Understanding Contemporary Groups TIP SHEET

What are Contemporary Groups (CG)?

- A group of animals, born within the same herd, in the same season, which have had the same opportunity to perform in a specific trait.
- It is a group of animals born in the same herd that was managed under the same conditions up until the specific trait was measured.

Why does BREEDPLAN group animals into CG's?

- To account for as many non-genetic influences on performance as possible, such as feeding, seasons and management.
- To ensure that animals with similar opportunities to perform are directly compared.
- To help distinguish differences in performance due to genetics from differences caused by environmental and management factors.
- To improve the accuracy and reliability of EBVs.
- Incorrect grouping can result in less accurate or misleading EBVs, particularly when animals receiving different levels of management are grouped together or animals are unnecessarily separated into very small groups.

How does BREEDPLAN construct CG's?

- BREEDPLAN automatically creates the contemporary groups (CG) of animals for comparison based on the criteria outlined below:

AUTOMATIC	AUTOMATIC, BUT CAN BE BREEDER INFLUENCED	BREEDER SUPPLIED
1. Herd	7. Breed	10. Breeder Defined Management Groups
2. Calving Year	8. Weight Date	- birth
3. Sex of Calf	9. Calf Age (Slicing)	- post-birth
4. Twins/Single		
5. Birth Status (ET)		
6. Dam Age		

1. **Herd:**
   - Only calves bred and weighed in the same herd will be directly compared in the same CG.
   - This herd definition can be extended to include "associated herds" which have calves bred and managed as part of a larger herd.
   - The most common example is where members of a family (e.g. children) have a small number of animals registered in their own name that run as part of the main herd on the property.

How does BREEDPLAN construct CG's cont.

2. **Calving Year:**
   - Only animals born in the same "calving year" will be compared together in the same CG.
   - Usually the calving year is the same as the year of birth of the calf.
   - However, for herds whose calving period runs into the next calendar year (e.g. from November through to March), "calving year" can be specified to span the period running across two different calendar years.
   - In these cases, a financial year is more appropriately used as the "calving year".

3. **Sex of Calf:**
   - Only calves of the same sex at measurement will be directly compared in the same CG
   - Therefore, bulls with bulls, heifers with heifers, steers with steers.
   - Note that males that are weighed initially as bulls and then castrated will have their first weight compared with all the other males and their second weight only with the steers.

4. **Number in Birth (Single/Twins):**
   - Only calves of the same birth number will be compared together in the same CG.
   - Single calves will not be compared with twins.
   - While twins can be compared with other twins, the low occurrence of twin births generally means that very little performance information from twins is used in the BREEDPLAN analysis.

5. **Birth Status (ET/Natural):**
   - Calves conceived naturally or by AI will be directly compared together in the same CG but they will not be compared with embryo transfer (ET) calves.
   - ET calves will be analysed in a separate CG.
   - Furthermore, the amount of information available on the recipient dam will then determine the formation of the contemporary group for ET calves.
   - ET calves will only be directly compared with other ET calves that have been reared by recipient dams of the same breed (and the recipient dam information has been recorded with the Breed Society).

Understanding Contemporary Groups TIP SHEET

How does BREEDPLAN construct CG's cont.

6. Dam Age (Parity):

- The birth performance records for calves out of first calf heifers (up to 3.5 years of age) are not compared with birth performance records for calves out of other cows.
- NOTE - This heifer/cow distinction is only used for birth performance traits (i.e. birth weight, gestation length, days to calving).

7. Breed:

- In some BREEDPLAN analyses, only the performance records for calves of the same breed will be compared together in the same contemporary group.
- In other BREEDPLAN analyses, either:

  a) Only the performance for pure bred animals is included or

  b) The performance from cross bred animals is included in the same CG and adjustments for heterosis are made.

8. Weigh Date:

- Only animals weighed on the same date will be compared together in the same CG.
- For example, the 400 day weight performance for two animals will only be directly compared if both the 400 day weights were recorded on the same day or any weights previously submitted to BREEDPLAN for these animals had also been recorded on the same day.

9. Calf Age:

- Only animals of similar age will be directly compared in the same CG.
- When all the other criteria have been used to place animals into a CG, the group is divided (sliced) into animals of similar ages.
- "Slicing" is done to ensure that the calves being compared have been run under comparable seasonal conditions.
- For example, if the age slicing for 200 day weight is 45 days. The first calf born in the group is the start and the CG will include all animals born in the next 45 days. After this the next calf is found and this becomes the start of the next CG.
- The following table provides an indication of the standard age slices used by BREEDPLAN:

How does BREEDPLAN construct CG's cont.

