IRISH CATTLE BREEDING FEDERATION

Developments in Dairy Breeding 2011.

Andrew Cromie

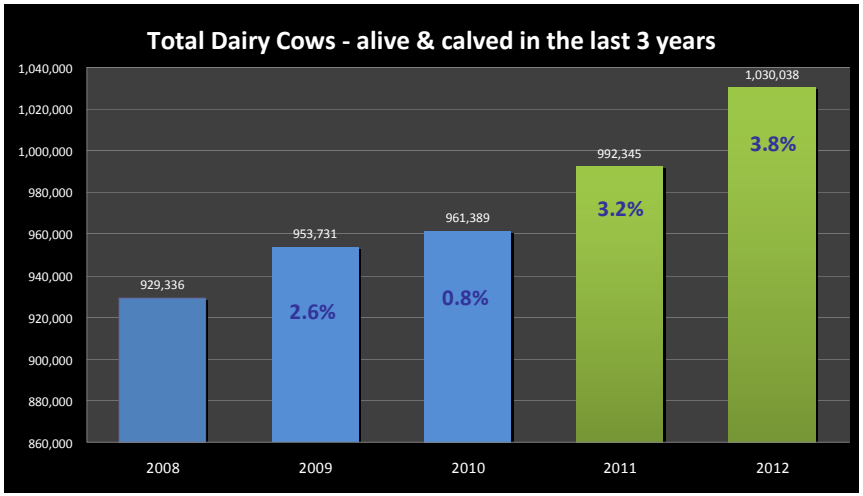
ICBF, February 2011.

Transforming Ireland

Overview.

- Trends in dairy herd replacements.
- EBI Update.
  - Does it work.
  - Developments for 2011.
  - Active Bull List 2011.
  - Genomics
  - G€N€ IR€LAND.
- ICBF HerdPlus.
- EBI€100 Discussion Group Competition.

Trends in Total Dairy Cows.



- Trends are based on data from the ICBF database (87% of total DAFF births).

