



IRISH CATTLE BREEDING FEDERATION

# Dairy Industry Meeting



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

# Agenda

- Base Change – Francis Kearney
- Genomic Evaluation Update – Francis Kearney
- EBI research updates – Francis Kearney & Donagh Berry
- Genomic Inbreeding – Tara Carthy
- COW – Margaret Kelleher
- AOB

# Base Change

A reference group of animals which all other animals can be compared against

Set their predicted transmitting ability (PTA) to 0 and adjust all other animals accordingly

Example:

	Un-adjusted	Base Adjusted
Cow A - born in 1995	0	-100
Cow B - born in 2005	100	0
Cow C - born in 2011	200	100

# Base Change

Introduction of new models (TDM), or Economic Values may cause re-ranking however a base change DOES NOT cause a change in bull **rankings**

Each animal is affected equally

Necessary to ensure people can compare their animals to a relevant group of cows

# Base Change

Key to base is that the PTA of the base animals do not change from run to run

Pick a group of animals whose PTA are unlikely to change with the addition of more information

Most countries chose a fixed base which gets updated periodically – compare current animals with a more reflective group of animals

The amount a base changes by is a reflection of the **GENETIC PROGRESS** for that trait or Index

# Base Change

Currently separate base for production and fertility traits

Production base is 1995 born cows milk recorded in 2000

Fertility is sires born between 1988 and 1992 with 90% reliability

New base for production & fertility is 2005 born cows, calved and milk recorded in 2007, with at least 2 year out of 5 milk recorded (n=61,000)

2005 born will have had the opportunity to contribute information to each lactation used in the evaluation

e.g., we use the first 5 calving intervals for fertility so 2005 born cows would now have calved for the 6<sup>th</sup> time

# 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	<b>-€29</b>	<b>-€71</b>
Fat kg	-4.9		
Protein kg	-5.2		
Fat %	-0.015		
Prot %	-0.03		
Calv. Int.	2.8	<b>-€42</b>	
Survival	-0.65		

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

	Base for production (305-day)			Base for fertility	
First Lact.	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%

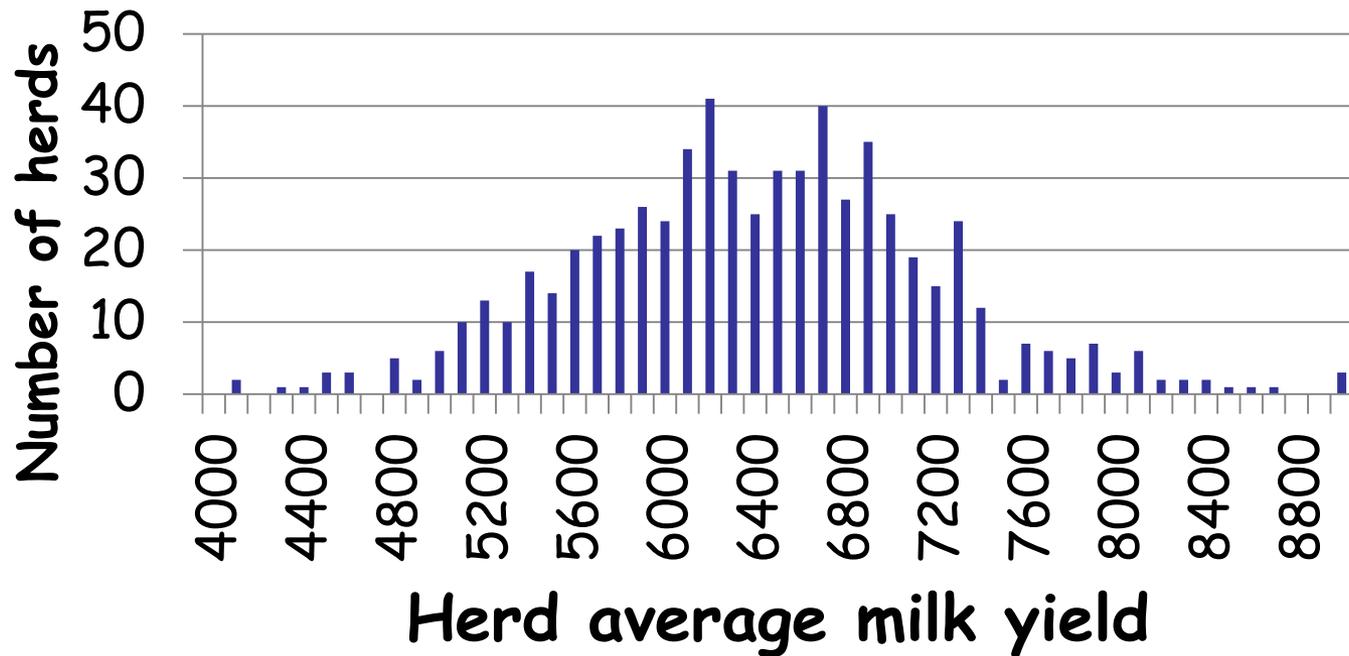
# Impact of Base Change

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	145	169		€ 72	€ 121	€ 34	€ -6	€ 5	€ 3	€ 1	€ 231
Missing EBI*	0	13.8 0.14	3.4	29.8%	49.9%	14%	-2.4%	2%	1.2%	0.6%	
Total Cows	145	11.1 0.1	-6.5								

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	145	53		€43	€79	€ 34	€ -6	€ 5	€ 3	€ 1	€160
Missing EBI*	0	8.9 0.12	2.75	29.8%	49.9%	14%	-2.4%	2%	1.2%	0.6%	
Total Cows	145	5.9 0.07	-3.70								

# What is your current position?

- Need to know the genetic merit of herd
- Rules of “bulls must be +250 kg” have no basis whatsoever



# What do you want to improve and how fast!

- Ensure the team of selection bulls are greater than average herd genetic merit for traits of interest
- **Do not sacrifice (much) on other traits**
- Long term gain @20% replacement rate

# Increasing milk solids output

1. Increased genetic merit for fat+protein
  - 1 kg sire PTA → 2 kg difference per lactation
2. Increased lactation length
  - Improved calving interval
  - Remember cumulative effect across lactations and impact on date of birth of replacements
3. Greater survival
  - Second and third parity cows yield 14% and 22% more than first parity

# Summary

- Updating base cow by 10 years
- Combining base for milk and fertility
- Base change alone will not cause a re-ranking of bulls
- Farmers need to focus on PTA (or sub-indexes) when selecting bulls that are suitable for their requirements