Irish Cattle Breeding Federation

Irish Cattle Breeding Statistics 2002

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Reference Information

Title: Irish Cattle Breeding Statistics 2002
ISSN: 1649-0991
Date of Publication: 15th September 2003
Editor: Andrew Cromie
Printed by: Print Run Limited, Unit 72,
Western Parkway Business Park, Ballymount, Dublin 12.

Foreword

The purpose of this publication is to provide the cattle breeding industry with accurate information for decision making. Providing such information is in keeping with ICBF's mission of achieving increased rates of genetic improvement in the national herd. By compiling statistics relevant to the main aspects of cattle breeding I believe that organizations and individuals wishing to make investments in the industry can be better informed when making their decisions and thus achieve better returns on their investments.

In compiling this publication we have endeavored to cover the key elements of successful cattle breeding including the breeding population, performance recording and current rates of genetic improvement.

The data used in compiling these statistics has come from a number of sources:

- Department of Agriculture and Food.
- Central Statistics Office.
- Herdbook Associations.
- Irish Farmers Journal (photos).

The support of these organizations in making data available and in compiling relevant summaries is gratefully acknowledged. This co-operation is a most important contribution to assisting the cattle breeding industry achieving greater effectiveness and efficiency.

For the first time this publication includes a number of statistics derived directly from ICBF's cattle breeding database. The database has consolidated data from many sources and is now providing much more accurate information on individual animals. As a consequence, some of the statistics will change to reflect this greater accuracy. Future publications will make even greater use of the database as a source of statistics for this publication.

Please contact us with any suggestions you have for improvement or requests for greater detail or further breakdown. You are recommended to also refer to the ICBF website (http://www.icbf.com), where further information is freely available.

Brian Wickham
Chief Executive

Tully Elite Performance Test Sale 2002

Top Performance Tested Animals in the Simmental, Charolais, Hereford and Limousin Breeds

Simmental Bull

Dovea Nigel

Dovea AI bred, Performance Tested Simmental Bull, March 2003. Pictured with Pat Flood prior to his return to Dovea.

Hereford Bull

Lissalurg Vincible

Top Performance Tested Hereford, March 2003. Purchased by Dovea AI Station for €9000. Also pictured is his breeder, Peter Casey, Tully Test Centre Manager, Michael Barron and Noel Ryan, Dovea AI.

Angus Bull

'Colough Union'

Top Performance Tested Angus, March 2003. Purchased by Dovea AI Station for €6000. Also pictured is his breeder, Peter Casey, Tully Test Centre Manager, Michael Barron and Noel Ryan, Dovea AI.

Charolais Bull

'Kilcullen Ted'

Top Performance Tested Charolais, March 2003. Purchased by Progressive Genetics, for €23,000 (Irish record price). Also pictured is Michael Bailey, Progressive Genetics, his breeder Jim Kelly, Tully Test Centre Manager, Michael Barron and Pat Flood.

(i) Department of Agriculture and Food - Cattle Population Statistics

- *7.1 million live animals*
- *Holstein Friesian most prevalent breed*

Table 1.1 Age and Gender Profile of National Cattle Herd (2002)

	0-12 mths	13-24 mths	24-36 mths	>36 mths	Total
Male	1,059,899	972,328	230,500	227,201	2,489,928
Female	964,431	780,583	1,523,654	1,315,437	4,584,105
Total	**2,024,330**	**1,752,911**	**1,754,154**	**1,542,638**	**7,074,033**

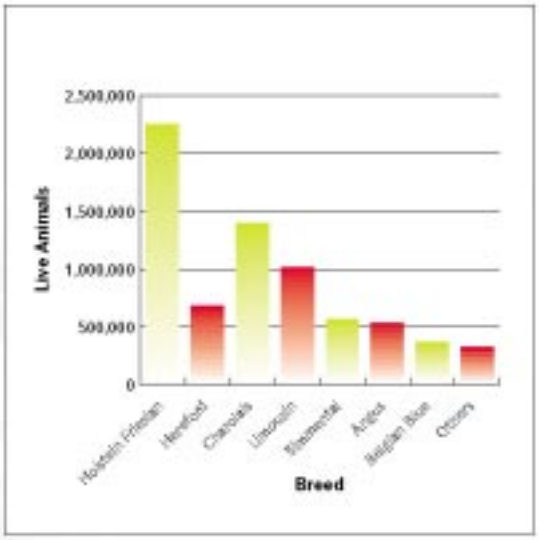
The number of live animals in Ireland, based on data from the Cattle Movement and Monitoring System (as of February 2003), was 7,047,033 (Table 1.1). The majority of these animals were females (some 4.6 million) of which 79% (some 3.6 million) were over 13 months and could be considered as breeding stock. The number of male animals was 2.49 million, the majority of which were under 24 months (about 82%).

The most prevalent breed of animal in Ireland in 2002 was the Holstein Friesian, representing 31.7% of the total population (Table 1.2 and Figure 1.1). This was followed by the Charolais (19.6%), Limousin (14.2%) and Hereford (9.5%) breeds respectively.

Table 1.2 Breed Profile of National Cattle Herd (2002)

Breed	0-12 mths	13-24 mths	25-36 mths	>36 mths	Total
Holstein Friesian	491,358	449,822	665,211	636,843	2,243,234
Hereford	180,328	161,762	195,327	133,797	671,214
Charolais	495,612	401,356	243,697	249,649	1,390,314
Limousin	348,719	291,915	206,562	163,517	1,010,713
Simmental	144,441	136,072	149,932	123,905	554,350
Angus	168,310	135,659	104,618	119,213	527,800
Belgian Blue	133,690	126,655	52,714	47,057	360,116
Others	61,872	49,670	136,093	68,657	316,292
Totals	2,024,330	1,752,911	1,754,154	1,542,638	7,074,033

Fig 1.1 Breed Profile of National Cattle Herd (2002)



(ii) Department of Agriculture and Food - National Calf Registration Statistics

- *Shift in calving pattern within spring and autumn calving herds*
- *Increasing influence of certain beef breeds*
- *High level of crossbreeding in National beef herd*
- *Shift towards pure-breeding for Limousin, Charolais and Belgian Blue breeds*

Table 1.3 National Bovine Calf Registration Figures, by Month (1997-2002)

	1997	1998	1999	2000	2001	2002
January	283,531	290,593	222,503	162,109	163,815	129,419
February	484,195	529,306	460,217	393,117	376,301	376,448
March	578,726	577,038	570,908	553,566	506,891	530,864
April	390,882	382,679	384,458	426,992	411,497	434,430
May	210,599	217,493	216,243	261,472	258,961	250,320
June	101,353	92,945	90,541	98,460	126,109	125,677
July	56,714	55,151	50,108	56,719	63,918	71,660
August	42,155	41,216	34,682	40,342	43,501	49,944
September	47,462	45,771	39,034	44,047	50,121	54,496
October	58,273	53,993	45,993	46,469	51,352	56,178
November	55,745	53,810	44,448	43,906	50,167	49,090
December	75,525	85,533	49,031	45,389	50,184	51,600
Total	**2,385,160**	**2,425,528**	**2,208,166**	**2,172,588**	**2,152,817**	**2,180,126**

The total number of calves registered in the National Calf Registration Database in 2002 was 2,180,126 (Table 1.3), an increase of about 1.3% (+27,309 births) compared to 2001.

The seasonal nature of calf registrations in Ireland was again evident in 2002, with over 73.0% of all calves registered in the months February, March, April and May (some 1.6 million calves in total).

Trends in the seasonality of calf births (Figure 1.2) suggest a definite shift in calving pattern towards later spring and earlier autumn calving (probably reflecting the impact of F&M on the 2001 breeding season). For example, the % of cows calving in the months of April and May was 27.2% in 1999 compared to 31.4% in 2002, an increase of 84,049 births. Similarly the number of calves born in the months of August to October was 5.4% in 1999 compared to 7.4% in 2002, an increase of 40,909 births.

Fig 1.2 Trends in Seasonality of Calf Births (1999 vs. 2002)

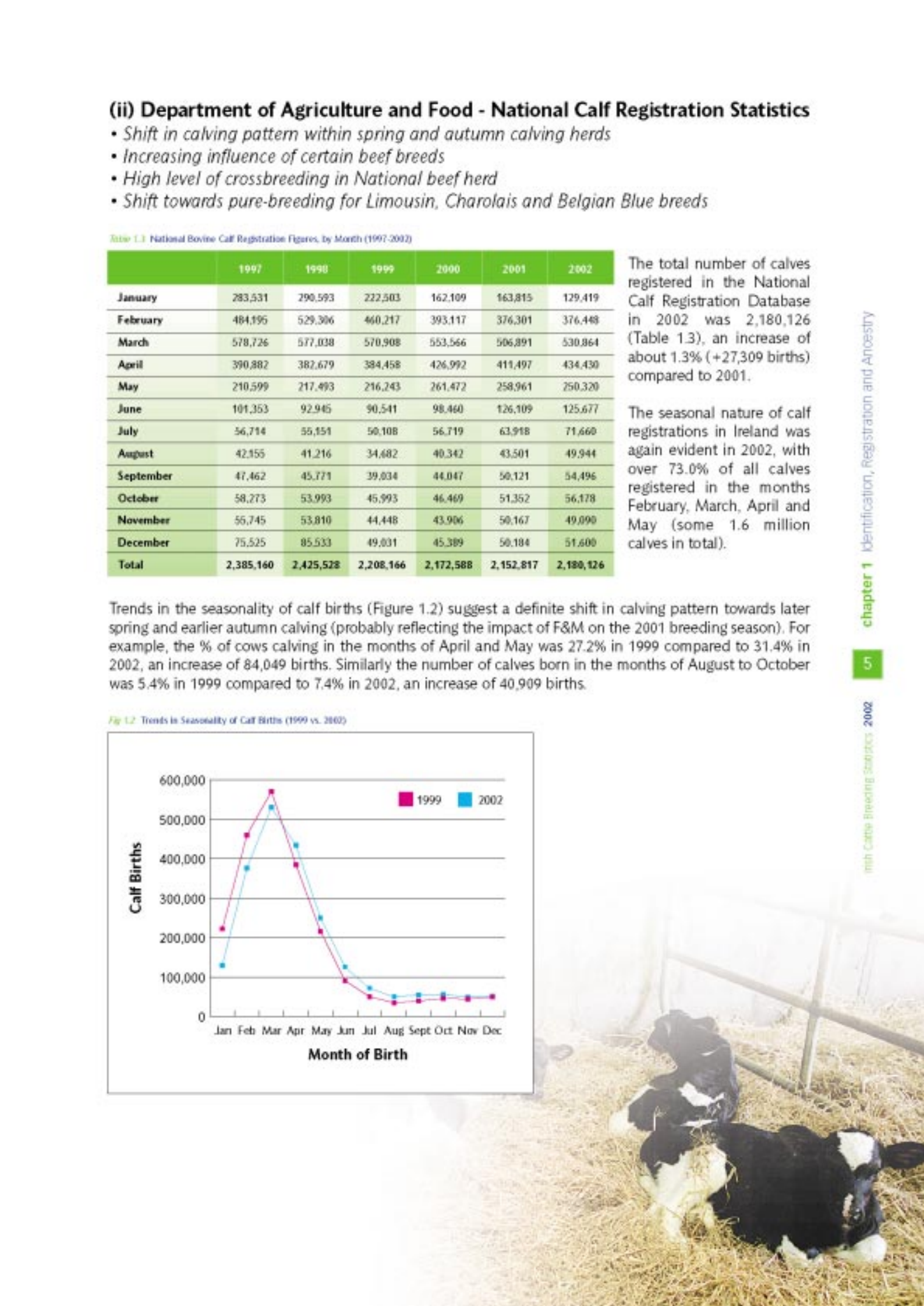


Table 1.4 Analysis of Calf Births by County and by Breed Type (2002)

COUNTY	Beef Births	Dairy Births	Total
CARLOW	21,562	4,637	26,199
CAVAN	66,166	18,158	84,324
CLARE	97,893	14,509	112,402
CORK	213,724	137,306	351,030
DONEGAL	53,455	8,522	61,977
DUBLIN	4,983	1,545	6,528
GALWAY	125,183	14,969	140,152
KERRY	96,403	50,781	147,184
KILDARE	23,398	6,765	30,163
KILKENNY	64,540	24,150	88,690
LAOIS	47,269	14,168	61,437
LEITRIM	34,323	1,178	35,501
LIMERICK	81,300	50,099	131,399
LONGFORD	34,547	3,798	38,345
LOUTH	14,917	8,312	23,229
MAYO	97,347	11,534	108,881
MEATH	50,870	24,196	75,066
MONAGHAN	47,803	20,238	68,041
OFFALY	41,426	10,228	51,654
ROSCOMMON	61,947	2,749	64,696
SLIGO	41,272	4,771	46,043
TIPPERARY	120,711	56,482	177,193
WATERFORD	53,125	25,246	78,371
WESTMEATH	43,608	8,117	51,725
WEXFORD	57,292	21,860	79,152
WICKLOW	30,762	9,982	40,744
TOTALS	**1,625,826**	**554,300**	**2,180,126**

Analysis of calf birth by county and by breed type (Table 1.4) indicates that Cork, Tipperary and Kerry were the 3 largest counties in Ireland, based on number of calf births in 2002. The number of calves born in each of these counties was 351,030 (16.1%), 177,193 (8.1%) and 147,184 (6.7%) respectively. Similar trends were apparent for breed of calf, with Cork, Tipperary and Kerry being the largest counties for dairy births, whilst Cork, Galway and Tipperary were the largest counties for beef births.

