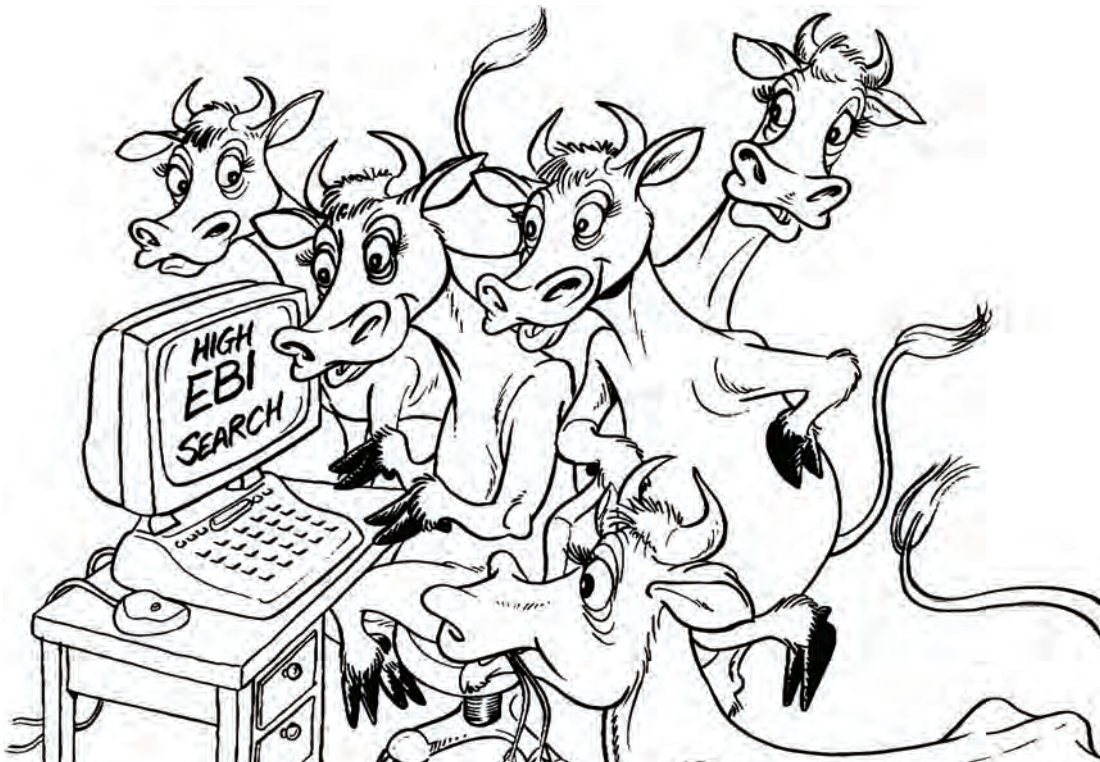


Cattle Breeding in Ireland



An occasional publication to mark Ireland's hosting of the joint Interbull/EAAP Meeting, Dublin 24-30 August 2007



Foreword from Chief Executive, Irish Cattle Breeding Federation Society Ltd (ICBF)

Cattle breeding is one of the tools available to the Irish beef and dairy industries to improve profitability. Over the last ten years, since the formation of ICBF (the Irish Cattle Breeding Federation Soc. Ltd), our industry has embarked on a major infrastructure redevelopment. Developments include the establishment of a national cattle breeding database which now meets the information needs of our breeding industry.

Breeding objectives and genetic evaluation systems, for dairy and beef, have been reviewed and redeveloped. Our current focus is on establishing breeding schemes to deliver near optimal rates of genetic improvement for each breed in Ireland using the best available technologies. Fortunately, we are part of an international community which takes a scientific approach to cattle breeding and is innovative in the use of new knowledge and technologies. Our progress in the last few years is a reflection of the benefits that arise from the knowledge sharing that is at the core of EAAP and Interbull.

We have compiled this booklet to provide you with an insight into our industry as it exists in 2007. Meat and dairy production and the organisations that make up our breeding industry are covered in the first two sections. Section 3 is devoted to the data available to the breeding industry and the way it is collected and organised.

The fourth section covers breeding objectives and genetic evaluations while the fifth gives an overview of breeding programmes in Ireland. The sixth section provides a snapshot of each of the main breeds in Ireland, including information on their phenotypic performance and genetic merit for important traits. In the final section there is a summary of four important innovations that are helping the industry ensure cattle breeding is contributing optimally to the profitability of cattle farming in Ireland.

We trust you will enjoy your trip to Ireland and we look forward to meeting and interacting with you during the course of the conference activities.



Brian Wickham,
chief executive, ICBF



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1: Cattle farming in Ireland

i. The Agri-food sector.

THE Agri-food sector in Ireland accounts for some 8% of GVA (Gross Value Added) to the Irish economy, 8.1% of total employment and 9% of total exports (Table 1.1). There are 131,400 agricultural holdings (49% of which are held by persons over the age of 55) and a total of 163,200 employed in agriculture, of which 109,100 consider agriculture as their primary form of employment (Table 1.2).

Table 1.1 Role of agriculture & food industry in the Irish economy

2006	Primary Agriculture	Agri-food sector*
% of GVA (Gross Value Added) at factor cost (est.)	2.3%	8.0%
% of employment	5.4%	8.1%
% of exports (est.)	5.7%	9.8%

* Includes primary agriculture, food, drinks and tobacco

Table 1.2 Farm structures and numbers

Year		Nos
2005*	Farm Holdings	131,400
2005*	Average Farm Size	33.2 Hectares
2005*	Family Farm Holders by age	8% <35; 49% o/55
2003	Total Labour Input incl non-regular workers (AWUs)	163,200
2006	Employment in Agriculture (primary employment)	109,100

Table 1.3 Livestock numbers

	'000 Head
Cattle	6,915.90
Sheep	5,973.20
Pigs	1,643.20

The land area of Ireland is 6.9 million hectares; of which 4.3 million hectares is used for agriculture and a further 710,000 hectares for forestry in 2005. Around 80% of agricultural area is devoted to grass, hay and silage (3.4 million hectares), 11% to rough grazing (0.5 million hectares) and 9% to crop production (0.4 million hectares).

Cattle farming is the primary form of agriculture in terms of livestock numbers (Table 1.3), with beef and milk production currently accounting for 54% of agricultural output at producer prices (Table 1.4).

Ireland's heavy reliance on exports are evident from Table 1.5, which indicate that, in terms of self sufficiency, Ireland exports 273% of its meat product, including 820% of its beef product, 1054% of its butter product, 354% of its cheese product and 1088% of its milk powder.

Given the heavy reliance on export and the strong influence that agri-food has on the Irish economy, having a vibrant cattle farming industry is a key requisite for government and agri-industry leaders alike.

Table 1.4 Main commodities in 2006

Main commodities 2006	€m	% of Goods Output
Goods Output at Producer Prices of which		
Cattle	1,500.70	29%
Milk	1,329.20	25%
Pigs	320.8	6%
Sheep	190.5	4%
Cereals	159.7	3%
Forage Plants	859.9	16%

Table 1.5 Irish Self-Sufficiency in Selected Agriculture Produce

Product	% self sufficiency
Total Meat	273%
- Beef	820%
- Pigmeat	163%
- Sheepmeat	303%
- Poultrymeat	101%
Butter	1054%
Cheese	354%
Milk Powder	1088%
Cereals	75%

ii. Farm Income

Results from the 2004/05 Household Budget Survey estimated total farm household income at €45,741 with approximately 32% of this coming from farming, 44% for other earned or investment income and 16% from state transfers. Total household income for farm households was approximately 89% of the state average. The National Farm Survey (NFS) produced by Teagasc estimates that average farm income (excluding off-farm income) decreased by 25.7% in 2006 to €16,680. The decline was due to the exceptional level of direct payment paid in 2005, which led to a 44.4% increase in incomes in that year. When 2006 incomes are compared with 2004 they are up 7.2%. Full-time farms, as defined by Teagasc, had an average farm income of €34,485, and part-time farms had an average of €7,799. The NFS also estimate that 82% of farmers and/or their spouses had an off-farm source of income either from employment, pensions or social assistance. On 42% of farms the holder had an off-farm job.

iii. Agriculture Output, Input and Income.

The CSO advance estimate of Operating Surplus in agriculture in 2006 was €2,429million (Table 1.6). Looking more closely at this surplus indicates that some 79% (€1,929 million) was in the form of direct payments to farmers via Single Farm Payment schemes (€1,309 million), REPS (€329 million), area based compensatory allowances (€257 million), disease eradication schemes (€22 million) and others (11 million).

Table 1.6 Output, Input and Income, 2006

	€m
Goods (Agric.) Output at Producer Prices plus Contract Work	5,244.60
plus Subsidies less Taxes on Products	275.7
less Taxes on Products	3.8
Agricultural Output at Basic Prices	-21.1
less Intermediate Consumption	5,502.90
Gross Value Added at basic prices	3,811.90
less Fixed Capital Consumption	1,691.00
plus other subsidies less taxes on production	686
less Compensation of Employees	1,846.70
Operating Surplus	422.2
	2,429.40



Reference for data: www.agriculture.gov.ie/publicat/factsheet

2: Cattle breeding organisations

NATIONAL ORGANISATIONS

Department of Agriculture & Food (DAF)

MAIN CATTLE BREEDING FUNCTIONS

- Regulations
- National cattle registration and movements database
- National Development Plan
- Funding



www.agriculture.gov.ie

Irish Agriculture & Food Development Authority (Teagasc)

MAIN CATTLE BREEDING FUNCTIONS

- Research
- Advisory
- Training



www.teagasc.ie

Irish Cattle Breeding Federation Society Ltd (ICBF)

MAIN CATTLE BREEDING FUNCTIONS

- Cattle breeding database
- Genetic evaluations
- Optimise breeding schemes
- Information for the breeding industry
- Infrastructure development
- GENE IRELAND®
- Herdplus®



www.icbf.com

Shares: 18%AI; 18% milk recording; 18% breed associations; 46% farm associations

MILK RECORDING ORGANISATIONS

Milk Recording	Cows recorded in 2006
Progressive Genetics	150,563
Dairygold	99,477
Kerry Agribusiness	68,082
South Western Services	57,718
Tipperary Co-op	11,029
Arrabawn Co-op	10,578
Connacht Gold	8,179
Donegal Co-op	4,781
Total	410,407



BREED ASSOCIATIONS

For herd book services; breed Improvement and breed promotion

Angus (2)	http://irishaberdeenangus.com www.irishangus.ie
Aubrac	www.aubrac.ie
Belgian Blue	www.ibbcs.com
Charolais	www.charolais.ie
Hereford	www.irishhereford.com
Holstein Friesian	www.ihfa.ie
Blonde d'Aquitaine	www.irishblondedaquitaine.ie
Jersey	+353 1 824 0278
Kerry	www.kerrycattle.com
Limousin	www.irishlimousin.com
Meuse Rhine IsseI	+353 62 56 154
Montbeliarde	www.montbeliarde.ie
Normande	+353 21 481 1584
Parthenais	www.parthenaise.ie
Piemontese	www.irishpiemontesesociety.ie
Saler	www.irishsalers.com
Shorthorn	www.irishshorthorns.com
Simmental	www.irishsimmental.com

AI ORGANISATIONS

AI Organisations	Roles
National Cattle Breeding Centre Ltd (NCBC) www.ncbc.ie	Bull stud Semen production for Progressive Genetics and Munster AI Semen imports & exports
South Eastern Cattle Breeding Society Ltd. (Dovea) +353 504 21 755	Bull stud Semen production Semen imports & exports Field technician insemination service Semen sales
Munster AI See www.ncbc.ie	Field technician insemination services Semen sales
Progressive Genetics www.progressivegenetics.com	Field technician insemination services; Semen sales
Eurogene AI Services Ireland Ltd (Eurogene) www.eurogeneaiservices.com	Bull stud Semen production Semen imports & exports Field technician insemination service Semen sales
Bova Genetics Ltd +353 61 351 233	Bull stud; Semen production Semen imports & exports Field tech insemination service; Semen sales
Genus ABS www.genusbreeding.co.uk	Semen import; Semen sales Field technician insemination service
New Zealand Genetics (IRL) Limited www.licnz.com	Semen import Semen sales

3: Cattle breeding data

Introduction

CATTLE breeding data in Ireland is recorded in 2 main databases; (i) the CMMS database (Centralised Movement & Monitoring System) as operated by the Department of Agriculture (DAF) in accordance with relevant EU regulations for animal traceability (www.agriculture.gov.ie) and (ii) the ICBF Cattle Breeding Database, as operated by the Irish Cattle Breeding Federation on behalf Irish dairy and beef farmers and the wider cattle breeding industry. Both databases operate in complete synchrony. This is a major plus for Irish farmers and the cattle breeding industry as information must only be provided once, with data flows allowing data to be shared between all relevant stakeholders.

CENTRALISED MOVEMENT AND MONITORING SYSTEM

THE total number of calf births in Ireland in 2006 was 2,131,262 (Table 3.1). Of these, just under half (48.7%) were to dams of dairy breeds, while the remaining (51.3%) were to dams of beef origin.

Beef breeds are also used extensively for crossing onto the dairy herd, with some 76.5% of all calves borne in 2006 being from sires of beef origin (Table 3.2).

