# Irish Cattle Breeding Federation

## Irish Cattle Breeding Statistics 2000

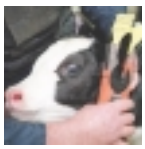
Irish Cattle Breeding Federation Society Limited
Shinagh House, Bandon, Co. Cork, Ireland
Tel: + 353 (0) 23 20222, Fax: + 353 (0) 23 20229
Email: enquiry@icbf.com Website: http://www.icbf.com



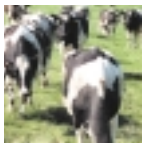








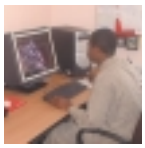














**Reference Information**

**Title:** Irish Cattle Breeding Statistics 2000

**ISSN:** 1649-0991

**Date of publication:** 1st June 2001

**Editor:** Andrew Cromie

**Printed by:** Print Run Limited, Unit G2, Grand Canal Place, Dublin 8.

Accurate and factual information is essential if ICBF is to achieve its mission of achieving the greatest possible genetic improvement in the national cattle herd for the benefit of Irish Farmers, the Dairy and Beef industries and Members.

Cattle breeding is a complex business that uses ancestry and performance data collected mainly by farmers as the basis for genetic evaluations that are then used in guiding selection decisions. The success of cattle breeding must ultimately be measured in terms of its contribution to the profitability of cattle farming in Ireland. In this report we have attempted to provide a clear and factual picture of cattle breeding in Ireland. The report deals with population statistics, breed utilisation, the collection of beef and dairy performance data and finally genetic trends. Genetic progress in the Irish cattle population is being made and this is amply demonstrated by the results in this report. With the long time periods involved in cattle breeding the progress we observe today is the consequence of decisions made 3 to 10 years ago. The statistics contained in this report are provided in order that the cattle breeding industry can make better decisions and thus bring about future genetic progress.

This second publication of statistics is an update and enhancement of the information provided in the first publication which was for the 1999 year. As with the first publication we wish to acknowledge the contributions made by:

- Department of Agriculture, Food & Rural Development
- South Western Services Co-op
- Irish Dairy Records Co-op
- Herd Book Association
- Bord Bia
- Irish Farmers Journal

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 is this report is complete and accurate, 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.

Brian Wickham
Chief Executive

L-R: Dr. Brian Wickham, ICBF, Mr. John Malone, Secretary General Department of Agriculture, Mr Donald & Mrs Marie Hill (Overall Holstein Friesian Herd award winners), Mr. Mike Shine, Bank of Ireland (Sponsor).

L-R: Dr. Brian Wickham, ICBF, Mr. John Malone, Secretary General Department of Agriculture, Mr John & Mrs Renate Regan (Overall Charolais Herd award winners), Mr. Michael Madden, Bank of Ireland (Sponsor).

L-R: Dr. Brian Wickham, ICBF, Mr. John Malone, Secretary General Department of Agriculture, Mr Timothy & Dr Doreen Corridon (Overall Limousin Herd award winners), Mr. Mike Shine, Bank of Ireland (Sponsor).

L-R: Dr. Brian Wickham, ICBF, Mr. Donal Murphy, ICMSA, (Special Award winner) Mr. John Malone, Secretary General Department of Agriculture, Mr. Michael Berkery, IFA (Special Award winner), Dr. Sean Crowley, South Western Services Co-op, (Special Award winner).

L-R: Dr. Brian Wickham, ICBF, Mr. John Malone, Secretary General Department of Agriculture, Mr Donal & Mrs Kathleen Kenny (Special Award winner), Mr. Maurice Keane, Bank of Ireland (Sponsor)

## (i) Cattle population statistics

- *1.1% drop in overall breeding females.*
- *2.0% drop in dairy breeding females*
- *5% increase in stock bulls*

The size of the National cattle breeding herd (in-calf heifers and cows) dropped slightly in 2000, compared to 1999 (2.70 million in 1999 compared to 2.67 million in 2000). However, the drop was restricted to the dairy sector, which fell from about 1.47 million to 1.44 million over the two-year period, a drop in size of some 2% in overall terms (Table 1.1 and Figure 1.1). The drop in dairy cattle numbers is consistent with recent trends in this sector, which indicate a steady decline in the size of the National dairy herd, from a high of 1.51 million in 1996 to about 1.44 million in 2000. This fall in the size of the National dairy herd is due principally to a marked reduction in number of dairy female replacements, which have declined by almost 20% over the past 5 years, from 240,300 in 1996 to 198,400 in 2000. In contrast to the dairy sector, the slight increase in the size of the National beef herd can be accounted for by the substantial increase in the number of replacement females coming into the suckler beef herd (up 12.1% from 100,400 in 1999 to 112,600 in 2000). The increase in number of stock bulls (amalgamated across sectors) is also of note, having increased from 38,200 in 1999 to 40,100 in 2000 (up around 5%)

*Fig 1.1* **Trends in number of breeding females (1991-2000)**

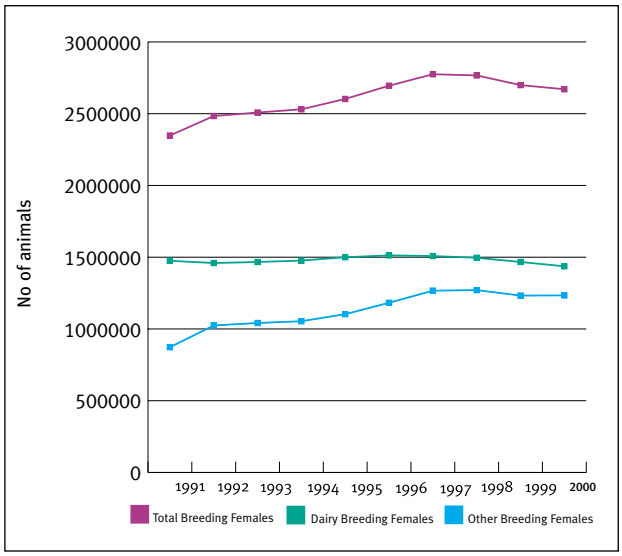



*Table 1.1* **Cattle Population Figures (1991-2000)**

| | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
|---|---|---|---|---|---|---|---|---|---|---|
| Dairy Cows | 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 | 1,238,300 |
| Other Cows* | 782,600 | 911,800 | 928,300 | 956,700 | 988,700 | 1,062,500 | 1,137,300 | 1,165,000 | 1,132,300 | 1,121,100 |
| In calf Dairy Heifers | 181,900 | 197,900 | 192,500 | 207,400 | 232,600 | 240,300 | 239,800 | 219,500 | 205,800 | 198,400 |
| In calf Other Heifers | 90,300 | 112,400 | 113,200 | 97,300 | 114,200 | 119,800 | 129,500 | 105,800 | 100,400 | 112,600 |
| Total Cows | 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 | 2,359,400 |
| Total In calf Heifers | 272,200 | 310,200 | 305,700 | 304,700 | 346,900 | 360,100 | 369,300 | 325,300 | 306,200 | 311,000 |
| Total Breeding Females | 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 | 2,670,400 |
| Bulls | 29,300 | 31,100 | 32,200 | 32,700 | 34,200 | 35,900 | 37,800 | 38,500 | 38,200 | 40,100 |

source: Department of Agriculture, Food & Rural Development 2000
* Includes suckler and dual purpose animals

## (ii) Calf registration statistics

- *1.6% drop in calf registrations*
- *Trend towards later calving in the National herd*
- *Continued decline in the number of cattle breeding herds*
- *Increasing influence of certain beef breeds*

The total number of calves registered in Ireland last year was 2,172,588 (Table 1.2). This figure was slightly down on 1999 (some 36,000), which is consistent with trends from National cattle population statistics.

*Table 1.2* **National Bovine Calf Registration Figures, by month (1997-2000)**

| | 1997 | 1998 | 1999 | 2000 |
|---|---|---|---|---|
| January | 283,531 | 290,593 | 222,503 | 162,109 |
| February | 484,195 | 529,306 | 460,217 | 393,117 |
| March | 578,726 | 577,038 | 570,908 | 553,566 |
| April | 390,882 | 382,679 | 384,458 | 426,992 |
| May | 210,599 | 217,493 | 216,243 | 261,472 |
| June | 101,353 | 92,945 | 90,541 | 98,460 |
| July | 56,714 | 55,151 | 50,108 | 56,719 |
| August | 42,155 | 41,216 | 34,682 | 40,342 |
| September | 47,462 | 45,771 | 39,034 | 44,047 |
| October | 58,273 | 53,993 | 45,993 | 46,469 |
| November | 55,745 | 53,810 | 44,448 | 43,906 |
| December | 75,525 | 85,533 | 49,031 | 45,389 |
| Total | 2,385,160 | 2,425,528 | 2,208,160 | 2,172,588 |

source: Department of Agriculture, Food & Rural Development 2000



The seasonal nature of calf births was again evident in 2000, with over 75% of all calf births (about 1.64 million births in total) occurring in the months of February, March, April and May (Table 1.2). Later spring calving was also evident in 2000, with an increasing proportion of animals calving in the months of April and May than in previous years.

A total of 104,007 herds registered calves in 2000 (Table 1.3). The average number of calves registered across all herds was 21, giving an indication of the average size of the National herd. Of the 104,007 herds registering calves in 2000, some 24% were of dairy origin (25,087 herds), 68% were of beef origin (70,765) and 8% (8,155) were of mixed dairy and beef origin. Average herd size for each of these herd types was 40, 14 and 23 respectively.

*Table 1.3* **Number of cattle breeding herds in Ireland, by herd type (1997-2000)**

| Type | Herds | No. reg. | Ave/herd |
|---|---|---|---|
| Dairy | 25,087 | 1,000,414 | 39.9 |
| Beef | 70,765 | 981,561 | 13.9 |
| Mixed | 8,155 | 190,163 | 23.3 |
| Overall | 104,007 | 2,172,138 | 20.9 |

source: Department of Agriculture, Food & Rural Development 2000

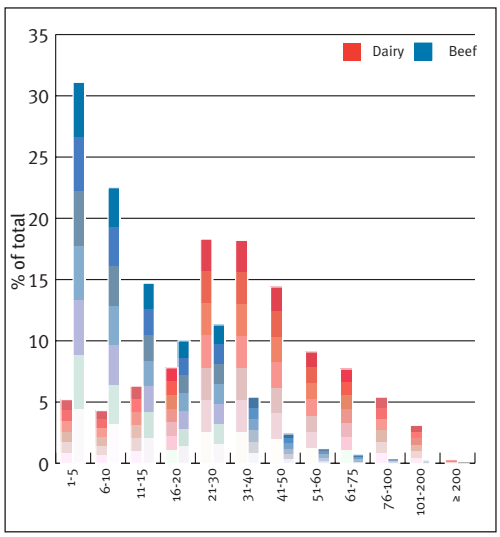
Distributions of herd size (based on calf registrations in 2000) for dairy and beef herds indicate that over half of the total beef herds are less that 10 cows and that only 10% are greater than 30 cows (Figure 1.2). However, the total number of calves registered in herds of greater than 30 cows (some 7,336 herds in total) was 334,000, indicating substantial opportunities for beef progeny testing. In contrast to the beef herd size distribution, the distribution of dairy herd size was much more normalised with over 60% of herds falling between 20 and 60 cows. Some 16.5% of herds (4,139 herds in total) were greater than 60 cows and these herds accounted for over 364,000 of the total calf registrations in dairy herds.

*Table 1.4* **Analysis of calf births, by region, by county and by herd type (2000)**

| COUNTY | Births | % of births | Herds | % of Herds | Avg size | Dairy | Beef | Mixed |
|---|---|---|---|---|---|---|---|---|
| **CONNACHT/ULSTER** | | | | | | | | |
| CAVAN | 83,957 | 3.9 | 4,606 | 4.4 | 18.2 | 1,003 | 3,100 | 503 |
| DONEGAL | 62,216 | 2.9 | 5,457 | 5.2 | 11.4 | 341 | 4,983 | 133 |
| GALWAY | 133,227 | 6.1 | 10,501 | 10.1 | 12.7 | 804 | 9,201 | 496 |
| LEITRIM | 35,107 | 1.6 | 3,309 | 3.2 | 10.6 | 84 | 3,147 | 78 |
| MAYO | 108,587 | 5.0 | 9,675 | 9.3 | 11.2 | 832 | 8,318 | 525 |
| MONAGHAN | 70,986 | 3.3 | 3,562 | 3.4 | 19.9 | 993 | 2,143 | 426 |
| ROSCOMMON | 63,136 | 2.9 | 4,868 | 4.7 | 13.0 | 197 | 4,484 | 187 |
| SLIGO | 46,952 | 2.2 | 3,630 | 3.5 | 12.9 | 323 | 3,073 | 234 |
| Total | 604,168 | 27.8% | 45,608 | 43.9% | 13.2 | 4,577 | 38,449 | 2,582 |
| **LEINSTER** | | | | | | | | |
| CARLOW | 25,686 | 1.2 | 1,153 | 1.1 | 22.3 | 230 | 850 | 73 |
| DUBLIN | 7,206 | 0.3 | 338 | 0.3 | 21.3 | 74 | 239 | 25 |
| KILDARE | 30,136 | 1.4 | 1,321 | 1.3 | 22.8 | 259 | 972 | 90 |
| KILKENNY | 89,493 | 4.1 | 2,810 | 2.7 | 31.8 | 1,065 | 1,404 | 341 |
| LAOIS | 60,074 | 2.8 | 2,286 | 2.2 | 26.3 | 521 | 1,521 | 244 |
| LONGFORD | 36,310 | 1.7 | 2,222 | 2.1 | 16.3 | 211 | 1,864 | 147 |
| LOUTH | 22,130 | 1.0 | 961 | 0.9 | 23.0 | 278 | 596 | 87 |
| MEATH | 75,562 | 3.5 | 2,801 | 2.7 | 27.0 | 866 | 1,689 | 246 |
| OFFALY | 50,391 | 2.3 | 2,383 | 2.3 | 21.1 | 510 | 1,649 | 224 |
| WESTMEATH | 48,190 | 2.2 | 2,333 | 2.2 | 20.7 | 358 | 1,783 | 192 |
| WEXFORD | 79,052 | 3.6 | 2,871 | 2.8 | 27.5 | 1,046 | 1,613 | 212 |
| WICKLOW | 40,488 | 1.9 | 1,570 | 1.5 | 25.8 | 328 | 1,177 | 65 |
| Total | 564,718 | 26.0% | 23,049 | 22.2% | 24.5 | 5,746 | 15,357 | 1,946 |
| **MUNSTER** | | | | | | | | |
| CLARE | 109,912 | 5.1 | 5,813 | 5.6 | 18.9 | 841 | 4,237 | 735 |
| CORK | 353,466 | 16.3 | 10,768 | 10.4 | 32.8 | 5,800 | 3,999 | 969 |
| KERRY | 149,591 | 6.9 | 6,524 | 6.3 | 22.9 | 2,514 | 3,448 | 562 |
| LIMERICK | 134,822 | 6.2 | 4,621 | 4.4 | 29.2 | 2,275 | 1,806 | 540 |
| TIPPERARY | 175,805 | 8.1 | 5,640 | 5.4 | 31.2 | 2,411 | 2,582 | 647 |
| WATERFORD | 80,106 | 3.7 | 1,984 | 1.9 | 40.4 | 923 | 887 | 174 |
| Total | 1,003,702 | 46.2% | 35,350 | 34.0% | 28.4 | 14,764 | 16,959 | 3,627 |
| Overall | 2,172,588 | | 104,007 | | 20.9 | 25,087 | 70,765 | 8,155 |

source: Department of Agriculture, Food & Rural Development 2000

*Fig 1.2* **Herd size distributions - dairy and beef herds (2000)**




Almost half of the cattle breeding herds in Ireland are based in the Connacht/Ulster region (Table 1.4). These herds are characteristically beef in origin (38,449 of the total 70,765 beef herds in Ireland are in this region) and are of smaller herd size (13 registration per herd). In contrast herds in Munster are predominantly dairying (14,764 of the total 25,087 dairy herds in Ireland are in this region) and are relatively larger in herd size (28 registrations per herd). The largest counties in Ireland, based on data from calf registrations during 2000, were Cork, Galway and Mayo, in terms of total cattle breeding herds and Cork, Tipperary and Kerry, in terms of number of calf registrations.

