What is an EBV?



An EBV (Estimating breeding value) is the genetic potential of an animal. The phenotype of an animal (the traits we see and measure) is a combination of genetic and environmental effects. Genetic effects are the result of the genes inherited from parents. Environmental effects are the result of conditions the animal experienced, such as level of nutrition, stocking density, temperature, or health status.

The challenge to the breeder is to determine how much of an animal's superiority (or inferiority) for a trait is due to additive genetic effects, since this is what will be passed on to its progeny through its own genes.

P (performance) = G (genetic) + E (environmental effects)

To eliminate the environmental effects, the genetic program compares the performances of animals that are in the same environment to determine and establish the genetic merit of the performances. Some adjustments are done within the genetic model to account for the sex, the age, the number of parity.... This allows a better comparison between animals.

EBVs take into account the performance of the animal itself, but also those of its relatives (parents, grandparents, sisters, brothers,...) and its progeny.

EBVs

PREDICT SUPERIORITY or INFERIORITY for important traits

- Compare the performance of the animal vs group and population
- Compare the performance of all related animals (in the flock or other flocks)

The value is expressed in the same unit as the trait.

The percentile is a value used to indicate how an animal ranks compared to its population. It is expressed in % from 1 to 99 (99% it the top of the breed / 50% is in the middle). Percentile is useful to compare animals of the same breed or breed group.

Example: milk 24 h for East Friesian EBV = 12.17 (73%)

This means the **genetic merit of the animal is 12.17 kg** which gives a rank in the 73 percentile of the breed (top 27%).



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Traits evaluated and units of expression

Parity 1 & Parity 2	
TRAITS	UNITS
220d Milk Yield 24 h	Kg
220d Fat Yield	Kg
220d Protein Yield	Kg
220d Lactose Yield	Kg
Average daily fat	%
Average daily protein	%
Average daily lactose	%
Somatic Cells	count /ml
MUN	mg N /dl
ВНВ	mmol /L
Persistency	Number 0 to 1

Parity 1:

- Refer to the first lactation recorded on GenOvis.
- Ewes are grouped according to their age.
- EBVs used to improve milk & components production at first lactation.

Parity 2:

- Refer to subsequent lactations recorded on GenOvis
- EBVs used to improve milk & components production at subsequent lactations.

Breeding values can be compared across breed groups and flocks. It is the value to use to do fair comparisons between animals. It isn't an indication of how much more/less an animal will produce within the barn, but it tells you how much more/less an animal will perform compare to another animal having an EBV of 0 under the same environmental conditions.

Breed Groups

The percentiles can be used to compared animals within a flock or across flocks only if they are from the same breed group. If not, use the EBV values to compare animals. Here is the list of the breed groups.

#Group	Breed composition
1	75 % East Friesian
2	>75 % Lacaune
3	>75 % British Milk
4	50 % East Friesian / 50% Lacaune
5	50 % British Milk / 50% East Friesian
6	50 % British Milk / 50% Lacaune
7	50-74 % East Friesian
8	50-74 % Lacaune
9	50-74 % British Milk
10	Dairy crosses (DX-Americain Dairy Sheep included)
11	Non dairy crosses