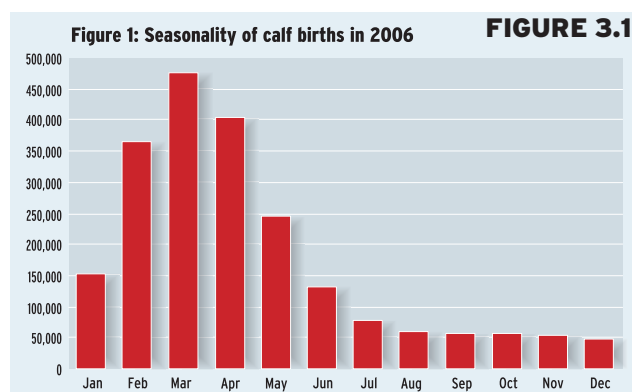
The very seasonal nature of calf births in Ireland is evident from Figure 3.1, with almost 60% of all calves being born in the months of February, March and April. This trend is apparent for both beef and dairy breeds.

Table 3.1 Calf Births by Dam Type (2006)

Dam type	Records	% Total
Dairy	1,038,520	48.7%
Beef	1,092,742	51.3%
Total	2,131,262	100%

Table 3.2 Calf Births by Sire Type (2006)

Sire Type	Records	% Total
Dairy	499,694	23.4%
Beef	1,631,568	76.5%
Total	2,131,262	100%



THE IRISH CATTLE BREEDING FEDERATION DATABASE

Data flows

The ICBF database operates alongside the CMMS database, and stores additional data for the purpose of cattle breeding. Farmers wishing to participate in the ICBF cattle breeding database must firstly sign a form authorizing DAF to release

all relevant CMMS data for their herd (e.g., births, deaths & movements) to ICBF.

This data then becomes the "core" data against which additional cattle breeding events are recorded, e.g., calving performance, milk recording & AI events. This mutual sharing of data is a major plus for the Irish beef and dairy industries as it removes unnecessary duplication of work as well as ensuring that valuable cattle breeding data is stored in one central system for purpose of providing breeding and management decisions.

A summary of the key data flows into the ICBF cattle breeding database, together with an indication of the number of records recorded via each data flow in 2006 are given below.

There were 1,124,273 calf births registered in the ICBF database in 2006 (Table 3.3).

This indicates that some 53% of all CMMS calf births (Table 3.1) are now also registered in the ICBF database. Of these some 600,928 were registered via the ICBF Animal Events recording system, a simple alternative to the CMMS registration system, which allows farmers record additional cattle breeding data during birth registration, e.g., sire identification, calving performance and pedigree name, in addition to the mandatory data fields required for EU passport purposes. The ICBF Animal Events system is fully complicit with relevant EU legislation, thus allowing Irish farmers record all relevant data for EU and cattle breeding purposes via one simple system. (Figure 3.2)

Of the births recorded via Animal Events, 489,084 included information on calving performance and 85,754 included information on pedigree name of calf, for the purpose of herdbook registration. Other events can also be recorded via the Animal Events system, e.g., DIY AI serves, of which there were 137,046 events recorded in 2006 (Table 3.3). Service provider organizations also have access to the ICBF central database. For example, milk recording organizations, recorded milk weights for 408,375 cows in 2006 (some 40% of the National dairy herd).

Similarly, AI organizations recorded 142,251 insemination events in the database. Both sets of organization use the database to provide cattle breeding services to farmers. The sharing of data between the relevant organizations ensures that high value services can be provided to farmers at minimal costs.

Trends in Data Recording

The establishment of the ICBF cattle breeding database in 2002, has resulted in a dramatic increase in the quantity and

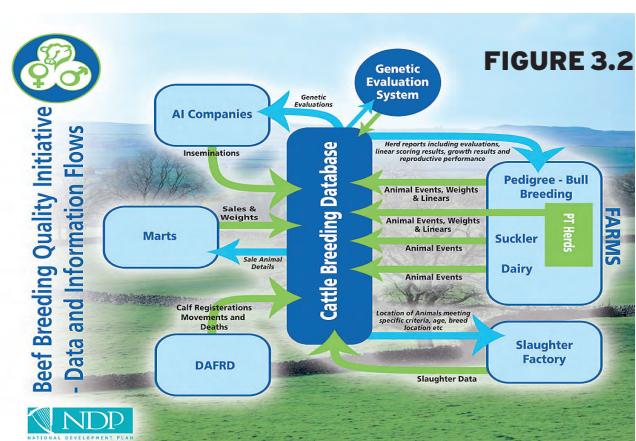




Table 3.3. Key data flows into the ICBF database (2006)

Data flows	Number of records
Department of Agriculture (DAF)	
- CMMS Births	1,124,273
- Slaughter records	625,266
ICBF Animal Events/HerdPlus	
- Births	600,928
- Pedigree birth registrations	85,754
- Calving performance	489,084
- DIY AI serves	137,046
- On-farm linear scoring	16,781
- On-farm weight recording	7,271
- Farmer mart weight recording	243,047
Herdbooks	
- Dairy linear scoring	23,330
Milk Recording Organisations	
- Milk recording	408,375
AI Companies	
- Technician serves	142,251

quality of data available for cattle breeding (Table 3.4). For example the number calving performance events recorded in 2001 (via the National AI progeny test program) was 18,183, compared to 489,084 in 2006, a factor increase of 26.9 times.

Similar trends are apparent for other traits, most notably slaughter records, which have increased by a factor of 255

FIGURE 3.3

times. Historically these records (including data for milk recording, linear scoring & weight recording) were collected as part of the services provided to Irish farmers through the National progeny test program and/or herdbook/milk recording services. Each of these services had their own separate system resulting in much duplication by farmers and the industry.

The establishment of the ICBF database has removed this duplication, at farm level.

In addition, the establishment of the shared linkage for CMMS data (with DAF), has resulted in a cattle breeding system that can deliver high levels of quality data for genetic improvement of dairy and beef animals in Ireland.

Figure 3.4 Trends in calving performance recording (2000-'06)

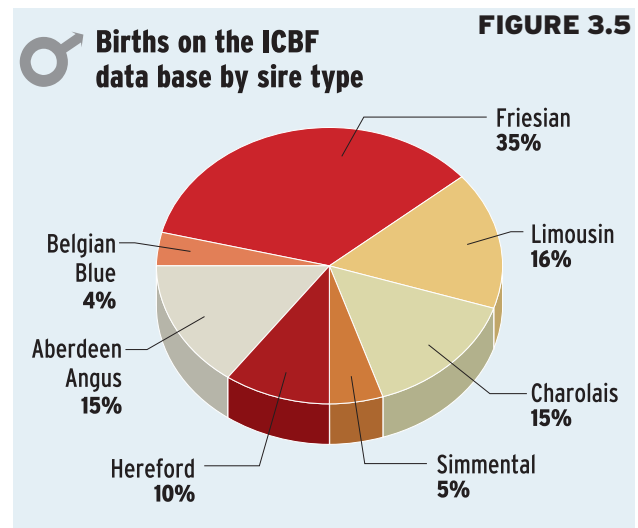
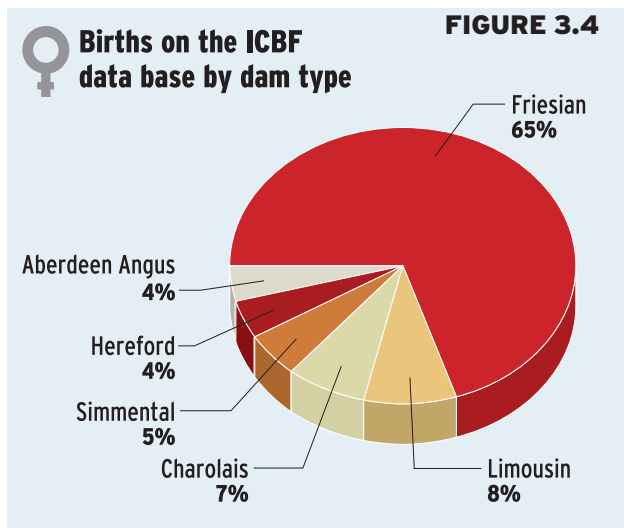
Data flows	2006	2001*	Relative increase
Department of Agriculture (DAF)			
- CMMS Births	1,124,273	0	new data
- Slaughter records	625,266	2,450	255.2
ICBF Animal Events /HerdPlus			
- Births	600,928	0	new data
- Pedigree birth registrations	85,754	85,416	1.0
- Calving performance	489,084	18,183	26.9
- DIY AI serves	137,046	0	new data
- On-farm linear scoring	16,781	9,809	1.7
- On-farm weight recording	7,271	6,039	1.2
- Farmer mart weight recording	243,047	0	new data
Herdbooks			
- Dairy linear scoring	23,330	15,386	1.5
Milk Recording Organisations			
- Milk recording	408,375	336,868	1.2
AI Companies			
- Technician serves	142,251	18,183	7.8

* Data recorded via AI progeny test, herdbook & milk recording systems



Table 3.5 Breed Combination of Calves Born (2006)

SIRE BREED	Dam Breed														Grand Total
	AA	BA	BB	CH	FR	HE	JE	LM	MO	SA	SH	SI	Other		
AA	13,927	107	1,524	3,004	127,094	3,202	616	4,204	2,874	114	1,086	2,867	2,532	163,151	
BA	310	1,228	396	655	1,189	358	1	1,143	69	16	61	533	39	5,998	
BB	1,750	377	2,824	2,672	26,669	1,722	115	5,688	978	123	389	2,651	438	46,396	
CH	12,007	648	6,088	54,742	18,623	14,278	95	27,195	977	953	3,115	19,235	660	158,616	
FR	645	17	396	202	360,540	571	1,628	436	3,320	12	282	684	3,120	371,853	
HE	1,545	71	588	1,102	91,408	10,007	207	1,474	1,635	38	559	1,647	1,051	111,332	
JE	8		6	1	3,300	6	1,209	5	81	1	4	5	166	4,792	
LM	8,280	670	6,106	16,518	59,271	10,096	109	49,716	1,991	491	2,288	13,672	1,131	170,339	
MO	57	7	32	31	7,474	49	58	41	4,955		25	130	348	13,207	
SA	315	90	172	594	1,348	226	3	657	67	1,691	160	434	75	5,832	
SH	395	8	136	253	1,808	307	23	398	93	26	4,060	264	144	7,915	
SI	1,623	96	993	3,278	21,260	2,894	23	4,058	662	109	590	13,304	348	49,238	
Other	301	106	229	446	7,254	220	95	585	421	54	140	384	5,369	15,604	
Total	41,163	3,425	19,490	83,498	727,238	43,936	4,182	95,600	18,123	3,628	12,759	55,810	15,421	1,124,273	



Breed Combinations

Of the 1,124,273 births registered in the ICBF database in 2006, some 65% were from dairy dams (Figure 3.4). This is slightly higher than the comparable figure from the CMMS database (48%), reflecting the fact that historically dairy farmers in Ireland have been more involved in recording for the purpose of cattle breeding (e.g., milk recording), than beef farmers.

A full breakdown of all breed combinations for calves registered in the ICBF database in 2006 is given in Table 3.5.

The Holstein Friesian (FR) breed is by some way the most popular dairy breed in Ireland, representing 95% of all dairy births.

Of the beef breeds represented in the ICBF database, the Limousin, Angus and Charolais are the most popular beef breeds with 170,339 births, 163,151 births and 158,616 births being from sires of these breeds. (Figure 3.5).

Cross-breeding is a very common feature of cattle breeding in Ireland, with some 60% of beef farmers preferring to cross 2 or more beef breeds, as opposed to selecting within one single beef breed.

In addition, over half of the calves born to dairy cows are from beef bulls, with the resultant calves either being slaughtered in Ireland or returned into the National beef herd as Suckler beef replacements (i.e., first cross beef females).



4: Genetic evaluations

Introduction

GENETIC evaluations are computed by ICBF, on behalf of the Irish cattle breeding industry. The process involves routinely extracting data from the cattle breeding database (some 60 traits in total are evaluated), computing the genetic evaluations and then loading this data back into the database for publication through a variety of mediums, including the ICBF website (<http://www.icbf.com>) and various cattle breeding reports.

To help simplify breeding decisions for farmers and improve the effectiveness of breeding decisions, ICBF have developed a number of economic indexes for dairy and beef farmers. These indexes have been developed in conjunction with Teagasc and international collaborators, including the University of Wageningen, the Netherlands (Veerkamp et al., 2001) and Abacus Bio, New Zealand (Amer et al. 2004)

The Economic Breeding Index (EBI)

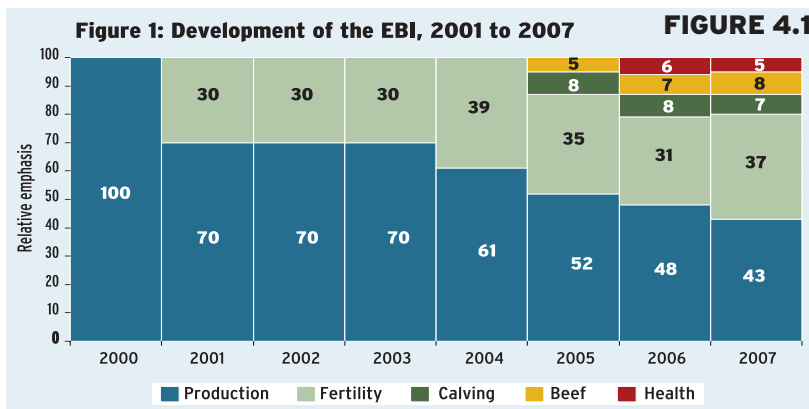
EBI is a single figure profit index,

aimed at helping dairy farmers identify the most profitable bulls and cows for breeding dairy herd replacements. It comprises of information on 15 traits related to profitable dairy farming, each grouped into five sub-indexes (Table 4.1). Milk production & fertility are the key drivers of profit on Irish dairy farms, and represent 42% and 37% of the weighting in EBI respectively.

