

Bull Selection 101

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For many cattle producers, this is a time of year when important decisions are made regarding the cow herd. Many producers begin to receive sale catalogs, view sale publications, and may be receiving calls from previous bull suppliers. It is important for producers to make sound judgments about their herd sires. A poor bull buying decision might leave a producer with a product they don't need or don't want in their herd. On the other hand, a good bull buying decision will increase the producer's chances of having a more profitable calf crop.

Why is bull selection important?

Sire selection, on average, has a greater impact on the genetic improvement of a herd than most producers realize. Because the sire is more likely to produce a higher number of calves in his lifetime compared to a cow, a sire has the potential to contribute a larger portion of the genes to the herd. Because of the large genetic contribution a sire makes to a herd of animals, it is important to manage the risk associated with the purchase of a new bull. Fortunately, the level of risk associated with the selection of a new bull is manageable using well planned breeding programs and high quality information.

Setting Herd Goals

A good breeding plan is very useful when establishing both short and long-term herd goals. Many times, we fail to spend adequate time defining our selection priorities. Most successful cattle managers have a written plan and a list of both short and long term goals for their cow herds. Their goals are well defined, achievable, and revised on an annual basis.

Where do you start?

The answer to this question is not straightforward because of the diversity within the cattle industry. Therefore, a producer should assess their current position in the industry and ask themselves several questions:

What type of cattle do I produce?

What industry segment(s) do I belong to (cow-calf, stocker, feeder, seedstock)?

What impact do my cattle have on different industry segment(s)?

The next logical step is to determine the current status of the herd for performance and profitability. It is difficult to make improvements in a herd's performance and profitability when the present status is unknown. It is necessary to evaluate current performance records, herd averages, costs of production, and sources of revenue. Having an established starting position makes it easier to develop goals for genetic improvement.

Many cattle producers are able to determine their herd's performance level because they record information on the performance of their cow herd. For example, a producer might record birth weights, weaning weights, and yearling weights. Unfortunately, the average cattle producer does not maintain the same level of information for the financial status of their operation. For some producers, it is difficult for them to quote their current average cost per cow. If costs and revenue are well known, the task of determining the economic importance of traits is easier.

Customers

How often do you think about the goals of your customer? Do you know who your customer is? If you take the time to study most successful businesses, a majority of them have a customer evaluation system to determine customer satisfaction. This same principle must apply to the cattle industry and our herd goals must be synchronized with the goals of our clients. Understanding the needs of our customers is a necessary step to deciding which bull is best and an important start to understanding the needs of your customers.

Selection

What traits should I emphasize in my bull selection? This is a common question and there is not a simple answer. A large number of predictions for traits are available for most beef cattle breeds. Using this information and other types of information, cattle producers can select the best animals to match their production and marketing environments. Trait categories can be grouped into the following categories: growth and production, maternal traits, carcass traits, reproductive traits, survivability and adaptability traits, and convenience traits. It is important to determine the traits of economic importance. A producer should the question, "Do the trait(s) we have in our selection criteria contribute to reducing costs of production or increasing revenue?" Are the traits we select for in our herd important to the success and profitability of our customer(s)?

Ideally, the traits of economic importance include those that increase profitability. For example, one producer may have a limited amount of labor during calving; therefore, calving ease would most likely be on the list of economically important traits. Another cattle producer might market his cattle through a retained ownership program, and premiums or discounts are awarded for carcass quality. This producer would place a larger emphasis on carcass traits. These examples do not promote selection emphasis on one trait or trait category. Important trait categories, such as reproduction, should not be overlooked. Previous research has shown that in a cow calf operation, where calves are sold at weaning, reproduction has greater economic impact over growth and carcass traits. According to Roy Berg, "a dead calf has a very poor growth rate" and "a dead calf also has very poor carcass performance".

Bull Buying

The late Robert Taylor at Colorado State University often stated that the best approach to buying the right bull was to develop a Want Ad. In their Want Ad, the producer would identify the

desirable characteristics of both the cattle and supplier. Purchasing a bull can be similar to buying a car. For cattle producers to get the best deal available, they need to research and study all available information about the cattle before going to the sale. A buyer needs to ask what features are mandatory for my bull and what options do I want in the bull? Some options might include high growth rate and easy calving. Additionally, the producer should ask how much they are willing to pay for the different options above the basic model price.

Selection tools available to cattle producers to assist with selection decisions include, but are not limited to, pedigrees, EPDs, ratios, carcass data, financial records, indexes, and many others. Having a large amount of information is a benefit; however, the volume of information can be overwhelming. If a cattle producer devotes the needed time to analyze many of the previously mentioned items, including their financial records, the economically important traits should start to surface.

Currently, Expected Progeny Differences (EPD) are the highest accuracy selection tool available and a superior prediction of performance compared to an animal's actual trait observation. Expected progeny differences account for differences in herd management and feed environment, genetic differences between herds, the genetic merit of parents, and culling for poor performance. Unfortunately, EPD cannot account for incomplete reporting, inaccurate reporting of data, incomplete pedigrees, and inaccurate assignment of animals to contemporary groups. Therefore, it is very important for producers to correctly and accurately report all information on their cattle.

What is an EPD?

According to Rick Bourdon, formerly with Colorado State University, an EPD is a prediction of the difference between the average performance of future progeny of an individual and the performance of theoretical reference animals with an EPD of zero. Using birth weight EPD as an example, imagine there are two sires being mated to the exact same cow herd. Sire A has an EPD of 0 and sire B has an EPD of +4. On average, sire B is expected to produce calves 4 pounds heavier at birth than calves from sire A. Simply, an EPD is a prediction of progeny performance.

What is accuracy?

Many sire summary catalogs will list accuracy values next to the corresponding list of EPDs. Accuracy is a measure of the amount and type of information used to calculate an EPD. It determines the reliability of the EPD and provides you with a way to determine the level of information going into the each individual's genetic prediction. For example, an individual with an accuracy of 0.10 might just have pedigree information contributing to its EPD; however, an accuracy value of 0.99 has thousands of observations contributing to its EPD.

How should a person categorize accuracy?

One way to evaluate accuracy values is to group accuracy levels into low, moderate, and high categories. The low range for accuracy might range from 0 to .40, the moderate range from .40 to .80, and the high range from .80 to 1.0. On the low end, the EPD are much better than just guessing and probably include information on the animal, its parents, and maybe some brothers or sisters. The moderate accuracy values are still considered risky but they are useful for making

selection decisions. The high accuracy genetic predictions are very reliable and useful in making comparisons. Often yearling bulls are criticized for having low accuracy EPD, but this is only because they haven't had a large amount of data collected toward their EPD. If given the choice between the EPD and the actual observation to make a selection decision for a trait, the most reliable decision will be with the EPD.

As good beef cattle managers, take the time to admire your successes and critically evaluate your mistakes. It is important to maintain quality financial and performance records. Always be critical of the performance and profitability of your cattle in their production environment. Keep profit in mind when making selection decisions and ask yourself if you can raise better cattle at a lower cost and higher profit.

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