The decline in the overall number of cattle breeding herds continued in 2000, with 104,007 herds registering calves this year compared to 108,812 herds in 1999 (Table 1.5). This trend is consistent with trends from previous years, suggesting that the number of herds leaving cattle breeding is presently about 4,200 per year (a decline in overall terms of some 4% per year since 1997).

*Table 1.5* **Total cattle breeding herds in Ireland, by herd type (1997-2000)**

| | 1997 | 1998 | 1999 | 2000 |
|---|---|---|---|---|
| Herds | 116,498 | 114,669 | 108,812 | 104,007 |

source: Department of Agriculture, Food & Rural Development 2000

*Fig 1.3* **Analysis of calf births, by breed of sire (1997-2000)**

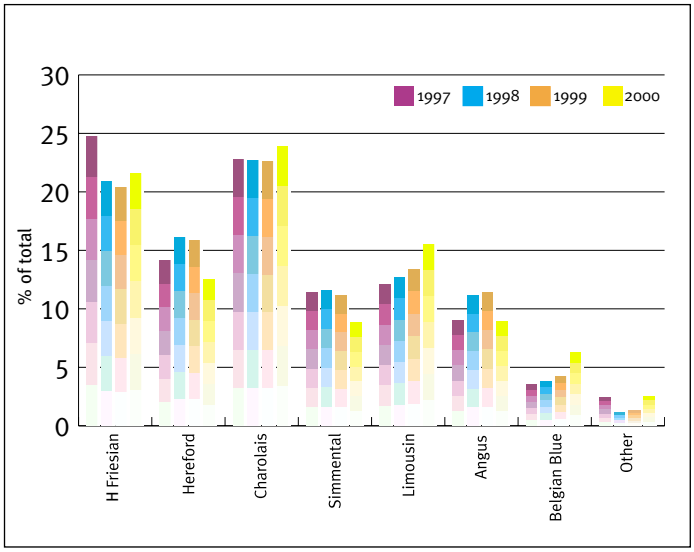



*Table 1.6* **Analysis of calf births, by breed of sire (1997-2000)**

| | 1997 | 1998 | 1999 | 2000 |
|---|---|---|---|---|
| H Friesian | 589,900 | 507,105 | 449,478 | 468,495 |
| Hereford | 337,245 | 389,564 | 348,030 | 270,942 |
| Charolais | 543,138 | 551,566 | 497,959 | 519,960 |
| Simmental | 271,621 | 281,067 | 245,732 | 190,721 |
| Limousin | 289,067 | 307,608 | 295,647 | 336,538 |
| Angus | 213,968 | 269,555 | 250,844 | 194,098 |
| Belgian Blue | 83,942 | 91,796 | 92,632 | 136,797 |
| Other | 56,279 | 27,267 | 27,844 | 55,037 |
| Total | 2,385,160 | 2,425,528 | 2,208,166 | 2,172,588 |

source: Department of Agriculture, Food & Rural Development 2000

The Charolais breed was the most common breed of sire in 2000, with 22.6% of all calves registered, being by sires from this breed (Table 1.6 and Figure 1.3). The next most popular breed, in terms of breed of sire, was the Holstein Friesian breed (21.6% of all calves registered), followed by the Limousin breed (15.5% of all calves registered), the Hereford breed (12.5% of all calves registered) and Angus breed respectively (8.9% of all calves registered).

Trends over time (Figure 1.3) underline the increasing importance of certain beef breeds within the National cattle breeding herd, with Belgian Blue, Charolais and Limousin breeds all showing steady increases in the number of calves registered by sires from these breeds. The increase in proportion of calves by Holstein Friesian sires in 2000 is also of note (up from 20.4% in 1999 to 21.6% in 2000), given the marked decline in the number of dairy herd replacements that has been apparent for the past number of years (Table 1.1 and Table 1.6).

*Fig 1.4* **Analysis of calf births, by breed of dam (1997-2000)**

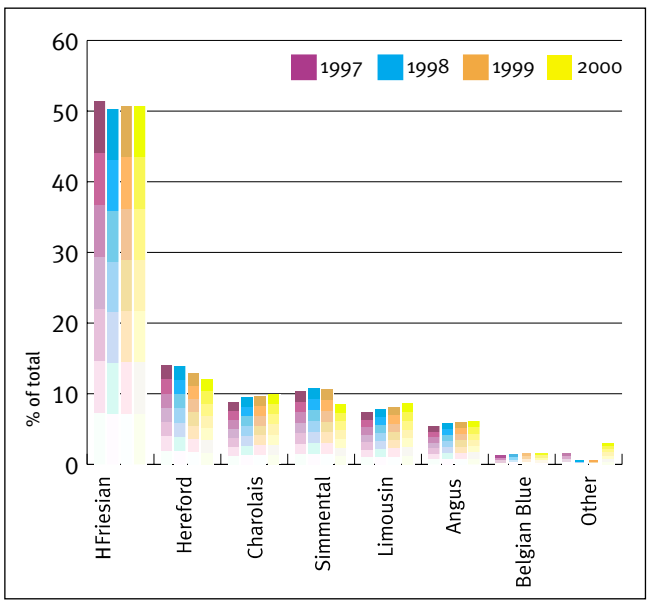



*Table 1.7* **Analysis of calf births, by breed of dam (1997-2000)**

| | 1997 | 1998 | 1999 | 2000 |
|---|---|---|---|---|
| H Friesian | 1,226,643 | 1,216,80 | 1,116,64 | 1,092,785 |
| Hereford | 333,156 | 336,996 | 285,673 | 261,047 |
| Charolais | 209,972 | 230,043 | 212,700 | 214,509 |
| Simmental | 245,968 | 263,030 | 235,068 | 184,901 |
| Limousin | 173,6672 | 189,966 | 179,424 | 187,765 |
| Angus | 129,324 | 140,870 | 131,423 | 132,042 |
| Belgian Blue | 29,566 | 34,293 | 33,496 | 35,819 |
| Other | 36,864 | 13,530 | 13,742 | 63,720 |
| Total | 2,385,160 | 2,425,528 | 2,208,166 | 2,172,588 |

source: Department of Agriculture, Food & Rural Development 2000

The Holstein Friesian breed was by far the most dominant breed of dam during 2000, with over 50% of all calves born being from dams of this breed (Table 1.7 and Figure 1.4). The next most popular breed, in terms of breed of dam, was the Hereford breed (12.0% of all calves registered), followed by the Charolais (9.9%), Limousin (8.6%) and Simmental breeds respectively (8.5%).

*Fig 1.5* **Choice of beef sire used on Holstein Friesian cows (1997-2000)**

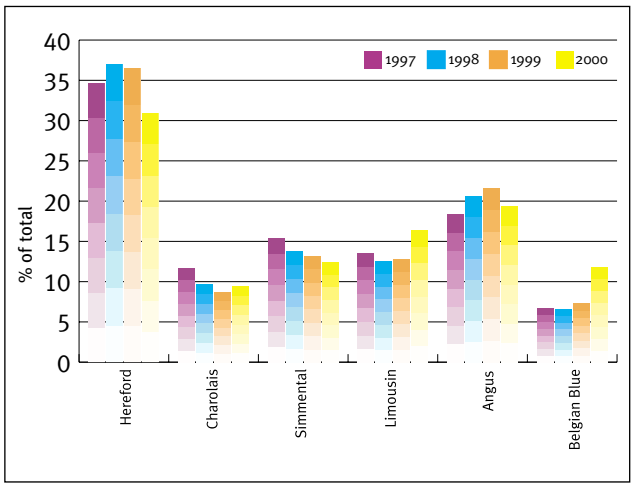



*Table 1.8* **Choice of beef sire used on Holstein Friesian Cows (1997-2000)**

| | 1997 | 1998 | 1999 | 2000 |
|---|---|---|---|---|
| Hereford | 216,389 | 261,832 | 241,444 | 188,740 |
| Charolais | 72,241 | 68,194 | 57,688 | 57,665 |
| Simmental | 95,964 | 97,769 | 86,462 | 76,072 |
| Limousin | 84,108 | 88,181 | 84,435 | 99,349 |
| Angus | 114,407 | 145,577 | 143,201 | 118,072 |
| Belgian Blue | 41,885 | 46,246 | 48,296 | 71,357 |
| Total* | 624,994 | 707,799 | 661,526 | 611,255 |

source: Department of Agriculture, Food & Rural Development 2000
* Includes only data for the above six breeds

A more detailed look at the choice of beef sires used in the National dairy (Table 1.8 and Figure 1.5) and beef herds (Table 1.9 and Figure 1.6), further demonstrates the increasing role of certain beef breeds within the National cattle population. The Hereford breed was clearly the most popular beef breed for crossing on Holstein Friesian cows in 2000, with 31% of beef calves born to Holstein Friesian cows, being sired by this breed (188,740 calves in total). This was followed by the Angus breed (19.3%), the Limousin breed (16.3%) and the Simmental breed respectively (12.4%). However, the importance of the Hereford breed as a cross on Holstein Friesian cows has declined somewhat over the last 3 years, from a high of 261,832 calves in 1998 (37% of beef calves from HF cows) to 188,740 calves in 2000 (31%), a drop of some 73,000 calves over that period. Similar trends, albeit to a much lesser extent, are apparent for both the Charolais and Simmental breeds.

In contrast, the role of a number of other beef breeds as a cross on Holstein Friesian cows has increased considerably over the last number of years, with the Belgian Blue reporting an almost doubling in numbers from 41,885 calves in 1997 (6.7% of beef calves born to HF cows) to 71,357 calves in 2000 (11.7% of beef calves born to cows of this breed). Again similar trends, albeit to a much lesser extent, are apparent for the Limousin and Angus breeds.

*Fig 1.6* **Choice of beef sire used on beef cows (1997-2000)**

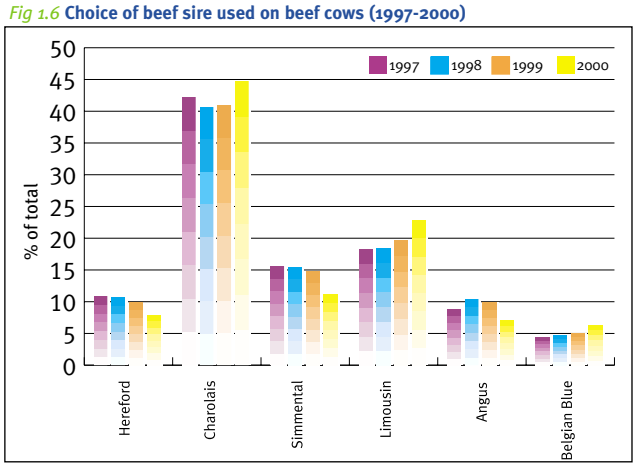



*Table 1.9* **Choice of beef sire used on beef cows (1997-2000)**

| | 1997 | 1998 | 1999 | 2000 |
|---|---|---|---|---|
| Hereford | 118,805 | 126,611 | 105,586 | 78,479 |
| Charolais | 465,035 | 482,387 | 439,291 | 442,777 |
| Simmental | 172,568 | 182,439 | 158,308 | 110,862 |
| Limousin | 201,568 | 218,315 | 210,041 | 226,204 |
| Angus | 97,616 | 122,881 | 106,470 | 70,748 |
| Belgian Blue | 48,631 | 54,564 | 53,332 | 62,078 |
| Total* | 1,104,223 | 1,187,197 | 1,073,028 | 991,148 |

source: Department of Agriculture, Food & Rural Development 2000
* Includes only data for the above six breeds

Trends from the National beef herd (Tables 1.9 and Table 1.10) indicate that the Charolais breed is by some way the most popular breed for mating on beef cows, with almost 45% of calves born to suckler cows in 2000 being sired by this breed (442,777 calves in total). This was followed by the Limousin breed (22.8%), the Simmental breed (11.2%) and the Hereford breed respectively (7.9%). Trends over time (Figure 1.6) underline the increasing role of a number of breeds as sires within the National beef herd, most notably the Charolais breed (up from 41% in 1998 to 45% in 2000), the Limousin breed (up from 18% to 23% over the same period) and the Belgian Blue breed (up from 4% to 6% over the same 3 year period).

*Table 1.10* **Choice of sire used in sucker beef herds 2000**

| | Choice of Sire | | | | | |
|---|---|---|---|---|---|---|
| Breed of Dam | Hereford | Charolais | Simmental | Limousin | Angus | Belgian B |
| Hereford | 47,755 | 96,987 | 27,489 | 53,433 | 15,799 | 12,454 |
| Charolais | 6,708 | 139,750 | 14,143 | 32,178 | 8,326 | 9,912 |
| Simmental | 8,353 | 72,670 | 43,881 | 35,521 | 8,252 | 11,695 |
| Limousin | 7,992 | 68,880 | 13,883 | 70,815 | 8,857 | 13,259 |
| Angus | 5,842 | 52,095 | 8,698 | 25,778 | 27,090 | 7,946 |
| Belgian Blue | 1,829 | 12,392 | 2,767 | 8,478 | 2,424 | 6,812 |
| Total* | 78,479 | 442,776 | 110,862 | 226,204 | 70,748 | 62,078 |
| % of overall total | 7.9 | 44.7 | 11.2 | 22.8 | 7.1 | 6.3 |

source: Department of Agriculture, Food & Rural Development 2000
* Includes only data for the above six breeds

## Calf registration and membership.

- *9% increase in pedigree registrations.*
- *Small increase in number of pedigree breeders.*
- *Sustained growth in activity within certain herdbooks.*

A total of 81,471 calves were registered with 17 different herdbooks in Ireland during 2000 (Table 2.1). This represents an increase in total herdbook registrations of 6,918 (9.3%) compared to 1999. Herdbook membership remained fairly static in 2000 (10,675 members) with only a small increase in the overall membership compared to that of 1999 (an increase of about 1.4%). Expressing both of these figures (herdbook registrations and membership) as a proportion of data from National calf registration (Section 1), indicates that about 4% of calves born in the country are registered within a herdbook and about 10% of all cattle breeding herds are involved in herdbook activities.