Total Dairy Cows – By County

	Total Dairy Cows - alive & calved in the last 3 years									Discount Factor			
County	2008	2009	%	2010	%	2011	%	2012	%	0-1 to 1-2	1-2 t0 2-3	2-3 to >3	1-3+ to Lact1
Carlow	9,436	9,621	2.0%	9,765	1.5%	10,228	4.7%	10,750	5.1%	95.7%	35.7%	12.6%	69.9%
Cavan	29,699	29,535	-0.6%	29,106	-1.5%	29,284	0.6%	29,696	1.4%	89.9%	34.2%	11.6%	69.5%
Clare	23,986	23,955	-0.1%	23,085	-3.6%	23,128	0.2%	23,244	0.5%	90.9%	31.0%	11.6%	74.8%
Cork	251,395	260,091	3.5%	265,903	2.2%	276,664	4.0%	289,557	4.7%	92.0%	23.2%	10.1%	78.1%
Donegal	10,114	10,537	4.2%	10,622	0.8%	10,966	3.2%	11,293	3.0%	87.3%	23.8%	7.8%	78.9%
Dublin	2,204	2,111	-4.2%	2,081	-1.4%	2,012	-3.3%	1,979	-1.6%	88.5%	58.9%	14.7%	47.9%
Galway	20,552	20,889	1.6%	20,399	-2.3%	20,817	2.1%	21,349	2.6%	94.1%	37.5%	12.5%	71.9%
Kerry	79,113	79,319	0.3%	77,861	-1.8%	78,214	0.5%	78,822	0.8%	89.7%	24.5%	11.3%	75.3%
Kildare	10,120	10,188	0.7%	10,223	0.3%	10,431	2.0%	10,831	3.8%	92.6%	45.7%	11.1%	63.1%
Kilkenny	49,359	51,013	3.4%	53,006	3.9%	55,916	5.5%	59,259	6.0%	92.5%	27.8%	9.9%	73.9%
Laois	24,037	25,224	4.9%	25,735	2.0%	26,767	4.0%	27,977	4.5%	91.6%	32.7%	11.9%	69.0%
Leitrim	1,821	1,775	-2.5%	1,758	-1.0%	1,772	0.8%	1,797	1.4%	91.6%	56.5%	8.7%	56.4%
Limerick	81,341	82,283	1.2%	81,388	-1.1%	82,329	1.2%	83,924	1.9%	92.2%	28.4%	13.6%	73.3%
Longford	6,479	6,443	-0.6%	6,462	0.3%	6,721	4.0%	7,058	5.0%	91.6%	35.4%	12.1%	86.2%
Louth	11,444	12,025	5.1%	12,547	4.3%	13,162	4.9%	13,933	5.9%	93.5%	47.2%	10.4%	66.0%
Mayo	11,885	11,531	-3.0%	11,174	-3.1%	11,033	-1.3%	10,967	-0.6%	91.9%	45.1%	14.4%	60.8%
Meath	36,916	38,361	3.9%	38,942	1.5%	40,756	4.7%	42,842	5.1%	92.9%	43.9%	10.2%	66.8%
Monaghan	20,825	20,819	0.0%	20,615	-1.0%	21,029	2.0%	21,629	2.9%	91.3%	35.4%	12.5%	72.0%
Offaly	18,145	18,246	0.6%	18,168	-0.4%	18,596	2.4%	19,225	3.4%	90.8%	33.7%	13.9%	75.2%
Roscommon	3,997	3,861	-3.4%	3,739	-3.2%	3,767	0.7%	3,779	0.3%	89.2%	40.6%	17.4%	66.7%
Sligo	6,337	6,228	-1.7%	5,823	-6.5%	5,693	-2.2%	5,625	-1.2%	93.3%	44.0%	14.1%	62.5%
Tipperary	98,238	102,302	4.1%	103,333	1.0%	107,560	4.1%	112,282	4.4%	92.6%	21.5%	11.0%	78.7%
Waterford	48,119	50,757	5.5%	51,679	1.8%	53,793	4.1%	56,134	4.4%	92.6%	23.5%	11.5%	77.9%
Westmeath	15,741	16,178	2.8%	16,209	0.2%	16,752	3.4%	17,425	4.0%	91.4%	39.7%	11.7%	71.8%
Wexford	43,991	45,827	4.2%	46,967	2.5%	49,708	5.8%	52,772	6.2%	93.6%	34.1%	13.9%	73.9%
Wicklow	14,042	14,612	4.1%	14,799	1.3%	15,247	3.0%	15,891	4.2%	93.8%	44.6%	13.3%	64.4%
Total	929,336	953,731	2.6%	961,389	0.8%	992,345	3.2%	1,030,038	3.8%	92.0%	28.6%	11.5%	74.3%

Total Dairy Cows - Cork.

Current and future trends in the Cork Herd*

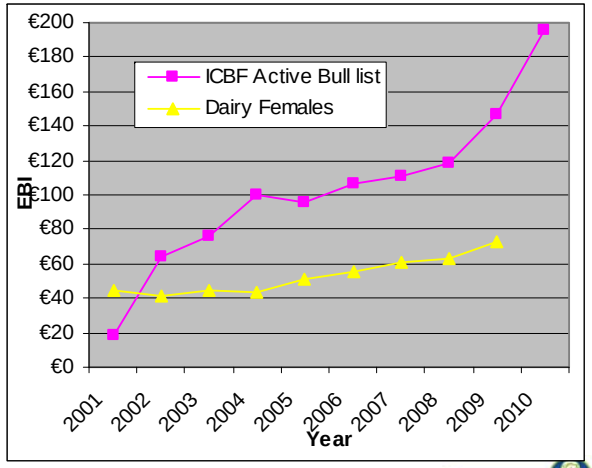
** These calculations are based on trends from the ICBF cattle breeding database. Of the total 1.02 million dairy births per year (on CMMS), the ICBF database has a picture of over 85%. These are the herds that have signed a data release form, allowing ICBF use their CMMS data for cattle breeding purposes.*