The Holstein Friesian breed was by far the most dominant breed of dam in 2002, with over 48% of all calves being born to dams from this breed (Table 1.5). The next most popular breed, in terms of breed of dam, was the Charolais (10.9%), Hereford (10.5%) and Limousin (10.0%) respectively.

Fig 1.3 Analysis of Calf Births, by Breed of Dam (1999 vs. 2002)

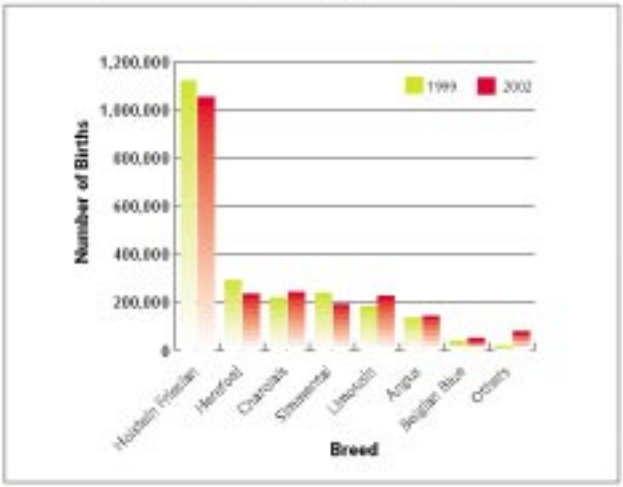


Table 1.5 Analysis of Calf Births, by Breed of Dam (1997-2002)

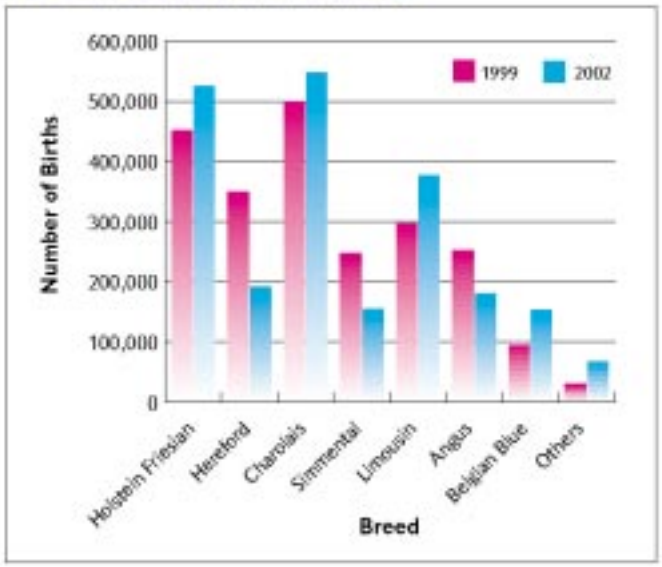
	1997	1998	1999	2000	2001	2002
Holstein Friesian	1,226,643	1,216,800	1,116,640	1,092,785	1,042,184	1,049,057
Hereford	333,156	336,996	285,673	261,047	246,966	229,058
Charolais	209,972	230,043	212,700	214,509	225,595	238,973
Simmental	245,968	263,030	235,068	184,901	188,704	187,058
Limousin	173,667	189,966	179,424	187,765	203,637	219,627
Angus	129,324	140,870	131,423	132,042	139,047	139,609
Belgian Blue	29,566	34,293	33,496	35,819	39,046	44,101
Other	36,864	13,530	13,742	63,720	67,638	72,643
Totals	**2,385,160**	**2,425,528**	**2,208,166**	**2,172,588**	**2,152,817**	**2,180,126**

Looking at trends over time (Table 1.5 and Figure 1.3) indicates a slight reduction in the number dams recorded as Holstein Friesian (-67,583 or -6.1% over the 4-year period 1999-2002). The reduction was even more apparent for the Simmental and Hereford breeds (-20.4% and -19.8% respectively). This is in contrast to the Belgian Blue, Limousin and Charolais breeds, which all reported an increase in the number of dams registered over the same period (+31.6%, +22.4% and +12.4% respectively).

Table 1.6 Analysis of Calf Birth, by Breed of Sire (1997-2002)

	1997	1998	1999	2000	2001	2002
Holstein Friesian	589,900	507,105	449,478	468,495	501,317	523,084
Hereford	337,245	389,564	348,030	270,942	197,611	188,850
Charolais	543,138	551,566	497,959	519,960	541,917	545,069
Simmental	271,621	281,067	245,732	190,721	162,759	153,614
Limousin	289,067	307,608	295,647	336,538	359,656	374,041
Angus	213,968	269,555	250,844	194,098	166,216	178,442
Belgian Blue	83,942	91,796	92,632	136,797	166,243	151,182
Others	56,279	27,267	27,844	55,037	57,098	65,844
Totals	**2,385,160**	**2,425,528**	**2,208,166**	**2,172,588**	**2,152,817**	**2,180,126**

Fig 1.4 Analysis of Calf Birth, by Breed of Sire (1999-2002)



The Charolais breed was the most dominant breed of sire in 2002, with 25.0% (545,069) of all calves registered, being by sires from this breed (Table 1.6 and Figure 1.4). The next most popular breed, as a breed of sire, was the Holstein Friesian (24.0%), followed by the Limousin (17.1%), Hereford (8.6%) and Angus (8.1%) respectively. Trends in sire breed over time (Figure 1.4) also underline the increasing importance of the Belgian Blue, Charolais and Limousin breeds within the National herd, which each of these breeds reporting a steady increase in the number of calves registered.

Breed combinations indicate the extent of pure-breeding and crossbreeding within the National dairy and beef herds (Table 1.7). The number of calves with both a Holstein Friesian sire and dam in 2002 was 513,652. This was in comparison to 735 for the Jersey breed, 3,837 for the Montbelliarde breed and 2,010 for Red breeds (i.e., Rotbunt, MRI and Scandinavian Reds) . Looking at trends in crossbreeding indicates that some 1,696 calves were the progeny of HF * Jersey crosses, 14,254 were the progeny of HF * Montbelliarde crosses and 7,412 were the progeny of HF * Red crosses. Based on these breed combinations, this suggests that 23,362 crossbred dairy calves were born in 2002 (or about 4.3% of the total calves born to these breeds).

In contrast to dairy breeds, the level of crossbreeding in beef breeds is much higher. For example, the number of calves with both a Charolais sire and dam in 2002 was 155,645. Equivalent figures for other beef breeds were 92,288 for the Limousin breed, 37,830 for the Simmental breed, 34,507 for the Hereford breed and 25,292 and 8,321 for the Angus and Belgian Blue breeds respectively. Based on these breed combinations, there were 353,883 "pure-bred" (i.e., 3/4 bred or greater) born to these breeds. The comparable figure for crossbred progeny from these breeds (and their combinations) was 680,340 calves, suggesting that some 66% of beef calves born to these breeds are crossbred and 34% are 3/4 bred or greater.

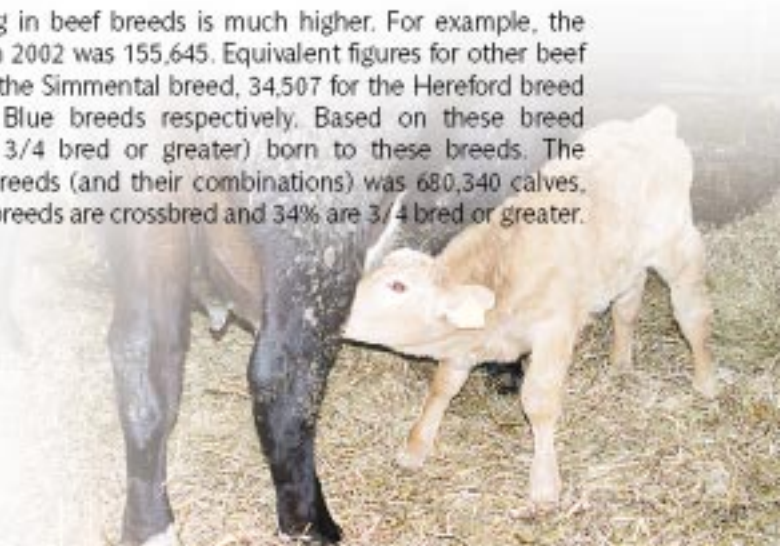


Table 1.7 **Breed Combination of Calves (2002)**

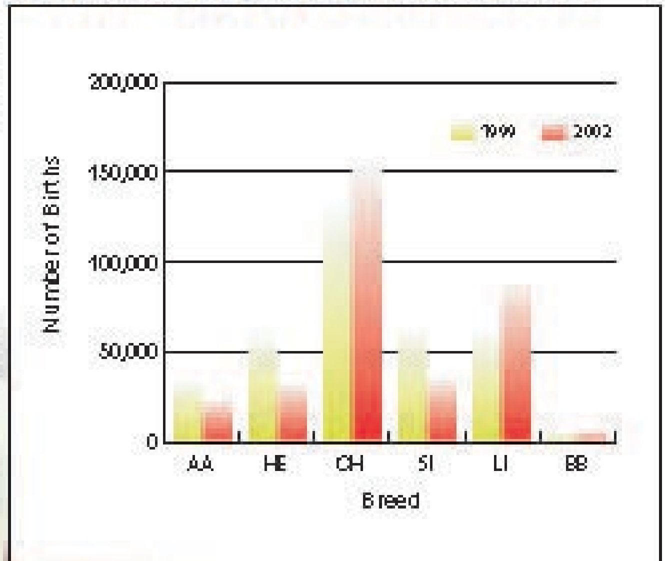
	Dam Breed														
Sire Breed	HF	HE	CH	SI	LM	AA	BA	BB	JE	MO	RW	SA	SH	Other	Total
HF	513,652	1645	513	1,468	922	990	15	481	387	1252	942	6	399	442	523,054
HE	127,985	34,507	4,987	5,925	5,205	4,791	105	1,471	92	615	400	54	1,920	196	183,850
CH	51,741	90,635	155,645	76,785	78,558	56,238	915	15,357	92	576	359	970	16,236	754	545,069
SI	57,902	20,392	11,780	37,830	11,690	7,845	258	2,601	27	474	275	63	2,245	252	153,614
LM	90,724	51,669	42,859	40,815	92,288	30,140	752	11,963	75	941	666	492	9,795	770	374,041
AA	108,999	11,700	7,685	7,346	8,950	25,292	134	2,917	131	1,190	493	151	2,752	522	178,442
BA	2,710	1,548	1,054	1,166	1,961	766	1,269	348	1	27	5	13	222	26	9,741
BB	69,656	14,008	12,358	13,431	17,834	10,950	322	8,321	120	533	444	145	2,708	297	151,182
JE	1,739	7	0	5	6	2	0	1	735	32	6	0	5	14	2,552
MO	13,002	145	60	289	94	104	3	45	11	3,737	238	1	65	92	17,992
RW	6,470	59	29	129	33	69	3	17	12	106	2,010	1	49	45	9,038
SA	521	505	601	594	609	594	3	134	3	16	30	378	215	353	4,321
SH	2,966	1,909	987	901	1,224	1,483	14	386	17	50	33	15	6,333	59	16,631
Other	2,691	331	338	375	325	301	3	104	13	53	26	23	126	1,318	6,032
Total	1,049,057	229,058	258,975	187,058	219,627	159,609	5,839	44,101	1,691	9,755	5,955	2,812	45,461	5,147	2,180,126

Table 1.8 **Trends in Breed Combinations (1999 vs. 2002)**

	HF Sire	AA Sire	HE Sire	CH Sire	SI Sire	LI Sire	BB Sire
HF Dam 99	442,296	143,201	241,444	57,688	96,462	84,435	48,296
HF Dam 02	513,652	108,999	127,985	51,741	57,902	90,724	69,656
AA Dam 99	886	35,538	7,492	46,667	13,346	21,911	5,272
AA Dam 02	990	25,292	4,791	56,238	7,845	30,140	10,950
HE Dam 99	1,990	22,962	60,747	98,517	38,370	51,621	10,887
HE Dam 02	1,645	11,700	34,507	90,635	20,392	51,669	14,008
CH Dam 99	633	12,568	8,914	134,133	18,689	29,251	8,162
CH Dam 02	513	7,685	4,987	155,645	11,780	42,859	12,358
SI Dam 99	1,610	18,402	14,730	85,490	64,763	37,830	11,481
SI Dam 02	1,468	7,346	5,925	76,785	37,830	40,815	13,431
LI Dam 99	840	13,337	11,213	62,849	19,044	62,103	9,761
LI Dam 02	922	8,950	5,205	78,558	11,690	92,288	17,834
BB Dam 99	413	3,612	2,489	11,683	4,095	7,224	6,769
BB Dam 02	481	2,917	1,471	15,357	2,601	11,963	8,321

Looking at trends in pure-breeding and crossbreeding over time (Table 1.8 and Figure 1.5) indicates a large increase in the number of 3/4 bred animals for a number of the beef breeds, notably Charolais (+21,512 calves or +16.0% compared to 1999), Limousin (+30,185 calves or +48.6%) and Belgian Blue (+1552 calves or +22.9%). This again reflects the growing influence of these breeds in the National beef herd.

