

## Genetic evaluation REARING LOSSES (CALF VITALITY)

### General

Breeds: Fleckvieh, Brown Swiss, Pinzgauer, Grauvieh, Gelbvieh, Vorderwälder  
since 1998 genetic evaluation for stillbirth, since 2016 genetic evaluation for rearing losses  
since 2016 together with Germany, since 2016 genomic evaluation, since 2021 single-step  
evaluation

Implementation: ZuchtData Vienna

### Data

all calves born since 2000

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

### Traits:

**Stillbirth:** born dead or died within 48 h

**Rearing losses:** deaths up to 10 months (male) or 15 months (female)

4 sections in total:

- stillbirth (0-2<sup>nd</sup> day)
- male and female 3<sup>rd</sup>-30<sup>th</sup> day
- male 31<sup>st</sup> day to 10 months
- female 31<sup>st</sup> day to 15 months

### Model

multivariate BLUP animal model (single-step)

Software MiX99

### Effects:

- Region-Year-Month
- Number of calvings (1., 2+)
- Sex
- Change of herd in first 60 days
- Herd-calving year
- Permanent environment of the dam
- Genetic effect of the dam
- Genetic effect of the calf

### Genetic Parameters

Heritabilities of the individual traits (sections): 1.1 to 2.8%.

Calf vitality index VIW:

Breed	Heritability (%)
Fleckvieh, Grauvieh, Gelbvieh	2.0
Brown Swiss	3.0
Pinzgauer, Vorderwälder	1.9

## Publication

Combination of the 4 individual breeding values according to the economic weights (in %) to the **calf vitality index VIW**:

Section	Fleckvieh, Grauvieh, Gelbvieh	Brown Swiss	Pinzgauer, Vorderwälder
Stillbirth direct	52	46	50
Rearing losses 3 <sup>rd</sup> -30 <sup>th</sup> day	24	27	25
Rearing losses up to 10 mo. male	12	0	0
Rearing losses up to 15 months female	12	27	25

as relative breeding value with mean value 100 and deviation 12  
the higher the VIW the lower the rearing losses

## Relationship between breeding value and phenotype

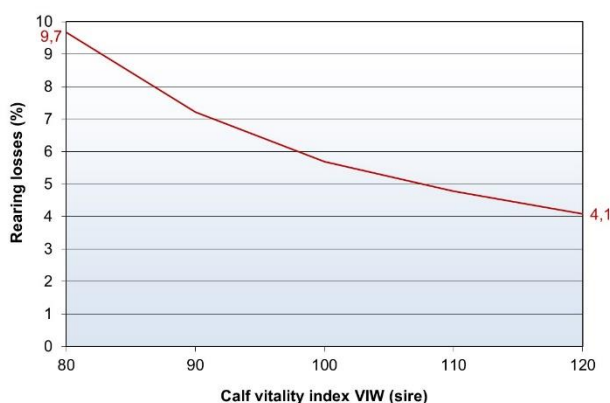


Fig.: Average rearing losses depending on the calf vitality index VIW of the sire (Fleckvieh, Austria)

## Genetic trends

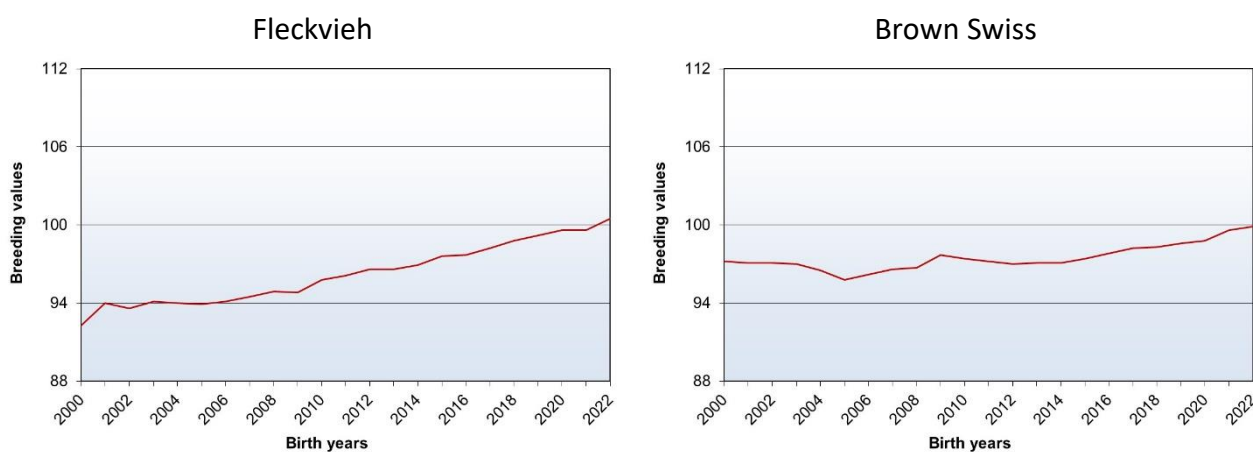


Fig.: Genetic trends for the calf vitality index VIW for cows (Austria)