What is feed efficiency? And more importantly, what are the benefits of efficient cattle? Those were the questions we asked ourselves eight years ago when we first started collecting individual feed intake data. And I must admit, it's taken us a few years to feel like we can answer those questions. But I'll take you on the journey and show you where we are now.

When we first started testing our bulls, we thought RFI (Residual Feed Intake) was the number to focus on. RFI is defined as the difference between actual feed intake and that predicted on the basis of the animal's gain and maintenance requirements for its body weight. The calculation is more complex because mathematical statistics are used to determine the RFI value. I can tell your eyes are ready to glaze over and you're about to click off the page, but please wait! (Or you can skip down 5 paragraphs and pick back up with the lingo cattlemen understand.)

Like many of you, we didn't know what RFI was or what it was telling us, but it was the buzz word in the industry, so that was what we were focusing on. We found bulls with a negative RFI and thought we were on to something. Then we saw that no, he didn't eat much, but he didn't gain much either. In fact, several of our best RFI bulls went to the steer pen. These were not the genetics we were hoping to pass on.

Then came RADG (Residual Average Daily Gain). RADG is defined as the difference between actual weight gain and the gain predicted on the basis of dry matter intake, maintenance of body weight and fat cover. After we realized RFI was not a number we could depend on, we started looking at RADG. This number did a good job picking out the top gainers in the pen, but didn't seem to put enough emphasis on intake. For example, we had one bull who gained 5.24 pounds per day when the pen average daily gain (ADG) was 3.98 pounds. This bull also ate 25.8 pounds of dry matter per day when the pen average dry matter intake (DMI) was 21.3. Yes, this bull gained a lot, but he also ate a lot. In this example, this bull ranked number 1 in the pen for RADG and interestingly enough, dead last for RFI. From examples like these, we found that RADG by itself was not a dependable number either.

Another issue we found with RFI and RADG numbers is that they are confusing. Most of our commercial cattlemen have never heard of these words. Then when we tried to explain them and tell them that you want a negative RFI and a positive RADG and it's calculated using a regression line equation…well, you've lost them. And not only them, but we couldn't keep the facts straight in our own heads and we dealt with these numbers every day!

So finally it dawned on us. When we compare feed efficiency in the beef industry to the pork or chicken industry, we use feed conversion. We know chickens convert feed at around 2:1 which means a chicken has to eat 2 pounds of feed for one pound of gain. And pigs convert at around 3:1 while beef cattle convert at about 6:1. This is called feed conversion or feed to gain (Feed:Gain; F:G). This number is easy to calculate (you take how much dry matter (DM) the bull ate each day divided by how much he gained each day (Average Daily Gain; ADG) and that is your conversion ratio), easy to understand, and in my opinion does the best job of selecting for efficient cattle.

Once we started looking at F:G, things started clicking. This number does a good job combining an individual's intake with his gain. In the example of the bull I used earlier that ranked 1st in the pen of 50 bulls for RADG and last for RFI, this bull ranked 10th for F:G. He's still a bull whose genetics we want, but there were nine other bulls in the pen that converted better.

And then to make it even more applicable, we took F:G and converted it to Cost of Gain (COG). This is just putting a dollar value on conversion. For example, let's say a bull's F:G was 5:1. It took 5 pounds of dry matter for the bull to gain a pound. Well, we know our ration costs $0.10/pound of dry matter. Therefore, this bulls Cost of Gain was $0.50. Now these numbers make sense! Every feedlot in the country figures COG on their pens. Now we have the ability to do it on induvial animals!

One thing we found very interesting was the spread within a contemporary group. (A contemporary group is a group of cattle that has been managed the same since weaning.)   I'll just use the same pen of bulls I've been using. The average F:G was 5.44. The lowest converting bull in the pen was 3.66 and the highest was 9.00. When when you convert that to COG, the spread went from $0.334 to $0.846. And to make it even more interesting, we decided to see what the spread would be if you were to feed both these animals out. We will assume that you want to put 600 pounds on each bull from weaning to harvest. The most efficient bull would cost you $206.42 to feed out while the least efficient bull would cost $507.60. That's a $301.18 spread. Quite a difference! I know which bull I'd rather have sire a pen of steers.

Once we started looking at COG and F:G, we saw the benefits of efficient cattle. Not only do you have the potential to make more money in the feedlot, but Iowa State University researcher Patrick Gunn has used our past seven years of records and found major benefits on the female side as well. He found that cattle who ranked at the top for efficiency were 30% more likely to stay in the herd. You can't get much better than a cow who is efficient and breeds back every time.

We have tested thousands of head of cattle, and the differences are there every time. We can make strides in efficiency by testing and selecting for efficient genetics. This is an exciting time! If you are interested in selecting a bull who has been tested for feed efficiency or if you would like to test some of your own cattle, please contact Jim at Werner Family Angus (641-344-5059) or Joe at Werner Feed Efficiency (641-344-4926).