



Irish Cattle Breeding Federation



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The provision of accurate and factual information is one of ICBF's services to the cattle breeding industry. In this publication we have attempted to assemble a set of industry level statistics relevant to cattle breeding in Ireland. We have taken up on the lead given by Irish Dairy Records Co-op and the Department of Agriculture, Food & Rural Development, in their publication of information in earlier years. By bringing together all of the relevant information into one single publication, we believe the Irish cattle breeding industry will have better information upon which to base its planning and operational decisions.

This report is based on information drawn from many sources. We wish to acknowledge contributions made by:

- Department of Agriculture, Food & Rural Development (Sections 1 and 4)
- Irish Dairy Records Co-op (Section 3)
- Herdbook Associations (Section 2)
- Irish Farmers Journal (Photographs)

Without their co-operation it would not have been possible to assemble the information herein.

Whilst we have made every effort to ensure the information in this first ICBF Irish Cattle Statistics report is complete and correct, I have no doubt that we will be able to make further improvements to the report in the future. Therefore, we would greatly appreciate any feedback on the information contained in this publication.

The statistics are provided as part of ICBF's overall mission of:

"Achieving the greatest possible genetic improvement in the National cattle herd for the benefit of Irish farmers, dairy and beef industries and members".



Brian Wickham
Chief Executive

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(i) Cattle population statistics

- *2.4% drop in number of breeding females in 1999*

The number of breeding females (in-calf heifers and cows) in the National cattle herd declined by 2.4% (67,400 females) in 1999 compared to 1998 (Table 1.1). This decline in breeding female numbers was consistent for both dairy (29,300) and beef/dual purpose sectors (38,100). The decline in breeding female numbers for the National beef herd is against recent trends in this sector, which had shown considerable expansion during the past number of years, from 820,700 breeding females in 1990 to 1,232,700 females in 1998, an increase of over 450,000 females (Figure 1.1). However, the decline in dairy female numbers in 1999 is consistent with recent trends in this sector (1996-1998), although the decline does appear to be greatest in the in-calf heifer population, which accounts for some 75% of the overall drop in number of dairy female numbers.

Fig 1.1 Trends in number of breeding females (1990-99)

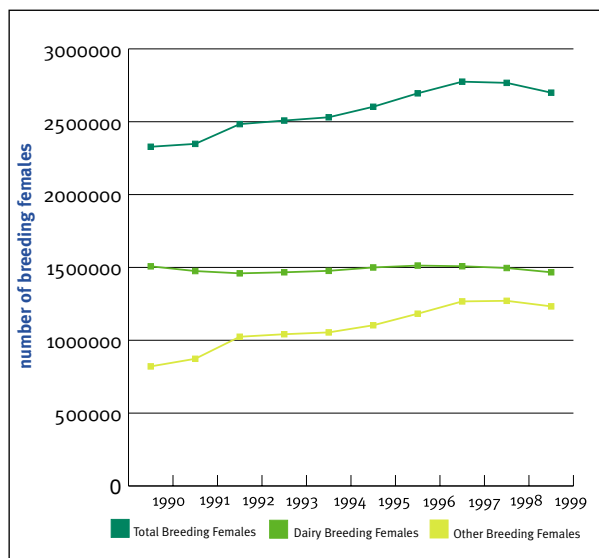


Table 1.1 Cattle Population Figures (1990-99)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Dairy Cows	1,322,200	1,293,200	1,261,500	1,274,100	1,269,100	1,267,100	1,272,400	1,268,300	1,276,500	1,260,900
Other Cows*	729,400	782,600	911,800	928,300	956,700	988,700	1,062,500	1,137,300	1,165,000	1,132,300
In calf Dairy Heifers	185,300	181,900	197,900	192,500	207,400	232,600	240,300	239,800	219,500	205,800
In calf Other Heifers	91,300	90,300	112,400	113,200	97,300	114,200	119,800	129,500	105,800	100,400
Total Cows	2,051,600	2,075,800	2,173,400	2,202,400	2,225,800	2,255,800	2,334,900	2,405,600	2,441,500	2,393,200
Total In calf Heifers	276,600	272,200	310,200	305,700	304,700	346,900	360,100	369,300	325,300	306,200
Total Breeding Females	2,328,200	2,348,000	2,483,600	2,508,100	2,530,500	2,602,700	2,695,000	2,774,900	2,766,800	2,699,400
Bulls	27,500	29,300	31,100	32,200	32,700	34,200	35,900	37,800	38,500	38,200

source: Department of Agriculture, Food & Rural Development 1999

* Includes suckler and dual purpose animals

(ii) National bovine calf registration statistics

- *9.0% drop in calf registrations*
- *6,000 fewer cattle breeding herds*
- *Increasing influence of certain beef breeds*

There was a marked decrease in the number of calves registered in 1999 compared to 1998 (Table 1.2). This could be due to a number of factors; (i) the drop in number of cows in the National cattle breeding herd, (ii) shifts in calving pattern and (iii) a lengthening of the calving interval in our National dairy and beef cow populations.

Table 1.2 National Bovine Calf Registration Figures (1997-99)

	1997	1998	1999
January	283,531	290,593	222,503
February	484,195	529,306	460,217
March	578,726	577,038	570,908
April	390,882	382,679	384,458
May	210,599	217,493	216,243
June	101,353	92,945	90,541
July	56,714	55,151	50,108
August	42,155	41,216	34,682
September	47,462	45,771	39,034
October	58,273	53,993	45,993
November	55,745	53,810	44,448
December	75,525	85,533	49,031
Total	2,385,16	2,425,528	2,208,16

source: Department of Agriculture, Food & Rural Development 1999

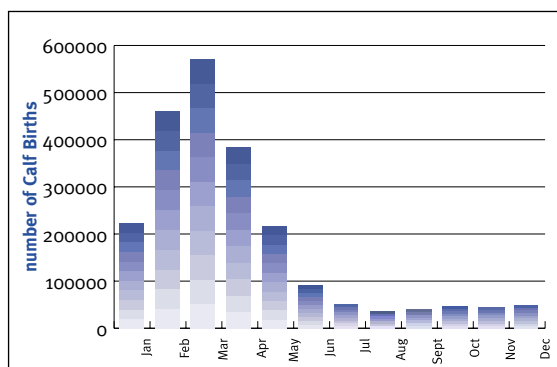
The decline in number of cattle breeding herds continued in 1999, with 108,812 herds registering calves this year compared to 114,669 herds in 1998 (Table 1.3). This represents a 5.1% drop in the number of herds registering calves in 1999, compared to a drop of only 1.6% for the years 1997 to 1998.

Table 1.3 Number of Cattle Breeding Herds (1997-1999)

1997	1998	1999
116,498	114,669	108,812

source: Department of Agriculture, Food & Rural Development 1999

Fig 1.2 Trends in Total Calf Births (1997-99)



The seasonal nature of calf births was again evident in 1999, with 74% of all calf births (over 1.6 million calf births) occurring in the months of February, March, April and May (Figure 1.2)

The most dominant sire breed in 1999, was the Charolais breed, with 22.6% of all calves registered, being by sires from this breed (Table 1.4). Other popular breeds included the Holstein Friesian (20.4% of all calves registered), Hereford (15.8% of all calves registered) and Limousin (13.4% of all calves registered).

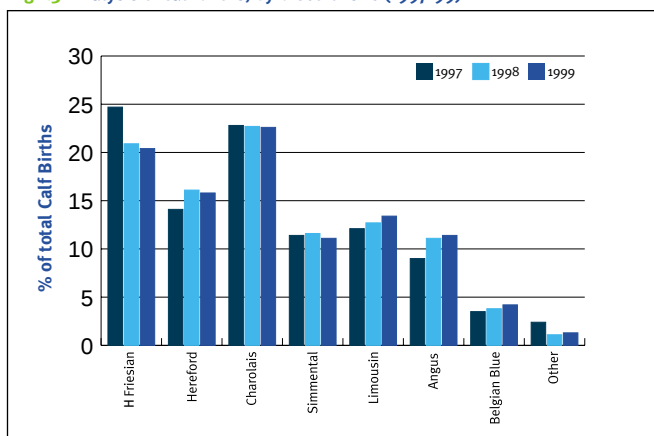
The number of calves registered as offspring from Holstein Friesian sires has dropped considerably over the past three years (Table 1.4), from 24.7% of all calves registered in 1997 to 20.4% of all calves registered in 1999 (a drop in total calves born to this breed of about 140,000 during the three year period). These figures would appear to be consistent with data from Table 1.1, suggesting a possible shortfall of dairy heifer replacements over the next few years. In contrast to the Holstein Friesian breed, the influence of certain beef breeds as sires has increased over the last few years, with Limousin, Angus and Belgian Blue breeds all showing a gradual increase in the proportion of calves registered (Table 1.4 and Figure 1.3).

