

1. Important Dates

- ✚ **Tuesday 30th June.** Irish Grassland Assn Beef Meeting.
- ✚ **Wednesday 1st July.** Dairy Genetic Evaluation Consultation meeting. Moorepark from 10:30 to 14:00.

2. Moorepark Open Day



- ✚ A large number of dairy farmers (above) attended the very well organised TEAGASC Moorepark Open day on Thursday this week.
- ✚ These are challenging times for Irish dairy farmers with very low milk prices and a particularly cold and wet early summer.
- ✚ The TEAGASC team of scientists and advisors assembled the latest research information into a series of stands and discussions with clear scientifically based messages.
- ✚ Farmer feedback and participation was excellent. Particularly appreciated is the way conventional wisdom is continually challenged in very well designed research trials.
- ✚ This open-day concept came out of New Zealand in the 1960's and continues in Ireland because our researchers not only address practical farm problems but are encouraged to provide the solutions freely. It is hard to imagine a better use for the taxpayer and farmer funding that supports TEAGASC.
- ✚ ICBF had a big presence. The HerdPlus[®] team (right - left to right - Kevin, Lisa, Margaret, Martin) were on hand to provide farmers with information on the performance of their own herds.
- ✚ Andrew Cromie and Francis Kearney were in the field providing information on the EBI, its components and recent developments.
- ✚ Results from a strain trial, under the direction of Stephen Butler, comparing cows with contrasting fertility sub-indices, identified from the ICBF database, provided a dramatic illustration of the power of genetic to influence fertility. Attached is a copy of the full paper. Note the summary points:
 - Cows with high genetic merit for fertility took 28 days less to go back in calf compared to cows with low genetic merit for fertility.



- Both groups had similar genetic merit for milk production, and actual milk production performance was the same for high fertility and low fertility cows.
- This clearly shows that superior production and fertility can go hand in hand
- It is essential to use high EBI sires with an excellent fertility sub-index.
- This on-going trial in Moorepark is the first study to show that fertility performance is more dependent on genetic merit for fertility traits than genetic merit for milk production traits.

✚ Donagh Berry (below) spoke of genomic selection which has been implemented by ICBF.



✚ Congratulations to Pat Dillon and the Moorepark team for a wonderful day.

3. Farewell and thanks to Rachel

- ✚ Today was Rachel Wood's last day with ICBF. Rachel joined the ICBF team in the autumn of 2005 having worked on dairy farms in the UK and in the livestock selection and animal evaluation groups at LIC. She is returning to her NZ home to take up the position of Manager of the NZ Animal Evaluation Unit replacing Bill Montgomery who is retiring shortly.
- ✚ While at ICBF Rachel played a central role in establishing the GENÉIRLAND® dairy progeny test. In addition to dealing directly with many farmers in the process of recruiting them to participate in GENÉIRLAND® she also oversaw the design and development of the database systems the support GENÉIRLAND®. Rachel deserves a lot of credit for her major contribution to ensuring the success of GENÉIRLAND®. We thank her for this, wish her well in her new role and look forward to meeting her at future Interbull meetings.