		Actual on 1st July					Predicted				
	Number of herds on which these stats are based	4298	4290	0%	4271	0%					
Ref	Description	2008	2009	%	2010	%	2011	%	2012	%	See notes
1	0-1 year old dairy heifers.	57,681	67,366	16.8%	70,991	5.4%					
2	1-2 year old dairy heifers	50,396	53,367	5.9%	61,600	15.4%	65,298				Step 1
3	2-3 year old uncalved dairy heifers	11,216	11,645	3.8%	12,387	6.4%	14,266		15,122		Step 2
4	>3 year old uncalved dairy heifers	991	1,075	8.5%	1,235	14.9%	1,250		1,440		Step 3
5	**1st Lactation Cows** - alive on-farms & calved in the last 12 mths.	48,094	49,792	3.5%	50,622	1.7%	58,724	16.0%	63,090	7.4%	Step 4
6	**Net disposals** - (Total Sold - Bought in)	35,465	40,459	14.1%	46,097	13.9%	47,963	4.0%	50,198	4.7%	Step 5
7	**Total Dairy Cows** - alive, on-farms & calved in the last 3 years.	251,395	260,091	3.5%	265,903	2.2%	276,664	4.0%	289,557	4.7%	Step 6

- There will be 3-4% growth Nationally, but even larger growth in some areas, e.g., Cork, Kilkenny, Wexford.
- Definite short term quota implications.
  - Manage by higher culling, low meals, OAD, shorter lactations….
- Full report available on ICBF website *(www.icbf.com)*

Genetic Gain in EBI.

- Past = No genetic gain.
  - Milk gains – fertility loss.
- Now €20/year and increasing.
  - Influence of genomics.
  - Use of younger bulls
  - G€N€ IR€LAND.
  - Better imported sires available.



Does EBI Work?

	EBI - Top20%	EBI - Btm20%	Difference
EBI	€111	€7	€104
F+P kg	430	356	74
CI Days	383	407	24
Surv to 4th lact	83%	43%	40%

- Analysis of over 1,000 cows from Crookstown Discussion Group (winners of this years EBI€100 competition).
- How did top 20% on EBI perform compared to bottom 20%, based on performance over 1st 3 lactations?
- High EBI cows had better milk solids (+74kg), better fertility (-24 days) and lasted longer (+40% more to 4th lactation).

EBI & Other breeds – Top EBI Herds.

Breed	Data	Top 20%	Mid 20%	Btm 20%
B&W	EBI	€146	€109	€60
	Fertility Sub Index	€76	€60	€34
	Age at 1st calving	24.1	24.4	24.7
	Average milk solids kg	431.9	408.2	400.4
	Average CI Days	373.7	376.3	376.4
	% Survived to 4th calving	81.6%	65.2%	42.5%

Breed	Data	Top 20%	Mid 20%	Btm 20%
JE	EBI	€150	€109	€66
	Fertility Sub Index	€86	€68	€60
	Age at 1st calving	24.2	24.5	24.8
	Average milk solids kg	432.4	402.1	367.9
	Average CI Days	375.4	371.8	394.1
	% Survived to 4th calving	84.8%	61.0%	35.1%

- Select bulls based on EBI.

Developments in EBI.

- No changes to EBI for January 2011.
- A number of pieces of work continuing.
  - New fertility evaluations, based on insemination data.
  - New calving evaluations, based on splitting maiden heifer and cow calvings.
  - New health evaluations, based on mastitis and lameness – lined to DEP.
- Expect these work pieces to be completed in 2011 for discussion with industry.

