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Carcass Ultrasound 101

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Use of Ultrasound…When EPDs Are Unavailable

The pile of sale catalogs glued, stapled, or wrapped in the monthly breed publications can get a bit overwhelming in the peak sale seasons, regardless of your breed preference. However, the real confusion sets in when one puts on their bull-buying cap and tries to find "the one" that will take their herd in the right direction. Expected Progeny Differences (EPDs) are still the only selection tool that truly allows a buyer to compare one sale catalog to the rest in the stack. Unfortunately, Carcass EPDs are not always readily available as you flip the pages from one lot to the next. So what do you do?

First of all, there are a number of reasons why some Carcass EPDs are not printed. Some breeders choose not to provide carcass information if they believe their buyer clientele ignores the numbers. If carcass or ultrasound data is important to you or your customers, simply throw that catalog in the trash and go to the next one in the stack. However, you may also be looking at a breed or composite that does not have Carcass EPDs yet. In many cases, since seedstock are scanned close to a year of age, individual records cannot be taken before the catalog goes to print; some of the animals are simply too young to be age-adjusted. Instead, a supplement sheet is printed for sale day or posted online as soon as it's ready. Regardless of where you choose to buy your next herd sire or replacement female, it's important to understand how to properly evaluate the ultrasound information available.

The rising price of diesel makes one quickly re-evaluate how many sales one really needs to drag the trailer to in order to find the herd's needs. A few extra hours of homework can save considerable time and effort; keep in mind, one tank of diesel is now worth at least one more bid on the bull or heifer you really want. If ultrasound data is used as a buying or sorting tool and Carcass EPDs are not provided, here are some sound steps to follow:

- Ask the breeder(s) or sale manager for a complete list of ultrasound data as soon as it's available. Email attachments or electronic copies may work better, allowing you to sort, rank, and identify animals that may be of special interest to you on sale day. Remember, an "interim" or "pedigree estimate" EPD gives you more information about the genetic potential of an animal than any individual record. Always look for EPDs first and foremost, followed by ratios, age-adjusted values, and then actual records, in that order.
- Review the printout for within-herd ratios. Second only to EPDs, ratios are the best tool to assess and rank animals within a trait. Ratios are calculated from age-adjusted values which "level the playing field" between older and younger animals in the sale. The power of a ratio increases when contemporary groups are held intact, encouraging breeders to scan the entire crop of bulls and heifers. In other words, the bad ones make the good ones better. Remember, a Fat Ratio over 100 means the animal will add more backfat to their offspring than the average of the contemporary group. Buyers looking to increase retail yield should

select heavy muscled bulls with Ribeye Area (REA) Ratios over 100 and/or Fat ratios below 100.

- Next, if ratios are not printed, look for age-adjusted values for each trait. Using this data, one can calculate a ratio within a contemporary group by simply dividing the trait value of each animal by the average trait value, then multiplying the answer by 100. Some electronic supplement sheets allow you to rank the adjusted values; which essentially sorts the cattle within a trait. Age-adjusted values are extremely important. They keep buyers from flocking to the oldest animals in the sale which often have the heaviest yearling weight, biggest REA, or highest Percent Intramuscular Fat (%IMF) value. For this reason alone, younger bulls and heifers can become "sleepers" in the sale order, allowing you to buy a better beast for far less money.
- Finally, actual scan figures can still be used as an effective selection tool, but one must proceed with immense caution. Unfortunately, auctioneers and sale managers often like to highlight actual scan data as a major selling point. The most likely place to find actual ultrasound data without ratios or age-adjustments is a consignment sale. Breeders may select their very best individual animals to go to this sale, but his or her cow herd may not be large enough to justify scanning all the offspring as yearlings for submission to the breed's genetic evaluation. As a buyer, you are left with a bunch of one-head contemporary groups of varying pre- and post-weaning management techniques. If you take nothing else from this article, please remember this: **Do not directly compare the actual ultrasound data from one lot to the next in a consignment sale!** Some individuals may have been "pampered" since the day their mothers licked them off. Other consignors stalled right next to them may grow their bulls or heifers on limited feed and labor resources. Obviously, one would expect the pampered animal to out-weigh and out-scan the other raised with a cheaper feed bill.

