

Beef Logic

by R.A. "Bob" Long



Basic genetics, Part V: contemporary groups

The goal of performance testing in beef cattle breeding programs is the determination of genetic differences. The effects of geography, nutrition and management already have been discussed. Equally important in measuring genetic differences is the uniform grouping of cattle according to physiological differences such as age and gender.

Proper contemporary grouping demands that cattle must be compared at the same time and place, as well as under the same nutrition and management.

■ Age

Age is important in accurate contemporary grouping. The less range in age within a group, the better. The suggested range in age within a contemporary group is 90 days or less. Adjustment for age is a part of every performance-record program, but the less adjustment necessary, the better.

The formula for adjustment of weaning weight for age is based on average daily gain from birth to weaning. It does not take into account the possible variation in nutrition for either the dam or her calf due to differences in supplemental feed or pasture quality. Weather also can affect daily gain. Therefore, a calf born early in the calving season can't be legitimately compared with one born two or three months later.

Age should also be considered in management decisions. Two-year-old heifers nursing calves should not be required to compete with mature cows for supplemental feed. Even 3-year-olds are still at a disadvantage. Unless the young cows are grouped separately, their performance records will not reflect their genetic potential.

■ Gender

Gender is another variable to consider. Among genetically similar cattle, bulls grow faster than steers, and steers grow faster than heifers. If you truly want to mix genders in order to have weaning ratios, it can be done; but breeding value as expressed by expected progeny differences (EPDs) is much more valuable than ratios.

However, steers have no place in seedstock herds. If calves are steered before weaning, the breeder is not using performance records for selection but has made a culling decision on visual appraisal alone. Likewise, neither bulls nor heifers should be culled or sold until after a postweaning gain test if complete performance records are to be maintained.

Gender must also be considered when evaluating cattle for carcass characteristics. Muscularity, fatness and marbling are all affected by gender. Among genetically similar cattle of the same age and previous treatment, bulls carry the most muscle, steers are intermediate, and heifers are lightest-muscled.

In the case of fatness, the heifers will be fattest; the steers, intermediate; and the bulls, leanest. Likewise, the heifers will show the most marbling, with the steers showing intermediate levels, and the bulls showing the least. Therefore, when evaluating cattle for composition — whether by visual appraisal, ultrasound or by actual carcass measurements — the contemporary groups must be based on gender, as well as age and previous treatment.

■ Time and place

As mentioned earlier in this series, proper

contemporary grouping demands that cattle must be compared at the same time and place, as well as under the same nutrition and management. This eliminates the use of test stations for postweaning gain tests. Of course, an entire contemporary group of bull calves might be sent to such a test, but this is expensive. Some tests have certain requirements for age, weight, etc., which would eliminate individuals from the group and make the performance data invalid.

Early in the history of performance testing, innumerable bull testing stations came into being. Some were operated by breed associations as a service; some, as cooperative ventures by a group of breeders; others, by the Extension service of universities; and some, as profit-oriented businesses.

In the developmental stage of beef cattle performance programs, these central test stations served well by demonstrating that wide differences existed in the genetic potential of cattle for growth rate and that these differences were hereditary. However, these test stations did not do a good job of accurately ranking bulls in order of their genetic superiority because of reasons we have discussed already.

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In summary, legitimate performance records must be recorded on an entire contemporary group of the same age, gender and treatment, and comparisons must be made at the same time and place.

The next article in this series will deal with the importance of completeness and accuracy of performance measurements.

