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BREED COMPOSITION OF THE IRISH CATTLE HERD

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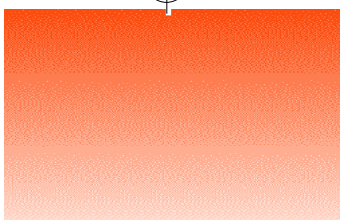

SUMMAR Y

Information was collected on cow and sire breeds in both dairy and suckler herds in the National Farm Survey (NFS) in autumn 1998. The number of farms included in the analysis was 1030 with farms containing less than 2 economic size units (equivalent to 3 to 4 dairy cows) excluded from the sample. The main findings of the survey were as follows:

- Ninety-eight percent of dairy cows and 96% of dairy herd replacements were Friesian/Holstein
- The suckler cow herd contained 46% early-maturing breed crosses (Hereford 31%, Aberdeen Angus 12% and Shorthorn 3%) 2% Friesians, 48% of the three main continental breed crosses (Charolais 17%, Simmental 16%, Limousin 15%) and 4% other (mainly continental crosses). Compared to the adult cows herd replacements had less early-maturing breed crosses and Friesians (total 42%) and more (55%) of the three main continental breed crosses (Charolais 20%, Simmental 15%, Limousin 20%).
- Overall, in 1998, it was estimated that the national cow herd consisted of 52% Friesian/Holstein, 23% early maturing breed crosses and 26% late maturing breed crosses.
- Forty-seven percent of dairy cows were bred to Friesian/Holstein sires, 26% were bred to early maturing sire breeds and 27% were bred to continental sire breeds. The corresponding figure for dairy herd replacements were 40%, 46% and 13%.
- Seventeen percent of suckler cows were bred to early maturing sire breeds, 46% were bred to Charolais, 16% were bred to Simmental, 17% were bred to Limousin and the remaining 6%

were bred to mainly other continental breed sires. The sires used on suckler herd replacements were 43% early maturing breeds, 16% Charolais, 10% Simmental, 25% Limousin and 5% other.

- Based on the sire breeds used in 1998, the breed composition of the 1999 calf crop was estimated to be 24% Friesian/Holstein, 24% early maturing breeds, 24% Charolais cross, 10% Simmental cross, 12% Limousin cross and 6% other (mainly other continental crosses).
- Although the proportion of continental breed crosses in the calf crop continues to increase (48% in 1993 to 52% in 1999), the use of continental sire breeds is declining in the dairy herd (from 33% in 1992 to 27% in 1998), particularly where AI is the method of breeding. However, this trend may be at an end as the 1999 AI figures to date (September 30) show substantial decreases in Hereford and Aberdeen Angus inseminations with increases in Belgian Blue, Limousin and Friesian/Holstein.
- The dairy herd is a relatively unimportant source of the better quality animals accounting for only 25% of total continental breed crosses which have a lower proportion of continental breed genes than those from the suckler herd.
- It was estimated that the 1999 calf crop from the suckler herd consisted of 18% early maturing breeds, 29% of half to three-quarters continental breed genes and 53% containing at least three-quarters continental breed genes.
- A total of 48,200 herds used bulls. The proportion of bulls of each breed used were 9% Frieisan/Holstein, 17% Hereford, 11% Aberdeen Angus, 1% Shorthorn, 29% Charolais, 12% Simmental, 16% Limousin and 5% other. Continental breeds accounted for 38% and 84% of bulls on dairy and suckler farm, respectively.
- In the present study the number of animals (cows plus replacements) bred to continental sire breeds was 1.22 million of

which 40% were by AI.

- National AI figures show that the total number of inseminations (excluding DIY) have declined from 1.03 million in 1992 to 0.79 million in 1998.
- Assuming that the suckler cow should be at least half continental breeding and that Belgian Blue crosses are unsuitable if increases in calving problems are to be avoided then the dairy herd may provide as little as 25% of suitable suckler herd replacements. Thus, the main source of replacements would be from within the suckler herd. Factors to be considered include hybrid vigour which involves crossbreeding, milk production potential of the cow and the fact that the most widely used terminal sire is Charolais. In these circumstances one suitable crossbred cow would be obtained from alternate crossing with Limousin and Simmental sires.
- Heat synchronisation was used on 3% of herds. The figures for dairy and suckler herds was 6.8% and 0.5%, respectively.
- Vaccination for leptospirosis was used on 29% of dairy farms and 4% of suckler farms.