There are a number of ways to analyze actual ultrasound data, though comparing results will be difficult at best. The first involves assessing muscle from the REA scan. Simply divide the actual REA by the animal's body weight and multiply the answer by 100 to get REA/cwt. However, if the animal was scanned yesterday for REA, but weighed 6 weeks ago, this simply will not work. If using an adjusted yearling weight, you must also use an age-adjusted REA. Fatter, more highly-fitted animals as well as older, sexually mature animals are at a disadvantage using this cowboy math. As well, ultrasound data from two-year old bulls sounds very impressive at the coffee shop, but has very little value when trying to buy a bull. The fat, lazy two-year old bull will out-scan the aggressive bull that ran the fences all winter bawling for cows. Even though both may have scanned identical as yearlings, actual ultrasound data prior to the sale would lead most buyers to select the wrong bull. As a general rule, 1.1 REA/cwt is a solid starting point; expect more out of terminal sire breeds.

The analysis of actual %IMF and Backfat thickness can get even trickier. Some sales will adjust bull %IMF data to a "steer equivalent" to offset the testosterone effect of the intact male. A standard inflation of %IMF is a great marketing tool, but very misleading to buyers, especially when backfat data is <u>not</u> inflated to the same "steer equivalent." Be sure to ask sale management if an adjustment of any kind was used. My best advice is to keep it simple and

rely on some beef industry standards to help you. The Preliminary Yield Grade equation from basic meats judging is helpful:
0.2in. Backfat = USDA YG 2.5
0.4in. Backfat = USDA YG 3.0
0.6in. Backfat = USDA YG 3.5
Next, use the following %IMF benchmarks:
2.0% = USDA Low Select
4.0% = USDA Low Choice
9.0% = USDA Low Prime
Then, simply ask yourself a series of questions about the individual. Would you buy or breed a High Select, YG 4 heifer? If a bull has a 1,000 pound yearling weight and scans with 0.6 inches backfat (YG 3.5), are you worried about potential YG 4 discounts from his offspring? The individuals that combine the optimal combination of Quality and Yield Grade should begin to surface much like they do in a packing plant. Bulls that scan Select, but are still lean should be given more consideration than fatter bulls in the same quality grade. This method will also indirectly steer you away from animals that may have been overfed or have potential problems with longevity, rebreeding, milk production, etc.

The vast array of technology and selection tools available to cattle producers can make the heifer and bull buying process much easier and more comfortable than in years past. However, it's key to set a goal of what you are looking for in your next purchase before you start the truck and head to the auction barn. My best advice is to find the bulls or heifers that fit your program needs on paper first; then look at them. This is not to downplay the importance of phenotype, structure, and visual appraisal, but more to save you time and effort looking at animals you do not need or want. For decades, cattle producers looked at phenotype first, then performance and ultrasound data as it became available. Reversing the process can make cattle buying so much easier, and it prohibits buyers from making excuses for cattle they like visually, but may take their herd in the wrong direction.

To illustrate, I'll use an example based on true events: Brothers A & B attend a 200-head bull sale with catalog in hand. After arguing for two hours in below-zero wind chills, they settle on 10 bulls and head to the sale arena for a warm cup of coffee. While eating the complimentary lunch, each grabs the ultrasound supplement sheet and sale order sitting ringside. After further investigation, they discover three bulls are feature lots and will be way out of their price range, four have problematic %IMF scores, and two have smaller REAs than they hoped. Each tried to talk the other into sticking with bulls they insisted make the final list, but in the end, they bundled up again and started over. With five minutes to sale time, they finally had a list of potential herd sire prospects they could be happy owning.

Brothers Y & Z asked for a copy of the ultrasound data 3 days before the same bull sale. Nineteen bulls met the goals of their operation with a few stars by the really good ones. After a 30-minute visual appraisal of only 19 head, the list was cut to 12. Two had a course, potentially hard-calving shoulder, three had incorrect rear leg structure, and the other two were just the wrong frame size for their cows. As you can tell, brothers A & B had to plow through far more information at the last minute to reach their decision and were sometimes selecting or culling bulls for the wrong reasons. Brothers Y & Z got a better seat for the sale.

Consumers rarely invest in expensive products without a free trial or a test drive. It's taken decades for the beef industry to allow buyers to look underneath the hood, or hide in this case, before making a buying decision. Determining the "sticker price" becomes much easier when one understands how to read the label.

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