

Genetic Selection...

Your Key to Unlock Profitability

By Larry Keenan, RAAA Research/Special Projects Coordinator

Throughout the year, cattle producers make numerous decisions that impact the economic well being of their operation. Managerial decisions are made on a daily basis and while some require little research, the impact of others warrants thorough study. One decision that rises to the top of this list is selecting bulls to breed to your cows.

Cattle producers have multiple expenses during the year, often too many to count; however, most producers only have one income: their calf crop. Regardless of whether you sell your cattle at weaning, retain ownership through a feedlot, or supply replacements, the calves that you produce eventually define your income. Many factors have an influence on the calf crop: management, forage, weather conditions, to name just a few. One major contributor that is in a class of its own is the genetics of the calf crop. With inferior genetics, it is almost impossible to create a high quality calf crop. However, with good genetics it is relatively easy to create a high quality calf crop. With the sire accounting for 50 percent of the calf crop genetics, it is obvious that selecting a good bull is the best and quickest way to increase the quality of your calf crop, which in turn will mean more money in your back pocket.

What traits do I select for? This common question is often answered by starting at the producer's point of sale. For example, a producer who sells his calves at weaning should place emphasis on weaning weight genetics; because that is what he sells - weight. Another producer who retains ownership and sells his cattle on a grid, should place emphasis on carcass genetics, such as ribeye area, marbling, and backfat. Given these statements, it is very important to avoid single trait selection. You should place the majority of your emphasis on the traits that you sell (weaning weight, carcass traits, etc.), but you should also look at other traits that could affect the calf crop. A prime example, a bull that you are considering purchasing has excellent genetics for the traits you are emphasizing, but he has an extremely high calving ease score. Unless you want to become an expert on pulling calves and risk losing calves, and possibly cows, your best bet is to find a different bull. Calves with excellent genetics are worthless if they never take a breath of air and are eaten by buzzards. Another word of caution: too many times producers travel to a sale with the intention of buying buy a bull(s) that excels in the trait(s) they market, but when they arrive a different bull catches their eye. They end up buying that bull without looking at his genetics. This is a huge mistake. It is nice for your calf crop to be 'easy on the eye', but don't let eye appeal override the traits that you need. Remember, you are selling a combination of traits that make a heavier calf crop grade better. You are selling far more than just eye appeal.

I want to select for good genetics, but there is so much data to look at: actual weights, adjusted weights, ratios, and EPDs. What should I base my genetic selections on? To begin with, actual and adjusted weights are important pieces of information. Without weights we have no idea about the performance of individuals. However, using weights to evaluate the genetics of an animal is a mistake. Since those weights are influenced by

the environment and management, you cannot use them to compare possible sires. Ratios take into account environment and management, so they are better predictors of genetics when compared to weights. However, ratios do not account for mating bias or the performance of related individuals in other contemporary groups or herds. Ratios can only be used to compare bulls within the same contemporary group, and I have yet to see a sale catalog that identifies what contemporary groups the sires were in. Given this information, it is obvious that ratios should not be used in your sire selections. Expected Progeny Differences (EPDs) are the only genetic predictors that account for environment, management, mating bias, and performance of related individuals in differing contemporary groups and herds. These features make EPDs far superior to weights and ratios in predicting the genetics of sires. Even in the case of low accuracy yearling bulls, EPDs are far superior to ratios because weights, ratios, and performance of related individuals are all accounted for in those EPDs. Given all of the above information, it is apparent that if you make the financially correct decision to select a sire based on genetics, you should place your selection emphasis on his EPDs, not weights or ratios.

When selecting a bull for the genetics that he will pass on to your calf crop, you should have a plan of action. Request a catalog from the sale you are planning on attending or a print-out of EPDs if you will be purchasing a bull by private treaty. If the bull seller cannot provide EPDs to assist in your selection decision, look elsewhere for a bull. Study the EPDs. Identify multiple bulls that excel in the traits you are selecting for. It is always a great idea to look at the percentile tables provided by RAAA. These data are provided at <http://redangus.org/genetics/epd-percentiles/> and will give you an indication of where the bull(s) rank as compared to the rest of the breed. If the bulls that you have identified from a particular sale or private treaty, rank below average for the traits you are placing emphasis on, don't waste your time attending the sale. After you have identified a short list of bulls to look at, attend the sale and visually inspect the bulls. Only look at the bulls that made your list based on their genetic merit, don't waste your time looking at other bulls that fall short of your genetic standards. After you have determined that the bulls are structurally correct, which will enable them to travel in the pasture and get the job done, get your buyer number and be ready to make an important purchase for you operation's profitability.

Selecting a bull that will result in the genetic improvement of your calf crop, and may in turn increase your profitability, is not an easy decision. However, when one adds the value of next year's calf crop with the returned genetic improvement in retained replacement heifers, sire selection is easily one of the most important financial decisions you have to make. Remember, studying the EPDs of the bulls is the most critical step of this process. So don't get excited during an auction and leave this step out.

