

Country

Slovenia

Trait category:

Reproduction-calving
Reproduction-fertility
Workability
Conformation

Individual trait(s):

Calving performance (direct, maternal)
Calving interval (male)
Milking speed
Udder
Locomotion
Other

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| Reproduction calving traits | Calving performance (direct, maternal) |
|---|---|
| Breed(s) | Simmental, Brown Breed, Black & White |
| Trait definition and unit(s) of measuring | Scored in 2 categories; normal (0) or difficult (1) calving |
| Method of measuring and collecting data | Scored by farmer collected by milk recording |
| Time period for data inclusion | Since 1987 |
| Age groups | 1 st calvers |
| Genetic parameters | $h^2_{\text{calving performance (direct)}} = 0.05$ $h^2_{\text{calving performance (maternal)}} = 0.05$ |
| Sire categories | All AI-bulls |
| Environmental effects pre-adjustment evaluation model | None Season x year x estimator x sex of calf x age at 1 st calving, sire group |
| Base for age adjustment | 27 months for Simmental and Black & White, 29 months for Brown Breed |
| Use of genetic groups and/or relationships | Genetic groups (births year and pedigree), no relationship |
| Method (model) of genetic evaluation | Maternal effects ST BLUP SM |
| System validation | Data quality control |
| Expression of proof | EBV standardized with M = 100 and SD = 12, higher values are more desirable |
| Genetic (reference) base | Rolling base, average of all evaluations |
| Criteria for official publication of sire proofs | ≥ 50 daughters |
| Number of evaluations/ publications per year | One; May |
| Use in total merit index | <u>Total merit index for milk (all breeds):</u> 0.22 x conformation index + 0.02 x age at first calving + 0.10 x calving interval (male) + 0.02 x calving ease (direct) + 0.03 x calving ease (maternal) + 0.06 x milking ability + 0.55 x IF <u>Conformation index milk breeds:</u> 0.2 x body capacity index + 0.3 x type index + 0.5 x udder index |

Reproduction
calving traits *continued*
Calving performance (direct, maternal)
Use in total merit index
continued
Total merit index milk-meat breeds (Simmental and Brown Breed):
 $0.22 \times \text{conformation index} + 0.03 \times \text{age at first calving} + 0.08 \times \text{calving interval (male)} + 0.03 \times \text{calving ease (direct)} + 0.04 \times \text{calving ease (maternal)} + 0.05 \times \text{milking ability} + 0.45 \times \text{IF} + 0.08 \times \text{daily gain} + 0.02 \times \text{daily net gain}$
Conformation index milk-meat breeds:
 $0.2 \times \text{body capacity index} + 0.3 \times \text{type index} + 0.5 \times \text{udder index} + 0.1 \times \text{muscularity}$
Total merit index meat breeds (Simmental and Brown Breed):
 $0.28 \times \text{conformation index} + 0.06 \times \text{age at first calving} + 0.06 \times \text{calving interval (male)} + 0.04 \times \text{calving ease (direct)} + 0.06 \times \text{calving ease (maternal)} + 0.15 \times \text{daily gain} + 0.35 \times \text{daily net gain}$
Conformation index meat breeds:
 $0.3 \times \text{body capacity index} + 0.2 \times \text{type index} + 0.1 \times \text{udder index} + 0.4 \times \text{muscularity}$

The other sub-indices have the same weights

IF:
 $2 \times \text{protein} + \text{fat}$
Body capacity index:
 $5 + [(\text{height at wither} - \text{average height at wither}) / \text{SD}_{\text{height at wither}} + (\text{height at rump} - \text{average height at rump}) / \text{SD}_{\text{height at rump}} + (\text{body length} - \text{body length average}) / \text{SD}_{\text{body length}} + (\text{chest girth} - \text{chest girth average}) / \text{SD}_{\text{girth average}}] \times 1.33 \times 0.25$
Type index:
 $0.10 \times \text{shoulder} + 0.10 \times \text{back} + 0.20 \times \text{rump angle} + 0.20 \times \text{rear leg} + 0.20 \times \text{foot angle} + 0.10 \times \text{hoof height} + 0.10 \times \text{hoof form}$
Udder index:
 $0.20 \times \text{fore udder} + 0.20 \times \text{rear udder} + 0.30 \times \text{suspensory ligament} + 0.05 \times \text{teat thickness} + 0.05 \times \text{teat length} + 0.10 \times \text{teat placement} + 0.05 \times \text{number of by teats} + 0.05 \times \text{number of midteats}$
Key reference on
methodology applied