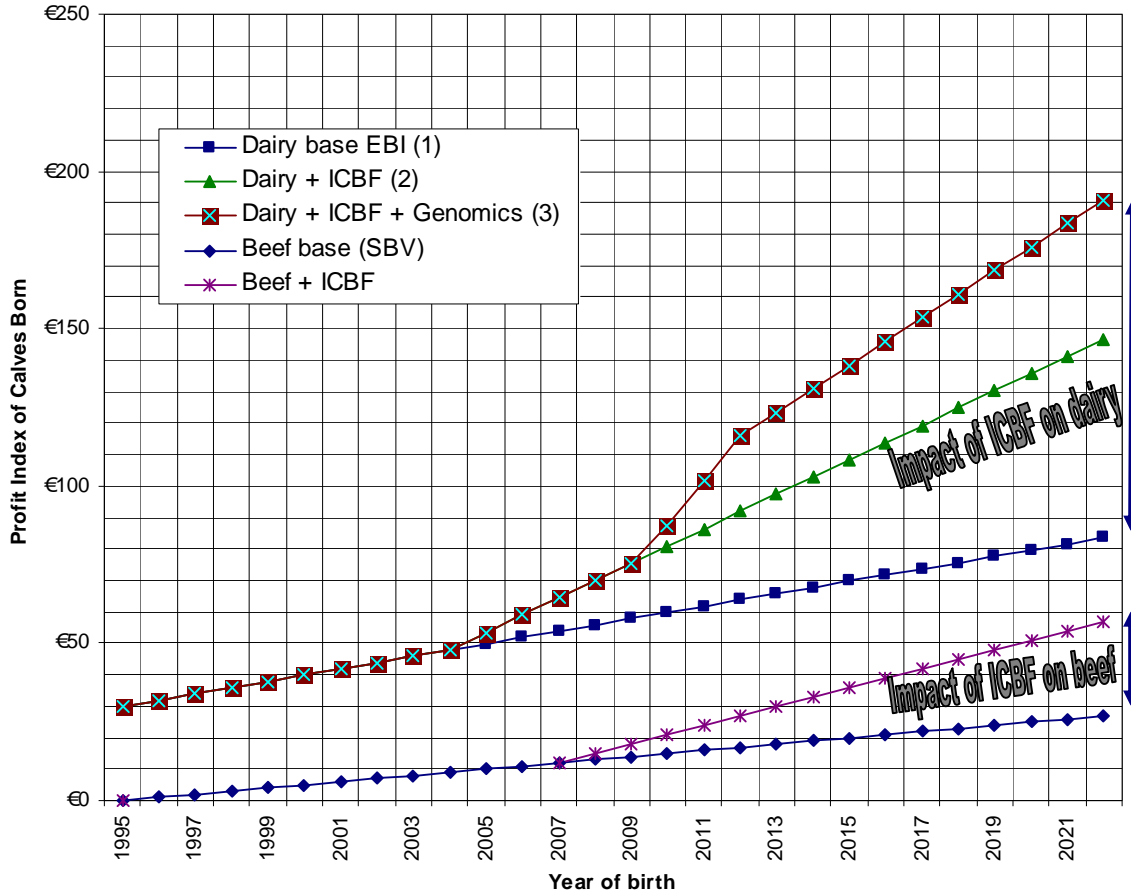


Andrew Cromie presenting a small memento to Rachel Wood on her last day with ICBF.

4. ICBF Contribution to the Profitability of Dairy and Beef herds

- As part of a review of ICBF's activities we have conducted an analysis of the benefits relative to costs of the extra genetic gain that can now be demonstrated. The results are summarised in this graph which shows how the genetic merit of calves born have changed or are projected to change.

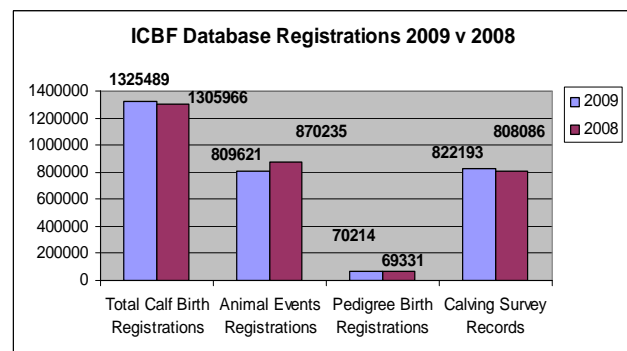
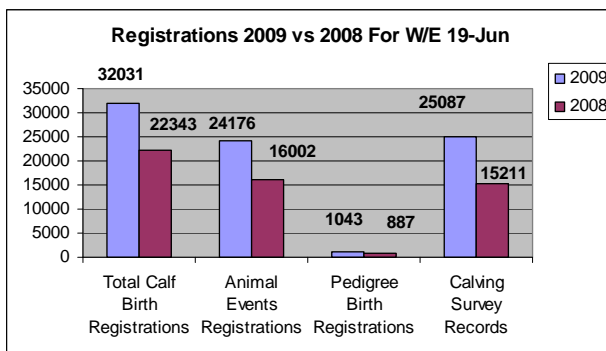
Projected Impact of ICBF on Genetic Gain of Dairy and Beef Calves Born in Ireland.



