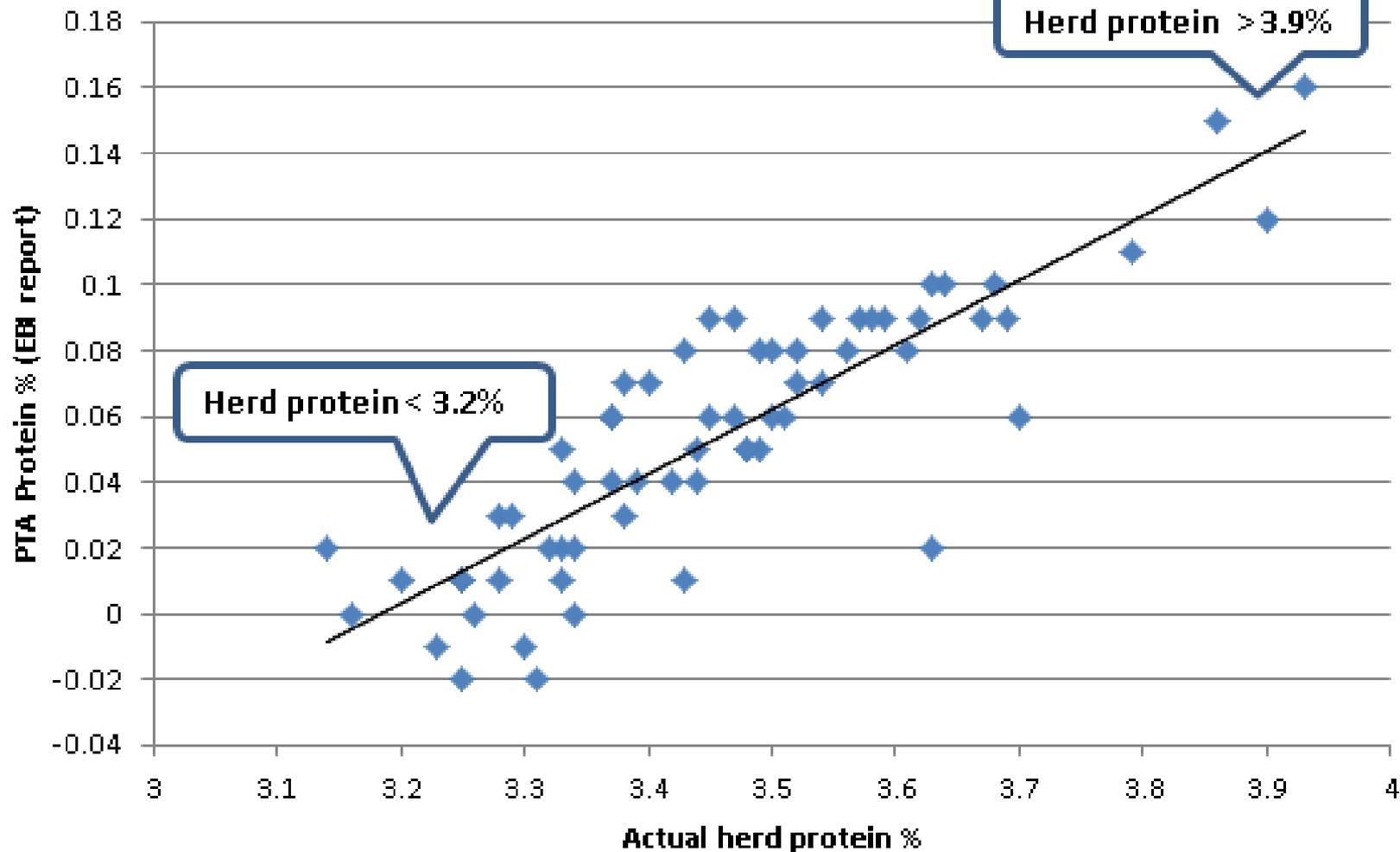## *Dairygold Demo Farms 2015 - 2016*

The Irish Agriculture and Food Development Authority

EBI versus On Farm Performance

Martina Gormley
Teagasc/Aurivo Joint Programme

Where we are….