INTRODUCTION

The source of animals for beef production is from the national cow herd of 2.46 million, 48% of which are suckler cows (CSO 1999). Major changes in the type of calves available for beef have resulted from the increase in the proportion of suckler cows from 21% of the cow herd in 1984 to 48% in 1999 and the increase in the use of continental sire breeds resulting in an increase in continental crosses from 6% of the calf crop in 1976 to 48% in 1992 (Drennan, 1999). While these changes would have a positive effect on carcass quality the increasing proportion of Holstein in the dairy cow herd has a negative influence on quality. With approximately 90% of beef exported it is important that a relatively high proportion of the carcasses (or animals) produced are eligible for the higher priced markets. The higher priced markets available are in mainland EU and in these markets highest prices are paid for carcasses of good conformation which are lean (Bord Bia). The main factor (apart from sex and carcass weight) affecting carcass conformation and fatness is breed with the continental breeds such as the Charolais having the most desirable carcass characteristics. It is therefore, important to have a clear outline of the breed composition of the calf crop and the changes that are taking place.

EXPERIMENTAL

Information on cow and sire breeds in both dairy and suckler herds was collected in the National Farm Survey (NFS) in autumn 1998. In addition, the method of breeding, i.e. natural service or artificial insemination (AI) was determined for both cows and replacement heifers. Information was also collected on the use of heat synchronisation and vaccination for leptospirosis. The number of farms included was 1030 and weighting procedures were those normally used in the NFS.

RESULTS

Cow br eeds

The average cow herd size was 29.5 for dairying and 12.9 for suckling (Table 1). Ninety-eight percent of dairy cows were Friesian/Holstein. Suckler cows were 2% Friesian/Holstein, 31% Hereford cross, 12% Aberdeen Angus cross, 3% Shorthorn, 17% Charolais cross, 16% Simmental cross, 15% Limousin cross and 4% percent other.

Table 1. Cow and heifer breed types (percent) in dairy and suckler herds in 1998.

	Dairy herds		Suckler herds	
	Cows	Heifers	Cows	Heifers
Friesian/Holstein	98	96	2	1
Hereford X	-	-	31	19
Aberdeen Angus X	-	-	12	19
Shorthorn	-	-	3	3
Charolais X	-	-	17	20
Simmental X	-	-	16	15
Limousin X	-	-	15	20
Other	2	4	4	4
Total	***100***	***100***	***100***	***100***
Average herd size	29.5	7.9	12.9	3.0

Adjusting the proportions of suckler cows and dairy cows to the numbers present in the National herd (CSO 1998) the breed composition of the cow herd in 1998 was 52% Friesian/Holstein, 23% early maturing breed crosses and 26% continental breed crosses (Table 2).

Table 2. Breed composition of the cow herd in 1998.

	Dairy cows	Suckler cows	Total cows
Friesian/Holstein	51	1	52
Hereford X	-	15	15
Aberdeen Angus X	-	6	6
Shorthorn	-	2	2
Charolais X	-	8	8
Simmental X	-	8	8
Limousin X	-	7	7
Other	1	2	3
Total	***52***	***48***	***100***

Replacement heifer breeds

The average number of replacement heifers was 7.9 in dairy herds and 3.0 in suckler herds (Table 1). When compared with the breed composition of the cow herd the breed composition of replacement heifers indicates the changes that are taking place in the herd. In common with the cow herd dairy herd replacements were predominantly Friesian/Holstein. In the suckler herd the early maturing breeds (Hereford, Aberdeen Angus and Shorthorn) and Friesian have decreased from 48% of the cow herd to 42% of replacements despite the fact that Aberdeen Angus crosses had actually increased from 12 to 19%. As a result, continental breed crosses had increased from 52% of the cow herd to 59% of replacement heifers.

Distribution of suckler cows in different herds

Two percent of suckler cows are located in herds that are mainly dairying, 11% in dairying/cattle herds, 71% in cattle rearing and fattening farms, 13% in mainly sheep farms and the remaining 3% in farms containing other systems (Table 3). The distribution of suckler herd replacements in different herds followed a similar trend to that of the cow herd.

Table 3. Distribution (percent) of suckler animals in different herds in 1998.

