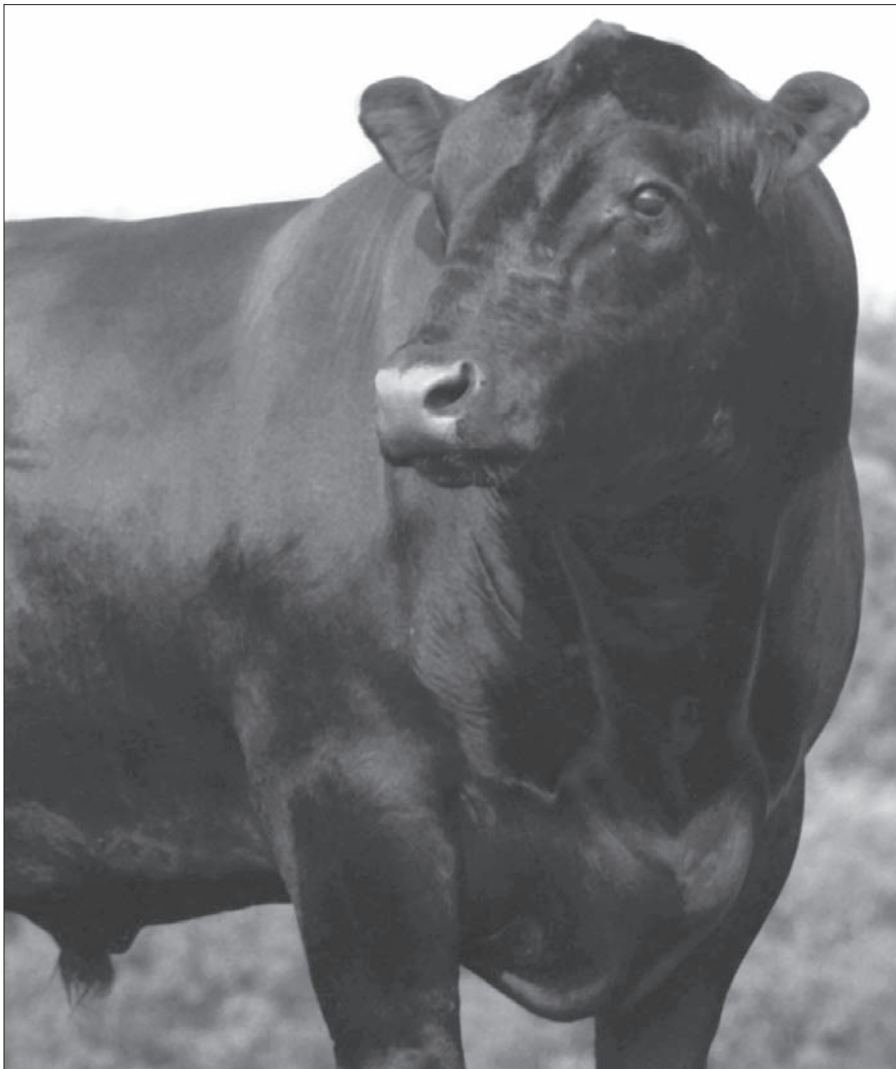


Recommendations for

# Structured Sire Evaluation

The American Angus Association presents requirements for carcass data and recommendations for structured sire evaluation.

by the *American Angus Association*



**Any parties interested in working as a test herd or having sires evaluated for carcass merit may contact the Performance Programs Department of the American Angus Association.**

**S**eedstock and commercial producers have continued interest to improve the genetic merit of the cattle they produce to meet the product demanded by consumers. A shift continues in the industry as more cattle are marketed in value-based systems determined by carcass merit. Branded beef marketing programs such as the Certified Angus Beef LLC (CAB) program rely on qualifying cattle meeting carcass specifications to supply those products. It remains crucial that Angus cattle remain in a strong position to produce animals with not only predictable reproductive, maternal and growth traits, but also carcass merit to meet industry needs.

Structured sire evaluation programs for determining carcass merit in Angus cattle were first established in 1974. Since 1998, ultrasound technology has been used as a nondestructive method to evaluate breeding stock for end-product value. Enhanced methodologies in genetic evaluation procedures now allow the integration of the carcass and ultrasound phenotypic databases to generate a combined carcass genetic evaluation using both resources.