	Milk solids/ kg 15	Calving interval	6 week%	EBI	P%
Co-op average	374	401	53	€46	3.42

*Aurivo, Arrabawn, Lakeland, Town of Monaghan Co-op average
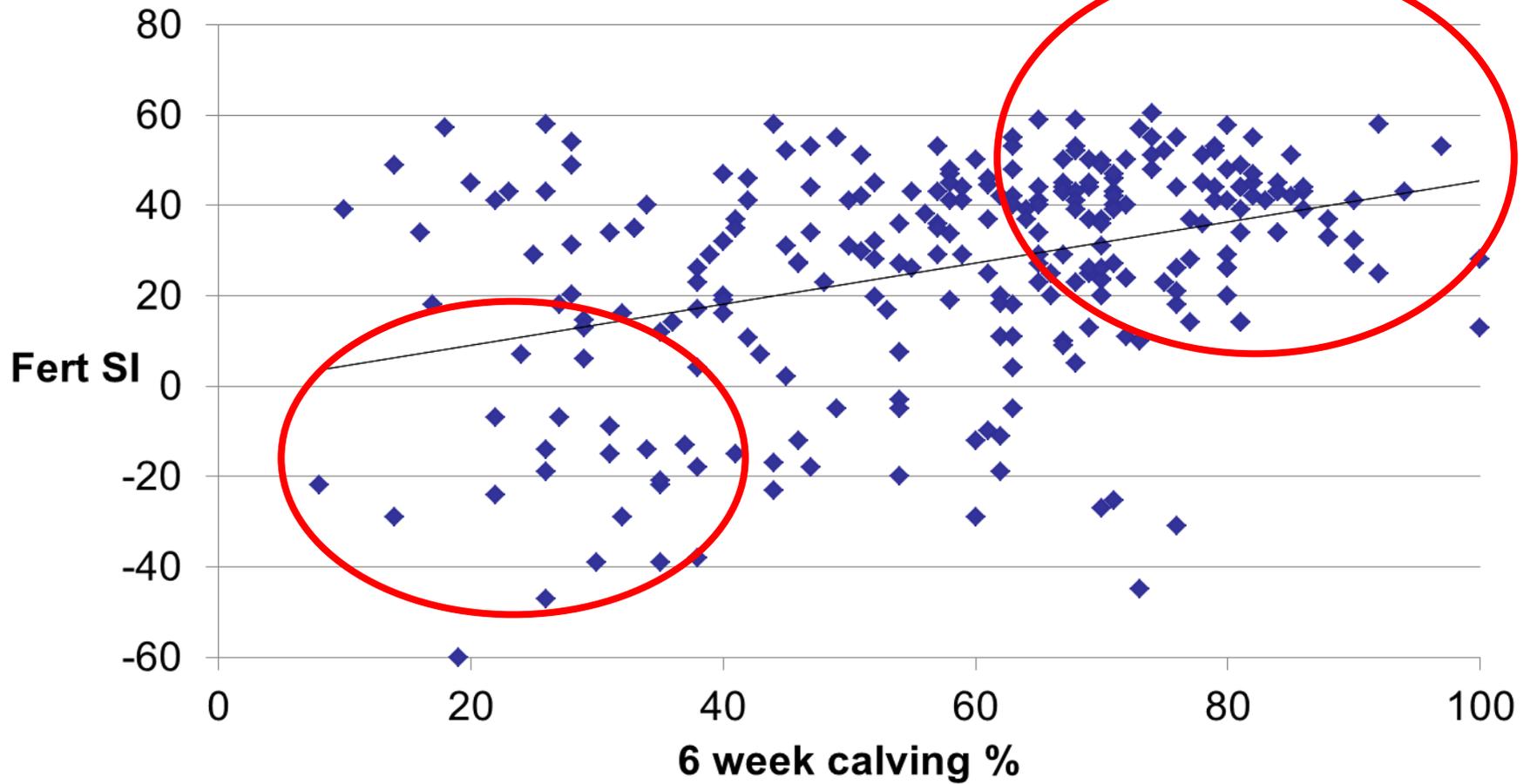
Actual Herd Protein % and PTA Protein %

Milk PTA and Solids Delivered

	Farmer A	Farmer B
EBI	€125	€51
Milk SI	€25	€35
Fertility SI	€57	€-7
PTA milk kg	-65	+203
Calving interval 2015 Six week calving % 2015	367 73%	393 42%
Milk solids sold per cow 2015	478kg	428kg

Key message
- Correct fertility first
- Milk PTA -100 to +100 can deliver 500+ kg milk solids

Fert SI € Sept 16 Vs 6 week calving rate

Summary

- Strong relationship with protein % delivered and protein % on your EBI report

- Negative milk kg is not a bad thing (base=0kg)

- Fertility sub index is playing a considerable part in achieving high solids

- Breeding goals have not changed

What AI bulls should you use in 2017?

