- **TURTLE ROCK ANGUS**
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- **Efficiency for Feed, Function and Genetics**

- **<u>Noteworthy Point 1</u>**
- **There are no new or special or classic genetics that are as important as making sure your pastures and forage program is the best you can make them.**

- **<u>Defining the Perfect Cow or Bull</u>**
- **Breed - Frame/Size - Weaning weights - Fertility - easy keeper - easy calving - disposition - sound on feet and legs - good mother - low maintenance - travels well - superior carcass - good scrotal measure**

- **Defining Efficiency**
- **Easy fleshing**
- **Moderate or smaller frame**
- **The grandam was noted to be efficient**
- **It is in all of their advertising**
- **I know what the pen eats**
- **The bull is efficient because he had the highest ADG**

- **<u>Actual Factors and Goals of Efficiency</u>**
- **Feed Efficiency - tested**
- **Fertility - breed first and breed-back**
- **Cow size/Weaning weight percentage**
- **Longevity**
- **Decent keeping**
- **$EN vs WW/CW/Mature size**
- **RFI- Residual Feed Intake - based on size and gain- difference plus or minus on daily feed intake**

- lower is better (negative # is good)
- RADG- Residual ADG- based on size and intake- difference plus or minus in ADG - higher is better
- DMI- Dry matter intake- lower is better until it is too low-
- ADG- Average Daily Gain- still very important
- $ Income and Return per acre - gross or net
- Percentage of calves compared with number of females bred

- **<u>Noteworthy Point 2</u>**
- **Good RFI without decent ADG is not going to work. Good ADG without solid structure is not going to work. Choosing for balance in all important qualities is going to be surest and most reliable way to produce funtionally efficient cattle. By not trying to achieve "maximum" outcomes one avoids making the type of mistakes that takes another generation or two to fix.**

- **<u>Feed Efficiency yesterday and today</u>**
- **20 years ago feedlot efficiency of 6:1 conversion would have been very good. In 2016 feedlot efficiency of 6:1 conversion would be considered very good.**
- **In the past, with no accurate way to measure feed efficiency, some bulls and genetics used would be efficient and some would not be. Without being able to make informed choices for breeding stock feed efficiency, any progress made by good luck of using efficient bulls would be neutralized or reversed by the bad luck of using inefficient bulls another time. Result ? No net gain over time.**

- **DNA testing is becoming more popular. While it may have future potential, today the process is comparing data from an individual animal being tested to records of animals who have already been tested and done well. As a result, today's DNA testing is a matching and not a discovery process. Good results have more than average promise of being valid, but poor results do not necessarily mean poor outcomes. It may be they are poor in those traits, or it may be there is no record of testing of those particular genetics yet.**

- **<u>Feed Efficiency Hard Data Results</u>**
- **Technology now presents the opportunity to know what feed efficiency an animal has. Feed Efficiency is a 40% inheritable trait, which is high on the percentages of inheritable trait factors.**

- **Here is a dramatic comparison found in efficiency testing by Leachman Cattle Co of Colorado. Two bulls- same weaning weight and only 18# difference in yearling weight. Both visually close in type and desirable physical traits. One bull are 17# of dry matter per day. The other ate 42# of dry matter per day. The added maintenance cost of the bigger eating bull is a drop in the bucket compared to the costs of maintaining cows sired by these two bulls. If you save 3 pounds of feed per cow per day, you just saved over 1,000 pounds per year on one head. Value 1,000 pounds per cow any way you want, but don't be surprised if there is at least $100 savings per head per year. On 100 head that is a nice round $10,000 savings in a year.**

Our own 6 year old herd bull was feed efficiency tested with the following results- BW 76#, 4.76# ADG, 14.4# DMI, 3.02# F:G conversion, -7.24 RFI. His calves are all testing on the RIGHT side of average. We don't necessarily recommend going for the top efficiency rated bull, but always try and stay under the industry averages. One 2014 son of out herd bull did have an impressive 3.32:1# conversion and a 5.14# ADG.

A 2015 son had a 5.61# ADG, and a 4.42:1# conversion. But the selling point for B55 is that he had a 4.18# ADG on grass only. More about that later.

A total of 17 sons of our W124 bull have been feed efficiency tested here in Iowa. The average gain of the 17 sons is 4.65# ADG and the average F:G conversion is 4.29:1# .

