Status as of: January 2012

Form BEEF

DESCRIPTION OF BEEF NATIONAL GENETIC EVALUATION SYSTEM

Country (or countries) France

Trait name: Birth Weight & Calving ease

DATA COLLECTION	
Breed(s)	Charolais
Trait definition	Birth weight Calving difficulties measured on a scale from 1-5
Method and frequency of measurement	Calving ease is scored 1 (easy calving) to 5 (embryotomy)
Who does the performance recording?	Farmer
Method of collecting data	Data are sent by farmers to a regional database that then sends the data to the central national database
Which animals get recorded?	All the animals
Is birthday recorded?	Yes
Is day of recording available?	No
Are the data adjusted and/or selected? If yes please describe the methodology applied	No
Time period for inclusion of records	Since 1972
Criteria (data edits) for inclusion of records	No
Is embryo transfer applied? How are ET animals been identified?[1] Is recipient mother ID recorded?	The technique is rarely applied. ET animals are identified with a specific code (separated from the ID). The recipient mother is recoded
How do you treat incomplete data?	If Birth weight is missing then the animal is excluded
MODEL	

Model used for genetic evaluation[2a]	MT – BLUP –AM with maternal and direct effects, including Birth weight and Calving ease.
Environmental effects[2b]	Contemporary group (many) + dam of age + season. All those effects are fixed
Use of genetic groups and relationships	Relationship matrix without genetic groups
Genetic parameters in the model [3]	
Adjustment for heterogeneous variance in evaluation model	No
System validation	ISO 9001 certification, several data quality checks by INRA and Institut de l'Elevage, at different stages of the procedure, correlation among different years
Definition of genetic reference base Next base change	Rolling basis including calves born in the last 5 years and recorded for all preweaning traits (Birth weight, calving ease, adjusted weaning weight, muscular and skeletal development scoring notes). This basis is updated for each evaluation each year
Assessment of index quality (computation of reliability, connection)	The index quality is assessed through: 1. Coefficient of Determination (CD) computed with the software of Canada Dairy Network. 2. Number of evaluated offsprings 3. Criteria of Admission to the group of connected herds (CACO) computed following the Fouilloux method (Fouilloux M N, Laloe D. A sampling method for estimating the accuracy of predicted breeding values in genetic evaluation, Genet Sel Evol 22 (2001), 473-486
PUBLICATION	
Expression of genetic evaluations	IFNAIS (Birth ease) : combination of direct EBV of birth weight (80 %) and calving ease (20 %) AVEL (calving ability) : maternal EBV of calving ease) These indices are standardized in comparison with the reference basis (mean=100) ; 10 points correspond to 1 genetic standard deviation.. Details can be found in the document "Repertoire IBOVAL" available in French and English on the web: http://idele.fr/recherche/publication/idelesolr/recommends/repertoire-des-resultats-de-levaluation-iboval-2012-pour-les-races-bovines-a-viande.html
Criteria per official publication of evaluations	The rules for publishing the sires are following; For direct effects : The "known sires" are the ones for which the accuracy is at a sufficient level (at least 25 recorded offspring). Then, the sires that are comparable between herd-years at a racial level are called "connected sires" (they have sired at least 10 recorded calves of their daughters in one or several herd-years" connected units. A sire is considered as an 'active sire' if it had at least 2 calves born and recorded over one of the last two years. Details can be found in the document "Repertoire IBOVAL" available in French and English on the web:

	http://idele.fr/recherche/publication/idelesolr/recommends/repertoire-des-resultats-de-levaluation-iboval-2012-pour-les-races-bovines-a-viande.html
Number of evaluations / publications per year	1 per breed and year
Anticipated changes in the near future	Chest circumference is now collected on farm since 2012. It will be included in the genetic evaluation in the next 5 years
Key reference on methodology applied	Details can be found in the document "Repertoire IBOVAL" available in French and English on the web: http://idele.fr/recherche/publication/idelesolr/recommends/repertoire-des-resultats-de-levaluation-iboval-2012-pour-les-races-bovines-a-viande.html
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1) Use Appendix II BEEF for sample ID of ET animals
2a) Use abbreviation listed in the attached list of abbreviation to define the type of model.
2b) Use abbreviation for most common effects as listed in the attached list of abbreviation indicating, also, if the effect is treated as random (R) or fixed (F).
3) Use Appendix I BEEF for heritability/genetic variance estimates.

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Appendix I BEEF

Parameters used in genetic evaluation

Country:
Main trait group:
Breed:

Trait[1]	Definition	h_d^2	h_m^2	$r_{g(d,m)}$	c^2	σ^2_p
BW	Birth weight	0.41	0.10	-0.48	0.03	17.6
CE	Calving ease	0.10	0.06	-0.40	0.03	0.28

h_d^2: direct heritability; h_m^2: maternal heritability; $r_{g(d,m)}$: genetic correlation between direct and maternal effects; c^2: repeatability of (maternal) permanent environmental effects; σ_P^2: phenotypic variance.
1) If you have more than one trait provide the correlations between traits.

- ⇨ Direct genetic correlation between BW and CE = 0.83
- ⇨ Maternal genetic correlation between BW and CE = 0.69
- ⇨ Permanent environment correlation between BW and CE = 0.28

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Appendix II BEEF

Sample of ET animal IDs

Country:
Main trait group:
Breed:

ET animal ID