Fig 1.5 **Trends in "Pure-Breeding" for each of the Main Beef Breeds (1999 vs. 2002)**



The declining role of the traditional beef breeds (i.e., Hereford and Angus) is further underlined when looking at trends in the use of beef breeds on both HF cows and beef cows (Figures 1.6 and 1.7). The number of calves born to "traditional" beef sires from Holstein Friesian cows dropped by some 147,661 (-38.4%) in 2002 compared to 1999. Similar trends are also apparent for beef cows (Figure 1.7) where the number of calves born to sires and dams of the traditional beef breeds dropped by 50,499 (-39.8%) compared to an increase of 56,728 (+9.9%) for sires and dams from the continental beef breeds.

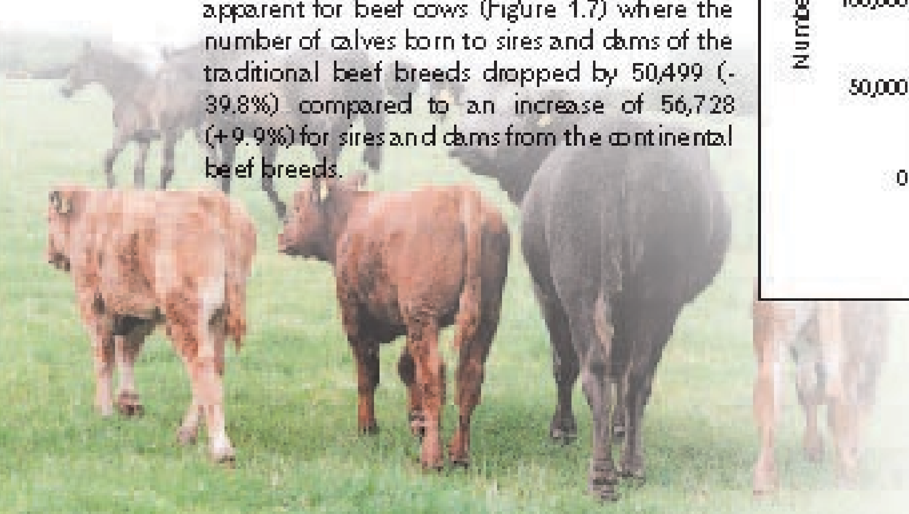


Fig 1.6 Trends in Use of Traditional and Continental Beef Sires on HF Dairy Cows (1999 vs. 2002)

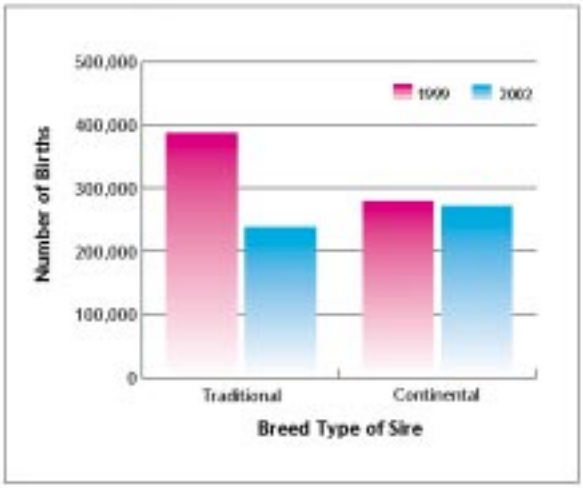


Fig 1.7 Trends in Use of Traditional and Continental Beef Sires on Beef Cows (1999 vs. 2002)

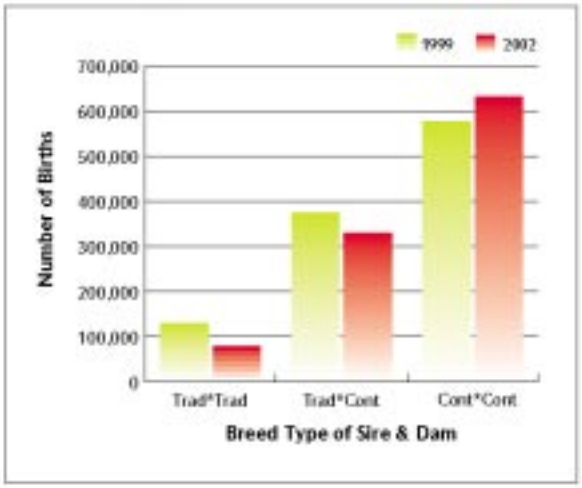


Table 1.9 Animal Event Registrations (2002)

	Number	% Total
Animal Event Registrations	283,967	
Live Births	268,291	94.5%
Dead at Birth	12,219	4.3%
Abortions	3,457	1.2%
Males	142,684	50.9%
Females	137,826	49.1%
Registrations via Sheets	243,130	86.7%
Registrations via Emails	37,380	13.3%
With Valid Sire	222,236	79.2%
With Valid AI Sire	145,599	51.9%

(iii) Irish Cattle Breeding Federation - Calf Registration Statistics

- *283,967 Animal Event births in 2002*
- *79% of births with sire information*

The Animal Events System for Calf Registration was first launched in January 2002. It is currently operational in some 5,500 milk recorded herds. The number of calf births registered through Animal Events in 2002 was 283,967 (Table 1.9). This represents some 13.0% of all calves registered through the National calf registration database (Fig. 1.8). Of the events registered, 243,130 (86.7%) were registered via Animal Events sheets, whilst a further 37,380 (13.4%) were registered via emails (Figure 1.9). The number of Animal Event registrations with valid sire information was 222,236 (79.2%) of which 145,599 were the progeny of AI sires (Figure 1.10).

Fig 1.8 Animal Event Births as a % of Total Births

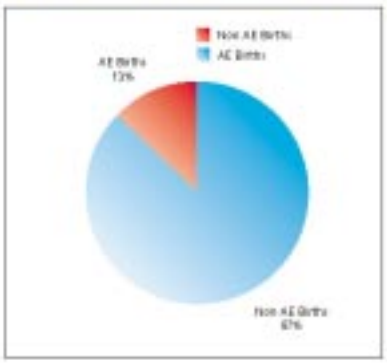


Fig 1.9 Comparison of Recording Method (2002)

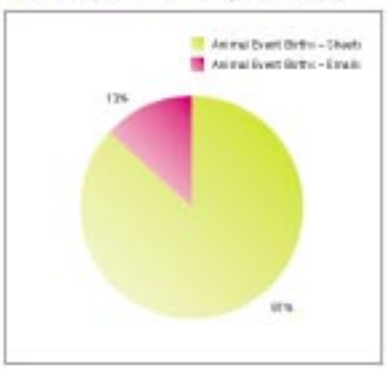
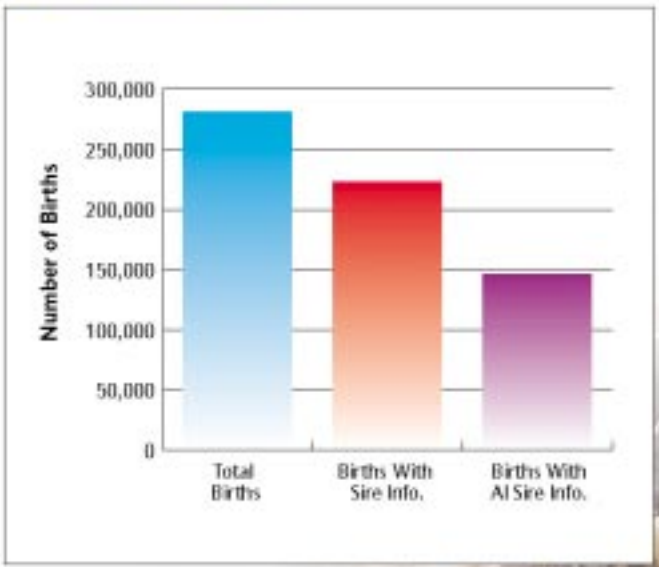


Fig 1.10 Trends in Sire Recording (2002)



(iv) Irish Cattle Breeding Federation – Herdbook Association Statistics

- *7% increase in pedigree registrations*
- *1% increase in herdbook membership*

A total of 91,012 calves were registered with 17 different herdbooks in Ireland during 2002 (Table 1.10). This represents an increase in total herdbook registrations of 5,596 (up some 6.6% compared to 2001). The number of herds involved herdbook activities in 2002 was 11,370, which represents a slight increase compared to 2001.

Table 1.10 Number of Birth Registrations and Members by Breed Society (1997-2002)

	1997		1998		1999		2000		2001		2002			
Herdbook Association	Births	Members	Births	Members	Births	Members	Births	Members	Births	Members	Births	Males	Females	Members
Belgian Blue Cattle Breeding Society	389	107	333	127	369	135	420	153	298	114	742	363	379	258
Jersey Cattle Society of Ireland	175	16	156	14	181	15	124	10	189	13	350	7	343	17
Irish Aberdeen Angus Association	1,479	351	1,623	379	1,649	376	1,501	356	1,512	439	1,547	822	725	445
Irish Angus Cattle Society	-	700	3,011	850	2,236	933	2,200	890	2,300	860	2,600	1,326	1,274	900
Irish Aubrac Cattle Society	-	-	15	10	27	14	78	16	107	21	128	58	70	25
Irish Blonde d'Aquitaine Breed Co-op Ltd	254	84	187	71	282	78	284	85	286	90	212	84	128	90
Irish Charolais Cattle Society	7,826	1,941	7,689	2,124	8,482	2,268	9,645	2,524	10,921	2,965	11,343	5,682	5,661	3,007
Irish Hereford Breed Society	4,196	826	4,448	861	3,837	892	2,840	730	2,586	735	2,768	1,616	1,152	598
Irish Holstein Friesian Association	42,793	3,455	45,254	3,542	49,797	3,630	55,231	3,342	57,452	3,513	60,593	4,201	56,392	3,439
Irish Limousin Cattle Society Ltd	3,379	878	3,762	984	4,386	1,050	5,247	1,474	6,162	1,704	6,586	3,283	3,303	1,824
Irish Normande Cattle Society	-	-	129	28	122	21	58	7	85	7	117	2	115	11
Irish Piemontese Cattle Society Ltd	22	13	10	13	37	11	48	12	38	15	44	11	33	28
Irish Simmental Cattle Society Ltd	1,694	900	1,732	840	2,272	795	2,782	820	2,515	529	2,320	1,225	1,097	464
Kerry Cattle Society of Ireland	-	-	-	-	135	98	146	101	108	22	176	42	134	36
Meuse Rhine Issel Cattle Society	145	71	126	74	91	88	209	23	255	27	194	23	171	33
Montbeliard Cattle Society	174	-	353	-	390	83	559	65	570	67	1,087	486	601	120
Saler Cattle Society	-	30	-	42	-	55	195	65	180	22	285	100	185	83
Total	63,726	9,352	70,828	9,951	74,553	10,526	81,471	10,675	85,416	11,263	91,012	19,251	71,763	11,370

Fig 1.11 Number of Birth Registrations (1997-2002)

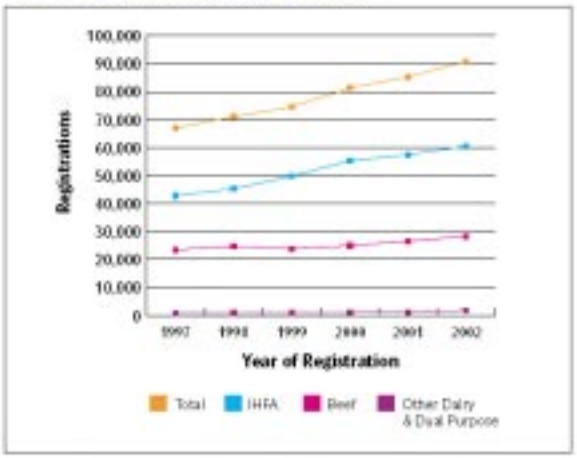
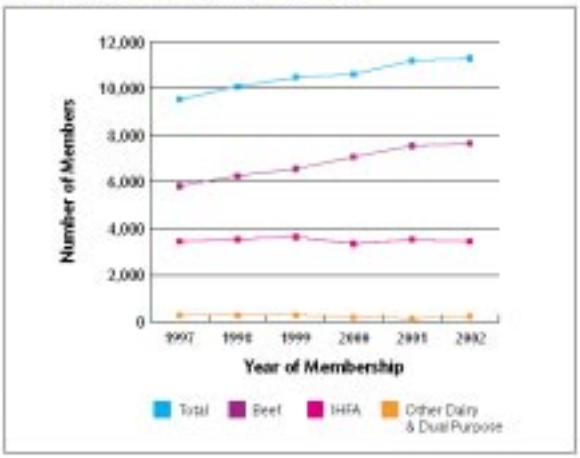


Fig 1.12 Number of Birth Registrations (1997-2002)



Irish Holstein Friesian Association was the largest registering herdbook in 2002, with 60,593 of the total registrations being within this herdbook (66.6%). This was followed by the Charolais herdbook (11,343 registrations), the Limousin herdbook (6,586 registrations) and the Hereford herdbook (2,768 registrations). Total membership was also largest for the Holstein Friesian herdbook (3,439 members).