*Table 2.1* **Number of birth registrations and members by breed (1996-2000)**

| | 1996 | | 1997 | | 1998 | | 1999 | | 2000 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Breed | Births | Members | Births | Members | Births | Members | Births | Members | Births | % Female | Members |
| Herdbook Association | | | | | | | | | | | |
| Belgian Blue Cattle Breeding Society | 371 | 103 | 389 | 107 | 333 | 127 | 369 | 135 | 420 | 48% | 153 |
| Jersey Cattle Society of Ireland | 167 | 22 | 175 | 16 | 156 | 14 | 181 | 15 | 124 | 95% | 10 |
| Irish Aberdeen Angus Association | 1390 | 320 | 1479 | 351 | 1623 | 379 | 1649 | 376 | 1501 | 48% | 356 |
| Irish Angus Cattle Society | - | 600 | - | 700 | 3011 | 850 | 2236 | 933 | 2200 | 45% | 890 |
| Irish Aubrac Cattle Society | - | - | - | - | 15 | 10 | 27 | 14 | 78 | 50% | 18 |
| Irish Blonde d'Aquitaine Breed Co-op Ltd | 247 | 74 | 254 | 84 | 187 | 71 | 202 | 78 | 204 | 50% | 85 |
| Irish Charolais Cattle Society | 9222 | 1757 | 7026 | 1941 | 7689 | 2124 | 8402 | 2268 | 9645 | 49% | 2524 |
| Irish Hereford Breed Society | 3755 | 743 | 4196 | 826 | 4448 | 861 | 3837 | 892 | 2840 | 41% | 730 |
| Irish Holstein Friesian Association | 40650 | 3529 | 42793 | 3435 | 45254 | 3542 | 49797 | 3630 | 55231 | 95% | 3342 |
| Irish Limousin Cattle Society Ltd | 2883 | 780 | 3379 | 878 | 3762 | 984 | 4306 | 1050 | 5247 | 53% | 1474 |
| Irish Normande Cattle Society | - | - | - | - | 129 | 20 | 122 | 21 | 50 | 92% | 7 |
| Irish Piedmontese Cattle Society Ltd | 27 | 13 | 22 | 13 | 10 | 13 | 37 | 11 | 40 | 60% | 12 |
| Irish Simmental Cattle Society Ltd | 3383 | 880 | 3694 | 900 | 3732 | 840 | 2772 | 795 | 2782 | 47% | 820 |
| Kerry Cattle Society of Ireland | - | - | - | - | - | - | 135 | 90 | 146 | 85% | 101 |
| Meuse Rhine Issel Cattle Society | 149 | 65 | 145 | 71 | 126 | 74 | 91 | 80 | 209 | 72% | 23 |
| Montbelliiard Cattle Society | 181 | - | 174 | - | 353 | - | 390 | 83 | 559 | 66% | 65 |
| Saler Cattle Society | - | 17 | - | 30 | - | 42 | - | 55 | 195 | 46% | 65 |
| **Total** | **62425** | **8903** | **63726** | **9352** | **70828** | **9951** | **74553** | **10526** | **81471** | | **10675** |

source: Herdbook Associations

The largest registering herdbook in Ireland last year was once again the Holstein Friesian herdbook (Irish Holstein Friesian Association), contributing over 2/3 of the total pedigree registrations (55,231). Beef herdbooks (11 in total) contributed about 25,000 of the total registrations, with the other dairy and dual-purpose breeds (6 in total) contributing about 1% of the total herdbook registrations. Of the beef herdbooks the Charolais herdbook was once again the largest beef herdbook (9,645 registrations), followed by the Limousin herdbook (5,247 registrations), the Hereford herdbook (2,840 registrations), the Simmental herdbook (2,782 registrations) and the two Angus herdbooks (2,200 and 1,501 registrations respectively).

In terms of overall membership, beef herdbooks accounted for the largest proportion of overall membership (about 67%), with IHFA and the other dairy and dual-purpose breeds accounting for 31% and 2% of the total members involved in herdbook activities. Again the Charolais herdbook was the largest beef herdbook in terms of membership (2,524 members), followed by the Limousin herdbook (1,474 herdbooks), the Irish Angus herdbook (890 members), the Simmental herdbook (820 members) and the Hereford herdbook (730 members).

*Fig 2.1* **Trends in herdbook registrations for dairy, dual purpose and beef breeds (1996-2000)**

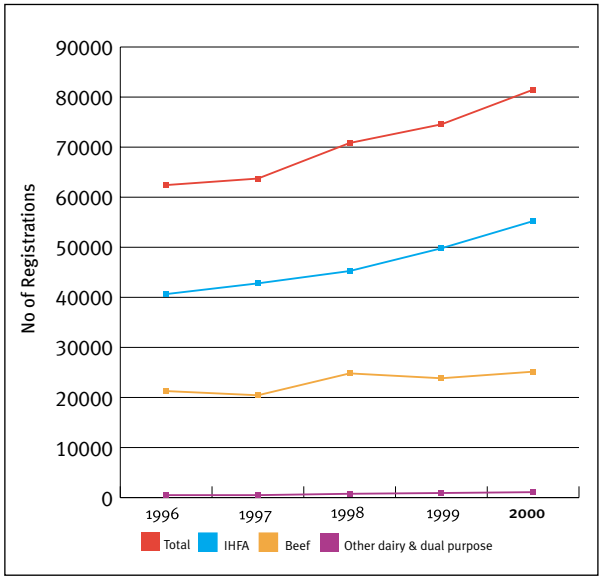
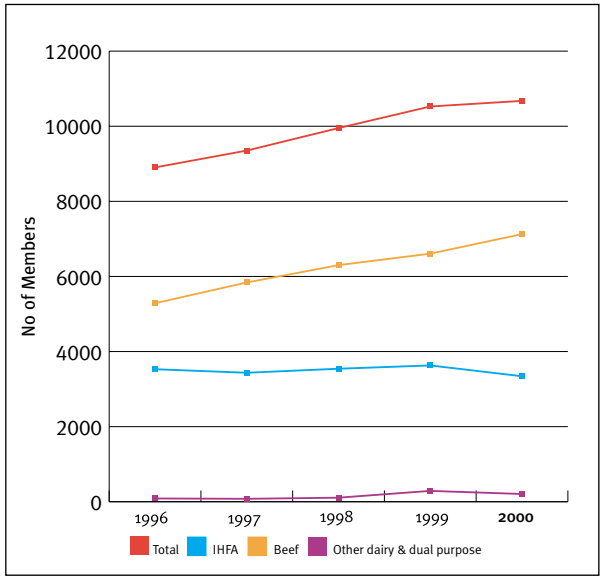



*Fig 2.2* **Trends in herdbook membership for dairy, dual purpose and beef breeds (1996-2000)**




Herdbook trends over time (Figure 2.1), indicate a sustained increase in the total herdbook registrations over the past 5 years. This is due principally to the expansion of the Holstein Friesian herdbook, which has increased in size by, on average, 3,000 calves/year over the past five years. The same trend is also evident for herdbook membership (Figure 2.2), although here the pattern is due principally to the increasing number of farmers becoming involved in beef herdbooks.

*Fig 2.3* **Trends in herdbook registrations for a number of beef breeds (1998-2000)**

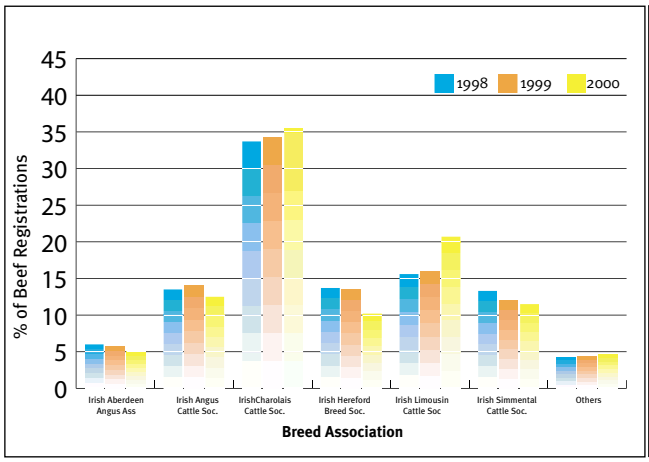
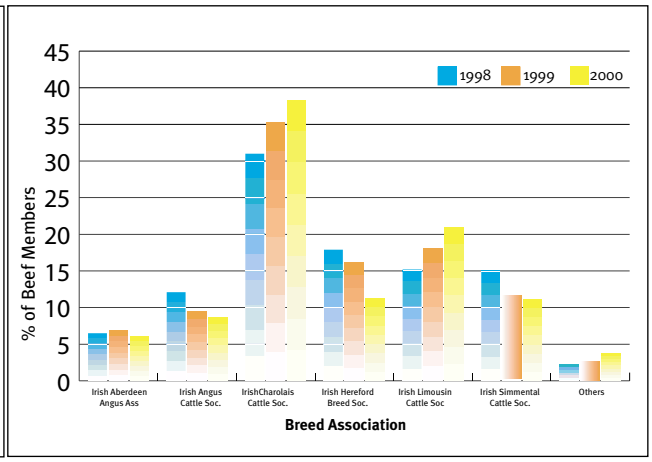



*Fig 2.4* **Trends in herdbook membership for a number of beef breeds (1998-2000)**




Looking more closely at trends over time within the beef herdbooks (Figures 2.3 and 2.4), indicates that certain beef herdbooks (i.e., Charolais, Limousin and Belgian Blue herdbooks) have enjoyed sustained growth in both registrations and membership over the past 3 years, whereas other herdbooks (i.e., the Hereford, Simmental and Angus herdbooks), have experienced a gradual decline in overall activity.

## (i) Participation in milk recording

- *Continued increase in the level of milk recording within the National herd*
- *Increasing proportion of herds on A6 and A8 schemes.*

Some 392,000 cows in 7,047 herds were involved in milk recording in 2000 (Table 3.1). Expressing these figures as a proportion of all dairy cows and herds in Ireland (Table 3.1 and Figure 3.1), indicates that about 32% of cows and 24% of herds in the National dairy population, are involved in milk recording. The increase in proportion of cows and herds in milk recording is consistent with recent trends in this sector (Figure 3.1), but is still some way short of the typical levels of milk recording in other developed dairying countries, which is often in excess of 70%.

*Fig 3.1* **Trends in cows and herds milk recorded in Ireland**

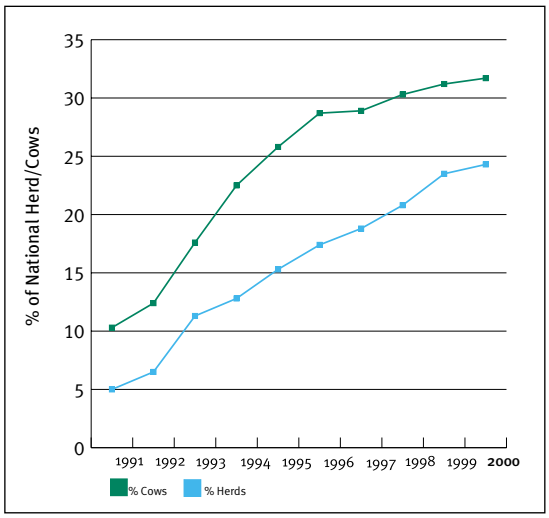



*Table 3.1* **Total cows and herds recorded in Ireland (1991-2000)**

| Year | Milk recorded herds Cows | Herds | National Dairy Population Total Cows | Total herds |
|---|---|---|---|---|
| 1991 | 132,661 | 2,405 | 1,293,200 | 48,000 |
| 1992 | 156,378 | 2,931 | 1,261,500 | 45,000 |
| 1993 | 223,714 | 4,740 | 1,274,100 | 42,000 |
| 1994 | 285,172 | 5,000 | 1,269,100 | 39,000 |
| 1995 | 327,172 | 5,904 | 1,267,100 | 38,500 |
| 1996 | 364,826 | 6,430 | 1,272,400 | 37,000 |
| 1997 | 366,507 | 6,568 | 1,268,300 | 35,000 |
| 1998 | 386,611 | 6,982 | 1,276,500 | 33,500 |
| 1999 | 392,960 | 7,046 | 1,260,900 | 30,000 |
| 2000 | 391,975 | 7,047 | 1,238,300 | 29,000 |

source: Irish Dairy Records Co-op 2000

*Table 3.2* **Herds and cows recorded by recording societies (2000)**

| 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 | 1836 | 108,977 | 4 | 385 | 169 | 10,938 | 2,009 | 120,300 | 59.9 | 30.7% |
| Dairygold Co-op | 415 | 26,472 | 1049 | 59,860 | 149 | 9,007 | 1,613 | 95,339 | 59.1 | 24.3% |
| SWS | 373 | 20,630 | 571 | 28,446 | 58 | 3,068 | 1,002 | 52,144 | 52 | 13.3% |
| Kerry Agribusiness | 309 | 18,032 | 411 | 21,611 | 252 | 10,407 | 972 | 50,050 | 51.5 | 12.8% |
| NECBS Total | 392 | 16,502 | 44 | 1,597 | 23 | 1,012 | 459 | 19,111 | 41.6 | 4.9% |
| Goldenvale Co-op | 207 | 12,016 | 58 | 3,299 | 8 | 334 | 273 | 15,649 | 57.3 | 4.0% |
| Tipperary Co-op | 126 | 6,947 | 52 | 2,666 | 8 | 499 | 186 | 10,112 | 54.4 | 2.6% |
| C.D.A.I.S | 113 | 8,406 | 25 | 1,437 | 3 | 162 | 141 | 10,005 | 71 | 2.6% |
| Connacht Gold | 126 | 5,882 | 7 | 304 | 2 | 92 | 135 | 6,278 | 46.5 | 1.6% |
| Nenagh Co-op | 24 | 1,118 | 88 | 4,592 | 13 | 557 | 125 | 6,267 | 50.1 | 1.6% |
| North Cork Co-op | 23 | 1,345 | 21 | 948 | 0 | 0 | 44 | 2,293 | 52.1 | 0.6% |
| Newmarket Co-op | 13 | 644 | 24 | 1,087 | 2 | 80 | 39 | 1,811 | 46.4 | 0.5% |
| Donegal Co-op | 31 | 1,758 | 0 | 0 | 0 | 0 | 31 | 1,758 | 56.7 | 0.4% |
| Boherbue Co-op | 8 | 354 | 10 | 504 | 0 | 0 | 18 | 858 | 47.7 | 0.2% |
| All Societies Total 2000 | 3996 | 229,083 | 2364 | 126,736 | 687 | 36,156 | 7,047 | 391,975 | 55.6 | |

source: Irish Dairy Records Co-op 2000
* See Appendix for location of recording centres

Fourteen organisations offered a milk recording service to farmers last year (Table 3.2). The largest of these organisations (in terms of number of cows recorded) was Progressive Genetics with 31% of the total cows recorded in the country (some 120,300 cows). This was followed by Dairygold (24.3% of all cows recorded), South Western Services (13.3% of all cows recorded), Kerry (12.8% of all cows recorded), NECBS (4.9% of all cows recorded) and Golden Vale (4.0% of all cows recorded). Together these six organisations accounted for about 90% of the cows and herds involved in milk recording in 2000.

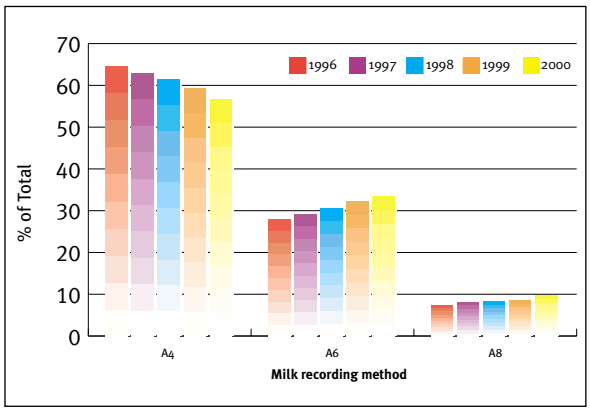


*Table 3.3* **Trends in milk recording method (1996-2000)**

| | A4 herds | A6 herds | A8 herds | Total herds |
|---|---|---|---|---|
| 1996 | 4,223 | 1,826 | 487 | 6,540 |
| 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 |

source: Irish Dairy Records Co-op 2000

*Fig 3.2* **Trends in milk recording method (1996-2000)**




There are presently three types of recording scheme offered to farmers in milk recording; 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 is the most popular form of recording scheme, with 57% of farmers opting for this type of scheme for milk recording (Table 3.3). However, looking at trends over the last 5 years, indicates a steady reduction in the % of farmers participating in A4 recording and a corresponding increase in the % of farmers participating in both A6 and A8 recording schemes. (Figure 3.2).