George Ramsbottom

Teagasc Oak Park

Outline

- **Fertility drives milk production**

- **Volume or solids - grass based milk?**

- **Genetic variation within herds**

What does a 'base herd' look like?

Lact no.	% herd	Yield (lits)	MS (kg)	DIM
1st calv.	18%	5,452	394	280
2nd calv.	16%	6,290	449	280
Mature	66%	6,883	488	280
Herd average		**6,530**	**465**	**280**

Not Age profile

Not DIM

Short lactation / herd age profile

	Days in milk	Milk solids (kg)	Difference (kg)
Base Herd	**280**	**465 kg**	
Shorter lactation	**252**	**427 kg**	**- 38 kg**

Target fertility sub index

New fertility target €100

Base change - €42

Old fertility target **€125-140**

Milk sub index

Milk sub index

Milk sub index
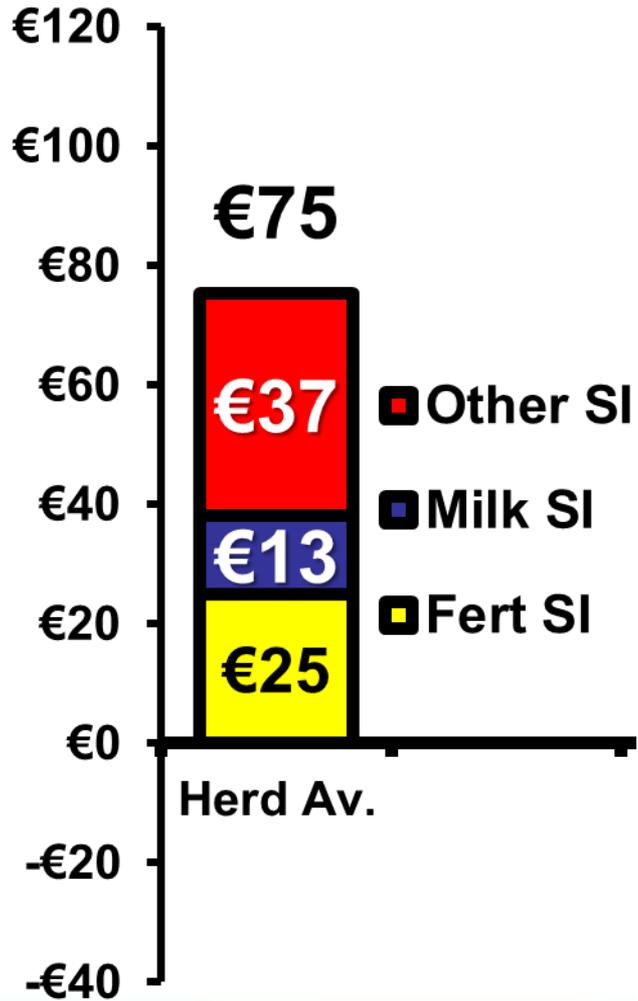
Milk sub index

Lact no.	Annual Yield	
	Litres (Fat %/ Pr. %)	**MS (kg)**
Base herd	6,500 (3.7%/3.3%)	465
High solids	5,500 (4.5%/3.7%)	465