Looking at trends in herdbook activities over the past 6 year period indicates a steady increase in herdbook registrations over that period (Figures 1.11), from a low of 63,726 registrations in 1997 to 91,012 in 2002 (an increase of some 42.8%). This increase is due to largely to the increased activity of the IHFA herdbook, with the rate of increase being somewhat smaller for the beef and other dual purpose/dairy breeds. A different trend is seen in overall membership, with the number of members increasing most rapidly for the beef herdbooks, compared to the other dairy and dual-purpose breeds (Fig 1.12).

(i) Animal Events - Calving Performance

- *4.3% mortality in Animal Event herds*
- *18-fold increase in % of calving survey records*
- *Large variation in calving performance within breeds*

Table 2.1 Animal Events – Trends in Mortality & Calving Performance (2002)

	Numbers	% Total
Registrations	283,967	
Live Births	268,291	94.5%
Dead at Birth	12,219	4.3%
Abortions	3,457	1.2%
With Calving Survey	215,881	77.0%
- No Assistance	149,251	69.1%
- Some Assistance	52,459	24.3%
- Considerable Difficulty	9,744	4.5%
- Veterinary Assistance	4,427	2.1%

Fig 2.1 Animal Events – Trends in Mortality (2002)

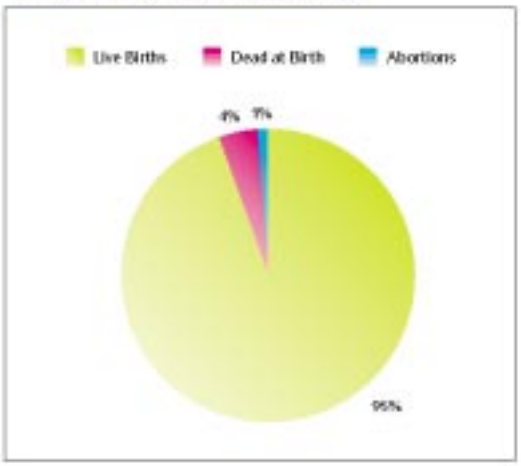
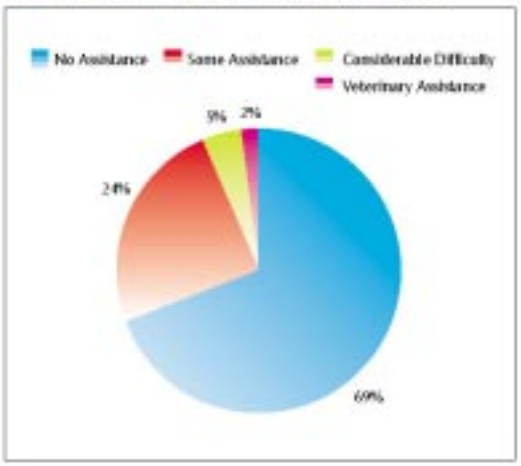


Fig 2.2 Animal Events – Trends in Calving Performance (2002)



Based on data from Animal Events, the number of calves registered as "dead at birth" in 2002 was 12,219 records, or 4.3% of the total calves registered (Table 2.1 and Figure 2.1). In addition, a further 3,457 records were registered as abortions.

The total number of Animal Event records with calving survey data in 2002 was 215,881, or 77% of the total calved registered (Table 2.1). Of this number, 14,171 were registered as either considerably difficult or requiring veterinary assistance, some 6.6% of the total records with calving survey data (Figure 2.2).

Looking at trends in calving performance (Table 2.2 and Figure 2.3) indicates that as a consequence of the introduction of Animal Events there was an 18-fold increase in the level of calving performance recording, from 12,064 in 2001 to 215,881 in 2002.

Fig 2.3 Trends in Level of Calving Performance Recording (1993-2002)

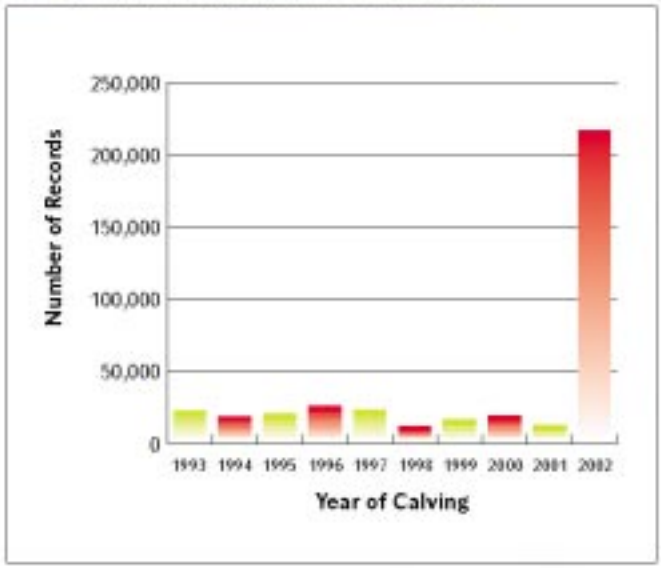


Table 2.2 Trends in Level of Calving Performance Recording (1993-2002)

	No. Records
1993	21,903
1994	17,865
1995	20,152
1996	25,048
1997	22,489
1998	10,996
1999	15,837
2000	18,183
2001	12,064
2002	215,881

Table 2.3 Comparison of Mortality and Calving Performance for Various Breeds (2002)*

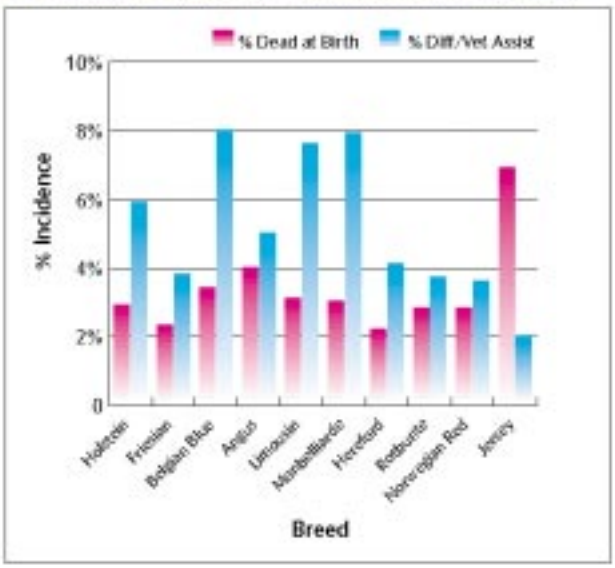
Breed of AI Sire	Progeny Records	No. Sires	% Mortality - Dead at Birth			% Diff/Vet Assist Births		
			Average	Max	Min	Average	Max	Min
Angus	6,893	21	4.0%	8.7%	0.0%	5.0%	10.3%	0.0%
Belgian Blue	9,575	25	3.4%	6.7%	0.0%	8.0%	17.5%	1.3%
Friesian	12,279	29	2.3%	8.1%	0.0%	3.8%	8.0%	0.0%
Hereford	1,958	13	2.2%	9.8%	0.0%	4.1%	11.4%	0.0%
Holstein	108,020	231	2.9%	12.0%	0.0%	5.9%	28.8%	0.0%
Jersey	591	5	6.9%	10.5%	1.9%	2.0%	4.0%	0.0%
Limousin	3,036	12	3.1%	6.5%	0.0%	7.6%	15.4%	3.8%
Montbelliarde	2,755	14	3.0%	5.6%	0.0%	7.9%	18.1%	0.0%
Rotbunte	666	6	2.8%	4.8%	1.8%	3.7%	6.3%	0.0%
Norwegian Red	1,445	5	2.8%	5.0%	0.0%	3.6%	8.3%	1.4%

* Based on Sires with a Minimum of 50 Progeny Records

A comparison of breeds (Table 2.3 and Figure 2.4) suggests some differences between breeds for average mortality and % calving difficulty. For example, the breed of AI sire with the highest mortality level was the Jersey breed (6.9%), compared to 2.2% for the Hereford breed. Comparable figures for calving difficulty were 8.0% for the Belgian Blue and 2.0% for the Jersey breed.

Whilst differences between breeds were relatively small, variation within breeds was somewhat larger, with all breeds indicating a large range in calving performance for each of these traits (Table 2.3 and Figure 2.5).

Fig 2.4 Comparison of Calving Performance for Various Breeds of AI Sire (2002)



(ii) Animal Events - Health and Fertility Performance

- *New health and fertility performance data*
- *Mastitis incidence most prevalent health trait*
- *Some 350,000 insemination events recorded*

A total of 36,869 health events and 4,423 culling events were recorded through Animal Events in 2002 (Table 2.4 and Figure 2.6). This is the first time such events were recorded as part of a National recording program in Ireland. The most prevalent health recorded events were mastitis (31.1% of the events recorded), parasitic infection (24.1%) and lameness (4.9%). The most prevalent reason for culling animals was infertility (33.6% of the events recorded) and old age (12.9%).

Fig 2.5 Variation in Calving Performance with the Holstein Breed (2002)

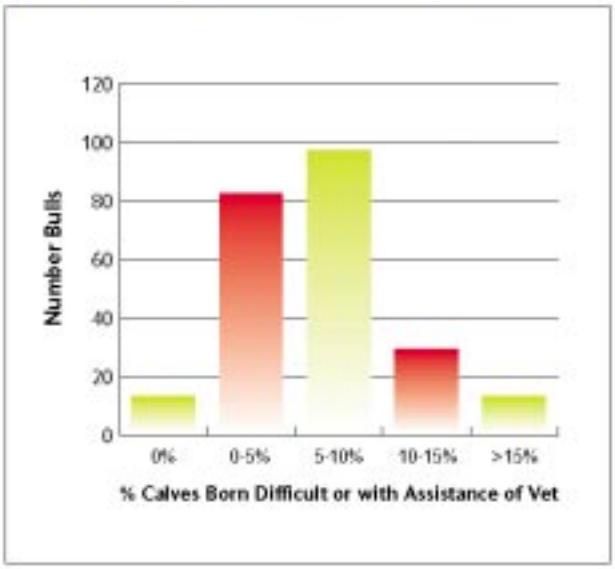


Table 2.4 Recording Health and Fertility Events (2002)

	Records
Health/Fertility Events	36,869
- Mastitis	11,471
- Parasitic Infection	8,880
- Castration	7,974
- Lameness	1,824
- Retained Placenta	1,346
- Respiratory Disease	995
- Milk Fever	622
- Scour	572
- Ketosis	360
- Other Events	2,825
Culling Events	4,423
- Infertility	1,486
- Old Age	573
- Poor Health	455
- Low Yield	329
- Injured	277
- Feet & Leg Problems	256
- Others	1,047

The number of insemination events and non-service heat events recorded in the cattle-breeding database in 2002 was 370,074 (Table 2.5). Of these events, 232,520 were from the technician AI service (62.8%), with the remainder being recorded through Animal Events as DIY inseminations (117,871) and non-service heats (19,683).

Fig 2.4 Recording Health and Fertility Events (2002)

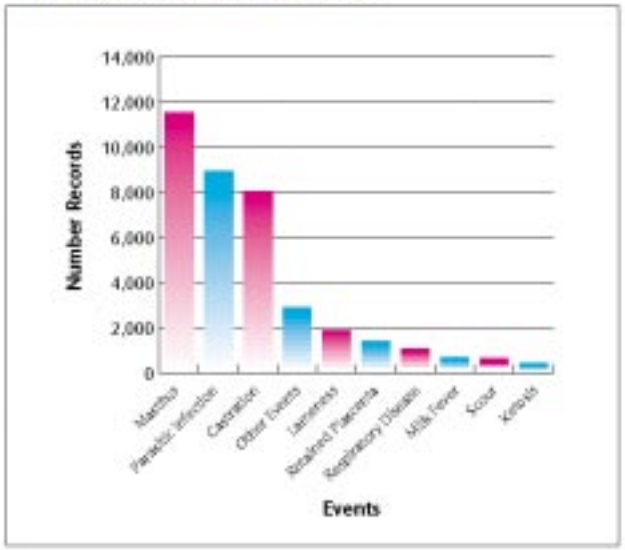


Table 2.5 Recording Insemination and Non Service Heat Events (2002)

	Records
Insemination/Non Service Heat Events	370,074
- Technician AI	232,520
- DIY AI	117,871
- Non Service Heat Events	19,683

(iii) Milk Recording

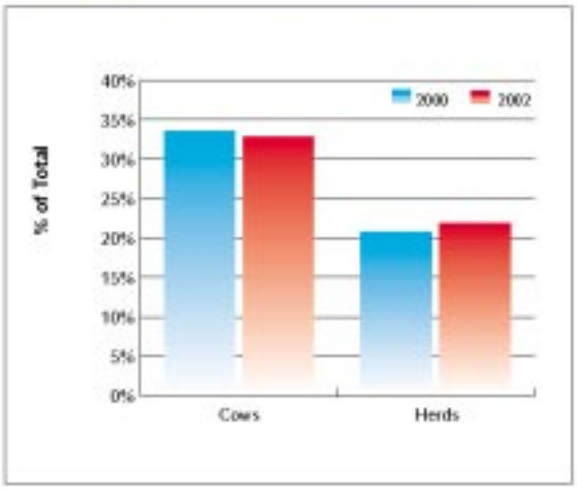
- *33% of cows and 22% of herds involved in milk recording*
- *2.3% increase in milk solids (fat & protein) production*
- *99% of cows in milk recording from Holstein Friesian breed*
- *Some 13,000 animals linear inspected*

Table 2.6 Total Cows and Herds Recorded in Ireland (2000 vs. 2002)

	Milk Recorded Herds		National Dairy Population		% Total	
Year	Cows	Herds	Cows	Herds	Cows	Herds
2000	391,975	7,047	1,173,060	34,200	33.4%	20.6%
2002	375,693	6,695	1,149,480	30,900	32.7%	21.7%

Some 376,000 cows in 6,695 herds were involved in milk recording in 2002 (Table 2.6). Expressing these figures as a proportion of the dairy cows and herds in Ireland (Figure 2.7) indicates that some 33% of the cows and 22% of the herds in the National dairy population are involved in milk recording. Comparing these figures with 2000, suggests that proportion of cows in milk recording has dropped slightly over this last 2 years, while the proportion of herds has increased slightly (Figure 2.7).