## (ii) Analysis of individual cow performance data.

- *Total fat + protein yield increased by 26.5 kg (up 6.9%).*
- *Continued increase in protein content.*
- *Little change in calving interval or survival in recent years.*

Total solids production (fat + protein kg) increased by almost 7% in 2000, from 385.0 kg in 1999 to 411.7 kg in 2000 (Table 3.4). The improvement in total solids production may have been due to a combination of several factors, notably (i) increased milk yield (+350 kg), (ii) higher protein content (+0.02%), (iii) longer lactations (+5 days), and (iv) improvements in genetic merit of the National dairy herd (section 6). The increase in solids production is consistent with recent trends in this area (Figures 3.3 and 3.4), which have indicated a steady increase in fat and protein production over the last 5 years.

*Table 3.4* **Average Production of all milk recorded cows 1991-2000**

| | Records | Days | Milk kg | Fat kg | Fat % | Ptn kg | Ptn % |
|---|---|---|---|---|---|---|---|
| 1991 | 101,868 | 277 | 5,429 | 194.7 | 3.59 | 176 | 3.24 |
| 1992 | 119,709 | 281 | 5,484 | 198.1 | 3.61 | 179 | 3.26 |
| 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 | 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 |

source: Irish Dairy Records Co-op 2000

*Fig 3.3* **Trends in average fat % and protein % (1996-2000)**

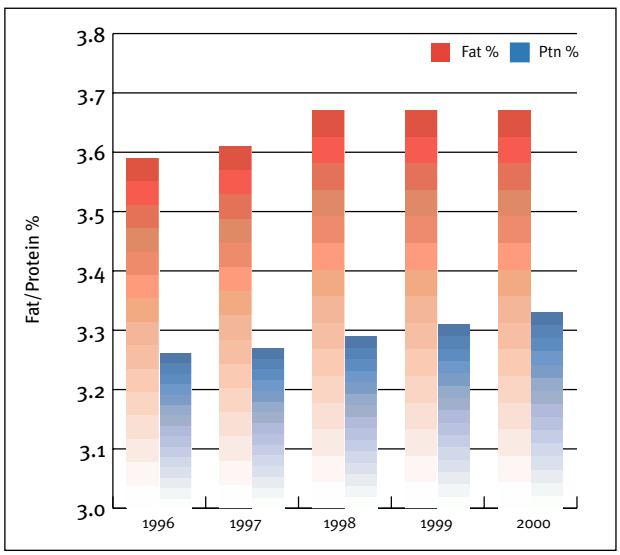



*Fig 3.4* **Trends in average fat yield and protein yield (1996-2000)**

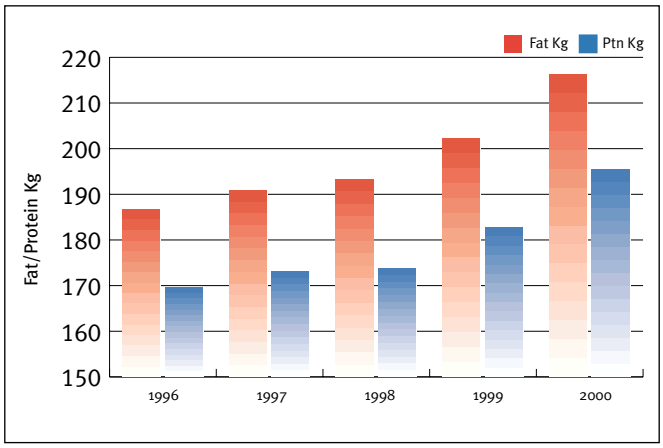


*Table 3.5* **Average yield by breed and pedigree status (2000)**

| BREED | Records | Milk kg | Fat Kg | Fat % | Ptn Kg | Ptn % | Lact Leng |
|---|---|---|---|---|---|---|---|
| Ayrshire NP | 55 | 5,170 | 191.9 | 3.73 | 172.4 | 3.33 | 280.9 |
| Ayrshire Ped | 137 | 5,441 | 209.6 | 3.87 | 179.7 | 3.31 | 287.4 |
| Brown Swiss | 19 | 5,038 | 194.6 | 3.91 | 171.8 | 3.44 | 275.6 |
| H Friesian NP | 267,589 | 5,687 | 208.3 | 3.68 | 189.4 | 3.34 | 275.3 |
| H Friesian Ped | 79,680 | 6,573 | 243.1 | 3.71 | 216.6 | 3.30 | 284.1 |
| Jersey NP | 80 | 3,898 | 182.2 | 4.77 | 144.7 | 3.77 | 257.7 |
| Jersey Ped | 311 | 4,087 | 232.7 | 5.62 | 161.5 | 3.96 | 283.7 |
| Kerry | 29 | 3,239 | 116.5 | 3.58 | 103.2 | 3.18 | 254.5 |
| MRI NP | 692 | 5,203 | 192.6 | 3.71 | 178.2 | 3.43 | 273.2 |
| MRI Ped | 163 | 4,922 | 190.4 | 3.88 | 172.0 | 3.50 | 283.0 |
| Montbeliarde NP | 137 | 4,707 | 173.7 | 3.68 | 157.3 | 3.34 | 260.0 |
| Montbeliarde Ped | 460 | 5,604 | 207.1 | 3.70 | 193.2 | 3.45 | 289.4 |
| Normande NP | 86 | 4,780 | 179.4 | 3.77 | 164.7 | 3.45 | 261.2 |
| Normande Ped | 31 | 4,816 | 189.6 | 3.95 | 173.5 | 3.60 | 283.1 |
| Rotbunte | 53 | 4,806 | 179.5 | 3.74 | 166.6 | 3.47 | 277.6 |
| Shorthorn NP | 126 | 5,344 | 191.7 | 3.58 | 177.2 | 3.32 | 273.3 |
| Shorthorn Ped | 157 | 5,542 | 203.3 | 3.67 | 186.6 | 3.38 | 285.1 |
| Simmental | 294 | 5,094 | 185.8 | 3.65 | 172.5 | 3.39 | 268.8 |
| Others | 164 | 5,570 | 208.7 | 3.75 | 181.5 | 3.27 | 269.4 |
| **Overall** | **350,263** | **5,884** | **216.2** | **3.67** | **195.5** | **3.33** | **277.3** |

source: Irish Dairy Records Co-op 2000

Holstein Friesian is by far the most common breed of cow in milk recording with 99% of all cows in milk recording from this breed (Table 3.5). Cows contained within the IHFA herdbook (Holstein Friesian – Ped) yielded, on average, 459.7 kg of solids, which is some 50 kg higher than any of the other herdbooks present in milk recording (albeit at a longer lactation length than most of the other breeds).

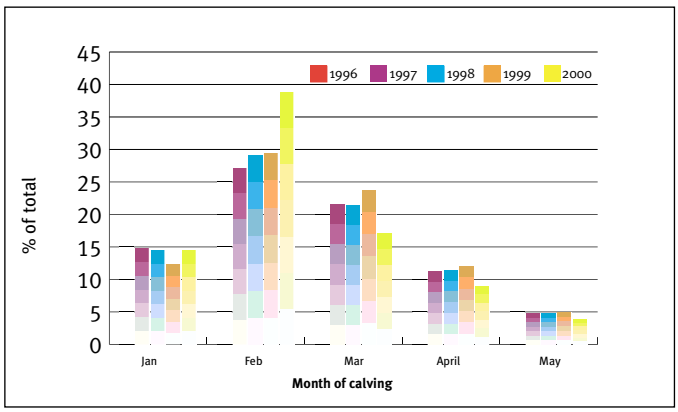
*Table 3.6* **Trend in calving month, for all cows in milk recording (1996-2000)**

| Month | 1996 | 1997 | 1998 | 1999 | 2000 |
|---|---|---|---|---|---|
| January | 55,813 | 51,110 | 53,403 | 44,494 | 50,901 |
| February | 90,669 | 93,920 | 107,290 | 107,290 | 135,856 |
| March | 71,509 | 74,629 | 79,380 | 86,694 | 60,004 |
| April | 40,051 | 38,730 | 41,952 | 43,984 | 31,344 |
| May | 19,034 | 16,372 | 17,592 | 17,815 | 13,248 |
| June | 7,499 | 5,941 | 6,145 | 5,579 | 4,377 |
| July | 3,409 | 2,764 | 2,882 | 2,290 | 1,959 |
| August | 4,612 | 3,683 | 3,413 | 3,268 | 3,099 |
| September | 12,718 | 11,797 | 11,489 | 10,140 | 10,225 |
| October | 16,172 | 16,956 | 17,316 | 15,996 | 15,171 |
| November | 16,374 | 15,859 | 15,739 | 14,260 | 13,240 |
| December | 17,755 | 14,799 | 13,318 | 12,271 | 10,839 |
| Total | 355,615 | 346,560 | 369,919 | 351,810 | 350,263 |

source: Irish Dairy Records Co-op 2000

Again the seasonal nature of milk recording was evident in 2000, with almost 80% of cows in milk recording calving in the months January-April (Table 3.6). However, the trend towards later spring calving was not evident within milk recorded herds (Figure 3.5). In fact, there was a marked increase in the proportion of February calving animals in milk recorded herds during 2000 (some 39% of animals calved in this month compared to about 29% for each of the 2 previous years). Given that there was only a slight drop in the proportion of animals calving in the winter months, this suggests a movement towards earlier calving of female replacements in spring calving dairy herds (Table 3.6).

*Fig 3.5* **Trends in spring calving (1996-2000)**



Analysis of data by lactation number indicates that almost 75% of all animals in milk recording are in lactations 1-4 (Table 3.7). The highest level of production was achieved by animals in their 4th lactation, with an average yield of solids of almost 438 kg.

*Table 3.7* **Average yield by lactation number (2000)**

| Lact No. | Records | Milk kg | Fat Kg | Fat % | Ptn Kg | Ptn % | Lact Leng |
|---|---|---|---|---|---|---|---|
| 1 | 79,695 | 5,224 | 195.5 | 3.76 | 173.2 | 3.32 | 278.6 |
| 2 | 71,058 | 5,938 | 218.6 | 3.70 | 198.5 | 3.35 | 279.8 |
| 3 | 61,115 | 6,206 | 227.7 | 3.68 | 206.7 | 3.34 | 278.3 |
| 4 | 46,234 | 6,270 | 229.4 | 3.67 | 208.5 | 3.33 | 277.0 |
| 5 | 34,656 | 6,227 | 227.7 | 3.66 | 206.7 | 3.33 | 276.3 |
| 6 | 23,340 | 6,103 | 222.2 | 3.64 | 202.0 | 3.32 | 275.3 |
| 7 | 14,782 | 5,924 | 214.1 | 3.62 | 195.0 | 3.30 | 272.7 |
| 8+ | 19,383 | 5,553 | 198.2 | 3.57 | 181.9 | 3.28 | 268.3 |

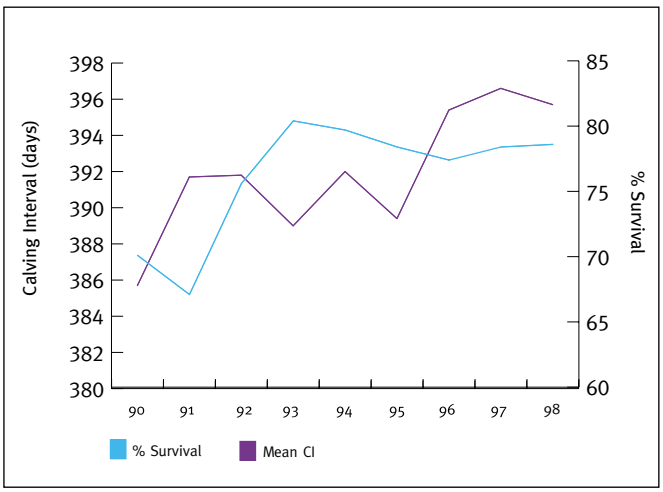
source: Irish Dairy Records Co-op 2000

*Table 3.8* **Trends in calving interval and survival from 1st to 2nd lactation (1990-1998)**

| | 1st lactation | 2nd lactation | Mean CI | % survival |
|---|---|---|---|---|
| 1990 | 16,619 | 11,643 | 385.7 | 70.1 |
| 1991 | 20,326 | 13,631 | 391.7 | 67.1 |
| 1992 | 24,234 | 18,328 | 391.8 | 75.6 |
| 1993 | 31,719 | 25,510 | 389 | 80.4 |
| 1994 | 36,910 | 29,419 | 392 | 79.7 |
| 1995 | 44,631 | 34,978 | 389.4 | 78.4 |
| 1996 | 49,668 | 38,438 | 395.4 | 77.4 |
| 1997 | 55,877 | 43,782 | 396.6 | 78.4 |
| 1998 | 59,408 | 46,699 | 395.7 | 78.6 |

source: Irish Dairy Records Co-op 2000

*Fig 3.6* **Trends in calving interval and survival from 1st to 2nd lactation (1990-1998)**




Calving interval and reappearance were two new traits introduced into genetic evaluations during 2000 (Table 3.8 and Figure 3.6). Both traits are based on data provided from milk recorded herds. Calving interval is calculated as the interval between 1st and 2nd lactation, whereas survival is calculated as the % of animals surviving into their second lactation. Of the 59,408 heifers that entered milk recording in 1998, 46,699 survived into their second lactation, giving an average survival for 1998-1999 of about 78%. The average calving interval of these 46,699 animals was about 396 days, which is considerably higher than the target calving interval of 365 days. Looking at trends in calving interval and survival over the last 10 years, indicates that, in general terms, there has been a increase in both calving interval and survival, although in more recent years (1996-1998) both figures have remained fairly static.

## (iii) Participation in linear assessment schemes.

Linear assessment of Holstein Friesians is presently carried out by Holstein UK and Ireland (HUKI). This service is offered to members of IHFA and to ICBF for the purpose of dairy progeny testing (Table 3.9). In total, 13,096 animals in 880 herds were linear assessed last year, the majority of which were in IHFA herds (about 80% of the total animals).

*Table 3.9* **Participation in HUKI linear assessment scheme (1996-2000)**

| | IHFA herds | | ICBF progeny test herds | |
|---|---|---|---|---|
| | Animals | herds | Animals | herds |
| 1996 | 6,085 | 284 | - | - |
| 1997 | 9,965 | 325 | - | - |
| 1998 | 7,898 | 347 | - | - |
| 1999 | 12,889 | 418 | 3,509 | 638 |
| 2000 | 10,622 | 417 | 2,474 | 463 |

source: Irish [illegible]-op 2000

## (i) Beef industry statistics

- *4% drop in cattle numbers*
- *Gradual increase in EU market share for beef*
- *3.5% increase in steer carcasses meeting EU market suitability*

There was a slight drop in overall cattle numbers in 2000, from 6.71 million in 1999 to 6.46 million in 2000 (down some 4%). This drop in overall numbers was mainly in the non breeding sector, which accounted for some 85% of the total reduction in cattle numbers. Total slaughtering also declined in 2000, from 2.13 million in 1999 to 1.89 million in 2000, a drop of some 240,000. In contrast, live exports remained fairly static in 2000 compared to 1999 (401,000), with the main market for live cattle being the EU (mainly weanlings to Spain and Italy).

