

GARDINER BULL TEST

Some of the “hows” and “whys” of our bull feeding program.



All of the bulls in the May sale were fed at Gardiner Angus Ranch. Prior to the structured feed test each bull was fed a moderate-energy, “warm-up” ration to allow acclimation to the feedstuffs and the feeding schedule. At the outset of the feed test each bull was weighed. During the 85-day test the bulls received a total-mixed-ration of corn grain (20%), dried distillers grain (10%), wheat silage (33%), alfalfa hay (7%), mineral (0.4%) and water (30%) as shown in Table 1.

Table 1. FEED TEST: Total-Mixed-Ration Components

Feedstuff	As-fed (lbs/day)	As-fed Percentage
Wheat silage	20	33.2
Water	18	29.9
Ground corn	12	19.9
Dried distiller's grain	6	10.0
Alfalfa hay	4	6.6
Mineral	0.25	0.4

energy and protein to express their genetic potential for muscle and fat deposition without over conditioning or metabolically challenging any bulls in the group. The test ration contained 20% corn grain (as fed) and 14.6% protein on a dry-matter basis. That ration is not as “hot” (energy-dense) as a typical feedlot ration, nor was it fed for a long period. However, the weight gain exhibited by the bulls on average, 3.36 lbs/d, and the average back fat measured at the end of the feed test, 0.2 in., indicated the bulls had an opportunity to express differences in growth without over conditioning the bulls.

HOW IS THE GROWTH AND ULTRASOUND DATA USED?

All the performance measurements (ADG, off-test weights, height, scrotal circumference, docility, ultrasound, etc) were submitted to both the American Angus Association and Method Genetics to be included in their genetic evaluations. You see the output of those evaluations as EPDs in the catalog along with adjusted measurements and ratios for many of the performance traits.

SHOULD I USE ADJUSTED YW OR YW EPD VALUES TO COMPARE BULLS?

Adjusted yearling weights are calculated using the off-test weights and weaning weights of each bull. They are a *SINGLE* measurement of each bull's performance.

Yearling weight EPD is a genetic prediction that includes the bull's adjusted YW data, but also includes performance information from the sire, dam and other relatives along with genomic information obtained on the bull himself and his relatives. Hence, the YW EPD is a prediction based on much more information than the adjusted YW value.

Comparison of bulls is more accurate by comparing the YW EPDs than by comparing the adjusted YW values because of the added data included in the EPD.

At the end of the feed test the bulls were: 1) weighed; 2) yearling performance measurements collected and; 3) ultrasound evaluations of carcass traits conducted.

The 172 bulls in the 2019 May sale recorded an average start weight of 816 lbs and average off-test weight of 1124 lbs at the end of their 85-day feed test. The rate of gain averaged 3.63 lbs/day during the test. When off-test weights were adjusted for differences in age, the average 365-day weight for this set of bulls was 1046 lbs.

WHAT IS THE GOAL OF THE FEED TEST?

The goal of a short feed test is to provide the bulls with adequate

HOW CAN TWO BULLS HAVE THE SAME YW RATIO, BUT DIFFERENT ADJUSTED WEIGHTS?

First, understand how an adjusted yearling weight ratio is calculated. The ratio is the bull's own adjusted YW divided by the average YW of the bulls in his contemporary group. If two bulls (not derived from embryo transfer) have the same adjusted YW, but different adjusted yearling weight ratios, they must have been in different contemporary groups.

Take the two bulls from the 2019 May sale shown in Table 2 as an example. Both ratioed 102 for adjusted yearling weight, but Lot 165 has an adjusted YW that is 233 lbs heavier. Why?

Table 2. Comparison of Bulls with Same YW Ratio

Lot	Adj. YW (lbs)	Adj. YW Ratio	YW EPD
165	1271	102	114
75	1038	102	119

Lots 165 and 75 are in different contemporary groups. GAR performs five different feed tests per year and these bulls may have been in different test groups. In addition, these two bulls came out of different weaning groups (different pre-weaning environments). Therefore, when their ratios were calculated the average adjusted YW of bulls in their respective contemporary groups was very different.

Using the correct contemporary grouping to make calculations is **CRITICAL**. If data from all bulls are “thrown together” without recognition of known differences, the results (ratios and EPDs) will be biased and unreliable.

Note: when **ALL** data and genomics were combined to calculate a YW EPD for each of the two bulls in Table 2, the genetic prediction for growth of their offspring turned out to be very similar!

HOW ARE THE BULLS FED AFTER THE FEED TEST IS OVER?

This is an important question because the 85-day feed test is usually completed when the bulls are 11- to 13-months-of-age. In the May 2019 sale, the bulls will be 18-20 months old on sale day. The question is: how were they fed for 8 months prior to the sale?

Table 3. AFTER TEST: Total-Mixed-Ration Components

Feedstuff	As-fed (lbs/day)	As-fed Percentage
Wheat silage	30	45.3
Water	17	25.7
Ground corn	6	9.1
Dried distiller's grain	5	7.5
Alfalfa hay		
Old World Blue Stem hay	4	6.0
Wheat straw	4	6.0
Mineral	0.25	0.4

After coming off the feed test the total mixed ration for the bulls was altered by: 1) reducing the amount of corn; 2) eliminating alfalfa hay and; 3) adding straw and Old World Bluestem hay. This reduced the energy density, but kept the crude protein content at 13%. This allows the bulls to grow, but at a pace that promotes bone and muscle deposition, but reduces the rate of fat deposition.

On sale day the bulls' appearances are more a product of the 8 months of growth after the test than of the weight at the end of the 85-day feed test. For example, the lighter bull in Table 2, Lot 75, weighed 1384 lbs when he was presented for semen testing 2 weeks before the sale. All the bulls in the sale will be significantly heavier on sale day than their adjusted yearling weight. Our goal is to have them adequately grown (but not fat) and “ready to go to work” after the sale.

THE BOTTOM LINE:

The feed test is an important part of bull development and evaluation. Eighty-five days on a high-energy, high-protein diet is designed to be long enough to provide a useful comparison of growth traits among bulls, but short enough not to over condition the bulls. Growth and ultrasound carcass trait measurements collected at the end of the test are very useful in the genetic evaluations performed by Method Genetics and the American Angus Association. In addition to collecting accurate data, we strive to do the appropriate grouping of bulls into valid contemporary groups in an effort to enhance the reliability of the data.

We hope that this brief description of the Gardiner bull test helps you to understand the process and make best use of the data and genetic predictions we provide. If you have other questions, don't hesitate to ask us.

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 UNBIASED genetic evaluation.

AMERICAN ANGUS ASSOCIATION