Fig 2.7 Trends in Cows and Herds Recorded in Ireland (1993-2002)



Total solids production (fat + protein kg) increased by 2.3% in 2002, from 416.6 kg in 2001 to 426.3 kg in 2002 (Table 2.7). The increase in total solids production is consistent with recent trends in this area (Figure 2.8 and 2.9), which have indicated a steady increase in fat and protein production over the last 7 years.

Table 2.7 Average Production for all Milk Recorded Cows (1993-2002)

	Records	Days in Milk	Milk kg	Fat kg	Fat %	Ptn kg	Ptn %
1993	177,605	277	5,363	190.8	3.56	175.9	3.28
1994	248,638	272	5,263	187.3	3.56	172.5	3.28
1995	330,544	266	5,259	187.2	3.56	170.6	3.24
1996	355,105	262	5,215	186.6	3.59	169.5	3.26
1997	346,560	266	5,302	190.8	3.61	173.0	3.27
1998	369,919	267	5,293	193.3	3.67	173.8	3.29
1999	363,871	272	5,534	202.3	3.67	182.7	3.31
2000	350,263	277	5,884	216.2	3.67	195.5	3.33
2001	303,313	267	5,954	220.0	3.70	196.6	3.31
2002	282,156	293	6,049	224.7	3.71	201.6	3.33

Fig 2.8 Trends in Fat and Protein Kg (1993-2002)

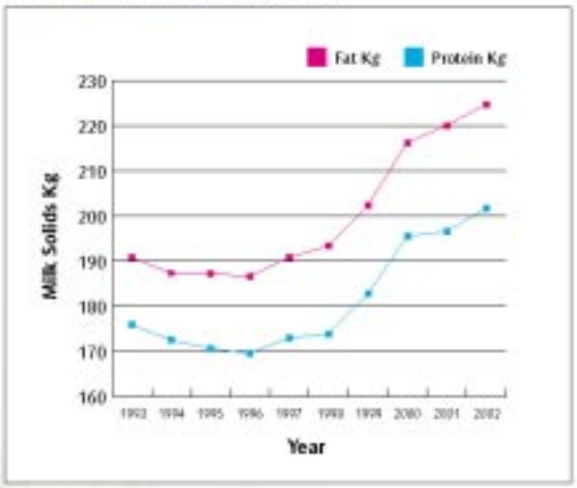
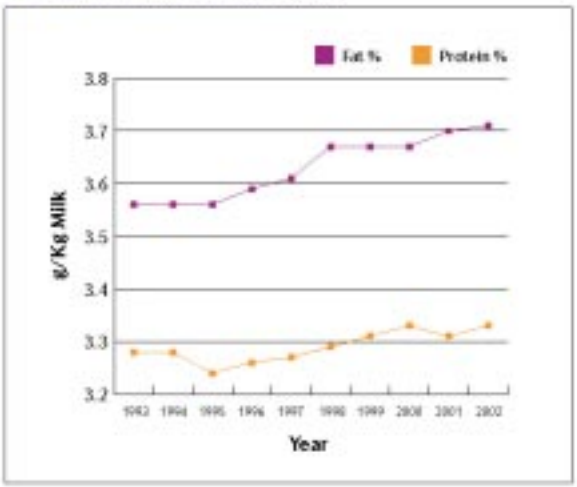


Fig 2.9 Trends in Fat and Protein % (1993-2002)



The Holstein Friesian breed (>50% Holstein or Friesian genes) was the most dominant breed of cow in milk recording, accounting for 99% of the cows milk recorded in 2002 (Table 2.8). The majority of these animals were between 50% and 87% Holstein, i.e., were first or second cross Holstein progeny. Pure Holstein progeny (>87% Holstein genes) had the highest milk protein production (+225.0 Kg), but also had slightly lower milk protein content (3.29%) and longer lactation length (318 days) than most other breeds. Of the other dairy breeds, the Jersey breed (and its crosses) would appear to have performed best, although this was mainly due to much higher BF% (5.65% and 5.44% for the pure-bred and cross-bred groups respectively).

Table 2.8 Average Yield by Breed for Animals with Known Parentage (2002)*

Breed	% Genes	Records	Milk Kg	Fat Kg	Ptn Kg	Fat%	Ptn%	SCC	Lact Length
AY	>87%	74	5,826	212.4	190.2	3.64%	3.26%	205.7	313
AY	50-87%	101	5,506	204.3	183.8	3.71%	3.34%	159.1	298
FR	>87%	2,223	5,813	219.2	195.5	3.77%	3.36%	242.1	287
FR	50-87%	22,372	5,838	217.5	195.9	3.73%	3.36%	224.2	286
HO	>87%	29,894	6,832	253.1	225.0	3.71%	3.29%	169.4	318
HO	50-87%	188,522	5,997	222.6	200.0	3.71%	3.33%	190.7	291
JE	>87%	232	5,034	284.3	200.2	5.65%	3.98%	152.4	411
JE	50-87%	148	4,418	240.3	170.5	5.44%	3.86%	216.6	285
KE	>87%	4	3,683	146.9	119.6	3.99%	3.25%	415.3	308
KE	50-87%	14	4,963	201.6	171.5	4.06%	3.45%	172.7	298
MO	>87%	486	5,780	211.1	197.0	3.65%	3.41%	175.9	333
MO	50-87%	1,004	5,304	198.1	178.5	3.73%	3.36%	112.9	280
NO	>87%	2	3,556	123.7	122.7	3.48%	3.45%	40.0	291
NO	50-87%	170	5,217	200.6	181.6	3.84%	3.48%	189.1	270
RB	>87%	0	0	0	0	0	0	0	0
RB	50-87%	195	4,949	187.5	173.7	3.79%	3.51%	120.4	272
SI	>87%	47	5,633	204.0	188.1	3.62%	3.34%	214.6	321
SI	50-87%	355	5,310	193.9	178.4	3.65%	3.36%	197.7	287
Undefined		70,893	6,016	223.0	200.9	3.71%	3.34%	223.3	290

* Only Data from the Holstein Friesian Herdbook has been transferred to the ICBF Database. Therefore data may be incomplete for other breeds.

Looking at trends in lactation number suggests that some 66% of cows in milk recording in 2002 (195,626) were in lactations 1-4 (Table 2.9). Milk solids production (fat + protein kg) was highest for animals in their 4th lactation but declined thereafter. In contrast SCC levels increased almost linearly with age (Figure 2.10) and were highest for animals in their 6th lactation and above (297,000 cells and 381,000 cells for groups 6-10 and 11-15 respectively).

Table 2.9 Average Yield by Parity (2002)

Lact No.	Records	Milk Kg	Fat Kg	Ptn Kg	Fat%	Ptn%	SCC	Lact Length
1	49,748	5,144	193.8	171.3	3.77%	3.33%	123.2	288.9
2	52,560	5,914	221.2	198.8	3.74%	3.36%	133.8	296.5
3	48,869	6,327	235.1	212.1	3.72%	3.35%	155.1	293.5
4	41,449	6,437	238.8	214.9	3.71%	3.34%	186.4	290.5
5	34,768	6,430	237.7	213.6	3.70%	3.32%	220.1	288.4
6-10	61,834	6,150	226.4	203.2	3.68%	3.30%	297.9	284.8
11-15	4,125	5,547	200.6	181.3	3.62%	3.27%	381.6	282.4

A total of 13,262 animals were linear inspected in 2002 (Table 2.10). These were inspected in both IHFA member (some 80% of records) and non-member herds (i.e., ICBF herds for the purpose of National progeny testing).

Fig 2.10 Trends in SCC by Lactation Number

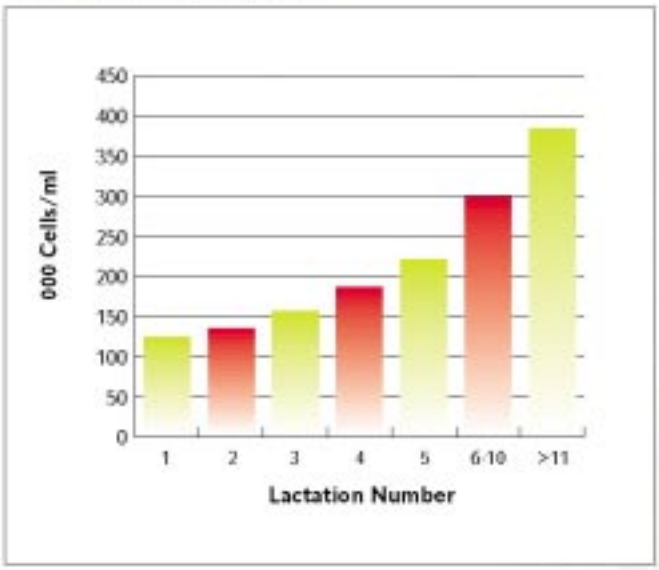
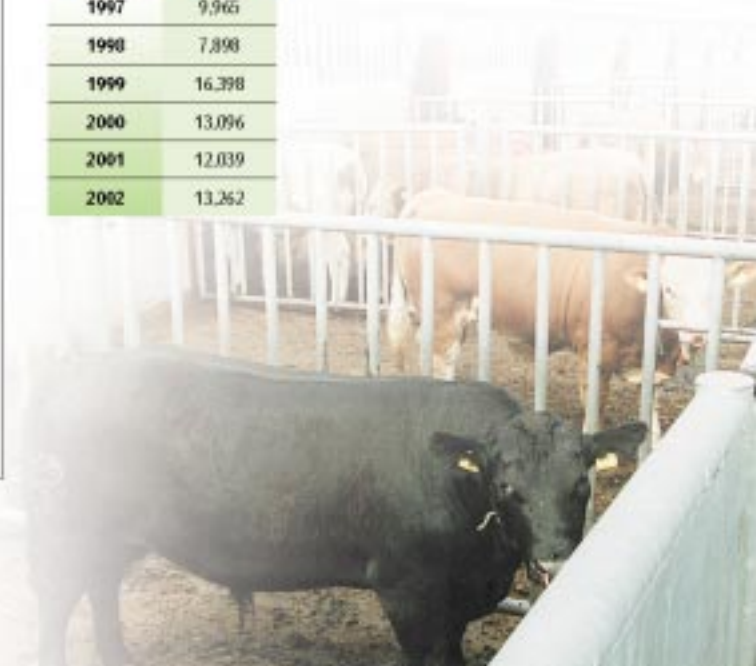


Table 2.10 Participation in IHFA Linear Assessment Schemes (1997-2002)

	Animals
1997	9,965
1998	7,898
1999	16,398
2000	13,096
2001	12,039
2002	13,262



(iv) Beef Recording

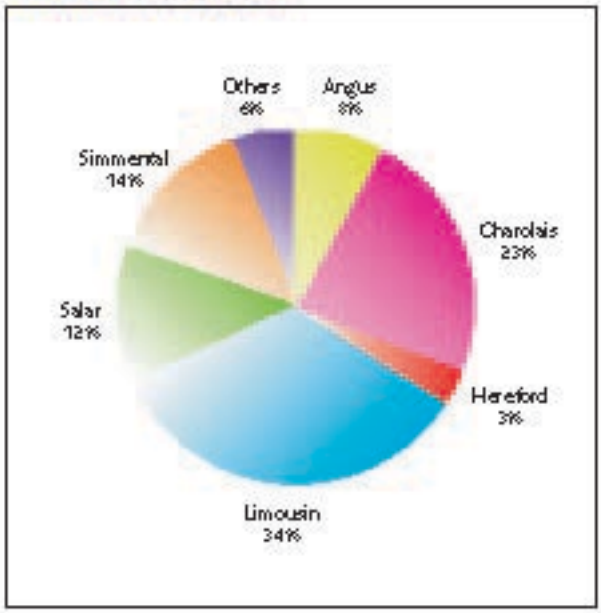
- *Decrease in number of bulls through Tully*
- *Increase in level of linear scoring and weight recording for a number of breeds*
- *Less than 1% of National beef population in performance recording*

Table 2.11 Trends in Participation in Tully by Breed (1997-2002)

Year	Angus	Aubrac	B. Blue	B d'Aquit	Charolais	Hereford	Limousin	Salar	Simmental	Others	Total
1997	11	0	9	2	62	17	61	0	32	0	194
1998	20	0	1	12	45	18	83	0	37	0	216
1999	19	3	7	3	43	25	58	5	53	0	216
2000	25	5	4	8	35	19	86	7	56	3	248
2001	16	13	4	14	29	8	69	11	31	8	203
2002	12	4	0	3	35	5	52	19	21	2	153
Total	103	25	25	42	249	92	409	42	230	13	

The number of bulls tested through Tully dropped from 203 in 2001 to 153 in 2002 (a decline of some 24%). This was due to; (i) a reduction in the number of bull intakes in 2002 (from 5 intakes/year to 3 intakes/year), and (ii) more stringent pre-selection of bulls for performance testing (Table 2.11). The most prevalent breed on test was the Limousin with 34% of the bulls on test in 2002 (Figure 2.11), followed by the Charolais (23%), Simmental (14%) and Salar (12%).