	Mainly dairying	Dairying /cattle	Cattle rearing and fattening	Mainly sheep	Other	Total
Suckler cows	2	11	71	13	3	100
Suckler replacements	4	16	66	13	1	100

Sire breeds used on mature cows

Sixty-two percent of dairy cows were bred by artificial insemination (AI). The corresponding figure for suckler cows was 39%. In general, there was a greater reliance on AI where herd size was small. This was particularly evident in suckler herds where the

average cow herd size was 8.1 for AI and 18.1 where a stock bull was used (Table 4).

Forty-seven percent of dairy cows were bred to Friesian/Holstein sires with 26% to early maturing sire breeds and 27% to continental sire breeds. However, where AI was used a considerably higher proportion of dairy cows were bred to Friesian/ Holstein sires than where stock bulls were used (61 v 23 percent).

Forty-six percent of suckler cows were bred to Charolais sires. Overall, the proportion of suckler cows bred to continental sire breeds was 85%. A higher proportion of suckler cows were bred to continental sire breeds when stock bulls were used indicating that the reason for using AI is not necessarily to avail of a sire of good conformation with high growth potential.

Table 4. Breed of sire used (%) on cows in 1998 by method of service .

	Dairy cows			Suckler cows		
	AI	Bull	AI and bull combined	AI	Bull	AI and bull combined
Friesian/Holstein	61	23	47	1	-	1
Hereford	10	31	18	11	7	9
Aberdeen Angus	7	9	8	9	3	6
Shorthorn	-	-	-	-	2	1
Charolais	6	9	7	42	49	46
Simmental	3	12	6	12	18	16
Limousin	7	10	8	18	16	17
Other	6	6	6	7	5	6
Total	***100***	***100***	***100***	***100***	***100***	***100***
Average no. of cows	21.6	24.5		8.1	18.1	
Percent of cows	62.3	37.7		38.9	61.1	

Sire breeds used on replacement heifers

The proportion bred using AI was just over 50% for both dairy and suckler herd replacements (Table 5). There was greater reliance on AI both for dairy and suckler herds when herd size was small. The sire breeds used on dairy herd replacements were 40% Friesian/Holstein, 12% Hereford, 34% Aberdeen Angus, and 13% continental breeds. Where AI was the method of breeding there was considerably greater use of Friesian/Holstein (52% of total inseminations) and Aberdeen Angus (38% of total) than where natural mating was used.

Forty-three percent of suckler herd replacements were bred to early-maturing sire breeds with 56% bred to continental sire breeds. The proportion of heifers bred to the different sire breeds differed depending on the method of breeding. Forty-two percent of suckler herd replacements were bred to Aberdeen Angus where AI was used but only 13% with natural mating. Continental sire breeds were used on 67% of suckler herd replacements when the method of breeding was natural mating. The corresponding figure for AI was 47%.

Table 5. Breed of sire used (%) on heifer replacements in 1998 by method of service .

	Dairy herd replacements			Suckler herd replacements		
	AI	Bull	AI and bull combined	AI	Bull	AI and bull combined
Friesian/Holstein	52	28	40	-	-	-
Hereford	5	21	12	9	14	11
Aberdeen Angus	38	29	34	42	13	29
Shorthorn	-	1	-	2	5	3
Charolais	-	4	2	16	16	16
Simmental	1	5	3	6	15	10
Limousin	3	7	5	24	26	25
Other	1	5	3	1	10	5
Total	100	100	100	100	100	100
Average no. of replacements	6.1	9.5		2.6	3.9	
Percent of replacements	52.9	47.1		53.7	46.3	

Overall sire breed usage

Forty-six % of the total dairy herd (cows and replacement heifers) were bred to Friesian/Holstein sires (Table 6). Breeding to Friesian/Holstein was confined to the dairy herd. Thirty % of the dairy herd and 18% of the suckler herd was bred to the early maturing breeds with approximately equal proportions to Hereford and Aberdeen Angus. The remaining twenty-six % of the dairy herd and 82% of the suckler herd was bred to continental sire breeds.

Table 6. Breed of sire used on cows plus heifer replacements in 1998.

