

ICBF Active Bull List 2009; Guide, Review & Analysis.

In this article we provide farmers and the industry with a simple guide to reading the Active Bull List 2009, together with a brief review of the ICBF Active Bull Lists (2002-2009) and some analysis of the key features of 2009 Bull Listing.

1. Guide to reading the ICBF Active Bull List 2009.

The following are some the key fields (and descriptors) on this year's list;

- **Bull Details;** Rank, AI Code, Name, Holstein % or Breed. MO; Montbeliarde, MY; MRI. NR; Norwegian Red.
- **EBI & Proof Details;** EBI, Economic Breeding Index (€); Indicates expected profit/lactation for a bull's progeny compared to an average animal. **Rel;** Reliability of EBI proof. This indicates the reliability of the proof. The higher this value, the more reliable the proof. **Range;** The upper and lower EBI limit for the bulls proof, based on EBI reliability. **Proof;** The status of the Bull proof. **DP-IRL;** Daughter Proven based on milk recorded daughters in Ireland. **DP-INT;** Daughter Proven, based on foreign milk recorded daughters. **GS;** Genomically Selected.
- **EBI Sub Indices; Milk, Fertility, Calving, Beef, Health;** Sub Indices of the overall EBI. Added together these give the overall EBI figure.
- **Key Profit Traits; M Kg Predicted Difference (PD)** for milk yield. Bulls with + values for milk yield will increase milk yield. Positive values for **F Kg** (Fat Kg), **P Kg** (Protein Kg), **F %** (Fat %), **P %** (Protein %) will also increase each of the constituent traits. **CI** = Calving Interval (Days). Bulls with negative values for CI will reduce calving interval. **SU** = Survival %. Bulls with positive values will increase survival (longevity/herdlife).
- **Calving; CD%;** Calving Difficulty PD. Increasing % CD indicates increased incidence of difficult calvings e.g. % CD of 5% means that 5% of this Bulls calves will result in difficult calvings. **GL;** Gestation Length PD. Positive values indicates increased gestation length.
- **Availability;** Price, availability and supplier details of each bull are also included. This ensures that only bulls with at least 2000 straws available are included on the list. **L** = 2000-4000 straws available. **M** = 4000 – 6000, **H** = >6000 straws available. These details are provided by each AI Company for their own Bulls.

2. Review of the ICBF Active Bull List (2002-2009).

In reviewing the effectiveness of the ICBF Active Bull List 2002-2009, we are primarily interested in an analysis of the quantity and quality of dairy herd replacements.

- Quantity of AI replacements. The number of AI bred replacements has increased steadily over the past number of years from 107,901 in 2006 (46% of the total dairy replacements) to 133,399 (57% of total dairy replacements) in 2008.

Table 1. Number of AI Bred Replacements (2006-2008).

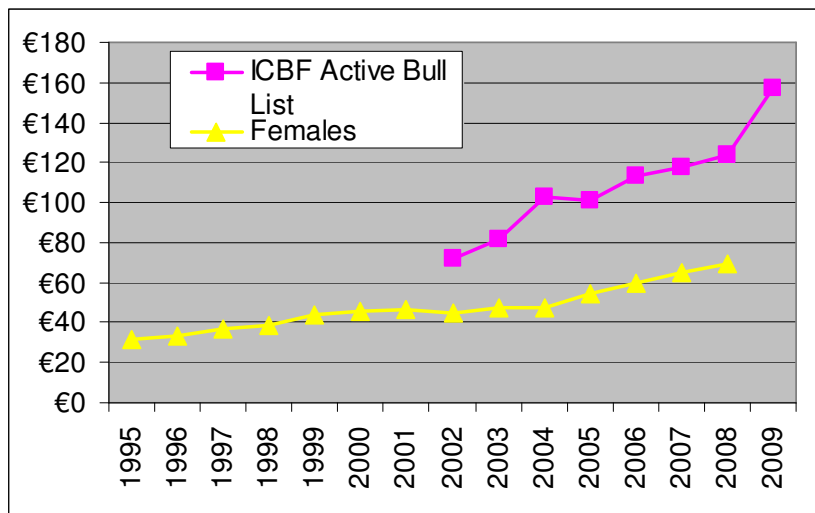
Year	Dairy Replacements	AI Bred	%AI
2006	255,174	107,901	46%
2007	245,902	122,748	52%
2008	260,000*	133,399	57%

