

## NALF, CSU Enhance Carcass EPDs

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The Colorado State University Center for Genetic Evaluation of Livestock (CSU-CGEL) performs the carcass genetic evaluation for the North American Limousin Foundation (NALF). Over the years, CSU-CGEL has made many enhancements to the production of carcass expected progeny differences (EPDs)—from developing methods for calculating EPDs for Lim-Flex® cattle to accounting for the genetic merit of animals from other breeds, such as Angus and Red Angus, in matings with Limousin cattle.

To improve the carcass evaluation, NALF and CSU-CGEL continually evaluate the methods used to calculate those EPDs. They implemented several enhancements to the process for the spring 2008 genetic evaluation, providing carcass EPDs that better reflect the true genetic differences among animals in the NALF database. The enhancements relate to the genetic differences between Limousin cattle and the Angus or Red Angus animals used to create Lim-Flex cattle.

The key to any genetic evaluation of animals from different breeds is to account for “base” breed differences appropriately. For instance, breeders know there are inherent differences between the average purebred Angus animal and the average purebred Limousin animal for marbling score (MS). In a typical single-breed genetic evaluation, any newly introduced animal, such as a Limousin animal from another country’s registry (except Canada) would start with a zero EPD for marbling. That EPD then would change as additional progeny’s performance information became available.

That is not an appropriate approach for animals coming from different breeds with similar EPDs in their “home” breed association. A purebred Angus animal,

for instance, should not start with EPDs of zero. We know there are genetic differences between it and the average Limousin animal, and the challenge is to account for those differences properly.

### Changes For The Better

The first enhancement to the spring 2008 evaluation was possible due to the continued collection and submission of carcass data for purebred Angus and Limousin animals. In the latest analysis, CSU-CGEL re-evaluated the difference between the average Limousin animal and the average Angus animal for all carcass traits using data from the NALF database. Previously, published literature served as the sole basis for those base differences. With the additional information NALF members have submitted, however, CSU-CGEL was able to modify the assumed differences between the breed averages.

Because there are relatively few carcass contemporary groups where purebred Angus and Limousin animals compete head to head, CSU-CGEL used both the published literature and information in the NALF database to set the base breed differences, avoiding the necessity to start Angus and Red Angus animals at a zero EPD for every trait. With the re-evaluation of those average differences using the NALF database, the average base-animal difference between the breeds increased for MS and ribeye area (REA). CSU-CGEL performed a similar re-evaluation for each carcass trait. That change will result in greater NALF EPD variation between Angus or Red Angus animals and purebred Limousin animals.

The second enhancement to the carcass evaluation included new information about the genetic variability within the Angus and Limousin populations. Previously, the analysis took a conservative approach. Upon re-evaluation, CSU-CGEL increased

the genetic variation within and between each of the breeds.

Both of the changes—the re-evaluation of genetic differences between the average Limousin animal and average Angus animal and the increase in genetic variability—will result in a larger “spread” in all NALF carcass EPDs, better reflecting the true genetic differences among animals of all breeds.

The final change also influenced the NALF EPDs for Angus and Lim-Flex animals. It will account more accurately for increased pedigree relationships between Angus and Red Angus animals used to create Lim-Flex animals and between the Lim-Flex animals themselves.

Previously, Angus and Red Angus animals had to have progeny with carcass observations before they were included in the carcass analysis. Because NALF wanted EPDs with greater accuracies before breeders produced the needed progeny, CSU-CGEL started including as much pedigree information as possible about the Angus animals as soon as breeders submitted data for them.

### Superior Results

The changes to NALF’s carcass analysis will provide better carcass evaluation. In general, the NALF EPD spread will increase and animals from other breeds will have an improved evaluation before progeny’s carcass observations are available. As with all EPDs, when additional data are included, individual animals’ EPDs will change, especially for low-accuracy individuals. Cattle producers should consider that when making selection decisions.

The changes better reflect the true genetic differences among animals and produce a better genetic evaluation of carcass traits. Producers now have a better tool for selecting animals with superior carcass merit.