Trait	Age Range (days)	Standard Age (days) #	Slicing
+ Gestation Length	520-(20yrs)	-	6 months
Birth Weight	0	-	45 days
⊕ 200 Day Milk	760 days -(20 yrs)	-	-
200 Day Weight	80-300	200	45 days
400 Day Weight	301-500	400	60 days
600 Day Weight	501-900*	600	60 days
Scrotal Size	300-700	400	60 days
+ Days to Calving	600-3650	-	6 months
Scan Fat	300-800	500	60 days
Scan EMA	300-800	500	60 days
+ Calving Ease	600-(5 yrs)⊗	-	4 months

\# Each trait is adjusted to a standard age before comparisons are done.
\+ These are measures on the cow when the calf is born.
⊗ For calving ease, all cows older than 1900 days are treated as "mature cows".
⊕ The 200 day milk EBV of the cow is estimated from the 200 day weight of the calf.
Cows older than 12 years are treated as mature cows.

When to assign an animal to a different management group?

- Only animals in the same breeder defined "management group" will be directly compared in the same CG.
- There are two different forms of breeder defined management groups:

  1. Birth Management Group:

  - Allows breeders to describe different treatments of the cows prior to the birth of the calf.
  - For example, where one group of cows have had different feed availability that may affect the birth weight, calving ease or gestation length when the calf is born.

  2. Post Birth Management Group:

  - Allows breeders to identify animals that have received different treatment or management following the birth of the calf.
  - This treatment may be deliberate (e.g. when bulls receive supplementary feeding and others do not) or accidental (e.g. if a calf is sick).

- Providing BREEDPLAN with management group information is the responsibility of the breeder.
- By assigning animals into management groups, breeders are acting as "eyes" for the BREEDPLAN evaluation.

Understanding Contemporary Groups TIP SHEET

When to assign an animal to a different management group Cont.

- Animals should be assigned into different management groups when they have not had equal opportunity to perform.
- By assigning animals into management groups, only like treated animals will be grouped together and therefore directly compared in the BREEDPLAN analysis.
- Some examples of where animals should be recorded in separate management groups are:
  - Sickness gives some calves a permanent set back.
  - Animals fed for shows or sales.
  - Animals being given growth promotants.
  - Animals reared in different paddocks in which feed is of different nutritional value.
  - Different stages of pregnancy for heifers.

How to keep CG's as large as possible

- Breeders must maximise the number of their calves represented within each CG to optimise the results from their performance recording.
- Strategies that can be implemented to achieve this:
  1. **Restrict calving periods:**
  - As calves are only included in the same CG if they are born within 45 or 60 days of one another, it is preferable if herds have as shorter calving period as practical.
  2. **Weigh all animals on the same day:**
  - As calves are only included in the same CG if they are weighed on the same date, all animals within the same management group should be weighed on the same day.
  3. **If you need to divide animals, use the "automatic" grouping criteria:**
  - Sex, age, ET calves vs non-ET, prior management groups etc.
  4. **Use recipient dams of same breed:**
  - As embryo transfer calves are only included in the same contemporary group if they are reared by a recipient dam of the same breed, it is preferable if the recipient dams used are all the same breed.
  5. **Run animals in as large a group as possible**

Other Considerations: Maintaining Genetic Linkage

- It is important to maintain both genetic comparisons within each CG and between the different CG's.
  1. **Maintaining Genetic Comparisons within groups:**
  - Must have more than one sire with progeny represented within each CG.
  - The performance information from a CG of calves that all have the same sire contributes no information on the genetic merit of the sire.
  2. **Maintain pedigree links between groups:**
  - The more pedigree links between the different CG's, the more reliable the EBVs.
  - This is because we use the pedigree links to compare between the groups.

- **Therefore, try to:**
  - Remix your cows from one year's joining to the next (i.e. don't keep cows in the same mob every year).
  - Replace sires gradually (ensure you can directly compare the progeny of the new sire(s) with progeny of a sire used previously).
  - Split a sire's heifer progeny between several bulls when these heifers are being mated. This is important for the estimation of the Milk EBVs.

More Information

- Scan the QR code below for the complete BREEDPLAN tipsheet or click here for the BREEDPLAN Help Centre