Breed effects using AI sires with 60% reliability on new indexes

Breed	No of sires	Fertility SI old	Fertility SI new	Age 1st Calving (days)
FR	202	€83	€116	-2
HO	874	-€6	-€8	0
JE	14	€85	€66	2
MO	29	€78	€110	14
NR	4	€89	€128	1
SR	3	€87	€99	9

- Test proofs - Rise for FR and MO sires
- Reduction in JE sires due to better handle on specific heterosis
- Age at 1st calving not factored into FERT SI yet

ICBF Active Bull List – Feb 11

Rk	Code	Name of Bull	Sire	Btrd	Stat	HO%	EBI	Rel%	Proof	Milk	Fert	Calv	Beef	Maint	Health
1	SOK	(IG) SUNNYBANK OMAN	OJI	HO	PED	63	€279	55%	GS	€73	€170	€32	-€7	€2	€8
2	KOZ	KEVINSFORT OJI HAZE	OJI	HO	PED	94	€264	61%	GS	€59	€159	€43	-€4	-€2	€10
3	MJI	MORRISHEEN OJI FRANK	OJI	HO	PED	88	€262	55%	GS	€121	€108	€36	-€20	€12	€4
4	LRW	HSS VHA LOCHINVAR-ET S3F	Applause	HO	SRM	100	€260	45%	GS	€129	€118	€33	-€27	€9	-€1
5	TIO	TIRONUI OM JOSKIN	OKU	JE	PED	0	€248	41%	DP-INT	€105	€127	€15	-€27	€27	€1
6	HYZ	SCOTTS VHA HYDRAULIC S2F	Applause	HO	SRM	100	€237	45%	GS	€86	€141	€27	-€43	€30	-€4
7	FLT	(IG) FOWLERSTOWN STAN	OJI	HO	PED	91	€234	62%	GS	€84	€120	€44	-€15	-€1	€2
8	MDW	MONOWAI HOM DELUCA-ET SIF	S711	HO	SRM	88	€233	47%	GS	€88	€124	€34	-€21	€12	-€4
9	ROF	RALMA O-MAN CF CRICKET-ET	OJI	HO	PED	100	€225	67%	DP-INT	€66	€118	€38	-€4	-€9	€17
10	WGB	WAIKARE MAUNGA BIGGLES	Maunga	JE		0	€221	37%	DP-INT	€104	€119	€7	-€50	€44	-€3
11	GJM	GRAN-J OMAN MCCORMICK	OJI	HO	PED	100	€220	64%	DP-INT	€77	€116	€34	-€12	-€7	€11
12	LXK	LYNBROOK EXPOSE TREAT ET	Exposure	JE	PED	0	€219	40%	DP-INT	€78	€141	€5	-€70	€66	-€1
13	HRJ	(IG) HILLSDALE RUDE JUSTICE	OJI	HO	PED	94	€214	62%	GS	€65	€126	€40	€3	-€22	€2
14	BQN	BRIDEPARK OMAN	OJI	HO	PED	97	€212	56%	GS	€99	€83	€45	-€15	-€1	€1
15	OMS	OMALLIS	OJI	HO	PED	100	€212	51%	DP-INT	€80	€109	€32	-€9	-€4	€4
16	CFD	CUTFORTHS LORD BRIAN	NUO	JE		16	€210	38%	DP-INT	€113	€77	€19	-€32	€31	€1
17	BUG	BUSY BROOK RASTUS-ET S3F	Applause	HO	SRM	50	€209	41%	GS	€103	€94	€26	-€32	€23	-€5
18	MJS	MULLINS MAUNGA ORION S2J	Maunga	JE	PED	0	€208	48%	DP-INT	€102	€107	€7	-€67	€62	-€4
19	RVW	RAYNHAM TGM AVAGO ET S3J	Maunga	JE		0	€204	40%	DP-INT	€84	€118	€6	-€35	€33	-€1
20	VGE	MORNINGVIEW LEGEND-ET	OJI	HO	PED	100	€204	65%	DP-INT	€99	€98	€36	-€19	-€13	€4
21	CGH	CROCKETT-ACRES EIGHT-ET	OJI	HO	PED	100	€203	66%	DP-INT	€85	€76	€37	-€5	€1	€10
22	LTL	LARCREST ALTAENDURO-ET	OJI	HO	PED	100	€203	60%	DP-INT	€59	€118	€38	-€9	-€4	€1
23	OES	OMNES	OJI	HO	PED	100	€203	58%	DP-INT	€56	€118	€35	-€15	-€1	€11
24	UPH	MARS UPHILL	OJI	HO	PED	100	€203	65%	GS	€93	€117	€24	-€28	-€1	-€2
25	CGQ	COLDSPRINGS GARNETT CRI-ET	OJI	HO	PED	100	€202	60%	DP-INT	€80	€86	€31	-€8	-€4	€11

Increasing EBI – How?

