

Conversion of relative breeding values to absolute units

Effect of a bull which has a breeding value between 88 and 112 when used on an average cow (breeding value 100) with respect to the population average.

Trait	Unit	Breeding value						
		88	92	96	100	104	108	112
UDDER HEALTH								
Udder health	euro	-16	-11	-5	0	5	11	16
Clinical mastitis	%	5	3	2	0	-2	-3	-5
Subclinical mastitis	%	9	6	3	0	-3	-6	-9
Somatic cell score	cells/ml (x 1000)	31	20	10	0	-9	-18	-26
FERTILITY								
Calving interval	days	20	13	7	0	-7	-13	-20
Interval first-last insemination	days	17	11	6	0	-6	-11	-17
Interval calving-first insemination	days	14	9	5	0	-5	-9	-14
Non-return	%	-8.6	-5.7	-2.9	0.0	2.9	5.7	8.6
Conception rate cow	%	-8.6	-5.7	-2.9	0.0	2.9	5.7	8.6
Conception rate heifer	%	-6.3	-4.2	-2.1	0.0	2.1	4.2	6.3
Age at first insemination	days	11	7	4	0	-4	-7	-11
CALVING TRAITS AND LIVABILITY								
Direct calving ease heifer	% easy and normal births	-3.1	-2.0	-0.9	0.0	0.8	1.5	2.1
Direct calving ease cow	% easy and normal births	-1.5	-0.9	-0.4	0.0	0.4	0.7	1.1
Direct gestation length heifer	days	-4.2	-2.8	-1.4	0.0	1.4	2.8	4.2
Direct gestation length cow	days	-4.2	-2.8	-1.4	0.0	1.4	2.8	4.2
Direct birth weight heifer	kg	-0.8	-0.5	-0.3	0.0	0.3	0.5	0.8
Direct birth weight cow	kg	-0.9	-0.6	-0.3	0.0	0.3	0.6	0.9
Maternal calving ease heifer	% easy and normal births	-1.8	-1.2	-0.6	0.0	0.5	1.0	1.4
Maternal calving ease cow	% easy and normal births	-0.6	-0.4	-0.2	0.0	0.2	0.3	0.5
Maternal gestation length heifer	days	-1.9	-1.3	-0.6	0.0	0.6	1.3	1.9
Maternal gestation length cow	days	-2.0	-1.3	-0.7	0.0	0.7	1.3	2.0
Maternal birth weight heifer	kg	-0.5	-0.3	-0.2	0.0	0.2	0.3	0.5
Maternal birth weight cow	kg	-0.5	-0.4	-0.2	0.0	0.2	0.4	0.5
Direct vitality heifer	% live calves	-10.0	-6.7	-3.3	0.0	3.3	5.7	7.5
Direct vitality cow	% live calves	-2.2	-1.5	-0.7	0.0	0.7	1.4	1.9
Maternal vitality heifer	% live calves	-14.3	-9.5	-4.8	0.0	5.1	8.1	9.7
Maternal vitality cow	% live calves	-2.0	-1.4	-0.7	0.0	0.7	1.3	1.8
HOOF HEALTH								
Hoof health	% disorders	9.3	6.3	3.1	0.0	-3.2	-6.3	-9.5
Sole haemorrhage	% disorders	4.6	3.0	1.4	0.0	-1.3	-2.6	-3.8
Digital dermatitis	% disorders	10.1	6.5	3.1	0.0	-2.9	-5.6	-8.0
Interdigital dermatitis	% disorders	3.8	2.4	1.2	0.0	-1.1	-2.0	-2.9
Sole ulcer	% disorders	2.1	1.3	0.7	0.0	-0.6	-1.2	-1.8
Interdigital hyperplasia	% disorders	2.3	1.5	0.7	0.0	-0.7	-1.3	-1.9
White line disease	% disorders	5.2	3.4	1.7	0.0	-1.6	-3.0	-4.4
METABOLIC DISORDERS								
Milk fever	% disorders	1.4	0.9	0.4	0.0	-0.4	-0.8	-1.2
Clinical ketosis	% disorders	1.0	0.7	0.3	0.0	-0.3	-0.6	-0.9
REPRODUCTION DISORDERS								
Retained placenta	% disorders	0.6	0.4	0.2	0.0	-0.2	-0.4	-0.6
Endometritis	% disorders	0.7	0.4	0.2	0.0	-0.2	-0.4	-0.6
Cystic ovaries	% disorders	0.6	0.4	0.2	0.0	-0.2	-0.4	-0.6
Inactive ovaries	% disorders	0.5	0.3	0.2	0.0	-0.2	-0.3	-0.4
Metritis	% disorders	0.8	0.5	0.2	0.0	-0.2	-0.5	-0.7
CALF SURVIVAL								
Calf survival	% survival	-3.3	-2.2	-1.1	0.0	1.1	2.2	3.3
Calf survival newborn (day 3-14)	% survival	-1.6	-1.1	-0.5	0.0	0.5	1.1	1.6
Calf survival fattening (day 15-180)	% survival	-1.5	-1.0	-0.5	0.0	0.5	1.0	1.5
MILKABILITY AND AMS								
Milking speed AMS	kg/minute	-0.8	-0.5	-0.3	0.0	0.3	0.5	0.8
Milking speed	points	-0.9	-0.6	-0.3	0.0	0.3	0.6	0.9
Temperament	points	-0.6	-0.4	-0.2	0.0	0.2	0.4	0.6
Milkrobot efficiency	kg/minute	-0.3	-0.2	-0.1	0.0	0.1	0.2	0.3
Milkrobot interval	minutes	48	32	16	0	-16	-32	-48
Milkrobot habituation	minutes difference interval short after calving and later	27	18	9	0	-9	-18	-27
BODY WEIGHT AND MEAT CONTENT								
Body weight	kg	-45	-30	-15	0	15	30	45
Meat content cow	points	-0.7	-0.5	-0.2	0.0	0.2	0.5	0.7
Fat score cow	points	-1.5	-1.0	-0.5	0.0	0.5	1.0	1.5
Carcas weigth cow	kg	-24	-16	-8	0	8	16	24
Meat content calf	points	-0.7	-0.5	-0.2	0.0	0.2	0.5	0.7
Fat score calf	points	-1.1	-0.7	-0.4	0.0	0.4	0.7	1.1
Growth calf	kg	-9	-6	-3	0	3	6	9

