

Angus Foundation Funds Genomic-sequencing Project

DNA sequence data on Angus bulls could improve future accuracy in genomic-enhanced expected progeny differences (GE-EPDs).

by *Katie Allen, Angus Foundation*

At its September 2012 meeting, the Angus Foundation Board of Directors approved funding for a research project at the University of Missouri–Columbia (MU) for genomic sequencing of Angus bulls. This sequencing is meant to enhance the understanding and genetic prediction of Angus cattle performance.

The \$50,500 research study was recommended for funding to the Board by the American Angus Association Research Priorities Committee and will be awarded to

Jerry Taylor, MU's Wurdack chair of animal genomics and curators' professor of genetics and animal sciences.

Taylor says the Angus Foundation dollars will be used in tandem with funding provided by USDA's National Institute of Food and Agriculture (USDA NIFA) to deep-sequence the genomes of high-impact Angus bulls to identify variation in growth, carcass quality, feed intake, disease resistance and early embryonic loss.

"The funding will also support our development of an assay to generate genomic-enhanced EPDs (expected progeny differences, GE-EPDs) and will include up to 6,000 of the variants detected in the sequencing project to test their effects on fertility in 10,000 genotyped heifers," Taylor adds. "The results will lead to improved EPDs

for fertility and production traits in Angus cattle."

The Association will benefit from this research, as it will receive DNA sequence data on the bulls, and then obtain additional knowledge tied to a large reservoir of sequenced bulls

internationally. Sequence data can be used to expand existing high-density 50K (HD 50K) DNA data at MU into whole-genome results, which in turn creates potential for advanced Angus selection tools at the Association.

Angus breeders currently have access to dependable GE-EPDs on a weekly basis through the Association's national cattle evaluation (NCE) updates. Sally Northcutt, genetic research director for the Association and Angus Genetics Inc. (AGI), says this research creates opportunities to improve accuracy in future EPDs and allows for the expansion of selection tools into new traits, particularly in the area of reproduction.

"Our Angus genetics are known throughout the world for predictability and highly accurate decision tools, such as EPDs," Northcutt adds. "With this newly funded study, Angus breeders and bull buyers have a great deal to look forward to as this technology evolves."

Angus Foundation President Milford Jenkins says this new project is one of many diverse research projects the Foundation funds to help purebred Angus and commercial breeders.

"Research projects such as the Angus bull genomic-sequencing project at the University of Missouri are invaluable to the Angus breed and beef cattle industry," Jenkins says, adding that the economic benefit to members of this Foundation-funded research project and others will increasingly become more evident.

"The results will lead to improved EPDs for fertility and production traits in Angus cattle."

— Jerry Taylor

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Editor's Note: Katie Allen is director of marketing and public relations for the Angus Foundation.