- Stick to bulls on ICBF Active Bull List.
- No shortage of choice.
  - Breed, milk kg, type, price….
- Use ICBF Sire Advice facility.
  - Help select bulls and/or mate cows.
- Use enough AI straws.
  - 1.5 straws for each cow & 1.0 straws for each heifer.
- Target 40 dairy heifers per 100 cows.

Uptake of Genomic bulls

	2009		
Proof	% Use	Bulls /hrd	EBI (Rel)
DP-IRL	37	2.7	120(86)
DP-INT	29	3	133(56)
GS	34	4	179(55)

Uptake of Genomic bulls

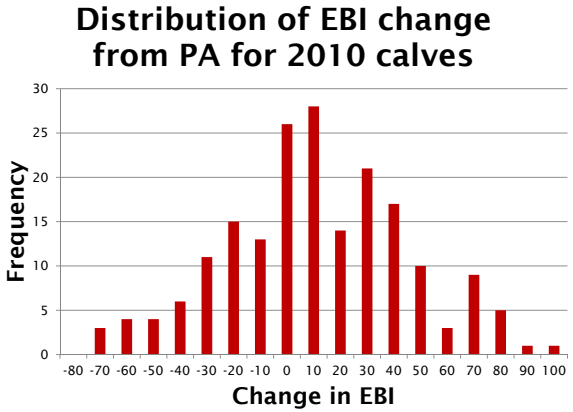
	2009			2010		
Proof	% Use	Bulls /hrd	EBI (Rel)	% Use	Bulls /hrd	EBI (Rel)
DP-IRL	37	2.7	120(86)	25	3	146(76)
DP-INT	29	3	133(56)	34	3	155(47)
GS	34	4	179(55)	40	4	218(56)

- 63 bulls now with GS & DP proofs for production.
- GS proofs are better indication of daughter proofs, compared to parent average (r=0.70 vs. 0.50).
- Some over-estimation of production proofs by ~€10 (Note: also for parent average).

Genomics.

- Genomics research.
  - Other breeds (FR) and new traits (type).
- Genomics service available this Spring.
  - Available through ICBF HerdPlus.
  - Target turn around – 4-6 weeks.
  - Working with Weatherbys & IHFA to also offer pedigree verification for IHFA.
  - Cost of €50 (ex VAT). Volume discounts.
  - Looking at potential for industry funding.

GEBI - What to Expect?