Provided first in Section 1 are the minimum standards used to collect field data that can be used in the genetic evaluation process. Field data from proper contemporary groups of sire-identified data provide excellent resources used in genetic evaluation procedures. Section 2 is the suggested protocol, which provides a template for producer reference in properly planning a large structured test that will also yield valuable genetic improvement information.

## SECTION 1

### **Minimum requirements for carcass data used in genetic evaluation**

A contemporary group is a set of cattle of the same sex that have been raised together and have received equal treatment up to the point of harvest. Contemporary groups must contain a minimum of two calves of the same sex, harvested on the same date, with at least two sires represented to be used in the genetic evaluation procedure. Harvest data on bulls will not be included in the carcass data. All data will be collected and processed through Beef Improvement Records (BIR) at the established weaning weight fees, and then analyzed through the Association's National Cattle Evaluation (NCE) procedures.

### **Preharvest data collection**

The following preharvest data is required to be processed through BIR prior to submission of harvest data:

- ▶ Dam registration, or identification if a commercial female [dam birth date and herd identification (ID) required]

- ▶ Sire registration
- ▶ Calf herd ID/tattoo, birth date and sex
- ▶ Weaning weights taken between 120 and 280 days

Optional data that may also be processed through BIR:

- ▶ Calving score
- ▶ Birth weight
- ▶ Yearling weights taken between 320 and 440 days

### Harvest data collection

Carcass data collected will include:

- ▶ Calf herd ID/tattoo
- ▶ Harvest date — animals must be between 360 and 660 days of age
- ▶ Harvest plant and location
- ▶ Hot carcass weight
- ▶ Marbling score (e.g., MD30)
- ▶ Carcass maturity
- ▶ Fat thickness
- ▶ Ribeye area
- ▶ Percent kidney, pelvic and heart (KPH) fat, if available
- ▶ Optional data may include quality grade and yield grade

### Ultrasound data on market steers

Ultrasound data may be collected on fed steers at harvest time. The ultrasound data must be interpreted by an American Angus Association-authorized lab. Ultrasound data required for use in this manner include:

- ▶ Calf herd ID/tattoo
- ▶ Scan date — animals must be between 320 and 480 days of age at time of scan
- ▶ Group, test type, sex, diet concentration level
- ▶ Scan weight taken within seven days of scanning after holding off feed and water for 12 hours
- ▶ Rib fat
- ▶ Rump fat
- ▶ Percent intramuscular fat
- ▶ Ribeye area

Note: Weaning weight submission is necessary to process ultrasound data.

## SECTION 2

### Recommendations for structured sire evaluation

- ▶ Approved by American Angus Association Feb. 25, 2000
- ▶ Amended June 2000 to apply to matings made after Nov. 15, 2000
- ▶ Revised February 2008

The following recommendations for carcass data collection provide suggested guidelines to allow producers to generate data useful in the evaluation of Angus cattle for carcass merit, and continue to improve the selection tools available to the beef industry. Minimum requirements discussed previously must be met in order for the data to be eligible for inclusion in NCE procedures.

### Specific testing guidelines

The following preharvest data is required to be processed through BIR prior to submission of harvest data:

#### 1. Reference sires

In order to obtain a fair genetic evaluation of a sire for carcass merit, the test should include progeny from at least two sires represented in a contemporary group. Commercial females should be randomly mated to strive for an unbiased data set.

The use of reference sires serves to tie new information to the existing American Angus Association database in order that more comparative genetic values may be calculated. A reference sire is suggested as any sire that has been previously evaluated for carcass merit with accuracies for all carcass traits of 0.60 or higher.

#### 2. Contemporary grouping

A contemporary group is a set of cattle of the same sex that have been raised together and have received equal treatment. All progeny within a contemporary group should be born within a 90-day period and male calves castrated prior to 150 days of age. The contemporary group would be further broken down within sex and birth grouping if some go on feed as calves and others are started on feed as yearlings. Ideally, the desired minimum contemporary group size is 25 steer or heifer calves, to include both test and reference sire calves. Contemporary groups with a minimum of two calves of the same sex with at least two sires represented will be used in the genetic evaluation procedure.