	Dairy herd	Suckler herd
Friesian/Holstein	46	-
Hereford	17	9
Aberdeen Angus	13	8
Shorthorn	-	1
Charolais	6	43
Simmental	6	15
Limousin	8	18
Other	6	6
Total	***100***	***100***

Breed composition of the calf crop

Based on the sire breeds used in 1998, the breed composition of the 1999 calf crop was estimated. This was obtained by adjusting the figures obtained for sire breeds used to the relative proportion of dairy and suckler cows in the National herd (CSO 1999). Overall, the 1999 calf crop consisted of 24% Friesian/Holstein, 24% early maturing breed crosses, 24% Charolais crosses, 10% Simmental cross, 12% Limousin cross and 6% other (mainly continental breed crosses) (Table 7).

Table 7. Breed composition of the 1999 calf crop.

	Dairy herd	Suckler herd	Total herd
Friesian/Holstein	24	-	24
Hereford X	9	4	13
Aberdeen Angus X	7	4	10
Shorthorn	-	1	1
Charolais X	3	21	24
Simmental X	3	7	10
Limousin X	4	8	12
Other	3	3	6
Total	***52***	***48***	***100***

Br eeding to continental sir e br eeds

In the present study the total number of cows (including replacements) bred to continental sire breeds was 1.22 million of which 71% were in the suckler herd (Table 8). The number bred to continental sire breeds using AI was 0.49 million or 40% of the total.

Table 8. Number ('000) and percent of dairy and suckler cows (includes replacements) bred to continental sire breeds using AI and bulls.

	AI			Bull			
	Dair y	Suckler	Total AI	Dair y	Suckler	Total bull	Overall
Number	167	318	485	188	545	733	1217
Percent	14	26	40	15	45	60	100

Br eed of bulls pr esent in dair y and suckler her ds

The data from the present suvrey showed that 18,000 dairy cow herds had access to a bull for natural mating (Table 9). The breed composition of bulls used in dairy herds were 21% Friesian/ Holstein, 29% Hereford, 13% Aberdeen Angus, 9% Charolais, 12% Simmental, 11% Limousin and 6% other.

Thirty-two thousand suckler cow herds used a bull. The breed composition of the bulls used in suckler cow herds were 10% Hereford, 5% Aberdeen Angus, 1% Shorthorn, 44% Charolais, 15% Simmental, 19% Limousin and 6% other.

Taking all farms (including heifers in calf in addition to cow herds) a total of 48,200 herds used bulls. The lower total number of herds than the sum of dairy and suckler herds was due to some herds containing both dairy and suckler cows. The proportion of bulls of each breed on farms were 9% Friesian/Holstein, 17% Hereford, 11% Aberdeen Angus, 1% Shorthorn, 29% Charolais, 12% Simmental, 16% Limousin and 5% other.

Table 9. Breed of bulls used for natural mating in dairy and suckler herds

	Dairy herds %	Suckler herds %	All herds %
Friesian	21	-	9
Herefor d	29	10	17
Aberdeen Angus	13	5	11
Shorthorn	-	1	1
Charolais	9	44	29
Simmental	12	15	12
Limousin	11	19	16
Other	6	6	5
Total	***100***	***100***	***100***
No. of herds	18,000	32,000	48,200

Note: Some herds contained both dairy and suckler cows

Heat synchr onisation

Overall, it was estimated that only 2.8% of herds use heat synchronisation (Table 10). The figure for dairy herds was 6.8% while that for non-dairy herds was 0.5%.

Leptospir osis vaccination

Thirteen percent of herds were vaccinated against leptospirosis (Table 10). The figure for dairy herds was 29% and for suckler herds 3.9%.

Table 10. Percent of herds using heat synchronisation and leptospirosis vaccination.

	Type of her d			
	Dair ying	Dair ying/suckling	Suckling	Total
Heat synchronisation	6.8	5.8	0.5	2.8
Leptospirosis vaccination	28.9	27.1	3.9	13.4

DISCUSSION

Cow breeds

The results of the present study showed that in 1998 the cow herd consisted of 52% Friesian/Holstein, 23% early maturing breeds and crosses and 26% continental breeds and crosses. This shows relatively good agreement with the corresponding figures for 1997 of 52%, 19% and 29% resulting from the Department of Agriculture, Food and Rural Development Registration of calf births by breed of dam (Appendix Table 1). Results from a similar survey carried out in 1992 showed that the cow herd then consisted of 68% Friesian/Holstein, 20% early maturing breed crosses and 13% late maturing crosses. Examination of the suckler herd for 1992 and 1998 shows that continental crosses increased from 29% to 52% of mature cows over this period. The corresponding increase for replacement heifers was from 51% to 59% (Appendix Table 2). These figures clearly indicate that the proportion of continental breed crosses in the overall cow herd is continuing to increase due to the increased proportion in the suckler herd.

