The **How** and **Why** of **Contemporary** Groups

If a group of comparable animals was exposed to the same environment, differences between them are caused by genetics.

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The principle of contemporary groups is used in breeding value estimation to indicate whether differences in performance can be attributed to environmental or genetic effects. A contemporary group is a group of similar or comparable animals that were exposed to the same environment. The correct composition is one of the cornerstones of BLUP breeding value estimation.

Should animals exposed to different environments be evaluated in the same contemporary group, the animals in the better environment will tend to have better performance and, therefore, higher breeding values, as environmental effects will be attributed to genetics. Therefore, it is important to identify animals that were exposed to the same environment or place animals in a different group if their performance was differently affected by the environment than their group mates. However, this is not as complicated as it sounds, especially if the breeder keeps the following principles in mind:

1. Place animals that were at the same time, place, and treatment in the same group

A contemporary group is a comparable group of animals measured at the same time in the same environment, for example, a group of weaner calves of the same age (born between 90 days of each other), weighed on the same date on the same farm. Therefore, it is a comparable group of animals that were together on the same farm or camp in the same year and season.

If there are some animals in the group that was treated differently, they should be given a separate treatment code. Their performance was influenced by other environmental influences than the rest of the group. Examples of possible different treatments are when some animals received supplements or creep

feed, sale or show animals, embryo donors, sick or foster calves, or even cows and calves purchased from another farm.

Corrections for sex, age of calf, and age of dam, are automatically made during breeding value estimation. This information is available from performance recording and therefore need not be considered by the breeder.

2. Animals should be the progeny of at least two sires, one a link sire

The progeny of different sires needs to be compared in the same group to determine the sires' genetic merit relative to each other. At least one sire should be a link sire with progeny in another herd. Genetic links between herds are used to determine the ranking of sires in the breed and therefore AI sires are good link sires. Smaller herds that only use one bull could artificially inseminate some cows or allow some cows to be covered by another herd's bull to improve linkages to other herds.

3. Larger groups stabilize Breeding Values

Larger groups result in more accurate and stable breeding values, as the mean and distribution of the group can be more accurately determined and are thus more representative. Weigh all the animals in the same group on the same day as corrections for age differences are made during the genetic evaluation. The use of breeding seasons, rather than through the year calving, will also increase contemporary group size simply because more calves are born closer together.

One of the important cornerstones of breeding value estimation is performance relative to the contemporary group average. Groups with only one or two animals are therefore not included in breeding value estimation as one animal in a group will always be average. With two animals one will be above and the other below average. These small groups do not contribute and are therefore not included. Although contemporary groups should preferably have at least five animals and be the progeny of more than one sire, larger groups are better. Larger groups are more resilient to accidental mistakes.

4. Measure all animals in the contemporary group

It is also important to weigh all animals in the contemporary group, especially the genetically poor performers that are culled. Weighing poorly performing animals before they are culled will penalize their parents for their poor breeding ability and will be a more accurate reflection of real genetic ability. It will also accurately indicate the higher-than-average performance of the rest of the group. The genetic merit of all animals in the group and their parents are then accurately reflected in their breeding values.

Conclusion

Placing animals in contemporary groups should not be a complicated process. Place animals that were differently affected by the environment for some reason in different groups. It is an important tool to level the playing field so that environmental effects are not confused with genetic effects. All animals in the same group should be fairly compared to determine genetic differences. ■