Table 1.4 Analysis of calf births, by breed of sire (1997-99)

	1997	%	1998	%	1999	%
H Friesian	589,900	24.7	507,105	20.9	449,478	20.4
Hereford	337,245	14.1	389,564	16.1	348,030	15.8
Charolais	543,138	22.8	551,566	22.7	497,959	22.6
Simmental	271,621	11.4	281,067	11.6	245,732	11.1
Limousin	289,067	12.1	307,608	12.7	295,647	13.4
Angus	213,968	9.0	269,555	11.1	250,844	11.4
Belgian Blue	83,942	3.5	91,796	3.8	92,632	4.2
Other	56,279	2.4	27,267	1.1	27,844	1.3
Total	2,385,160		2,425,528		2,208,166	

source: Department of Agriculture, Food & Rural Development 1999

Fig 1.3 Analysis of calf births, by breed of sire (1997-99)



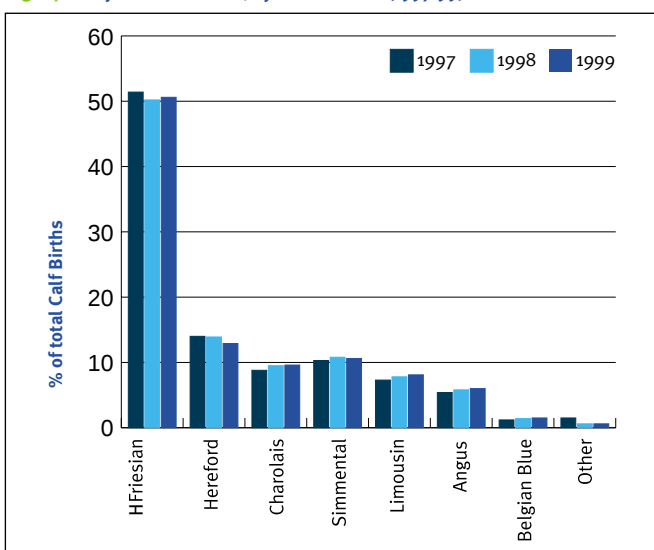
The Holstein Friesian breed is by far the most dominant breed of dam in Ireland, with over 50% of the National cattle breeding herd being of this origin (Table 1.5 and Figure 1.4). Continental beef breeds account for about 30% of dams in the National cattle breeding herd, while the remaining 20% of calf registrations are almost exclusively from dams originating from the traditional beef breeds (Hereford and Angus).

Fig 1.4 Analysis of calf births, by breed of dam (1997-99)

Table 1.5 Analysis of calf births, by breed of dam (1997-99)

	1997	%	1998	%	1999	%
H Friesian	1,226,643	51.4	1,216,80	50.2	1,116,64	50.6
Hereford	333,156	14.0	336,996	13.9	285,673	12.9
Charolais	209,972	8.8	230,043	9.5	212,700	9.6
Simmental	245,968	10.3	263,030	10.8	235,068	10.6
Limousin	173,6672	7.3	189,966	7.8	179,424	8.1
Angus	129,324	5.4	140,870	5.8	131,423	6.0
Belgian Blue	29,566	1.2	34,293	1.4	33,496	1.5
Other	36,864	1.5	13,530	0.6	13,742	0.6
Total	2,385,160		2,425,528		2,208,166	

source: Department of Agriculture, Food & Rural Development 1999





Section 1 *National Cattle Breeding Statistics*

The influence of certain beef breeds in the National cattle breeding herd appears to be increasing over time with the Charolais, Limousin, Angus and Belgian Blue breeds, all showing an increase in the proportion of calves registered to dams originating from these breeds (Table 1.5 and Figure 1.4).

Table 1.6 Choice of sire used in dairy herds 1999

Breed of Dam	Choice of sire							Total
	Holstein Friesian	Hereford	Charolais	Simmental	Limousin	Angus	Belgian B	
Holstein Friesian	442,296	241,444	57,688	86,462	84,435	143,201	48,296	1,103,822
% of dam total	40.1%	21.9%	5.2%	7.8%	7.6%	13.0%	4.4%	

source: Department of Agriculture, Food & Rural Development 1999

The most popular breed of sire in dairy herds in 1999 was, not surprisingly, Holstein Friesian, accounting for some 40% (442,296) of the total calves registered to dams from this breed (Table 1.6). After Holstein Friesian, the most popular breeds of sire in dairy herds were the traditional beef breeds, Hereford (21.9%) and Angus (13.0%), followed by the continental breeds, Simmental (7.8%), Limousin (7.6%), Charolais (5.2%) and Belgian Blue (4.4%).

Table 1.7 Choice of sire used in suckler beef herds 1999

Breed of Dam	Choice of Sire						Total
	Hereford	Charolais	Simmental	Limousin	Angus	Belgian B	
Hereford	60,747	98,517	38,370	51,621	22,962	10,887	283,104
% of dam total	21.5%	34.8%	13.6%	18.2%	8.1%	3.8%	
Charolais	8,914	134,133	18,689	29,351	12,568	8,162	211,817
% of dam total	4.2%	63.3%	8.8%	13.9%	5.9%	3.9%	
Simmental	14,730	85,490	64,763	37,830	18,402	11,481	232,696
% of dam total	6.3%	36.7%	27.8%	16.3%	7.9%	4.9%	
Limousin	11,213	62,849	19,044	62,103	13,337	9,761	178,307
% of dam total	6.3%	35.1%	10.6%	34.7%	7.4%	5.4%	
Angus	7,492	46,667	13,346	21,911	35,588	5,272	130,276
% of dam total	5.8%	35.8%	10.2%	16.8%	27.3%	4.0%	
Belgian Blue	2,489	11,633	4,095	7,224	3,612	6,769	35,822
% of dam total	6.9%	32.5%	11.4%	20.2%	10.1%	18.9%	
Total	105,585	439,289	158,307	210,040	106,469	52,332	1,072,022
% of overall total	0.098	0.410	0.148	0.196	0.099	0.049	

source: Department of Agriculture, Food & Rural Development 1999

The most popular breed of sire in suckler beef herds in 1999 was Charolais, accounting for 41% of the total calves registered to dams of beef origin (Table 1.7). This was followed by Limousin (19.6%), Simmental (14.8%), Angus (9.9%), Hereford (9.8%) and Belgian Blue (4.9%).

(i) Calf registration and membership

- 7% increase in the level of herdbook registration
- 8% increase in herdbook membership

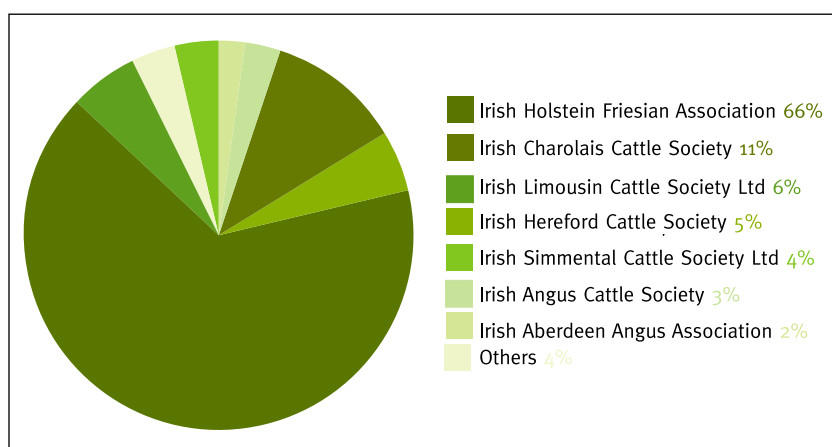
A total of 75,773 calves were registered with 18 different breed associations in Ireland during 1999 (Table 2.1). This represents an increase in total herdbook registrations of 4,872 (6.9%) compared to 1998. Herdbook membership was also increased in 1999 (up 8%, from 11,008 in 1998 to 11,910 in 1999), indicating a steady growth in the number of farmers registering calves with breed association herdbooks.

Table 2.1 Pedigree Calf registrations and number of registered members for all breeds