*Table 4.1* **Stock and flow of Irish cattle (1996-2000)**

| | 1996 | 1997 | 1998 | 1999 | 2000 |
|---|---|---|---|---|---|
| Total cattle ('000 head) | 6,758 | 6,992 | 7,093 | 6,707 | 6,459 |
| - Breeding Cattle ('000 head) | 2,731 | 2,813 | 2,806 | 2,737 | 2,710 |
| - Non breeding cattle ('000 head) | 4,027 | 4,179 | 4,287 | 3,970 | 3,749 |
| Slaughterings ('000 head) | 1,659 | 1,808 | 1,899 | 2,132 | 1,886 |
| Live exports ('000 head) | 190 | 59 | 171 | 416 | 401 |
| - EU | 51 | 50 | 142 | 342 | 338 |
| - Outside EU | 139 | 7 | 29 | 74 | 63 |
| Total disposals ('000 head) | 1,849 | 1,867 | 2,070 | 2,548 | 2,287 |

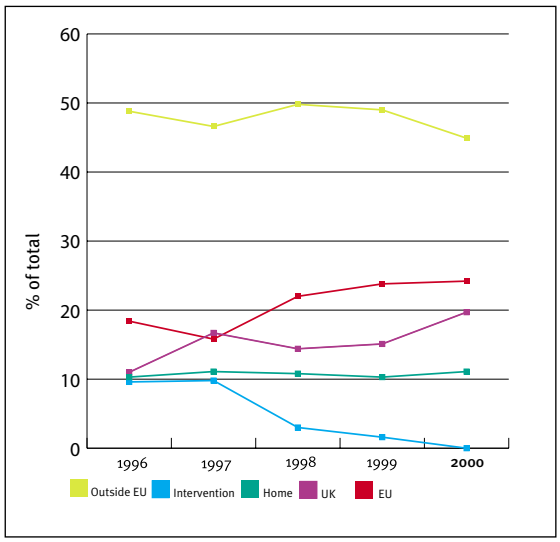
source: Department of Agriculture, Food & Rural Development 2000, Bord Bia 2000

*Table 4.2* **Destination of Irish beef production (1996-2000)**

| | 1996 | 1997 | 1998 | 1999 | 2000 |
|---|---|---|---|---|---|
| Home consumption | 56 | 63 | 64 | 65 | 62 |
| Intervention | 52 | 56 | 18 | 10 | 0 |
| Total exports | 435 | 450 | 510 | 555 | 495 |
| - UK | 60 | 95 | 85 | 95 | 110 |
| - Other EU | 100 | 90 | 130 | 150 | 135 |
| - Third countries | 265 | 265 | 295 | 309 | 250 |
| Total production | 543 | 569 | 592 | 630 | 557 |

source: Department of Agriculture, Food & Rural Development 2000, Bord Bia 2000

*Fig 4.1* **Destination of Irish Beef Production (1996-2000)**




Trends in the destination of Irish beef (Table 4.2) indicate that about 90% of Irish beef is exported each year, principally to countries outside of the EU, namely Egypt, Russia and the Gulf States (about 45% of total beef produced). Traditionally, these markets have tended to take lower value carcasses, with the higher value carcasses being kept for premium markets within the EU, where they demand much higher prices. Looking at trends over the past five years (Figure 4.1), indicates that there has been a gradual increase in the proportion of Irish beef sold into these markets, from 18% of total beef produced in 1996 to about 25% in 2000.

The priority for the Irish beef industry over the past few years and in the future, has been to reduce its reliance on volatile non EU markets and concentrate on producing cattle that meet the requirement of countries within the EU, i.e., high muscling with modest fat cover. Looking at trends from beef carcass classification indicates that over the past few years, there has been a gradual improvement in the quality of beef cattle slaughtered in this country (Table 4.3, Figure 4.2). This is a very positive development and is contrary to trends from the early to mid nineties, which had indicated a marked decline in the quality of our National beef product, during that period.

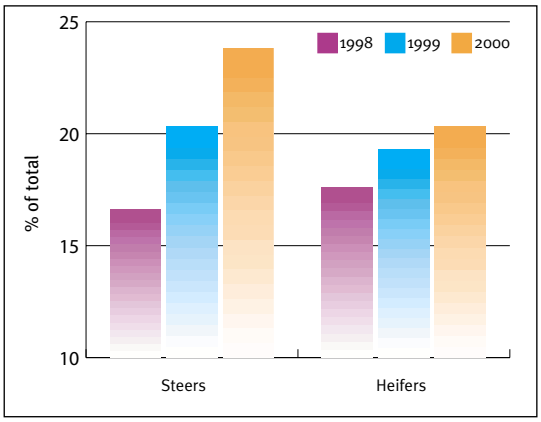
*Table 4.3* **Trends in carcass merit for steers and heifers (1998-2000)**

| | No. animals | Carc. Wt. | % EUR Grade | % Fat Grade 5 | % EU Suitable |
|---|---|---|---|---|---|
| Steers | | | | | |
| -1998 | 992,000 | 343.1 | 42.4% | 15.4% | 16.6% |
| -1999 | 1,061,000 | 336.5 | 44.9% | 12.4% | 20.3% |
| -2000 | 898,000 | 340.2 | 48.6% | 10.1% | 23.8% |
| Heifers | | | | | |
| -1998 | 352,000 | 278.7 | 44.8% | 21.9% | 17.6% |
| -1999 | 461,000 | 267.7 | 42.6% | 17.2% | 19.3% |
| -2000 | 430,000 | 266.7 | 42.8% | 14.1% | 20.3% |

source: Department of Agriculture, Food & Rural Development 2000

The proportion of steers falling into E, U and R grades has increased steadily since 1998, from 42.4% in that year to 48.6% in 2000 (Table 4.3). Similarly, the proportion of steers falling into fat class 5 has decreased by over 5% during the same period, from 15.4% in 1998 to 10.1% in 2000. A more complete examination of all carcass grades indicates that the proportion of steers meeting EU market requirements in 2000 (i.e. grades U3, U4L, R3 and R4L) was 23.8%, which is considerably higher than the figure of 16.6% from only a few years ago. Similar trends, albeit not to the same extent, have been evident for heifers (Figure 4.2).

*Fig 4.2* **Proportion of carcasses meeting EU market requirements (1998-2000)**




## (ii) Participation in beef recording schemes

- *12% increase in bulls participating in Tully.*
- *Increase in level of performance recording for Charolais, Limousin and Simmental breeds.*
- *35% of pedigree beef animals participating in beef recording schemes.*
- *0.5% of total beef animals performance recorded*

Three of the main areas through which genetic improvement can be delivered to the Irish beef industry are; (i) Tully performance test station, (ii) on-farm weight & linear recording in pedigree herds, (iii) AI progeny testing (either central finishing or on-farm test).

### Participation in Tully

There was an increase in the number of bulls participating in Tully last year, up from 219 in 1999 to 245 in 2000, an increase of some 12% (Table 4.4). The most common breed participating in Tully in 2000 was the Limousin breed with 86 of the total 245 bulls tested being from this breed (some 35%). Looking at trends over time (Figure 4.3) indicates that the Limousin breed has been the most common breed in Tully for the last five years (33% of all bulls tested), followed by the Charolais breed (22%), the Simmental breed (20%) and Hereford breed respectively (9%).

*Fig 4.3* **Participation in Tully by breed (1996-2000)**

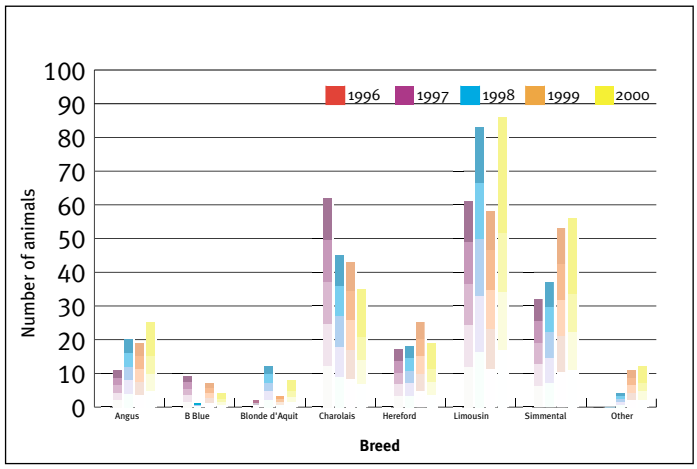



*Table 4.4* **Participation in Tully central performance test station**

| YEAR | Angus | Belgian Blue | Bl d'Aquitaine | Charolais | Hereford | Limousin | Simmental | Others | Total |
|---|---|---|---|---|---|---|---|---|---|
| 1996 | 12 | 14 | 8 | 52 | 16 | 76 | 45 | 0 | 223 |
| 1997 | 11 | 9 | 2 | 62 | 17 | 61 | 32 | 0 | 194 |
| 1998 | 20 | 1 | 12 | 45 | 18 | 83 | 37 | 4 | 220 |
| 1999 | 19 | 7 | 3 | 43 | 25 | 58 | 53 | 11 | 219 |
| 2000 | 25 | 4 | 8 | 35 | 19 | 86 | 56 | 12 | 245 |
| Totals/breed | 87 | 35 | 33 | 237 | 95 | 364 | 223 | 27 | |

source: ICBF Animal Evaluation Unit 2000

### Participation in linear scoring and weight recording

There are presently three herdbook associations offering a linear scoring and weight service to their members, the Charolais breed society, the Limousin breed society, and the Simmental breed society (Table 4.5). Looking at animals born in 1999 (and scored in 2000) indicates that some 3,825 animals were scored by the Charolais society, 3,207 were scored by the Limousin society and 717 were scored by the Simmental society (which only commenced linear recording in 1998). Expressing these totals as a proportion of animals born into these herdbooks in 1999, suggests that about 45% of Charolais animals, 75% of Limousin animals and 26% of Simmental animals, entering the respective herdbook in that year (1999) were subsequently linear scored in 2000.

*Table4.5* **Total number of animals undergoing linear scoring and weight recording, by year of birth, for a number of breeds**

| | Charolais | | Limousin | | Simmental | |
|---|---|---|---|---|---|---|
| | Linear | Weight | Linear | Weight | Linear | Weight |
| 1991 | 0 | 424 | 1,094 | 320 | 0 | 430 |
| 1992 | 1 | 509 | 1,500 | 367 | 0 | 387 |
| 1993 | 0 | 554 | 1,711 | 377 | 0 | 389 |
| 1994 | 279 | 586 | 2,037 | 383 | 0 | 444 |
| 1995 | 1,758 | 697 | 2,272 | 628 | 0 | 426 |
| 1996 | 3,683 | 797 | 2,694 | 711 | 0 | 404 |
| 1997 | 2,398 | 1,393 | 3,009 | 1,008 | 3 | 360 |
| 1998 | 3,658 | 3,683 | 3,309 | 1,425 | 293 | 276 |
| 1999 | 3,825 | 3,544 | 3,207 | 1,577 | 717 | 443 |
| 2000* | 1,934 | 724 | 980 | 949 | 560 | 227 |

source: Herdbook Associations 2000
* Not all animals born in 2000 have been scored at this stage

In addition to a linear scoring service, weight recording services are also available to members of these herdbooks, with some 3,544, 1,577 and 443 animals weight recorded in the Charolais, Limousin and Simmental herdbooks during 2000 (the Charolais herdbook offers its own service, whilst both the Limousin and Simmental herdbooks avail of the service offered by DAFRD). Looking at trends over the last number of years indicates a general increase in the number of animals participating in linear recording schemes, within each of the organisations. Similar trends are apparent for weight recording.

*Table 4.6* **Current level of participation in weight recording for a number of beef breeds (2000)**

| Breed | No. of herds |
|---|---|
| Angus | 54 |
| Bl. d'Aquitaine | 3 |
| Belgian Blue | 16 |
| Charolais | 1159 |
| Hereford | 34 |
| Limousin | 208 |
| Saler | 4 |
| Simmental | 94 |
| Other | 6 |

source: Herdbook Associations 2000

In addition to the above three breeds, a number of other breeds are involved in on-farm weight recording, each availing of the service offered by DAFRD (Table 4.6). Of these other breeds, Angus is the largest with 54 herds involved in the scheme, followed by the Hereford breed (34 herds), and Belgian Blue breeds respectively (16 herds). The average number of animals recorded in weight recording herds is about 4, suggesting that a further 500 pedigree animals were weight recorded in 2000, outside of the three main breeds. Combining this figure with the number of animals linear scored in 2000 (7749) indicates that some 8,249 pedigree beef animals are presently participating in beef performance recording. Expressing this figure as a proportion of total pedigree beef calves born in 1999 (some 24,000 registrations), suggests that about 35% of all pedigree calves born in that year were subsequently involved in some form of on-farm recording scheme. However, it is important to note that 95% of these recordings took place within just the Charolais, Limousin and Simmental herdbooks.

## Trends in AI progeny Testing.

Traditionally there have been two aspects to beef progeny testing in Ireland; (i) central finishing of randomly selected AI progeny for carcass traits, and (ii) collection of calving survey details from progeny test farms.

The most popular breed involved in AI progeny testing over the past 10 years (based on crossbred progeny evaluated for carcass traits) has been the Charolais breed with carcass information on 508 crossbred progeny (Table 4.7). This is followed by the Simmental breed (343 progeny), the Hereford breed (313 progeny), and the Belgian Blue and Angus breeds respectively (both with 288 crossbred progeny). Similar trends are apparent for calving survey traits, with each of the named breeds having at least 9,000 calving survey records.

Looking at trends over time (1991-2000) would appear to suggest a general decline in the number of animals evaluated as part of the beef progeny test (Table 4.8). However, more recent trends (1998 –2000) suggest a marked increase in participation in beef progeny testing for both carcass and calving survey traits.

Combining data from AI progeny test (some 500 recordings per annum) with data from performance recording in pedigree herds suggests that the total number of beef animals involved in beef recording schemes is approximately 8700. Expressing this figure as a proportion of total beef calves born in 1999 (some 1.6 million registrations), suggests that about 0.5% of all beef calves born are presently involved in beef performance recording.

*Table 4.7* **Level of progeny testing by breed (1991-2000)**

| Breed | No. crossbred progeny | Calving survey |
|---|---|---|
| Angus | 288 | 16,647 |
| Hereford | 313 | 15,414 |
| Charolais | 508 | 14,584 |
| Simmental | 343 | 10,350 |
| Limousin | 254 | 9,866 |
| Bl. d'Aquitaine | 33 | 687 |
| Belgian Blue | 288 | 9,393 |

source: AI organisations 2000

*Table 4.8* **Trends in level of beef progeny testing recording (1991-2000)**

| Year Started Test | Number of Progeny | No. of calvings |
|---|---|---|
| 1991 | 692 | 19458 |
| 1992 | 587 | 18377 |
| 1993 | 373 | 21903 |
| 1994 | 372 | 17855 |
| 1995 | 332 | 20152 |
| 1996 | 559 | 25048 |
| 1997 | 517 | 22489 |
| 1998 | 302 | 10996 |
| 1999 | 476 | 15837 |
| 2000 | 0* | 18183 |

source: AI organisations 2000



## (iii) Suckler herd replacement policy

- *66% of beef replacements in 2000, ¾ bred or greater*
- *Increase in % of ¾ bred beef animals reappearing as replacements.*

The number of female replacements entering the National beef herd last year (based on data from National calf registration) was 142,508 which suggests a suckler herd replacement rate of some 14% (the total number of calves born from beef cows last year was 991,148). Looking more closely at the breed make-up of these replacements indicates that some 34% (48,214 animals) were 1st cross animals from the dairy herd and some 66% (94,294) were 2nd cross or greater, i.e., ¾ bred beef animals (Tables 4.9 and 4.10). A more complete breakdown of the breed makeup indicates that of the 1st cross animals, just over half were sired by either Angus or Hereford breeds (Trad*HF), with the remainder sired by one of the four continental breeds represented (Belgian Blue, Charolais, Limousin or Simmental).

Of the suckler replacements bred directly from the beef herd (66% in total), almost half were ¾ bred continental or greater (46,393 animals in total), with a further 1/3 being of a continental*traditional breed cross (31,901 animals in total). The remaining 17,000 suckler replacements were ¾ bred traditional or greater.

