

COUNTRY'S NAME	UNITED STATES OF AMERICA
<b>Production traits</b>	<b>Milk, fat and protein</b>
<b>Breed(s)</b>	Ayrshire, Brown Swiss, Guernsey, Holstein, Red and White (HOL), Jersey, Milking Shorthorn
<b>Trait definition and unit of measurement</b>	Milk (lb), fat and protein (lb, %)
<b>Criteria for inclusion &amp; extension of records</b>	Cows without sire identified are excluded. Lactations are included from cows milking $\geq 40$ days and cows removed from the herd with at least $\geq 15$ days in milk. All records are expressed on a 305-day basis by the best-prediction method. A test by 90 days is required.
<b>Time period for data inclusion</b>	Birth year 1950 and later for pedigree, 1960 and later for first calving.
<b>Sire categories</b>	All bulls are evaluated together. About 1950 AI and 1885 NS new bulls evaluated each year. About 71% of AI and 48% of NS bulls are by ET.
<b>Number of lactations included in the evaluation</b>	First five (recorded first lactation data required in order for any lactations to contribute to sire evaluations)
<b>Environmental effects: Pre-adjustment</b>	Age at calving, month, times milked per day, previous days open, lactation length, heterogeneous variance
<b>Base for age pre-adjustment</b>	ME, 305 days, twice daily milking, variance of first lactation yield in 1992. Base age varies by breed from 61 to 86 months.
<b>Method (model) of genetic evaluation</b>	ST BLUP repeatability AM
<b>Environmental effects in the genetic evaluation model</b>	Fixed: management group [flexible herd*year*season (2-12 months), parity x age, registry status] Random: herd by sire, PE
<b>Use of genetic groups</b>	Unknown parents grouped by year and, for Holsteins, separately for U.S. and Canadian animals. Sires and dams of cows grouped separately but parents of bulls combined.
<b>Genetic parameters in the evaluation</b>	$h^2 = 0.30$ , $t = 0.55$ , $c = 0.10$ (0.35, 0.55, 0.08 for Brown Swiss and Jersey) for average situation; parameters vary depending on herd variance (e.g. $h^2$ ranges from 0.25 to 0.35 and 0.30 to 0.40).
<b>System validation</b>	Means and SD for all variables are calculated and examined overall. Means for new bulls, changes for high bulls, largest changes, and key statistics for recent AI bulls are checked.
<b>Expression of genetic evaluations</b>	PTA, lb and component %
<b>Genetic (reference) base</b>	Stepwise (5 year), cows born in 1995
<b>Next base change</b>	February 2005 when the base will be cows born in 2000
<b>Criteria for official publication of evaluations</b>	At least 10 daughters with usable lactation data
<b>Number of evaluations / publications per year</b>	4; February, May, August, November
<b>Use in production / total merit index</b>	Net Merit = $.018*\text{milk} + 2.14*\text{fat} + 4.76*\text{protein} + 28*\text{productive life} - 154*\text{SCS} - 14*\text{size} + 29*\text{udder} + 15*\text{feet \& legs}$ . Note: Last three are composite traits, all are expressed as PTA, and weights are \$/PTA unit. SCS is the deviation from breed average, i.e. not expressed including breed average.
<b>Anticipated changes in the near future</b>	
<b>Key reference on methodology applied</b>	-Wiggans, G.R., Misztal, I., and Van Vleck, L.D. 1988. Implementation of an animal model for genetic evaluation of dairy cattle in the United States. J. Dairy Sci. 71(Suppl. 2):54. -VanRaden, P.M. and Wiggans, G.R. 1991. Derivation, calculation, and use of national animal model information. J. Dairy Sci. 74:2737. -VanRaden, P.M., Wiggans, G.R., and Ernst, C.A. 1991. Expansion of projected lactation yield to stabilize genetic variance. J. Dairy Sci. 74:4344. -Wiggans, G.R. and VanRaden, P.M. 1991. Method and effect of adjustment for heterogeneous variance. J. Dairy Sci. 74:4350. -VanRaden, P.M. 1997. Lactation yields and accuracies computed from test day yields and (co)variances by best prediction. J. Dairy Sci. 80:3015.

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