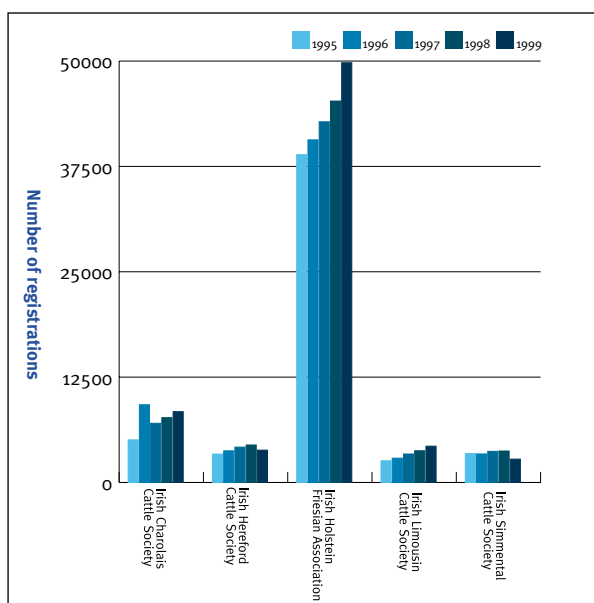
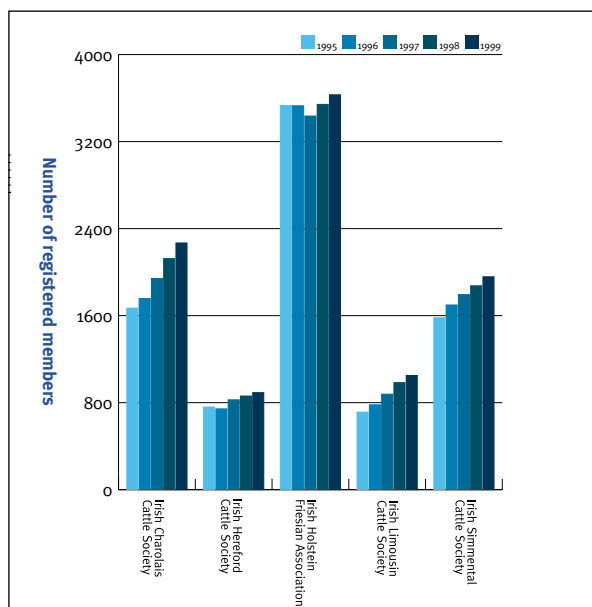
Herdbook Association	1995			1996			1997			1998			1999		
	Total	% Female	Members	Total	% Female	Members	Total	% Female	Members	Total	% Female	Members	Total	% Female	Members
Ayrshire Cattle Society of Great Britain & Ireland	76	93%	23	67	100%	23	41	93%	23	73	99%	23	30	100%	23
Belgian Blue Cattle Breeding Society	407	51%	123	371	49%	103	389	51%	107	333	47%	127	369	49%	135
Jersey Cattle Society of Ireland	230	99%	16	167	98%	22	175	99%	16	156	99%	14	181	98%	15
Irish Aberdeen Angus Association	1167	49%	285	1390	48%	320	1479	49%	351	1623	46%	379	1649	47%	376
Irish Angus Cattle Society	-	-	450	-	-	600	-	-	700	3011	51%	850	2236	49%	933
Irish Aubrac Cattle Society	-	-	-	-	-	-	-	-	-	15	47%	10	27	67%	14
Irish Blonde d'Aquitaine Breed Co-op Ltd	230	54%	74	247	55%	74	254	55%	84	187	53%	71	202	41%	78
Irish Charolais Cattle Society	5054	50%	1669	9222	53%	1757	7026	50%	1941	7689	48%	2124	8402	47%	2268
Irish Hereford Cattle Society	3370	45%	760	3755	47%	743	4196	47%	826	4448	46%	861	3837	45%	892
Irish Holstein Friesian Association	38,888	94%	3,531	40650	95%	3529	42793	95%	3435	45254	96%	3542	49797	95%	3630
Irish Limousin Cattle Society Ltd	2571	50%	713	2883	50%	780	3379	50%	878	3762	50%	984	4306	50%	1050
Irish Normande Cattle Society	-	-	-	-	-	-	-	-	-	129	91%	20	122	98%	21
Irish Piemontese Cattle Society Ltd	33	54%	13	27	44%	13	22	59%	13	10	90%	13	37	40%	11
Irish Simmental Cattle Society Ltd	3428	46%	1580	3383	47%	1698	3694	45%	1793	3732	45%	1874	2772	46%	1957
Irish Shorthorn Breeders Association	-	-	-	-	-	-	-	-	-	-	-	-	1102	-	199
Kerry Cattle Society of Ireland	-	-	-	-	-	-	-	-	-	-	-	-	223	81%	90
Meuse Rhine Issele Cattle Society	160	53%	57	149	56%	65	145	54%	71	126	68%	74	91	66%	80
Montbéliard Cattle Society	97	58%	-	181	67%	-	174	64%	-	353	62%	-	390	65%	83
Salers Cattle Society	-	-	-	-	-	17	-	-	30	-	-	42	-	-	55
Irish Romagnola Cattle Society	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Overall Total	55,711		9,294	62,492		9,944	63,767		10,268	70,901		11,008	95,993		11,910

source: Herdbook Associations 1999

Fig 2.1 Proportions of registrations for a number of breeds 1999



The largest registering herdbook in Ireland last year was the Irish Holstein Friesian Association herdbook, contributing 49,797 of the total pedigree calf registrations (65.7%). This was followed by the Irish Charolais Cattle Society, (11.1% of the total herdbook registrations), the Irish Limousin Cattle Society (5.7%), the Irish Hereford Cattle Society (5.1%) and the Irish Simmental Cattle Society (3.7%). The Irish Angus Cattle Society and the Irish Aberdeen Angus Association each contributed 2.9% and 2.2% respectively, while the other 12 herdbooks registered the remaining 3.7% of calves.


Fig 2.2 Trends in pedigree registration for a number of breeds 1995-1999

Fig 2.3 Trends in registered members for a number of breeds 1995-1999


In terms of registrations by sex, almost all calves registered in the Irish Holstein Friesian Association herdbook were of female origin (over 95%). This is in comparison to the beef breed association herdbooks, where there was little difference in the proportion of male or female calves registered.

The largest breed association, in terms of overall membership in 1999, was also the Irish Holstein Friesian Association, with 3,630 members. This was followed by the Irish Charolais Cattle Society (2,236 members), the Irish Simmental Cattle Society (1,957 members), the Irish Limousin Cattle Society (1,050 members), the Irish Angus Cattle Society (933 members) and the Irish Hereford Cattle Society (892 members).

Looking at trends over the last five years for some of the larger herdbooks (Figures 2.2 and 2.3), indicates a general increase in the registration activities of most herdbooks. The increase in activities has been most marked for the Limousin breed which has a 67% increase in calf registration and 47% increase in membership for the five year period 1995 to 1999. Similar trends have been reported by the other major herdbooks (Figure 2.2 and 2.3) and many of the smaller herdbooks over the last five years (Table 2.1).

(ii) Participation in animal recording schemes

(a) Beef and dual purpose breeds

- *Increase in level of beef linear assessment.*
- *Increased participation in Tully Central Performance test scheme*

Linear assessment of animals is presently being carried out by 4 of the beef breed associations; Limousin, Charolais, Belgian Blue and Simmental (initiated in 1999). Trends for linear assessment indicate considerable uptake in the level of recording within both the Limousin and Charolais breeds (Table 2.2). The level of activity within the Limousin herdbook is particularly notable, with 65% of herds (682 in total) presently participating in this scheme.

Table 2.2 Participation in linear assessment schemes for the Limousin, Charolais and Belgian Blue Breeds

	Limousin		Charolais		Belgian Blue	
	Animals	Herds	Animals	Herds	Animals	Herds
1991	754	351	-	-	-	-
1992	868	422	-	-	-	-
1993	1,608	689	-	-	-	-
1994	1,693	670	-	-	-	-
1995	1,618	621	-	-	138	-
1996	2,141	694	-	-	78	-
1997	2,634	745	6,571*	-	120	-
1998	2,845	700	2,149	747	156	-
1999	3,085	682	3,618	1,027	106	-

* Assessed prior to 1998
source: Herdbook Associations 1999

An on-farm weight recording service is presently offered by the Department of Agriculture, Food & Rural Development (DAFRD), to each of the breed associations (Table 2.3). In addition to the DAFRD weight recording service, the Charolais cattle society offer their own weight recording service which operates alongside their linear assessment service (Table 2.4). Some 1200 herds are presently involved in Charolais weight recording and linear assessment schemes.

Table 2.3 Participation in DAFRD weight recording scheme for a number of beef breeds 1999

Breed	Number of Herds	Number of weighings
Charolais	63	663
Belgian Blue	11	87
Limousin	177	2643
Simmental	54	396
Angus	37	270
Others	9	45

source: Herdbook Associations 1999

Table 2.4 Participation in Charolais weight recording scheme 1997-99

Year of birth	Number of Animals	Number of Herds
1997	892	438
1998	4079	1240
1999	3458*	1059*

*This figure is an underestimate as animals born towards the end of 1999 have not been weighed yet.

source: Herdbook Associations 1999

Participation in the Tully Central Performance test station has increased steadily over the past five years, from 167 bulls tested in 1995 to 210 in 1999 (up 26%). About 70% of the bulls being tested through the facility are either Limousin (27% of bulls tested in 1999), Simmental (24%) or Charolais (20%). Breeds reporting an increased use of the facility over the past number of years include Hereford, Simmental, and Angus.

Table 2.5 Participation in Tully central performance test station for a number of beef breeds 1995-99

	Angus	Belgian Blue	Blonde d'Aquitane	Charolais	Hereford	Limousin	Simmental	Others	Total
1995	0	0	3	41	13	69	37	4	167
1996	10	9	11	45	16	64	40	0	195
1997	11	9	2	62	17	61	32	0	194
1998	19	1	9	41	18	78	35	4	205
1999	19	6	3	42	23	56	50	11	210

source: Herdbook Associations 1999

(b) Dairy and dual purpose breeds

- 20% increase in number of IHFA herds participating in linear recording
- 63% increase in number of animals assessed in IHFA herds

Linear assessment of Holstein Friesian animals is presently carried out by Holstein UK and Ireland (HUKI). This service is offered to members of Irish Holstein Friesian Association (Table 2.6) and to ICBF, for the purpose of progeny testing. There was a 20% increase in the number of IHFA herds that participated in linear recording last year. In addition, the number of animals assessed in IHFA herds increased by 63%, up 4,991 from 1998.

Last year was the first year that the HUKI linear assessment and genetic evaluation service was used in progeny test herds, as previously, this service was provided by the Department of Agriculture, as part of the National progeny test program. In total, 3509 animals, in 638 herds were assessed last year as part of the ICBF progeny test program in 1999.

Table 2.6 Participation in HUKI linear assessment scheme 1995-99

Year	IHFA herds Animals	herds	ICBF progeny test herds Animals	herds
1995	8,388	280	-	-
1996	6,085	284	-	-
1997	9,965	325	-	-
1998	7,898	347	-	-
1999	12,889	418	3509	638

source: Herdbook Associations 1999

Information on milk recording activities for each of the dairy and dual purpose breeds are given in section 3 of this report.