Fig 2.11 Participation in Tully by Breed



Three herdbook associations offered a 'linear scoring' and 'weight recording' service in 2002; the Charolais breed, the Limousin breed and the Simmental breed (Table 2.12). Looking at animals born in 2001 (the majority of which will have been scored in 2002), indicates that some 4,612 animals were scored by the Charolais herdbook, 4,519 animals were scored by the Limousin herdbook and 1,593 were scored by the Simmental herdbook. In addition to a 'linear scoring' service, 'weight recording' services are also available to members of these herdbooks with 3,177, 1,580 and 684 animals 'weight recorded' in the Charolais, Limousin and Simmental herdbooks in 2002 (the Charolais herdbook offered its own service in 2002, whilst the Limousin and Simmental herdbooks used the service offered by DAF). Looking at trends over the last few years, indicates a 'general increase in the number of animals participating' in these schemes within each of the organisations.

In addition to the Limousin and Simmental breeds, DAF offered a 'weight recording' service to a number of other breeds in 2002; notably the Angus, Hereford, Belgian Blue Salars and Blonde d'Aquitaine. The number of animals 'weight recorded' across these breeds was about 500.

Table 2.12 Trends in Beef Recording by Breed (1997-2002)

	Charolais		Limousin		Simmental	
Birth	Linear	Weight	Linear	Weight	Linear	Weight
1993	0	554	1711	377	0	389
1994	279	586	2037	383	0	444
1995	1758	697	2272	628	0	426
1996	3683	797	2694	711	0	404
1997	2397	1393	3085	1013	0	362
1998	3657	3683	3375	1429	306	296
1999	3846	3923	3702	1594	826	493
2000	4139	3899	4715	1638	1353	749
2001	4612	3177	4519	1664	1593	684
2002	2002	811	516	212	940	489

There are currently two types of AI beef progeny test scheme for carcass traits; (i) the central progeny test scheme or (ii) the on-farm scheme (first introduced in 2000). Some 2,079 records have been collected as part of the centralised scheme (since 1990), whilst 1,469 records have been collected as part of the on-farm scheme (since 2000). The most prevalent breeds in each of these schemes were the Belgian Blue, the Charolais and the Simmental breeds respectively (Table 2.13).

Table 2.13 Animal Breeds – Trends in Progeny Testing by Breed (2002)

Breed	Central Stock	On-farm
Angus	288	159
Hereford	317	45
Charolais	534	283
Limousin	348	117
Simmental	263	455
Blonde d'Aquitainne	33	0
Belgian Blue	311	510
Total	2079	1469

Combining data from pedigree beef herds (some 11,200 records), Tully (153 records) and AI progeny testing (some 600 records), suggests that approximately 12,000 animals were involved in beef performance recording in 2002. Expressing this as a proportion of the National beef calf population (some 1.6 million calves/annum), suggests that about 0.75% of all beef calves born are involved in beef performance recording which is considerably lower than even that achieved within the dairy population (33%).

(i) Organisational Structure

- *12 milk recording organizations*
- *8 AI organizations*
- *14.6% decline in first inseminations since 2000*

Table 3.1 Herds and Cows Recorded by Milk Recording Societies (2002)

Milk Recording Society	Total Herds	Total Cows	A4 Herds	A4 Cows	A6 Herds	A6 Cows	A8 Herds	A8 Cows	Herd Size
[illegible] Co-op	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	9	[illegible]	[illegible]
[illegible] Co-op	25	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
C.D.A.I.S	[illegible]	9,[illegible]	[illegible]	7,[illegible]	34	[illegible]	3	[illegible]	[illegible]
Connacht Gold	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2	[illegible]	[illegible]
Dairygold Co-op	1,[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Donegal Co-op	21	[illegible]	21	1,[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Kerry Agribusiness	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Newmarket Co-op	[illegible]	1,[illegible]	11	[illegible]	[illegible]	[illegible]	1	[illegible]	[illegible]
North Cork Co-op	[illegible]	2,[illegible]	[illegible]	[illegible]	[illegible]	1,[illegible]	1	[illegible]	[illegible]
Progressive Genetics	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
South Western Services Co-op	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Tipperary Co-op	[illegible]	7,[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2	[illegible]	[illegible]
All Societies Total 2002	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Twelve organizations offered a milk recording service to farmers during 2002 (Table 3.1). The largest milk recording organization (based on number of cows recorded) was Progressive Genetics with 35.1% of the total cows recorded (some 131,700 cows). This was followed by Dairygold Co-op (24.9%), Kerry Agribusiness (16.9%) and South Western Services (13.9%). Combined these organizations accounted for 341,210 of the total cows recorded in 2002 (90.8% of the total).

Table 3.2 Herds and Cows Recorded by Milk Recording Societies (1999-2002)

	Herds in Milk Recording				Cows in Milk Recording			
Milk Recording Society	1999	2000	2001	2002	1999	2000	2001	2002
[illegible] Co-op	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible] Co-op	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
C.D.A.I.S	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Connacht Gold	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Dairygold Co-op	1,[illegible]	1,[illegible]	1,[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Donegal Co-op	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Kerry Agribusiness	1,[illegible]	1,[illegible]	1,[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Newmarket Co-op	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
North Cork Co-op	46	44	[illegible]	36	[illegible]	[illegible]	[illegible]	[illegible]
Progressive Genetics	2,[illegible]	2,[illegible]	2,[illegible]	2,[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
South Western Services Co-op	[illegible]	1,[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Tipperary Co-op	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Looking at trends over time (Table 3.2) indicates a substantial increase in the number of cows in milk recording compared to 2001 (milk recording had dropped by 14% in 2001 due to the impact of F&M). However, the level of recording achieved in 2002 was not as high as that achieved in the years just prior to F&M (392,960 in 2000 and 391,975 in 2001). Looking at trends within each of the 4 main milk-recording organizations suggests that the level of milk recording has dropped slightly in all areas, with the exception of South Western Services, who reported a slight increase (+1%) compared to 2000 and 2001.

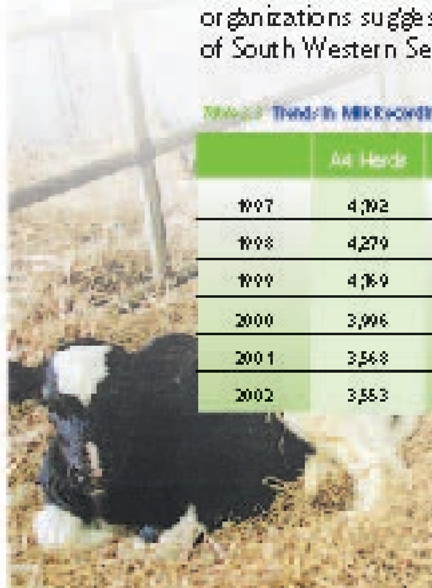


Table 3.3 Trends in Milk Recording Method (1997-2001)

	A4 Herds	A6 Herds	A8 Herds	Total Herds
1997	4,192	1,939	537	6,667
1998	4,279	2,128	575	6,982
1999	4,169	2,268	609	7,046
2000	3,996	2,364	687	7,047
2001	3,568	2,062	513	6,140
2002	3,553	2,514	628	6,696

There are presently 3 types of milk recording scheme offered to farmers (Table 3.3); the A4 scheme (recording every 4 weeks), the A6 scheme (recording every 6 weeks) and the A8 scheme (recording every 8 weeks). The A4 scheme was the most popular scheme in 2002, with 53.1% of farmers (3,553 in total) opting for this scheme. However, recent trends in milk recording method, suggest a gradual movement away from this type of scheme towards schemes with a longer recording interval.

Table 3.4 Inseminations by Breed and by Organisation (2002)

AI Organisation	H Friesian	Hereford	Angus	Charolais	Simmental	Limousin	Bel Blue	Others	Total
Dairygold	60,764	5,976	13,303	4,603	1,461	7,725	6,400	8,567	138,751
Dovea AI	40,617	4,622	7,071	7,909	2,565	10,360	3,795	3,571	78,259
Kerry AgriBusiness	41,899	4,736	7,764	12,451	1,975	15,887	12,634	4,232	104,602
Progressive Genetics	65,137	6,122	13,469	30,530	2,127	22,719	27,279	5,697	168,121
Sligo AI	8,418	619	11,303	26,715	4,001	17,073	7,696	3,749	78,479
South Western Services Co-op	22,229	3,244	6,914	8,209	896	3,245	4,626	2,176	54,335
Eurogene/AI Services	10,582	756	2,297	1,729	852	2,453	3,064	7,209	28,131
Bova Genetics	11,346	3,491	8,060	12,063	2,190	13,309	8,734	3,308	62,401
Totals	304,189	37,899	67,370	85,344	17,446	97,388	78,137	34,097	713,179

Table 3.5 AI Trends by Organisation (2000-2002)

AI Organisation	2000	2001	2002
Dairygold Co-op	170,853	154,574	138,751
Dovea AI	93,190	83,376	78,259
Kerry AgriBusiness	129,913	114,570	104,602
Progressive Genetics	187,165	167,187	168,121
Sligo AI	113,985	98,371	78,479
South Western Services Co-op	65,084	58,518	54,335
Eurogene/AI services	16,708	26,675	28,131
Bova AI	58,292	52,822	62,401
Total	835,190	756,091	713,179

A total of 8 organizations were licensed by the Department of Agriculture to provide a National AI service in 2002 (Table 3.4). The largest of these was Progressive Genetics (23.6% of total first inseminations), followed by Dairygold (19.5%), Kerry Agribusiness (14.7%), Sligo AI (11.0%) and Dovea AI (11.0%). Combined, the ICBF member organizations accounted for 87.3% of the total inseminations, whilst the 2 private AI organizations (Bova Genetics and Eurgene/AI Services) accounted for some 12.7% of the total inseminations.

Looking at insemination trends since 2000 (Table 3.5) indicates a major decline in the number of first inseminations, from 835,190 in 2000 to 713,170 in 2002 (a drop of some 14.6%). The decline has been evident for almost organizations, with the exception Bova AI and Eurogene/AI services, which have both reported an increase in number of first inseminations over the same period.

(ii) Artificial Insemination Usage

- *30% drop in AI usage over last 10 years*
- *Holstein Friesian most dominant breed*
- *Shift towards certain beef breeds*

Table 3.6 Artificial Inseminations by Breed (1993-2002)

Breed of AI Sire	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
H Friesian	424,659	460,661	452,791	378,366	308,125	258,689	386,892	395,089	391,220	394,180
Hereford	83,797	75,534	77,636	96,871	100,302	83,114	36,486	35,363	25,524	27,899
Angus	90,682	93,499	106,433	118,049	143,794	134,059	71,032	67,940	61,099	67,370
Charolais	154,756	136,249	144,701	137,366	110,598	97,063	99,040	106,163	94,246	85,344
Simmental	73,645	58,454	52,595	53,599	42,484	39,334	33,533	28,485	17,987	17,446
Limousin	107,207	93,226	91,697	93,418	84,570	98,277	109,084	118,423	108,916	97,388
Belgian Blue	39,864	44,567	49,006	54,585	57,491	57,776	54,569	122,620	107,475	78,137
Others	19,042	19,303	19,092	20,230	21,034	20,069	13,491	23,109	30,290	34,097
Total AI	994,921	981,022	957,474	952,775	868,428	784,915	790,434	835,190	756,091	713,179

Insemination trends over the past 10-years (Table 3.6 and Figure 3.1), indicate a steady decline in the number of first inseminations, from a high of 994,921 in 1993 to a low of 713,179 in 2002 (a drop of some 28,000 inseminations/year). The drop was most evident for a number of beef breeds (Table 3.6 and Figure 3.2), notably the Simmental (-76.0%), Hereford (-66.7%) and Charolais breeds (-44.3%). In contrast the number of inseminations for the Belgian Blue breed has increase considerably over the past 10 years from a low of 39,864 in 1993 to 78,137 in 2002 (+96.0%). However, more recent trends (2000-2002) would suggest a distinct movement away from this breed as a preferred choice of AI sire (Table 3.6)

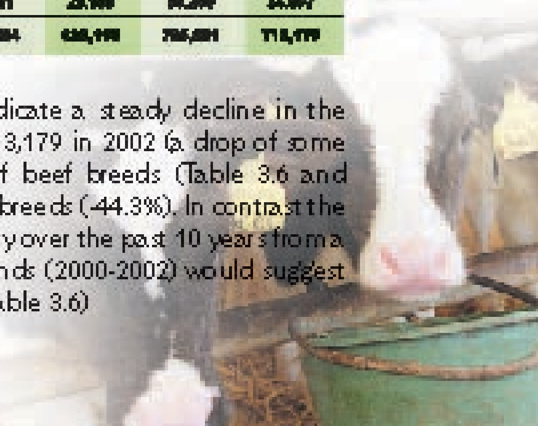


Fig 3.1 Number of Inseminations for Holstein Friesian, Beef and Other Breeds (1995-2002)