Since its first introduction in 2001, the EBI has been continuously developed to reflect the latest information on the economics of milk production and the availability of new data on which to base genetic evaluations (Figure 4.1). For example, the introduction of the cattle breeding database in 2002 (and subsequent recording of calving performance and beef data) resulted in these traits being introduced into the EBI in 2005. Future developments in the EBI will focus on relative value of milk versus fertility (in a land limiting scenario) and the future cost of health traits, most notably mastitis and lameness.

Table 4.1 Economic values & % emphasis of the various traits in the EBI formula.

Sub - Index	Trait	Economic	Trait	Overall
Production	Milk	-0.085	13%	42%
	Fat	0.96	5%	
	Protein	5.36	24%	
Fertility	Calving Interval	-10.87	24%	37%
	Survival	10.51	13%	
Calving	Direct Calving Difficulty	-3.26	3%	8%
	Maternal Calving Difficulty	-1.28	1%	
	Direct Gestation Length	-4.47	3%	
	Calf Mortality	-2.85	1%	
Beef	Cull Cow	0.04	0.2%	7%
	Carcase Weight	1.4	4%	
	Carcase Conformation	10.32	2%	
	Carcase Fat	-11.71	2%	
Health	Lameness	1.13	0.4%	5%
	Udder - SCC	-55.48	5%	

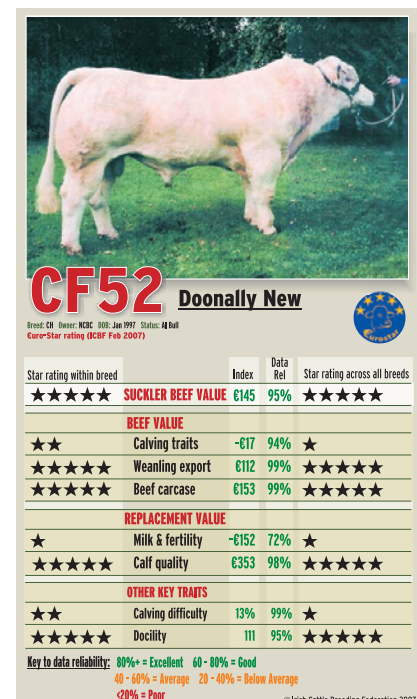


BEEF €URO-STAR INDEXES

The beef Euro-Star indexes were first introduced in Spring 2007 and combine information from all of the traits influencing beef profit into a series of simple Euro values (Table 4.2 & Figure 4.2). In total, 16 traits, summarised into 5 sub-indexes and one overall index, are evaluated, including;

- Suckler beef value reflecting the overall profit value of a bull (after accounting for costs of calving and value of all progeny including potential female replacements). Weighting for this index are based on the proportion of calves ending up as either; (i) slaughtered in Ireland (69%), (ii) exported to the continent as weanlings (15%) or as beef breeding replacements (16%). Refer to figure 4.2.
- Calving reflecting the cost of calving, gestation length & mortality for a bull.
- Weanling export reflecting the value of weanlings (weight for age and quality) for a bull.
- Beef carcass reflecting the value of finished cattle from a bull (weight for age, conformation & feed efficiency).
- Replacement - milk & fertility reflecting the value of milk & fertility in the daughters of a bull.
- Replacement - calf quality reflecting the value of the calves produced from the daughters of a bull (in terms of weight for age & quality).

Figure 4.3. Example of a Euro-star index for an AI bull.



In addition the information is presented in a easy to interpret and user friendly format whereby top bulls are given 5 stars (*****) for a given trait or traits and the bottom bulls (the bottom 20%) are given 1 star (*). In this way farmers can quickly identify bulls that are suitable for their specific requirements. For example, the AI bull identified in Figure 4.3 is an exceptional bull in overall terms (5 stars on both a within and across breed basis), but is only 1 star for both maternal milk & fertility and for direct calving difficulty. Future developments in the beef €uro-Star indexes will focus on the increasing role of cost of production traits in beef breeding, as a results of reducing labour on Irish farms and declining beef prices.

GENETIC EVALUATION RESULTS; DAIRY

Genetic Trends; Genetic trends for dairy EBI, including the milk and fertility sub-indexes are given in Table 4.3 & Figure 4.4. These trends indicate a steady increase in the average EBI of the national dairy herd over the past 20 years (€2/cow/year). The trends in the last 10 years are of particular interest and indicate that the decline in fertility performance has been arrested and that, as a consequence, overall EBI gain has improved, with the level of gain in the last 3-4 years increasing to almost €5/cow/year. This is a remarkable turn-around and confirms the positive effect that the EBI has had on the Irish dairy industry since its introduction in 2001.

Looking at trends on an across breed basis (Figure 4.5), suggests that the rate of improvement in the EBI has been most pronounced with the Holstein breed, with the average rate of genetic gain being some €6/year over the last 5 years, compared to relatively smaller gains for the Friesian, Jersey and Montbelliarde breeds.

Breed Comparisons; One of the major benefits of cattle breeding in Ireland is that the multiplicity of breeds and crosses, allows accurate comparisons of breeds on an across



Table 4.2 Economic values and % emphasis of the various traits in the EBI formula.

Sub - Index	Trait	Economic Weight	Trait Emphasis
Calving Traits	Calving Difficulty (%)	1.09	53%
	Gestation Length (Days)	0.79	25%
	Calf Mortality (%)	2.19	22%
Weaning Export	Weaning Weight kg	0.78	36%
	Calf Quality (cts/kg)	1.29	64%
Beef Carcase	Carcase weight (kg)	1.17	46%
	Weaning weight (kg)	0.52	24%
	Carcase conformation (score)	5.37	11%
	Dry matter intake (kg/day)	0.03	12%
	Carcase fat (score)	3.04	7%
Replacement Milk & Fertility	Cow Survival (%)	8.3	19%
	Calving Interval (Days)	3.16	12%
	Age at First Calving (Days)	0.69	12%
	Maternal Calving Difficulty (%)	4.31	9%
	Maternal Weaning Weight (kg)	3.3	45%
Replacement Calf Value	Calving Difficulty (%)	4.08	6.0%
	Gestation Length (Days)	2.96	2%
	Calf Mortality (%)	9.76	4%
	Weaning weight (kg)	2.1	32%
	Dry matter intake (kg/day)	0.07	13%
	Carcase weight (kg)	2.88	29%
	Carcase conformation (score)	13.21	10

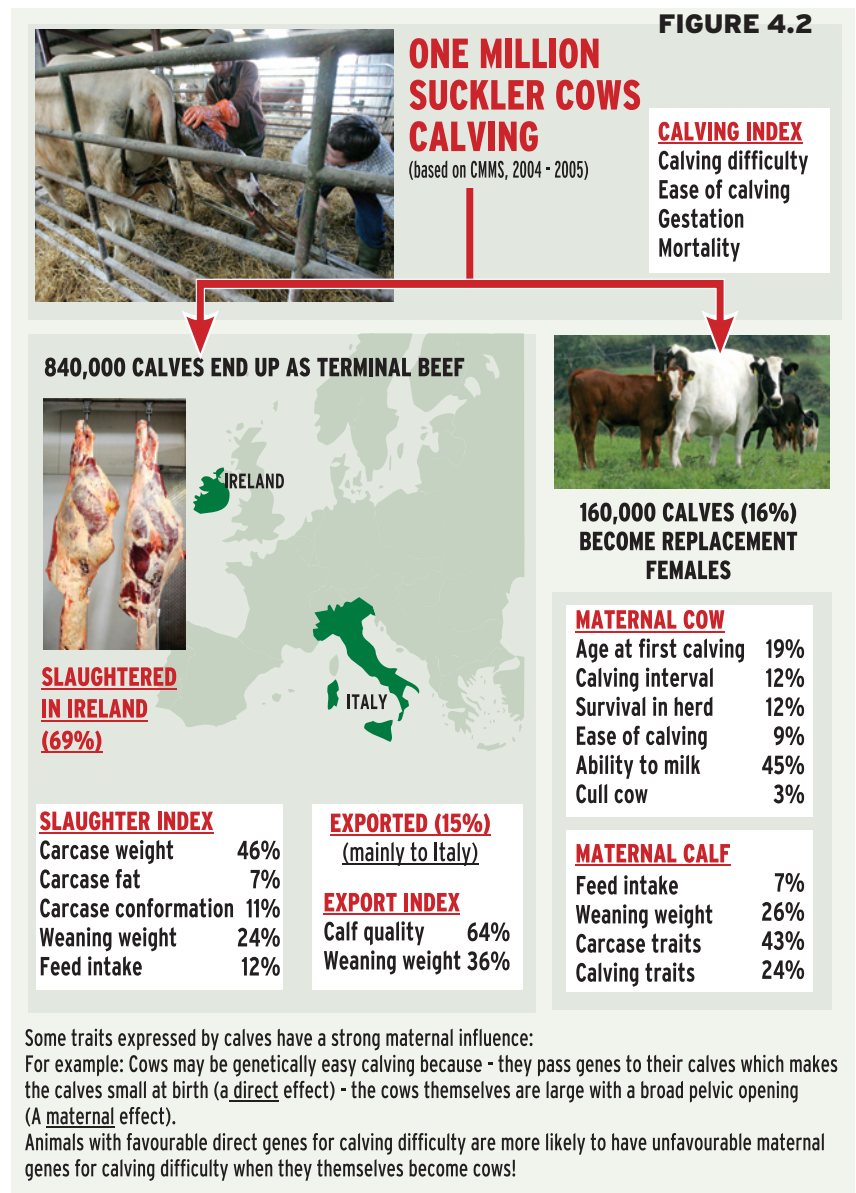


Figure 4.2: Overview of Irish beef industry and beef indexes

breed basis. Strengths and weaknesses of each of the breeds can be quickly identified, as evidenced from data in Table 4.4.

GENETIC EVALUATION RESULTS; BEEF

Genetic Trends; Genetic trends for beef Euro-Star traits (pedigree animals only) are given in Table 4.5 & Figure 4.6. These trends indicate steady progress in genetic gain for Suckler Beef Value (€2/cow/year), with the majority of this improvement coming from genetic gain in weanling export and slaughter value.

Looking at the trends on a within breed basis (Figure 4.7), suggests a somewhat higher level of genetic gain in the Charolais, Limousin and Simmental breeds (€3/cow/year) compared to the more traditional breeds, where level of genetic gain is more typically €1/cow/year.

Breed Comparisons; A closer examination of the strengths and weaknesses within each of the main breeds (Table 4.6 & Figure 4.8) indicates that whilst the Charolais, Simmental and Limousin breeds rate highest for suckler beef value, weanling export and slaughter value, the opposite is true for the calving and maternal cow traits (i.e: milk and fertility), where the more traditional breeds (Angus and Hereford) perform best.

Whilst the difference between breeds is interesting (they help identify the relative strengths and weaknesses of the various breeds), it is the differences within breeds that are of most interest to cattle breeders. The new Euro-Star indexes have helped highlight large differences in profitability within all of the breeds evaluated, with the typical difference between the best and worst within each of the breed being in the order of €100/calf born (Table 4.7).

This is a major step forward for the Irish beef industry as it allows beef farmers focus on the animals (AI bulls, farm/stock bulls and cows) that will increase profit from breeding.

Table 4.3 Genetic Trends in EBI and Sub-indexes (1988-2007)

Year	Records	EBI (€)	Milk (€)	Fertility (€)	Calving (€)	Beef (€)	Health (€)
1988	35,504	17.8	-26.3	49.1	7.5	-8.2	1.2
1989	42,062	16.3	-24.3	44.7	7.7	-8.4	1.1
1990	44,075	17.1	-20.2	41.1	7.6	-8.9	1.0
1991	49,439	19.8	-14.4	37.8	7.5	-8.9	0.9
1992	51,622	20.4	-12.4	36.4	7.7	-9.0	0.6
1993	58,833	20.7	-8.6	32.9	8.0	-9.2	0.1
1994	65,396	18.4	-4.2	25.9	8.2	-8.9	-0.2
1995	73,470	16.8	-0.4	20.4	7.8	-8.7	-0.3
1996	100,193	18.8	3.2	18.4	6.9	-8.5	-0.7
1997	107,230	22.1	7.9	15.7	7.7	-8.1	-1.1
1998	99,523	24.6	11.5	13.8	8.3	-7.9	-1.1
1999	99,192	29.6	14.0	15.7	8.8	-7.8	-1.1
2000	101,638	32.1	16.2	15.6	9.1	-7.9	-1.0
2001	106,557	32.7	18.8	13.9	9.0	-8.1	-0.9
2002	130,178	31.9	18.4	14.2	8.3	-8.0	-1.0
2003	142,822	35.6	18.5	17.2	8.4	-7.6	-1.0
2004	145,570	36.7	19.8	16.8	8.7	-7.4	-1.3
2005	142,091	42.1	22.3	19.1	9.5	-7.7	-1.2
2006	136,554	48.8	23.8	22.6	10.4	-7.1	-1.1
2007	115,861	57.8	26.2	27.7	11.7	-7.0	-1.1



Table 4.5 Genetic Trends in Euro-Star values for beef breeds (2000-2007)

Birth Year	Records	Suckler Beef (€)	Calving (€)	Weanling Export (€)	Slaughter (€)	Maternal Cow (€)	Maternal Calf (€)
2000	12,262	66.6	-6.2	48.6	57.5	1.2	125.5
2001	13,119	70.8	-6.6	51.8	61.4	-3.7	135.7
2002	13,606	72.6	-6.9	52.5	62.8	-2.1	138.4
2003	13,111	73.8	-6.7	52.5	62.8	2.6	139.1
2004	14,086	73.9	-7.0	52.3	62.8	4.8	137.7
2005	14,949	74.9	-7.0	52.8	63.2	6.8	139.1
2006	14,941	74.9	-7.1	52.9	62.8	9.1	138.5
2007	5,472	77.8	-7.5	55.5	66.1	5.3	148.4

Table 4.4 #Comparison of main dairy breeds for EBI traits.

