

CDCB In Numbers

Excerpt from the 2017 Activity Report

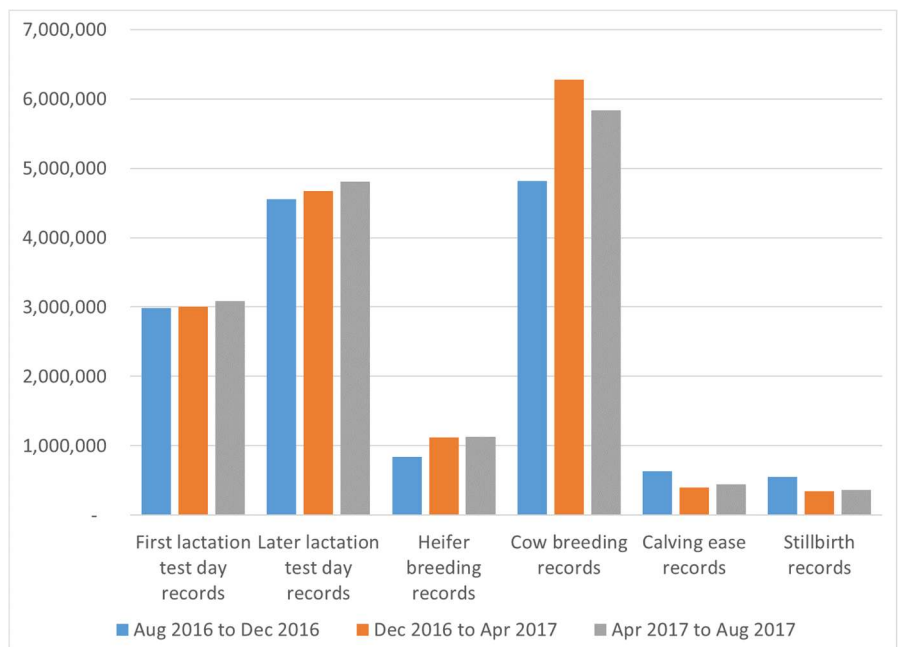
CDCB hosts and manages the cooperator databases – phenotypic and genomic – of U.S. dairy herd data, a strategic asset in providing value and leadership to the U.S. dairy industry. Management and performance benchmarks, as well as genetic and genomic evaluations, are derived from these data.

In January 2017, 4.4 million dairy cows in 16,300 herds were enrolled in dairy herd improvement services (DHI) and voluntarily contributed data to the CDCB system (Table 1). From this pool, approximately 23 million new test day records, 20 million breeding records and 2.7 million calving ease records are added annually to the official genetic evaluations provided by the CDCB (Figure 1).

TABLE 1 - Dairy cow enrollment in DHI test by breed (January 1, 2017)

Breed	Herds	Cows
Ayrshire	63	3,205
Brown Swiss	142	10,079
Guernsey	84	3,948
Holstein	13,344	3,594,876
Jersey	838	321,706
Milking Shorthorn	24	1,170
Red and White	4	330
Mixed	1,873	466,995
Total	16,372	4,402,309

FIG 1 - Phenotypic records added to official evaluations since December 2015



Since the start of the U.S. genomic evaluations in 2009, the CDCB has accumulated over two million genotypes total for the five dairy breeds evaluated (Figures 2 to 5).

