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Altenburg, Willie, "Genetic Information Made Easy: How to Sort Through The Chaff to Find the Nuggets" (2007). *Range Beef Cow Symposium*. Paper 20.
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Proceedings, The Range Beef Cow Symposium XX
December 11, 12 and 13, 2007 Fort Collins, Colorado

GENETIC INFORMATION MADE EASY: HOW TO SORT THROUGH THE CHAFF TO FIND THE NUGGETS.

Willie Altenburg
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Fort Collins, Colorado

INTRODUCTION

Altenburg Super Baldy Ranch has been a family owned business for nearly 30 years. The yearly calendar of events may help explain the philosophy and the cattle. The 150 head cowherd is made up of Simmental and Angus, both black and red. They are summered on large, native grass pastures on the Soapstone Grazing Association (20 acres per cow) on the Colorado/Wyoming border. They and their calves are trailed horseback there each June, a 15 mile drive crossing two ranches and using the help of friends and neighbors. After weaning and preg check, the cows are trailed home to graze hay stubble and corn stalks for two months. One week after National Western Stock Show, the cows and bred heifers are brought home to start calving February 1st. They calve outside and are brought to the barn only when we are trying to "save the ears."

An annual bull sale is held after the 100 day gain test on the third Saturday of March where the Simmental, Angus (both black & red) and "Super Baldy" composite bulls are sold to commercial cattlemen in Colorado, Wyoming and Nebraska. Branding is done in early April, with A.I. and Embryo Transfer starting the 25th of April. The heifers are synchronized and A.I. bred for two cycles, cows for one cycle and then go to a single clean-up bull pasture. The cows are run under range conditions, similar to the Altenburg's commercial customers. Altenburg Super Baldy utilizes the technology of A.I. and Embryo Transfer while relishing the tradition of trailing the cowherd to the ranch horseback and utilizing range conditions.

COMMERCIAL CATTLEMEN AND UTILIZING CROSSBREEDING

Most of my talk is going to be spent on analyzing EPDs and data in breeding cattle. But I can't pass this point without calling attention to the very economically important impact issue of crossbreeding. Well documented is advantage of crossbreeding to commercial breeders especially in the areas of reproduction. The crossbred cow is documented to be last 1.6 years longer and be more productive over her lifetime. Her advantage is due to the fact is crossbreeding can affect lowly heritable traits, such as reproduction, more than the highly heritable traits. For example, crossbreeding can improve maternal traits more in one cross than selecting for EPDs for fertility for 5 generations. Crossbreeding …. a powerful tool.

UTILIZING GENETIC INFORMATION …. BUT MAKING IT PRACTICAL

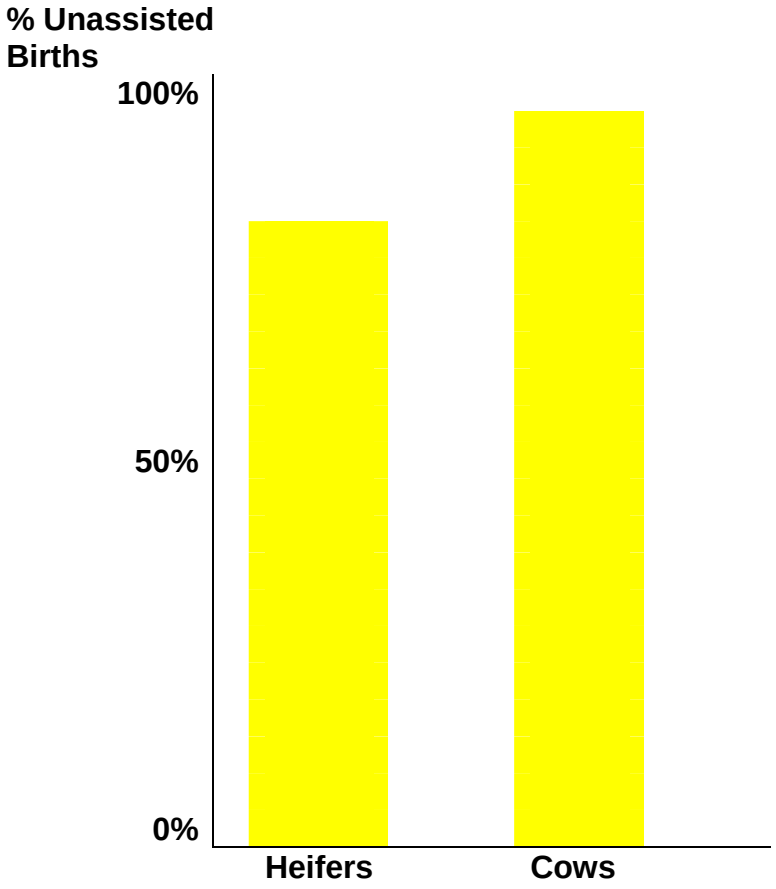
Many of us are hard core EPD / number "junkies". We study sale catalogs, pedigrees, EPDs, breed association and other breeder's websites constantly. It becomes our hobby, our passion, our life. Others would like to use numbers to breed cattle, use it as a tool, but would