Breed	EBI	Milk	Fertility	Calving	Beef	Health
FR	€53.1	€3.5	€48.9	€10.7	-€9.0	-€1.0
HO	€37.0	€23.7	€12.2	€9.7	-€7.6	-€1.2
JE	€50.6	€23.1	€60.4	€9.5	-€41.2	-€1.8
MO	€64.2	€1.7	€55.1	-€6.2	€11.6	€2.2

Table 4.6 Comparison of main beef breeds for Euro-Star traits.

Breed	Overall	Calving	Export	Slaughter	Maternal Cow	Maternal Calf
AA	24.6	5.8	13.6	-5.2	95.2	-1.4
CH	96.9	-12.9	71.1	98.0	-60.1	215.3
HE	21.0	-0.2	18.1	3.0	69.2	3.2
LM	78.6	-6.7	54.2	65.7	14.6	138.7
SI	92.8	-8.0	55.9	62.4	80.0	147.9



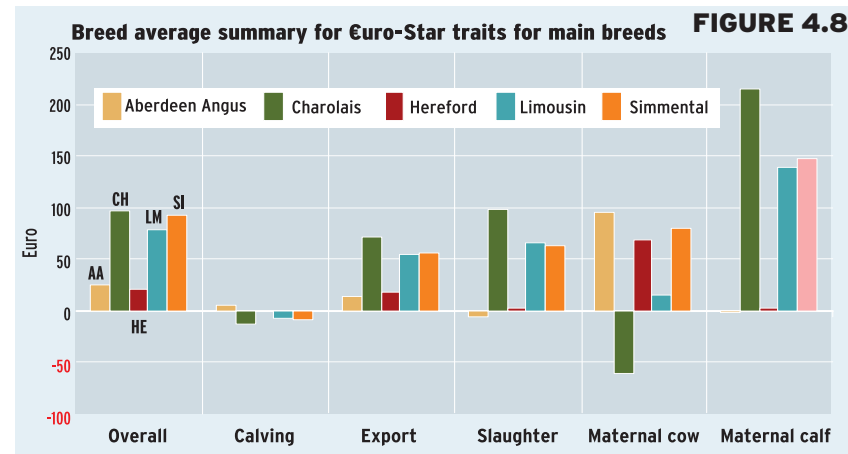
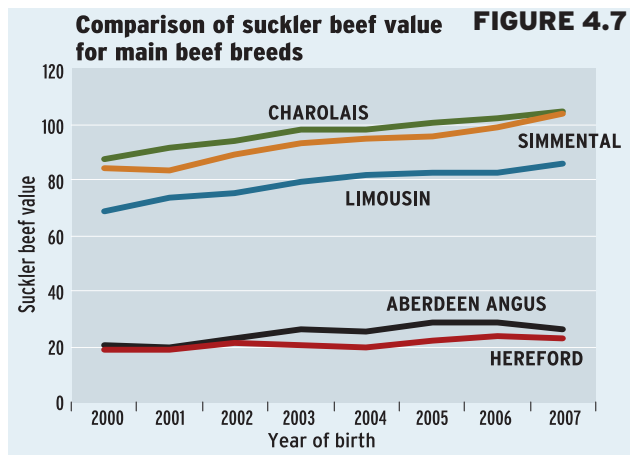
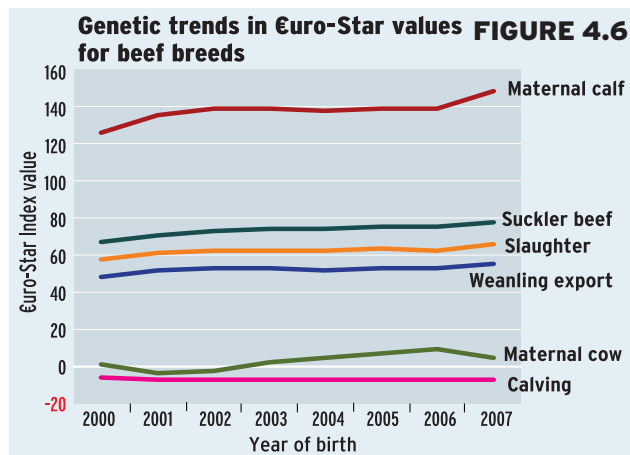
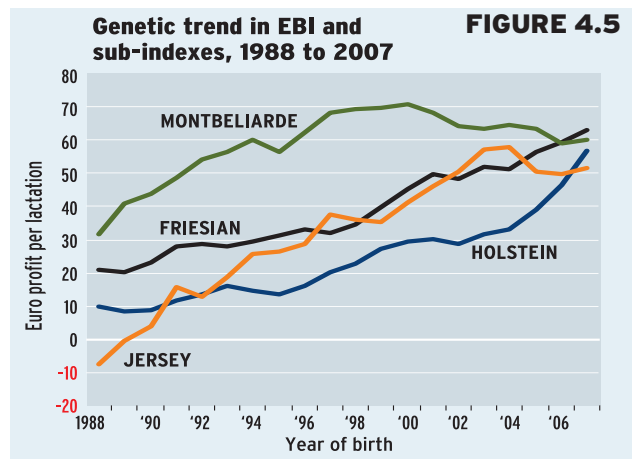
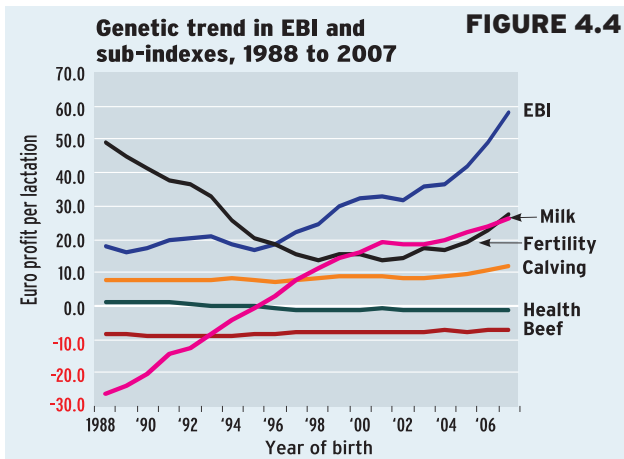


Table 4.7 Comparison of main beef breeds for Eurostar suckler beef value *

Breed	Records	Mean	S D	Top 1%
Angus	39,631	20.5	19.6	71.1
Aubrac	5,368	18.6	18.6	89.1
Blonde d'Aquitaine	5,463	70.6	22.2	120.4
Belgian Blue	6,272	76.0	28.2	135.0
Charolais	115,145	91.4	30.4	160.1
Hereford	34,141	23.1	17.3	67.1
Limousin	73,783	72.0	27.8	130.6
Piedmontese	1,206	12.4	12.9	53.2
Parthenaise	1,475	12.6	13.0	55.7
Salers	6,571	21.1	17.9	78.9
Shorthorn	6,747	0.1	13.1	40.9
Simmental	69,605	70.8	43.5	150.7
All breeds	365,424	65.5	40.6	149.2

* Statistics based on ALL pedigree animals in genetic evaluations.



5: Breeding scheme design

BACKGROUND

ICBF'S stated objective is to; "achieve the greatest possible genetic improvement in the National cattle herd for the benefit of Irish farmers, the dairy and beef industries and members".

Achieving genetic gain in dairy and beef cattle is dependant on having;

1. Access to accurate data on animals to be selected.

2. A genetic evaluation system that will identify the most profitable animals for breeding.

3. A breeding program that ensures that the best of these animals get used widely throughout the cattle breeding industry.

Whilst much of ICBF's initial efforts were focused on database (Chapter 3) and indexes (Chapter 4), more recent work has also focused on the establishment of optimal breeding programs for the Irish dairy and beef industries (Veerkamp et al, 2001, Meuwissen et al., 2006) . Such programs, if delivered, could generate an additional €20/cow/year for Irish dairy and beef farmers (or €40 million/year across all animals in the industry).

G€N€ IR€LAND

IN an effort to accelerate genetic gain for Irish farmers and the cattle breeding industry, ICBF launched the G€N€ IR€LAND breeding program in 2005. The program was initially focused on dairy bulls (Spring 2005), but has since been expanded to include beef bulls (Spring 2007). A summary of the key parameters for future Irish dairy and beef breeding programs, based on the commissioned research, are given in Table 5.1.

G€N€ IR€LAND DAIRY

INITIALLY focused on dairy bulls, the G€N€ IR€LAND program had three primary objectives;

— Increased scale; To test 100 dairy bulls/year

— Improved efficiency; To achieve 7 straws dispatched per progeny test replacement.

— Increased EBI; To ensure that bulls on the program were from cows in the top 1% on EBI (~ €110 in 2007).

Looking at trends in dairy progeny testing over the past five years indicates significant improvement in each of these three parameters compared to the previous programs (Table 5.2). For example, the number of bulls tested has doubled, from on average of 28 bulls in 2003 and 2004 to 55 bulls in 2007.

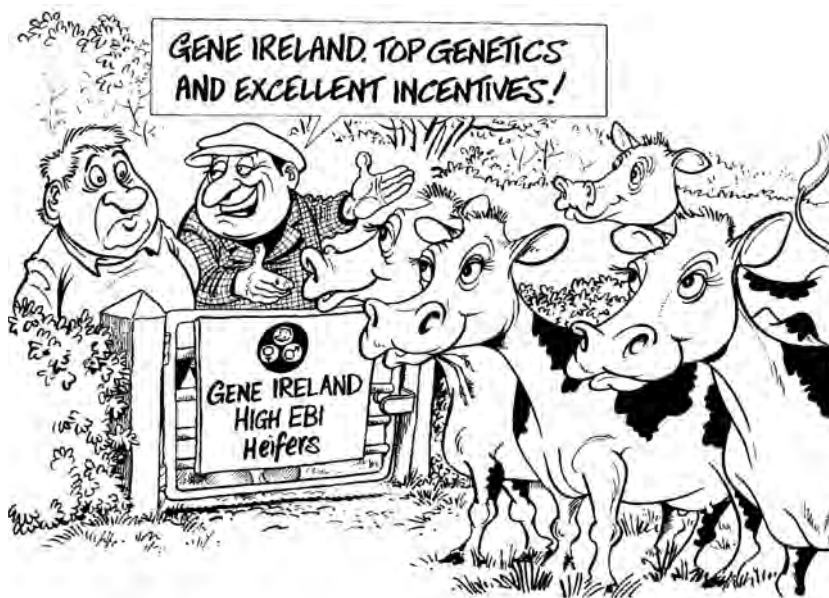


Table 5.1 Summary of key parameters for future Irish dairy and beef breeding programs

Year	Breeding Program Event	Number animals	
		Dairy	Beef
-1	Breeding females	1,000,000	1,000,000
-1	Elite cows	2,000	2,000
0	Elite male calves born (from elite cows)	800	800
1	Elite male calves performance tested		300
2	Elite male calves progeny tested	100	100
3	Progeny test; replacements borne		
4	Progeny test; replacements bred		
5	Progeny test; replacements enter herd		
6	Elite sires returned to AI	10	30

Table 5.2 Trends in Progeny Testing (2003-2007)

Year	No. bulls on test	No. herds involved	Ave EBI of bulls (€)	Ave dtrs per bull	Ave dtrs dispatched
2003*	30	~2000	36.0	61	20.5
2004*	26	~2000	48.0	72	17.4
2005**	32	150	85.0	82	9.4
2006**	50	490	93.0	78	7.5
2007**	55	694	106.0		

* ~1250 straws/bull distributed.

** G€N€ IR€LAND breeding program

Similarly, the efficiency of the program has increased dramatically, from 20 straws per heifer replacement to almost 7 in 2006, as has the EBI of the young bulls on the program, up from some €40 for bulls in 2003 and 2004 to €106 for bulls on test in 2007.

G€N€ IR€LAND BEEF

THE establishment of the ICBF cattle breeding database and introduction of the new uro-star indexes has resulted in a radical new approach to beef cattle breeding in Ireland. Fashioned on the dairy program equivalent, the plan is to test 100 beef bulls, each with 100 daughters, with bulls being selected from elite females within each of the relevant breeds.

Looking at current trends for progeny testing suggests that, with subtle improvements in key areas, these targets can be achieved (Table 5.3). For example, the number of beef bulls progeny tested in 2005 was 68, each with, on average, 95 progeny. Whilst these levels of progeny testing are a positive start, a closer examination of the data indicates that only 15 bulls achieved ≥ 100 progeny (the target for the G€N€ IR€LAND beef program in the future will be 200 progeny). Furthermore, the average €uro-Star Suckler beef value for bulls on the program was only 53, which is somewhat lower than the future targets for the program.

