



## How To Read A Scan - by Sean McGrath

Often I get the question about what is a "good" ultrasound record. Should my rib-eyes be 12 square inches or is 15 better? Another common comment is the comparison with the neighbour down the road. "I have a lot better marbling numbers than my neighbour."

Ultrasound images are collected and read for rib-eye area (REA), rib fat thickness (Fat), and percent intramuscular fat (% IMF) which relates to marbling levels (see table).

It is extremely important to keep the ultrasound information in context. An ultrasound scan is a phenotypic record from an animal. In this sense it is no different than a weight record, and it can be influenced by age, sex, diet, health and a variety of other factors. It is definitely not reliable or fair to compare these records across herds, as broad differences likely explain more about differences in management style than they do about animals.

Bulls will typically express more rib-eye and lower fat levels than heifers. Heifers will typically express higher levels of marbling. What is important in your herd is to look at how these animals perform in relation to each other.

Another good example is that cattle on higher energy rations will tend to express more of the fat traits such as marbling, however this type of ration may also impact the development and longevity of the animal.

Using age adjusted scan measurements and indexes can be an effective in herd selection tool. For bull customers, encourage them to look at the information in the context of your program, rather than comparing the raw data with that from other herds.

It is also important to ensure your bull buyers understand that the ultrasound data should not look like the information from a finished steer. Bulls in development are not fed a finishing ration, have additional testosterone effects and can not be directly compared to a feeder steer. Bulls will often exhibit higher REA than a feeder steer as an example. The differences between the young bulls in your program is what matters.

The most useful way to compare cattle across herds and environments is with the carcass EPD, as these numbers combine both ultrasound and carcass information with pedigree and provide an objective assessment of relative carcass merit independently of environment.

Unfortunately the question still remains about what is the best record and unfortunately the answer to that question is, "it depends". There is no one right rib-eye size, or marbling level.

For example, if a producer is looking for a bull to use on Angus cows with high marbling genetics and low yield, a large rib-eye may be significantly more important than a high IMF measurement. Conversely, if a sire is going onto high yielding continental type cows IMF may be very important.

It is important to look at context. If a customer is selling fed cattle and is running into problems with yield, they may want to focus on rib-eye and backfat in your program, or look for potential sires with



lower Yield Grade EPD. If a breeder has a problem with marbling they should focus on IMF within their program or look for higher marbling EPD genetics.

There is no one right ultrasound record, but there is a right way to use them to move forward. Understanding your current position, your future goals and then using the information within the context of an individual breeding program can make ultrasound an extremely powerful tool in any breeding program.

<b>The relationship between % Intramuscular Fat, Canadian Grade, USDA Grade and Marbling Description</b>			
<b>% IMF</b>	<b>CBGA Grade</b>	<b>USDA Grade</b>	<b>Description</b>
9.9 +	Prime	Prime	Slightly Abundant
4.0 - 9.7	AAA	Choice	Small
2.3 - 3.9	AA	Select	Slight
<2.3	A	Standard	Traces

#### **A Carcass Value Example**

Live	85.90	1063 <i>0</i>
Rail	161.42	1169 <i>106</i>
Grid	5 cent	1195 <i>26</i>
Gracey	61.5/60	1223 <i>28</i>
Laura's Lean	-38	900 <i>(163)</i>
		<i>0</i> <i>(1063)</i>

Live WT	1238 lbs	Age	407 Days 13.6 Mths
Hot Carcass	724 lbs	Avg Fat	8.0 mm
Quality Grade	AAA 75	Grd Fat	7.0 mm
Cutability USDA YG	61.44% 1.7	REA	13.80 in <sup>2</sup>

## How Ultrasound, Carcass and Growth Data Fit In Genetic Evaluation

### Matching genetic potential for different traits to production environments.<sup>1</sup>

Production Environment		Traits					
Feed Availability	Stress <sup>2</sup>	Milk Production	Mature Size	Ability to Store Energy <sup>3</sup>	Resistance to Stress <sup>4</sup>	Calving Ease	Lean Yield
High	Low	M to H <sup>5</sup>	M to H	L to M	M	M to H	H
	High	M	L to H	L to H	H	H	M to H
Medium	Low	M to H	M	M to H	M	M to H	M to H
	High	L to M	M	M to H	H	H	H
Low	Low	L to M	L to M	H	M	M to H	M
	High	L to M	H	L	M to H	M	H
<b>Breed role in terminal crossbreeding systems</b>							
Maternal		M to H	L to H	M to H	M to H	H	L to M
Paternal		L to M	H	L	M to H	M	H

1 Adapted from Bullock D., M. Enns, L. Gould, M. MacNeil and G.P Rupp. Utilization. 2002. Chapter 6. IN: Guidelines for Uniform Beef Improvement Programs. 8<sup>th</sup> ed. Reproduced from National Beef Cattle Evaluation Consortium Sire Selection Manual.

2 Heat, cold, parasites, disease, mud, altitude, etc.

3 Ability to store fat and regulate energy requirements with changing (seasonal) availability of feed.

4 Physiological tolerance to heat, cold, internal, external parasites, disease, mud, and other factors.

5 L = Low, M = Medium, H = High