

Contemporary Groups for Birth Weight

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Background

One of the main issues in performance testing and breeding value estimates is clearly defined contemporary groups. A contemporary group is a group of animals that are subjected to the same environmental conditions, in other words they were born in the same herd, year and season and they received exactly the same diet and treatment. After adjustment for known effects, such as sex and age of the dam are made, remaining differences between animals are due to genetics and is it possible to estimate breeding values for the trait based on those differences. The heavier calves in a contemporary group for birth weight will, for example, get the highest birth weight breeding values.

Sometimes contemporary groups are not correctly compiled, such as poor or incorrectly defined seasons, too large age variation, animals of one group moved to another and animals assigned to the wrong management group. These cause environmental effects to be wrongly attributed to genetics. For example, if calves raised on a farm with good pasture are placed in the same contemporary group as calves raised on a farm with poor pastures, the weaning indexes of calves on the good farm will all be high and they will get high breeding values, and vice versa for the other group. These breeding values are obviously not a true indication of their genetic ability. When these calves are measured for other traits or their progeny are weighed, the breeding values will change and will give a more correct indication of their genetic ability.

Contemporary groups should thus be defined in such a way that the playing field is equal: environmental effects should be as close as possible to the same for all animals within a particular group, excluding those effects for which adjustments are made (e.g., sex and age of dam) in the evaluation model. Correctly defined contemporary groups together with good genetic links between groups will ensure that BLUP can effectively differentiate the genetic and environmental effects within a particular group.

Birth Weight Group Code

For BLUP analysis of birth weights, calves are currently divided into contemporary groups according to herd and birth dates of the calves. However, time and experience have learned that this procedure is not always sufficient, and that it can be done more accurately by the producer himself. For example, the current system does not make provision for calves in the same herd that are heavier or lighter than other calves simply because their mothers were on another farm or in another management group (with better or worse food than the rest). Although the current system does take calving season into account, it is not always sufficient to account for differences between calves born either early or late in the calving season.

Breeders can now define the birth weight contemporary groups themselves, regardless of when exactly the calving season in his herd begin and end. It is simply and easily done by filling in a new field, the Birth Weight Group Code with the birth weight of calves.

In order for a breeder to compile understandable, unique contemporary groups, the Birth Weight Group Code is composed of the Year, Season and Farm/Management group as follows:

- In the **first two characters** the year of birth for most of the relevant group of calves is entered, for example "11" for calves born in 2011 and "12" for calves born in 2012.
- In the **next two characters** a code is entered for the **season** in which the group of calves is born. Based on recent research on the influence of month of birth on birth weight, we recommend that the **same season code is allocated to calves with age differences of**

not more than two months. If a calving season is for example 90 days, the calves born in the first 45 days should receive one season code and a subsequent season code for the calves born in the second 45 days. For this purpose we give the following eight season codes for you to choose from:

SEASON	CODE	CALVES BORN IN MONTHS*
Early Spring	ES	August, September, October
Late Spring	LS	October, November, December
Early Summer	EU	November, December, January
Late Summer	LU	January, February, March
Early Autumn	EA	February, March, April
Late Autumn	LA	April, May, June
Early Winter	EW	May, June, July
Late Winter	LW	July, August, September

* Please note that the months of adjacent seasons overlap. This is to enable you to choose the relevant season code(s) that suits your specific calving season. If your calves for example are born from 1 September to 30 November, then enter season code "ES" for calves born 1 Sep - 15 Oct and season code "LS" for calves born 16 Oct - 30 Nov.

- In the **last two characters** a free-choice code should be entered for the **farm and/or management group**, for example FP for the calves from the farm Fairview where the cows are on Planted Pastures and FN for the calves from the farm Fairview where the cows are on Natural Pasture.

Example

Let us give an example to illustrate the above: A breeder named Peter has two farms, farm B at Bethlehem and farm E at Escourt. At the Bethlehem farm the cows are the entire calving season on planted pasture and on the farm at Escourt on natural pasture. On the Bethlehem farm cows calve from 1 September to 31 October (2 months). On the Escourt farm cows calve from 1 September to 30 November (3 months). The calves born later in the season on the Escourt farm are heavier than the calves born earlier in the season. For calves born in 2011, Peter's Birth Weight Group Codes will be as follows:

- 11ESBA - 2011 **Early Spring** calves born 1 Sep - 30 Oct at the **Bethlehem** farm on **Planted** pasture
- 11ESEN - 2011 **Early Spring** calves born 1 Sep - 15 Oct at the **Escourt** farm on **Naturally** pasture
- 11LSEV - 2011 **Late Spring** calves born 16 Oct - 30 Nov on the **Escourt** farm on **Natural** pastures

Keep in mind:

- The completion of a Birth Weight Group Code is not mandatory at present, but breeders are strongly encouraged to record it, where possible, when calves are weighed at birth.
- The *maximum* age variation allowed for calves with the same Birth Weight Group Code is 60 days.
- Only calves born in the same environment and time period should be in the same group. Please beware not to divide calves unnecessarily into small groups. Try to keep groups as large as possible, provided the environment is the same for all calves in the group. If a group of 50 calves born in the same calving season is for example divided into two contemporary groups due to a seasonal effect, it is better to make two groups of approximately 25 calves each than to make one group of 48 calves and a second group of 2 calves. (Try to have, wherever possible, at least five calves from two sires together in a group).

BeefPro

In the next BeefPro update provision will be made on the Calving screen for the Birth Weight Group Code field. Provision will also be made for a new settings function (at Settings> Birth Weight Group Code) where the breeder himself can compile Birth Weight Group Codes with the above as

guidelines. He can then choose a default code for a particular group of calves (similar to the Calving Seasons settings) and this code is then entered on the Calving screen in Birth Weight Group Code field.

Logix

In Logix we made provision on the new Birth Notification screen for a Birth Weight Group Code field where the code can be filled with the above guidelines.

Birth Notification Books

When they print new Birth Notification books, breeders' societies will have to add the Birth Weight Group Code on the form. Meanwhile, farmers who are still using old books and want to record the Birth Weight Group Code should contact SA Stud Book to get instructions on where on the form they should record it.

Historical data

The new Birth Weight Group Code only applies to calves born from the 2011 spring season. Historical data can unfortunately not be changed. Please note that this is only a refinement of the present system and that it is not expected to have a large effect on the present animals' breeding values, because breeding values change, in any case, as other traits or progeny are recorded.

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