

How to interpret accuracies of EBVs and indexes ?

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The EBV and indexes are estimates of the true genetic value of an animal. The repeatability figures measure on a scale of 1 to 100, how accurate the EBV or index is, where 1 is almost like having no information on the animal at all and 100 is completely accurate. Repeatabilities increase as the number of performance records on the individual and its progeny increase. From accuracy, it is possible to compute confidence intervals for EBVs. The calculation is different for each trait as shown in Table 1 below. Depending on the breed, the calculation also differs for sire and dam line indexes.

Table 1. Formulas to compute 90% confidence range for different traits.

Trait	breed	90% confidence range
Age (days)	all	$1.12 \sqrt{(100 - REP)}$
Fat (mm)	all	$0.25 \sqrt{(100 - REP)}$
Lean Yield (%)	all	$0.24 \sqrt{(100 - REP)}$
Lean Depth (mm)	all	$0.31 \sqrt{(100 - REP)}$
Loin Eye Area (cm ²)	all	$0.57 \sqrt{(100 - REP)}$
FCR (kg/kg)	all	$0.03 \sqrt{(100 - REP)}$
Number Born	all	$0.16 \sqrt{(100 - REP)}$
Sire Line Index (points)	Yorkshire	$9.29 \sqrt{(100 - REP)}$
	Landrace	$8.40 \sqrt{(100 - REP)}$
	Hampshire	$10.61 \sqrt{(100 - REP)}$
	Duroc	$8.75 \sqrt{(100 - REP)}$
Dam Line Index (points)	Yorkshire	$5.37 \sqrt{(100 - REP)}$
	Landrace	$6.25 \sqrt{(100 - REP)}$
	Hampshire	$8.66 \sqrt{(100 - REP)}$
	Duroc	$10.60 \sqrt{(100 - REP)}$

There is a 90% chance that the true genetic value for each trait lies within the confidence ranges of the EBV or index. For example, there is a 90% chance that the true genetic value for number born lies within $0.16 \sqrt{(100 - REP)}$ of the EBV for number born, where REP is the repeatability.

For example, if the Number Born EBV is +1.0 and the repeatability is 51 then the range is computed as : $0.16 \times \sqrt{(100 - 51)} = \pm 1.1$
Thus, the interval can be denoted as $+1.0 \pm 1.1$ piglets, which means that there is a 90% probability that the true genetic value is in the interval $[-0.1; +2.1]$.



