

Farm Update

The mild, rainy spring weather has maximized grass production here in Oregon. We have never had this much grass for the cows before. They are in excellent condition and that is contributing to more milk and faster growing calves. With the arrival of our first IVF calf May 8th, sired by Pleasant Dawn Seal 2nd, we have ushered in a new era in our breeding program. We hope to have a number of IVF calves over the next few years that will greatly expand the genetic base of Heritage Shorthorns.

Quarterly Topic: Lies, Damn Lies, Statistics, and EPDs

Why This Topic?

I am opening myself for significant criticism by questioning the whole concept of EPDs (expected progeny differences) but I believe it is important to present “the rest of the story” as Paul Harvey used to say. For too long, we in the cattle business have faced constant bombardment regarding the righteousness of embracing the EPD selection model. According to breed associations, animal scientists, and many seedstock producers we cannot improve our herds and produce better beef without utilizing EPDs as our main selection tool for our herds. I am not going to recount how many times this same group has lead beef producers over a cliff. For me the phrase “follow the money”, whether speaking about politicians or EPDs, is relevant when trying to determine what the motivation is for advocating for a particular position or concept.

History Of EPD's

I am assuming all readers have a working knowledge of EPDs for this discussion. If a reader does not then there are numerous tutorials on the internet that provide the basics of EPDs. The first EPDs were published in 1983. They were the outgrowth of the demand for a more accurate method of evaluating cattle than the sire summaries that were first presented in 1971. As more data was collected and modern computers allowed for greater statistical analysis, proclamations were made that EPD utilization in the selection process was the nirvana that cattle breeders had long sought. Consistency in breeding and feed efficiency, along with increased profits, were the main components of the “pitch” being made by breed associations, animal scientists, and many seedstock producers. There is also a certain appeal to picking bulls by the numbers rather than spending time working thru all the pros and cons in evaluating and selecting a bull. As computers have improved and gene technology has evolved, new Genomic-Enhanced EPDs have moved the goal posts in pursuit of better accuracy. DNA testing companies have quickly developed many new genetic tests tied to EPDs. It seems like there is a test now for predicting everything but the length of the tail. As genetic companies roll out new focused EPD tests it should be noted they are making more money and the cattle producer is spending more money for information that is often confusing and may be at cross purposes with the breeder's own breeding program.

EPD Problems

Comparing contemporary groups is a large part of the basis for EPDs. Unfortunately statistical analysis or algorithms cannot account for all of the variability that occurs from one group to the next just as

predicting the weather is fraught with the omnipresence of “mother nature”. There are a litany of reasons why this is a problem but I will only mention a couple. Since there has been the introduction of other cattle breeds into all “purebred” cattle (except in a few cases) it is almost impossible to know what is what for “breed standards”. A breeder may have a purebred on paper but the parentage may have one or more other breeds actually mixed in, further scrambling the data.

For Shorthorns another problem is simply sample size. When limited numbers of breeders provide information on their cattle the statistical inferences can at best be described as garbled. When looking at EPDs, it is important to look at the *accuracy* percentages (ACC) for different traits (Ex.: ACC 0.16 = predicted accuracy is only 16%). They can be extremely low. Some are in the 5-10% accurate range for individual cows and bulls. EPDs listed for old Heritage Shorthorn bulls from the 1950's, 60's, and 70's are really based on conjecture because many measurements were never taken during that time period. They have no basis in fact. Check out the accuracy percentages (ACC) of the EPDs on the American Shorthorn Association website for the three different bulls pictured at the end of this article. They demonstrate the accuracy problem in both older and newer bulls. (The name & registr. # under each picture is an online clickable link.)

Specific EPDs For Scrutiny

I am going to focus on only two EPDs, birth weight (BW) and weaning weight (WW), to illustrate my critique of EPDs. I selected those two traits because most breeders put considerable credence in those particular EPDs when evaluating cattle. The precursor to EPDs, sire summaries, never reached any real level of acceptance within the cattle industry because of their inherent variability. This produced a search for the next “big thing” which resulted in the development of EPDs. Fixating on such traits as BW and WW attracted attention and lead to more promotional opportunities for those companies/breeders interested in utilizing EPDs to make money. Obviously there is a surfeit of other EPDs I could have used.