FIG 2 - Holstein genotypes added monthly to CDCB database since January 2009

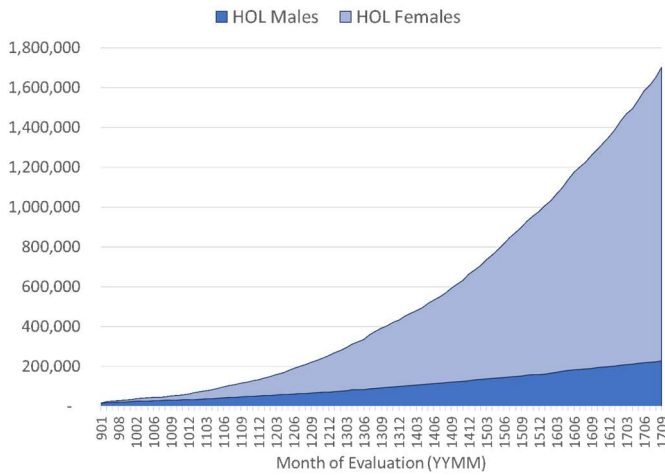


FIG 4 - Brown Swiss genotypes added monthly to CDCB database since August 2009

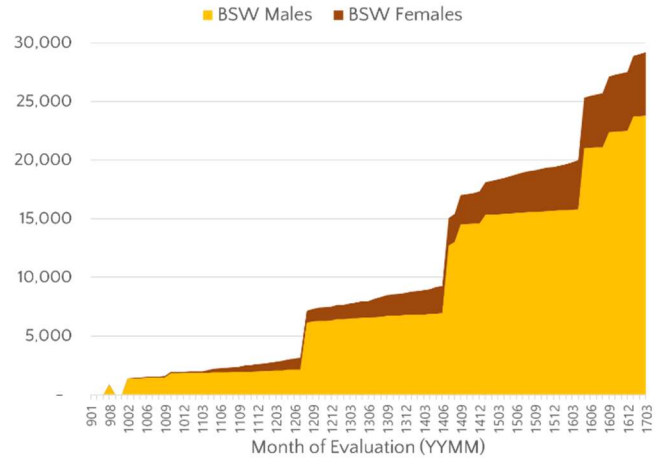


FIG 3 - Jersey genotypes added monthly to CDCB database since January 2009

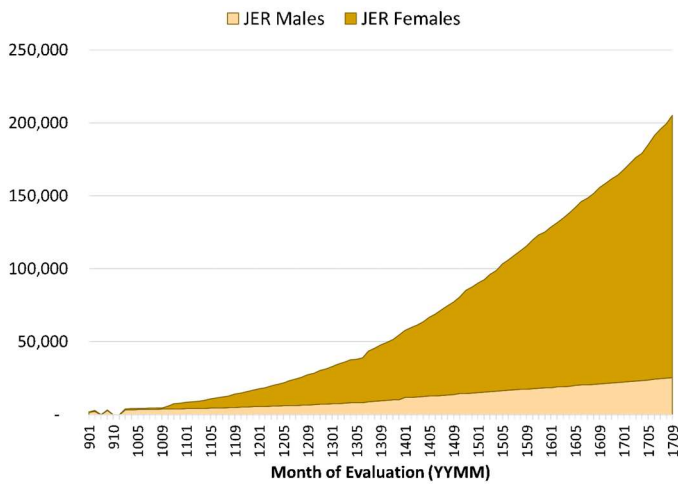
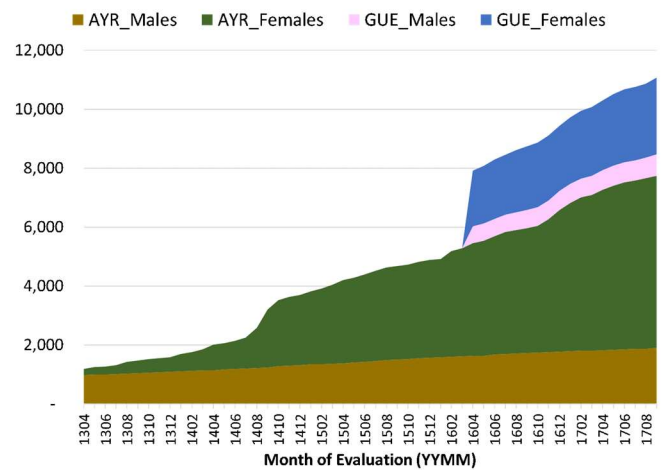


FIG 5 - Ayrshire, Guernsey genotypes added monthly to CDCB database since April 2013



Animals from 55 countries have been added to the CDCB database, on a proportion of 5.9 females per male and 2.5 predicted (young) per predictor animal (with own or progeny phenotypic records). Ninety percent of the animals are from North America.