This represents an increase per year of just over 5%, which is a major positive for the Irish cattle breeding industry. However, the total number of AI bred replacements is still considerably lower than achievable targets for the industry which, based on “industry best practice” (most developed dairy countries achieve 80%+ AI bred replacements), suggests that we should be able to generate 200,000 AI bred replacements per annum. Indeed, if one were to factor in the need for expansion of our dairy industry, then a target of 250,000 AI bred replacements over the next 5-8 years should be achievable.

- Genetic Gain in EBI (2002-2009).

Whilst the level of AI bred replacements is one indication of the effectiveness of the bull list, the more accurate measure is an analysis of the genetic trend for all dairy females and for sires included on each years bull list (Figure 1).

Figure 1. Genetic Trend in EBI for dairy females (1995-2008) and average EBI of sires on the ICBF Active Bull List (2002-2009).



Looking at genetic trends for both groups of animals suggests that average EBI has been increasing by some €5/year, over the past 5 years (up to 2008). Whilst this is very positive, it is still some way short of the optimal rate of gain that could be achieved by the Irish dairy industry (€23/cow/year), based on 100 bulls tested each with 100 daughters and returning a new top 10 bull each year to farmers. Furthermore recent work by ICBF has indicated that Genomic Selection has the potential to increase rate of gain by a further 50% (up to €35/year). However, this rate of gain is based on an optimal program and a more achievable rate of gain (based again on industry best practice) is in the region of €20/year. Nevertheless, we are still a long way from this target, which highlights exactly why increasing the average EBI of this years listing (as a result of GS and G€N€ IR€LAND it has increased by €33 compared to 2008) is critical to the future profitability of Irish farmers. Transferring as much of this €31 increase in available AI sires into next years heifer calves is a major challenge for the Irish AI industry. The future profitability of Irish farmers is dependent upon it.

- Uptake of the ICBF Active Bull List (2006-2008)

Whilst the average EBI of the Active List has increased by €33, this in no way suggests that all of this gain will be quickly transferred into dairy replacement females. Indeed recent work by ICBF has indicated that of the ~250,000 dairy herd replacements born each year some 56% of these are AI bred (with the remainder bred by stockbulls) and that of this only 60% are bred from bulls on the ICBF Active Bull List (Table 2).

Table 2. Analysis of AI Bred Replacements (2006-2008).

	2006	2007	2008
<u>Analysis of Replacements</u>			
Female AI Bred Replacements	107,901	122,748	133,399
Proven sires with EBI (<1986 & T05, T06, T07 removed)	99,468	111,802	120,007
<u>EBI Analysis of All AI sires</u>			
Weighted EBI	€92.3	€101.1	€105.1
<u>EBI Analysis of Sires from preceding Active Bull List</u>			
Weighted EBI	€117.5	€124.7	€126.2
Female AI bred replacements born from sires on preceding list	57,823	71,226	70,467
% total	58.1%	63.7%	58.7%

For example in 2008, the total number of AI bred replacements was 133,399, of which 120,007 were from proven AI sires (after excluding very old sires and test bulls). The weighted average EBI of these bulls was €105, which was some €21 lower than the weighted EBI of the bulls on the 2007 Active Bull List (based on the 70,467 progeny born from that list in 2008). This analysis indicates the critical importance of increasing the uptake of the Active Bull List if we are to achieve the EBI gain targets suggested earlier of 250,000 AI bred replacements and a target rate of gain for the industry of €20/cow/year.

3. Analysis of the ICBF Active Bull List 2009.

In undertaking an analysis of the 2009 listing we are primarily interested in how the list has changed compared to previous years. In doing so we are interested in a number of criterion including; EBI reliability, Irish tested bulls, Countries of Origin, Sires of Sons & Semen availability.