Based on the figures available there is likely to be three main types of continental cross replacements for the suckler herd in the future, in addition to a relatively small proportion of early maturing breed crosses. The three main types of continental crosses are continental x Friesians from the dairy herd (provide about 25% of total), Simmental and Limousin crosses from the suckler herd (provide about 50% of total) and because of large supplies upgraded Charolais from the suckler herd (25% of total).

Bull br eeds

Following adjustments to the size of the dairy and suckler herds the estimated breed composition of the 1999 calf crop (based on sire breeds used in 1998) is 24% Friesian/ Holstein, 24% early maturing breed crosses and 52% continental breed crosses. These findings show good agreement with the corresponding figures for 1997 of 25%, 23% and 52% from the Department of Agriculture Food and Rural Development Registration of calf births by breed of sire (Appendix Table 3). These figures show the substantial increase that has taken place over the years in the proportion of continental crosses from a figure of only 6% of the calf crop in 1976. Much of the increase in the proportion of continental breed crosses in the calf crop is due to the increased proportion of suckler cows which were 27% of the cow herd in 1976, 43% in 1993 and 48% in 1999 (CSO publications).

Although most of the increase in the proportion of continental breed crosses in the calf crop had taken place prior to 1993, the proportion did increase from 48% in 1993 to 52% in 1999. However, over the six year period from 1992 to 1998 the proportion of dairy cows bred to continental sire breeds actually declined from 33% to 27% (Appendix Table 4). In fact, when confined to dairy cows bred by AI, the proportion bred to continental sire breeds declined from 29% in 1992 to 21% in 1998. It is thus, apparent that although the proportion of continental breed crosses in the calf crop continues to increase, the proportion is actually declining in the dairy herd. However, the AI figure to date (September 30) for 1999 shows that this trend may not be continuing as there are substantial reductions in Hereford and Aberdeen Angus inseminations with increases in Belgian Blue, Limousin and Friesian/Holstein (Appendix Table 5). An examination of AI figures show that despite the increase in cow numbers from 2.17 million in 1992 to 2.53 million in 1998, the number of

inseminations (excluding DIY inseminations) has declined from 1.03 million in 1992 to 0.79 million in 1998. In fact, the proportion of first inseminations to continental breeds has decreased from 44% (446,000) in 1992 to 35% (280,000) in 1998. These figures suggest that the AI figures are more an indication of what is taking place in the dairy herd than in the total cow herd. Figures from the present survey indicate that 62% of dairy cows and 53% of dairy replacements were bred using AI in 1998. The corresponding figures for the suckler herd were 39% and 54%. Using these figures would indicate that 0.87 million dairy cows (includes in-calf heifers) and 0.39 million suckler cows giving a total of 1.26 million are bred using AI. Thus, there is a large discrepancy between the two sets of figures for AI usage which indicates that DIY AI and others not included in the official figures in Table 5 account for over one-third of total AI. Cunningham (1998) estimated that close to two-thirds of dairy cows and over 20% of beef cows are bred by AI and that some 40% of dairy AI is carried out with imported semen.

In the present study, the number of animals bred to continental sire breeds was 1.22 million of which 40% were by AI.Thus, in the absence of a substantial increase in AI usage, it is essential to improve the overall quality of the continental sires available for natural mating in order to attain an overall improvement in carcass quality.

Availability of bulls

Because of the dependence on natural mating, the supply of bulls available, particularly of the continental sire breeds is of importance. The CSO (1999) provide a figure of 43,800 for bulls kept for breeding purposes which is similar to that obtained in the NFS (Burke and Roche, 1999). The results from the present survey indicates that 62% of the bulls used on farms were continental breeds resulting in

a total of over 27,000 bulls of continental breeds on farms. The number of purebred cows of beef breeds available are estimated at 8000 Charolais, 8,000 Simmental, 3,500 Limousin, 350 Blonde d'Aquitaine, 200 Belgian Blue, 5,000 Hereford and 5,000 Aberdeen Angus. Thus, 30,000 cows of which two-thirds are continental breeds would be expected to provide at least 12,000 beef bulls yearly of which 8000 are from continental breeds. Assuming that the average bull is retained for 4 years, this would result in about 32,000 bulls of continental breeds on farms which is somewhat higher than the figure of over 27,000 previously estimated.