(i) Participation in Milk Recording

- 1.6% increase in the number of cows in milk recording
- 2.4% increase in the number of herds in milk recording

Table 3.1 Total Cows and Herds recorded in Ireland 1990-99

Year	Milk recorded herds		National Dairy Population		Level of milk recording	
	Cows	Herds	Total Cows	Total herds*	% of total cows	% of herds
1990	113,517	2184	1,322,200	50000	8.6%	4.4%
1991	132,661	2405	1,293,200	48000	10.3%	5.0%
1992	156,378	2931	1,261,500	45000	12.4%	6.5%
1993	223,714	4740	1,274,100	42000	17.6%	11.3%
1994	285,172	5000	1,269,100	39,000	22.5%	12.8%
1995	327,172	5904	1,267,100	38,500	25.8%	15.3%
1996	364,826	6430	1,272,400	37,000	28.7%	17.4%
1997	366,507	6568	1,268,300	35,000	28.9%	18.8%
1998	386,611	6878	1,276,500	33,500	30.3%	20.5%
1999	394,135	7046	1,260,900	30,000	31.3%	23.5%

source: Irish Dairy Records Co-op 1999

* Best estimate of total dairy herds

There was a 1.6% increase in the number of cows milk recorded in Ireland last year, from 386,611 cows in 1998 to 392,956 in 1999 (Table 3.1). Likewise there was a 2.4% increase in the total number of herds involved in milk recording (from 6,982 in 1998 to 7046 in 1999). Expressing these totals as a % of all dairy cows (and herds) in Ireland (Table 3.1), indicates that in terms of the overall dairy population, 31% of cows are presently milk recorded and 23% of all dairy herds are participating in milk recording schemes. Whilst it is reassuring to see the sustained expansion in milk recording (the proportion of herds milk recording is now 31% as opposed to only 9% some years ago), it should be noted that

this figure is still somewhat behind the level of milk recording in other major dairying countries where the proportion of cows milk recorded is often in excess of 70%.

Table 3.2 Herds and cows recorded by recording society (1999)

Milk Recording Society*	A4 Herds	A4 Cows	A6 Herds	A6 Cows	A8 Herds	A8 Cows	Total Herds	Total Cows	Herd Size	% of Total
Progressive Genetics	1,918	116,090	1	59	99	6,668	2,018	122,817	60.9	31.3
Dairygold	431	28,456	1,068	61,159	147	8,946	1,646	98,561	59.9	25.1
SWS	386	21,388	538	27,003	47	2,854	971	51,245	52.8	13.0
Kerry Co-op	314	17,627	406	20,044	273	10,905	993	48,576	48.9	12.4
Goldenvale Co-op	219	12,320	20	1,376	7	334	246	14,030	57.0	3.6
NECBS Total	406	16,146	22	886	10	484	438	17,516	40.0	4.5
Tipperary Co-op	139	7,607	45	2,254	8	509	192	10,370	54.0	2.6
C.D.A.I.S	117	8,878	27	1,434	3	141	147	10,453	71.1	2.7
Nenagh Co-op	26	1,138	78	4,102	11	519	115	5,759	50.1	1.5
N.C.F	128	5,379	6	236	1	55	135	5,670	42.0	1.4
Donegal Co-op	36	2,283	0	0	0	0	36	2,283	63.4	0.6
North Cork	23	1,400	22	1,144	1	47	46	2,591	56.3	0.7
Newmarket	15	744	25	1,179	2	117	42	2,040	48.6	0.5
Boherbue	11	520	10	529	0	0	21	1,049	50.0	0.3
All Societies Total 1999	4,169	239,976	2,268	121,405	609	31,579	7,046	392,960	55.8	100.0

source: Irish Dairy Records Co-op 1999

* See Appendix for location of recording centres

There are presently 14 organisations offering a milk recording service in Ireland (Table 3.2). The largest of these organisations in 1999 (in terms of total cows milk recorded), was Progressive Genetics accounting for over 31% (122,817 cows) of all cows milk recorded. This was followed by Dairygold (25.1%), South Western Services (13.0%) and Kerry Co-op (12.4%). Together, these four organisations account for some 80% of the total cows and herds milk recorded in this country.

The most popular form of milk recording in 1999, was once again A4 (monthly intervals), with almost 60% of herds participating in this type of recording method (Table 3.2).

(ii) Analysis of individual cow performance data

- *Total solids production (fat + protein yield) increased by 17.9 kg (up 4.6%)*
- *Continued improvement in protein percent*
- *Movement towards later calving in dairy herds*

Total solids production (fat + protein yield) increased by 4.6% in 1999, from 367.1 kg in 1998, to 385 kg in 1999 (Table 3.3). This was due mainly to the increase in overall milk production (up 241 kg compared to 1998), but was also caused by the continued improvement in protein content (up from 3.29% in 1998 to 3.31% in 1999). There was no change in the butterfat content of milk delivered from recorded cows in 1999 compared to 1998 (static at 3.67%).

Table 3.3 Average Production of all milk recorded cows 1990-99

	Records	Days	Milk kg	Fat kg	Fat %	Ptn kg	Ptn %
1990	107,854	275	5406	191.6	3.54	173.8	3.21
1991	101868	277	5429	194.7	3.59	176	3.24
1992	119709	281	5484	198.1	3.61	179	3.26
1993	177,605	277	5363	190.8	3.56	175.9	3.28
1994	248638	272	5263	187.3	3.56	172.5	3.28
1995	330544	266	5259	187.2	3.56	170.6	3.24
1996	355105	262	5215	186.6	3.59	169.5	3.26
1997	346,560	266	5302	190.8	3.61	173	3.27
1998	369,919	267	5293	193.3	3.67	173.8	3.29
1999	363871	272	5534	202.3	3.67	182.7	3.31

source: Irish Dairy Records Co-op 1999

One of the contributing factors to the increased level of solids production, may have been in the longer length of lactation in 1999, compared to in previous years (Table 3.3). Analysis of data (including shorter lactations) indicates that lactation length accounts for some 25% of the increase in production, the remainder coming from improvements in breeding and management.

Fig 3.1 Trends in average fat yield and protein yield 1990-99

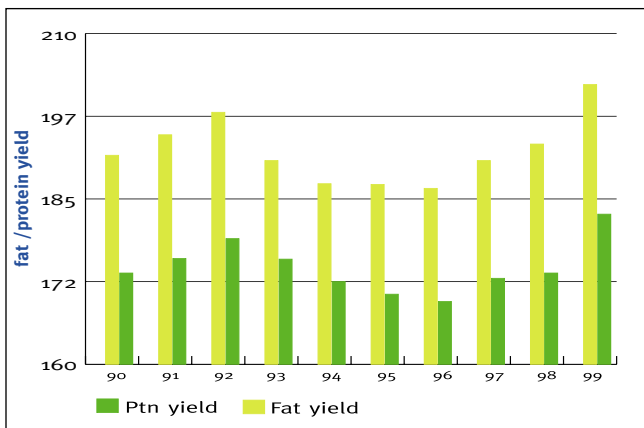


Fig 3.2 Trends in average fat % and protein % 1990-99

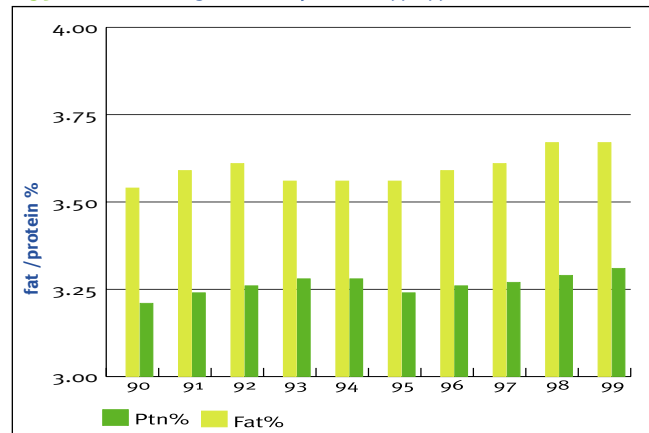


Table 3.4 Average yield by breed and status (1999)

BREED	Records	Days in	No Tests	Milk Kg	Fat Kg	Fat %	Protein	Protein %
H Friesian - Ped	83306	282	8.4	6272	231.9	3.71	206.1	3.29
H Friesian - NP	276827	270	7.1	5321	193.7	3.65	175.9	3.31
Shorthorn - Ped	274	273	7.8	5084	181.1	3.57	168.9	3.33
Shorthorn - NP	173	277	8.0	5225	178.0	3.41	173.7	3.32
Jersey - Ped	295	280	8.7	4012	218.2	5.40	160.7	4.01
Jersey - NP	98	255	6.5	3547	169.0	4.84	132.2	3.76
Ayrshire - Ped	153	280	8.9	5508	213.4	3.88	181.7	3.31
Ayrshire - NP	78	281	7.4	4691	181.2	3.89	155.5	3.32
MRI - Ped	208	274	8.1	4961	186.9	3.76	174.2	3.51
MRI - NP	1018	267	6.5	4925	179.6	3.65	167.6	3.41
Kerry	37	236	7.2	2753	105.1	3.77	88.6	3.21
Montbelliarde - Ped	463	283	8.6	5310	194.6	3.65	181.6	3.42
Montbelliarde - NP	143	260	6.5	4359	160.1	3.67	146.0	3.34
Simmental	528	266	6.9	4908	176.9	3.62	166.2	3.39
Other	270	266	7.2	4862	186.6	3.87	165.8	3.43
OVERALL	363871	272	7.4	5534	202.3	3.67	182.7	3.31

source: Irish Dairy Records Co-op 1999



Section 3 Milk Recording Statistics

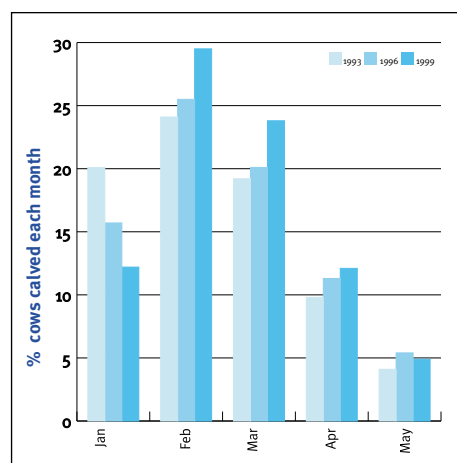
Holstein Friesian is the largest breed of cow participating in milk recording, accounting for 99% of all cows milk recorded (Table 3.4). About 22% of these are registered with the Holstein UK and Ireland herdbook (through Irish Holstein Friesian Federation).

