1. How should I interpret EBV accuracies?

Every Estimated Breeding Value (EBV) generated by GROUP BREEDPLAN is accompanied by an accuracy figure (Acc %) as per the following example from a 2004 Sale catalogue:

<table>
<thead>
<tr>
<th>Trait</th>
<th>200 D Milk</th>
<th>200 D Wt</th>
<th>400 D Wt</th>
<th>600 D Wt</th>
<th>SS</th>
</tr>
</thead>
<tbody>
<tr>
<td>EBV</td>
<td>-4</td>
<td>+2</td>
<td>+5</td>
<td>+11</td>
<td>+0.4</td>
</tr>
<tr>
<td>Acc(%)</td>
<td>51</td>
<td>67</td>
<td>68</td>
<td>69</td>
<td>73</td>
</tr>
</tbody>
</table>

The accuracy figures are simply an indication of how much performance information is behind the associated EBVs.

The majority of sale animals will have accuracies of 50 to 74 %, because the EBV is based on the animal’s own performance records plus performance records from all known relatives. It is only when the performance records of an animal’s progeny are included that accuracy figures reach the range of 75% - 99%.

Implications for Bull Buying

As stated most bulls presented for sale have EBVs with an accuracy of less than 75%. At this level of accuracy the EBVs may change as more data becomes available in subsequent analyses.

Some buyers will argue that because of this the EBVs are of little value. This is not so. A low/medium accuracy EBV is the best available estimate of genetic merit based on the performance of the animal and all recorded relatives.

Buyers who regularly buy bulls around their desired EBV level will inherit that level of performance into their herds quite accurately over a number of bulls. This is because there is an equal opportunity for the EBV to move up or down, which creates an averaging effect over a number of bulls.

It is estimated that a buyer who purchases about 10 young (lower accuracy) bulls at their desired EBV level will inherit that level of performance with an effective accuracy level of around 90%.

When buying young bulls with lower accuracy EBVs it is recommended that initially little emphasis is placed on the accuracy of the EBV. It is only when a number of bulls are considered equally acceptable that the accuracy is used to help reach a decision.

You can also interpret accuracy as a measure of risk. If you are only selecting one sire to join with heifers, accuracy would be more important than say buying several sale bulls for a multiple sire joining group.
2. Why do EBVs change over time?
The EBVs for all animals can change with the addition of more information about that animal. In the simplest case it could be the addition of more weights of the progeny from last year or an increase in the number of progeny analysed. Alternatively, for a sire or dam no longer in use, the additional information could come from the descendents of that animal (grand-progeny, great grand-progeny etc).

In general the EBVs of a sire or dam with many progeny do not change very much with the addition of new information. However, the EBVs of a young animal can change quite markedly once progeny are evaluated.

EBVs with low accuracy (below 50%) may change quite markedly (up or down) with the addition of more information, whereas EBVs with high accuracy are unlikely to change much. However, it is important to remember that there is an equal chance of EBVs increasing or decreasing as more information is added. Accuracy then is a measure of risk. If you are only selecting one sire to join with heifers accuracy would be more important than say buying three bulls for a group of cows.

Inadequate sampling and distribution of offspring (ie selective or biased recording) for a given sire in a GROUP BREEDPLAN analysis will also cause subsequent changes in EBVs. Selective recording will deny one a true picture of what is happening in the herd, and will give EBVs which are less accurate and of limited use in any breed genetic evaluation program.

BREEDPLAN is also continuously being developed. As these new developments are implemented, EBVs may change with the improved analysis. These changes should be reassuring in that BREEDPLAN is continuously refining the estimates as more information comes to hand, just as breeders do by eye as an animal grows and then has progeny (Source: S. Skinner, Pedigree Performance Manager, ABRI).

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