*Table 4.9* **Breed composition of suckler female replacements (2000)**

| | No. | % |
|---|---|---|
| 1st Cross | 48,214 | 33.80% |
| Trad*HF | 26,084 | 18.30% |
| Cont*HF | 22,130 | 15.50% |
| 3/4 breed | 94,294 | 66.20% |
| Trad*Trad | 17,000 | 11.90% |
| Cont*Cont | 45,393 | 31.90% |
| Trad*Cont | 31,901 | 22.40% |

source: Department of Agriculture, Food and Rural Development 2000

*Table 4.10* **Further breakdown of breed composition for suckler female replacements (2000)**

| | Breed of Sire | | | | | | |
|---|---|---|---|---|---|---|---|
| Breed of dam | Hereford | Angus | Charolais | Simmental | Limousin | Belgian B | Total |
| H Friesian | 15,285 | 10,799 | 4,046 | 8,245 | 7,193 | 2,646 | 48,214 |
| Hereford | 7,721 | 2,890 | 6,488 | 4,329 | 4,981 | 942 | 27,351 |
| Angus | 806 | 5,583 | 2,105 | 1,330 | 2,188 | 419 | 12,431 |
| Charolais | 924 | 1,629 | 10,798 | 1,626 | 2,338 | 608 | 17,923 |
| Simmental | 1,218 | 1,633 | 4,126 | 7,348 | 2,663 | 766 | 17,754 |
| Limousin | 1,220 | 1,695 | 3,272 | 2,099 | 6,700 | 689 | 15,675 |
| Belgian B | 300 | 500 | 637 | 399 | 682 | 642 | 3,160 |
| Total | 27,474 | 24,729 | 31,472 | 25,376 | 26,745 | 6,712 | 142,508 |

source: Department of Agriculture, Food and Rural Development 2000

Looking at data from calf births in 1998, gives an indication of the reappearance of different breed compositions as female replacements into the beef herd (Tables 4.11 and 4.12). Trends in reappearance indicate that the proportion of replacements taken from the beef herd (i.e., ¾ bred or greater), increased slightly from 1998 to 2000, from 62.6% of female beef calves born in 1998 to 66.2% of suckler female replacements in 2000. This is a very positive sign, and indicates that beef farmers are making a conscious decision of selecting beef animals as replacements, rather than relying on the dairy herd as source of replacement stock.

*Table 4.11* **Breed composition of female beef calves born in 1998**

| | No. | % |
|---|---|---|
| 1st Cross | 353,901 | 37.40% |
| Trad*HF | 203,705 | 21.50% |
| Cont*HF | 150,196 | 15.90% |
| 3/4 breed | 593,604 | 62.60% |
| Trad*Trad | 73,828 | 7.80% |
| Cont*Cont | 306,082 | 32.30% |
| Trad*Cont | 213,694 | 22.60% |

source: Department of Agriculture, Food and Rural Development 2000

*Table 4.12* **Further breakdown of breed composition of female beef calves born in 1998**

| | Breed of Sire | | | | | | |
|---|---|---|---|---|---|---|---|
| Breed of dam | Hereford | Angus | Charolais | Simmental | Limousin | Belgian B | Total |
| H Friesian | 130,916 | 72,789 | 34,097 | 48,885 | 44,091 | 23,123 | 353,901 |
| Hereford | 36,596 | 13,342 | 58,867 | 23,172 | 28,791 | 6,060 | 166,828 |
| Angus | 4,304 | 19,586 | 25,083 | 7,379 | 10,870 | 2,552 | 69,774 |
| Charolais | 5,355 | 7,930 | 71,505 | 10,261 | 15,108 | 4,256 | 114,415 |
| Simmental | 8,938 | 10,661 | 47,205 | 37,501 | 19,692 | 6,070 | 130,067 |
| Limousin | 6,648 | 7,901 | 32,703 | 10,741 | 31,275 | 4,927 | 94,195 |
| Belgian Blue | 1,466 | 2,021 | 5,832 | 2,166 | 3,422 | 3,418 | 18,325 |
| Totals | 194,223 | 134,230 | 275,292 | 140,105 | 153,249 | 50,406 | 947,505 |

source: Department of Agriculture, Food and Rural Development 2000

## (i) Trends in first insemination AI usage

- *10.1% increase in first insemination usage*
- *9% increase in Holstein Friesian usage*
- *9% increase in overall beef usage*
- *Shift towards certain beef breeds*

Total first inseminations increased by 76,736 in 2000 (up 10.1%) compared to 1999 (Table 5.1). The increase in first insemination usage in 2000, is a welcome reversal of previous trends in this area, which had indicated a steady decline over the past 10 years from a high of 1,027,884 in 1991 to 758,454 last year (Table 5.1 and Figure 5.1). The increase in first insemination usage was experienced across both dairy and beef sectors with Holstein Friesian inseminations increasing from 306,862 in 1999 to 335,009 in 2000 (up 9%) and beef inseminations increasing from 432,171 to 471,978 (also up 9%). The reversal in trends within the beef sector is particularly welcome given the recent dramatic decline in first insemination usage within this area (down over 100,000 during the previous 3-year period).

*Fig 5.1* **Number of HF, beef and total inseminations for all breeds (1991-2000)**

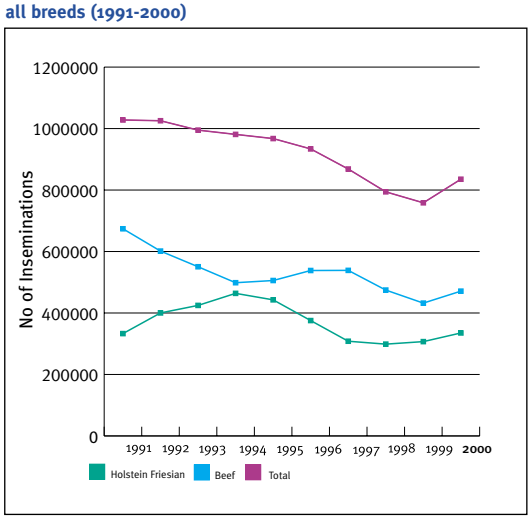



*Table 5.1* **Number of Holstein Friesian inseminations, beef inseminations and total inseminations for all breeds (1991-2000)**

| Year | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
|---|---|---|---|---|---|---|---|---|---|---|
| Total Holstein Friesian Inseminations | 332,947 | 400,183 | 424,658 | 463,861 | 442,751 | 375,356 | 308,126 | 298,669 | 306,862 | 335,009 |
| Total Beef Inseminations | 673,951 | 601,403 | 550,421 | 498,484 | 505,631 | 538,209 | 538,650 | 474,578 | 432,171 | 471,078 |
| **Total Inseminations*** | 1,027,884 | 1,025,462 | 994,921 | 981,038 | 967,474 | 933,773 | 868,400 | 794,116 | 758,454 | 835,190 |

source: Department of Agriculture, Food & Rural Development 2000
* Includes inseminations for dairy, beef and dual purpose breeds

Looking more closely at trends for a number of beef breeds (Table 5.2 and Figure 5.2) indicates a definite shift in emphasis towards certain beef breeds within the National herd, with the Belgian Blue breed now the most popular breed of beef sire used in AI (132,629 first inseminations during 2000). This is followed by the Limousin breed (116,821 inseminations), the Charolais breed (108,763 first inseminations) and the Angus breed respectively (67,149 first inseminations). These trends are consistent with those presented from National calf registration and indicate a definite movement towards certain beef breeds, within the National cattle breeding herd.

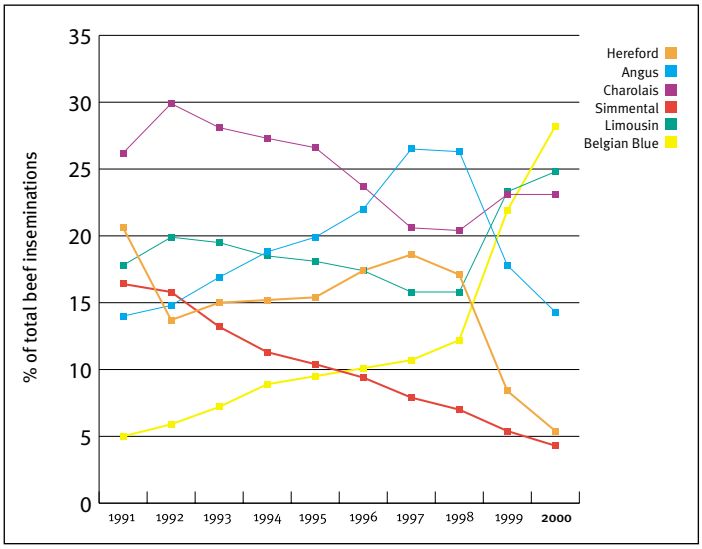
*Table 5.2* **Artificial Inseminations by breed (1991-2000)**

| Breed of AI Sire | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
|---|---|---|---|---|---|---|---|---|---|---|
| Holstein Friesian | 332,947 | 400,183 | 424,658 | 463,861 | 442,751 | 375,356 | 308,126 | 298,669 | 306,862 | 335,009 |
| % of total overall | 32.4% | 39.0% | 42.7% | 47.3% | 45.8% | 40.2% | 35.5% | 37.6% | 40.5% | 40.1% |
| Hereford | 138,989 | 82,640 | 82,797 | 75,694 | 77,836 | 93,561 | 100,030 | 81,114 | 36,488 | 25,260 |
| % of total overall | 13.5% | 8.1% | 8.3% | 7.7% | 8.0% | 10.0% | 11.5% | 10.2% | 4.8% | 3.0% |
| Angus | 94,087 | 89,035 | 93,082 | 93,498 | 100,806 | 118,563 | 142,784 | 124,998 | 77,032 | 67,149 |
| % of total overall | 9.2% | 8.7% | 9.4% | 9.5% | 10.4% | 12.7% | 16.4% | 15.7% | 10.2% | 8.0% |
| Charolais | 176,592 | 179,570 | 154,796 | 136,245 | 134,701 | 127,308 | 110,901 | 97,039 | 99,648 | 108,763 |
| % of total overall | 17.2% | 17.5% | 15.6% | 13.9% | 13.9% | 13.6% | 12.8% | 12.2% | 13.1% | 13.0% |
| Simmental | 110,701 | 95,125 | 72,645 | 56,464 | 52,505 | 50,853 | 42,454 | 33,254 | 23,533 | 20,456 |
| % of total overall | 10.8% | 9.3% | 7.3% | 5.8% | 5.4% | 5.4% | 4.9% | 4.2% | 3.1% | 2.4% |
| Limousin | 120,216 | 119,395 | 107,237 | 92,22 | 91,697 | 93,419 | 84,920 | 80,377 | 100,804 | 116,821 |
| % of total overall | 11.7% | 11.6% | 10.8% | 9.4% | 9.5% | 10.0% | 9.8% | 10.1% | 13.3% | 14.0% |
| Belgian Blue | 33,366 | 35,638 | 39,864 | 44,357 | 48,086 | 54,505 | 57,561 | 57,796 | 94,666 | 132,629 |
| % of total overall | 3.2% | 3.5% | 4.0% | 4.5% | 5.0% | 5.8% | 6.6% | 7.3% | 12.5% | 15.9% |
| Others | 20,986 | 23,876 | 19,842 | 18,693 | 19,092 | 20,208 | 21,624 | 20,869 | 19,421 | 29,103 |
| % of total overall | 2.0% | 2.3% | 2.0% | 1.9% | 2.0% | 2.2% | 2.5% | 2.6% | 2.6% | 3.5% |
| **Total AI** | 1,027,884 | 1,025,462 | 994,921 | 981,038 | 967,474 | 933,773 | 868,400 | 794,116 | 758,454 | 835,190 |

source: Department of Agriculture, Food & Rural Development 2000

The increase in popularity of the Belgian Blue breed over the past few years has been quite dramatic, with total first inseminations increasing by 130% from 57,796 in 1998 to 132,629 in 2000. Similar trends have been experienced by a number of other breeds (i.e. the Limousin and Charolais breeds), although not to the same extent as that experienced by the Belgian Blue breed (Figure 5.2). In contrast, usage of sires from the other main beef breeds, Angus, Hereford, Simmental, continued to decline in 2000, in line with trends experienced in previous years by each of these breeds.

*Fig 5.2* **Total beef inseminations by breed (1991-2000)**




The highly seasonal aspect to milk and beef production systems in Ireland is also evident from analysis of AI data, with 67% of all first inseminations taking place during months of April, May and June (Table 5.3). The seasonality of AI usage is particularly evident for the dairy sector, with 82% of all Holstein Friesian inseminations occurring within this three-month period.

*Table 5.3* **Seasonality of AI usage 2000**

| | Jan | Feb | Mar | Apr | May | June | July | Aug | Sept | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Holstein Friesian | 9,839 | 7,886 | 12,173 | 98,623 | 135,833 | 41,013 | 13,396 | 4,946 | 2,188 | 1,164 | 1,875 | 6,073 |
| % of total | 2.9% | 2.4% | 3.6% | 29.4% | 40.5% | 12.2% | 4.0% | 1.5% | 0.7% | 0.3% | 0.6% | 1.8% |
| Beef | 11,323 | 12,817 | 18,486 | 49,388 | 104,208 | 114,140 | 78,819 | 39,256 | 15,973 | 7,831 | 8,276 | 10,561 |
| % of total | 2.4% | 2.7% | 3.9% | 10.5% | 22.1% | 24.2% | 16.7% | 8.3% | 3.4% | 1.7% | 1.8% | 2.2% |
| Overall | 21,611 | 21,185 | 31,572 | 152,184 | 247,720 | 160,251 | 95,245 | 45,719 | 18,824 | 9,305 | 11,669 | 19,905 |
| % of total | 2.6% | 2.5% | 3.8% | 18.2% | 29.7% | 19.2% | 11.4% | 5.5% | 2.3% | 1.1% | 1.4% | 2.4% |

source: Department of Agriculture, Food & Rural Development 2000

In addition to the existing 8 licensed AI organisations 2 new organisations, Bova AI and Eurogene/AI services were licensed by DAFRD to provide an AI service in 2000. Together these two organisations accounted for 75,000 1st inseminations, which could account for the increase in overall inseminations in 2000. However, given the likelihood that some of these inseminations were from previous customers of the existing eight licensed organisations, it is highly probable that the existing licensed organisations experienced a level of "new business" during 2000 as well (Table 5.4).

The largest of the 10 licensed AI organisations in 2000 was Dairygold with 170,853 first inseminations (20.5% of all first inseminations), followed by Progressive Genetics (13.9%), Sligo (13.6%), Kerry (8.1%) and South Western Services (7.8%). Holstein Friesian inseminations accounted for the major part of the Dairygold AI business last year (about 62% of first inseminations), reflecting the high proportion of dairy herds in the Munster area (section 1). Likewise, almost 90% of the first inseminations in the Sligo AI area were to beef bulls, reflecting the high proportion of beef herds in the Connacht/Ulster region.

