

Status as of: 2018-10-15

Form BEEF

DESCRIPTION OF BEEF NATIONAL GENETIC EVALUATION SYSTEM

Country (or countries) DFS (Denmark, Finland and Sweden)

Comment: From 201508 DFS participate in Interbeef as one country and send data together from a joined unofficial model with common trait definition, editing and parameters (this is done for AWW and calving traits). For carcass traits (as well as for fertility traits) we have not yet developed our joint model but deliver joint data to be able to participate in the ongoing research projects in Interbeef. The “preliminary” DFS trait definitions, models and parameters for carcass traits are described below. However, it is not identical to the national models that are still official in Denmark, Finland and Sweden, respectively. Also the data collection and official publication is so far done nationally.

Trait name: Carcass weight (CWE), carcass daily gain (CDG), carcass conformation score (CCO), carcass fat (CFA)

DATA COLLECTION

Breed(s)	Charolais , Limousin, Simmental (BSM)
Trait definition	<p>DFS:</p> <p>*CWE (kg) *CDG (g/d) – calculated as: CWE minus half breed average for birth wt (wt expressed in gram) and divided by age at slaughter in days *CCO (1-15) *CFA (1-5) (IN Sweden we have values 1-15 for fat, but not in DNK and FIN, so chosen scale is 1-5 for fat)</p> <p>All the traits are corrected for heterogeneous variance in different countries. For CWE and CDG values are rounded to integers but for CCO and CFA we delivered values with 2 decimals.</p> <p>(see exact trait definition under data adjustment)</p>
Method and frequency of measurement	Recorded at slaughter houses in D, F and S
Who does the performance recording?	Responsible for the recording is Sege, Faba and Växa Sverige in D, F and S, respectively.
Method of collecting data	
Which animals get recorded?	DFS: Only purebred animals in the current model (and sent to

	Interbeef). <i>We will probably want to deliver carcass data from crossbreds in the future since this data is also recorded nationally but not yet available at a joint level.</i>
Is birthday recorded?	Yes
Is day of recording available?	Yes
Are the data adjusted and/or selected? If yes please describe the methodology applied	DFS: We adjust all 3 traits for heterogeneous variance between countries.
Time period for inclusion of records	DFS: records since 1980 included from all countries. However, carcass data only available from later years. (D 1994-, F 2007-, S 1997-)
Criteria (data edits) for inclusion of records	DFS: in the joint DFS editing we only keep carcass records from purebred animals with known dam and if age of animal at time for slaughter is between 200 and 750 days of age.
Is embryo transfer applied? How are ET animals been identified? ¹	DFS: in joint model records from ET animals are excluded so these animals get only pedigree indices.
Is recipient mother ID recorded?	<i>No 604-files sent to Interbeef.</i>
How do you treat incomplete data?	Deleted
MODEL	
Model used for genetic evaluation ^{2a}	DFS: ST-BLUP-AM (only direct genetic effect) We have currently no (un)official DFS model in place but in the future I assume we will run 3 carcass traits (CDG, CCO and CFA) and some weight traits (birth, weaning and yearling weight) in a multiple-trait model. <i>In national models for carcass traits, MT-BLUP-AM are used.</i>
Environmental effects ^{2b}	DFS: HY ¹ (F) + ASEX ² (F) + TWIN ² (F) + AAC ² (F) + SEAS ^{2,3} (F) + SAGE (X) ¹ Defined as slaughter herd*slaughter year and turned into unique DFS serial number ² Classes of fixed effects are country coded ³ Defined as slaughter year*slaughter month (months grouped by 3)
Use of genetic groups and relationships	DFS: No grouping, relationship matrix
Genetic parameters in the model ³	
Adjustment for heterogeneous variance in evaluation model	DFS: Yes, we adjust for heterogeneous variance across country in our joint DFS model.
System validation	Trends and comparing successive evaluations
Definition of genetic reference base	DFS: No model in place yet so not yet discussed or defined any genetic base.
Next base change	<i>For other Interbeef traits we use:</i>

	<i>The genetic base (for the mean) defined as DFS animals born 3-8 yr before evaluation and with aww record and RBV are computed (with a fixed value for std of EBVs).</i>
Assessment of index quality (computation of reliability, connection)	DFS: Not available/applicable yet from joint DFS model. <i>Will come in the near future.</i>
PUBLICATION	
Expression of genetic evaluations	DFS: Not available/applicable yet from joint DFS model. <i>Will come in the near future</i>
Criteria per official publication of evaluations	DFS: Not available/applicable yet from joint DFS model. <i>Will come in the near future</i>
Number of evaluations / publications per year	DFS: Not available/applicable yet from joint DFS model. <i>Will come in the near future</i>
Anticipated changes in the near future	Yes – we will develop official joint DFS models for all beef traits <u>within the coming years.</u>
Key reference on methodology applied	<p><i>D: www.lrv.dk/kvaeg/diverse/principles.pdf</i> <i>F: -</i> <i>S : http://www.vxa.se/Radgivning-service/Avel/Avel-pa-djupet1/Avelsvardering-for-kottraser/</i> <i>+</i> <i>Eriksson et al., 2007, Genetic Evaluation of Beef Cattle in Sweden,</i> <i>Eriksson et al. Interbull Technical Workshop Paris, France March 9-10, 2007</i> <i>Hans Stålhammar, 1997, Genetic Studies of Beef Characteristics in Swedish Cattle Breeds 1997, Acta Univ. Agr. Sueciae, Agraria 55</i></p>
Key organization: Contact person, address, phone, fax, e-mail, website	<p>DFS contact person (also Swedish contact person): Växa Sverige: Emma Carlén, Box 7023, S-750 07 Uppsala, Sweden, Phone: +46-10-4710614, emma.carlen@vxa.se, www.vxa.se</p> <p>Danish contact person: Segez: Anders Fogh, Agro Food Park 15, DK 8200 Aarhus N Denmark, Phone : +45 8740 5337, adf@seges.dk, www.seges.dk</p> <p>Finnish contact person: Faba: Kaisa Sirkko, Box 40, FI-01301 Vantaa, Finland, Phone : +358 20747 2052, kaisa.sirkko@faba.fi, www.faba.fi</p>

- 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.

Form BEEF

Appendix I BEEF

Parameters used in genetic evaluation

Country: DFS

(below are parameters used in DFS ST unofficial model/data delivered to Interbeef, which are currently the same as the national Swedish parameters for CHA for CDG and as the national Finnish parameters for CHA for the other carcass traits.

Main trait group: Adjusted weaning weight

Breed: CHA, BSM and LIM

Trait ⁽¹⁾	Definition	h_d^2	h_m^2	$r_{g(d,m)}$	C^2	σ_p^2
AWW	200 days adjusted weaning weight	0,20	0,14	-0,14	0,09	850
		CWE	CCO	CFA	CDG	
h^2	0,40		0,36	0,31	0,40	
σ_a^2	647,4		0,8996	0,1213	2384	
σ_e^2	961		1,612	0,273	3579	
σ_p^2	1608,4		2,5116	0,3943	5963	

h^2 : direct heritability; σ_a^2 : additive genetic variance; σ_e^2 : residual variance σ_p^2 : phenotypic variance.

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Appendix II BEEF

Sample of ET animal IDs

Country:

Main trait group:

Breed:

ET animal ID