Table 2 - Number of genotyped animals in the CDCB database by continent of origin (September 2017)

Continent	Predictor		Predicted		Total
	Females	Males	Females	Males	
Africa	7	0	529	76	612
Asia	43	1,826	5,605	1,365	8,839
Eastern Europe	25	448	2,783	785	4,041
Europe	258	16,156	72,540	54,835	143,789
Latin America	397	2	15,935	868	17,202
North America	484,813	31,288	1,021,265	164,283	1,701,649
Oceania	99	474	9,410	2,688	12,671
Total	485,642	50,194	1,128,067	224,900	1,888,803

Although CDCB genomic predictions are tailored for U.S. animals, CDCB predictions are relevant for most foreign populations as U.S. and Canadian bulls are predominantly used as sires of the genotyped animals in all continents, as shown in Figure 6.

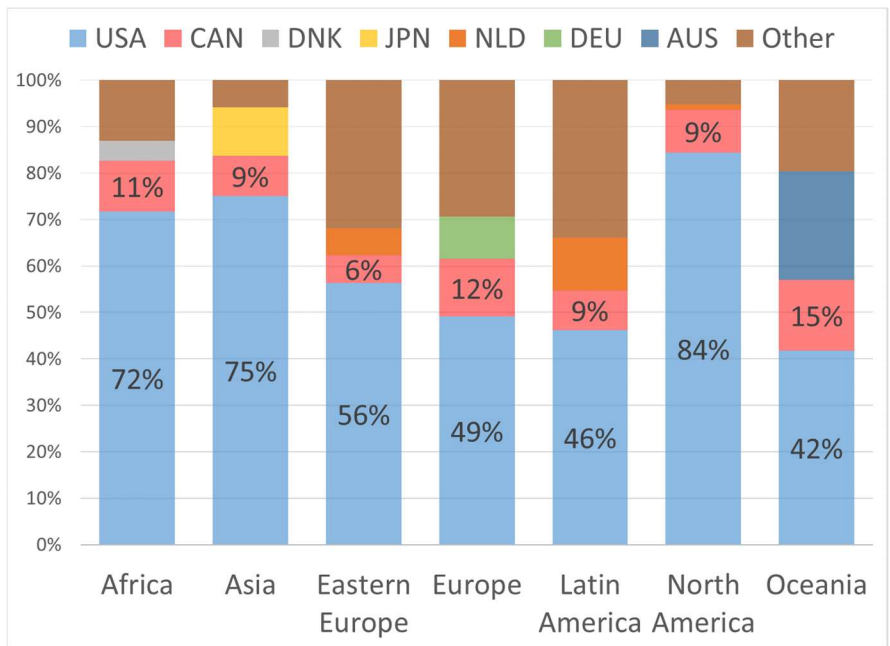


FIG 6 - Country of sire on genotypes used by the CDCB by continent (September 2017)

Finally, Figure 7 shows the estimated female genetic trends for gestation length, which is the latest trait added to the CDCB portfolio.

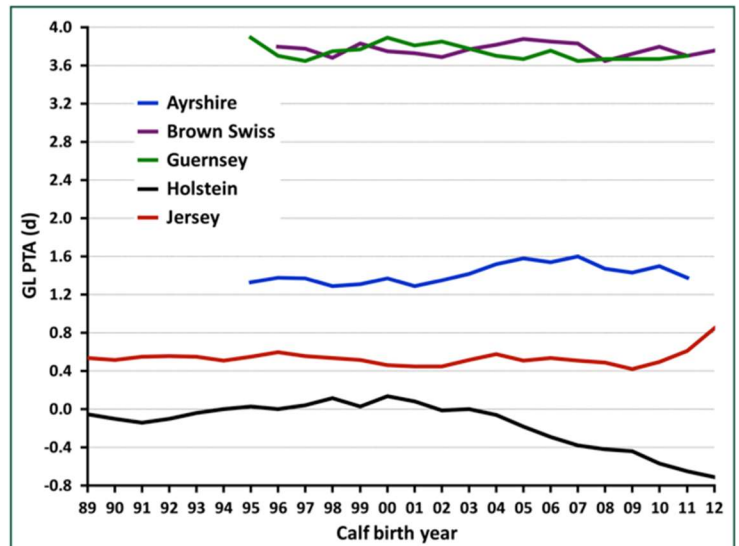


FIG 7 - Genetic trend for Gestation Length (GL), for females by breed (August 2017)