However, with a total of 113,500 cow herds (39,000 with dairy cows and 90,000 with suckler cows) in the country (CSO 1997), it is clear that a large proportion of herds will not have a continental bull. Thus, although 60% of breeding to continental sire breeds is by natural mating there is a major contribution from AI both in the dairy herd (accounts for 47% of breeding to continental breeds) and in the suckler herd (accounts for 37% of breeding to continental breeds).

Availability of suckler herd replacements

In order to produce high quality beef from the suckler herd it is desirable to have a continental cross cow. One source of continental cross cows is Charolais, Simmental, Limousin and Blonde d'Aquitaine cross Friesians from the dairy herd. However, with only 20% of dairy cows and heifers bred to the three main continental sire breeds (Charolais, Simmental and Limousin) in 1998 the maximum number of suitable suckler herd replacements available yearly from this source is just over 100,000. Assuming that half of these animals are actually used as replacements, this source provides only about one-quarter of the total replacements of over 200,000 required by the suckler herd. Assuming that Belgian Blue cross animals are not

used as suckler herd replacements due to the probability of increasing the incidence of difficult calving then, the dairy herd as a source of suckler herd replacements is likely to decline due to increased use of Belgian Blue sires. Thus, with the present ratio of suckler cows to dairy cows, up to three-quarters of suckler herd replacemetns must be sourced from within the suckler herd. To avail of hybrid vigour and ensure adequate milk production potential and assuming a Charolais is used as the terminal sire one suitable type of cow would be obtained by alternate crossing of Limousin and Simmental.

CONCLUSIONS

The dairy cow herd which accounts for 52% of the total 2.46 million cows (CSO 1999) is 98% Friesian/Holstein. The suckler cow herd consists of 46% early maturing breeds and crosses (Hereford, Aberdeen Angus and Shorthorn), 2% Friesians and 52% late maturing crosses such as the Charolais, Simmental, Limousin and Blonde d'Aquitaine. While the breed composition of the dairy cow is stable (although with an increasing proportion of Holstein genes) the proportion of continental breed genes in the suckler cow herd continues to increase. This is evident both from the increase in the proportion of continental breed crosses in the suckler cow herd between 1992 and 1998 (from 29 to 52%) and the fact that there is a higher proportion of continentals in herd replacements than in the adult cow herd (52 v 59%). In addition to a declining proportion of

early maturing breed crosses in the future, the three main types of continental cross suckler herd replacements are likely to be continental x Friesian (25% of total), Simmental and Limousin crosses from the suckler herd (50% of total) and upgraded Charolais (could be up to 25% of total).

Based on sire breeds the estimated breed composition of the 1999 calf crop is 24% Friesian/Holstein, 24% early maturing breed crosses and 52% continental crosses. Taking into account that 52% of suckler cows and 59% of suckler replacements are continental crosses it is estimated that the breed composition of the 1999 calf crop from the suckler herd consists of 18% early maturing breed crosses, 29% of which are half to three-quarter late-maturing continental breeds and 52% of at least three-quarters continental breed. In contrast to the suckler herd the use of continental sire breeds on the dairy herd is declining (from 33% of mature dairy cows bred to continental sire breeds in 1992 to 27% in 1998). This in addition to the increased proportion of Holstein genes in the dairy cow herd means that the beef merit of calves from the dairy herd is declining. With the present cow population, a minimum of one-quarter of the calf crop (those of at least three-quarter continental breed from the suckler herd) should be suitable for the highest priced beef markets in mainland EU. With relatively low usage of AI in the suckler herd and only an estimated 40% of calves from continental sire breeds bred using AI, future improvements in carcass quality are dependent both on improvements in the quality of continental breeds of sires used in natural mating in addition to those used in AI.

The dairy herd is a relatively unimportant source of the better quality animals as it is almost 100% Friesian/Holstein with an increasing proportion of Holstein (poor beef characteristics) and only 25% are bred to continental sire breeds. In contrast, 29% of the progeny from the suckler herd had half to three-quarters continental breed genes while 53% contained at least three-quarters continental breed genes.