The table below converts these gains into the extra value, measure in terms of farm profit, of the calves born and compare this with the total cost of operating ICBF. The last column show the benefits less the cost of ICBF. After an initial period of cost exceeding benefits, as expected due to the long generation intervals of cattle, the benefits quickly outweigh the costs and become extremely large - €291 million by 2022. Over extended periods the net benefit is extremely high thus illustrating the value of world-class cattle breeding.

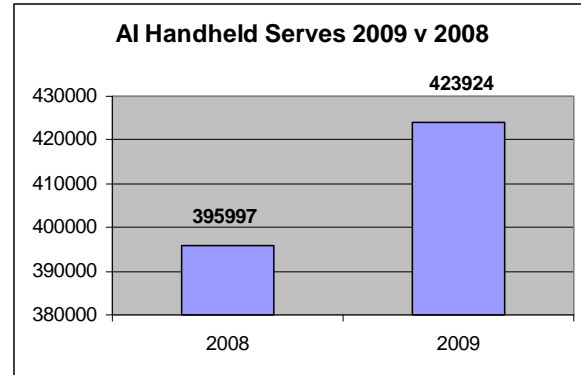
Year	Total Annual Cost of Operating ICBF (million)	Projected Dairy Benefits (million)	Projected Beef Benefits (million)	Benefit minus Cost (million)
1997	€0.1	€0	€0	€0
1998	€0.2	€0	€0	€0
1999	€0.2	€0	€0	€0
2000	€0.3	€0	€0	€0
2001	€0.7	€0	€0	-€1
2002	€1.3	€0	€0	-€1
2003	€2.6	€0	€0	-€3
2004	€3.2	€0	€0	-€3
2005	€3.3	€8	€0	€5
2006	€3.1	€16	€0	€13
2007	€4.9	€23	€0	€19
2008	€5.9	€31	€4	€29
2009	€4.7	€39	€8	€42
2010	€5.0 ¹	€61	€12	€68
2011	€5.0	€88	€16	€99
2012	€5.0	€115	€20	€130
2013	€5.0	€127	€24	€146
2014	€5.0	€139	€28	€162
2015	€5.0	€151	€32	€178
2016	€5.0	€163	€36	€194
2017	€5.0	€175	€40	€210
2018	€5.0	€188	€44	€227
2019	€5.0	€200	€48	€243
2020	€5.0	€212	€52	€259
2021	€5.0	€224	€56	€275
2022	€5.0	€236	€60	€291

5. Database



¹ Projected for 2010 onwards assuming current levels of activity.

- # The revised 2009 suckler forms (pre and post weaning) continue to go out to farmers. In relation to 2008 born calves, the number of calves with a meal feeding introduction has increased to 802,000, with just over 706,000 of these having been weaned.
- # The revamp of the Milk Recording system continues. Progress has continued this week, with Munster Milk Recording continuing to test the system.
- # Work on a new mechanism of sending and receiving Suckler scheme data to DAFF is continuing, and will be completed by the end of June.
- # The design of an upgrade to the security of log-ons to the ICBF site is being finalised and will be developed over the coming weeks.
- # Design of a new on-line application for AI companies to manage their interaction with ICBF on bull codes is underway.
- # The graph shows Inseminations recoded on AI Handhelds in 2009 compared with 2008. There are more technicians using the handhelds in 2009 than there were in 2008, so even though the number of inseminations recorded is up, it looks like the overall inseminations for the season will be down.



6. Genetic Evaluations

Beef Evaluations

Work continues on genetic parameter estimation for farmer scored calf quality and across breed linear type traits. Most relationships with calf quality and the current traits in the beef evaluation have now been estimated with the exception of the carcass traits.

Moorepark Open Day

The focus of work on the Animal Evaluation stand was Genomic Selection (GS) and its major role on dairy farmers this Spring. Some 35% of all recorded dairy inseminations through the technician AI service were to the GS bulls, which is a remarkable achievement given the newness of this technology. Clearly the average EBI of the GS bulls (some €50-€60 higher than equivalent daughter proven bulls) was a clear driver in the decision making process. Over the next few months ICBF will be comparing the GS proofs for 2006 test proofs, with actual proofs based on daughter performance. We look forward to seeing the results of this work.