Table 3.5 Average yield by Month of Calving (1999)

Month of calving	Records	Days	Milk kg	Fat kg	Fat %	Protein kg	Protein %
January	44494	290	5969	218.0	3.66	197.5	3.31
February	107290	279	5626	205.6	3.67	187.3	3.33
March	86694	263	5257	191.3	3.65	174.3	3.32
April	43984	249	4933	178.9	3.64	162.1	3.29
May	17815	238	4647	168.2	3.62	150.9	3.25
June	5579	239	4578	166.8	3.64	147.5	3.23
July	2290	265	5159	190.7	3.70	166.8	3.24
August	3268	291	6007	222.4	3.71	197.3	3.29
September	10140	296	6308	236.5	3.76	207.5	3.30
October	15996	294	6386	239.0	3.75	208.8	3.28
November	14260	291	6347	234.5	3.71	206.4	3.26
December	12271	291	6223	227.3	3.66	202.9	3.27

source: Irish Dairy Records Co-op 1999

Fig 3.3 Trend in cows calved each month (1993,96,99)



Analysis of data based on month of calving (Table 3.5) indicates that over 77% of cows in milk recorded herds calved down in the months of January-April. Highest yields (in terms of total solids production) was achieved by cows calving in the month of October. As with data from previous years, the movement towards later calving was evident during 1999 (Figure 3.3), with an increasing number of cows calving in the months of March/April, compared to January/February a number of years ago.

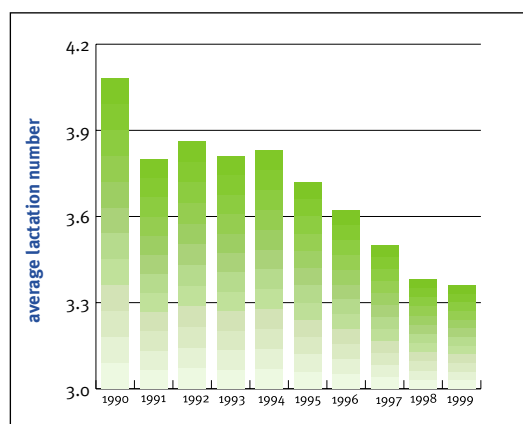
Table 3.6 Average yield by Lactation Number (1999)

Lactation	Records	Days in Milk	Milk kg	Fat kg	Fat %	Protein kg	Protein %
1	86279	273	4888	182.7	161.0	3.75	3.30
2	76753	275	5587	204.8	185.7	3.68	3.33
3	58711	273	5853	213.9	194.1	3.66	3.32
4	46475	273	5936	216.6	196.4	3.65	3.32
5	33660	272	5901	214.2	194.6	3.63	3.30
6	23299	271	5785	208.5	189.7	3.61	3.28
7	16529	269	5631	201.3	184.3	3.58	3.28
8	10130	266	5463	193.7	177.7	3.55	3.26
9	6007	264	5272	185.7	171.6	3.52	3.26
10	3150	261	5101	178.4	165.4	3.50	3.24
11	1575	259	4956	172.3	160.2	3.48	3.23
12	761	255	4846	168.4	156.7	3.48	3.23
12+	545	260	4797	166.8	155.4	3.47	3.23

source: Irish Dairy Records Co-op 1999

Analysis of the data by lactation number, indicates that over 60% of all lactations completed in Ireland in 1999, were from animals in lactations 1, 2 or 3 (Table 3.6). The highest level of production (in terms of total solids) was achieved by animals in their fourth lactation.

Fig 3.4 Trend in average lactation number of cows in recorded herds 1990-99



As in previous years, the average lactation number of animals in milk recorded dairy herds has continued to decline (3.37 lactations/animal in 1999 compared to over 4 lactations per animal a number of years ago). Recent results from the Moorpark Dairy Research Institute, would suggest that the reason for this decline is not voluntary culling on the farmers behalf, but rather due to involuntary culling as a consequence of health and fertility problems. Redressing this decline in average lactation number is one of the key objectives of the ICBF animal evaluation unit over the next few years.

(i) Trends in first insemination AI usage

- 4.5% decline in total first inseminations
- Beef inseminations down by 9%
- Shift towards certain beef breeds
- Marginal increase in dairy inseminations

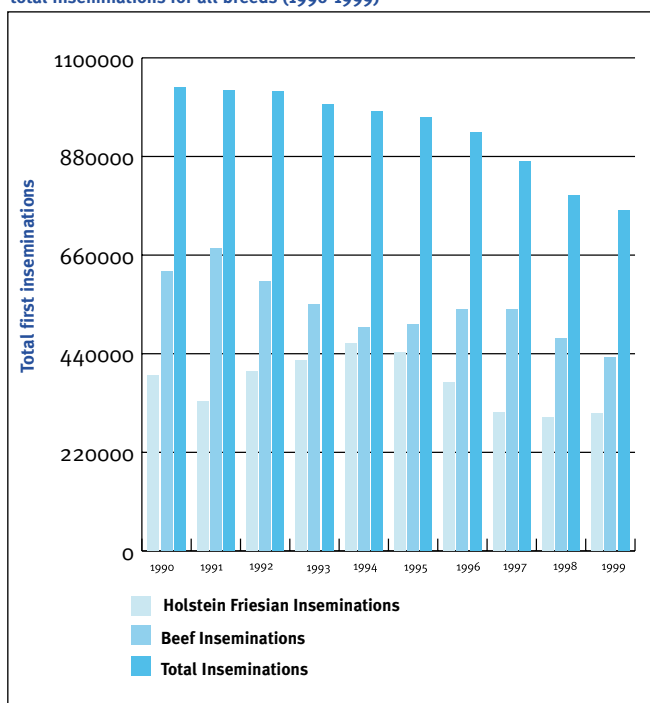
Total first inseminations declined by some 4.5% (down 35,662) in 1999 compared to 1998. The decline was restricted to the beef sector, where inseminations decreased by 8.9%, compared to 1998. There was a marginal increase in dairy inseminations in 1999 (up 2.7%) compared to 1998 (Table 4.1).

Table 4.1 Number of Holstein Friesian inseminations, beef inseminations and total inseminations for all breeds (1990-1999)

Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Total Holstein Friesian Inseminations	391,068	332,947	400,183	424,658	463,861	442,751	375,356	308,126	298,669	306,862
Total Beef Inseminations	623,606	673,951	601,403	550,421	498,484	505,631	538,209	538,650	474,578	432,171
Total Inseminations*	1,033,551	1,027,884	1,025,462	994,921	981,038	967,474	933,773	868,400	794,116	758,454

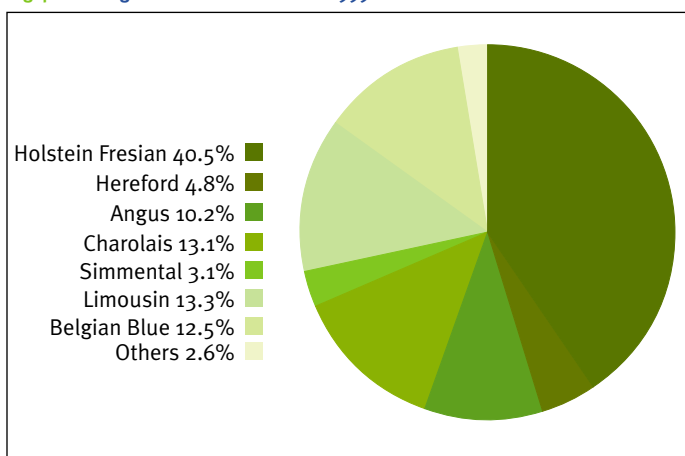
source: Department of Agriculture, Food & Rural Development 1999
* Includes inseminations for dairy, beef and dual purpose breeds

Fig 4.1 Trends in total Holstein Friesian inseminations, beef inseminations and total inseminations for all breeds (1990-1999)



The decline in total first inseminations is consistent with recent trends in these data. For example, total inseminations have declined from 1,033,551 in 1990 to 758,454 in 1999, a drop of some 275,000 inseminations over the ten year period. The decline has been most dramatic in beef inseminations, which account for some 70% of the overall drop in first inseminations (Figure 4.1). Of particular note is the very recent drop in total beef inseminations (down some 100,000 over the last 2 years), which given the recent emphasis on breeding better quality beef cattle, is of particular concern.

Fig 4.2 AI Usage for a number of breeds 1999



The most popular breed of sire, in terms of AI usage, in 1999, was the Holstein Friesian, accounting for 40.5 % of total first inseminations last year (Figure 4.2). The next most popular breed in terms of AI usage was the Limousin (13.3% of all first inseminations), followed by Charolais (13.1%), Belgian Blue (12.5%) and Angus (10.2%).

