Reliabilities

Breeding values come with an associated reliability value indicating the confidence one can place in the estimation of the breeding value. There are a number of factors which influence the reliability including the amount of data on any one animal, the amount of data available on its relatives and the number of relatives that can be traced to that individual (pedigree recording). A reliability shows how much an EBV can vary. Reliabilities depend on the genetic variance of the trait being evaluated so as an example let's look at weaning weight and backfat; *It is important to note that while the following tables are close to reality they are examples only to illustrate how reliabilities affect EBVs. It does not necessarily apply to a specific strain or to the other traits like BW or WT18 (genetic variances differ between traits and between strains, breeds and populations).*

WWT			BF	
Rel %	±		Rel %	±
2	9.0		2	0.37
5	8.7		5	0.36
10	8.4		10	0.35
15	7.9		15	0.33
20	7.3		20	0.30
30	6.5		30	0.27
40	5.5		40	0.23
60	4.2		60	0.17

In the table above, reliabilities and the associated 95% confidence intervals are shown for 2 traits calculated using an across population (Beefbooster) genetic variance. Taking weaning weight as an example; if an animal has an EBV of 45lbs and a reliability of 20%; that animal's true breeding value will be between 37.7lb and 52.3lbs (45 ± 7.3) 95% of the time. The lower the reliability, the less accurate an EBV will be. **Therefore, reliabilities should be always be considered when selecting animals.** When taking note of reliabilities, one can group them into high, medium and low reliabilities. For the time being we will classify less than 25% as low, 25% to 59% as medium and 60%+ as high. These values are the Beefbooster will use based on an analysis of the data and what is deemed relevant to Beefbooster. Normally low/med/high reliabilities would be <40%/41-70%/70%+. Reliabilities on Beefbooster yearling bulls will continue to increase as we do more parentage testing and begin to incorporate genomics.

Colour Code for Reliability Scores

RED   Less than 25%   BLACK   25% to 59%   GREEN   60% +