Trait	Unit	Breeding value						
		88	92	96	100	104	108	112
Veal colour calf	points	-0.7	-0.5	-0.2	0.0	0.2	0.5	0.7
Meat content steer	points	-0.7	-0.5	-0.2	0.0	0.2	0.5	0.7
Fat score steer	points	-0.8	-0.6	-0.3	0.0	0.3	0.6	0.8
Growth steer	kg	-17	-11	-6	0	6	11	17
CONFORMATION								
Stature	cm	-3.3	-2.2	-1.1	0.0	1.1	2.2	3.3
Chest width	points	-0.9	-0.6	-0.3	0.0	0.3	0.6	0.9
Body depth	points	-1.0	-0.6	-0.3	0.0	0.3	0.6	1.0
Angularity	points	-1.0	-0.7	-0.3	0.0	0.3	0.7	1.0
Condition score	points	-1.1	-0.7	-0.4	0.0	0.4	0.7	1.1
Rump angle	points	-1.2	-0.8	-0.4	0.0	0.4	0.8	1.2
Rump width	points	-1.1	-0.8	-0.4	0.0	0.4	0.8	1.1
Rear legs rear view	points	-0.8	-0.5	-0.3	0.0	0.3	0.5	0.8
Rear legs side view	points	-0.9	-0.6	-0.3	0.0	0.3	0.6	0.9
Foot angle	points	-0.8	-0.5	-0.3	0.0	0.3	0.5	0.8
Front feet orientation	points	-0.6	-0.4	-0.2	0.0	0.2	0.4	0.6
Locomotion	points	-0.7	-0.5	-0.2	0.0	0.2	0.5	0.7
Fore udder attachment	points	-1.1	-0.7	-0.4	0.0	0.4	0.7	1.1
Front teat placement	points	-1.4	-0.9	-0.5	0.0	0.5	0.9	1.4
Teat length	points	-1.3	-0.8	-0.4	0.0	0.4	0.8	1.3
Udder depth	points	-1.0	-0.6	-0.3	0.0	0.3	0.6	1.0
Rear udder height	points	-0.9	-0.6	-0.3	0.0	0.3	0.6	0.9
Central ligament	points	-1.0	-0.7	-0.3	0.0	0.3	0.7	1.0
Rear teat placement	points	-1.3	-0.8	-0.4	0.0	0.4	0.8	1.3
Udder balance	mm	-12.6	-8.4	-4.2	0.0	4.2	8.4	12.6
Frame	points	-2.3	-1.5	-0.8	0.0	0.8	1.5	2.3
Dairy strength	points	-0.9	-0.6	-0.3	0.0	0.3	0.6	0.9
Udder	points	-2.0	-1.3	-0.7	0.0	0.7	1.3	2.0
Feet & Legs	points	-1.2	-0.8	-0.4	0.0	0.4	0.8	1.2
Muscularity	points	-2.3	-1.5	-0.8	0.0	0.8	1.5	2.3
Final score	points	-0.9	-0.6	-0.3	0.0	0.3	0.6	0.9

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Effect of a bull which has a breeding value between 88 and 112 when used on an average cow (breeding value 100).

