

RZhealth

RZhealth - New tools started with breeding value estimation April 2019

RZhealth

The vit published official breeding values of direct health traits for the Holstein and Red Holstein breed for the first time during the breeding value estimation April 2019. This was possible due to the herd typing program "KuhVision", the collection of health data by the farms and long-term collection of culling reasons in line with milk recording. Based on this unique data set with a reference sample of 100,000 cows and 6,500 bulls, significant health breeding values can be estimated now.

The RZhealth is composed of the breeding values RZudderfit, RZhoof, RZrepro and RZmetabol. These four breeding values subdivide themselves into health traits with different weightings. Relative breeding values are published here for both the trait complexes and the overall breeding value RZhealth, but not for the particular health traits. Exception: DDcontrol: The breeding value DDcontrol was introduced in August 2018 to override Mortellaro (dermatitis digitalis) in breeding by showing bulls that transmit clearly above average, high resistance to Mortellaro. Due to continuously increasing data and thereby better opportunity to define bulls among themselves, the breeding value DDcontrol will be published as relative breeding value from April 2019, in addition to the belonging label for the best 25 % and 10 % of the bulls respectively. With that, it is the only health trait from the RZhealth to be published with an own breeding value.

RZudderfit

The health trait Mastitis is incorporated in the RZudderfit by 100 %. The definition of Mastitis is clear and a high number of cows contracts Mastitis at least once in their lifetime. Moreover, heredity is good and udder diseases are also a culling reason why the data set and, therefore, reliability of this genomic breeding value are good.

Comparing the well-known breeding value for cell count (RZS) with the RZudderfit shows that cell count is a good indicator trait for Mastitis resistance, but the RZS is a somewhat different trait.

RZhoof

Feet problems can have different reasons. This is why the RZhoof incorporates six different health traits. The problems can be conditioned by infections or caused by metabolic diseases, but mechanical overload, too. The breeding value includes the six health traits with their individual genetic parameters weighted by their importance.

The health trait Mortellaro (dermatitis digitalis) is the most important trait and weighted with 30 %. An increasing number of farms have high morbidity rates and Mortellaro is currently – besides mastitis – the most important single health problem in dairy herds. This is the reason why an estimated breeding value for Mortellaro is published with the already known "DDcontrol", along with RZhoof. Further single traits of the RZhoof are hoof ulcer, digital phlegmona, white-line-disease, laminitis and interdigital hyperplasia.

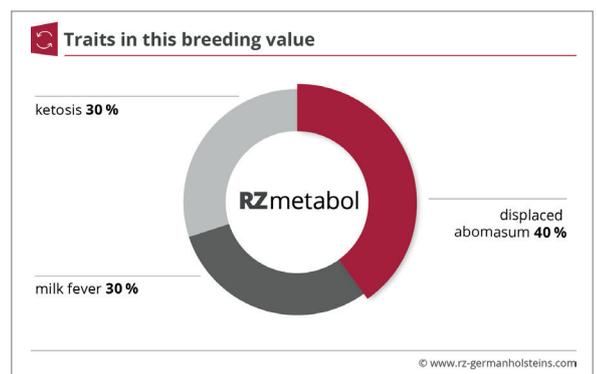
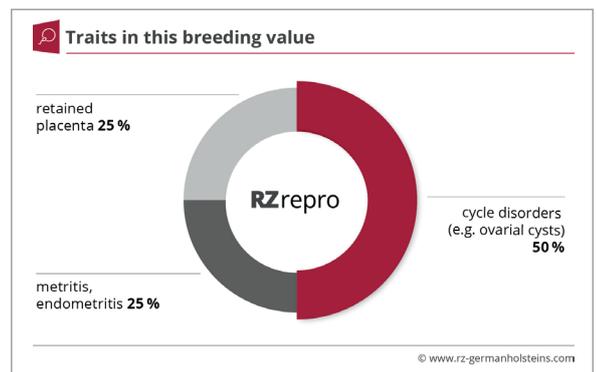
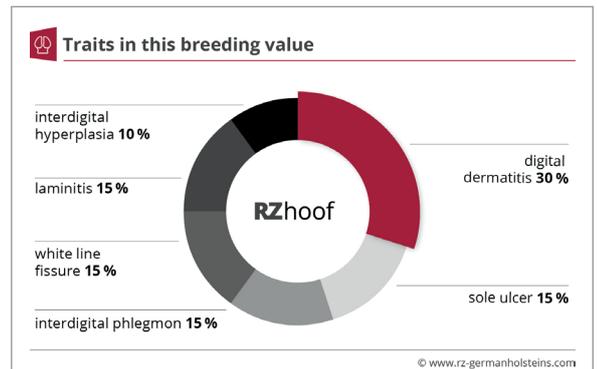
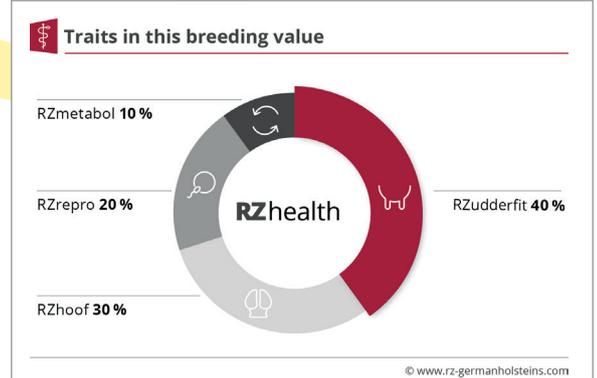
The introduction of the RZhoof will be of great benefit in practice as it has not been possible so far to directly breed for improved hoof health. The reason is that feet and legs traits of the linear, eventually, are barely correlated with actual hoof health. So far only the trait locomotion and the longevity breeding value (RZN) have a positive correlation with hoof health. So it can be said that the RZhoof will have great advantages in practice.

RZrepro

RZrepro specifies the complex regarding reproductive disorders like ovarian disorders, metritis and retained placenta. Whereas traits like retained placenta and metritis are seen directly after calving in the beginning of the lactation, ovarian disorders like cysts for example occur later in lactation. Reproductive disorders in later lactations, as well as losses due to infertility have a closer genetic relationship to the existing breeding value RZR (daughter fertility). So new aspects are considered with reproductive disorders occurring early after calving which could hardly be improved by indirect selection so far.

RZmetabol

RZmetabol includes the complex of metabolic diseases and is composed of the three traits displaced abomasum (left side), milk fever and ketosis. Metabolism persistency of especially high performance cows is of great importance and no predictor traits have been available so far that enable indirect progress. Aggravating this situation, there is the biggest room for improvement in the data set for these traits as metabolic disorders are more common with clinical picture in later lactations while they are rather rare in first lactation. The cows from KuhVision farms included in the new composite reference sample are currently in first and second lactation respectively and can barely provide data on metabolic traits in later lactations. However, the data set will improve rapidly within the next two years. The milk recording associations as well as vit are also working on additional data for clinical and subclinical ketosis from milk samples. Due to relatively high genetic correlation, the predictor trait „culling for metabolic diseases“ adds to increase of reliability of the genomic RZmetabol.



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