*Table 5.4* **Artificial Inseminations by breed for each AI organisation (2000)**

| AI Organisations | H Friesian | Hereford | Angus | Charolais | Simmental | Limousin | Belgian Blue | Others | Total | % of total for AI stations |
|---|---|---|---|---|---|---|---|---|---|---|
| South Western Services Co-op | 37,503 | 2,091 | 5,860 | 2,783 | 1,140 | 3,891 | 10,420 | 1,396 | 65,084 | 7.8% |
| Kerry co-op | 34,741 | 2,028 | 4,108 | 4,197 | 1,034 | 6,288 | 13,451 | 1,657 | 67,504 | 8.1% |
| Goldenvale Plc | 16,062 | 2,643 | 3,427 | 10,228 | 1,230 | 17,420 | 9,551 | 1,848 | 62,409 | 7.5% |
| Progressive Genetics | 46,135 | 2,819 | 7,768 | 11,982 | 2,627 | 13,553 | 24,721 | 6,514 | 116,119 | 13.9% |
| North Eastern CBS | 21,587 | 1,913 | 4,539 | 11,756 | 1,847 | 13,048 | 14,961 | 1,395 | 71,046 | 8.5% |
| Dovea AI | 48,025 | 5,090 | 7,216 | 8,751 | 3,614 | 12,817 | 5,990 | 1,687 | 93,190 | 11.2% |
| Dairygold Co-op | 106,478 | 4,882 | 13,677 | 5,225 | 2,136 | 10,348 | 24,292 | 3,815 | 170,853 | 20.5% |
| Sligo AI | 12,461 | 739 | 14,280 | 38,647 | 4,563 | 23,775 | 16,400 | 3,120 | 113,985 | 13.6% |
| Eurogene/AI services | 5,248 | 278 | 837 | 1,495 | 200 | 2,261 | 2,778 | 3,611 | 16,708 | 2.0% |
| Bova AI | 6,769 | 2,777 | 5,437 | 13,699 | 2,065 | 13,420 | 10,065 | 4,060 | 58,292 | 7.0% |
| Total | 335,009 | 25,260 | 67,149 | 108,763 | 20,456 | 116,821 | 132,629 | 29,103 | 835,190 | 100.0% |
| % of overall | 40.1% | 3.0% | 8.0% | 13.0% | 2.4% | 14.0% | 15.9% | 3.5% | | |

source: Department of Agriculture, Food & Rural Development 2000

## (ii) DIY AI licensing

- *Increase in number of AI licenses*
- *Increase in overall AI penetration rate.*

In addition to inseminations through licensed AI organisations, some 2,679 dairy and beef farmers are presently licensed by the Department of Agriculture to carry out AI on their farm (licenses are valid for a period of 3 years at a time). The number of licensed AI operators increased quite markedly last year, principally due to a large number of farmers renewing their AI license (Table 5.5). Nevertheless there does appear to be a gradual increase in the number of licensed AI operators over the last 8 years, which may, in part, account for the decline in overall first insemination AI usage during that same period. However, this hypothesis is not substantiated by trends from 2000, which indicate an increase in both first insemination AI usage (Table 5.1) and the number of herdowners that are licensed for DIY AI.

*Table 5.5* **DIY AI licenses (1991-2000)***

| | 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 | 422 | 688 |
| 2000 | 315 | 813 | 1128 |

source: Department of Agriculture, Food & Rural Development 2000
* AI licenses are valid for three years from the date of issue

The average herd size of licensed AI herdowners is 92 animals, suggesting that some 250,000 animals are covered by DIY AI. Assuming that all cows in DIY AI herds are artificially bred, this figure suggests that the total number of first inseminations in Ireland last year was close to 1.1 million. Expressing this figure as a proportion of the total breeding females in Ireland (2.67 million), indicates that the number of breeding females being bred to AI (termed AI penetration rate) is about 41%. Whilst this figure is still quite low in international terms (levels of AI penetration rate are typically in excess of 60% in other developed countries), it has increased quite substantially from the figure of last year (about 37%).

## (iii) Participation in ICBF progeny test programme

- *Substantial drop in number of dairy/dual purpose bulls on progeny test in 2000*
- *Increase in number of beef bulls on progeny test in 2000*

At present six organisations are actively involved in ICBF's progeny test programme for dairy and/or dual purpose breeds (Table 5.6). The number of bulls going onto test in 2000 was 38, which is substantially lower than the figure for the previous year (72 bulls went on test in 1999). Munster AI (an amalgam of 4 organisations; Dairygold, South Western Services, Kerry and Golden Vale) are by some way the largest organisation involved in dairy/dual purpose progeny testing with 30 bulls going on test in 1999 and 20 bulls going on test last year.

*Table 5.6* **Number of new bulls on progeny test - dairy and dual purpose**

| | 1999 | 2000 |
|---|---|---|
| North Eastern AI | 3 | 0 |
| Dovea AI | 10 | 4 |
| Progressive Genetics | 11 | 12 |
| Eurogene/AI services | 10 | 2 |
| International Livestock Genetics | 8 | 0 |
| Munster AI | 30 | 20 |
| Total | 72 | 38 |

source: ICBF Animal Evaluation Unit 2000

*Table 5.7* **Number of new bulls on progeny test - beef**

| | 1999 | 2000 |
|---|---|---|
| Dovea AI | 9 | 10 |
| Eurogene/AI services | 6 | 13 |
| Goulding Genetics | 0 | 3 |
| Irish Hereford Society | 0 | 2 |
| Irish Simmental Society | 0 | 5 |
| Munster AI | 14 | 16 |
| Progressive Genetics | 18 | 11 |
| Sligo AI | 3 | 7 |
| Total | 50 | 67 |

source: ICBF Animal Evaluation Unit 2000

At present eight organisations are actively involved in ICBF's progeny test programme for beef breeds (Table 5.7). In contrast to the scenario for dairy/dual purpose bulls, there was an increase in the number of bulls going on to beef progeny test last year, with 67 bulls going on test in 2000 compared to 50 in the previous year. Munster AI and Progressive Genetics account for the largest proportion of bulls going onto beef progeny test (30 and 29 respectively), followed by Dovea AI and Eurogene/AI services, each with 19 bulls. In addition to the six AI organisations involved in beef progeny testing, 2 herdbooks are presently involved, the Irish Hereford breed society (2 bulls on test) and the Irish Simmental Cattle Society (5 bulls on test).

## Introduction

ICBF's mission statement is focused on delivering the greatest possible 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 both of these programmes.

## (i) Dairy Cattle

- *New Economic Breeding Index (EBI) introduced*
- *Genetic improvement of €2.1 per year in National cow population.*
- *Continued improvement in genetic merit for yield traits*
- *Marked decline in genetic merit for calving interval and survival within National dairy herd*

A new Economic Breeding Index (EBI) for dairy cattle was introduced in 2000. The new 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 new traits calving interval (CI) and survival (SUV).

*Table 6.1* **Average genetic merit of progeny test bulls by year of birth for EBI and functional traits**

| | EBI | SUV | CI |
|---|---|---|---|
| 1984 | -20.41 | 0.371 | 0.223 |
| 1985 | -16.26 | 0.275 | 0.028 |
| 1986 | -0.41 | 0.283 | 0.410 |
| 1987 | 1.18 | 0.444 | 0.546 |
| 1988 | -2.69 | 0.393 | 0.522 |
| 1989 | 9.29 | 0.518 | 0.960 |
| 1990 | 4.30 | 0.441 | 0.689 |
| 1991 | 6.91 | 0.288 | 1.606 |
| 1992 | 2.60 | 0.087 | 2.245 |
| 1993 | 12.08 | -0.040 | 2.166 |
| 1994 | 20.75 | -0.543 | 2.722 |

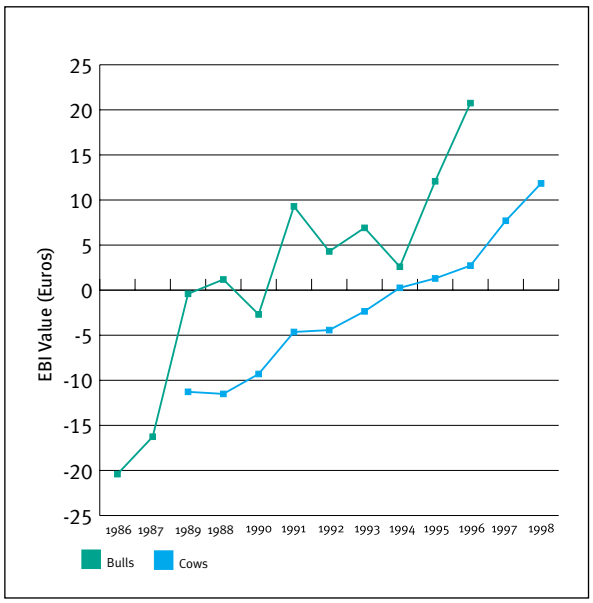
source: ICBF Animal Evaluation Unit 2000

*Table 6.2* **Average genetic merit of cows by year of birth for EBI and milk production traits**

| | Milk | Fat | Prot | Fat% | Prot% | EBI |
|---|---|---|---|---|---|---|
| 1988 | -124.3 | -3.45 | -3.11 | 0.026 | 0.020 | -11.28 |
| 1989 | -120.6 | -2.96 | -3.18 | 0.033 | 0.017 | -11.51 |
| 1990 | -94.7 | -2.09 | -2.58 | 0.031 | 0.011 | -9.30 |
| 1991 | -67.6 | -0.95 | -1.57 | 0.033 | 0.014 | -4.64 |
| 1992 | -62.4 | -0.95 | -1.47 | 0.029 | 0.012 | -4.43 |
| 1993 | -44.4 | -0.72 | -0.90 | 0.020 | 0.012 | -2.35 |
| 1994 | -13.6 | -0.01 | -0.13 | 0.011 | 0.007 | 0.26 |
| 1995 | 9.9 | 0.33 | 0.31 | 0.001 | 0.000 | 1.30 |
| 1996 | 29.5 | 0.81 | 0.75 | -0.005 | -0.004 | 2.72 |
| 1997 | 57.5 | 1.58 | 1.88 | -0.010 | 0.000 | 7.70 |
| 1998 | 58.4 | 2.27 | 2.51 | 0.002 | 0.012 | 11.84 |

source: ICBF Animal Evaluation Unit 2000

*Fig 6.1* **Genetic trend of progeny test bulls and cows by year of birth for EBI 'oo**




Looking at trends in EBI value for progeny test sires and for cows (Figure 6.1), indicates a general increase in the average EBI value of the National dairy herd over the past 15 years. Average EBI value of progeny test sires has increased from €–20.4, for bulls born in 1984, up to €+20.7 for bulls born in 1994, an annual increase of some €4 per year. Similar trends are evident within the National cow population, with the average EBI value of cows increasing from €–11.3 for cows born in 1988 up to €+11.8 for cows born in 1998, an annual increase of just over €2 per year. Whilst the positive improvement in average EBI value is welcome, this figure is still some way short of the figure identified by the EBI project group as achievable for an optimumally designed breeding programme in Ireland (€22 per year).

*Fig 6.2* **Genetic trend of cows by year of birth for milk kg, fat kg and protein kg**

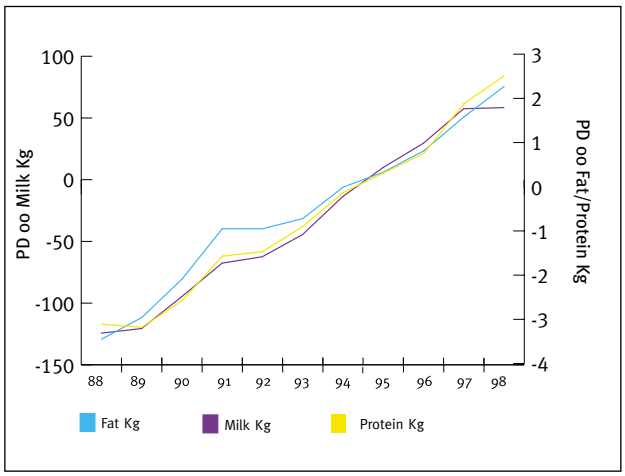
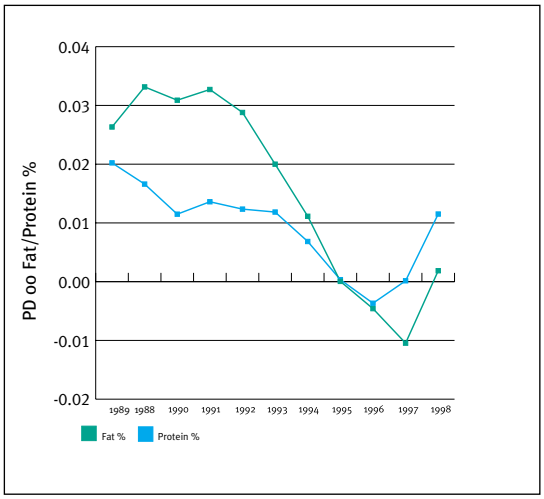
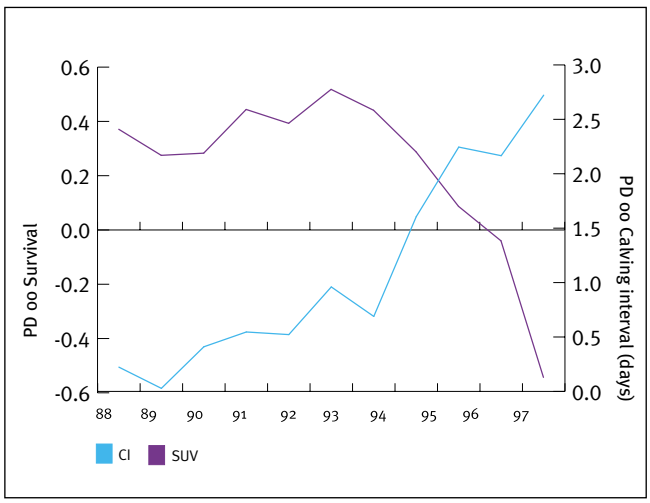



*Fig 6.3* **Genetic trend of cows by year of birth for fat and protein content**




Trends for individual production traits (Table 6.2 and Figure 6.2), 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 16.6 kg, 0.52 kg and 0.51 kg respectively. Trends for protein% had indicated a decline in genetic merit during the early to mid nineties(Table 6.2 and Figure 6.3). However, trends from more recent years (i.e., 1996-1998) suggest a definite increase in the genetic merit of the National herd for this trait.

*Fig6.4* **Genetic trend of progeny test bulls for calving interval and survival**




Genetic evaluations for two new traits, calving interval and survival, were introduced in 2000 (see section 3). Trends in genetic merit for these traits (based on information from progeny test sires), suggests a marked decline in the genetic merit of the National herd for each of these traits (Table 6.1 and Figure 6.4). Calving interval performance has increased by some 2 days over the past 5 years of bull births, whilst average survival has declined by about 1% unit over the same period. This is despite there being very little change in phenotypic performance for either of these traits (Figure 3.6).

This decline in fertility performance with the National dairy herd is not surprising, given past emphasis on production traits. Furthermore it is consistent with data from many other countries which have investigated the relationship between milk production and fertility traits. Addressing this decline in fertility performance, whilst maintaining genetic improvement in protein kg, is the major objective of the ongoing EBI project.

