



**Matt Woolfolk** | director of performance programs

## An In-Depth Look at Selection Indices: Part 1

A hot topic in the hallway at the ASA Annual Meeting in Kansas City was the use of selection indices and the tools we have available in the Shorthorn breed. Selection index technology wasn't an official topic in the educational forum, but I believe there was a lot of interest and educating going on among many breeders in attendance. There was a lot of good information and philosophy spread amongst breeders, and I hate that everyone couldn't be in attendance to be a part of these discussions. That spurred the idea to spend a few months writing about selection indices, how they work, and what we have available in the Shorthorn breed at this time for you to use in your breeding programs. In order to get the best view we can at the whole picture, I think it's only fitting that we start with the basics before diving into the more specific material.

The development of selection indices in the beef cattle industry are a relatively new addition to genetic evaluations. After EPDs came along, the idea to combine some of those genetic predictors into a single figure to attempt to gauge economic and genetic merit led to the implementation of the selection index. A selection index is intended to give a cattleman a relative economic value for an individual animal when in a specific production scenario. Traits that are important to a scenario are identified and included in an equation. The traits

in the equation are weighted based on their economic value in the individual production scenario. Depending on the situation, some traits will be weighted significantly in the calculations, while others may only play a small role in the final output. Simply put, a selection index is like a long, complicated algebra formula, but instead of just X and Y for variables, there are a LOT more, with some indices having nearly enough components to have variables A through Z!

Usually, an association will offer several selection index options to their membership to try and meet several of their breeding objectives. Each index is calculated from a specific production situation, and it is important to know and understand those situations when studying an index. An index built for a breeding program of mature cows may not be as effective for you if you are looking to breed heifers. An index built with retained ownership of feeder cattle in mind may not quite fit your needs (or the needs of your customers) if selling calves at weaning is your main objective. Of course, whatever index is available to you may not be a perfect fit for your operation, but there's a good chance that one or more indices will fit the needs of your program pretty well.

A selection index is designed to help breeders improve genetic merit without the drawbacks of single trait selection

that can sometimes occur when using a single EPD to make breeding decisions. We all know that multiple traits must be taken into consideration when evaluating what makes profitable cattle in any situation, and a selection index is the best tool we have of predicting which animals can work in an environment.

The American Shorthorn Association has four available selection indices available for breeder use in their mating and selection decisions. They include \$Calving Ease, \$British Maternal Index, \$Feedlot and \$Fescue. In future issues, I will go into more detail about the components and uses of each index. Identifying traits of importance, the production scenarios designed for each index, and how we can use them as Shorthorn breeders and commercial seedstock producers will be discussed.

In the ever changing world of beef cattle genetic evaluation and selection, the use of the selection index is growing increasingly popular with commercial bull buyers. As providers of commercial seedstock, I hope that you feel it is part of your responsibility to understand and assist your customers in finding and using the proper selection index that meets their operation's criteria. Hopefully, I will be able to fulfill my responsibility to give you the information you need to accomplish this goal over the next few articles! 

### 2019 National Junior Shorthorn Show & Youth Conference Lebanon, TN - June 17-22, 2019

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