

Relative breeding values

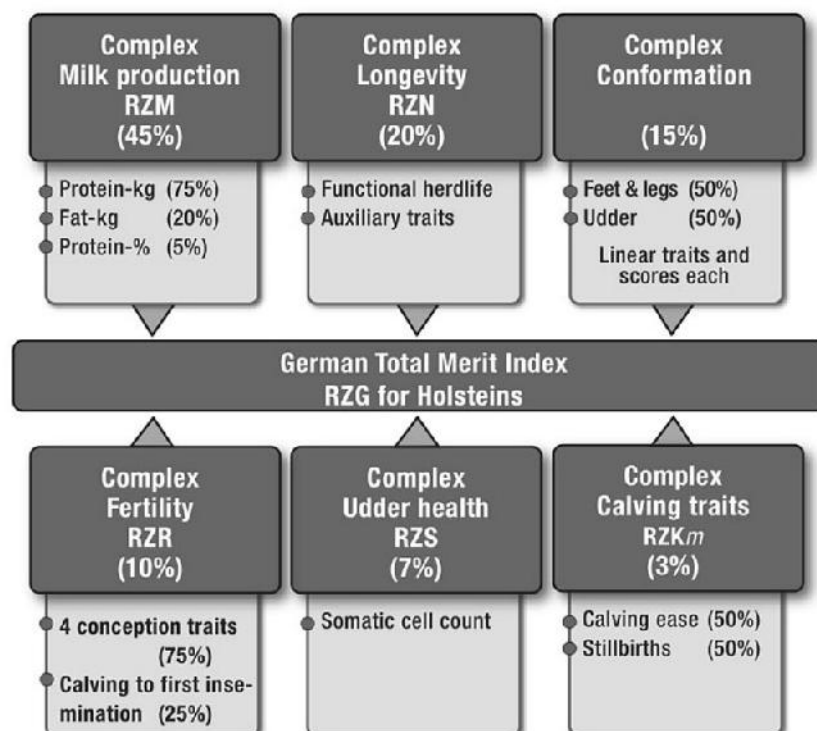
on the recommendation of the German Holstein Association (DHV), all sires are ranked according to a Total Merit Index (RZG). The RZG includes milk production and the functional traits according to their relative economic importance in the breeding goal. The Total Merit Index RZG as well as its single traits (composites) RZM, RZE, RZS, RZN, RZR and RZKm, are standardized to a mean of 100 and a standard deviation of 12 points.

Since August 2009, there has been the independent breeding value RZFit in Germany. To allow for the high will to milk of Holsteins, a breeding value was developed combining different fitness traits as well as conformation traits and milk production. It serves as a selection tool to easily find bulls with transmission strengths in the field of fitness traits.

In 2014, the breeding values were completed by the RZRobot. Like the RZFit, it is an independent breeding value to make it easier to select the bulls suitable for farms with automatic milking systems.

RZG relative breeding value total merit index

Complex milk production (RZM)	45%
Complex longevity (RZN)	20%
Complex conformation	15%
Complex fertility (RZR)	10%
Complex udder health (RZS)	7%
Complex calving traits (RZKm)	3%



RZM relative breeding value milk production

Protein-kg	75%
Fat-kg	20%
Protein-%	5%

RZM serves as a selection index and is defined as the combined breeding value for milk production traits.

RZN relative breeding value longevity

this breeding value is calculated with the functional longevity and 5 calculation input features. Bulls are only included that have daughters in second lactation on at least 10 farms.

RZR relative breeding value reproduction

Relative breeding value conception rate (KON)	75%
Calving to first insemination	25%

The relative breeding value for reproduction emerges from the relative breeding value conception rate and calving to first insemination. Conception rate is the time period from calving to first insemination.

The relative breeding value conception rate comprises the following four traits:

NRR (NRRr/NRk): Non-return-rate is published separately for heifers (r) and cows (k). It gives evidence about conception rates. It is noted here whether another insemination takes place during the 56 days after first insemination.

VZ (VZr/VZk): It describes the number of days from the first until a successful insemination. This value is also published separately for heifers (r) and cows (k).

RZS relative breeding value somatic cell count

Cell count results from milk recording are used as a trait for the breeding value estimation of the somatic cell count. Values above RZS 100 are positive with regard to breeding, i.e. imply a lower cell score.

RZE relative breeding value conformation

Dairy type	10%
Body	20%
Feet and legs	30%
Udder	40%

The partial breeding values for dairy type, body, feet & legs and udder consist of the individual indices as well as the complexes from the linear description and are summarized for RZE.

RZD relative breeding value milking speed

Recorded milking speed (kg/min)	50%
Owner's opinion (fast/normal/difficult)	50%

The recorded milking speed and the owner's opinion about the temperament are summarized in the RZD.