The following preharvest data is required to be processed through BIR:

- ▶ Dam registration, or identification if a commercial female (dam birth date and herd ID required)
- ▶ Sire registration
- ▶ Calf herd ID/tattoo, birth date and sex
- ▶ Breed of dam (up to three crosses for commercial females)
- ▶ Weaning weights taken between 120 and 280 days
- ▶ Yearling weights (optional) between 320 and 440 days (optional)

#### 3. Sex of calf and selection

All test and reference sire progeny (male and female) may be utilized in the evaluation. Sex of calf will be used in the definition of the contemporary group, meaning that heifer data will not be adjusted to a steer equivalent. All non-replacement individuals may enter the program, such as non-replacement heifers. However, when herd replacements are removed from contemporary groups,

it is suggested that weaning and yearling weights on all progeny in the initial growth contemporary group, not just the carcass contemporary group, be recorded and provided to the American Angus Association. This is necessary in an attempt to correct for bias in the data due to selection. Weaning weights must be taken on all cattle between 120 and 280 days and yearling weights (optional) must be taken between 320 and 440 days, according to established BIR procedures.

### Finishing and harvest guidelines

1. An important refinement of the carcass evaluation procedures is harvest at a constant compositional end point. Cattle should be harvested when the group averages 0.3-inch (in.) backfat or prior to 15 months of age or a maximum of 1,300 pounds (lb.) live weight, whichever occurs first. This corresponds to at least 90 days on feed for yearling cattle and 180 days on feed for calves.

Depending on the weight ranges of the cattle as they go on feed and the number of cattle involved, two or more harvest dates may be required. Contemporary grouping will include harvest date; therefore, each harvest group must include test and reference sire progeny. Contemporary groups with a fat thickness average exceeding 0.55 in. will not be used. Contemporary groups with an average age in days exceeding 550 days at the time of harvest will not be used.

2. All progeny can go on feed directly after weaning or may be managed as stockers and placed on feed after the yearling weight is taken.

3. In order to facilitate recordkeeping, cattle should be grouped for finishing at centralized locations within a state or geographic region. The location of the feedlot should be in close proximity to a packing plant that has already agreed to participate in carcass data collection. All health and feeding practices will be according to normal industry standards.

### Test herd alternatives

1. The objective of all sire evaluation programs is to arrive at unbiased values of genetic merit for each sire tested. However, there are real-world economic constraints that preclude this from being completely possible. The genetic makeup and identification of the test herd is one area where it is not always possible to have the ideal testing environment. The following is a list of test herd alternatives from the most desired to the least desired:

- ▶ Registered Angus cows — no selection of replacement heifers or bulls and all males castrated at 90 days of age or less

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- ▶ Commercial Angus cows
- ▶ Crossbred cows or cows of another breed

2. Regardless of the test herd alternative used, cows must be randomly bred; in other words, there can be no selective matings. All test and reference sires should be evenly represented in each contemporary group.

## Data collection

In addition to growth data, carcass data collected will include:

### A. Harvest data

- ▶ Harvest date — animals must be at least 360 and not more than 660 days at harvest.
- ▶ Hot carcass weight
- ▶ Marbling score
- ▶ 12th-rib fat thickness
- ▶ Ribeye area
- ▶ Percent KPH fat if available
- ▶ Length of chill (24 hours)

### B. Ultrasound steer data

- ▶ Scan date — animals must be at least 320 and not more than 480 days at time of scan
- ▶ Diet concentrate level
- ▶ Scan weight taken within seven days of scanning after holding off feed and water for 12 hours
- ▶ Rib fat
- ▶ Rump fat
- ▶ Percent intramuscular fat
- ▶ Ribeye area

Harvest data on bulls will not be included in the analysis. Date on feed, time

on feed and feeding program will need to be documented for each feeding test. All data will be collected, processed through BIR, and considered for NCE procedures provided minimum requirements in Section 1 and data edits for the evaluation are met.

### **General information**

The responsibility of obtaining reference sire semen will be between the test herd owner and the test sire owner.

All financial arrangements will be between the test herd owner and the test sire owner.

The test herd owner has the responsibility

of accurately recording complete herd identification, breeding and calving records and growth data.

If ownership is not retained to harvest, the test herd owner has the responsibility of ensuring that the buyer is completely aware of the testing procedure and that the cattle are finished and harvested in accordance with prescribed guidelines.

The American Angus Association will provide advisory assistance in all phases of the testing procedure. The producer will be responsible for coordination of the carcass data collection through their selected alliance, marketing group or packing

plant. Collected carcass data then may be submitted to the BIR department in an electronic format or on forms provided to the producer or entity assisting with carcass data collection.

For any questions or additional information, contact the American Angus Association Performance Programs Department at 816-383-5100.



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