Status as of: 2010 – 08 – 17

Form BEEF

DESCRIPTION OF BEEF NATIONAL GENETIC EVALUATION SYSTEM

Country **Germany**

Trait name: **Production traits**

DATA COLLECTION

Breed(s)	Charolais, Limousin, Angus, Simmental, Blonde d'Aquitaine, Salers, Hereford, Uckermärker
Trait definitions	Birth weight, Weaning weight at 200 days, Yearling weight at 365 days, Muscle score at 200 days, Muscle score at 365 days
Method and frequency of measurement	Weights and scores of all male and female animals are recorded 2 times. Weaning performance: 90 - 280 d; Yearling performance: 281 – 500 d;
Who does the performance recording?	Weighting can be done by breed associations or by breeders, scoring is done by the breed associations. All data are collected according to general ICAR performance recording rules (ICAR 2009)
Method of collecting data	Performance data is collected on farms
Which animals get recorded?	Pure breed
Is birthday recorded?	Yes
Is day of recording available?	Yes
Are the data adjusted and/or selected? If yes please describe the methodology applied	No
Time period for inclusion of records	Since 1981 onwards
Criteria (data edits) for inclusion of records	Performance data collected from 90 to 500 d
Is embryo transfer applied? How are ET animals been identified?[1] Is recipient mother ID recorded?	No
How do you treat incomplete data?	Relevant information describing environmental effects must be available otherwise the record is excluded from genetic evaluation. Multiple trait model with missing traits allowed.

MODEL

Model used for genetic evaluation[2a]	Multiple trait (5 traits), animal model
Environmental effects[2b]	Herd x year (random), sex (fix), birth type (fix), month of birth (fix),. parity x age of dam (fix), regression for age of weighting (200 / 365 days) nested within sex
Use of genetic groups and relationships	Genetic groups are defined for unknown parents of animals based on breed, selection paths, year of birth of the animal
Genetic parameters in the model [3]	See table 1
Adjustment for heterogeneous variance in evaluation model	No
System validation	- checks on data quality (raw data, pedigree information, etc.) - checks on results: checks in EBV between evaluations, genetic trends, stability on EBV over time - the whole evaluation is a ISO 9001 certified process.
Definition of genetic reference base Next base change	Yearly rolling base (actually all bulls born 2001 – 05 with progeny) December 2010: (➔ bulls born 2002 – 2006)
Assessment of index quality (computation of reliability, connection)	Reliabilities are calculated using K. Meyers method for multitrait models (1989)

PUBLICATION

Expression of genetic evaluations	Single trait EBVs on original scale are not published. Instead, relative breeding values (RBV) are published: • RBV maternal weaning weight (200 days), • RBV daily gain (365 days), • RBV muscle score (365 days)

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
Birth weight		0.33				6.8
Weaning weight direct	Weight between 90 – 280 days	0.23				20.4
Weaning weight maternal			0.19			
Yearling weight	Weight between 281 – 500 days	0.23				37.5
Muscle score weaning	Score between 90 – 280 days	0.22				0.26
muscle score yearling	Score between 281 – 500 days	0.20				0.24

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.

Correlations above the diagonal, heritabitlies on the diagonal

		(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Birth weight	(1)	0.33	0.40	-0.10	0.50	0.20	0.20
Weaning weight direct	(2)		0.23	-0.30	0.75	0.70	0.50
Weaning weight maternal	(3)			0.19	-0.10	0	0
Yearling weight	(4)				0.23	0.50	0.70
Muscle score weaning	(5)					0.22	0.80
Muscle score yearling	(6)						0.20

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Appendix II BEEF

Sample of ET animal IDs

Country:
Main trait group:
Breed:

ET animal ID