RZKm relative breeding value calving traits of the daughters (maternal calving ease)

Calving ease of the daughters	50%
Still birth rate of the daughters	50%

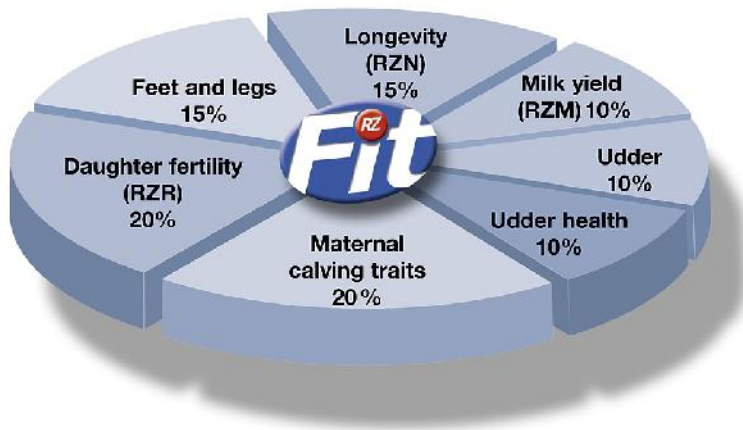
RZKd relative breeding value calving ease (direct calving ease)

Calving ease of the bull's calves	50%
Still birth rate of the bull's calves	50%

The characteristic of RZkd is that information on calving ease mainly refers to first calving.

RZFit relative breeding value fitness

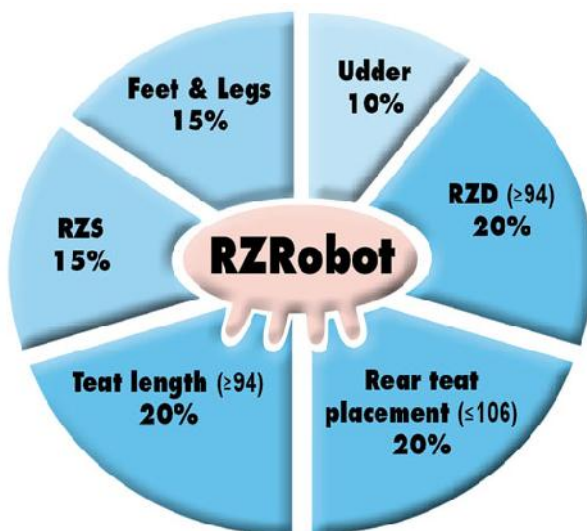
Complex fertility (RZR)	20%
Calving traits maternal (RZKm)	20%
Complex longevity (RZN)	15%
Feet and legs	15%
Udder	10%
Complex udder health (RZS)	10%
Complex milk production (RZM)	10%



Relative breeding value **RZRobot**

Milking speed (RZD) (has to be ≥ 94)	20%
Somatic cell count (RZS)	15%
Feet and legs	15%
Rear teat placement (has to be ≤ 106)	20%
Teat length (has to be ≥ 94)	20%
Udder	10%

The RZRobot is only published if ≥ 100 .



Abbreviations

aAa	Triple-A Code by Weeks® Animal Analysis	Triple-A Code by Weeks® Animal Analysis
Betr.	Anzahl Betriebe	No. of herds
BLC	BLAD-Träger	BLAD carrier
BLF	BLAD-frei	BLAD free
BYC	Brachyspina-Träger	Brachyspina carrier
BYF	Brachyspina-frei	Brachyspina free
CVC	CVM-Träger	CVM carrier
CVF	CVM-frei	CVM free
DN	Doppelnutzung Milch und Fleisch	Dual purpose (DP)
ET	aus Embroytransfer	From embryo transfer
EX	exzellent	Excellent
geb.	Geburtsdatum	Date of birth
GP	good plus	Good plus
HB-Nr.	Herdbuchnummer	Herd book number
La	Laktation	Lactation
P	phänotypisch hornlos	Phenotypically polled
PP	homozygot hornlos	Homozygous polled
Pp	heterozygot hornlos	Heterozygous polled
PP*	homozygot hornlos getestet	Tested homozygous polled
Pp*	heterozygot hornlos getestet	Tested heterozygous polled
PS	Wackelhörner	Scurs
RDC	Rotfaktor	Red carrier / Red factor
Si. %	Sicherheit der Zuchtwerte in %	Reliability of breeding value in %
Tö.	Anzahl Töchter	No. of daughters
VG	very good	Very good
VRC	VRC-Träger	VRC carrier

RZF relative breeding value beef

Maternal breeding value	40%
Breeding value for daily weight gain until the age of 365 days	40%
Breeding value for muscularity at the age of 365 days	20%

Abbreviations for beef breeds

B	Bemuskelung	Muscularity
EL	Eigenleistung	Performance test
geb.	Geburtsdatum	Date of birth
GGE	Geburtsgewicht	Birth weight
GV	Geburtsverlauf	Calving ease
HB-Nr.	Herdbuchnummer	Herd book number
Index	Körindex	Index of breed license
KZW	Körzuchtwert	Breed license value
P	phänotypisch hornlos	Phenotypically polled
PP	homozygot hornlos	Homozygous polled
Pp	heterozygot hornlos	Heterozygous polled
PP*	homozygot hornlos getestet	Tested homozygous polled
Pp*	heterozygot hornlos getestet	Tested heterozygous polled
PS	Wackelhörner	Scurs
RZF	Relativ-Zuchtwert Fleisch	Relative breeding value beef
RZFK	Relativ-Zuchtwert Fleisch (Kreuzung)	Relative breeding value beef (cross breeding)
S	Skelett	Skeleton
Si. %	Sicherheit der Zuchtwerte in %	Reliability of breeding value in %
T	Typ	Type
TZ	Tägliche Zunahme	Daily weight gain