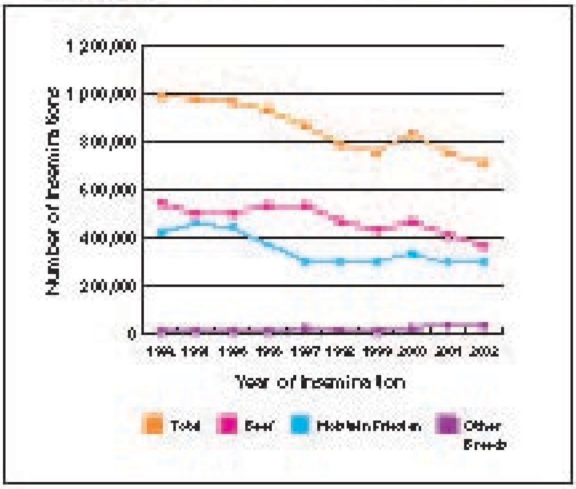


Fig 3.2 Artificial Inseminations by Breed (1995 – 2002)

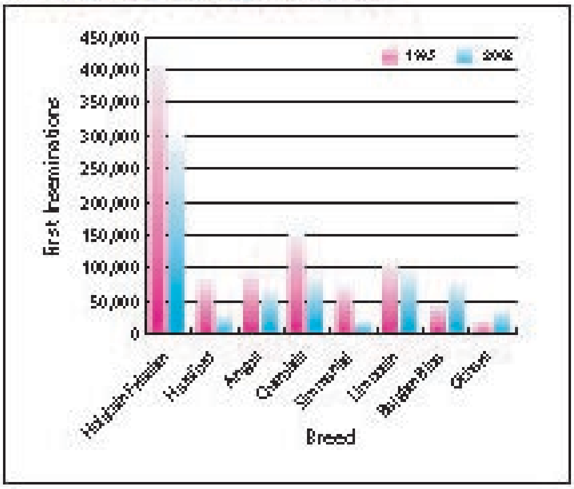


Table 3.7 Artificial Insemination Usage for Dairy Breeds (2001 & 2002)

	2001 Total	2002 Total
H Friesian	301,228	304,103
MRI	1,450	1,212
Ayrshire	328	278
Jersey	1,961	1,897
Brown Swiss	203	924
Montbelliarde	9,893	11,879
Normande	368	203
Kerry	110	137
Scandinavian Red	413	317
Rotbunt	5,078	5,023
Total	321,032	325,973

Whilst the overall number of Holstein Friesian inseminations has declined over the past 10 years (by some 28.3%), more recent trends (1997-2002) would suggest that the number of Holstein Friesian inseminations has stayed relatively stable over the past 6 years at around 300,000 first inseminations/year. The figure for Holstein Friesian represents some 94% of total dairy inseminations (Table 3.7) and underlines the critical role that this breed continues to play within the Irish dairy industry. In contrast, AI usage in other dairy breeds continues to remain at a relatively low level (Table 3.7).

The highly seasonal aspect to milk and beef production systems in Ireland was again evident in 2002, with 66.8% of all first inseminations taking place during the months April, May and June (Table 3.8 and Figure 3.3). The seasonality of usage was particularly evident for the dairy sector, with 81.6% of all Holstein Friesian inseminations occurring within this three-month period. Whilst, AI usage is highly seasonal in Ireland, trends in seasonality (Figure 3.3) would also suggest an increase in the proportion of inseminations happening in the summer months (July, August and September).

Fig 3.3 Trends in Insemination Usage by Month (2000 v. 2002)

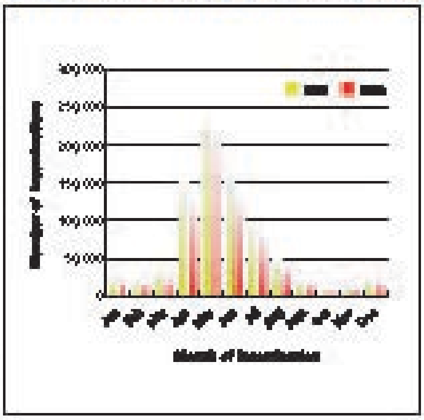


Table 3.8 Seasonality of AI Usage (2002)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Total
HF	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Beef	[illegible]	10,911	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	14,032	7,220	7,179	[illegible]	[illegible]
Other	[illegible]	[illegible]	[illegible]	6,271	[illegible]	[illegible]	3,366	1,406	[illegible]	[illegible]	[illegible]	125	[illegible]
Totals	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

In addition to inseminations through licensed AI organizations, some 3,371 dairy and beef farmers are presently licensed by the Department of Agriculture to carry out "Do-it-Yourself" Artificial Insemination (DIY AI) on their farm (licenses are valid for a period of 3-years at a time). The number of new license holders increased considerably in 2002 (up from 269 in 2001 to 450 in 2002), probably as a result of F&M in 2001 (Table 3.9).

The average herd size of licensed AI herdowners is 87 animals, suggesting that some 290,000 animals were covered by DIY AI in 2002. Assuming that all cows in DIY AI herds are artificially bred, this figure suggests that the total number of first inseminations last year was some 1,060,000. Expressing this figure as a proportion of the total calves registered (2,180,126), suggests that the AI penetration rate in 2002 was approximately 46%.

The level of bovine semen imported into Ireland last year (from all other countries) declined slightly from 245,096 in 2001 to 227,887 in 2002 (Table 3.10). The level of semen imported was highest for the Holstein Friesian breed (155,327), followed by the Belgian Blue (24,027) and Limousin breeds (12,475) respectively.

Table 3.9 DIY AI Licenses (1992-2001)

	New licenses	Renewed licenses	Licenses/year
1992	267	262	529
1993	351	261	612
1994	455	376	827
1995	451	380	830
1996	378	299	677
1997	430	394	824
1998	317	546	863
1999	237	422	659
2000	315	813	1128
2001	269	867	1136
2002	450	657	1107

Table 3.10 Semen Inseminations by Breed (2000-2002)

Breed of AI Sire	2000	2001	2002
H Friesian	157,499	171,232	155,327
Montbeliarde	2,045	7,975	5,510
MRI	5,766	1,500	4,848
Jersey	0	0	3,866
Hereford	1,380	1,300	2,610
Angus	3,059	5,434	3,860
Charolais	6,303	11,816	5,773
Simmental	1,671	515	1,015
Limousin	15,344	26,500	12,475
Belgian Blue	6,507	18,824	24,027
Others	0	0	8,576
Total	199,574	245,096	227,887

Table 3.11 Number of Dairy and Dual Purpose Bulls on Test by Organisation (1999-2002)

	1999	2000	2001	2002
ABS Progen	0	0	0	2
Bova Genetics	0	0	0	1
Dovea AI	10	4	9	11
Progressive Genetics	14	12	16	12
Eurogene/AI Services	10	2	6	6
International Livestock Genetics	8	0	1	2
Munster AI	30	20	11	19
Total	72	38	43	53

Table 3.12 Dairy and Dual Purpose Test Bulls by Breed (2001 & 2002)

	2001	2002
Ayrshire	0	1
Brown Swiss	0	1
Holstein	23	34
Friesian	15	9
Jersey	0	1
Montbeliarde	3	4
Rotbunt	2	3
Total	43	53

Table 3.13 Number of Beef Bulls Starting Test by Organisation (1999-2002)

	1999	2000	2001	2002
Bova AI	0	0	0	7
Dovea AI	9	10	9	13
Eurogene/AI Services	6	13	1	4
Goulding Genetics	0	3	1	2
Irish Hereford Society	0	2	1	2
Irish Pietmontaise Society	0	0	0	4
Irish Saler Society	0	0	0	3
Irish Simmental Society	0	5	2	0
Irish Angus Society	0	0	1	0
Munster AI	14	16	10	1
Progressive Genetics	21	18	16	14
Total	50	67	41	50

(iii) National Progeny Test Program

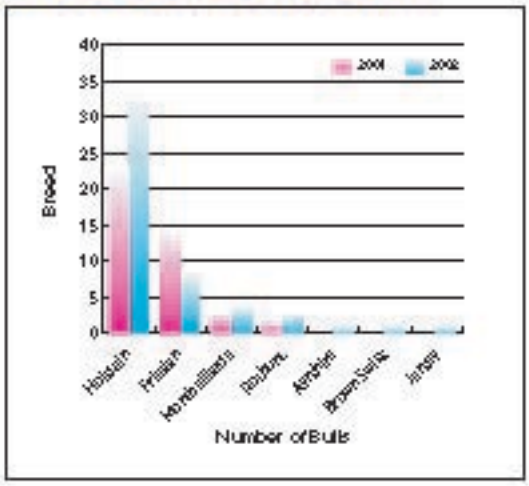
- *Slight increase in number of dairy and beef bulls on test*
- *Holstein most dominant dairy breed*
- *Belgian Blue most dominant beef breed*

At present 7 AI organizations are actively involved in ICBF's progeny test program for dairy and/or dual purpose breeds (Table 3.11). The number of bulls going on test in 2002 was 53, the majority of which (42 in total) are being tested by ICBF member organizations (Dovea AI, Progressive Genetics and Munster AI) and the remainder by "private" organizations. Munster AI (an amalgam of 3 AI organisations; Dairygold, Kerry and South Western Services) were the largest organization testing bulls in 2002 (19 bulls on test), followed by Progressive Genetics (12 bulls on test) and Dovea AI (11 bulls on test). The number of bulls on test has increased slightly over the past 2 years (+15 bulls) but has declined relative the number of bulls on test in 1999 (-19 bulls).

Looking at the breakdown of breeds going on test in 2001 and 2002 (Table 3.12 and Figure 3.4) indicates that the Holstein breed was the most prevalent dairy/dual purpose breed going on test last year with 34 of the total 53 bulls going on test being from this breed. This was followed by the Friesian breed (9 bulls on test), Montbelliarde (4 bulls on test) and Rotbunte breeds (3 bulls on test) respectively.

At present, there are eleven organizations actively involved in ICBF's progeny test program for beef breeds (Table 3.13). The number of bulls going on test in 2002 was 50, 37 of which are being tested by ICBF member organizations and the reminder by private organizations (Bova, Eurogene/AI services and Goulding Genetics). Progressive Genetics and Dovea AI were the 2 largest organizations testing beef bulls in 2002 (14 and 13 bulls respectively), whilst the most prevalent breeds going on test were the Belgian Blue (15 bulls on test) and the Charolais (11 bulls on test) respectively (Table 3.14).

	2001	2002
Angus	2	1
Aubrac	1	0
Blonde	1	0
B.Blue	12	15
Charolais	12	11
Hereford	1	2
Limousin	8	6
Piemontaise	0	4
Parthenais	0	1
Saler	0	4
Shorthorn	2	2
Simmental	2	4
Total	41	50



(iv) Genetic Improvement within Holstein Friesian Breed

- *Genetic gain of some €2.9/cow/year in National milk recorded cow population*
- *Continued improvement in genetic merit for milk production traits*
- *Decline in genetic merit for calving interval and survival*

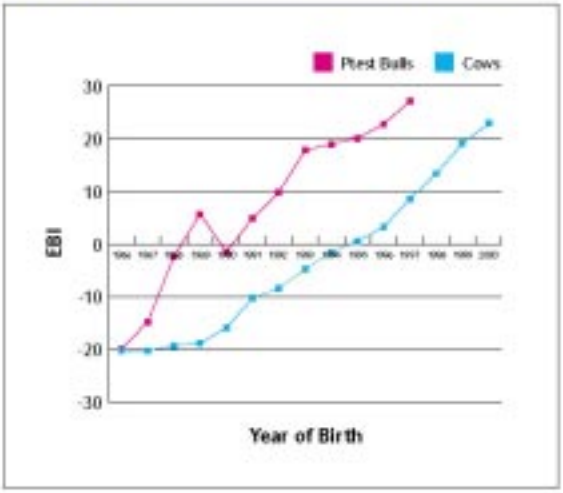
The Economic Breeding Index (EBI) was first introduced in 2000. The index is published in Euros and ranks animals on overall profit. It contains information on five traits related to profitable milk production; milk, fat and protein yield and 2 traits related to fertility performance, calving interval and survival.