Milk kg – Less is More: Minus milk kg; >20kg milk solids

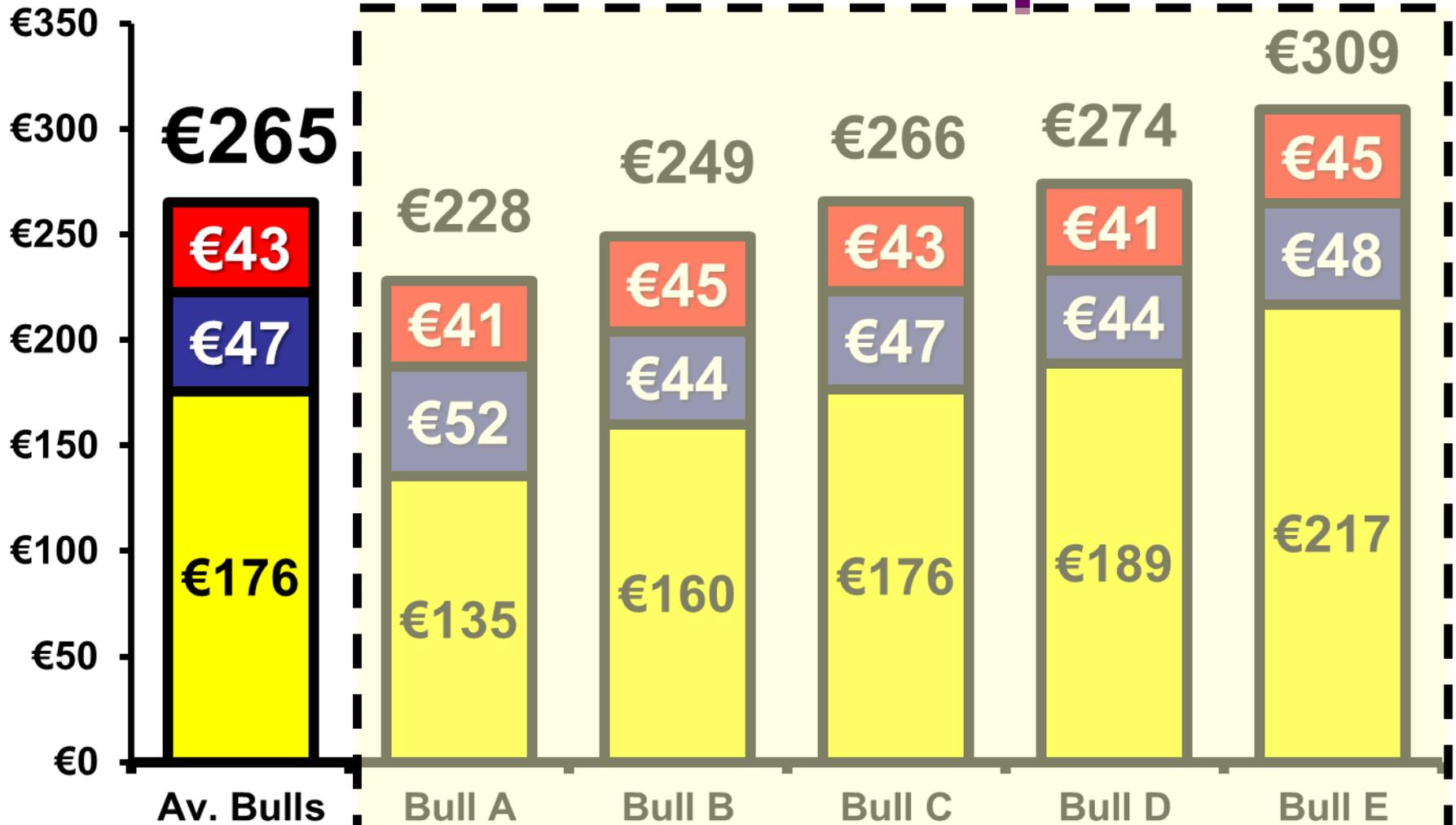| Lact no.	Annual Yield		Peak Yield	
	Litres (Fat %/ Pr. %)	MS (kg)	Litres (Fat %/ Pr. %)	MS (kg)
Base herd	6,500 (3.7%/3.3%)	465	29.5 (3.40%/3.22%)	2.0
High solids	5,500 (4.5%/3.7%)	465	25.0 (4.15%/3.44%)	2.0

Within herd genetic variation

Team of bulls required

Summary

	EBI	Milk sub index	Fertility sub index	PTA Fat & protein (kg)	PTA Milk (kg)
Bull Average	**€250**	**€60**	**€140**	**20**	**0**

- **Base cow ample milk?**

- **Emphasis on fertility**

- **Many suitable bulls available**