Trait	Unit	Breeding value						
		88	92	96	100	104	108	112
UDDER HEALTH								
Udder health	euro	-16	-11	-5	0	5	11	16
Clinical mastitis	%	15.4	13.6	11.9	10.1	8.4	6.6	4.9
Subclinical mastitis	%	44.8	41.7	38.7	35.7	32.6	29.6	26.5
Somatic cell score	cells/ml (x 1000)	227	216	206	196	187	178	170
FERTILITY								
Calving interval	days	422	416	409	402	396	389	382
Interval first-last insemination	days	63	58	52	47	41	35	30
Interval calving-first insemination	days	99	95	90	85	81	76	72
Non-return	%	48.4	51.3	54.1	57.0	59.9	62.7	65.6
Conception rate cow	%	49.7	52.6	55.5	58.3	61.2	64.1	67.0
Conception rate heifer	%	66.8	68.9	71.0	73.1	75.2	77.3	79.4
Age at first insemination	days	460	456	453	449	445	442	438
CALVING TRAITS AND LIVABILITY								
Direct calving ease heifer	% easy and normal births	91.7	92.8	93.9	94.8	95.6	96.3	96.9
Direct calving ease cow	% easy and normal births	95.3	95.8	96.3	96.8	97.1	97.5	97.8
Direct gestation length heifer	days	275.0	276.4	277.8	279.2	280.6	282.0	283.4
Direct gestation length cow	days	276.3	277.7	279.0	280.4	281.8	283.2	284.6
Direct birth weight heifer	kg	39.2	39.5	39.7	40.0	40.3	40.5	40.8
Direct birth weight cow	kg	40.7	41.0	41.3	41.6	41.9	42.2	42.5
Maternal calving ease heifer	% easy and normal births	93.0	93.6	94.2	94.8	95.3	95.8	96.2
Maternal calving ease cow	% easy and normal births	96.2	96.4	96.6	96.8	96.9	97.1	97.3
Maternal gestation length heifer	days	277.3	277.9	278.6	279.2	279.8	280.5	281.1
Maternal gestation length cow	days	278.4	279.1	279.8	280.4	281.1	281.7	282.4
Maternal birth weight heifer	kg	39.5	39.7	39.8	40.0	40.2	40.3	40.5
Maternal birth weight cow	kg	41.1	41.2	41.4	41.6	41.8	41.9	42.1
Direct vitality heifer	% live calves	79.1	82.4	85.8	89.1	92.4	94.8	96.6
Direct vitality cow	% live calves	91.3	92.0	92.8	93.5	94.2	94.8	95.4
Maternal vitality heifer	% live calves	74.8	79.6	84.3	89.1	94.2	97.2	98.8
Maternal vitality cow	% live calves	91.4	92.1	92.8	93.5	94.1	94.8	95.3
HOOF HEALTH								
Hoof health	% disorders	62.4	59.3	56.2	53.1	49.9	46.7	43.6
Sole haemorrhage	% disorders	18.6	17.0	15.5	14.0	12.7	11.4	10.2
Digital dermatitis	% disorders	31.9	28.3	24.9	21.8	18.9	16.2	13.8
Interdigital dermatitis	% disorders	13.7	12.3	11.1	9.9	8.8	7.9	7.0
Sole ulcer	% disorders	10.9	10.2	9.5	8.8	8.2	7.6	7.0
Interdigital hyperplasia	% disorders	10.1	9.3	8.5	7.8	7.1	6.5	5.9
White line disease	% disorders	22.5	20.7	19.0	17.3	15.7	14.3	12.9
METABOLIC DISORDERS								
Milk fever	% disorders	10.1	9.6	9.1	8.6	8.1	7.6	7.2
Clinical ketosis	% disorders	6.9	6.5	6.2	5.8	5.5	5.2	4.9
REPRODUCTION DISORDERS								
Retained placenta	% disorders	4.6	4.4	4.2	4.0	3.8	3.6	3.4
Endometritis	% disorders	4.4	4.2	4.0	3.8	3.6	3.4	3.2
Cystic ovaries	% disorders	6.5	6.3	6.1	5.9	5.7	5.6	5.4
Inactive ovaries	% disorders	4.3	4.1	4.0	3.8	3.7	3.5	3.4
Metritis	% disorders	6.7	6.4	6.2	5.9	5.7	5.5	5.3
CALF SURVIVAL								
Calf survival	% survival	89.0	90.1	91.2	92.3	93.4	94.5	95.6
Calf survival newborn (day 3-14)	% survival	95.8	96.3	96.9	97.4	97.9	98.5	99.0
Calf survival fattening (day 15-180)	% survival	96.3	96.8	97.3	97.8	98.3	98.8	99.3
MILKABILITY AND AMS								
Milking speed AMS	kg/minute	1.7	2.0	2.2	2.5	2.7	3.0	3.2
Milking speed	points	4.4	4.7	5.0	5.3	5.6	5.9	6.2
Temperament	points	5.0	5.2	5.4	5.6	5.8	6.0	6.2
Milkrobot efficiency	kg/minute	1.5	1.6	1.7	1.8	1.9	1.9	2.0
Milkrobot interval	minutes	546	530	514	498	482	466	450
Milkrobot habituation	minutes difference interval short after calving and later	116	107	98	89	80	71	62
BODY WEIGHT AND MEAT CONTENT								
Body weight	kg	614	629	644	659	674	689	704
Meat content cow	points	2.3	2.5	2.8	3.0	3.2	3.5	3.7
Fat score cow	points	3.5	4.0	4.5	5.0	5.5	6.0	6.5
Carcas weigth cow	kg	259	267	275	283	291	299	307
Meat content calf	points	3.3	3.5	3.8	4.0	4.2	4.5	4.7
Fat score calf	points	4.9	5.3	5.6	6.0	6.4	6.7	7.1
Growth calf	ka	131	134	138	141	144	147	150