One of the major components of the G€N€ IR€LAND beef breeding program is the beef performance test centre at Tully. Already 300 animals are being performance tested/year through the station, which is the target for the new G€N€ IR€LAND beef program (Tables 5.1 & 5.4). However, very few of these bulls currently graduate to progeny testing (some 5-10 bulls/year). Future efforts will focus on ensuring that only the best bulls are selected for performance test at Tully (300 bulls/year) and that the best of these bulls then graduate onto the G€N€ IR€LAND progeny testing program (100 bulls/year).

A more comprehensive overview of the G€N€ IR€LAND beef and dairy breeding programs, including structure, operation and proposed future developments, is given in Chapter 7.

AI STATISTICS

Increasing genetic gain is also influenced by the level of AI on farms.

Table 5.4 Trends in participation in beef performance testing, by breed (2002-2006)

Year	Angus	Aubrac	Belgian	Blonde	Charolais	Hereford	Limousin	Saler	Simmental	Others	Total
2002	12	4	0	3	35	5	52	19	21	2	153
2003	7	5	4	2	30	5	44	3	30	3	133
2004	18	0	1	1	44	7	70	2	19	22	184
2005	18	4	8	4	58	18	50	8	52	2	222
2006	29	3	8	11	62	20	107	10	50	7	307
Total	146	37	46	60	443	142	680	65	381	47	2076

Table 5.3 Number of bulls on beef progeny test by breed (2005)

Breed of bull	No. bulls on test	Ave €uro-star	Ave number progeny/bull	Number bulls ≥ 100 progeny
Angus	7	36	197	4
Aubrac	1	13	4	0
Belgian Blue	11	66	128	3
Charolais	12	88	100	1
Hereford	4	13	36	0
Limousin	12	75	100	3
Pietmontese	8	11	30	1
Parthenaise	2	18	7	0
Salers	8	27	77	2
Simmental	3	100	87	1
Total	68	53	95	15

Table 5.5 Trends in first insemination usage by breed (2000-2006)*

	2001	2002	2003	2004	2005	2006
Angus	58,375	67,370	65,806	67,310	76,196	64,802
Bel Blue	114,031	78,137	62,706	50,274	51,684	54,852
Charolais	88,004	86,244	83,447	64,131	77,321	65,147
Friesian	315,802	304,103	279,440	246,690	250,339	268,342
Hereford	21,247	27,599	26,417	27,021	27,563	22,543
Limousin	94,076	97,383	89,552	77,762	92,390	82,322
Shorthorn	4,888	5,679	5,590	5,382	6,779	6,477
Simmental	17,034	17,446	18,306	18,121	22,537	15,604
Others	11,584	29,218	25,438	19,769	21,355	16,010
Totals	725,041	713,179	656,702	576,460	626,164	596,099

* First insemination via technician AI service.



Unfortunately this trend has been declining over the past number of years (Table 5.5), with total first inseminations (technician service only) having declined from 725,041 in 2001 to 596,099 in 2006, a drop of some 18%.

Whilst some of this drop may be due to increased DIY AI, initial trends from herds on the cattle breeding database, would appear to confirm that the level of beef AI has indeed dropped, and that this is contributing to a decline in overall AI levels. However, the opposite is true for dairy AI, which has increased by some 5%/year for the last 2 years.

For example, technician insemina-

tions to Holstein Friesian bulls increased by 7% in 2006 compared to 2005. Similar trends are apparent from ICBF Animal Events herds where the number of AI bred dairy calves increased from 124,919 for Spring 2006 births to 131,377 for Spring 2007 births, an increase of some 5%.

These are very positive trends for the dairy industry and confirm the "new-found" confidence that farmers have in AI and EBI as a means of increasing dairy farm profits. The challenge for the beef industry is to ensure that similar improvements can be achieved on the back of the new beef €uro-Star indexes.

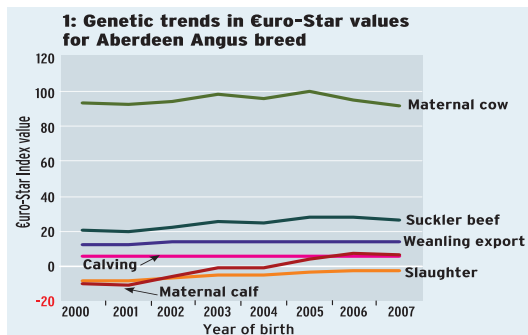
6: Breed statistics - beef

BEEF BREEDS

ANGUS



Lawsons Ford Bagatelle (LWF) suckler beef value of €94. Owned and marketed by Dovea AI.



HISTORY

>> First imported into Ireland from Great Britain in 1843.

CHARACTERISTICS

>> Pure-bred Angus are black in colour.

ATTRIBUTES

>> Please refer to tables below for relative performance in Ireland

Table 1. Angus Breed Statistics.

Herdbook Registered Animals	Number
2006 births (pedigree & supplementary)	3,839
- Females	2,006
- Males	1,833
Current live females (>=18 mths)	7,438
Farm/stock-bulls (>=1 identified progeny in 2006)	1,957
AI-bulls (>= 10 identified progeny in '06)	66
All Animals (CMMS registrations)*	Number
2006 births from dams registered to breed	41,163
2006 births from sires registered to breed	163,151
2006 births from sires & dams registered to breed	13,927

* Please refer to Table 3.5 for breakdown of all CMMS registrations

Table 2. Angus Performance Statistics; Phenotypes

Calving	Records	Mean
Difficult calvings (% births scored difficult)	103,772	5.2
Gestation Length (days from insemination-birth)	19,513	283.1
Mortality (% calves dead at 28 days)	103,772	3.4
Beef Performance		
Weaning weight kg (150-300 days)*	1,102	258.1
Loin development (1-15 score)	1,235	7.3
Carcase weight kg (cold weight from abattoir)**	35,648	301.4
Carcase conformation (EUROP score on 1-15 scale)	35,639	5.9
Feed intake (kg/dm/day on performance test)	100	10.5
Beef Maternal		
Calving Interval (1st-2nd parity)	6,213	389.0
Cow Survival (1st-2nd parity)	6,213	0.89
Maternal weaning weight kg (150-300 days)***	322	290.7

* Average age at weaning = 222 days.
 ** Average age at slaughter = 750 days. 95% of records from dairy dams.
 *** Average age at maternal weaning = 223 days

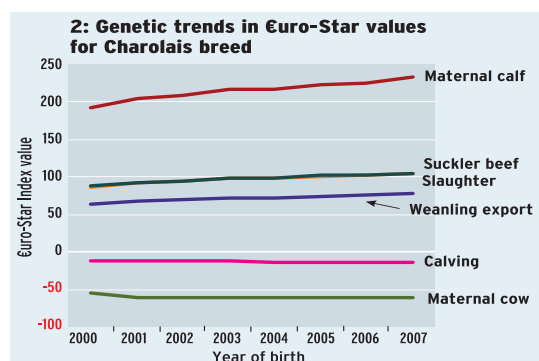
Table 3. Angus Performance Statistics; Genotypes*

Breed	Total records	Suckler Beef (€)	Calving (€)	Export (€)	Slaughter (€)	Maternal cow (€)	Maternal Calf (€)
Angus	11,692	24.6	5.8	13.6	-5.2	95.2	-1.4
All beef breeds	114,594	50.2	-3.0	43.0	40.9	1.7	93.7

* Average Euro-Star Values for all pedigree females born since 2000.

6: Breed statistics

CHAROLAIS



ICARE (ICR) suckler beef value of €204. Marketed in Ireland by Goulding Genetics.

HISTORY

» First imported into Ireland from France in 1964 (8 bulls and 9 heifers).

CHARACTERISTICS

» Pure-bred Charolais are uniformly white or cream in colour.

ATTRIBUTES

» Please refer to tables below for relative performance in Ireland

Table 1. Charolais Breed Statistics.

Herdbook Registered Animals	Number
2006 births (pedigree & supplementary)	9,699
- Females	4,890
- Males	4,809
Current live females (>=18 mths)	22,268
Farm/stock-bulls (>=1 identified progeny in 2006)	7,939
AI-bulls (>= 10 identified progeny in 2006)	116
All Animals (CMMS registrations)*	Number
2006 births from dams registered to breed	83,498
2006 births from sires registered to breed	158,616
2006 births from sires & dams registered to breed	54,742

* Please refer to Table 3.5 for breakdown of all CMMS registrations

Table 2. Charolais Performance Statistics; Phenotypes

Calving	Records	Mean
Difficult calvings (% births scored difficult)	42,896	7.1
Gestation Length (days from insemination-birth)	2,759	287.9
Mortality (% calves dead at 28 days)	42,896	1.6
Beef Performance		
Weaning weight kg (150-300 days)*	18,828	318.8
Loin development (1-15 score)	28,667	8.3
Carcase weight kg (cold weight from abattoir)**	13,491	357.8
Carcase conformation (EUROP score on 1-15 scale)	13,460	8.3
Feed intake (kg/dm/day on performance test)	702	9.5
Beef Maternal		
Calving Interval (1st-2nd parity)	23,223	403.0
Cow Survival (1st-2nd parity)	23,223	0.79
Maternal weaning weight kg (150-300 days)***	8,725	320.1

* Average age at weaning = 225 days.
 ** Average age at slaughter = 707 days. 37% of records from dairy dams.
 *** Average age at maternal weaning = 227 days

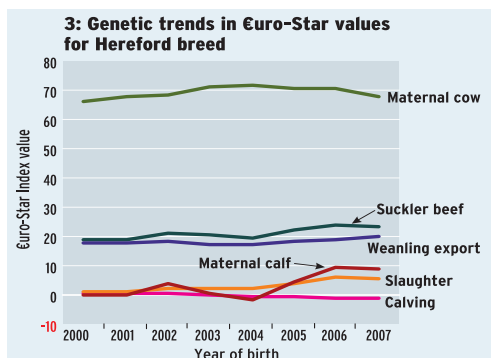
Table 3. Charolais Performance Statistics; Genotypes*

Breed	Total records	Suckler Beef (€)	Calving (€)	Export (€)	Slaughter (€)	Maternal cow (€)	Maternal Calf (€)
Charolais	38,115	96.9	-12.9	71.1	98.0	-60.1	215.3
All beef breeds	114,594	50.2	-3.0	43.0	40.9	1.7	93.7

* Average Euro-Star Values for all pedigree females born since 2000.

6: Breed statistics

HEREFORD



Lisnalurg Vincible (LVL) suckler beef value of €57. Owned and marketed in Ireland by Dovea AI.

HISTORY

» First imported into Ireland from Great Britain in 1775.

CHARACTERISTICS

» Pure-breds have mostly white Heads & legs with red coloured bodies of varying shades.

ATTRIBUTES

» Please refer to tables below for relative performance in Ireland

Table 1. Hereford Breed Statistics.

Herdbook Registered Animals	Number
2006 births (pedigree & supplementary)	3,113
- Females	1,690
- Males	1,423
Current live females (>=18 mths)	5,702
Farm/stock-bulls (>=1 identified progeny in 2006)	2,829
AI-bulls (>= 10 identified progeny in 2006)	41
All Animals (CMMS registrations)*	
2006 births from dams registered to breed	43,936
2006 births from sires registered to breed	111,332
2006 births from sires & dams registered to breed	10,007

* Please refer to Table 3.5 for breakdown of all CMMS registrations

Table 2. Hereford Performance Statistics; Phenotypes

Calving	Records	Mean
Difficult calvings (% births scored difficult)	50,895	5.7
Gestation Length (days from insemination-birth)	7,322	285.8
Mortality (% calves dead at 28 days)	50,895	2.6
Beef Performance		
Weaning weight kg (150-300 days)*	727	277.9
Loin development (1-15 score)	1,939	7.9
Carcase weight kg (cold weight from abattoir)**	19,743	305.6
Carcase conformation (EUROP score on 1-15 scale)	19,736	5.8
Feed intake (kg/dm/day on performance test)	150	9.9
Beef Maternal		
Calving Interval (1st-2nd parity)	7,195	387.0
Cow Survival (1st-2nd parity)	7,195	0.81
Maternal weaning weight kg (150-300 days)***	212	278.2

* Average age at weaning = 229 days.
 ** Average age at slaughter = 787 days. 93% of records from dairy dams.
 *** Average age at maternal weaning = 219 days

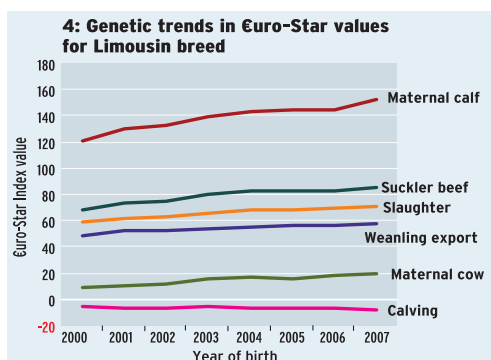
Table 3. Hereford Performance Statistics; Genotypes*

Breed	Total records	Suckler Beef (€)	Calving (€)	Export (€)	Slaughter (€)	Maternal cow (€)	Maternal Calf (€)
Hereford	9,001	21.0	-0.2	18.1	3.0	69.2	3.2
All beef breeds	114,594	50.2	-3.0	43.0	40.9	1.7	93.7

* Average Euro-Star Values for all pedigree females born since 2000.

