

DESCRIPTION OF GENOMIC EVALUATION SYSTEMS

Country (or countries)	NZL
Main trait group¹	Production
Breed(s)	HOL, JER, KiwiCross (HxJ)
Trait definition(s) and unit(s) of measurement²	Milk (l), Milkfat (Kg), Protein (Kg)
Method of measuring and collecting data	De-regressed EBVs of sires are obtained from conventional national genetic evaluation Genotypes from Illumina's 54K SNP chip (May 2010: 2626 HOL, 1639 JER, 642 HxJ)
Time period for data inclusion	No limit for genotypes
Age groups (e.g. parities) included	-
Other criteria (data edits) for inclusion of records	Based on genotypes, individuals that are incompatible with their declared parents are removed, individuals with low SNP call rates are removed.
Sire categories	All genotyped bulls
Environmental effects³, pre-adjustments	-
Method (model) of genetic evaluation³	Mixed linear model, VanRaden (2008)
Environmental effects³ in the genetic evaluation model	Overall mean
Adjustment for heterogeneous variance in evaluation model	None
Use of genetic groups and relationships	-
Blending of foreign/Interbull information in evaluation	Use national deregress EBVs only.
Genetic parameters in the evaluation	Same global heritability as the conventional genetic evaluation
System validation	Checks on Data quality: Individual coefficients, genomic relationship matrix compared to previous version. Overall measures of genetic variance and SNP allelic frequency are also compared. Validation method: comparison between EBVs computed year n with GEBV computed as if we were (n-4) years before (bulls born 2002-2005: 562 HOL, 331 JER, 265 HxJ)
Expression of genetic evaluations	Same expression as conventional genetic evaluation
Definition of genetic reference base	1995 born cows of all breeds and crosses with records for each of milk, fat, protein and 17 traits other than production in 1997.
Next base change	June 2010. After that, subject to decision by New Zealand Animal Evaluation Limited.
Calculation of reliability	Reliabilities computed based on elements of the inverse of the LHS of the MME's.

Criteria for official publication of evaluations	All evaluations are official for bulls enrolled for the evaluation system with genotypes
Number of evaluations / publications per year	2 (Feb and May)
Use in total merit index⁴	The total merit index is called Breeding Worth (BW). In 2005, relative emphasis in percentage terms (VanRaden, 2002, 7 th World Congress on Genetics Applied to Livestock Production, Communication No 01-21) was respectively 7, 38, 16, 18, 9, 7, 5 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	B.L. Harris and D.L. Johnson (2010). Genomic predictions for New Zealand dairy bulls and integration with national genomic evaluations. J. Dairy Sci. 93 : 1243-1252.
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