DESCRIPTION OF NATIONAL GENETIC EVALUATION SYSTEM

Country (or countries)	Israel
Main trait group[1]	Production
Breed(s)	Israeli Holstein
Trait definition(s) and unit(s) of measurement[2] Attach an appendix if needed	305 day milk, fat, and protein Kg production. Incomplete lactation records are extended to 305 days.
Method of measuring and collecting data	Milk recording by the Israel Cattle Breeders association. Milk production is either automatically recorded or recorded my milk inspectors. Samples are sent to the central lab monthly for fat and protein analysis by milk-o-scan. At communal herds samples are collected by milk inspectors. At family farms the farmer collects the samples.
Time period for data inclusion	Calvings since 1985.
Age groups (e.g. parities) included	Parities 1 through 5 are included. Records are multiplicatively adjusted to fourth parity and an additive parity effect is included in the model. Later parities are included only if there are valid records for all previous parities. All parities are weighted equally.
Other criteria (data edits) for inclusion of records	Sire and herd number, and valid cow birth and calving dates are required. Days dry must be ≤ 150. Milk production must be between 2000 and 20,000 kg. Fat must be ≤ 650 kg, and protein ≤ 600 kg. Calving age must be between 640 and 2555 days. There must be > 7 months between consecutive calving dates.
Sire categories	The number of bulls born since 1980 in each category are given in parenthesis after each group: young Israeli Holstein bulls (620), proven Israeli Holstein bulls (66), young "promising" Israeli Holstein bulls (8), foreign Holstein proven bulls (58), breeds other than Holstein (7). Young "promising" bulls are used more widely than normal young bulls. About 20% of young bulls are from ET. All insemination is AI.
Environmental effects[3]**, pre-adjustments**	All adjustments are fixed. Adjustments factors are linear for days open, and multiplicative for calving age and month, and parity. All adjustments are to fourth-parity April calvings, for cows 60 months old, and 90 days open. Last update in September, 1997. Reference: Ezra, E., Weller, J. I., and Drori, D. (1987) Estimation of environmental effects on milk protein content. *Heker Umas* 9; 31-35. (In Hebrew).
Method (model) of genetic evaluation[3]	ST-RR-ML-AM (single trait repeatability multilactation animal model). All records are weighted equally.
Environmental effects[3] **in the genetic evaluation model**	Herd-year-season, discontinuous, 25006 levels (F), parity by management group, discontinuous, 20 levels (F)
Adjustment for heterogeneous variance in evaluation model	No
Use of genetic groups and relationships	Relationship matrix is not modified. Individuals with unknown parents are groups by sex of animal, birth year, and which parents are unknown.
Blending of foreign/Interbull information in evaluation	No
Genetic parameters in the evaluation	Heritability 0.25, permanent environment 0.25 of total for all three traits
System validation	Comparison of first parity and all parity genetic trends. Comparison of evaluations on first and second crop of daughters.
Expression of genetic evaluations If standardised (e.g. RBV), give standardisation formula on PART 2	ETA, in Kgs, relative to genetic base
Definition of genetic reference base **Next base change**	Mean genetic value of all cows with valid production records born in 1995. Next base change in 2005.
Calculation of reliability	Misztal I. and G. R. Wiggans, (1988) J.Dairy Sci, 71: (Supp. 2) 27-32. Corrected in: Misztal, I. et al. (1991) J. Dairy Sci, 74: 2001-2009.
Criteria for official publication of	Reliability > 0.5

evaluations	
Number of evaluations / publications per year	Two, February and August
Use in total merit index[4]	PD01 = -0.22*(kg milk) + 8.5*(kg fat) +31*(kg protein) – 300*(SCS) + 26*(% female fertility
Anticipated changes in the near future	Change to multitrait-RR-ML-AM by August, 2003
Key reference on methodology applied	Weller, J. I., Israel, C., and Ezra, E. (1994) A simple procedure for obtaining approximate interim cow solutions from an animal model. *J. Dairy Sci*. 77; 1126-1131.
Key organization: name, address, phone, fax, e-mail, web site	Joel Ira Weller, Department of Genetics, Institute of Animal Sciences, ARO, the Volcani Center, P. O. Box 6, Bet Dagan, 50250, Israel Tel: 972-8-9484430 Fax: 972-8-9470587 E-mail: weller@agri.huji.ac.il Web site: http://www.agri.gov.il/People/JoelWeller.html

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).

Parameters

Trait	Definition	h^2*	genetic variance*	official proof standardisation formula**
Kg Milk	305 day milk production	0.25	551,644 kg^2	None
Kg Fat	305 day fat production	0.25	669 kg^2	None
Kg Protein	305 day protein production	0.25	379 kg^2	None

* 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.