

Limousin Genomic Profiler and Genomic-Enhanced EPDs

Genomic information is the next step in technology for the beef industry. The North American Limousin Foundation has done extensive work over the last few years in cooperation with Igenity Inc. (now part of GeneSeek Inc.) to develop a Limousin specific 50,000 SNP (pronounced 'snip'; single-nucleotide polymorphism) panel. This test goes beyond the DNA marker tests that were introduced years ago, which included only a small number of markers and were unable to generate values that could be incorporated in National Cattle Evaluations (NCE).

Each SNP alone does not reveal much information. It is only through study of the quantitative effects of a number of critically selected SNPs that generates molecular breeding values (MBVs) for each trait. These MBVs will be factored into the interim EPDs of the animal as well as the NCE based upon the correlation of the MBV to the trait. MBVs will be available for every EPD trait and will be beneficial through increased EPD accuracy of traits that are either difficult or expensive to measure such as Stayability and the carcass traits.

It is important to note that even though a genomic panel yields increased accuracy to EPDs, it is still only one tool in the genetic evaluation toolbox. Weights, measurements, ultrasounds and docility scores will still be vital to build a complete picture of an animal's genetic merit. Those measures will also be crucial to the updating and expanding on the accuracy of the panel and its genetic correlations.

Once animal has had a sample submitted to NALF for the Limousin Genomic Profiler-Igenity® Enabled, the sample will be sent to GeneSeek, Inc. where a panel will be run. NALF will receive the MBVs which will then be factored into the animal's EPDs starting in December 2012 and the NCE soon after. The animal's owner will receive a report with the Igenity 1-10 scores on that animal similar to their earlier Beef Profile report. NALF would recommend that selection decisions be made based on the Genomic-Enhanced EPDs as they are a more accurate tool for determining genetic merit.

Figure 1. The Flow of Genomic Information