Pogačar, J., 1992. Sire evaluation in Slovenia
 Pogačar, J. & M. Štepec, 1991. Sire breeding evaluation for difficult calving. 42nd EAAP meeting, Berlin

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| Reproduction fertility traits | Calving interval (male) |
|--|--|
| Breed(s) | Simmental, Brown Breed, Black & White |
| Trait definition and unit(s) of measuring | Interval between 1 st and 2 nd calving (in days). Cows should have at least 200 milking days |
| Method of measuring and collecting data | Calculated from milk recording |
| Time period for data inclusion | Since 1982 |
| Age groups | 1 st lactation |
| Genetic parameters | $h^2_{\text{calving interval (male)}} = 0.05$ |
| Sire categories | All AI-bulls |
| Environmental effects pre-adjustment evaluation model | Age Herd level class x season x year x region, sire group |
| Base for age adjustment | 27 months for Simmental, 29 months for Brown Breed |
| Use of genetic groups and/or relationships | Genetic groups (births year and pedigree), no relationship |
| Method (model) of genetic evaluation | ST BLUP SM |
| System validation | Data quality control |
| Expression of proof | EBV standardized with M = 100 and SD = 12, higher values are more desirable |
| Genetic (reference) base | Fixed base, average of bulls born in 1980-1982 |
| Criteria for official publication of sire proofs | ≥ 50 daughters |
| Number of evaluations/publications per year | One; May |
| Use in total merit index | Included, see page 120 |
| Key reference on methodology applied | Pogačar, J., 1992. Sire evaluation in Slovenia |

| Workability traits | Milking speed |
|--|--|
| Breed(s) | Simmental, Brown Breed, Black & White |
| Trait definition and unit(s) of measuring | Scored on a linear 1-3 point scale from slow (1) to fast (3) |
| Method of measuring and collecting data | Scored by farmer collected by classifier |
| Time period for data inclusion | Since 1987 |
| Age groups | 1 st lactation |
| Genetic parameters | $h^2_{\text{milking speed}} = 0.10$ |
| Sire categories | All AI-bulls |
| Environmental effects pre-adjustment evaluation model | None Region x year x season x time from calving to measurement x age at 1 st calving, sire group |
| Base for age adjustment | None |
| Use of genetic groups and/or relationships | Genetic groups (births year and pedigree), no relationship |
| Method (model) of genetic evaluation | ST BLUP SM |
| System validation | Data quality control |
| Expression of proof | EBV standardized with M = 100 and SD = 12, higher values are more desirable |
| Genetic (reference) base | Rolling base, average of all evaluations |
| Criteria for official publication of sire proofs | ≥ 30 daughters |
| Number of evaluations/publications per year | One; May |
| Use in total merit index | Included, see page 120 |
| Key reference on methodology applied | Pogačar, J., 1992. Sire evaluation in Slovenia |

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|--|---|
| Conformation traits | Udder: fore udder, rear udder, suspensory ligament, teat thickness, teat length, teat placement, number of by teats, number of midteats Locomotion: rear leg, foot angle, hoof height, hoof form Other: shoulder, back, rump angle |
| Breed(s) | Simmental, Brown Breed, Black & White |
| Trait definition and unit(s) of measuring | Scored on a linear 1-9 point scale |
| Method of measuring and collecting data | Scored by classifier |
| Time period for data inclusion | Since 1987 |
| Age groups | 1 st lactation |
| Genetic parameters | $h^2_{\text{udder traits}} = 0.10$ $h^2_{\text{locomotion traits}} = 0.10$ $h^2_{\text{other traits}} = 0.10$ |
| Sire categories | All AI-bulls |
| Environmental effects pre-adjustment evaluation model | None Region x year x season x time from calving to measurement x age at first calving, sire group |
| Base for age adjustment | None |
| Use of genetic groups and/or relationships | Genetic groups (birth year and pedigree), no relationship |
| Method (model) of genetic evaluation | ST BLUP SM |
| System validation | Data quality control |
| Expression of proof | EBV standardized with M = 100 and SD = 12, higher values are more desirable |
| Genetic (reference) base | Rolling base, average of all evaluations |
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