Form GE

Status as of: 2016-01-31

DESCRIPTION OF NATIONAL GENETIC EVALUATION SYSTEMS

Country (or countries)	NZL
Main trait group[1]	Udder Health
Breed(s)	AYS, BSW, GUE, JER, HOL, MSH, Beef Breeds, and all crosses of these breeds, evaluated together.
Trait definition(s) and unit(s) of measurement[2]	SCC/1000, transformed to log (base 2) SCS
Method of measuring and collecting data	Milk recording
Time period for data inclusion	1992 onwards
Age groups (e.g. parities) included	Parities one, two and three (with parities two and three treated as repeated observations of the same trait).
Other criteria (data edits) for inclusion of records	Test day performances recorded when the cow was beyond 270 days in milk were excluded.
Criteria for extension of records (if applicable)	
Sire categories	All sires are included in the evaluation (including natural mating sires).
Environmental effects[3]**, pre-adjustments**	
Method (model) of genetic evaluation[3]	MT-RR-TDM
Environmental effects[3] **in the genetic evaluation model**	HYS-testday (F), induced lactation (F), Stage of lactation when recorded (F)
Adjustment for heterogeneous variance in evaluation model	Account for unequal variances due to stage of lactation. Gengler and Wiggans (2001) and Lidauer and Mantysaari (2001) Interbull Bulletin 27.
Use of genetic groups and relationships	The relationship matrix is augmented to include phantom parents without records. The grouping is based on breed, birth year, sex, country. Heterosis and recombination fraction is accounted for in the model.
Blending of foreign/Interbull information in evaluation	None
Genetic parameters in the evaluation	h^2 0.151 Genetic variance 0.1849
System validation	Interbull trend validation test III
Expression of genetic evaluations	EBV
Definition of genetic reference base	2000 born cows with records for each of milk, fat, protein and 17 traits other than production in 2002.
Next base change	June 2016

Calculation of reliability	Information source method. Harris and Johnson, 1998, J Dairy Sci 81:2723-2728. The multiple-trait method follows the original single-trait method. First, multiple-trait reliabilities are computed for each cow based on her testday records, after adjusting for the contemporary group size, using selection index theory. Second, within each trait, the parent reliabilities are updated for their progeny reliabilities, moving from the youngest animals to oldest animals in the data. Lastly, within each trait, the individual reliabilities are updated for their parent reliabilities that have been adjusted to remove the individual's own contribution, moving from the oldest animals to the youngest animals in the data. The reported reliability is a linear combination of the first- and second-lactation reliabilities weighted equally. This corresponds to the published breeding value, which is a simple average across both lactations.
Criteria for official publication of evaluations	All evaluations are official for bulls enrolled for the evaluation system
Number of evaluations / publications per year	3 – February, May, and November
Use in total merit index[4]	The total merit index is called Breeding Worth (BW). In 2011, relative emphasis in percentage terms (VanRaden, 2002, 7th World Congress on Genetics Applied to Livestock Production, Communication No 01-21) was respectively 12, 39, 15, 14, 7.5, 6.5, 6 for Milkfat, Protein, Milk (-), Liveweight (-), Cow Fertility, Somatic Cell Score (-) and Residual Survival not genetically associated with other traits in the index.
Anticipated changes in the near future	
Key reference on methodology applied	A. M. Winkelman and B. L. Harris. 2004. Somatic Cell Score Testday Model for National Genetic Evaluation Livestock Improvement, Private Bag 3016, Hamilton, New Zealand October 18, 2004 www.aeu.org.nz/ Scientific Papers/Working Drafts/Somatic Cell Score Testday Model for National Genetic Evaluation
Key organisation: name, address, phone, fax, e-mail, web site	DairyNZ Jeremy Bryant Private Bag 3016 Hamilton NEW ZEALAND Phone: +64 (0)21 814 163 jeremy.bryant@dairynz.co.nz Website: http://www.dairynz.co.nz/animal/animal-evaluation/

Form GE **Appendix SM**

Parameters for national genetic evaluations for udder health traits as provided to Interbull

Country (or countries): NZL
Main trait group: Health
Breed(s): AYS, BSW, GUE, HOL, JER

Trait	h^{2a}	genetic variance[a]	official proof standardisation formula[b]
Milk Somatic Cell:	0.151	0.1849	N/A
Clinical Mastitis:	N/A	N/A	N/A