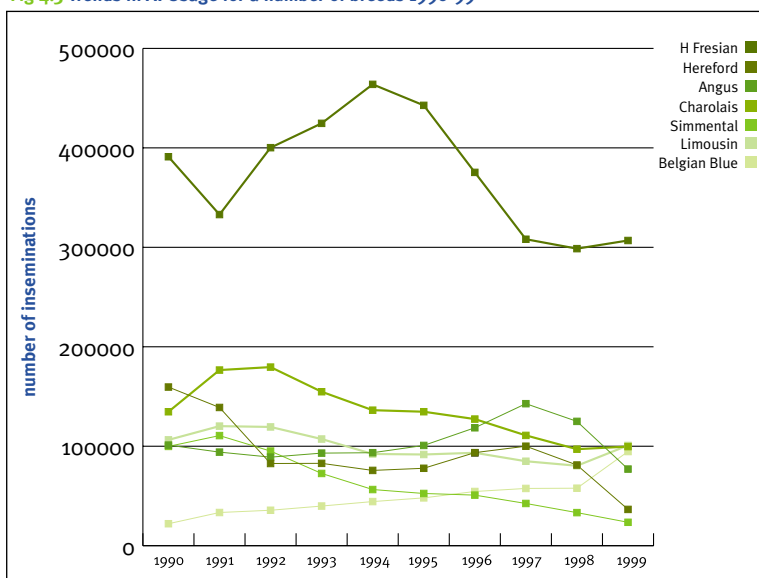
Table 4.2 Artificial Inseminations by breed (1990-1999)

Breed of AI Sire	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Holstein Friesian	391,068	332,947	400,183	424,658	463,861	442,751	375,356	308,126	298,669	306,862
% of total overall	37.8%	32.4%	39.0%	42.7%	47.3%	45.8%	40.2%	35.5%	37.6%	40.5%
Hereford	159,518	138,989	82,640	82,797	75,694	77,836	93,561	100,030	81,114	36,488
% of total overall	15.4%	13.5%	8.1%	8.3%	7.7%	8.0%	10.0%	11.5%	10.2%	4.8%
Angus	101,136	94,087	89,035	93,082	93,498	100,806	118,563	142,784	124,998	77,032
% of total overall	9.8%	9.2%	8.7%	9.4%	9.5%	10.4%	12.7%	16.4%	15.7%	10.2%
Charolais	134,664	176,592	179,570	154,796	136,245	134,701	127,308	110,901	97,039	99,648
% of total overall	13.0%	17.2%	17.5%	15.6%	13.9%	13.9%	13.6%	12.8%	12.2%	13.1%
Simmental	99,823	110,701	95,125	72,645	56,464	52,505	50,853	42,454	33,254	23,533
% of total overall	9.7%	10.8%	9.3%	7.3%	5.8%	5.4%	5.4%	4.9%	4.2%	3.1%
Limousin	106,381	120,216	119,395	107,237	92,222	91,697	93,419	84,920	80,377	100,804
% of total overall	10.3%	11.7%	11.6%	10.8%	9.4%	9.5%	10.0%	9.8%	10.1%	13.3%
Belgian Blue	22,084	33,366	35,638	39,864	44,357	48,086	54,505	57,561	57,796	94,666
% of total overall	2.1%	3.2%	3.5%	4.0%	4.5%	5.0%	5.8%	6.6%	7.3%	12.5%
Others	18,877	20,986	23,876	19,842	18,693	19,092	20,208	21,624	20,869	19,421
% of total overall	1.8%	2.0%	2.3%	2.0%	1.9%	2.0%	2.2%	2.5%	2.6%	2.6%
Total AI	1,033,551	1,027,884	1,025,462	994,921	981,038	967,474	933,773	868,400	794,116	758,454

source: Department of Agriculture, Food & Rural Development 1999

AI trends for the Holstein Friesian breed over the last number of years (Fig 4.3), indicate a substantial decline in the usage of Holstein Friesian AI sires during the period 1995-1998 (down some 144,000 inseminations during the 4 year period). The decline in Holstein Friesian inseminations is consistent with trends from National cattle breeding statistics (Section 1), which had indicated a shortfall of dairy female replacements over the next few years. Whilst the increased usage of Holstein Friesian sires in 1999 is a welcome turnaround to recent trends, it is unlikely to cause any substantial increase in the number of dairy female replacements available for breeding in 2002 (the increase in total Holstein Friesian inseminations in 1999 was only 2.7%).

Fig 4.3 Trends in AI Usage for a number of breeds 1990-99



Whilst there has been a recent decline in the overall number of beef inseminations (Table 4.1), this trend has not been consistent for all beef breeds (Table 4.2 and Fig 4.3). For example, first insemination usage of sires from the Belgian Blue breed increased dramatically during 1999, from 57,796 in 1998 to 94,666 in 1999 (up 64%). Similar positive trends have been reported for sires from the Limousin (up 25%) and Charolais breeds (up 3%). In contrast, the usage of sires from the Hereford, Angus and Simmental breeds dropped considerably last year, down 55%, 38% and 29% respectively, compared to 1998.

(ii) Analysis of 99 data

- *Highly seasonal aspect to AI usage*
- *Less than 40% of breeding females bred to AI*

As with information from calf registration and milk recording, the seasonality of production systems in Ireland is very much evident from analysis of AI data, with over two thirds (66.7%) of all inseminations in 1999, taking place in the months of April, May and June (Table 4.3). The seasonality of AI usage was especially apparent for Holstein Friesian inseminations, with almost 80% of total dairy inseminations taking place in the months of April, May and June.



Table 4.3 Seasonality of AI usage 1999

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Holstein Friesian	9019	6846	12305	82174	125501	37578	13257	4997	1937	1054	3009	8762
% of total	2.90%	2.20%	4.00%	26.80%	40.90%	12.20%	4.30%	1.60%	0.60%	0.30%	1.00%	2.90%
Beef	9785	10184	16306	43997	103830	113308	78354	37418	15024	7309	6837	9091
% of total	2.20%	2.30%	3.60%	9.70%	23.00%	25.10%	17.40%	8.30%	3.30%	1.60%	1.50%	2.00%
Overall	18804	17030	28611	126171	229331	150886	91611	42415	16961	8363	9846	17853
% of overall total	2.5%	2.2%	3.8%	16.6%	30.2%	19.9%	12.1%	5.6%	2.2%	1.1%	1.3%	2.4%

source: Department of Agriculture, Food & Rural Development 1999

Eight organisations were licensed by the Department of Agriculture, Food & Rural Development, to offer an Artificial Insemination service in 1999 (Table 4.4). The largest of these organisations (in terms of total first inseminations) was Dairygold Co-op with 21.5% of the total first inseminations in 1999. This was followed by North Western Cattle Breeding Society (15.5%), Progressive Genetics Co-op (15.4%) and South Eastern Cattle Breeding Society (12.9%).

Table 4.4 Artificial Inseminations by breed for each AI organisation (1999)

AI Organisations	Holstein Friesian	Hereford	Angus	Charolais	Simmental	Limousin	Belgian Blue	Others	Total	% of total for AI stations
South Western Services Co-op	36614	2852	6989	3108	1657	4505	9034	1510	66269	8.7%
% of total for AI station	55.3%	4.3%	10.5%	4.7%	2.5%	6.8%	13.6%	2.3%		
Kerry Co-op	30724	3489	5263	4255	1514	6256	8913	2034	62448	8.2%
% of total for AI station	49.2%	5.6%	8.4%	6.8%	2.4%	10.0%	14.3%	3.3%		
Goldenvale Plc	14375	4014	4483	10091	1515	17369	7400	2011	61258	8.1%
% of total for AI station	23.5%	6.6%	7.3%	16.5%	2.5%	28.4%	12.1%	3.3%		
Progressive Genetics	49042	5607	10428	11687	3366	12730	21476	2318	116654	15.4%
% of total for AI station	42.0%	4.8%	8.9%	10.0%	2.9%	10.9%	18.4%	2.0%		
North Eastern Cattle Breeding Society	20714	3415	6219	13568	2491	12021	13186	1502	73116	9.6%
% of total for AI station	28.3%	4.7%	8.5%	18.6%	3.4%	16.4%	18.0%	2.1%		
South Eastern Cattle Breeding Society	45763	7792	9362	10340	4542	13019	5278	2072	98168	12.9%
% of total for AI station	46.6%	7.9%	9.5%	10.5%	4.6%	13.3%	5.4%	2.1%		
Dairygold Co-op	96617	7617	15585	5444	2869	12499	18046	4236	162913	21.5%
% of total for AI station	59.3%	4.7%	9.6%	3.3%	1.8%	7.7%	11.1%	2.6%		
North Western Cattle Breeding Society	13013	1702	18703	41155	5579	22405	11333	3738	117628	15.5%
% of total for AI station	11.1%	1.4%	15.9%	35.0%	4.7%	19.0%	9.6%	3.2%		
Total 1999	306862	36488	77032	99648	23533	100804	94666	19421	758454	
% of total for all AI stations	40.5%	4.8%	10.2%	13.1%	3.1%	13.3%	12.5%	2.6%		

source: Department of Agriculture, Food & Rural Development 1999

Table 4.5 DIY AI licenses (1991-1999)*

	New licenses	Renewed licenses	Total
1991	237	265	502
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	451	688

source: Department of Agriculture, Food & Rural Development 1999

* AI licenses are valid for three years from the date of issue

In addition to inseminations through AI organisations, some 2,500 cattle farmers are presently approved by DAFRD to carry out DIY AI on-farms (Table 4.5). The average herd size of licensed owners is 90, indicating that some 225,000 breeding females are presently covered by DIY AI. Assuming that all cows in DIY AI licensed herds are artificially bred, this figure suggests that the total number of first inseminations in Ireland last year was close to 1 million. Relating this figure to overall breeding female numbers in Ireland (2.7 million in 1999 – Table 1.1) indicates that the proportion of total breeding females being bred to AI (through the AI insemination organisations and DIY AI) is about 37%. It should be noted that, this figure (AI penetration rate), is much lower than in many other major cattle breeding countries, where the proportion of breeding females being bred to AI is often in excess of 60%.



