

# A new fitness index: RZFit<sup>®</sup>



*The Total Merit Index RZG is optimized economically for average production conditions regarding its composition with 45 % milk production traits, 40 % functional traits as well as 15 % feet and legs and udder. Overall official indices like RZM respectively RZE are offered for the quick and easy selection of bulls, e.g. with breeding focus on milk production traits or conformation. With the new RZFit it is easy to make a selection from a large number of proven Holstein bulls with best traits for fitness. Thereby the German Holstein breeding can offer bulls, breeding extremely positive in this complex, resulting in appropriate improvement.*

**Overview 1:** Composition of the RZFit<sup>®</sup> and advantage of the Top-100 according to RZFit<sup>®</sup> (Holsteins)

Trait	Relative weight	Ø BV Top-100 RZFit
Daughter fertility (RZR)	20%	115
Maternal calving traits	20%	105
Longevity (RZN)	15%	121
Feet and legs	15%	115
Udder	10%	114
Udder health (RZS)	10%	116
Milk production (RZM)	10%	102
<b>RZFit<sup>®</sup></b>	<b>100%</b>	<b>129</b>

## An alternative to cross-breed

The Holstein breed is the undisputed leader regarding milk production transmission but also udder quality. In contrast, its image with regard to fitness traits especially fertility is not that good. Through that the crossing with other milk breeds mainly Scandinavian Rotvieh breeds, being genetically better, is under consideration.

For practice, not the average tendency of transmission is interesting but more the transmission of the best bulls available for wide use. As a wide range can be found among almost 1,000 Holstein bulls, being tested every year just in Germany, there are also bulls for fitness at the top, standing out from the crowd. This means that they belong to the best 0.5 % with RZFit figures of more than 136. Within small breeding programs respectively breeds, in contrast, you will rarely find such outstanding sires. Clearly less than 100 Swedish Red bulls are tested annually. Also the Norwegian Red consists of maximal 120 test bulls per year. An eventually existing breed difference can be balanced by stronger selection intensity among the Holsteins. This can be seen when looking at the Swedish Red bull Peterslund, being recommended for cross breeding the most intensive. Therefore, Peterslund has already breeding values based on German daughters. He can also offer information via Interbull on the basis of more than 32,000 daughters. His official breeding values are expressed on an Angler basis. But these can be converted into the German Holstein basis.

**Overview 2:** Fitness breeding values of the Swedish Red bull Peterslund in a Holstein basis (Proofs 4/09)

Breeding values Peterslund	Red Breed basis	Holstein basis
Daughter fertility (RZR)	108	123
Maternal calving traits	108	108
Longevity (RZN)	114	119
Feet and legs	107	107
Udder	97	83
Udder health (RZS)	106	110
Milk yield (RZM)	119	98
<b>RZFit<sup>®</sup></b>		<b>120</b>

Overview 2 shows that Peterslund is overall really good for fitness traits and would reach an RZFit of 120. But in comparison to the highest Holstein RZFit bulls (Overview 3) it can be seen that there are many Holstein sires with an obviously higher RZFit. Another argument in the discussion about crossbreeding is the additional use of heterosis effects that should be up to 10 % for fitness traits of crossbred progeny. Even if you include these 10 % for the progeny, it would be four additional RZFit points in the bull's breeding value. Also with this "heterosis addition" and according to a RZFit of about 124, there are still almost 100 Holstein bulls just in Germany that breed progenies with better fitness traits in pure breed than Peterslund in crossbreed. Lots of sires can be found among these, offering not only an evidently better conformation but also more production than Scandinavian bulls recommended for crossbreeding. Furthermore, progenies are registered as purebred and can be marketed as breeding animals.

### Conclusion

In average, the Holstein breed is not as good for fitness traits as some other breeds. The national and international test capacity is many times higher in the Holstein breeding programs with different focus. This offers the possibility though to find even better sires for fitness traits among the Holstein bulls at the top than any other breed could have. The RZFit was developed as an applicable index to find these bulls.

**Overview 3:** The highest German Holstein and bulls ranged according to RZFit<sup>®</sup> (vit 1/2010)

Holstein	HB-Nr.	Vater	GJ	RZG	RZR	KVm	TGm	RZN	Fun.	Euter	RZS	RZM	RZFIT	SiF
<b>Ramos</b>	253642	Rudolph	1997	140	121	106	110	143	123	120	138	109	<b>148</b>	99
<b>Gibor</b>	667908	Gibbon	1997	144	119	101	107	134	131	112	128	120	<b>144</b>	99
<b>Rasputin</b>	801071	Rudolph	1997	136	131	104	107	130	118	107	128	114	<b>142</b>	96
<b>Sallas</b>	328275	Stormatic	2003	122	114	113	105	122	128	131	118	95	<b>137</b>	68
<b>Stempler</b>	463037	Stormatic	2003	111	130	104	113	131	121	116	110	82	<b>136</b>	80
<b>Westwind</b>	830729	Wade ET	1998	114	128	101	110	126	107	129	129	85	<b>135</b>	90
<b>NOG Lanugo</b>	490007	Lukas	1998	126	121	105	111	134	110	118	117	103	<b>135</b>	97
<b>Laudan</b>	810695	Lukas	1998	135	109	101	107	136	116	122	122	112	<b>135</b>	99
<b>Prater</b>	134411	Prelude	1993	113	121	100	106	138	114	119	128	82	<b>134</b>	95
<b>Eltoni</b>	831317	Esar	2002	117	122	108	118	124	117	110	109	96	<b>133</b>	71
<b>Red-Holstein</b>														
<b>Laurel</b>	925880	Lay Out	1999	124	121	108	103	130	125	114	112	101	<b>135</b>	98
<b>Carmano</b>	915758	Cadon	2001	132	112	101	100	130	120	127	119	109	<b>133</b>	71
<b>Koppel</b>	913637	Koerier	1996	117	116	105	104	137	108	101	122	95	<b>128</b>	96
<b>Joyboy</b>	297572	Clifhanger	1999	123	109	101	100	117	110	137	110	106	<b>124</b>	90
<b>Vikus</b>	67866	Vis	1991	109	121	106	109	112	114	116	100	93	<b>124</b>	98