- Minimum EBI Reliability: The minimum EBI reliability has been dropped on the 2009 listing from 58% for the 2008 listing to 35% for the 2009 listing. This is to facilitate the inclusion of Genomically Selected (GS) bulls and high EBI daughter proven bulls from other countries. The net effect of this has been to drop the average EBI reliability of the list from 76% for the 2008 listing to 57% for the 2009 listing. However, this reduction in reliability comes with the benefit of a major increase in average EBI for the listing, up from €127 for the 2004 listing to €157 for the 2009 listing.

- Irish Progeny Tested Bulls; Of the 75 bulls on the list, 35 were progeny tested in Ireland. This represents an increase of 18 bulls compared to last year's list. This increase is a combination of the G€N€ IR€LAND® progeny test program, launched by ICBF four years ago and the exciting new cattle breeding technology termed "Genomic Selection". This once again underlines the importance of G€N€ IR€LAND® in delivering new top bulls every year.
- Countries of Origin; This year's list has 75 dairy AI sires from 3 different breeds and 10 different countries (Table 3). The distribution of breeds and countries of origin are shown below.

Table3; Country of Origin for Active Bull List Sires 2009

	HO/FR	MO	NR	Total
DEN	1			1
NOR	1		1	2
FIN	1			1
DEU	6			6
FRA		1		1
GBR	1			1
IRE	33			33
NLD	3			3
NZL	17			17
USA	10			10
Total	73	1	1	75

After 9 years of ICBF producing Active Bull Lists, Ireland is now the most popular source of bull's on the list. In all previous years, bulls bred in other countries had always outnumbered the Irish bred bulls. Now almost half of the bulls on the list were bred here in Ireland, which is a huge boost for the Irish cattle breeding industry. This huge change has come about as a result of the major effort that has gone into developing our National dairy progeny test program (G€N€ IR€LAND ®) by all of the relevant partners including ICBF, AI companies, DAFF and farmers. New Zealand and America are the next most popular countries of birth for Bull on the list.

- Sires of Sons; Table 4 shows the popular AI Sires and the number of sons that they now have on the 2009 Active Bull List. 'Ramos', 'NoorderDustin', 'Galtee Mars Usnes', 'Delta Coerd', 'Dawsons Belveder' and 'Hairy Breiz' are some of the other Bulls that also have sons on the list.

The G€N€ Ireland® progeny test program has concentrated on sourcing sons of high EBI sires. The result of this work is now very evident in the 2009 Bull List, with a number of popular bulls amongst farmers (e.g., OJI & RUU) now having sons featuring on the list. To help identify sires lines for use in your herd we have included the sire of each bull on the 2009 list. This will allow farmers ensure that they have a varied mix of bulls when they pick their team.

Table 4. Popular AI sires with sons on the 2009 Active Bull List.

Sire	Name	EBI	EBI Rel %	Number of Sons on the List
RUU	Ruud 22	€166	96	11
OJI	O-Bee Manfred Justice	€250	91	11
UYC	Collins Royal Hugo	€132	99	5
TIH	Tittenser Hylke	€123	95	3
QUR	QG Europe	€124	93	2
BWZ	Zander Keet	€141	96	2
LGI	SRB Corboys Lightening	€199	57	2
AXA	Galtee Alex 129	€114	94	2
AAP	Art - Acres Patron Spock	€127	98	2
ERC	Cen Erri	€77	94	2
HZO	Hazael Eminence Dano	€138	93	2

- ***Semen Availability:*** Since the publication of the list in Spring 2008, a number of bulls have insufficient semen (or are no longer available) to be included on the list. These include:
 - **NCBC:** RUU, KES, LLO & RIL
 - **Dovea Genetics:** DZA, OVB, TTF
 - **NZG/Eurogene AI:** CUE, BZW, CNI, JIN, JYX, KED, KLO, KRP, NTF, SGB, SYX
 - **ALTA:** CZO, TCZ

Bulls with 'Low' availability (2,000-4,000 doses) are not included in the ICBF Sire Advice program as large quantities of straws cannot be guaranteed. Farmers should note that AI companies have a limited amount of straws available for these bulls and so farmers should order straws early so as to avoid disappointment.