

Making Better Beef Breeding Decisions using EBVs



Selecting the sire with the right genetics could increase the profitability of a 50 cow suckler herd by £1500 to £2000 per annum



Introduction

Obtaining a bull with the right genetics can have a major impact on herd profitability. Estimated Breeding Values (EBVs) are measurements of genetic potential, which can be used to assess a bull's breeding merit for a specific trait.

Estimated Breeding Values

EBV	Interpretation	Commercial influence	Guide
Ease of Calving Attributes			
Birthweight (kg)	Negative Values = Lighter calves at birth	Size of calf at birth	Enables sire to be selected to produce smaller calves at birth, reducing calving difficulties.
Gestation Length (days)	Negative Values = Shorter gestations	Length of pregnancy	Shorter gestation lengths tend to result in easier calvings, because birthweights tend to be lower.
Calving Ease (%)	Positive Values = More unassisted calvings	Calving ease of a bull's progeny	Identifies sires whose calves will tend to be born without assistance.
Growth and Carcase Attributes			
200 Day Growth (kg)	Positive Values = Faster growth rates	Growth rate	Selection for faster growth will result in animals that have heavier carcasses at a constant fat class or leaner carcasses at a constant age.
400 Day Growth (kg)			
Muscle Depth (mm)/ Eye Muscle Area (cm ²)	Positive Values = Deeper loin muscles	Depth of loin	Selecting for muscling traits will increase the yield of lean meat in the carcase.
Backfat Depth (mm)	Negative Values = Leaner carcasses	Leanness of the carcase	Indicates animals capable of producing leaner carcasses, which can be taken to heavier weights without becoming overfat.
Maternal Attributes			
200 Day Milk (kg)	Positive Values = More productive female replacements	Milking ability of female replacements	Indicates female breeding lines that will produce more milk and so wean heavier calves.
Maternal Calving Ease/ Calving ease Daughters (%)	Positive Values = Daughters will have more unassisted calvings	Calving ease of the female line	Highlights bulls whose female progeny will calve without assistance.

EBVs are expressed in the same units as the traits they represent (e.g. kg for 200 Day Growth) and are expressed relative to a common baseline. Comparisons can be made using EBVs between bulls of the same breed, but not different breeds.

The Interpretation of EBVs

A bull's EBVs must be halved to estimate how much of his genetic superiority will be passed on to his progeny.

So a bull with a 400 Day Weight EBV of +40kg will produce calves 20kg heavier at 400 days of age than a bull with an EBV of 0.

Accuracy Values

Accuracy Values are produced for each EBV. Accuracy is expressed as a percentage (%) and indicates the amount of data used to calculate the EBV. The higher the Accuracy Value, the lower the chances of the EBV changing over time as new data becomes available.

Breeding Indexes

Whilst EBVs are an aid to the selection of breeding stock for specific traits, they can also be combined into "Breeding Indexes" to meet a specific breeding objective.

Different breeds will use different Breeding Indexes. Commonly used Indexes include the Signet Beef Value, Signet Calving Value, Signet Maternal Value, Breedplan Terminal Production Index and the Breedplan Self Replacing Index.



Example

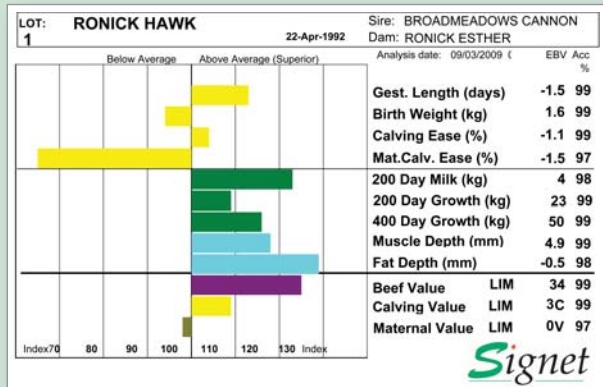
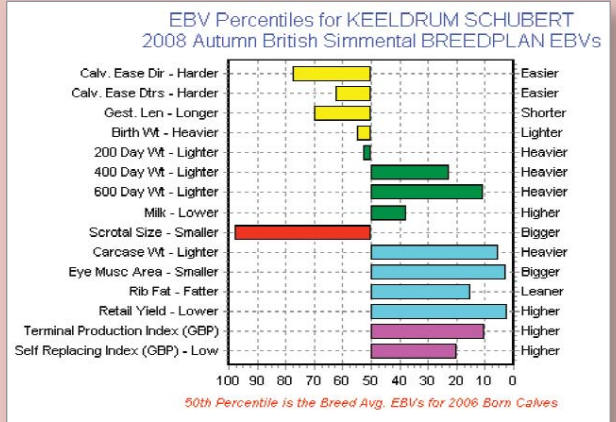
The EBVs for this bull show it is likely to have small calves that are born more easily than average.

His calves will also have good growth rates, muscling and be leaner in comparison to other bulls within the breed.

	Birth Weight	Calving Ease	400 Day Growth	Muscle Depth	Fat Depth
EBV	-1.2	+4	+40	+3.8	-0.9
Accuracy	90	82	86	78	79
Breed Av.	-0.1	+1	+13	+1.5	-0.2
Breed Top 10%	-0.5	+2	+22	+2.4	-0.5

Presentation of EBVs at Sales

Estimated Breeding Values are often presented on charts. These charts make it easy to assess a bull's genetic strengths and weaknesses.



Photos kindly provided By Genus Breeding

Chart presentation may vary depending on whether they are produced by Breedplan (above) or Signet (left), but the principles are the same.

- Bars that lie to the right of the central line indicate the EBV/ Index is above breed average (superior). The further the line is to the right, the better.
- Similarly, bars to the left of the central line indicate the EBV/ Index is below breed average.

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