Introduction

ICBF's mission statement is focused on delivering genetic improvement in our National dairy and beef herds. Much of this improvement will come through the activities of the ICBF animal evaluation unit, which is responsible for the testing, genetic evaluation and publication of results from the National dairy and beef breeding programmes. Details on the operational aspects of these programmes are given on our website (<http://www.icbf.com>). The following are some results from each of these programmes.

(i) Dairy Cattle

- Continued improvement in average RBI value of National dairy herd
- Continued improvement in genetic merit for yield traits
- Large differences in production performance between animals ranked on RBI value

Fig 5.1 Genetic trend of progeny test bulls and cows by year of birth for RBI 00



There has been a general increase in average RBIOO of progeny tested bulls over the last 10 years (of bull births), from about 97, for bulls born in 1986 to about 105 for bulls born in 1995 (Figure 5.1). This represents an annual increase in RBI value of approximately 0.80 RBIOO units/year. Similar results are evident from our National dairy cow population, with the average RBIOO of cows increasing from about 96, for cows born in 1988 to about 103 for cows born in 1997, representing an annual increase in RBIOO value of about 0.75 units/year.

Fig 5.2 Genetic trend of cows by year of birth for milk, fat and protein yield

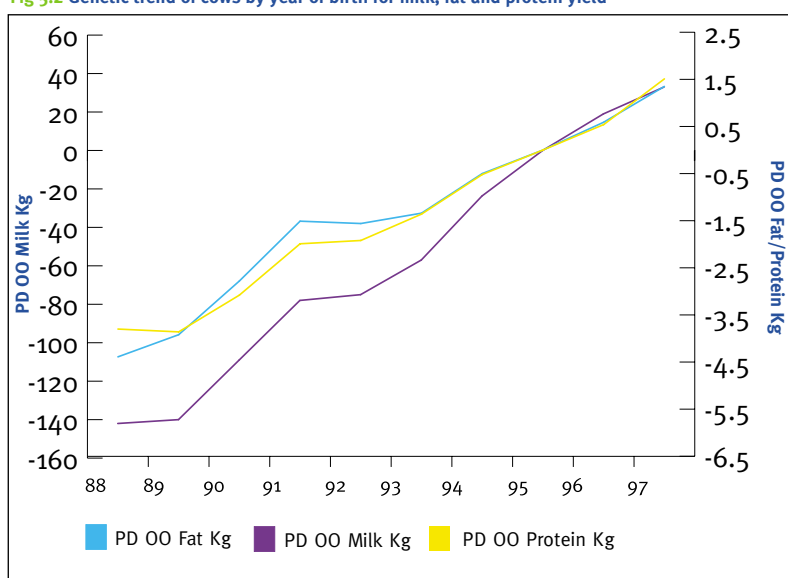
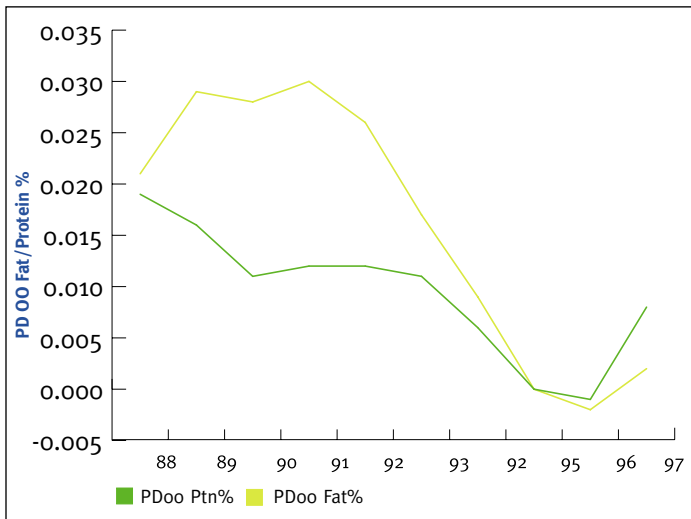


Table 5.1 Average genetic merit of cows by year of birth for milk, fat and protein yield

	PD00 Milk	PD00 fat	PD00 Prot
88	-142	-4.39	-3.8
89	-140	-3.92	-3.86
90	-109	-2.78	-3.08
91	-78	-1.51	-1.99
92	-75	-1.56	-1.92
93	-57	-1.34	-1.36
94	-23.7	-0.5	-0.52
95	0	0	0
96	19	0.59	0.54
97	33	1.35	1.51

source: ICBF Animal evaluation unit 2000

Trends for individual production traits (Table 5.1 and Figure 5.2), indicate a positive genetic trend for the each of the yield traits, with yields of milk, fat and protein improving at an annual rate of some 17.5 kg, 0.6 kg and 0.5 kg respectively. Trends for fat% and protein% (Table 5.2 and Figure 5.3) indicate a general decline in genetic merit for component traits over the 10 year period (1988-1997), although data from more recent years suggests a slight genetic improvement in these traits (based on cows born in 1997).

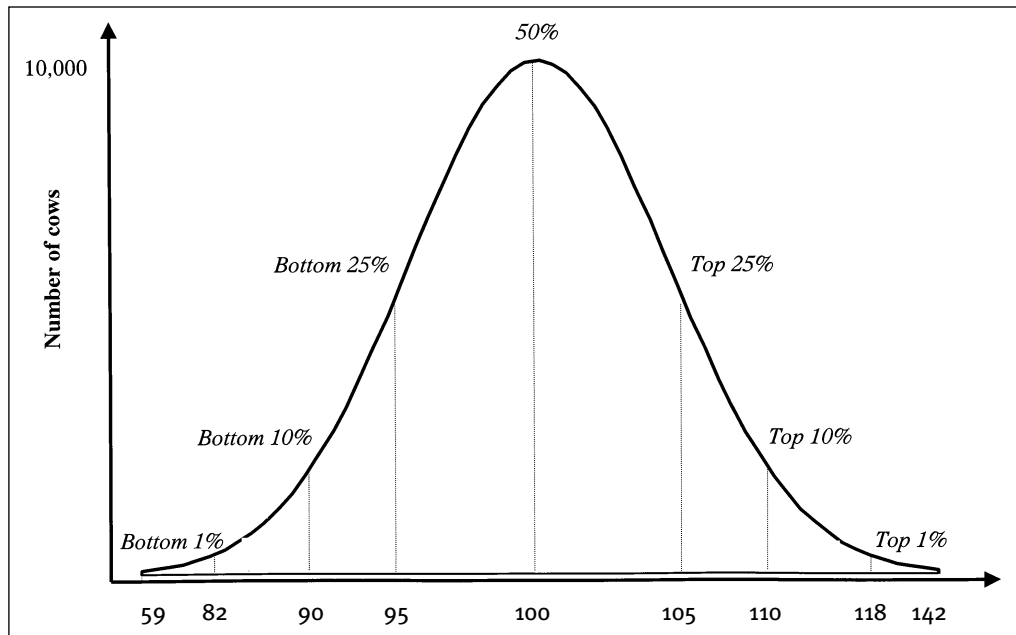
**Fig 5.3** Genetic trend of cows by year of birth for fat and protein content**Table 5.2** Average genetic merit of cows by year of birth for fat% and protein %

	PD00 Fat%	PD00 Prot%
88	0.021	0.019
89	0.029	0.016
90	0.028	0.011
91	0.03	0.012
92	0.026	0.012
93	0.017	0.011
94	0.009	0.006
95	0	0
96	-0.002	-0.001
97	0.002	0.008

source: ICBF Animal evaluation unit 2000

Fig 5.4 Distribution of cow RBI OO's for cows milk recorded in 1999

The average RBIOO of all cows from the last genetic evaluation run (May 2000) was about 100 (Figure 5.4). In total 273,173 cows received evaluations during the last evaluation run. Cow RBIOO's ranged from 59 to 142, with the top 1%, 10% and 25% of cows having a minimum RBIOO of 118, 110 and 105 respectively. Overall, the top 50 cows had a minimum RBIOO of 130, while the top 500 and 1000 cows had minimum RBIOO's of 124 and 122 respectively

**Table 5.3** Performance of heifers ranked on RBIOO value

Rank	RBI '00	Milk	Fat	Ptn	Fat%	Ptn%
Top 1%	118	5,900	241	206	4.08	3.49
Top 10%	111	5,731	225	199	3.93	3.40
Average	100	5,363	203	177	3.79	3.30
Btm 10%	89	4,854	181	155	3.65	3.20
Btm 1%	80	4,793	169	150	3.53	3.13

source: ICBF Animal evaluation unit 2000

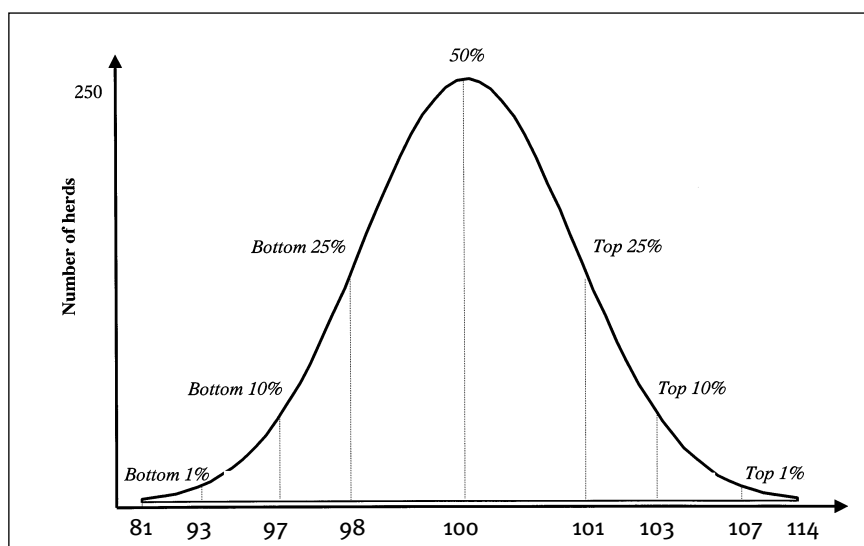
The average performance of heifers ranked on RBI value, indicates substantial differences in the production performance of animals based on RBI value (Table 5.3). For example, heifers ranked in the top 1% of the National dairy herd on RBI value, produced some 72 kg more fat (an increase of 42%) and 56 kg more protein (an increase of 37%), than cows ranked in the bottom 1% on RBI value.