Identified Problem:
Our FE results were doing very well- far better than industry averages and even more importantly- we could see in our own herd where we were raising cattle for less feed cost. Even some of our bull customers were noticing less feed fed as well. So even though we know this is working and we know that the feedlot appreciates the feed efficiency and lower input costs that result from our genetics, many, and maybe most, cattlemen sell at weaning and don't have any interest or identify the need for feed efficiency. When we asked that is what they

Facts:

University of Illinois completed a feed efficiency test of yearling heifers. They then brought them back at 5 years of age and tested again. The efficiency and ranking of cows was almost identical to their yearling test results.

Pasture intake and feed efficiency appears to have about 70% correlation.

There does not appear to be any antagonistic or undesirable result from choosing for feed efficiency.

2015 SARE Grant

Would grass gain have correlation to feed test efficiency?

Premise:

Beef cows ,most generally have a lactation curve where their milk output declines significantly after about 3-4 months. As the calf gets older it still likes the connection with mom, but the calf is gradually getting more and more nutrition from other sources. In fact, if a cowherd has extended lactation trait or ability, the owner is paying more maintenance cost than economically logical.

Gaining calf weight through feeding the cow better is inefficient and costly.

So if calves can gain well on grass alone and by themselves (without mom) those calves should have increased weaning weights than contemporaries who do not gain as well on grass whether they are left on the cow or not.

Project:
Wean fall calves earlier than usual and put them on first spring grass without mother's milk.
Weigh calves on grass, halfway through and at the end of grass gain test.
Put calves on feed efficiency testing during the summer.
Compare calf gains on grass and feed test, as well as to 50k and GMX DNA testing to see any correlations in grass gains or feed efficiency testing.

Nuts and Bolts:

9 Calves were in our test project. They were 4 to 9 months old at the start of the test. All calves had been weaned for at least a month when placed on grass/forage on 4/12/16. They were limit fed grain/commodity mix post-weaning before going on the grass test but not pushed as they were going out on grass.

Calves were placed in rotational grazing on a 3 acre total area. The 3 acres were divided into 9 paddocks. They were moved every 2 to 3 days. The 3 acres had been in contiuous pasture for 25+ years. It consists primarily of fescue, orchardgrass and clover which is frost seeded every other year.

Calves were provided 2 Crystalyx Mineralyx barrels and 3# of yeast, Redmond salt and grain mix (as a carrier) per day to try and balance their nutritional needs. Total for the added costs was $78.46 each.
The calves averaged 489# on 4/12/15.
The calves averaged 546# on 5/3/15. Their total gain for 21 days was 515#.

The calves averaged 642# on 6/7/15. Their total gain for 56 days was 1,373#. The group average was 2.72# ADG, with a low of 1.68# ADG and a high of 4.18# ADG.
The total 3 acre "production" of 1,373# was priced in the spring of 2015 at $2.40. Total = $3,295.20. Take away the added costs and that leaves $2,589.08 or $863 return per acre net costs.

Fast forward to 2016- Price the 1,373# gain at $1.40 = $1,922. Take off the other costs and the net gain for the 3 acres is still $405 per acre.
The same 3 acres was split into 3 pads and rotated 4 more times for an average of 2 days per graze during 2015 grazing season for 12 pair after the calf testing was done. 12 pair x 8 days/ acre x $1.00 per day = another $96 per acre land use return.

Project Results

The grass gain testing compared to the feed efficiency testing seems to favor the older calves, with a few exceptions. The top calf had a 4.18# ADG on grass, the top feed efficiency test conversion of 4.42:1# and the top 5.61# ADG on feed test. He was the oldest calf in our project and was 14 months old coming off of efficiency testing. When we "discovered" our good doing herd bull in 2011, he would not have been the top pick by visual assessment.

For this project, the top testing efficiency bull would not have been the top choice either. He is really sound in all areas, but not the thickest, or the framiest, or the easy-calving candidate of the group. There are other bulls who have better specific traits and will make good bulls, but the balance and testing results of B55 will be hard to match any time soon.

There was no pattern noted in 50k or GMX results to identify which calves would do better on grass gain.

All of the calves were healthy during all phases on the project. All of the bulls were kept intact as they all have strengths to offer bull buyers.

Noteworthy Point 3

The most interesting and exciting outcome we found is the added pasture value which calves can deliver when given first choice of grazing. For our project this meant fall calves and early spring pasture. However it would seem that a person could use calf-creep gates to allow them access to fresh pasture ahead of their dams in a rotational grazing system and gain a lot of value. The added cost of providing a calf gate and moving when needed to allow first access should more than pay for the labor involved.

- 8 hd times 2.0 ADG
  - Times $1.25/lb
  - Time 56 days

  - Equals $1120 - $624
  - Net - $496

  - $165/acres returns
  - $75 summer grazing

  - Total $240 return acres

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