7. GENRELAND®

Beef

- # Sign ups have ended for the Spring 2009 programme
- # 412 herds took part taking an average of 17 straws each.
- # This is 152 herds more than the 2008 Spring programme
- # 10 new beef bulls were fully tested.
- # Total straws sent out of the bulls left on the panel are in the table below

BREED	CH	CH	LM	SI	SI	PT	BA	AA	AA	AA	SH
CODE	RHI	CWB	RHF	RWV	SKU	KCP	WOA	RWB	FPG	LZE	CZB
STRAWS	612	37	397	193	603	297	467	307	139	306	224

Rachel Wood

Today is my last day at ICBF before I head back home to New Zealand to take up a position in the Animal Evaluation Unit. I would like to take this opportunity to thank everyone that I have had the pleasure of getting to know in my 3 ¾ years in Ireland. I have really enjoyed my time here and wish everyone the best of luck in the future. I am fortunate enough that my new role involves attending various conferences around the world so will get to see some of you again, but by all means if you ever find yourself in Hamilton do look me up.

I would like to say a very special thanks to everyone at ICBF for their warm welcome when I first arrived and for making my time here most enjoyable, it really has been a pleasure working here and getting to know everyone.

All the best

Rachel

8. Tully

- ✦ Bulls were booster vaccinated for RSV, PI3, Pasteurella and Clostridia diseases e.g. Blackleg. The final set of blood samples were obtained yesterday. Results from all blood samples taken last week were clear for IBR. Pending the results of the final set of blood samples, bulls in off-farm isolation will be moved back into Tully next week. First live-weights will then be obtained.
- ✦ Currently bulls are offered 8-9 kg of concentrates and 2 kg dry matter of hay per day. This has resulted in approximately 70% of bulls on ad-libitum feeding. The remaining 30% should have reached ad-libitum by early next week.

9. Milk Recording

National Milk Recording Statistics - Herds, Cows & EDIY 19/06/09						
Milk Recording Organisation	Total Herds Recorded YTD 19/06/09	No. EDIY Herds YTD 19/06/09	% Herds EDIY	Total No. Cows Recorded YTD 19/06/09	No. EDIY Cows YTD 19/06/09	% Cows EDIY
Progressive	2,029	815	40%	162,631	63,757	39%
Dairygold	1,479	548	37%	107,605	41,147	38%
Kerry	882	64	7%	58,508	3,715	6%
SWS	854	112	13%	57,993	7,974	14%
Tipperary	133	54	41%	10,467	4,581	44%
Arrabawn	138	113	82%	10,853	9,104	84%
Connacht	124	38	31%	7,694	2,185	28%
Donegal	28	28	100%	3,090	3,090	100%
Total	5,667	1,772	31%	418,841	135,553	32%

Recorded Cows by Milk Recording Organisation - Year on Year Comparison			
Milk Recording Organisation	YTD 2008 Cows Recorded 01/01/08 - 19/06/08	YTD 2009 Cows Recorded 01/01/09 - 19/06/09	2009 vs 2008 Year on Year Difference (%)
Progressive	166,407	162,631	-2.3%
Dairygold	109,133	107,605	-1.4%
Kerry	74,416	58,508	-27.2%
SWS	57,717	57,993	0.5%
Tipperary	11,718	10,467	-12.0%
Arrabawn	11,821	10,853	-8.9%
Connacht	7,999	7,694	-4.0%
Donegal	3,191	3,090	-3.3%
Total	442,402	418,841	-5.6%

