PROGRESSIVE ENHANCEMENTS TO THE AICA GENETIC EVALUATION

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With the latest rollout of the AICA genetic evaluation update, breeders again have access to progressive enhancements to their genetic prediction tools. The AICA membership has historically embraced new technologies and revisions to their national cattle evaluation procedures to deliver industry relevant EPDs to seedstock and commercial cattle producers.

In recent years, the use of DNA technology has grown with the implementation of single-step genetic evaluation procedures, and Charolais breeders have capitalized on this genomic application. DNA testing of registered Charolais cattle has been on a rapid increase and seamless incorporation of the genotypes has provided genomic-enhanced EPDs along with timely bi-monthly EPD updates.

The latest enhancements to the July 2021 AICA genetic evaluation are two-fold. First, the genetic parameters utilized in generating EPDs are updated. Secondly, the growth and maternal predictions and TSI index are delivered on a beef cattle industry relevant base for genetic selection.

Genetic parameter revisions

It is important to periodically revisit the heritability and genetic correlation estimates that are represented in a genetic evaluation. The AICA National Cattle Evaluation (NCE) was well overdue for a review of its genetic parameters, particularly for the growth traits. The latest NCE update reflects revised structure for weaning weight, yearling weight, and maternal milk trait relationships. Specific genetic parameters can be accessed at the following link:

https://charolaisusa.com/genetic-evaluation.php

In the past, a strong negative genetic correlation was set between weaning weight (direct genetic effects) and milk (maternal genetic). This strong correlation was commonly evident when a sire was characterized with high weaning weight potential and his maternal milk EPD would tend to be driven down numerically. This negative association between weaning weight and milk was difficult to explain in the real world, particularly where contemporary weaning weights for calves and daughters' progeny were being aggressively submitted by breeders. The latest evaluation results reflect a zero correlation between direct weaning weight and maternal milk.

Another new element to the recent EPD update is the softening of genetic relationships between birth, weaning, and postweaning gain traits. The correlation strength between birth weight and subsequent growth measures is reduced. Growth trait EPDs released under the updated genetic parameters tend to move more independently than in the past. Charolais breeders must continue to submit large contemporary groups of growth trait data to better leverage the evaluation enhancements.
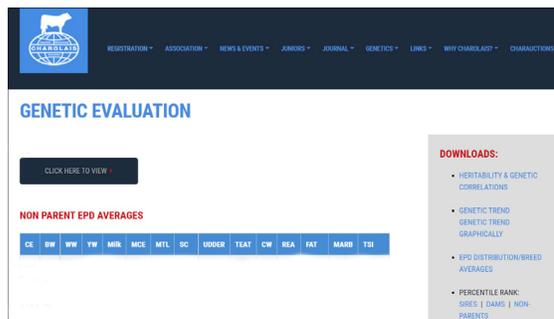
Industry relevant EPDs for Charolais cattle

The correct use of EPDs is to focus on differences between animals or comparisons to breed averages, as well as the use of percentile rankings. Yet, commercial producers seeking Charolais genetics may still be influenced by the numeric presentation of selection tools. With the popularity of Charolais genetics in the commercial industry and the need to update the EPDs for industry relevance, the latest NCE update has a modern delivery of growth trait EPDs. While no changes are evident in the birth weight EPDs, the weaning weight, yearling weight, milk, and total maternal EPDs are updated. Breed averages and percentile rank tables also illustrate the new presentation of AICA selection tools. As one would expect the Terminal Sire Index (TSI) values are re-tooled with these revisions. The link for *http://search.charolaisusa.com/* provides statistics for this and future NCE updates and is a good reference point for AICA evaluations.

Best use of AICA Selection Tools

While the update to AICA NCE results paints a more modern characterization of Charolais cattle, it is important to remember the key basics about use of EPDs:

• EPDs, or expected progeny difference, are to be used to sort out relative differences among animals.

• Breed average EPDs are a key resource in understanding cattle evaluation population for animal classes such as active sires, active dams, and nonparent animals.

• Percentile rank tables are an excellent resource for reviewing the distribution of various traits, rather than focusing on absolute numeric values of EPDs.

The goal of these changes is to improve the genetic predictions on the growth traits in the Charolais breed. The drive by breeders to adopt technology and provide genomic-enhanced EPDs in a user accepted format will continue to positively impact production systems in the beef industry. **CJ**