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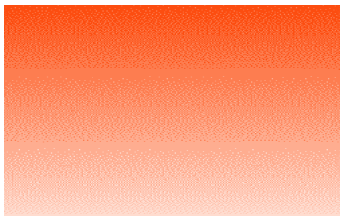

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Appendix Table 1. Breed composition (percent) of the total (dairy and suckler) cow herd.

	Year		
	1992	1997 [1]	1998
Friesian/Holstein	68	52	52
Hereford X	13	14	15
Aberdeen Angus X	4	5	6
Shorthorn	3	-	2
Charolais X	3	9	8
Simmental X	4	10	8
Limousin X	3	7	7
Other	3	3	3
Total	***100***	***100***	***100***

[1]Department of Agriculture Food and Rural De velopment based on analysis of 1997 births by breed of dam.

Appendix Table 2. Cow and heifer breed types (percent) in dairy and suckler herds.

	Dairy herds				Suckler herds			
	Cows		Heifers		Cows		Heifers	
	1992	1998	1992	1998	1992	1998	1992	1998
Friesian/Holstein	97	98	94	96	20	2	7	1
Hereford X	-	-	-	-	35	31	31	19
Aberdeen Angus X	-	-	-	-	9	12	9	19
Shorthorn	1	-	1	-	7	3	2	3
Charolais X	-	-	-	-	7	17	15	20
Simmental X	0	-	1	-	9	16	13	15
Limousin X	-	-	-	-	8	15	15	20
Other	2	2	5	4	5	4	8	4
Total	***100***	***100***	***100***	***100***	***100***	***100***	***100***	***100***

Appendix Table 3. Estimated breed composition (%) of the calf crop for 1976, 1978, 1980, 1982, 1985, 1993, 1997 and 1999.

	1976	1978	1980	1982	1985	1993	1997 [1]	1999
Friesian/Holstein	49	51	62	48	40	30	25	24
Hereford X	33	30	20	33	36	15	14	13
Aberdeen Angus X	5	6	1	4	6	6	9	10
Shorthorn X	6	5	3	2	1	1	-	1
Charolais X			5	5	7	19	23	24
Simmental X	6	8	4	5	6	12	11	10
Limousin X			2	1	3	13	12	12
Other	-	-	4	2	1	4	6	6
Total	***100***	***100***	***100***	***100***	***100***	***100***	***100***	***100***

[1] From calf registration records

Appendix Table 4. Breed of sire used on cows in 1992 and 1998.

	Dairy cows						Suckler cows					
	AI(%)		Bull (%)		AI and bull combined(%)		AI (%)		Bull (%)		AI and bull combined(%)	
	1992	1998	1992	1998	1992	1998	1992	1998	1992	1998	1992	1998
Friesian/Holstein	59	61	25	23	48	47	2	1	1	-	2	1
Hereford	9	10	30	31	16	18	9	11	13	7	11	9
Aberdeen Angus	3	7	2	9	2	8	3	9	1	3	2	6
Shorthorn	-	-	2	-	1	-	2	-	1	1	2	1
Charolais	7	5	13	9	9	7	43	42	41	49	42	46
Simmental	8	3	16	12	11	6	14	12	18	18	16	16
Limousin	9	7	10	10	9	8	22	18	20	16	20	17
Other	5	6	2	6	4	6	4	7	6	5	5	6
Total	***100***	***100***	***100***	***100***	***100***	***100***	***100***	***100***	***100***	***100***	***100***	***100***

Appendix Table 5. Cattle artificial insemination figures by breeds (%) and total inseminations.

	Year							
	1992	1993	1994	1995	1996	1997	1998	1999*
Friesian/Holstein	39	43	47	46	40	36	38	41
Hereford	8	8	8	8	10	12	10	5
Aberdeen Angus	9	9	10	10	13	16	16	10
Shorthorn	1	1	1	1	1	1	1	1
Charolais	18	16	14	14	14	13	12	13
Simmental	9	7	6	5	6	5	4	3
Limousin	12	11	9	10	10	10	10	13
Belgian Blue	4	4	5	5	6	7	7	12
Other	2	1	1	1	1	1	2	2
Total insemination ('000)	***1025***	***995***	***981***	***967***	***934***	***868***	***794***	***722***

*To September 30, 1999Source: Department of Agriculture Food and Rural Development