Year	Cows	Prog. Test Bulls
1986	-20.24	-19.9
1987	-20.27	-14.8
1988	-19.35	-2.4
1989	-18.83	5.7
1990	-15.91	-1.5
1991	-10.28	4.9
1992	-8.54	9.8
1993	-4.79	17.8
1994	-1.60	19.0
1995	0.55	20.1
1996	3.25	22.8
1997	8.57	27.1
1998	13.37	
1999	19.06	
2000	22.89	

Year	EBI	Milk Kg	Fat Kg	Fat %	Pro %	Pro %	CI Days	Survival
1986	-20.2	-180	-7.7	-6.2	-0.02	0.00	-3.9	0.1
1987	-20.3	-183	-7.5	-6.2	-0.01	0.00	-3.7	0.1
1988	-19.3	-182	-7.1	-6.0	0.00	0.00	-3.6	0.1
1989	-18.8	-172	-6.3	-5.7	0.01	0.00	-3.4	0.1
1990	-15.9	-138	-4.9	-4.7	0.01	0.00	-3.1	0.0
1991	-10.3	-106	-3.3	-3.4	0.02	0.00	-2.9	0.0
1992	-8.5	-97	-2.9	-3.0	0.02	0.00	-2.9	0.0
1993	-4.8	-71	-2.2	-2.1	0.01	0.01	-2.8	0.0
1994	-1.6	-30	-0.9	-0.8	0.01	0.00	-2.3	-0.2
1995	0.6	3	0.1	0.1	0.00	0.00	-1.9	-0.3
1996	3.3	31	1.0	0.9	0.00	0.00	-1.6	-0.3
1997	8.6	63	2.0	2.2	-0.01	0.00	-1.3	-0.3
1998	13.4	93	3.1	3.3	-0.01	0.01	-1.1	-0.3
1999	19.0	114	3.9	4.2	-0.01	0.01	-1.1	-0.2
2000	22.9	135	4.6	5.0	-0.01	0.01	-1.0	-0.1

Looking at trends in EBI value for cows and progeny test sires (Table 3.15 and Figure 3.6), indicates a steady increase in the average EBI of milk recorded cows during the past 15 years, from a value of €-20.2 for cows born in 1986 up to a value of €22.3 for cows born in 2000. This represents an increase in EBI value of some €2.9/year for the 15-year period. Similar trends are also evident for test bulls, although the average EBI of this group, is somewhat higher, reflecting the fact that these animals are a highly selected group (Figure 3.6).

Fig 3.5 Genetic Trend in EBI for Cows and Progeny Test Bulls (1986-2000)



Looking at trends in the component traits within the index, indicates a steady improvement in milk production traits, from a low of –13.9 kg in 1986 to a high of +10.6 kg in 2000 for milk solids production (+1.63 kg/year). Trends for Calving Interval and Survival are somewhat different, and indicate a definite decline in fertility performance over the same period, from a high of –3.9 days for cows born in 1986 to a low of –1.0 days for cows born in 2002 (a drop of some 0.2 days/year). Similar trends are also evident for Survival%, suggesting an increase in the proportion of cows being involuntarily culled from the National milk recorded herd.

(v) Genetic Improvement in Beef Breeds

- *Sustained improvement in muscle and skeletal EBV within the Limousin, Charolais and Simmental breeds*
- *Different ranking across beef breeds for conformation, fat cover and kill-out%*

At present, three herdbooks offer an on-farm linear scoring service to its members, the Charolais, Limousin and Simmental herdbooks (Section 2). Looking at genetic trends in muscle and skeletal EBV for each of these breeds indicates substantial genetic improvement within each of the breeds for these traits (Table 3.17, 3.18 and 3.19). For example, within the Charolais breed, EBV for muscle has increased from 95.3, for animals born in 1992, to 108.5 for animals born in 2002, an increase of some 1.2 units/year over the last 11 years. Similar results are evident for skeletal EBV, although the rate of improvement has not been as marked.

Trends within the Limousin and Simmental breed (Figures 3.7 and 3.8) indicate similar levels of genetic improvement to that shown within the Charolais breed for both muscle (1.0 units/year since 1995) and skeletal EBV (0.4 units/year since 1995).

Table 3.17 Genetic Trends for Muscle and Skeletal in Charolais Breed (1992-2002)

Birth Year	EBV Muscle	EBV Skeletal
1992	95.3	98.7
1993	95.7	98.9
1994	97.2	99.0
1995	100.0	100.0
1996	99.6	100.5
1997	99.8	101.4
1998	100.5	101.6
1999	102.2	102.3
2000	104.2	103.2
2001	107.3	104.3
2002	108.5	104.8

Fig 3.6 Genetic Trend in Muscle and Skeletal for Charolais Breed

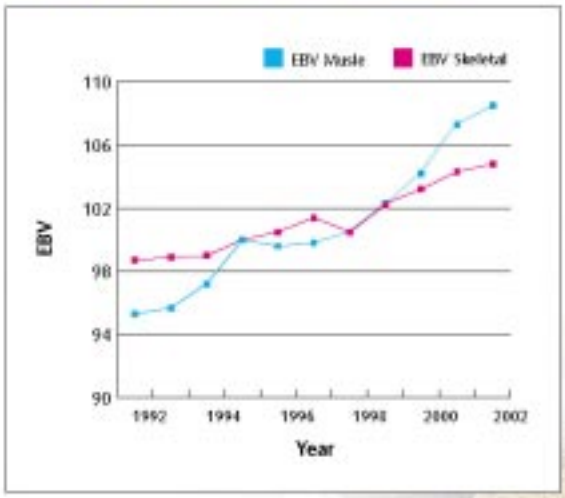


Table 3.18 Genetic Trends for Muscle and Skeletal in Limousin Breed (1992-2002)

Birth Year	EBV Muscle	EBV Skeletal
1992	99.0	97.3
1993	98.5	97.9
1994	99.2	98.7
1995	100.0	100.0
1996	99.0	99.8
1997	101.4	100.8
1998	102.0	101.5
1999	102.3	101.8
2000	102.6	100.4
2001	104.9	100.9
2002	107.0	102.4

Fig 3.7 Genetic Trend in Muscle and Skeletal for Limousin Breed

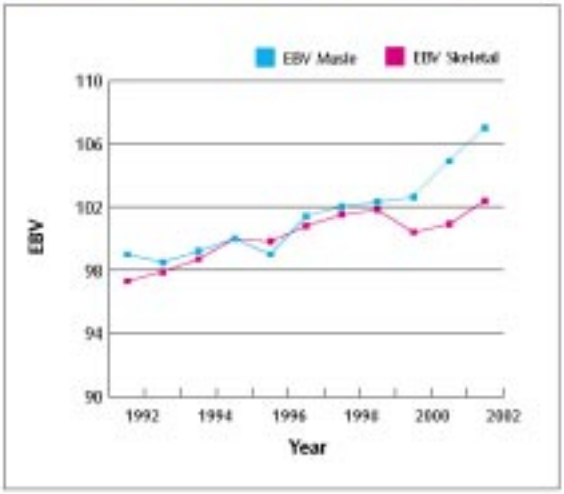
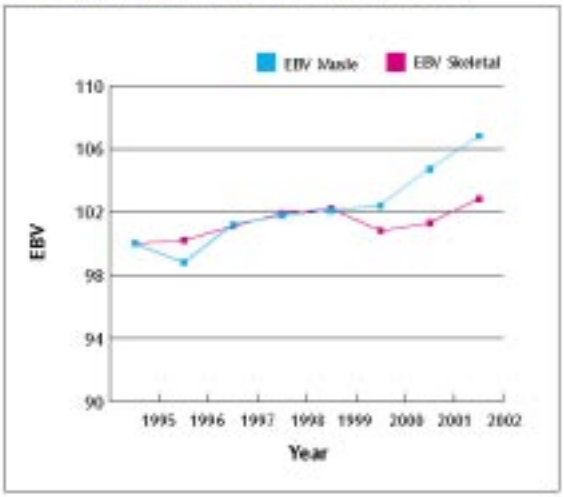


Table 3.19 Genetic Trends for Muscle and Skeletal in Simmental Breed (1995-2002)

Birth Year	EBV Muscle	EBV Skeletal
1995	100.0	100.0
1996	98.8	100.2
1997	101.2	101.1
1998	101.8	101.9
1999	102.1	102.2
2000	102.4	100.8
2001	104.7	101.3
2002	106.8	102.8

Fig 3.8 Genetic Trend in Muscle and Skeletal for Simmental Breed



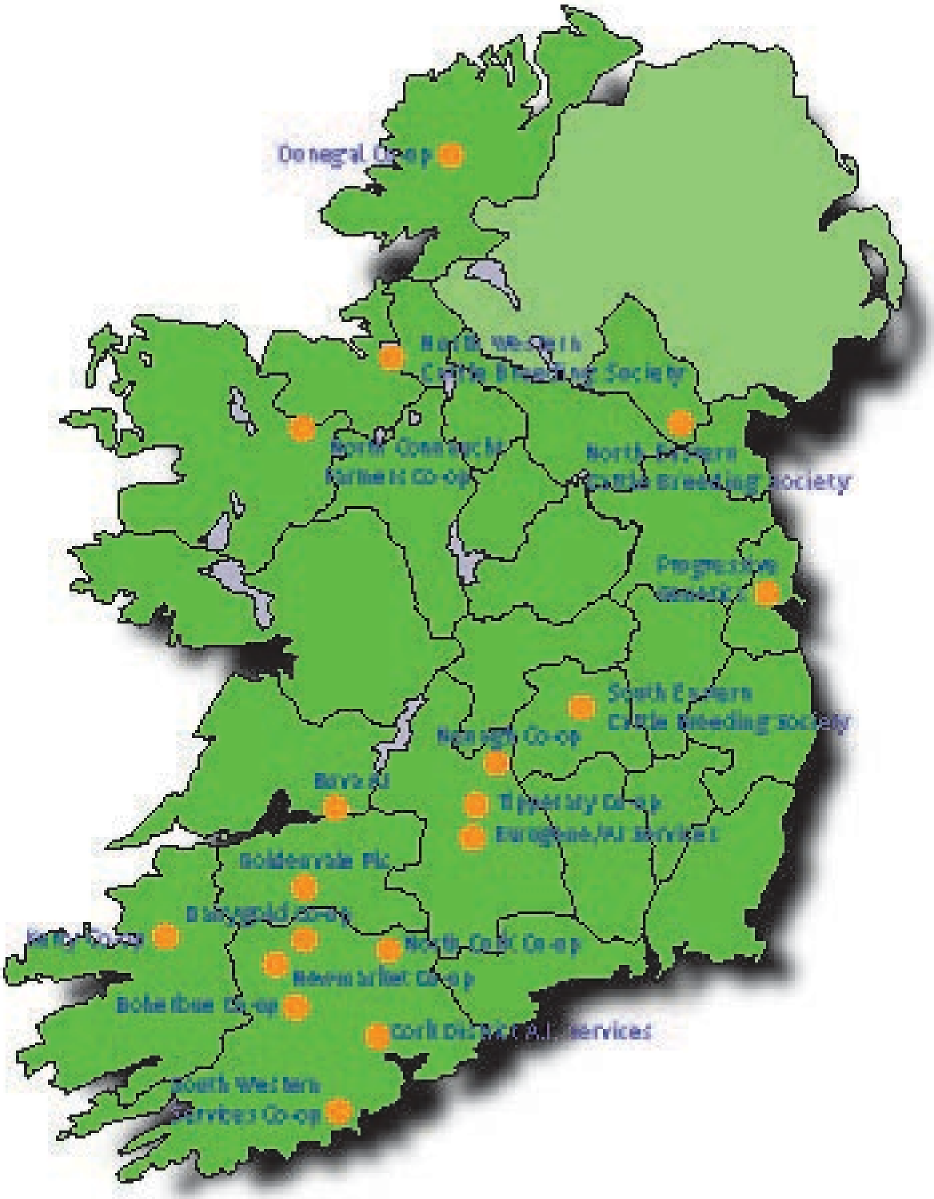
In contrast to genetic evaluations for linear traits which are within breed, genetic evaluations for AI progeny test data are across breed. This allows animals and breeds be directly compared in the one genetic evaluation system.

Looking at expected breed differences for each of the traits (Table 3.20) indicates that the Charolais breed is the most superior breed for carcass weight (average carcass weight of crossbred progeny was 391 kg), followed by the Belgian Blue breed (381 kg), and then the Blonde d'Aquitaine (377 kg). Similarly, trends for conformation grade indicate that, based on crossbred progeny performance, the Belgian Blue breed was the leanest breed (3.08 or R grade carcasses) followed by the Charolais breed (3.06), Limousin breed (2.95) and Blonde d'Aquitaine breeds respectively (2.79).

A different ranking order is apparent for fat class, with the Hereford breed resulting in animals in the highest fat class (3.95), followed by the Angus (3.82) and Holstein Friesian breeds respectively (3.39). Trends for kill-out% are similar to those for conformation, with the Blonde d'Aquitaine (57.7%), the Simmental breed (57.0%) and the Belgian Blue breeds (56.7), being the three breeds that are expected to result in crossbred progeny with the highest kill-out%.

Table 3.20 Across Breed Comparisons for Beef Traits

Breed	Carcass wt.	Conformation	Fat	Kill-out %
Angus	355	2.69	3.82	55.3
Holstein Friesian	350	2.02	3.39	53.9
Hereford	367	2.66	3.95	55.1
Charolais	391	3.06	3.30	55.4
Simmental	376	2.74	3.35	57.0
Limousin	368	2.95	3.26	56.7
Bl. d'Aquitaine	377	2.79	2.97	57.7
Belgian Blue	381	3.08	2.99	56.7



Donegal Co-op
North Western
Cattle Breeding Society
North Connacht
Farmers Co-op
North Eastern
Cattle Breeding Society
South Eastern
Cattle Breeding Society
Nenagh Co-op
Tipperary Co-op
Golden Vale Plc
North Cork Co-op
Newmarket Co-op
Boherbue Co-op
Cork District A.I. Services
South Western
Services Co-op

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