Réseau laitier canadien
Canadian Dairy Network

Analysis of Heifers Registered in the Herdbook

From time to time, it is interesting to take a look at the current situation of sire trends in recently born heifers within each breed. To this end, an analysis was done at Canadian Dairy Network (CDN) based on all heifers born during 2006 that were subsequently registered within the breed association herdbook.

Embryo Transfer

Table 1 provides the number of heifers born in Canada during 2006 that were registered in the breed association herdbook as well as the proportion that were produced by embryo transfer. Although some variation exists across breeds, the overall percentage of registered females produced by embryo transfer is 4.11%. It is also interesting to note that the proportion of registered heifers resulting from A.I. was approximately 90% for the major dairy breeds.

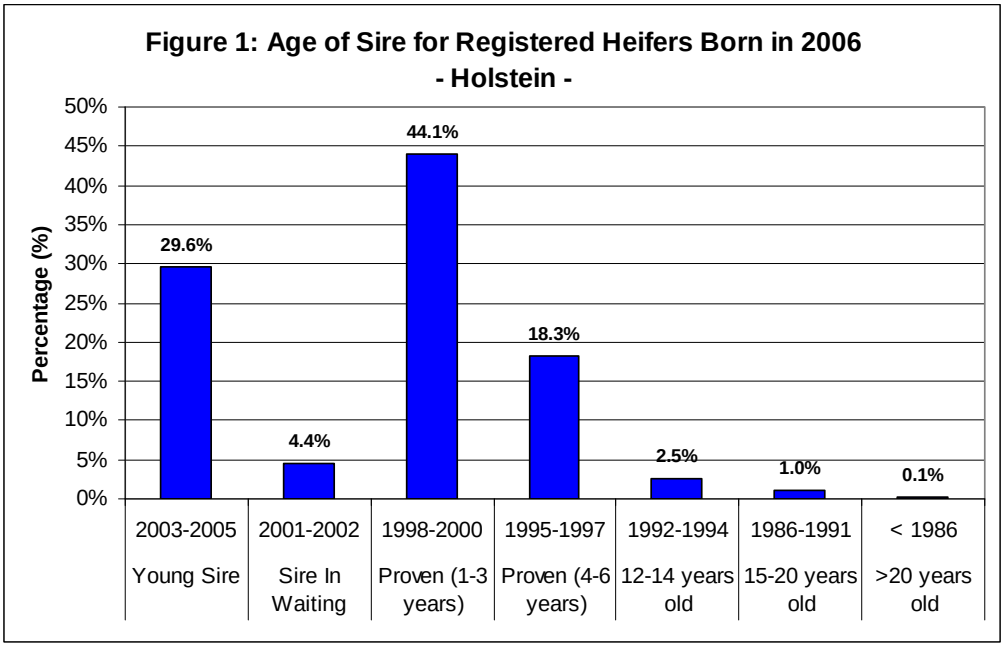
Table 1: Statistics for Herdbook Registered Heifers Born in Canada in 2006

	Registered Females Born in Canada	Produced by Embryo Transfer	% by Embryo Transfer
Ayrshire	5,818	203	3.49%
Brown Swiss	1,612	34	2.11%
Canadienne	204	12	5.88%
Guernsey	219	2	0.91%
Holstein	234,069	9,680	4.14%
Jersey	6,384	281	4.40%
Milking Shorthorn	195	4	2.05%
All Breeds	**248,501**	**10,216**	**4.11%**

Age of Sire

Examining the age of the sire at the birth of their daughters provides valuable information on sire usage trends by producers within each breed. Table 2 (and Figure 1 for Holsteins) provides the percentage of registered heifers born in 2006 by various categories of sire, based on their year of birth. These statistics suggest that the average young sire usage nationally is near 30% for Holstein, Jersey and Brown Swiss while it reaches 35% for Ayrshire and 38% for Guernsey. Another noteworthy trend is the popular use of newly proven sires within the first three years for Holstein (44.1%) compared to other breeds where it represents 30-35% for Ayrshire, Jersey and Brown Swiss but only 7.3% for Guernsey. While the proportion of sires that were more than 20 years old when their daughter was born remains very low, this group includes sires born as early as 1953 in the Holstein breed and since the 1970s for Ayrshire, Jersey and Brown Swiss. For Guernsey, a bull born in 1988 was the oldest sire of registered heifers born in 2006.