*Fig6.5* **Distribution of cow EBI's - Feb 01**

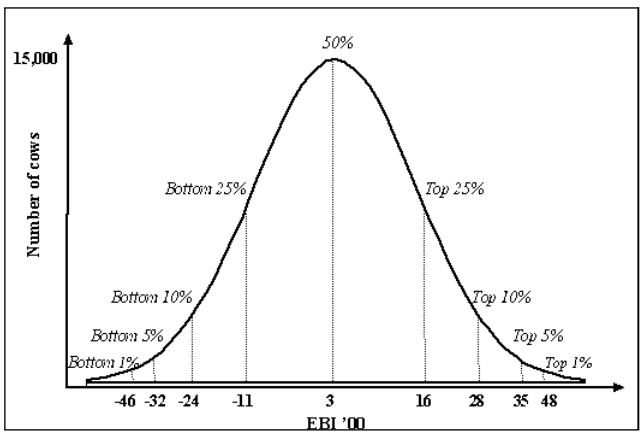
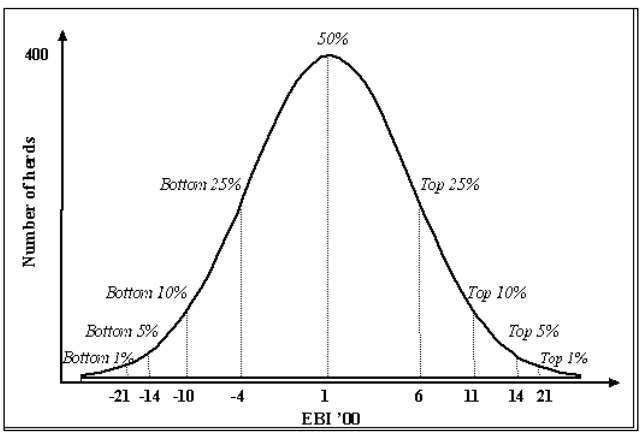



*Fig 6.6* **Distribution of herd EBI's - Feb 01**




The average EBI'oo of all cows from the last genetic evaluation run (269,500 cows received evaluations), was about €3, with the top 1%, 10% and 25% of cows having minimum EBI values of €48, €28 and €16 respectively (Figure 6.5). Looking at results for herds (Figure 6.6), indicates that the average EBI'oo value of herds from the last genetic evaluation run (6,579 herds received evaluations), was €1, with with the top 1%, 10% and 25% of cows having minimum EBI values of €21, €11 and €6 respectively.

## (ii) Beef Cattle

- *Sustained improvement in muscle and skeletal EBV within Limousin and Charolais breeds*
- *Substantial genetic differences between breeds for carcass traits*

At present, three herdbooks offer an on-farm linear scoring service to its members, the Charolais, Limousin and Simmental herdbooks (Section 4). Only the Charolais and Limousin breeds have sufficient data for publication of official genetic evaluation results, at this stage.

Looking at genetic trends in muscle and skeletal EBV for both the Charolais and Limousin breeds, indicates significant genetic improvement within both breeds for each of these traits (Figure 6.7 and 6.8). For example, within the Limousin breed, EBV for muscle has increased by about 1 unit per year for the last 11 years. Similar results are evident for skeletal EBV, although the rate of improvement has declined in more recent years (1996-2000), possibly in response to market demands for more conformation as opposed to growth.

*Table 6.3* **Limousin genetic trends for muscle and skeletal (1990-2000)**

| YEAR | MUSCLE | SKELETAL |
|---|---|---|
| 1990 | 100 | 100 |
| 1991 | 100.5 | 101.5 |
| 1992 | 102.1 | 102.7 |
| 1993 | 103.3 | 105.1 |
| 1994 | 103.5 | 105.9 |
| 1995 | 105.2 | 106.4 |
| 1996 | 106.5 | 107.5 |
| 1997 | 106.7 | 109.3 |
| 1998 | 108.0 | 110.1 |
| 1999 | 110.0 | 110.9 |
| 2000 | 111.1 | 111.1 |

source: ICBF Animal Evaluation Unit 2000

*Table 6.4* **Charolais genetic trends for muscle and skeletal (1990-2000)**

| YEAR | MUSCLE | SKELETAL |
|---|---|---|
| 1990 | 100 | 100 |
| 1991 | 100.6 | 100.5 |
| 1992 | 101.2 | 100.8 |
| 1993 | 101.7 | 101.4 |
| 1994 | 103.3 | 101.8 |
| 1995 | 106.2 | 102.5 |
| 1996 | 105.8 | 103.8 |
| 1997 | 105.8 | 104.5 |
| 1998 | 106.5 | 104.7 |
| 1999 | 108.3 | 105.4 |
| 2000 | 110.6 | 106.3 |

source: ICBF Animal Evaluation Unit 2000

*Fig 6.7* **Limousin genetic trends for muscle and skeletal (1990-2000)**

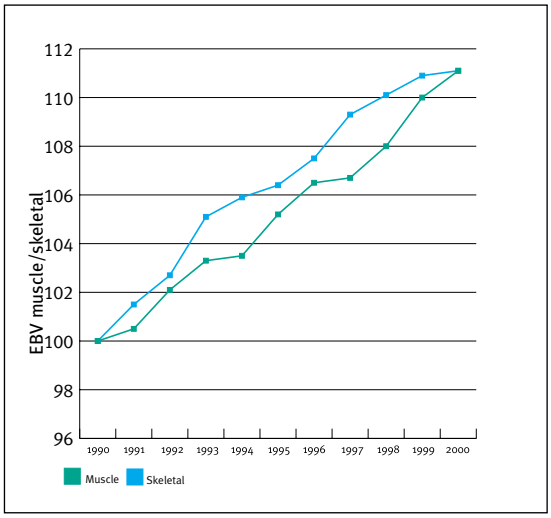
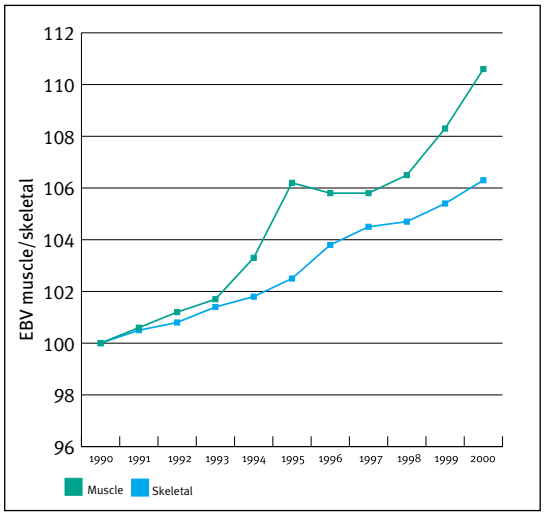



*Fig 6.8* **Charolais genetic trends for muscle and skeletal (1990-2000)**




Trends within the Charolais breed indicate similar levels of genetic improvement to that shown within the Limousin breed for muscle EBV (i.e., 1 unit/year genetic improvement since 1990). However, improvements in skeletal EBV have not been quite as marked, averaging 0.6 units/year, compared to 1 unit/year for the Limousin breed.

*Table 6.5* **Expected breed differences for carcass traits**

| BREED | Carcass wt. | Conformation | Fat | Kill-out % |
|---|---|---|---|---|
| Angus | 355 | 2.69 | 3.82 | 55.3 |
| H Friesian | 350 | 2.02 | 3.39 | 53.9 |
| Hereford | 367 | 2.66 | 3.95 | 55.1 |
| Charolais | 391 | 3.06 | 3.30 | 56.3 |
| Simmental | 376 | 2.74 | 3.35 | 55.4 |
| Limousin | 368 | 2.95 | 3.26 | 56.0 |
| Bl. d'Aquitaine | 377 | 2.79 | 2.97 | 56.7 |
| Belgian Blue | 381 | 3.08 | 2.99 | 57.7 |

source: ICBF Animal Evaluation Unit 2000

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 carcass traits indicates substantial differences between breeds for the various traits (Table 6.5). For example, the Charolais breed is the most superior breed for carcass weight, with an expected carcass value for crossbred Holstein Friesian progeny of 391 kg. This is some 10 kg higher than the next breed, the Belgian Blue breed (381 kg), and 14 kg heavier than the next breed the Blonde d'Aquitaine (377 kg).

*Fig 6.9* **Expected breed differences for carcass weight (kg)**

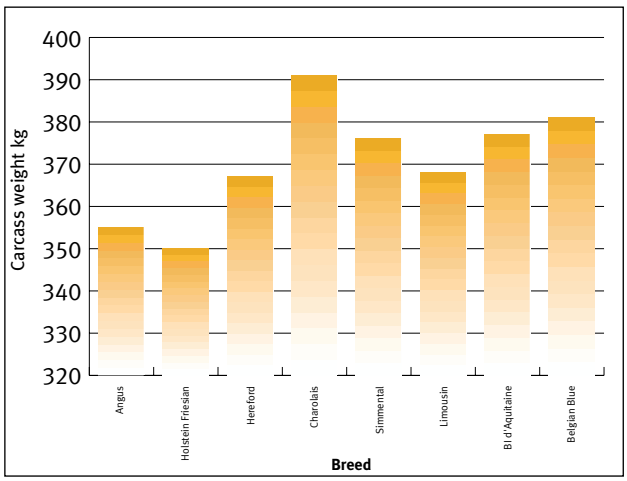
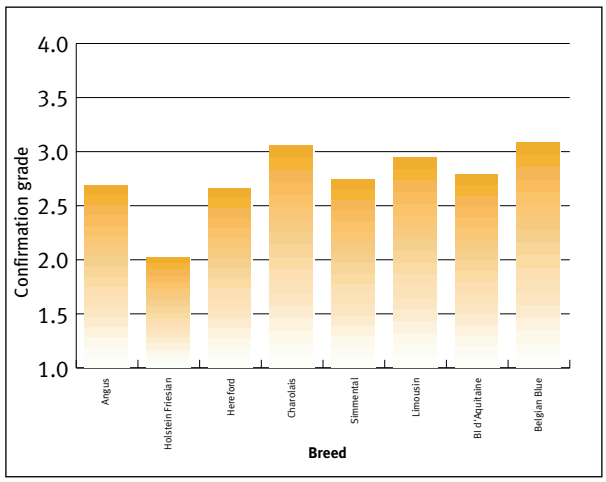



*Fig 6.10* **Expected breed differences for conformation grade**




Trends for conformation grade indicate that, based on Holstein Friesian crossbred progeny performance, the Belgian Blue is the breed most likely to leave well conformed progeny (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).

*Fig6.11* **Expected breed differences for fat class**

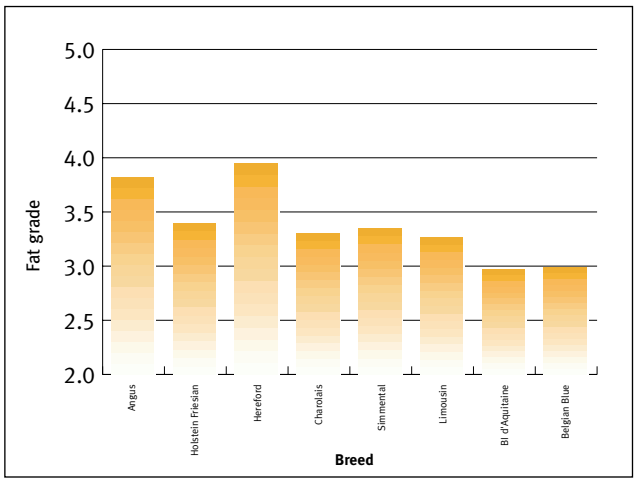
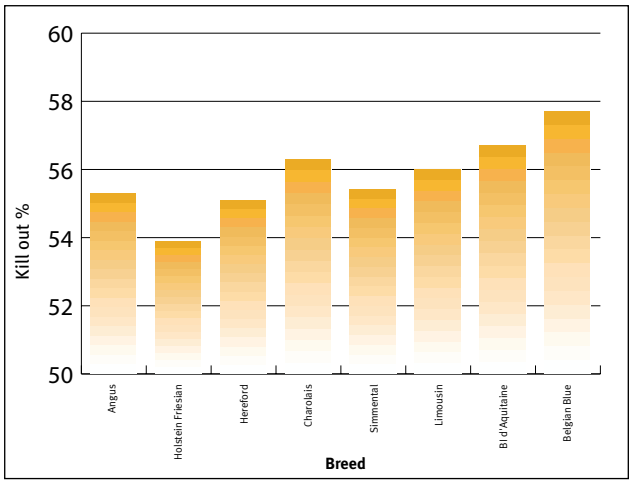
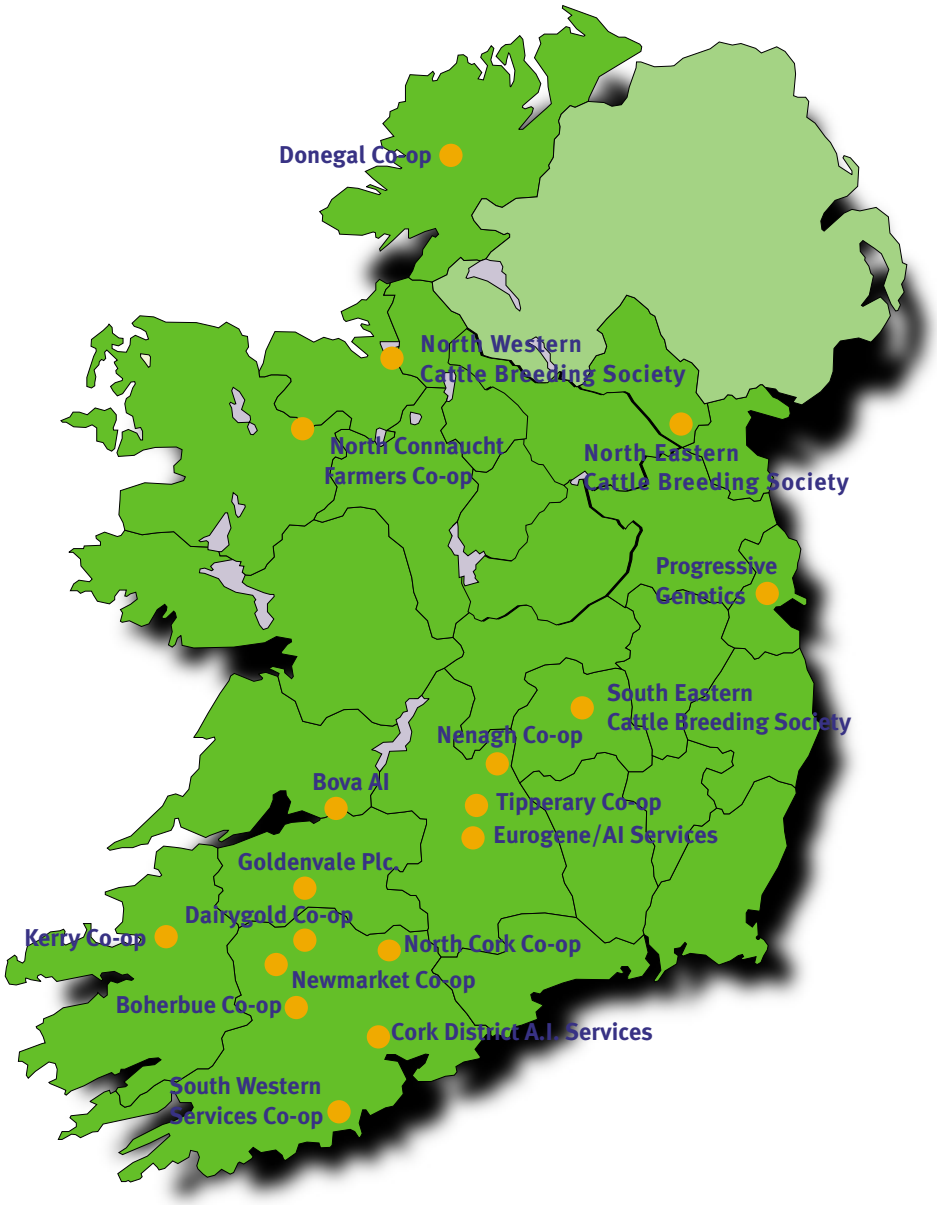



*Fig 6.12* **Expected breed differences for Kill out %**




Breeds ranked somewhat differently for fat class with values ranging from 3.95 for the Hereford breed (highest for fat class) down to 2.97 for the Blonde d'Aquitaine breed (lowest for fat class). Trends for kill-out% are similar to those for conformation, with the Belgian Blue (57.7%), the Blonde d'Aquitaine (56.7%) and the Charolais (56.3%) being the three breeds that are expected to result in crossbred progeny with the highest kill-out%.




- **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
Bova AI
Eurogene/AI Services

**Proportion of calf registrations and herds, by region (2000)**