National Milk Recording Results by County - 10 day Period 09/06/09 to 19/06/09								
	No. Herds Recorded	No. Cows Recorded	Average Herd Size	Average 24hr Milk kg/Cow	Average Fat %	Average Protein %	Average F + P kg	Average SCC
CARLOW	18	1,413	79	25.2	3.84	3.26	1.79	419
CAVAN	28	1,671	60	25.9	3.70	3.30	1.81	257
CLARE	24	1,402	58	24.0	3.72	3.31	1.69	393
CORK STH	219	14,758	67	24.6	3.76	3.40	1.76	264
CORK NTH	200	15,410	77	24.4	3.77	3.40	1.75	257
DONEGAL	1	101	101	25.9	3.84	3.27	1.84	261
DUBLIN	3	165	55	27.7	3.18	3.36	1.81	220
GALWAY	21	1,301	62	24.5	3.70	3.28	1.71	293
KERRY	118	7,161	61	24.3	3.60	3.20	1.65	351
KILDARE	12	993	83	23.9	3.79	3.29	1.69	444
KILKENNY	74	5,892	80	22.3	3.71	3.40	1.59	270
LAOIS	53	4,170	79	21.4	4.05	3.39	1.59	398
LEITRIM	7	337	48	28.8	3.83	3.22	2.03	240
LIMERICK	78	5,736	74	25.1	3.61	3.23	1.72	342
LONGFORD	10	667	67	23.3	3.83	3.28	1.66	322
LOUTH	20	2,096	105	25.8	3.60	3.34	1.79	296
MAYO	13	1,051	81	25.5	3.31	3.32	1.69	465
MEATH	49	5,499	112	23.3	3.69	3.26	1.62	353
MONAGHAN	34	1,947	57	24.5	3.68	3.30	1.71	357
OFFALY	41	2,856	70	24.4	3.83	3.36	1.75	265
ROSCOMMON	4	220	55	25.4	3.52	3.36	1.75	452
SLIGO	4	237	59	25.2	2.79	3.29	1.53	386
TIPPERARY NTH	27	2,112	78	23.0	3.84	3.40	1.67	252
TIPPERARY STH	55	4,073	74	23.7	3.77	3.36	1.69	287
WATERFORD	53	5,003	94	21.9	3.87	3.42	1.60	276
WESTMEATH	23	1,801	78	23.7	3.84	3.28	1.69	360
WEXFORD	71	5,259	74	23.6	3.72	3.37	1.67	302
WICKLOW E	17	1,315	77	22.4	3.21	3.32	1.46	263
WICKLOW W	8	676	85	25.7	3.57	3.25	1.75	297

	<i>No. Herds Recorded</i>	<i>No. Cows Recorded</i>	<i>Average Herd Size</i>	<i>Average 24hr Milk kg/Cow</i>	<i>Average Fat %</i>	<i>Average Protein %</i>	<i>Average F + P kg</i>	<i>Average SCC</i>
National	1,285	95,322	74	24.5	3.66	3.32	1.71	322

National Milk Recording Averages by Province - 10 day Period 09/06/09 to 19/06/09

Provincial	<i>No. Herds Recorded</i>	<i>No. Cows Recorded</i>	<i>Average Herd Size</i>	<i>Average 24hr Milk kg/Cow</i>	<i>Average Fat %</i>	<i>Average Protein %</i>	<i>Average F + P kg</i>	<i>Average SCC</i>
Munster	774	55,655	72	23.9	3.71	3.34	1.68	303
Leinster	399	32,802	82	24.1	3.50	3.32	1.64	324
Connacht	49	3,146	64	25.9	3.61	3.29	1.79	367
Ulster	63	3,719	59	25.4	3.87	3.29	1.82	292

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The effect of genetic merit for fertility on cow performance¹

Sean Cummins and Stephen Butler

Teagasc, Moorepark Dairy Production Research Centre

Summary

- Cows with high genetic merit for fertility took 28 days less to go back in calf compared to cows with low genetic merit for fertility.
- Both groups had similar genetic merit for milk production, and actual milk production performance was the same for high fertility and low fertility cows.
- This clearly shows that superior production and fertility can go hand in hand
- It is essential to use high EBI sires with an excellent fertility sub-index.
- This on-going trial in Moorepark is the first study to show that fertility performance is more dependent on genetic merit for fertility traits than genetic merit for milk production traits.