Table 2: Percentage of Registered Heifers Born in 2006 by Sire Birth Year						
Category	**Birth Year**	**Holstein**	**Ayrshire**	**Jersey**	**Brown Swiss**	**Guernsey**
Young Sire	2003-2005	29.6%	34.9%	32.2%	31.1%	38.4%
Sire In Waiting	2001-2002	4.4%	7.0%	9.1%	10.5%	13.7%
Proven (1-3 years)	1998-2000	44.1%	31.1%	34.5%	30.1%	7.3%
Proven (4-6 years)	1995-1997	18.3%	17.4%	18.4%	19.4%	25.6%
12-14 years old	1992-1994	2.5%	5.8%	3.4%	5.5%	11.0%
15-20 years old	1986-1991	1.0%	3.2%	1.5%	2.4%	4.1%
>20 years old	< 1986	0.1%	0.7%	0.9%	0.9%	0.0%



Usage of Most Popular Sires

Table 3 shows the total number of different sires by breed with a registered daughter born in 2006 as well as the percentage of all registered heifers born in 2006 that were sired by the ten most popular sires. While a total of 5,180 sires were represented among this group of Holstein heifers, 90% of the heifers were sired by a total of 927 different sires, meaning that over 4,250 sires represented the other 10%. From another perspective, the 100 most popular Holstein sires, which were essentially all A.I. proven sires, represented 60% of this group of heifers.

Table 3: Registrations by 10 Most Popular Sires		
Breed	**No. Sires With Daughter(s) in 2006**	**% Registrations by 10 Most Popular Sires**
Holstein	5180	23.6%
Ayrshire	255	38.2%
Jersey	385	34.8%
Brown Swiss	193	37.9%
Guernsey	43	63.5%

A.I. Controllers

Based on the A.I. sired heifers born in 2006 that were registered in the breed association herdbook, Table 4 provides the proportion sired by semen marketed through the various A.I. organizations for the Holstein, Ayrshire and Jersey breeds. As expected, The Semex Alliance is the major source of sires for all three breeds although the specific proportion varies depending on the number of other A.I. organizations offering semen within the breed and the general usage of semen from privately-owned sires with semen available.

Table 4: Percentage by A.I. Controller of A.I. Sired, Herdbook Registered Heifers Born in 2006

A.I. Controller	Holstein	Ayrshire	Jersey
ABS Global	3.5%	2.6%	2.6%
Alta Genetics	7.7%	---	5.8%
Foundation Sires	1.4%	---	0.0%
GenerVations	4.0%	---	1.5%
Genex / CRI	1.4%	7.4%	2.3%
Select Sires	5.9%	0.5%	11.7%
Semex Alliance	72.7%	85.2%	63.5%
St Jacobs ABC	2.9%	---	3.4%
Other / Private	0.5%	4.3%	9.1%
	100.0%	100.0%	100.0%

Summary

A recent analysis at CDN examined various points of interest related to the population of heifers born in 2006 and registered in the breed association herdbook. Use of A.I and embryo transfer are approximately 90% and 4%, respectively, while young sire usage averages between 30% and 40% for each major dairy breed. The ten most popular sires represent about one-quarter of this group of heifers for Holsteins, which increases to 35-40% for Ayrshire, Jersey and Brown Swiss and to over 60% for Guernsey. The market share by A.I. organization varies slightly across breeds although The Semex Alliance dominates as the most popular semen source.

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