like it simplified. I would like to speak to both groups. I will attempt to divide the EPDs into groups of importance and simplify some points to help both groups.

Evaluating performance information is very important. Most of us improve our genetics through the bulls we buy or the semen we use. When buying young bulls, or evaluating young bulls, the performance data is important. Those of us designated as “junkies”, like to evaluate the ratios, size of contemporary groups, ultrasound data, piece by piece. In reality, the system has been designed to incorporate all these differences into the EPDs. For those who like the simple system, (and really for all of us “junkies”) the EPD system captures the best breeding values of cattle. Simply stated, I feel Expected Progeny Differences, EPDs, are the most important breeding tools implemented in the past century.

CALVING EASE AND BIRTH WEIGHT EPDS

Use this group to predict to calving ease when calving first calf heifers. It predicts more or less unassisted births when calving heifers. Calving ease (CE) EPD is a better predictor than birth weight, as birth weight is already incorporated into calving ease EPD. Again, use to predict calving ease on heifers, as most cows calve unassisted.



WEANING AND YEARLING WEIGHT EPDS

This would be the growth group. These two EPDs (WW and YW) would be highly correlated, and would be negatively correlated to birth weight. Or as birth weight goes up, so does growth. Generally, the low birth weight, calving ease bulls do not have as much growth as the higher birth sires. Producers selling calves by the pound should pay special attention to these EPDs. "Junkies" who like to "bend" the growth curve look for bulls that possess more than 7/12ths WW EPD than YW EPD. That would indicate an animal with an earlier growth curve, and perhaps not as much mature size. However, Mature Height (MH EPD) and Mature Weight (MW EPD) are generally better predictors of those traits but usually don't have as much data.

MATERNAL TRAITS

These are many. Maternal Calving Ease, Heifer Pregnancy (HPG), Stayability, Milk, Maternal Weaning Weight, $ Energy, Maintenance Energy, Mature Height and Mature Weight. This area is not easy to summarize. The two important maternal EPD traits I look at are 1) Maternal Calving Ease and 2) Milk. These are in addition to physical traits of which I will speak to later. First, Maternal Calving Ease has become an early learned and important trait for me. It is described as a sire's daughter's ability to calve easier or with more difficulty than average. It really works! Avoid bulls and sons of bulls that are substantially minus maternal calving MCE. Milk is another important trait, but a "two way trait". Too much is a bad as too little. In Angus, I prefer bulls that are 15 to 25 pounds of milk EPD. In Simmental, I prefer bulls from -5 to +5. It takes education (many times more to purebred breeders than commercial breeders) to make the offspring's EPDs "marketable". Us numbers "junkies" prefer to study the EPDs that make up the maternal complex. This is where the Index introduction has been very useful. Angus with $Wean and Simmental with API (All Propose Index) has helped interpret the EPD complex. Red Angus Maintenance Energy (ME) is becoming a popular tool as cow efficiency is being look at closely.

CARCASS TRAITS

As a "junkie" I like to look at three carcass EPDs, Ribeye, Marbling and Backfat. The first two (Ribeye & Marbling) are fairly self explanatory. They explain how an animal can respectively add ribeye area or marbling. Backfat however indicates several things to me. It can indicate an animal that is too fat, too lean or about breed average for carcass merit. It is also the best indicator of cow condition. I have found it to be the best indicator of cow condition to me, therefore select sires how are at or slightly above breed average fat. Indexing has become a useful tool in this area. Angus $G ($ Grid) explains what to expect if you retain ownership and through the feedlot and carcass phase. $B ($ Beef) is a combination index which describes carcass merit as well as growth and is the best combination predictor of the two.

