

## **Recording Embryo Transfer Calves with BREEDPLAN**

There are now a considerable number of seedstock producers using embryo transfer within their breeding program. The following document outlines the main considerations that breeders should make to ensure they obtain effective EBVs for their embryo transfer calves.

### **Can BREEDPLAN calculate EBVs for embryo transfer (ET) calves?**

Yes!! A unique feature of BREEDPLAN is its ability to analyse the performance of embryo transfer calves.

### **How does the analysis of embryo transfer (ET) calves differ from naturally mated calves?**

While the performance of embryo transfer calves is essentially analysed in a similar manner to the performance of naturally mated calves, the calculation of EBVs for ET calves is more complex as the maternal effect of the recipient dam on the performance of the ET calf needs to be taken into consideration.

To enable the calculation of effective EBVs for ET calves, BREEDPLAN requires information about the recipient dam to have been recorded.

### **Why does the recipient dam have to be taken into account when calculating EBVs for an ET calf?**

While the recipient dam doesn't influence the genetics of the ET calf, there are maternal effects on the embryo and resulting calf that are attributable to the recipient dam. BREEDPLAN requires recipient dam information so that these maternal effects can be accounted for when analysing the performance of ET calves.

For example, if we take a situation where two identical embryos are implanted in recipient dams of different breeds. One is implanted into a purebred beef breed cow (eg. Brahman, Hereford) and the other implanted into a purebred dairy breed cow (eg. Friesian). These recipients are run together in the same paddock from the day of implantation, over calving and through to weaning. At weaning, the ET calves they have reared are weighed and the calf reared by the dairy recipient is considerably heavier than the calf reared by the beef recipient. As these calves are of similar genetic merit, the difference in their weights is not due to differences in their genetic potential for growth but can be attributed to the greater milking ability (ie. maternal effect) of the dairy recipient.

### **How does BREEDPLAN take account of the maternal effect of the recipient dam?**

BREEDPLAN takes account for the maternal effect of the recipient dam on the performance of the ET calf through two main steps.

Firstly, ET calves are automatically analysed in a separate contemporary group to naturally mated or AI calves. That is, the performance of ET calves is not directly compared with the performance of calves conceived either naturally or by AI.

Secondly, BREEDPLAN removes any differences in the maternal effect made by the recipient dams of ET calves within the contemporary group by either:

- ❑ Further breaking up the contemporary group into groups of calves that have all been reared by recipient dams of the same breed. In this manner, the performance of ET calves will only be directly compared with other calves where the recipient dam is of the same breed and has therefore made a similar maternal contribution.
- ❑ Analysing all ET calves in the same contemporary group but making adjustments to the performance of the ET calves to account for differences in the maternal effect of their recipient dam. These adjustments are made based on the breed of the recipient dam.

The exact method used will vary depending on the BREEDPLAN analysis that is being conducted. For details of the method used in the analysis that is conducted for each breed, please contact staff at BREEDPLAN.

#### **What recipient dam information is required by BREEDPLAN?**

For calculation of effective EBVs for ET calves, BREEDPLAN requires that, at a minimum, both the ident & breed of the recipient dam be submitted. It should be noted that the specific breed of the recipient is required (eg. Murray Grey/Hereford) rather than a generic breed (eg. Murray Grey cross).

In addition, it is recommended that breeders also submit an approximate year of birth for each recipient dam. This is important as BREEDPLAN makes adjustments to the performance of a calf based on the age of their recipient dam.

#### **How can recipient dam information be submitted to BREEDPLAN?**

The methods available to record the recipient dam information for your ET calves differ depending on the Breed Society/Association. Please contact either staff at your Breed Society/Association or the BREEDPLAN office for advice regarding the submission of recipient dam information.

#### **What implication does the manner in which BREEDPLAN analyses the performance for ET calves have for the seedstock producer?**

(i) It is imperative that breeders undertaking embryo transfer programs submit recipient dam information for their ET calves. If recipient dam information is not recorded for an ET calf, its own performance will not be used in the calculation of its EBVs. The EBVs calculated for the calf will simply be mid-parent values based on the EBVs of its genetic dam and sire.

(ii) As BREEDPLAN may only directly compare the performance of ET calves that have been reared by recipient dams of the same breed (depending on the method used

to account for the maternal effect of the recipient dam), the choice of recipient dams should be carefully considered before undertaking an embryo transfer program.

- ❑ If recipient dams of mixed breeds are used, the performance of the ET calves will potentially be split into small contemporary groups and significantly inhibit the usefulness of this information to the BREEDPLAN analysis.
- ❑ At a minimum, breeders should try to select recipient dams of the same breed. This will maximise the number of ET calves being analysed in the same contemporary group.
- ❑ Ideally, recipient dams that have been performance recorded previously would be selected. In this situation, BREEDPLAN already has information regarding the maternal attributes of the cow, which enables the maternal effect of the recipient on the performance of the ET calf to be more accurately identified.

*For more information regarding the analysis of embryo transfer calves, please contact staff at BREEDPLAN.*

**Important : If recipient dam information has not been submitted for an ET calf, its EBVs will simply be mid-parent values based on the EBVs of its genetic dam & sire.**