

A Cattleman's Ultrasound Glossary

Story by
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In order to use body composition expected progeny differences (EPDs) or ultrasound data to its full potential, a breeder must have a basic understanding of ultrasound terminology. Several ultrasound measurements are comparable to the familiar carcass measurements. However with ultrasound measurements the data is collected on yearling bulls and heifers instead of on market-ready steers. So, take a step back from looking at the numbers and become comfortable with the terminology.

Measurements

Rib Fat. An external fat measurement taken between the 12th and 13th ribs, which is the location at which a carcass would be split into quarters in the cooler. Reported in inches, rib fat is the main factor in the U.S. Department of Agriculture (USDA) Yield Grade (YG) equation.

Ribeye Area (REA). An area measurement of the *longissimus dorsi*, or ribeye muscle. Reported in square inches, this image tends to be the most difficult to collect and requires the most highly skilled interpreting technician. Both the rib fat measurement and the REA measurement are taken from the same image.

Rump Fat. An external fat measurement taken from an image collected between the hooks and the pins of the animal. Reported in inches, the rump fat measurement is coupled with the rib fat measurement to determine more accurately overall external body fat, enhancing the accuracy of predicting percent retail product (%RP). In most cases, an animal will exhibit more fat over the rump than over the ribs due to the physiological process of "laying on fat." Therefore, more variation is often displayed in the rump fat measurements of a contemporary group than in the rib fat measurements. This image is highly repeatable and is the least difficult to collect or interpret.

Intramuscular Fat (%IMF). This measurement designates the amount of fat within the muscle (similar to marbling). Reported in "%," this measurement should be

collected when cattle are maintaining a high level of nutrition. The field technician collects four images, and the values generated by the interpreting software are averaged for an overall %IMF.

Scan Weight. This weight is an empty weight taken between seven days before and seven days after the scan date. The scan weight can also be collected at scanning. Adjustment factors have been calculated using empty body weights; therefore, it is advised the cattle be held off feed overnight before weighing.

Data not reported

"M" in place of value. The image is missing and is therefore not available for interpretation. The technician could have neglected to save an image, the animal could have escaped the chute and was not returned, or technical difficulties may have been encountered.

"R" in place of value. The image is rejected because of image quality. Each image is quality scored by a National Centralized Ultrasound Processing (CUP) Lab technician. There must be certain "landmarks" on the image for it to be interpreted. The presence of the landmarks shows that the image has been properly collected. If landmarks are missing or not correctly represented, the image is rejected and cannot be interpreted. The rejection status could be caused by the animal's moving and blurring the image, the technician's placing the transducer (probe) in the wrong location, poor contact due to insufficient prepping of the animal, or improper equipment calibration.

"N" in place of value. The image is too narrow to process. Unlike missed or rejected images, this happens only on %IMF. The interpreting software has a 4.25-cm "box" that is placed between the 12th and 13th ribs. The box must fit between the external fat and the top of the ribs on the image. If the loin is not deep enough for the box to be placed between the fat and the rib tops, it is considered too narrow. This is most common in heifers and cattle on a low plane of nutrition. The cause is usually the lighter muscle or lighter weight of the cattle, but it also can be technician error. It is recommended that breeders scan heifers to-

ward the upper end of the age window to help avoid narrows. This problem is rare with the Classic machine.

Other

Turnaround time. The National CUP Lab strives to meet a seven-business-day turnaround time. If images are received on Monday, the seventh day is Wednesday of the following week (Saturday, Sunday and holidays are not counted). The turnaround time can be extended if the images are on hold for any reason or if image quality or paperwork problems occur during lab time.

Clipping. The National CUP Lab requires cattle to be clipped to within ½ inch (in.) in all areas of scanning. If cattle are not clipped to within ½ in., they will not be processed. Clipping enhances image quality and accuracy of the data gathered and assures that all cattle within a contemporary group are treated as similarly as possible.

Barnsheets. Angus breeders request and receive barnsheets from the American Angus Association. Contemporary grouping, management information and scan weight information must be filled out on these forms for the cattle being scanned. This is the necessary tool for data to be forwarded to the Association.

Aloka vs. Classic. The National CUP Lab accepts images from both the Classic 200 and the Aloka 500. Both machines have had software models extensively researched and proven. Both are comparable in size and structure. The images displayed on the screens have the same landmarks. Each machine has its own acceptable calibration. The Classic machine is able to change frame size, which drastically reduces the chance of narrow loin depth problems. The Aloka has in the past been used by the most technicians and is more widely recognized. As far as data accuracy, the National CUP Lab views both technologies as equally reliable.



Editor's Note: Becky Hays is a consultant for the National Centralized Ultrasound Processing (CUP) Lab & Technology Center, which supplied this article.