Trait	Unit	Breeding value						
		88	92	96	100	104	108	112
Veal colour calf	points	4.3	4.5	4.8	5.0	5.2	5.5	5.7
Meat content steer	points	4.3	4.5	4.8	5.0	5.2	5.5	5.7
Fat score steer	points	5.2	5.4	5.7	6.0	6.3	6.6	6.8
Growth steer	kg	301	307	312	318	323	329	335
CONFORMATION								
Stature	cm	145.8	146.9	148.0	149.1	150.2	151.3	152.4
Chest width	points	4.1	4.4	4.7	5.0	5.3	5.6	5.9
Body depth	points	4.0	4.4	4.7	5.0	5.3	5.6	6.0
Angularity	points	4.0	4.3	4.7	5.0	5.3	5.7	6.0
Condition score	points	4.0	4.3	4.7	5.0	5.4	5.7	6.1
Rump angle	points	3.8	4.2	4.6	5.0	5.4	5.8	6.2
Rump width	points	3.9	4.2	4.6	5.0	5.4	5.8	6.1
Rear legs rear view	points	4.2	4.5	4.7	5.0	5.3	5.5	5.8
Rear legs side view	points	4.1	4.4	4.7	5.0	5.3	5.6	5.9
Foot angle	points	4.2	4.5	4.7	5.0	5.3	5.5	5.8
Front feet orientation	points	4.4	4.6	4.8	5.0	5.2	5.4	5.6
Locomotion	points	4.3	4.5	4.8	5.0	5.2	5.5	5.7
Fore udder attachment	points	3.9	4.3	4.6	5.0	5.4	5.7	6.1
Front teat placement	points	3.6	4.1	4.5	5.0	5.5	5.9	6.4
Teat length	points	3.7	4.2	4.6	5.0	5.4	5.8	6.3
Udder depth	points	4.0	4.4	4.7	5.0	5.3	5.6	6.0
Rear udder height	points	4.1	4.4	4.7	5.0	5.3	5.6	5.9
Central ligament	points	4.0	4.3	4.7	5.0	5.3	5.7	6.0
Rear teat placement	points	3.7	4.2	4.6	5.0	5.4	5.8	6.3
Udder balance	mm	7.9	12.1	16.3	20.5	24.7	28.9	33.1
Frame	points	78.7	79.5	80.2	81.0	81.8	82.5	83.3
Dairy strength	points	80.1	80.4	80.7	81.0	81.3	81.6	81.9
Udder	points	78.8	79.4	80.1	80.7	81.4	82.0	82.7
Feet & Legs	points	79.0	79.4	79.8	80.2	80.6	81.0	81.4
Muscularity	points	78.6	79.4	80.1	80.9	81.7	82.4	83.2
Final score	points	79.7	80.0	80.3	80.6	80.9	81.2	81.5