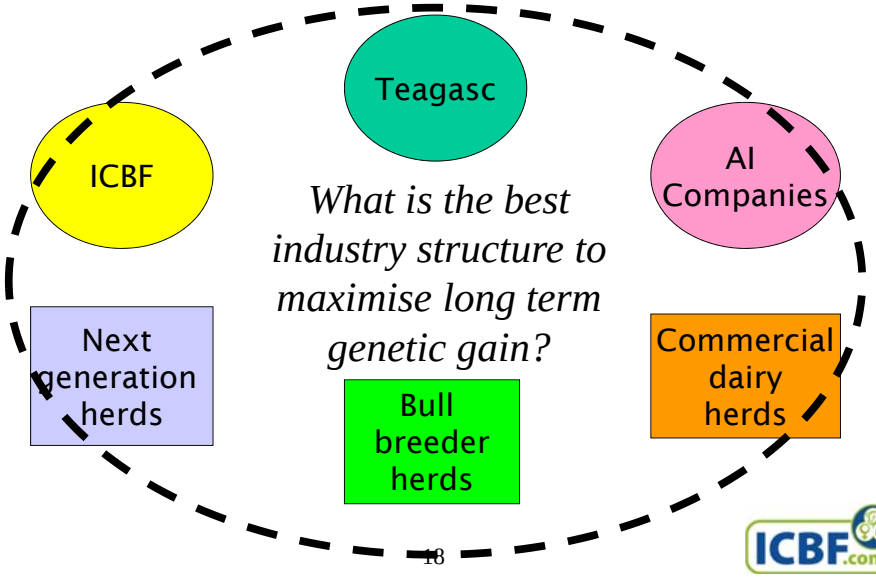


- 250 young male calves genotyped in 2010.
- No change in average. Individual bulls =/-€80.
- Benefit of doing all heifers and select best 60%. Increase average EBI of team heifers by €30. Costs covered. *You should consider.*

NEW G€N€ IR€LAND Program

- Using genomics to increase genetic gain. Four key areas:
  - Focused on females (training and elite animals). The days of the AI bull are gone. *The cow is key.*
  - Work with bull breeder herds (1000 herds & 100k cows). Directed advice re: matings. All heifers genotyped.
  - 30 new AI bulls per year to service industry (50 bulls selected from 5000 candidates with genomic EBI's from bull breeder herds)
  - "Next Generation" herds (5 herds & ~1000 cows). Under direction of Teagasc/ICBF.
- Structure & funding model being developed.

Key breeding structures.



HerdPlus Profit through Science

HerdPlus® Products 2011

HerdPlus Profit through Science

EBI REPORT & PKT NOTEBK

CALVING REPORT

ON LINE PROFILES

FERTILITY REPORT

BREEDING CHART

DAIRY COW REPORT

SIRE ADVICE

MILK RECORDING PROFILES

GENOTYPING

€60 / Year **1 850 600 900**

HerdPlus Developments

- **Expected Calving Profile**
  - **Available on web.**
- **On-Line Catalogue Service**
  - **Generate your own catalogue for animals for sale.**
- **Co-op Performance Report (see next).**
- **G€N€ Ireland**
  - **€6.50/straw and €190 EBI**
- **Active Bull List. On-line.**

New!

Co-op Performance Report*

- Combination of 2 databases;

ICBF.com — Cow Numbers, EBI, Calv Int., Culling, Repl. rate, etc.

Milk Co-op — Bulk tank info - Ltrs milk, Fat, Prot, SCC, Milk Price

2010 vs 2009 performance.

Table 1: Your Herds Milk Deliveries to Drinagh for 2009/2010

	Litres			Fat %			Protein %			SCC ('000)			Total Cows	
Month	2010	2009	Diff '09-'10	2010	2009	Diff '09-'10	2010	2009	Diff '09-'10	2010	2009	Diff '09-'10	2010	2009
Jan	572	4,823	-88.1%	4.12	4.06	0.06	3.4	3.2	0.2	0	301	N/A	44	52
Feb	9,340	10,455	-10.7%	3.98	4.18	-0.2	3.03	3.12	-0.09	211	89	122	48	51
Mar	20,146	22,247	-9.4%	3.82	3.79	0.03	2.91	3.16	-0.25	147	99	48	49	53
Apr	28,604	29,781	-4%	3.58	3.64	-0.06	3.16	3.34	-0.18	103	81	22	49	53
May	36,100	35,270	2.4%	3.52	3.57	-0.05	3.36	3.24	0.12	143	147	-4	48	53
Jun	32,893	36,009	-8.7%	3.56	3.53	0.03	3.36	3.22	0.14	213	152	61	49	53
Jul	33,475	36,997	-9.5%	3.73	3.56	0.17	3.38	3.31	0.07	246	179	67	49	53
Aug	27,290	29,407	-7.2%	3.84	3.8	0.04	3.5	3.39	0.11	311	208	103	49	53
Sep	23,823	21,619	10.2%	3.95	3.9	0.05	3.69	3.61	0.08	310	293	17	49	48
Oct	22,181	20,843	6.4%	4.08	4.03	0.05	3.92	3.79	0.13	274	324	-50	48	48
Nov	13,567	10,415	30.3%	4.37	4.17	0.2	3.76	3.46	0.3	308	429	-121	48	44
Dec	5,028	2,654	89.4%	4.12	4.04	0.08	3.44	3.28	0.16	384	557	-173	44	44
Total	253,019	260,520	-2.9%	3.78	3.74	0.04	3.41	3.35	0.06	223	190	33	48	50

Performance Score Card.