Breed statistics

LIMOUSIN



Rocky (ROX) suckler beef value of €150. Owned and marketed in Ireland by NCBC.

HISTORY

» First imported into Ireland from France in 1972 (8 heifers).

CHARACTERISTICS

» Pure-bred Limousins colour can vary from light to dark golden-red in colour.

ATTRIBUTES

» Please refer to tables below for relative performance in Ireland

Table 1. Limousin Breed Statistics.

Herdbook Registered Animals	Number
2006 births (pedigree & supplementary)	8,321
- Females	4,207
- Males	4,114
Current live females (>=18 mths)	18,011
Farm/stock-bulls (>=1 identified progeny in 2006)	6,021
AI-bulls (>= 10 identified progeny in 2006)	116
All Animals (CMMS registrations)*	
2006 births from dams registered to breed	95,600
2006 births from sires registered to breed	170,339
2006 births from sires & dams registered to breed	49,716

* Please refer to Table 3.5 for breakdown of all CMMS

Table 2. Limousin Performance Statistics; Phenotypes

Calving	Records	Mean
Difficult calvings (% births scored difficult)	65,303	5.1
Gestation Length (days from insemination-birth)	6,976	289.5
Mortality (% calves dead at 28 days)	65,303	1.7
Beef Performance		
Weaning weight kg (150-300 days)*	10,670	290.2
Loin development (1-15 score)	33,945	8.6
Carcase weight kg (cold weight from abattoir)**	21,181	333.6
Carcase conformation (EUROP score on 1-15 scale)	21,167	7.5
Feed intake (kg/dm/day on performance test)	1,118	8.7
Beef Maternal		
Calving Interval days (1st-2nd parity)	16,959	405.0
Cow Survival % (1st-2nd parity)	16,959	0.83
Maternal weaning weight kg (150-300 days)**	4,859	287.0

* Average age at weaning = 226 days.
 ** Average age at slaughter = 747 days. 71% of records from dairy dams.
 *** Average age at maternal weaning = 224 days

Table 3. Limousin Performance Statistics; Genotypes*

Breed	Total records	Suckler Beef (€)	Calving (€)	Export (€)	Slaughter (€)	Maternal cow (€)	Maternal Calf (€)
Limousin	26,631	78.6	-6.7	54.2	65.7	14.6	138.7
All beef breeds	114,594	50.2	-3.0	43.0	40.9	1.7	93.7

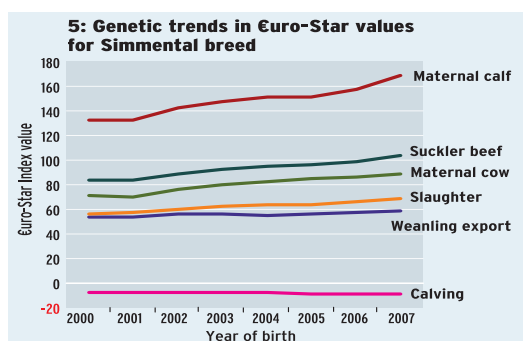
* Average Euro-Star Values for all pedigree females born since 2000.

6: Breed statistics

SIMMENTAL



Hillcrest King (HKG) suckler beef value of €166. Owned and marketed in Ireland by NCBC.



HISTORY

>> First imported into Ireland from Austria in 1971.

CHARACTERISTICS

>> Pure-bred Simmentals have mostly white heads & legs with red coloured bodies of varying shades.

ATTRIBUTES

>> Please refer to tables below for relative performance in Ireland

Table 1. Simmental Breed Statistics.

Herdbook Registered Animals	Number
2006 births (pedigree & supplementary)	2,504
- Females	1,261
- Males	1,243
Current live females (>=18 mths)	5,790
Farm/stock-bulls (>=1 identified progeny in 2006)	1,689
AI-bulls (>= 10 identified progeny in 2006)	58
All Animals (CMMS registrations)*	
2006 births from dams registered to breed	55,810
2006 births from sires registered to breed	49,238
2006 births from sires & dams registered to breed	13,304

* Please refer to Table 3.5 for breakdown of all CMMS registrations.

Table 2. Simmental Performance Statistics; Phenotypes

Calving	Records	Mean
Difficult calvings (% births scored difficult)	20,649	6.1
Gestation Length (days from insemination-birth)	2,094	287.6
Mortality (% calves dead at 28 days)	20,649	2.1
Beef Performance		
Weaning weight kg (150-300 days)*	4,608	318.0
Loin development (1-15 score)	7,217	8.4
Carcase weight kg (cold weight from abattoir)**	9,511	329.5
Carcase conformation (EUROP score on 1-15 scale)	9,509	6.8
Feed intake (kg/dm/day on performance test)	803	9.7
Beef Maternal		
Calving Interval (1st-2nd parity)	10,825	390.0
Cow Survival (1st-2nd parity)	10,825	0.85
Maternal weaning weight kg (150-300 days)***	2,717	319.0

* Average age at weaning = 224 days.
 ** Average age at slaughter = 749 days. 78% of recs from dairy dams.
 *** Average age at maternal weaning = 222 days

Table 3. Simmental Performance Statistics; Genotypes*

Breed	Total records	Suckler Beef (€)	Calving (€)	Export (€)	Slaughter (€)	Maternal cow (€)	Maternal Calf (€)
Simmental	8,926	92.8	-8.0	55.9	62.4	80.0	147.9
All beef breeds	114,594	50.2	-3.0	43.0	40.9	1.7	93.7

* Average Euro-Star Values for all pedigree females born since 2000.

6: Breed statistics

AUBRAC

HISTORY

>> First imported into Ireland from France in 1992 (1 Heifer, 2 Bulls).

CHARACTERISTICS

>> Pure-bred Aubracs are a solid wheat colour.

Table 1. Aubrac Breed Statistics.

Herdbook Registered Animals	Number
2006 births (pedigree & supplementary)	384
- Females	161
- Males	223
Current live females (>=18 mths)	963
Farm/stock-bulls (>=1 identified progeny in 2006)	92
AI-bulls (>= 10 identified progeny in '06)	4
All Animals (CMMS registrations)*	
2006 births from dams registered to breed	810
2006 births from sires registered to breed	2,786
2006 births from sires & dams registered to breed	659

* Please refer to Table 3.5 for breakdown of all CMMS registrations

Table 2. Aubrac Performance Statistics; Phenotypes

Calving	Records	Mean
Difficult calvings (% births scored difficult)	1,835	10.4
Gestation Length (days from insemination-birth)	98	285.4
Mortality (% calves dead at 28 days)	1,835	2.3
Beef Performance		
Weaning weight kg (150-300 days)*	86	294.2
Loin development (1-15 score)	509	7.7
Carcase weight kg (cold weight from abattoir)**	397	322.0
Carcase conformation (EUROP score on 1-15 scale)	397	7.1
Feed intake (kg/dm/day on performance test)	36	8.4

* Average age at weaning = 235 days; ** Average age at slaughter = 710 days. 53% of records from dairy dams.

Table 3. Aubrac Performance Statistics; Genotypes*

Breed	Total records	Suckler Beef (€)	Calving (€)	Export (€)	Slaughter (€)	Maternal cow (€)	Maternal Calf (€)
Aubrac	1,406	27.2	4.0	34.4	18.2	-23.8	61.5
All beef breeds	114,594	50.2	-3.0	43.0	40.9	1.7	93.7

* Average Euro-Star Values for all pedigree females born since 2000.

BELGIAN BLUE

HISTORY

>> First imported into Ireland from Belgium in 1980.

CHARACTERISTICS

>> Pure-bred Belgian Blues can be all white, blue or black or a combination of those colours.

Table 1. Belgian Blue Breed Statistics.

Herdbook Registered Animals	Number
2006 births (pedigree & supplementary)	352
- Females	195
- Males	157
Current live females (>=18 mths)	791
Farm/stock-bulls (>=1 identified progeny in 2006)	476
AI-bulls (>= 10 identified progeny in 2006)	82
All Animals (CMMS registrations)*	
2006 births from dams registered to breed	19,490
2006 births from sires registered to breed	46,396
2006 births from sires & dams registered to breed	2,824

* Please refer to Table 3.5 for breakdown of all CMMS registrations

Table 2. Belgian Blue Performance Statistics; Phenotypes

Calving	Records	Mean
Difficult calvings (% births scored difficult)	25,327	9.6
Gestation Length (days from insemination-birth)	7,827	283.7
Mortality (% calves dead at 28 days)	25,327	2.7
Beef Performance		
Weaning weight kg (150-300 days)*	1,880	301.8
Loin development (1-15 score)	756	7.7
Carcase weight kg (cold weight from abattoir)**	20,037	336.0
Carcase conformation (EUROP score on 1-15 scale)	19,837	7.8
Feed intake (kg/dm/day on performance test)	69	8.6

* Average age at weaning = 227 days.
** Average age at slaughter = 774 days. 88% of records from dairy dams.

Table 3. Belgian Blue Performance Statistics; Genotypes*

Breed	Total records	Suckler Beef (€)	Calving (€)	Export (€)	Slaughter (€)	Maternal cow (€)	Maternal Calf (€)
Belgian Blue	1,787	76.6	-11.7	76.3	76.9	-30.7	147.3
All beef breeds	114,594	50.2	-3.0	43.0	40.9	1.7	93.7

* Average Euro-Star Values for all pedigree females born since 2000.

6: Breed statistics

BLONDE D'AQUITAINE

HISTORY

>> First imported from France in 1974 (8 Heifers).

CHARACTERISTICS

>> Pure-bred Blondes show some variation in colour ranging from almost white to tan.

Table 1. Blonde D'Aquitaine Breed Statistics.

Herdbook Registered Animals	Number
2006 births (pedigree & supplementary)	353
- Females	170
- Males	183
Current live females (>=18 mths)	866
Farm/stock-bulls (>=1 identified progeny in 2006)	201
AI-bulls (>= 10 identified progeny in 2006)	21
All Animals (CMMS registrations)*	
2006 births from dams registered to breed	3,425
2006 births from sires registered to breed	5,998
2006 births from sires & dams registered to breed	1,228

* Please refer to Table 3.5 for breakdown of all CMMS

Table 2. Blonde D'Aquitaine Performance Statistics; Phenotypes

Calving	Records	Mean
Difficult calvings (% births scored difficult)	3,340	4.6
Gestation Length (days from insemination-birth)	212	290.2
Mortality (% calves dead at 28 days)	3,340	2.0
Beef Performance		
Weaning weight kg (150-300 days)*	236	302.3
Loin development (1-15 score)	335	8.3
Carcase weight kg (cold weight from abattoir)**	690	339.4
Carcase conformation (EUROP score on 1-15 scale)	690	7.2
Feed intake (kg/dm/day on performance test)	90	8.9

* Average age at weaning = 228 days.; ** Average age at slaughter = 704 days. 62% of records from dairy dams.

Table 3. Blonde Aquitaine Performance Statistics; Genotypes*

Breed	Total records	Suckler Beef (€)	Calving (€)	Export (€)	Slaughter (€)	Maternal cow (€)	Maternal Calf (€)
Bl'de Aquitaine	1,308	67.8	-12.2	54.1	79.6	-64.9	155.3
All beef breeds	114,594	50.2	-3.0	43.0	40.9	1.7	93.7

* Average Euro-Star Values for all pedigree females born since 2000.

PARTHENAISE

HISTORY

>> First imported from France in 1997.

CHARACTERISTICS

>> Pure-bred Parthenaise are wheaten in colour with pigmentation around the eyes & muzzle.

Table 1. Parthenaise Breed Statistics.

Herdbook Registered Animals	Number
2006 births (pedigree & supplementary)	113
- Females	66
- Males	47
Current live females (>=18 mths)	312
Farm/stock-bulls (>=1 identified progeny in 2006)	27
AI-bulls (>= 10 identified progeny in 2006)	3
All Animals (CMMS registrations)*	
2006 births from dams registered to breed	270
2006 births from sires registered to breed	1,006
2006 births from sires & dams registered to breed	217

* Please refer to Table 3.5 for breakdown of all CMMS registrations

Table 2. Parthenaise Performance Statistics; Phenotypes

Calving	Records	Mean
Difficult calvings (% births scored difficult)	615	11.9
Gestation Length (days from insemination-birth)	17	284.8
Mortality (% calves dead at 28 days)	615	2.4
Beef Performance		
Weaning weight kg (150-300 days)*	40	320.8
Loin development (1-15 score)	26	8.7
Carcase weight kg (cold weight from abattoir)**	20	379.2
Carcase conformation (EUROP score on 1-15 scale)	20	8.8
Feed intake (kg/dm/day on performance test)	10	10.1

* Average age at weaning = 224 days.; ** Average age at slaughter

Table 3. Parthenaise Performance Statistics; Genotypes*

Breed	Total records	Suckler Beef (€)	Calving (€)	Export (€)	Slaughter (€)	Maternal cow (€)	Maternal Calf (€)
Parthenaise	428	19.6	2.0	33.9	17.0	-16.4	53.2
All beef breeds	114,594	50.2	-3.0	43.0	40.9	1.7	93.7

* Average Euro-Star Values for all pedigree females born since 2000

6: Breed statistics

PIEDMONTESE

HISTORY

>> First imported into Ireland from Italy in 1982.