Section 5 Animal Evaluation Statistics

The average RBIOO value of herds from the last genetic evaluation run (6,648 herds received evaluations), was 100, with values ranging from a minimum of 81 up to a maximum 114 (Figure 5.5). Herds in the top 1% had an average RBI value of 107 or greater, while herds in the top 10% had an average RBI of 103 or greater. Herds in the bottom 10% and 1% had average RBI'oo values of less than 97 and 93 units respectively.

Fig 5.5 Distribution of herd RBIOO's for cows milk recorded in 1999



Beef Cattle

• Sustained improvement in muscle EBV within the Limousin and Charolais breeds

As outlined in section 2 of this report, there are 4 breed associations presently operating on-farm linear assessment schemes, the Limousin, Charolais, Belgian Blue and Simmental breeds. Only the Limousin and Charolais breeds have sufficient information for publication of results at this stage.

Table 5.4 Genetic trend of Limousin bulls, by year of birth for Muscle EBV

Year of birth	Muscle EBV
1990	97.2
1991	97.5
1992	99.1
1993	100.2
1994	100.7
1995	102.4
1996	103.7
1997	103.8
1998	105.2
1999	107.0

source: ICBF Animal evaluation unit 2000

Fig 5.6 Genetic trend of Limousin bulls, by year of birth for Muscle EBV

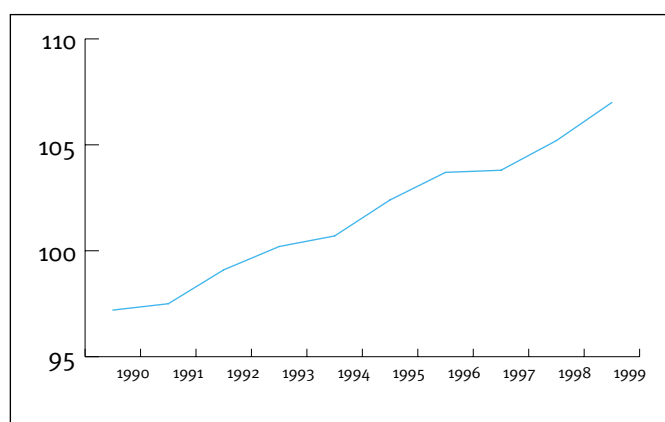


Fig 5.7 Genetic trend of Charolais bulls, by year of birth for Muscle EBV

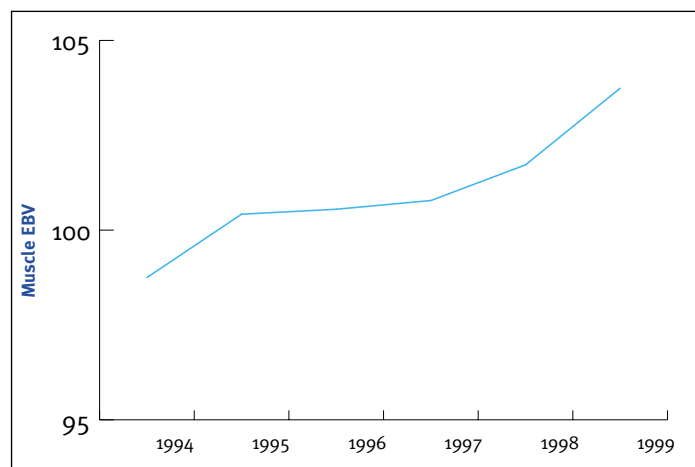


Table 5.5 Genetic trend of Charolais bulls, by year of birth for Muscle EBV

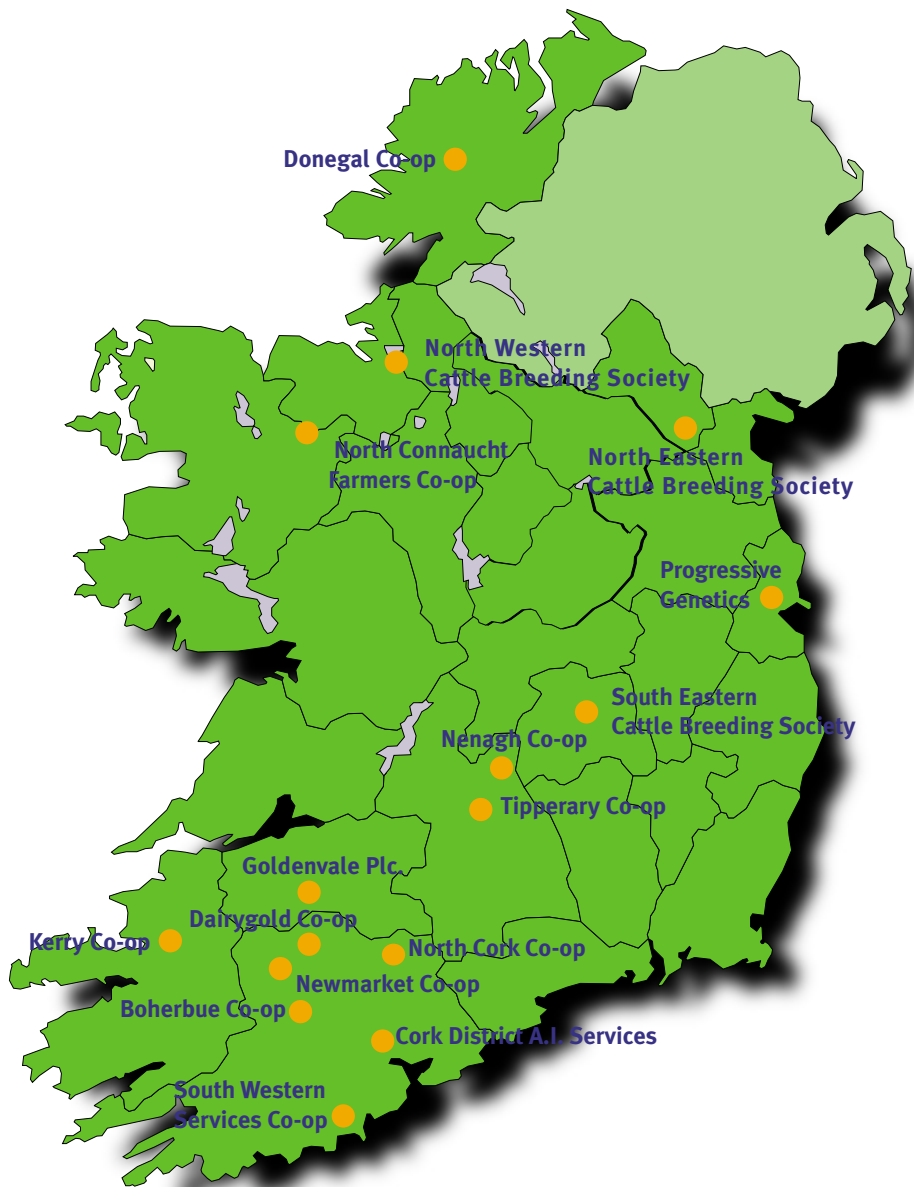
Year of birth	Muscle EBV
1994	98.75
1995	100.42
1996	100.55
1997	100.78
1998	101.72
1999	103.74

source: ICBF Animal evaluation unit 2000

and Figure 5.6). The level of improvement has been such that bulls born last year, were, on average, placed within the top 25% of all animals within the breed. Similar trends have been reported for animals in the Charolais breed, with EBV for muscle increasing by some 0.85 units/annum (Table 5.5 and Figure 5.7).

Trends from each of these schemes (Tables 5.4 and 5.5 and Figures 5.6 and 5.7) indicate considerable

genetic improvement for muscle EBV within both breeds. For example, within the Limousin breed, muscle EBV has increased from 97.2 for bulls born in 1990 to 107.0 for bulls born in 1999, an increase of about 1 unit per year over the last 10 years (Table 5.4



• **AI & Milk recording centre**

- Dairygold Co-op
- Goldenvale plc
- Kerry Co-op
- North Eastern Cattle Breeding Society
- Progressive Genetics
- South Western Services Co-op Society Ltd.

• **Milk recording centre (only)**

- Boherbue Co-op
- Cork District AI services
- Donegal Co-op
- Nenagh Co-op
- Newmarket Co-op
- North Connacht Farmers Co-op Ltd
- North Cork Co-op
- Tipperary Co-op

• **AI centre (only)**

- South Eastern Cattle Breeding Society Ltd
- North Western Cattle Breeding Society

