

Understanding Ultrasound and Using it for Profits

By Chase Wendorff

The cattle industry is evolving, more than ever before, toward marketing cattle based on carcass merit. Evidence of this trend is seen with the ever-increasing number of packing plants adopting value-based marketing. The traditional method in North America of selling cattle based on live weight is rapidly changing to where payment and premiums are made based on carcass weight and quality. Due to high input costs, we are no longer able to compete on the international trade market for commodity beef; therefore it is in our best interest to produce the high quality beef demanded by our consumers. This change has resulted in the adoption of technology to evaluate live animal carcasses. Ultrasound enables producers to know the carcass merit of their cattle and subsequently, assist them in developing an elite herd where progeny can be marketed for top dollar.

Ultrasound has proven extremely accurate in assessing carcass merit and has been tested repeatedly over the last 50 years. Today ultrasound measurements must be collected by Ultrasound Guidelines Council (UGC) certified field technicians and analyzed by a certified lab and lab technician. Despite small discrepancies in technician and lab biases, ultrasound measurements have proven to be a reliable and accurate method of developing carcass merit EPDs. Because carcass traits are moderately to highly heritable, improvements in herd genetics can be seen in a relatively short period of time. Ultrasound provides producers with one more tool by which they can select traits in order to produce top quality animals.

Percent Intramuscular Fat (%IMF) or Marbling

Due to the grid premiums and incentives to raise AAA (Choice) and Prime cattle, marbling may be the most important economic measurement collected with ultrasound. Ultrasound measures the %IMF in cattle and reports this value as a numerical indicator of marbling. For example, just like birth weight is an indicator of calving ease, %IMF is an indicator of marbling.

It is important to know what values are being represented in the sale catalogs when comparing data and to remember that the value of most concern is always the EPD value.

% IMF	(US) Quality Grade (CAN)		Marbling Score
2.3 - 3.0	Select -	AA -	4.0 - 4.4
3.1 - 3.9	Select +	AA +	4.5 - 4.9
4.0 - 5.7	Choice -	AAA -	5.0 - 5.9
5.8 - 7.6	Choice o	AAA o	6.0 - 6.9
7.7 - 9.7	Choice +	AAA +	7.0 - 7.9
9.8 - 12.1	Prime -	Prime -	8.0 - 8.9
12.2 +	Prime o	Prime o	9.0 +

Steers and heifers will usually have slightly higher marbling values than bulls of the same age and genetics.

Ribeye Area (REA) and Fat Depth (Rib Fat and Rump Fat)

The ribeye is one of the largest muscle in the body; therefore REA gives an indication of overall carcass muscling. REA is influenced by body weight, which often results in the largest ribeye belonging to the heaviest animal. It is, therefore, important when comparing REAs within contemporary groups to compare data that has been adjusted for age and/or weight.

Recently, a study by John Brethour, of KSU, revealed a significant association between carcass ribeye area and average daily gain just prior to slaughter. Meaning that animals with larger REAs had better gains later in the feeding period. While having a large ribeye is desirable, there are some drawbacks when REA becomes too large. Extremely large ribeyes can lead to a reduction in marbling.

Fat Depth is an important factor that greatly influences lean meat yield. Backfat (Rib Fat) will reduce yield many times what REA will increase yield. Secondly, fat measurements give an indication of an animal's fleshing ability. Progeny from cattle with genetics for no fat may finish too slowly, while progeny from cattle with too much fat will incur yield discounts before a desirable carcass is obtained. Furthermore, body condition scores (fat depth) in females are related to their ability to reach puberty early, produce milk, and rebreed to maintain shorter calving intervals. Similarly, bulls carrying too much fat may have reduced fertility. The key to breeding for Fat Depth is moderation.

Optimizing Your Investment

1) In order to qualify for genetic evaluations (EPDs) cattle must be scanned at the appropriate time. Each association has slight differences, but averages are **bulls 320 – 440 days** and **heifers 320 – 460 days**. Heifers are often done later to allow genetic differences to show because they are usually not fed as hard as bulls.

2) It is important to **scan all cattle in a contemporary group**. This provides sufficient information for evaluation and comparison purposes within your herd.

3) The **value in scanning replacement heifers** has often been overlooked. Having carcass merit data on all females entering your herd will greatly improve the value and accuracy of their progeny records. In addition it will allow you to make informed decisions about the carcass merit of females making up your future herd.

4) Upon investing money into ultrasounding your cattle, it is essential to **promote this information to your customers and potential customers**. With premiums being paid for high quality carcasses, more and more commercial producers are asking for scan data. The days of selling commodity beef are limited therefore; it is in your interest to create and market an elite herd of high quality carcass cattle.

Common Misconceptions

There is a common misconception that marbling can be fed into all animals. Although feeding an animal for extended periods of time does increase marbling, the genetics must be there in order for value-based marbling to be pronounced in cattle ready for slaughter without risking over-fat.

Why are my REAs smaller this year than last year, is this a collection or analysis error? While I am not dismissing the occasional technician error, it is important to remember that although carcass merits are determined by genetics, environmental factors do contribute to the phenotype expressed by each animal. Feed type and quality, weather, and sickness are some of the environmental factors that can influence phenotypes expressed from year to year. This is one more reason why individual comparisons can only be made by EPDs or indexes within a contemporary group.

W i n d y R i d g e U l t r a s o u n d

UGC certified

Rod & Sherri Wendorff

Home: (403)752-4066 Cell: (403)330-3000

Doug Ralph: (403)315-4799
Chase Wendorff: (306)262-3013

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