CHARACTERISTICS

>> Pure-bred Piedmontese are mostly white with pigmentation around the eyes and muzzle

Table 1. Piedmontese Breed Statistics.

Herdbook Registered Animals	Number
2006 births (pedigree & supplementary)	54
- Females	22
- Males	32
Current live females (>=18 mths)	283
Farm/stock-bulls (>=1 identified progeny in 2006)	45
AI-bulls (>= 10 identified progeny in 2006)	9
All Animals (CMMS registrations)*	
2006 births from dams registered to breed	350
2006 births from sires registered to breed	846
2006 births from sires & dams registered to breed	146
* Please refer to Table 3.5 for breakdown of all CMMS registrations	

Table 2. Piedmontese Performance Statistics; Phenotypes

Calving	Records	Mean
Difficult calvings (% births scored difficult)	466	6.2
Gestation Length (days from insemination-birth)	32	287.6
Mortality (% calves dead at 28 days)	466	2.1
Beef Performance		
Weaning weight kg (150-300 days)*	12	288.0
Loin development (1-15 score)	56	7.9
Carcase weight kg (cold weight from abattoir)**	103	334.3
Carcase conformation (EUROP score on 1-15 scale)	103	6.8
Feed intake (kg/dm/day on performance test)	12	9.6
* Average age at weaning = 243 days; ** Average age at slaughter = 758 days. 71% of records from dairy dams.		

Table 3. Piedmontese Performance Statistics; Genotypes*

Breed	Total records	Suckler Beef (€)	Calving (€)	Export (€)	Slaughter (€)	Maternal cow (€)	Maternal Calf (€)
Piedmontese	436	13.8	2.4	29.9	10.0	-15.9	32.2
All beef breeds	114,594	50.2	-3.0	43.0	40.9	1.7	93.7

* Average €uro-Star Values for all pedigree females born since 2000.

SALERS

HISTORY

>> First imported into Ireland from France in 1997.

CHARACTERISTICS

>> Pure-breds have a mahogany colour coat and a white tipped tail

Table 1. Saler Breed Statistics

Herdbook Registered Animals	Number
2006 births (pedigree & supplementary)	634
- Females	312
- Males	322
Current live females (>=18 mths)	1,364
Farm/stock-bulls (>=1 identified progeny in 2006)	187
AI-bulls (>= 10 identified progeny in 2006)	15
All Animals (CMMS registrations)*	
2006 births from dams registered to breed	3,628
2006 births from sires registered to breed	5,832
2006 births from sires & dams registered to breed	1,691
* Please refer to Table 3.5 for breakdown of all CMMS registrations	

Table 2. Saler Performance Statistics; Phenotypes

Calving	Records	Mean
Difficult calvings (% births scored difficult)	3,399	1.3
Gestation Length (days from insemination-birth)	406	285.9
Mortality (% calves dead at 28 days)	3,399	1.5
Beef Performance		
Weaning weight kg (150-300 days)*	175	306.0
Loin development (1-15 score)	417	8.0
Carcase weight kg (cold weight from abattoir)**	413	341.7
Carcase conformation (EUROP score on 1-15 scale)	413	7.3
Feed intake (kg/dm/day on performance test)	65	9.1

* Average age at weaning = 237 days.; ** Average age at slaughter = 709 days. 39% of records from dairy dams.

Table 3. Saler Breed Statistics

Breed	Total records	Suckler Beef	Calving	Export	Slaughter	Maternal cow	Maternal Calf
Saler	1,816	33.7	4.4	32.0	24.0	-28.6	77.8
All beef breeds	114,594	50.2	-3.0	43.0	40.9	1.7	93.7

* Average €uro-Star Values for all pedigree females born since 2000.

6: Breed statistics

SHORTHORN

HISTORY

>> First imported into Ireland from Great Britain in 1822.

CHARACTERISTICS

>> Pure-bred Shorthorns are either red, white or roan in colour.

Table 1. Shorthorn Breed Statistics.

Herdbook Registered Animals	Number
2006 births (pedigree & supplementary)	1,130
- Females	846
- Males	284
Current live females (>=18 mths)	2,958
Farm/stock-bulls (>=1 identified progeny in 2006)	130
AI-bulls (>= 10 identified progeny in 2006)	18
All Animals (CMMS registrations)*	
2006 births from dams registered to breed	7,915
2006 births from sires registered to breed	12,759
2006 births from sires & dams registered to breed	4,060

* Please refer to Table 3.5 for breakdown of all CMMS registrations

Table 2. Shorthorn Performance Statistics; Phenotypes

Calving	Records	Mean
Difficult calvings (% births scored difficult)	3,619	4.6
Gestation Length (days from insemination-birth)	318	285.7
Mortality (% calves dead at 28 days)	3,399	2.2
Beef Performance		
Weaning weight kg (150-300 days)*	113	290.0
Loin development (1-15 score)	135	6.9
Carcass weight kg (cold weight from abattoir)**	971	322.0
Carcass conformation (EUROP score on 1-15 scale)	971	6.2
Feed intake (kg/dm/day on performance test)	16	10.1

* Average age at weaning = 221 days; ** Average age at slaughter = 787 days. 74% of records from dairy dams.

Table 3. Shorthorn Performance Statistics; Genotypes*

Breed	Total records	Suckler Beef (€)	Calving (€)	Export (€)	Slaughter (€)	Maternal cow (€)	Maternal Calf (€)
Shorthorn	13,048	0.5	-0.1	14.7	-5.3	34.7	-25.2
All beef breeds	114,594	50.2	-3.0	43.0	40.9	1.7	93.7

* Average Euro-Star Values for all pedigree females born since 2000.



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6: Breed statistics - dairy

DAIRY BREEDS



HISTORY

>> The dominant dairy breed in Ireland since the 1950's.

CHARACTERISTICS

>> Pure-breds are Black and white in colour

ATTRIBUTES

>> Please refer to tables below for relative performance in Ireland

Table 1. Holstein Friesian Breed Statistics.

Herdbook Registered Animals	Number
Births in 2006 (pedigree)	54,331
- Males	3,619
- Females	50,712
Current live females (>=18 mths)	257,342
Farm/stock-bulls (>=1 identified progeny in 2006)	2,246
AI-bulls (>= 10 identified progeny in 2006)	646

All Animals (Birth registrations in 2006)*

Births from dams registered to breed	727,238
Births from sires registered to breed	371,853
Births from sires & dams registered to breed	360,540

* Please refer to Table 3.5 for all CMMS registrations

Note: all statistics for Holstein Friesian are based on combined performance of Holstein and Friesian strains.

Table 3. Holstein Friesian Performance Statistics; Genotypes*

Breed	Records	EBI	Milk	Fertility	Calving	Beef	Health
Holstein							
Friesian	980,950	39.1	21.1	17.1	9.8	-7.8	-1.2
All dairy breeds	1,021,271	51.1	8.3	46.3	5.0	-7.0	-1.4

* Average EBI Values for all pedigree females born since 2000.

HOLSTEIN FRIESIAN

Table 2. Holstein Friesian Performance Statistics; Phenotypes

Milk Production	Records	Mean
Milk kg*	1,261,865	5,545.7
Fat kg*	1,261,865	203.5
Protein kg*	1,261,865	185.4
Survival & Fertility		
Calving Interval days (Ave of parities 1-4)	1,125,809	383.8
Survival % (Ave of parities 1-4)	1,125,809	74.8
Calving		
Difficult calvings (% births scored difficult)	465,484	6.1
Gestation Length (days)	140,248	281.9
Mortality (% dead at 28 days)	465,484	3.3
Beef		
Cold carcase weight kg**	185,461	319.2
Carcase conformation (1-15 EUROP score)	185,461	4.7

* Yield corrected to 305 days & 26 months of age

** Average age at slaughter = 778 days

6: Breed statistics



MONTBELIARDE

HISTORY

>> Imported to Ireland from France in early 1990s

CHARACTERISTICS

>> Pure breeds are red and white in colour.

ATTRIBUTES

>> Please refer to tables below for relative performance in Ireland

Table 1. Montbeliarde Breed Statistics.

Herdbook Registered Animals	Number
Births in 2006 (pedigree)	766
- Females	577
- Males	189
Current live females (>=18 mths)	5,123
Farm/stock-bulls	
(>=1 identified progeny in 2006)	519
AI-bulls (>= 10 identified progeny in 2006)	22
All Animals (Birth registrations in 2006)*	
Births from dams registered to breed	13,207
Births from sires registered to breed	18,123
Births from sires & dams registered to breed	7,474

* Please refer to Table 3.5 for all CMMS registrations

Table 3. Montbeliarde Performance Statistics; Genotypes*

Breed	Records	EBI	Milk	Fertility	Calving	Beef	Health
Montbeliarde	22,678	64.2	1.7	55.1	-6.2	11.6	2.2
All dairy breeds	1,021,271	51.1	8.3	46.3	5.0	-7.0	-1.4

* Average EBI Values for all pedigree females born since 2000.

Table 2. Montbeliarde Performance Statistics; Phenotypes

Milk Production	Records	Mean
Milk kg*	12,647	5,595.0
Fat kg	12,647	207.0
Protein kg*	12,647	191.0
Survival & Fertility		
Calving Interval days (Ave of parities 1-4)	9,360	379.3
Survival % (Ave of parities 1-4)	9,360	83.2
Calving		
Difficult calvings (% births scored difficult)	13,019	6.8
Gestation Length (days)	3,446	286.5
Mortality (% dead at 28 days)	13,019	2.4
Beef		
Cold carcase weight kg**	4,484	338.0
Carcass conformation (1-15 EUROP score)	4,484	5.8

* Yield corrected to 305 days & 26 months of age
** Average age at slaughter = 789 days

6: Breed statistics

JERSEY

HISTORY

>> First imported from Great Britain in early 19th century.

CHARACTERISTICS

>> Pure-bred Jerseys are fawn in colour and with a distinctive black-nose.

Table 1. Jersey Breed Statistics.

Herdbook Registered Animals	Number
Births in 2006 (pedigree)	236
- Females	228
- Males	8
Current live females (>=18 mths)	1,102
Farm/stock-bulls (>=1 identified progeny in 2006)	23
AI-bulls (>= 10 identified progeny in 2006)	15
All Animals (Birth registrations in 2006)*	
Births from dams registered to breed	4,182
Births from sires registered to breed	4,792
Births from sires and dams registered to breed	1,209

* Please refer to Table 3.5 for all CMMS registrations

Table 2. Jersey Performance Statistics; Phenotypes

Milk Production	Records	Mean
Milk kg*	4,431	4,686.0
Fat kg	4,431	222.4
Protein kg*	4,431	175.3
Survival & Fertility		
Calving Interval days (Ave of parities 1-4)	3,419	378.2
Survival % (Ave of parities 1-4)	3,419	85.3
Calving		
Difficult calvings (% births scored difficult)	6,585	2.2
Gestation Length (days)	2,233	28.1
Mortality (% dead at 28 days)	6,585	5.3
Beef		
Cold carcaseweight kg**	751	269.4
Carcass conformation (1-15 EUROP score)	751	4.0

* Yield corrected to 305 days & 26 months of age
** Average age at slaughter = 778 days

Table 3. Jersey Performance Statistics; Genotypes*

Breed	Records	EBI	Milk	Fertility	Calving	Beef	Health
Jersey	9,089	50.6	23.1	60.4	9.5	-41.2	-1.8
All dairy breeds	1,021,271	51.1	8.3	46.3	5.0	-7.0	-1.4

* Average EBI Values for all pedigree females born since 2000.

MEUSE RHINE ISSEL

HISTORY

>> Imported from Germany in the early 1990s

CHARACTERISTICS

>> Pure-breds are a darker red and white in colour

Table 1. MRI Breed Statistics.

Herdbook Registered Animals	Number
Births in 2006 (pedigree)	766
- Females	577
- Males	189
Current live females (>=18 mths)	496
Farm/stock-bulls (>=1 identified progeny in 2006)	124
AI-bulls (>= 10 identified progeny in 2006)	9
All Animals (Birth registrations in 2006)*	
Births from dams registered to breed	3,352
Births from sires registered to breed	1,357
Births from sires & dams registered to breed	734

* Please refer to Table 3.5 for all CMMS registrations

Table 2 MRI Performance Statistics; Phenotypes

Milk Production	Records	Mean
Milk kg*	2,926	4,792.0
Fat kg	2,926	179.3
Protein kg*	2,926	166.5
Survival & Fertility		
Calving Interval days (Ave of parities 1-4)	2,611	371.2
Survival % (Ave of parities 1-4)	2,611	76.4
Calving		
Difficult calvings (% births scored difficult)	2,356	2.7
Gestation Length (days)	375	282.0
Mortality (% dead at 28 days)	2,356	1.9
Beef		
Cold carcass weight kg**	653	321.1
Carcass conformation (1-15 EUROP score)	653	5.8

* Yield corrected to 305 days & 26 months of age; ** Average age at slaughter = 772 days

Table 3. Jersey Performance Statistics; Genotypes*

Breed	Records	EBI	Milk	Fertility	Calving	Beef	Health
MRI	3,396	46.4	-6.4	51.8	3.4	1.3	-3.6
All dairy breeds	1,021,271	51.1	8.3	46.3	5.0	-7.0	-1.4

* Average EBI Values for all pedigree females born since 2000.

