

## Genetic evaluation CONFORMATION

### General

Breeds: Fleckvieh, Brown Swiss, Pinzgauer, Grauvieh, Gelbvieh, Vorderwälder

Holstein: see [www.vit.de](http://www.vit.de)

since 1998 genetic evaluation for conformation traits

since 2000 together with Germany, since 2019 single-step evaluation

Implementation: LfL Grub

### Data

Randomly selected or (area-wise) all first parity cows are linearly described, measured and evaluated. All first parity cows from the herd genotyping projects are also described.

Fleckvieh: Fleckscore ([www.fleckscore.com](http://www.fleckscore.com))

Brown Swiss: Brownscore ([www.brownscore.com](http://www.brownscore.com))

Countries: Austria, Germany, Czech Republic (Fleckvieh), Italy (Fleckvieh).

Traits:

- 4 main scores, for Brown Swiss additionally overall score
- up to 25 individual traits
- deficiencies/special features

### Model

univariate BLUP animal model (Grauvieh: blockwise multivariate), single-step

Software MiX99

### Effects:

- Classifier-year
- Year-Season
- Herd-year (partly herd classes)
- Age at first calving
- Distance to calving
- Distance from milking
- Genetic effect of the cow

Additional correction for heterogeneous variances between classifiers

### Genetic parameters

#### Heritabilities (%) for main scores:

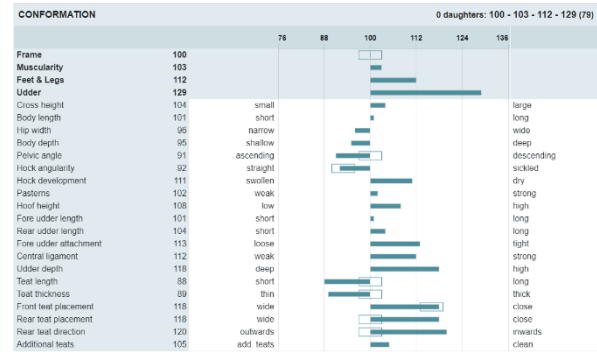
	Fleckvieh, Pinzgauer, Gelbvieh	Brown Swiss	Grauvieh
<b>Frame</b>	44	39	55
<b>Muscling<sup>1</sup></b>	21	14	33
<b>Feet &amp; Legs<sup>2</sup></b>	11	14	27
<b>Udder</b>	24	34	43
<b>Overall score</b>		29	

<sup>1</sup> Brown Swiss: Pelvis

<sup>2</sup> Grauvieh: Shape

**Publication**

as relative breeding values with mean 100 and deviation 12  
partly traits with intermediate optimum  
usually published as a bar chart (see example from zuchtwert.at), optimum ranges are marked



**Relationship between breeding value and phenotype**

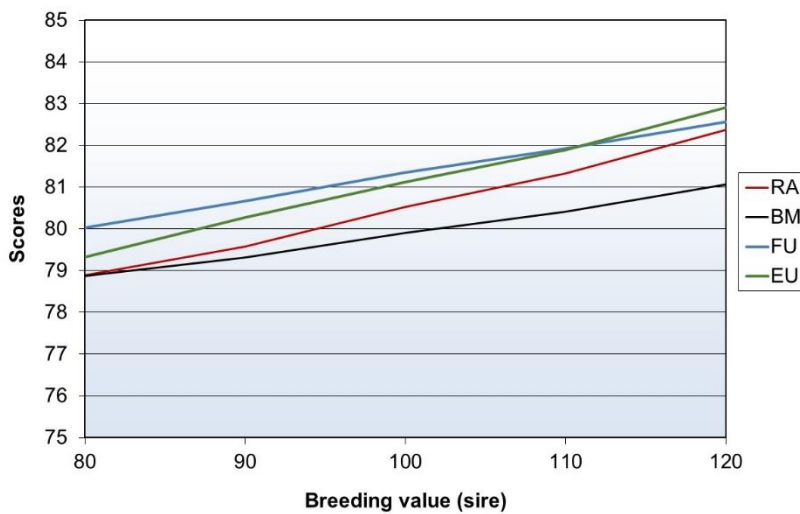


Fig.: Average scores for the main traits frame (RA), muscling (BM), feet & legs (FU) and udder (EU) depending on the respective breeding value of the sire (Fleckvieh, Austria)

**Genetic trends**

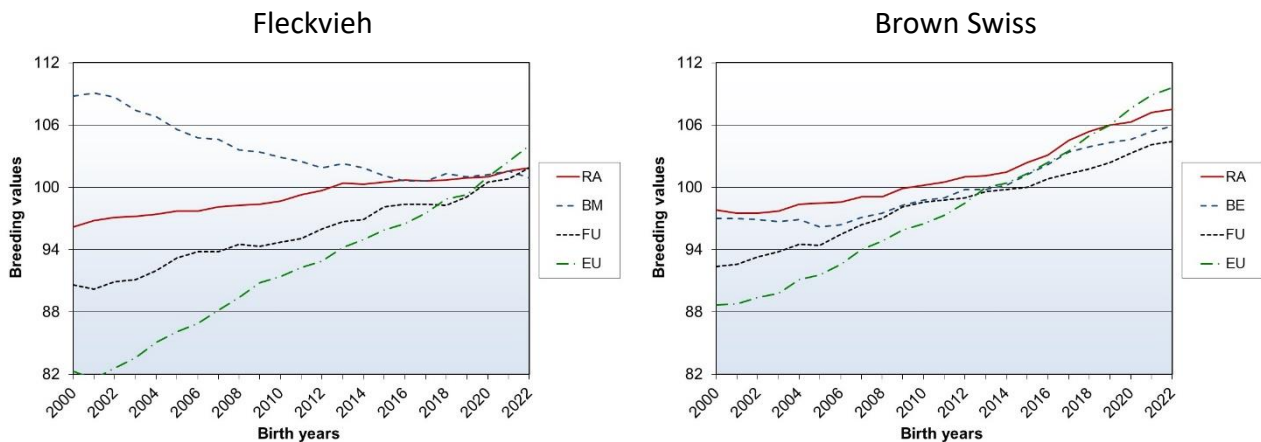


Fig.: Genetic trends for the trait complexes frame (RA), muscling (BM, Fleckvieh), pelvis (BE, Brown Swiss), feet & legs (FU) and udder (EU) for the cows (Austria).