Birthweight (BW) EPDs

There is a saying “erroneous input equals erroneous output”. Methodology in recording birth weight varies from farm to farm. How soon after birth was the calf weighed? Is colostrum intake accounted for? Was an actual electronic scale used or a foot tape? Is the producer “fudging” numbers to influence the EPDs of a particular bull or the salability of the calf that was born? Was the calf born in the Northern USA or the the South? Blood flow to the uterus increases in cold climates and calves can weigh 6-8# more in Northern climates. What was the nutritional status of the cow? The weight of the calf can be altered 10# in either direction just by how the cow was fed. What was the gestation length? For each day the calf is early, the calf will weigh approximately a pound less or each day later a pound more. All of these factors play a role in the birth weight that is “fed” into BW EPDs. With the advent of Genomic Enhanced EPDs the inclusion of specific gene data from the sire is supposed to improve the accuracy but as we learn more and more about “fetal programming”, which can vary between donor and recipient cows, or even for the same cow during different pregnancies, the veracity of that statement comes more and more into question. No amount of math can accurately account for all the variables I have mentioned, especially for comparing EPDs from different breeders.

Weaning Weight (WW) EPDs

The number of factors that can influence WW are even greater than BW. When a calf is approximately 84 days of age (transition weight) it crosses the age line to where it is receiving more of its nutrition from other sources than from its dam. Those first 84 days of growth are primarily affected by the milking ability of its dam. The variability of the age of the calf's dam can be easily accounted for, to adjust weaning weight; however what can't be accounted for are the environmental factors affecting her milk production. What is the nutritional value of her diet? Grass versus corn. Was the weather hot or cold? Did the calf have growth assistance from a "nurse" cow intentionally or unintentionally. We have all seen calves "stealing" milk from a second cow, and also show breeders "pumping" up a calf with various supplements. Did the calf receive creep feed? What was the quality of the creep feed. Was it limit fed or free choice? What type of pasture was the calf on? Legume mix or native grass? What were the weather conditions? Did the calf live in a drought affected area? Was the calf weighed prior to 205 days where the weight/day of age could play a role in the actual WW? I can go on but I think it is evident that there are a large number of factors that can influence WW from contemporary group to contemporary group let alone from farm to farm.

What Does This All Mean For EPDs?

There is little doubt in the cattle business that there are believers and non-believers in EPDs. I think some of the problems the Angus breed has had with EPDs has brought into focus the "fog" that often surrounds EPDs. Many of the EPD values assigned to Angus bulls have not matched their performance in the real world resulting in some Angus breeders questioning their accuracy. On another front, many dairyman are going back to progeny tested bulls because they have found that TPI (Total Production Index) numbers can be misleading. Everybody has to decide how much faith they want to put in EPDs when it comes to the selection process in their own herds or when they buy bulls or replacement heifers. Values that are generated and followed within herd undoubtably have the most benefit because a breeder is putting in his/her own data and comparing it between his own cows, calves, and bulls under mostly known and similar conditions. I think the rest are a "crap shoot" and I would not place my cows in jeopardy by selecting a bull based on EPD values or spend significantly more money to purchase a bull based on someone else's EPDs. Often the numbers revolve around the trite statement of "putting lipstick on a pig". Today it is all about numbers, and the "art of cattle breeding" is becoming a lost art. My next Shorthorn Bulletin will "cut to the chase" and present alternatives to the EPD model of profitable beef production.

Click on the name & registration number of each of these 3 bulls for a link to the ASA page highlighting their EPDs with predicted accuracy values (ACC).



[Kenmar Leader 21A ASA #3435100](#)



[Pheasant Creek Leader 4th ASA #3452697](#)



Whisper RC 17K N P ASA #4289414

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