7: Future developments

BACKGROUND

THE Irish cattle breeding infrastructure is undergoing rapid and extensive change. These changes have been driven by ICBF with funding provided by a combination of support from DAF, the National Development Plan, farmers and the cattle breeding industry. Four recent innovations resulting from this effort, that are having a major impact on cattle breeding in Ireland, are described here.

ELECTRONIC DO-IT-YOURSELF (EDIY) MILK RECORDING.

To grow milk recording in Ireland it had to be made more attractive to dairy farmers. A two pronged approach was employed; a) increasing the benefits and b) reducing the effort of recording (inconvenience and cost factors). Based on trials in 2004 and 2005, the Tru Test electronic DIY milk meter was selected as new service option - EDIY milk recording. This service was first offered to dairy farmers in 2006. EDIY milk recording service removed a lot of inconvenience and reduced the cost. Its launch was complimented with new reports that were more "action" based, and designed to make milk recording more of a decision support system for the commercial farmer. An education programme was undertaken to fully explain the profit based Economic Breeding Index (EBI) so farmers could maximise the benefit they received from the service. By July 2007, 27% of milk recording was through the EDIY service option and the overall use of milk recording had increased by 15%. The keys to success for this initiative have been;

- Good technology - reliable, durable, easy to use.
- Labour saving - eliminated paper recording, electronic link to database.
- Integration - database and laboratory.

For more information refer to ICBF website - www.icbf.com

Figure 7.1. EDIY milk recording equipment; Data handler with radio link to all meters. One for whole herd. Tru-Test Electronic milk meter. One per milking cluster.

Table 7.1. Operational model for EDIY milk recording

Cell comprises van, technician, 75 meters, 8 data handlers and services 4 to 6 herds per day.

Technician downloads file of cows to be recorded to data handler and in PM delivers along with required number of meters and sample bottles to each herd.

Herd owner trained to install meters and operate system.

Farmer identifies each cow to data handler and links it to meter.

Meter records milk volume and automatically takes sub-sample in bar coded vial.

Meter sends all results, including bar code of sample vial to data handler for storage and uploading to database.

Farmer washes meters before collection by the technician next morning.

Samples sent to laboratory for testing. Results transmitted electronically to database.

Reports sent from database to farmer - postal or electronic



AI HANDHELDS

Insemination records have many potential uses. The ICBF AI Handheld innovation was stimulated by a number of factors including; time delays with manual docket, data errors, availability of new technology and a desire to reduce costs. The new system has many additional features over and above the "old" manual docket system (Table 7.2). In addition it has the potential to provide excellent data for cattle breeding both from a genetic evaluation (e.g., genetic evaluation of male and female fertility) and from a progeny testing perspective (e.g., more accurate ancestry identification). To-date some 333,000 inseminations have been recorded through the AI handhelds (in 2007), which is about 40% of all inseminations through the AI technician services in Ireland.

Figure 7.2. Technician AI equipment. Itronix Q200 hand held computer. Rugged design essential for field work. SIM card for mobile phone. 512mb removable memory for backup. GPRS card (for communications via mobile phone network). Wireless, infra red, thermal printer - receipt printed for herd owner.

Table 7.2 Features of ICBF AI Handheld compared with manual docket system

Feature	Manual Docket systems replaced	ICBF AI handheld
Compliance with regulations	No	Yes
Docket processing	Yes	Yes
Inbreeding check	No	Yes
Lethal gene check	No	Yes
Short returns check	Yes	Yes
Information to technician on cow	No	Yes
Real time management information	No	Yes
Tighter semen stock management	No	Yes
Sire advice program	No	Yes
More accurate billing	No	Yes
Single database with CMMS updates	No	Yes
More accurate genetic evaluations	No	Yes
Effectively supports progeny test program	No	Yes



Table 7.3 Operating model for AI technician handheld system.

AI field service providers purchase hardware and pay fee per recorded insemination to cover system operating costs.

Handheld is populated with client herds for each technical and updated as animals move in and out of the herd.

Sire advice results downloaded from ICBF database to Handheld when finalized. Technician has access to three generation inbreeding check prior to inseminating the cow.

Insemination record loaded to database daily.

ICBF database extracts provided to AI company for billing and administration. 292 purchased roll-out in progress.

180 technicians recorded some 500,000 inseminations since introduction in 2006.



Table 7.4 Operating model for GENE IRELAND® program.

AI Companies nominate bulls to be tested and provide some 700 doses of semen for each bull accepted into the progeny test. Semen from bulls owned by different AI companies is pooled and allocated to the participating herds

Herds willing to use at least 35 (25 in beef herds) doses test bull semen are recruited by ICBF with help from the AI Companies. Semen is delivered to the herd by the relevant field service provider. The herd owner also receives, from ICBF, a report identifying matings to be avoided due to inbreeding

The herds using the test bull semen qualify for a range of payments based on data recorded on the cattle breeding database. The data includes recorded inseminations, recorded calvings and birth, linear scoring, milk recording (for dairy) and weaning weights (for beef). These payments are funded by a combination of fees paid by the AI companies and NDP support

GENE IRELAND®

This new service is being developed to achieve an optimal breeding scheme design for Irish dairy and beef breeding.

The initial work had focused on research to establish the optimum design for Irish dairy and beef breeds. This research indicated that a design of 100 bulls with 100 daughters completing first lactations was near optimal for dairy and similarly for beef. With an optimal design annual rates of genetic gain are projected to increase from 5 to 20 per animal for dairy and from 2 to 18 per animal for beef. This has created an ambitious, yet achievable, goal for Irish cattle breeding.

The follow-on from this research work was the establishment of a new service GENE IRELAND® for the benefit of farmers and the Irish cattle breeding industry. The GENE IRELAND® service comprises two key elements; (i) location of elite animals, and (ii) progeny testing. The overall goal is to increase the rate of genetic gain in the commercial cattle population from current relatively low rates to those achievable with an optimal breeding scheme design. Achieving this requires that Breed Associations and AI companies have a shared vision of breeding objectives and work in concert to identify the elite animals and ensure the best are progeny tested. It also requires that the goal is shared by commercial cattle producers and they make their breeding decisions accordingly. The initial focus of GENE IRELAND® has been on the dairy progeny test element (the program first commenced in Spring 2005). To-date some 140 dairy bulls have been tested through the program, using a targeted herd progeny test approach.

A beef program was introduced this year, with 10 bulls starting their progeny test in Spring 2007. An outline of the dairy and beef programs is given in Table 7.4. This new service is undergoing continuous development and improvement. An annual review of GENE IRELAND® is currently being conducted to identify improvements that can be made to ensure the overall goal of optimal rates of genetic progress in the commercial dairy and beef populations.



HERDPLUS

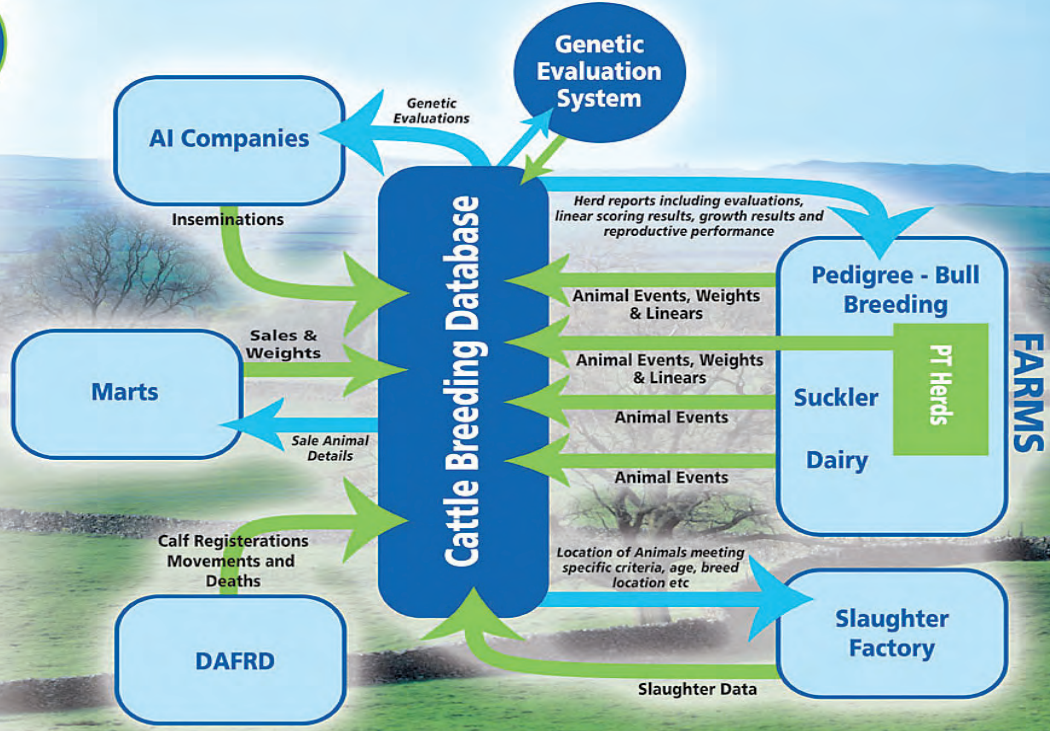
THIS new service is being developed to capitalise on the cattle breeding database and to provide cattle farmers with a wide range of information relevant to farm management decisions. An outline of the service is given in Table 5. The service was first launched in September 2006, and now has some 2,500 signed up participants. Whilst the initial focus was dairy farmers, the service is currently being expanded to cater for beef farmers. Ultimately, the plan for ICBF HerdPlus is to have all all cattle breeding farmers availing of the benefits of the service in the future.

Table 7.5 Key features of the HerdPlus Service for Irish cattle farmers.

Elements	Description
Objective	To provide information farmers can use to increase their farm profits. To increase best breeding practices and to facilitate increased uptake of AI, Milk Recording and Beef Performance recording services.
Customers	The customers for the service are Irish cattle farmers. Initially the focus was on dairy farmers and the service is currently being extended to beef farmers.
Herd focus	The service is focused at the herd level and thus covers all animals regardless of breed, pedigree registration status, usage of AI, usage of milk recording or usage of beef performance recording.
On-line database	Herds using the service have web access to the ICBF database giving facilities for recording animal events, obtaining copies of herd reports and making on-line queries.
Herd Reports	Herd Reports - The core of the service is a set of Herd Reports available electronically or by post: Genetic Evaluations, Breeding chart, Herd Inventory, Calving Report, Reproductive Performance, Expected calving, Sire advice, and Milk Quality. The service also includes routine participation in Animal Events and notification of breed improvement initiatives for which the herd may qualify.
Personalised Notebook	HerdPlus clients receive a personalised animal events recording notebook each year. Personalised means each farmer will get his own animals preprinted on its pages. The notebook includes pages for Breeding Chart, Expected Calving and Herd list - all cows preprinted, making it easier to record events.
Helpdesk	As part of the service ICBF put together a HerdPlus Help team of trained staff to help farmers understand what each report means and how to use the information therein.
Cost	Participation in the service for 12 months will cost €60 or €120 for the electronic and postal versions respectively.
Payment	The service must be paid for in advance by a direct payment to ICBF. Direct debit, credit card and cheques are accepted.



Beef Breeding Quality Initiative - Data and Information Flows



_____ is the reference number of this Animal Events Sheet Note: Please return completed forms every 7 days

AE line No.	Section 1a – Details for National Bovine Animal Birth Registration Service*										Section 1b - Extra Calving Details					
	Year of Event		Dam of Calf Details				Calf Details				Sire of Calf Details		Calving Details		Pedigree Name of Calf	
	2	0	Date of Event (Day/Month)		Dams Ear Tag Number		Breed of Dam	First 7 digits of calf tag		Sex of Calf	AI Code/Ear Tag/Herdbook/Within-Herd Number	Breed of Sire	Dead Calf	Calving Survey	Herdbook Registration Only (Note: Prefix Not Required)	
01																
02																
03																
04																
05																
06																
07																
08																
09																
10																

Note: Always circle the appropriate code. Example I: Sex of Calf **M**(**F**) indicates a Female Calf. Example II: Dead Calf **1**(**0**) indicates a calf that was born dead.

Section 2			Section 3 – Insemination or Service			Section 4 – Others				
Date of Event (Day/Month)	Within Herd ID of Animal (From Brand/Tag No.)	Ear Tag Number of Animal (Not always required - see below)	Section 2 New Within Herd ID	Sire ID (AI Code/Ear Tag/Herdbook/Within-Herd ID)		Health	PD	Weight	Buy-Off or Wean	Case of calf or lamb
11			1 2							
12			1 2							
13			1 2							
14			1 2							
15			1 2							
16			1 2							
17			1 2							
18			1 2							
19			1 2							
20			1 2							

DECLARATION FOR NATIONAL BOVINE ANIMAL BIRTH REGISTRATION Declaration of owner/keeper of Herd in which animal was born: I hereby declare that the details given by me in all sections of this Application form to be true and accurate: This application to be completed by owner/keeper of the Herd in which animal was born, at the time of tagging, and posted immediately to the registration service

Signature of herd owner: _____ Date: _____

PLEASE ENSURE YOU HAVE FULLY COMPLETED SECTION 1a AND SIGNED & DATED THIS FORM BEFORE POSTING.

*Please record all calving events. Only those that result in the birth of a live calf will be used for National Bovine Animal Birth Registration. Those that result in the birth of a dead calf will be used by ICDF for cattle breeding purposes only. Please record dead calves by leaving the calf ID field (last 5 digits of the calf tag) blank.

