Form GE

Status as of: 2018-02-02

DESCRIPTION OF NATIONAL GENETIC EVALUATION SYSTEMS

Country (or countries)	BELGIUM (Walloon Region)
Main trait group[1] **NOTE!** Only one trait group per form!	Calving Traits
Breed(s)	Red and Black Holstein
Trait definition(s) and unit(s) of measurement[2] Attach an appendix if needed	Calving ease scores range from 1 to 4 1 Caesarean /fetonomy 2 Hard pull 3 Easy pull 4 Normal
Method of measuring and collecting data	Scored by breeders on voluntary basis
Time period for data inclusion	All available data since 2000
Age groups (e.g. parities) included	Heifer (1st calving) and cows (from 2nd to 5th calvings included)
Other criteria (data edits) for inclusion of records	Valid birth date Age checks for all parities Multiple births, calving interval < 270 days; calves with unknown dam and herds with low variability in calving scores are skipped
Criteria for extension of records (if applicable)	N/A
Sire categories	All
Environmental effects[3]**, pre-adjustments**	No pre-adjustments
Method (model) of genetic evaluation[3]	Animal Model Single Trait – no covariance between direct and maternal effects
Environmental effects[3] **in the genetic evaluation model**	Herd (F) Herd – Year of calving (R) Season (F) Age at current calving (10 classes of age in months) by sex of calf, by group of calving (2 groups: 1st calving and 2nd -5th calvings) (F) Maternal permanent environment (R)
Adjustment for heterogeneous variance in evaluation model	No Adjustment
Use of genetic groups and relationships	All known relationships of cows and sires are considered. No genetic groups
Blending of foreign/Interbull information in evaluation	No blending
Genetic parameters in the evaluation	Heritability for direct effect : 0.08 Heritability for maternal effect : 0.02
System validation	Trend validations
Expression of genetic evaluations If standardised (e.g. RBV), give standardisation formula in the appendix	Expressed in expected differences in percentage of "normal" calving. Transformed to RBV (average 100, SD 10)

Definition of genetic reference base **Next base change**	SD for all cows with calving ease scores born in 2010 used to standardize to 10 points– mean adjusted to 100 for average active sire use in 2014 In 2020 cows born in 2015, sires used in 2019
Calculation of reliability	Based on Interbull EDC computations
Criteria for official publication of evaluations	First sire need to have production evaluation REL ≥ 30% for : • young sires • imported sires if only domestic results • imported sires with INTERBULL results
Number of evaluations / publications per year	3
Use in total merit index[4]	V€G= V€L + V€F + V€T V€G= V€L + V€F + V€T V€L= -0.064 EBV_{milk} + 1.75 EBV_{fat} + 6.25 EBV_{prot} V€F ~ 0.71 * RBV_{SCS} + 4.30 RBV_{long} + 0.40 * RBV_{fert} + 0.20 * RBV_{CEd} + 0.24 * RBV_{CEm} - all functional traits expressed on a 10 unit scale, means of 100 subtracted - coefficients only approximate as computations done using selection index procedure estimating jointly V€F, combined RBV_{long} and combined RBV_{fert} from EBVs for direct longevity, indirect longevity, SCS, indirect fertility and calving ease traits. V€T= V€M + V€C + V€P V€M= -4.11 $RBV_{rear\ leg\ set}$ + (2.06 $RBV_{rear\ leg\ rear\ view}$) + (10.54 $RBV_{bone\ quality}$) + (9.00 $RBV_{feet\&legs}$) V€C=-4.32 $RBV_{overall\ development}$ + 11.11 $RBV_{udder\ corrected\ final\ conformation}$ V€P= 8.64 $RBV_{fore\ udder}$ + 14.19 $RBV_{rear\ udder\ height}$ + 5.55 $RBV_{udder\ support}$ + 14.19 $RBV_{udder\ depth}$ + 2.47 $RBV_{front\ teat\ placement}$ + (-11.11 $RBV_{rear\ teat\ placement}$) + (-5.55 $RBV_{teat\ length}$)
Anticipated changes in the near future	
Key reference on methodology applied	Vanderick S, Troch T, Gillon A, Glorieux G, Faux P, Gengler N. Genetic evaluation of calving ease for Walloon Holstein dairy cattle. Interbull Bull. 2013;(47):32–7. Vanderick S, Troch T, Gillon A, Glorieux G, Gengler N. Genetic parameters for direct and maternal calving ease in Walloon dairy cattle based on linear and threshold models. J Anim Breed Genet. 2014;131(6):513–21.

Key organisation: name, address, phone, fax, e-mail, web site	Organisation responsible for genetic evaluations: Association Wallonne de l'Elevage Asbl (awé) 4, rue des Champs Elysées B-5590 Ciney Computing center University of Liège (ULiège) Gembloux Agro-Bio Tech (GxABT) Agriculture, Bio-engineering and Chemistry Department Animal Science Unit Numerical Genetics, Genomics and Modeling Passage des Déportés, 2 B-5030 Gembloux Belgium Phone: + 32/81/622206 Fax: + 32/81/622115 E-mail : nicolas.gengler@ulg.ac.be WEB site for publication of sire breeding values: http://www.elinfo.be

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 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/list_of_abbreviations.rtf) 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 used in genetic evaluation

Country (or countries): BELGIUM (Walloon Region)
Main trait group: Calving Traits
Breed (repeat as necessary): Red and Black Holstein

Trait	Definition	ITB[a]	h^{2}[b]	genetic variance[b]	official proof standardisation formula[c]
Direct Calving Ease		X	0.077	0.028	
Maternal Calving Ease		X	0.023	0.009	

[a] Indicate, with X, traits that are submitted to Interbull for international genetic evaluations.
[b] If repeated records are treated as separate traits, provide heritability estimates and genetic variances separately for each trait, as well as for all traits pooled, i.e. for the trait submitted to Interbull.
[c] 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.

Parameters for national genetic evaluations for calving traits as provided to Interbull

Country (or countries): BELGIUM (Walloon Region)
Main trait group: Calving Traits
Breed(s): Red and Black Holstein

Trait	h^2	genetic variance	official proof standardisation formula[a]
Direct calving ease:	0.077	0.389	
Maternal calving ease:	0.023	0.389	

[a] 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.