Introduction

For seasonal calving herds, good herd fertility is essential to achieve compact calving, which in turn is a key driver of farm profit. For this reason the fertility subindex makes up 24% of the EBI. By selecting high EBI sires with an added focus on a high fertility sub-index, a herd capable of meeting the fertility targets set out in Table 1 is achievable in time. A compact early calving pattern will favourably impact on farm profit by:

- Maximising labour efficiency; compact calving, calf-rearing and breeding seasons.
- Increased milk solids output per cow; longer lactations, and more mature cows, which have greater production potential.
- Increased milk solids produced from grazed grass (cheapest feed source).
- Reduced incidence of costly interventions; less non cyclic cows, phantom cows, hormonal treatments, etc.
- Reduced empty rates, less involuntary culling, more scope for voluntary culling i.e. cell count, lameness or poor production.
- Lower replacement rate, and hence greater scope for expansion.

Study comparing cows of high and low fertility sub-index.

A trial has been established at Moorepark to investigate the performance of cows of similar production potential but with contrasting genetic merit for fertility/survival (as indicated by their fertility sub-index). With the aid of the ICBF, the national database was screened for in-calf Holstein-Friesian heifers (animals with Kiwi Friesian genetics were excluded from selection) with similar genetic merit for production traits, but extremes of high or low genetic merit for fertility traits (as indicated by their production and fertility sub-indexes, respectively). To overcome issues regarding the low reliability of fertility proofs for individual cows, cognisance of background pedigree information was taken (sire and dams sire etc.) in order to reflect a level of consistency with regard to genetic background for high/low genetic merit for fertility. A total of 36 heifers due to calve in spring 2008 were purchased and moved to the Moorepark farm. All 36 cows had a similar percentage of Holstein-Friesian genetics (93%) and similar values for the milk production sub-index (€40). The 18 high fertility sub-index heifers had a fertility sub-index of €51 and an overall EBI of €105 and the remaining 18 had a fertility subindex of €30 and an overall EBI of €6. Cows with high fertility sub-indexes were sired by RUU, LBO, LLO and OJI while the low

¹ Proceedings Moorepark '09, Thursday 18th June 2009. Pages 57 to 59.

fertility sub-index group included the sires BIJ, VET, SYG and GUF. All 36 cows are managed as one herd in accordance with the Moorepark blueprint for pasture-based milk production. In 2008 the cows were bred using frozen-thawed AI to standing heat with the aid of tail paint. The production and fertility performance of each group during Year 1 of the study (2008) is summarised in Table 1.

Table 1. Milk production and reproductive performance during the first lactation for high and low fertility groups.

	High Fertility sub-index	Low Fertility sub-index	Fertility Targets
Milk Production (kg)	5069	5098	-
Milk solids (kg)	360	363	-
Average BCS	2.81	2.65	-
21 day submission rate (%)	83	72	90
First service pregnancy rate (%)	56	28	55-60
Six week in-calf rate (%)	72	41	>75
Empty rate (%)	11	28	<10
2008 mean calving date	15 February 2008	09 February 2008	-
2009 mean calving date	17 February 2009	11 March 2009	-

There was no difference in milk production during their first lactation. Both groups yielded around 360 kg milk solids per cow. The high fertility group maintained a better body condition score throughout lactation. This is particularly interesting, as all cows were fed and managed in a similar manner, suggesting a difference in energy balance existed between the two groups. In terms of reproductive efficiency, the high fertility group performed very well during the breeding season, having a higher submission rate, superior conception rates, less pregnancy loss (embryo mortality) and a lower overall empty rate than the low fertility group. All the above fertility measures feed into one important point: the mean calving date for the high fertility group in 2009 was a massive 28 days earlier than the low fertility group, this means a more compact calving pattern, longer lactations, and a more profitable cow.

Implications from this study

Currently the Active bull list has 38 bulls with a fertility subindex greater than €70 and an EBI reliability ranging from 35-96%. A high reliability sire with a fertility sub-index greater than €70 will generate replacement heifers with superior genetics for fertility traits. By consistently selecting high fertility bulls, fertility targets can be potentially achieved by every herd. Importantly, this can be achieved without reducing production potential, but will in fact lead to greater productivity through earlier calving, longer lactations and survival of more cows to maturity. This unique study shows for the first time that fertility performance is more dependent on genetic merit for fertility than genetic merit for milk production traits. Through the use of top EBI AI sires superior production and fertility can go hand in hand. Ongoing and future work with these cows will help to increase our understanding of the reasons for poor fertility, and potentially identify markers that could be included in selection indexes.