Table 3: Your Drinagh/ICBF Performance Score Card

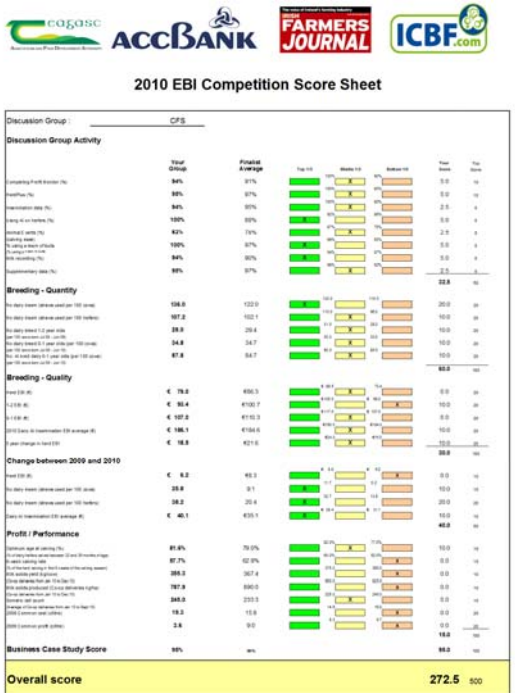
	Your Herd	Drinagh Average	Drinagh Top 10%	Your Rank out of 100	Your Star Rating [1]
Your Milk performance for 2010 (Jan - Dec) based on Drinagh data					
Fat + Protein (Kg/cow) Average Fat and Protein yield per cow for your herd	390	319	400	87%	★ ★ ★ ★ ★
Litres per Cow per Day Avg litres of Milk per cow from Jan - Dec 2010	14.44	11.88	14.8	86%	★ ★ ★ ★ ★
Fat % to end December 2010 Weighted average Fat % from Jan - Dec 2010	3.78	3.82	4.04	45%	★ ★ ★
Protein % to end December 2010 Weighted average Protein % from Jan - Dec 2010	3.41	3.32	3.45	83%	★ ★ ★ ★ ★
Average Milk Value (cpl) Incl. VAT Average milk value received from Jan - Dec 2010, on your farm performance.	31.0	30.1	31.7	79%	★ ★ ★ ★
SCC (,000 cells/ml) The weighted average Somatic Cell Count for Jan - Dec 2010	223	271	155	64%	★ ★ ★ ★

Discussion Group Competition.

- Two competition categories defined.
  - Established groups – 80 groups entered.
  - New groups – 100 groups entered.
- Initial judging was based on established groups. 21 short-listed for interview based on ICBF & Teagasc data.
  - Additional supplementary data requested from these groups (Co-op data, grazing platfrom).
- Note: New groups will be judged over next 1-2 months, with advisors.

Outcomes.

- Excellent response to this years competition.
  - 180 groups entered (75 in 2010).
- Two major outcomes.
  - Heifer rearing identified as a major focus area.
  - Importance of setting goals and assessing performance relative to goals.
- Where next?
  - ***<u>Maximise number of "New groups".</u>***
  - Part of annual program for ALL discussion groups in future.



Score Card 2011

- A few new components.
  - Animal Events (recording calving data).
  - Change between 2009 & 2010.
  - Optimum age at 1st calving & SCC.

Summary

- As an industry we need more high EBI dairy heifers.
- Use EBI, regardless of breed.
- Genomics is working. Have confidence in teams of GS bulls.
- Farmers should consider new genomics service for bulls & heifers.
- Promote HerdPlus – a must for all dairy herds.
- Enter "new" groups into EBI competition.
- Exciting time for cattle breeding.