A COMMENT ABOUT ACCURACY AND PERCENTILE RANKING

The luxury of A.I. is the ability to use high accuracy bulls. High accuracy bulls means bulls that have been proven through wide spread A.I. use to make changes without much risk of movement in that trait. Most natural service bulls are purchase as yearling or two year olds. For birth or growth EPD traits, their EPDs would have an accuracy of approximately .30 - .35. However, using these bulls in groups has some safety. Group average will remain nearly the same, even though some bulls may change. Both number "junkies" and those who prefer to simplify the system can utilize "Percentile Rankings". Percentile rankings always indicate where an animal ranks within the population for that trait. An excellent reminder for where the ranks genetically. Use percentile rankings to see where you animals fit in the population. And sometimes avoiding extremes is where you want to be. As we previously discussed with milk EPD, sometimes too much is as bad as too little. The same may be true with growth, or fat, or calving ease, etc. However, EPDs help establish your threshold, your parameters, where you want to be. They keep you going down the road where you want to go and out of the ditch.

TWO KINDS OF COW-CALF PRODUCERS ….
1) SELLING AT WEANING AND 2) RETAINING OWNERSHIP

So if you are a producer who sells at weaning, emphasis should be placed on:

1- Calving Ease on First Calf Heifers
2- Weaning Weight EPD
3- Maternal Traits
4- Indexes $W, Stayability, HPG

Chart includes color weighting

Selling at Weaning

-Crossbreeding

-Calving Ease EPDs (Heifers)

-Weaning Weight EPDs

-Maternal Traits

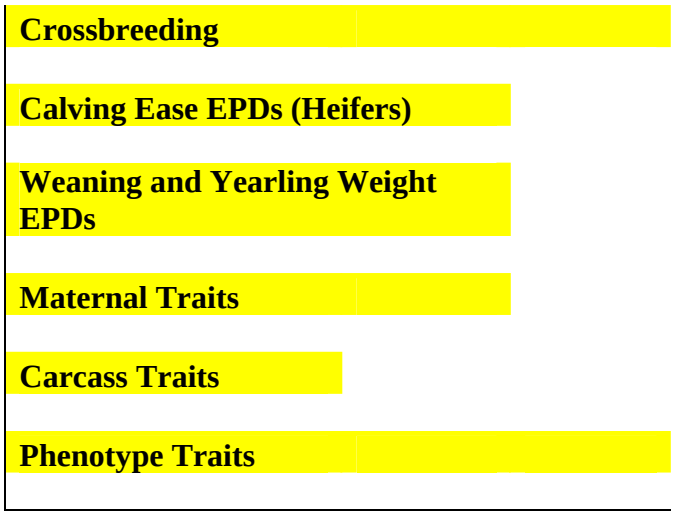
-Carcass Traits
(No Emphasis)

-Phenotype
Traits

If you are a producer who retains ownership, emphasis should be placed on:

1- Calving Ease on First Calf Heifers
2- Weaning Weight and Yearling EPD
3- Maternal Traits
4- Carcass Traits
5- Indexes, $G, $B, $W
6- Chart includes color weighting

Retained Ownership



EPDS …. BUT WHAT ABOUT PHENOTYPE TRAITS

Finally, a comment about the emphasis on EPDs and physical or phenotypic traits. The importance of feet and legs, udder structure, fleshing ability has been difficult to measure with EPDs and have been best evaluated by the producer, the "eye of the master". I, like our commercial bull customers, have no time for a bad uddered cow who won't let her calf suck. Our cows are trailed back and forth to the ranch 15 miles, they need good feet and legs. We have a short breeding season, they need to have the ability to flesh and rebreed quickly on range conditions. Physical traits are important to me. I usually receive bull sale catalogs early, so I evaluate the offering with the performance, ultrasound, scrotal, and EPD data first, marking the bulls I would consider to buy. Then at sale time or before, I visually assess the bulls, muscle, structure, temperament. I arrive early to see the bull, his dam and as many family members as are available. I don't buy a bull without seeing his dam … that is an important rule. EPDs are essential, physical traits are equally important. I would assess a 50:50 importance emphasis.

IT'S ALL ABOUT BALANCE!

Matching your cattle to your ranches environment is essential to your success. Proper genetic evaluation is imperative to achieving that goal. Avoiding extremes, striking a

balance, is also an important part of that success. But it is attainable with much improvement area available in the area of genetics. I am strong believer in EPDs, and genetics and see much “left on the table” for those who are willing to make the effort to improve there cowherds. It is there for the taking.