FORM GE | Status as of: 2010-04-27

DESCRIPTION OF NATIONAL GENETIC EVALUATION SYSTEM

Country (or countries)	Canada
Main trait group[1]	Workability
Breed(s)	Holstein (HO), Ayrshire (AY), Jersey (JE), Guernsey (GU), Canadienne (CN), Brown Swiss (BS) and Milking Shorthorn (MS).
Trait definition(s) and unit(s) of measurement[2]	**Milking Temperament**. (MTe): cows subjectively evaluated during milking on a five-point linear scale: 1 = Very Nervous (0.91%) 2 = Nervous(8.81%) 3 = Average(49.22%) 4 = Calm(37.34%) 5 = Very Calm(3.71%). **Milking Speed** (MSp) 1= very slow (2.15%) 2= slow (11.76%) 3 = average (58.53%) 4 = fast (25.49%) 5 = very fast (2.07) All scores are Snell transformed before the analysis.
Method of measuring and collecting data	Measured by farmer and collected by DHI personnel
Time period for data inclusion :	MSp: Data included since 1982 MTe: Data included since September 1993 .
Age groups (e.g. parities) included	Only first parity
Other criteria (data edits) for inclusion of records	1. Includes only age at first calving between 18 and 36 both inclusive. 2. Includes only the first 184 days in milk
Sire categories	All
Environmental effects[3]**, pre-adjustments**	No
Method (model) of genetic evaluation[3]	Single trait animal model
Environmental effects[3] **in the genetic evaluation model**	**Fixed effects of** Herd-year in which the observation was made Season of calving Age at calving Days in milk (stage of lactation)
Adjustment for heterogeneous variance in evaluation model	No
Use of genetic groups and relationships	Relationship matrix and phantom groups
Blending of foreign/Interbull information in evaluation	No
Genetic parameters in the evaluation	MTe: Heritability of 0.13 MSp: Heritability of 0.14
System validation	Data quality control
Expression of genetic evaluations If standardised (e.g. RBV), give standardisation formula on PART 2	For both milking speed and milking temperament proof is expressed as the relative breeding value (RBV) with mean 100 and standard deviation of 5. Higher value is desired.

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Definition of genetic reference base **Next base change**	
Calculation of reliability	Using Schaeffer and Jansen approximation method
Criteria for official publication of evaluations	**For HO, JE and AY** Minimum reliability of 55% Minimum number of daughters 10 Minimum number of herds 10 **For GU, BS, CN and MS** Minimum reliability of 40% Minimum number of daughters 10 Minimum number of herds 5
Number of evaluations / publications per year	Same schedule as Interbull
Use in total merit index[4]	MSp included in LPI as predictors of Herd Life it is also included directly in LPI: **Lifetime Profit Index (LPI)** **HO: 51% Production + 34% Durability + 15% Health & Fertility** **AY, BS, CN, GU and MS: 54% Production + 31% Durability + 15% Health & Fertility** **JE: 57% Production + 33% Durability + 10% Health & Fertility** **PRODUCTION:** **AY, BS, GU and HO: 57% Prot kg + 3% Prot % + 38% Fat kg + 2% Fat %** **JE: 57% Prot kg + 10% Prot % + 28% Fat kg + 5% Fat %** **CN and MS: 51% Prot kg + 9% Prot % + 34% Fat kg + 6% Fat %** **DURABILITY:** **BS, CN and GU: 36% Herd Life + 32% Mammary System + 24% Feet & Legs + 8% Dairy Strength** **AY, HO and JE: 20% Herd Life + 40% Mammary System + 30% Feet & Legs + 10% Dairy Strength** **MS: 32% Herd Life + 36% Mammary System + 24% Feet & Legs + 8% Dairy Strength** **HEALTH & FERTILITY:** **AY: 20% SCS + 10% Udder Depth + 3% Milking Speed + 40% Daughter Fertility + 27% Lactation Persistency** **BS: 20% SCS + 10% Udder Depth + 30% Milking Speed + 40% Daughter Fertility** **CN and MS: 48% SCS + 24% Udder Depth + 8% Milking Speed + 20% Daughter Fertility** **GU and HO: 20% SCS + 10% Udder Depth + 3% Milking Speed + 67% Daughter Fertility** **JE: 42% SCS + 21% Udder Depth + 7% Milking Speed + 30% Daughter Fertility** For updated details see: http://www.cdn.ca/articles.php
Anticipated changes in the near future	None
Key reference on methodology applied	A. Sewalem, G.J. Kistemaker and B.J. Van Doormaal. 2002. Bayesian inferences for Milking Temperament in Canadian holsteins. Proceedings of the 7th World Congress on Genetics Applied to Livestock Production. CD-ROM communication n° 01-50

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Key organization: name, address, phone, fax, e-mail, web site	Canadian Dairy Network, 660 Speedvale Avenue West Suite 102 N1K 1E5, Guelph, Ontario, Canada Tel:- 1-519 767 9660 Fax:- 1 519 767 6768 Web:- www.cdn.ca E-mail: vandoorm@cdn.ca

1) Either: Production (e.g. milk, fat, protein), Conformation, Health (e.g. mastitis resistance, milk somatic cell, resistance to diseases other than mastitis), Longevity, Calving (e.g. stillbirth, calving ease), Female fertility (e.g. non-return rate, interval between reproductive events, number of AI's, heat strength), Workability (e.g. milking speed, temperament), Beef production, Efficiency (e.g. body weight, energy balance, body conditioning score), or Other traits.
2) Indicate frequencies per category if the trait is categorical and specify extension or transformation of data if practiced.
3) Use abbreviations for most common effects (see document with list of abbreviations at http://www-interbull.slu.se/service_documentation/General/framesida-general.htm) and indicate random (R) or fixed (F).
4) Please give economic weights and indicate how they are expressed (preferably in genetic standard deviation units).

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DESCRIPTION OF NATIONAL GENETIC EVALUATION SYSTEM

Country (or countries)

Main trait group
Breed (repeat as necessary)

Trait	Definition	h^2*	genetic variance*	official proof standardisation formula**
Milking Speed	How fast the cow lets down the milk	0.14	0.000287	
Milking Temperament	Aggressiveness at milking time	0.13	0.0042	

For both traits the official standardization formula **:**

RBV= ((EBV-a)/b)*c + d, where,

a = mean of the estimated breeding value (EBV) of base bulls,
b = standard deviation of the estimated breeding value(EBV) of base bulls,
c = standard deviation of expression (in this case 5.0), and
d = base of expression (in this case 100.0).

* If lactations are treated as separate traits, provide heritability estimates and genetic variances separately for each lactation, as well as for all lactations pooled, i.e. for the trait submitted to Interbull.

** Expressed as follows:
StandEval=((eval-a)/b)*c+d where a=mean of the base adjustment, b=standard deviation of the base, c=standard deviation of expression (include sign if scale is reversed), and d=base of expression.