



# By the Numbers

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## Understanding contemporary grouping

*A contemporary group is a set of animals that have had an equal opportunity to perform: same sex, managed alike, and exposed to the same environmental conditions and feed resources. Contemporary groups are the cornerstone of genetic evaluation. They are the best way to account for environmental effects so that remaining differences among animals may be attributed to genetics, ultimately resulting in expected progeny differences (EPDs).*

### Set them up correctly

The responsibility of proper contemporary grouping lies with the individual breeder. In most cases, calves born within a 90-day period on the same farm or ranch can be grouped together; however, consideration should always be given to the way the calves are managed and to their nutrition. In many cases, one contemporary group per sex is sufficient. However, differences can exist within the same operation that require the establishment of two or more contemporary groups. Management and group codes may be helpful in these cases.

The **management code** designates

whether or not calves were creep-fed or supplied supplemental feeding and separates them accordingly. Code 1 is for non-creep-fed calves, while code 3 is for creep-fed calves.

The **group code** is used to designate a set of calves managed differently from another set of calves. Calves from different groups or pasture units are designated by using a letter code, such as A, B, C or D. Orphaned or extremely sick calves should be assigned a separate group and not be compared against their normal herdmates.

Breeders submitting weaning weights also have the option to have heifers and bulls (or steers) treated and ratioed as separate-sex groups or treated as an entire calf crop, with males and females adjusted to a bull basis and ratioed as one group. Use the group code to separate the sex groups of calves if desired. If the Performance Programs Department is not instructed differently, each weaning group is treated as one unit for calculating ratios.

Data submitted falls under various contemporary grouping criteria once it reaches the American Angus Association. Contemporary groups for natural calves are separated by whether the dam is a registered Angus or commercial female. Embryo transfer (ET) calves are not grouped with natural-born calves. At weaning, ET calves from registered Angus recipient females are assigned to a separate group from ET calves out of other recipient females. Any irregular, foster or outlier calves are placed in a separate group.

Some breeders create too many contemporary groups, since they may not be aware of the various factors that can split calves into these groups (see "Grouping guidelines"). In other cases, breeders may fail to break a large set of calves into different contemporary groups when the assignment is needed to allow for unequal treatment or an exception.

A typical plan is to take weights and measurements on all calves on the same day and to include as many calves in the contemporary group as possible. Then, the management and group codes can be used to specify known group differences.

Some sample group code applications follow:

- Calves from 2-year-old dams in one pasture may be reported as Group A, while calves from mature cows in another pasture are Group B.
- Bull calves from 2-year-old dams may be Group A. Heifer calves from 2-year-old dams may be Group B. Bull calves from mature cows may be group C, and heifer calves from mature cows may be Group D.
- The entire calf crop is reported as Group A, but an orphaned calf is placed in Group B, and a chronic sick calf is placed in Group C.

Each of the categories above will be a separate contemporary group for comparative purposes as indicated by a different lot identification (Lot ID) in the upper left-hand corner of the Beef Improvement Record "Sire Summary" sheets.

A useful contemporary group size is 10 or more animals of the same sex born within a 90-day period and weighed within a three-day window. For example, calves weighed on Monday, Tuesday and Wednesday can be included in the same group. Calf weaning weights outside the three-day window are assigned to a different contemporary group. It is important to note that sexes are separated in the calculation of interim EPDs and for National Cattle Evaluation (NCE) EPDs. For details on interim EPDs, see the April 2005 "By the Numbers" column.

### Trait guidelines

Angus contemporary groups are defined beginning at weaning. The number of animals in a contemporary group never increases after weaning. The number of contemporaries either stays the same or becomes fewer as animals are separated from each other for management reasons. Contemporary groups cannot be recombined after herdmates are separated from their defined weaning groups.

### Grouping guidelines

#### Contemporary group:

A set of calves (two or more) that are the same sex, managed alike and exposed to the same environment.

#### What splits calves into separate contemporary groups?

- Management codes (creep vs. noncreep)
- Group codes
- Weaning dates more than three days apart
- Location codes
- Registered vs. commercial dams
- Natural vs. embryo transfer (ET) calves, registered Angus vs. other recipients
- Submitting data on calves that could be in the same contemporary group at different times [using paper forms, AAA Login carts or Angus Information Management Software (AIMS) files]. Sending data on calves at later dates than their other contemporaries causes unwanted groups to be formed. These calves will not be joined with the previously submitted calves.

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Weaning weights, yearling weights and ultrasound measurements are to be taken when animals are within the following age ranges.

1. Weaning weights may be taken when the calves are between 120 and 280 days of age.

2. Yearling weights may be taken between 320 and 440 days of age. Animals weighed as yearlings are always grouped in the same manner as they were at weaning. This occurs for two reasons: First, it accounts for bias due to culling or selection at weaning, and, second, it accounts for bias due to management and nutrition at weaning. Sexes are also separated at yearling time.

3. Ultrasound measurements are also taken and the animals are grouped from the weaning contemporary group, with additional breakdowns of the groups for management differences made at the time of scanning. Ultrasound measurements may be taken in the following age ranges:

- ▶ Bulls — 320 to 440 days of age
- ▶ Heifers — 320 to 460 days of age

### **Contemporary groups, ratios and EPDs**

Contemporary grouping allows animals to be evaluated on how well they performed compared with their herdmates raised under similar environmental conditions.

This grouping accounts for environmental or unequal treatment effects, so that heritable differences, such as EPDs, can be predicted.

Two or more animals of the same sex are necessary in the contemporary group for the EPD to be calculated, assuming other data edits are met. Each animal is compared relative to the average performance of the contemporaries in the defined group. You cannot have EPDs beyond a pedigree index interim EPD without contemporary groups. A contemporary group of one animal does not provide any information to compute EPDs from the Association's NCE.

Example: There are 10 bull calves weaned at your farm or ranch (treated alike, same sex, fed/managed the same). The bulls form one weaning contemporary group. Then, you send two calves to the bull test station and feed out the remaining eight at home. Their yearling and ultrasound records will be processed as two separate contemporary groups, not as one. If you send one bull to a test station, this creates a contemporary group of one for the yearling and ultrasound data. Association ratios for these traits will be 100, and the animal's own yearling and ultrasound performance will not be used in evaluation procedures for EPDs.

A *ratio* is the performance on an individual animal relative to the average

performance for his or her contemporaries. Contemporary groups should include as many animals as can be accurately compared.

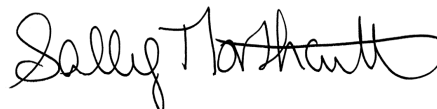
Continuing our example, say the 10 bull calves at weaning weighed an average of 600 pounds (lb.). One calf weighed 630 lb., so he is 5% above the average of his contemporaries. His ratio is 105.

$$\text{Ratio} = (630 \div 600) \times 100 = 105$$

Another calf weighed 570 lb., which is 5% below the contemporary group average of 600 lb. His ratio is 95.

$$\text{Ratio} = (570 \div 600) \times 100 = 95$$

In the calculation of EPDs, the animal's own record (a weight or measure) is used relative to the contemporary group's average performance. It is sometimes a misunderstanding that the numerical ratio (like the ratio computed above) is used in the computations. Ratios can be a within-group tool; however, the use of more advanced selection tools, like EPDs, provides comparisons among all animals in the breed with greater accuracy.



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