

# Change coming in EBI

## George Ramsbottom, dairy specialist, Teagasc Oak Park, discusses the Economic Breeding Index and how its changes will affect the breeding targets for Irish dairy herds

The base cow against which EBI is measured changed last September with all EBI's dropping by €71. The previous base was a cow born in 1995 and in milk production in 2000. This base had been used since the introduction of the EBI in 2000. Most countries choose a fixed base, which is updated periodically. To reflect improvements made in milk production and fertility in the Irish dairy herd, the base cow used to measure EBI changed to cows born in 2005 and milk recorded in 2007. As expected, the average performance of the new base cows is better than the performance of the old base cows. In terms of actual performance, this is summarised in Table 1. This increase is a reflection of both the improvements in genetics as well as non-genetic factors such as feeding, grassland management, and improved animal husbandry. The impact in terms of the genetic component is summarised in Table 2.

In the evaluation in September 2016, every dairy animal was scaled back by €71 EBI as a result of the base change. If only the base was changing, the change would be the same for every animal in the country and there would be no re-ranking of bulls. However, as more data was included for animals in that evaluation, the exact change in EBI depended on additional data added for individual animal. In other words the change in EBI seen in the September report was not exactly €71 for all herds. The milk yield detailed in Table 1 refers to the average production for the 2005 born spring first calvers. The performance of the base cow comes with a health warning – it can be hugely variable between years and within systems of milk production. So, for example while the 2005 born base

heifers in spring milk herds produced 4,929kg milk in their first lactation; those autumn calving in winter milk herds produced 8,421kg.

It's also important to remember that the new base still refers to 2005 born cows – huge further genetic progress has been made nationally since then. The reason why 2005 was chosen as the new base year is because solid data is needed for the base cow – over 60,000 cows are included in the new base with data included from up to five subsequent calvings.

### HOW DOES THE 'TYPICAL' BASE COW PERFORM?

When we talk about the base cow, we all like to visualise what her performance is like, so, this is summarised in Table 3. While the herd average for a stable herd of base cows is 427kg milk solids in a 252-day lactation, the actual average milk solids yield produced by different herds will vary enormously. There are a number of reasons for this:

- **Greater number of days in milk** – the herd average in Table 3 is 252 days in milk. For a herd averaging 280 days in milk, milk solids yield would be approximately 464 kg per cow.
- **More first and second calvers** – the herd detailed in Table 3 is a mature herd (5.5 lactation average). In a younger herd (3.3 lactation average) with 30% first calvers and 25% second calvers and milking for an average of 252 days, milk solids yield is predicted to be 412kg milk solids per cow.
- **Higher stocking rate** – Farming at a high stocking rate affects per cow milk solids yield – typically a one cow/ha increase in stocking rate reduces milk yield per cow

First lactation	Milk yield	Fat/protein yield	Calving interval	Survival
Old Base	5,192kg	196 kg/171kg	404 days	80%
New Base	5,743kg	224 kg/195kg	400 days	82.5%

Table 1. Base change in milk production and fertility for first calvers.

	Milk sub index		Fertility sub index	
	Yield	Fat/protein	Calving interval	Survival
Change in PTA	-116kg	-4.9kg/-6.0kg	+2.8 days	-0.65%
Value of sub-index change (€)	- €29		- €42	
Total value of EBI change (€)	- €71			

Table 2. Genetic changes to milk and fertility sub-indexes in the new base.

Lactation No.	% of herd	Actual yield – spring calving herds only		
		Milk yield (kg)	Milk solids	Days in milk
1	18	4,929	356	252
2	16	5,780	413	253
Mature cows	66	6,331	449	251
Herd average		5,991	427	

Table 3. Actual milk production of base cows in spring calving herds.

