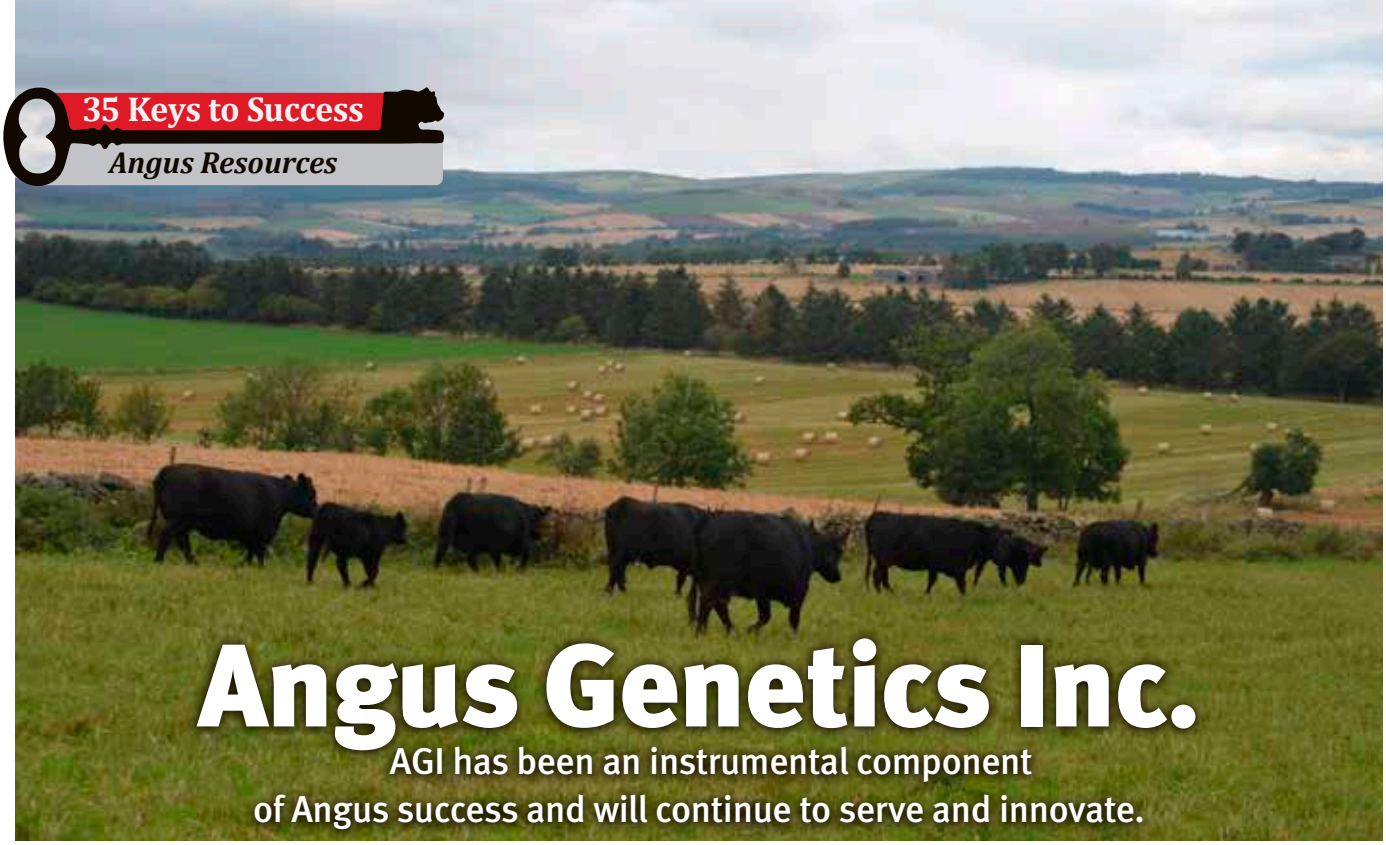

Angus Genetics Inc.

AGI has been an instrumental component of Angus success and will continue to serve and innovate.

PHOTO BY KASEY BROWN

*by **Troy Smith,** field editor*

For as long as they have observed differences in the appearance and performance of animals within domesticated species, stockmen have practiced genetic evaluation. They didn't call it that, but for centuries stockmen applied the concept of "like begets like" to selectively breed animals. For most of that time, their only tool was a practiced eye.

Genetic evaluation based solely on the eye of the master brought progress, but it was slow and limited compared to that made possible by modern selection tools. Genetic evaluation for cattle really gained momentum in the mid-1970s, as breed associations implemented systems for collection and reporting of performance data. By the 1980s, land-grant universities that were deeply involved in genetic research also were responsible for the genetic evaluation of most registered cattle.

Evaluation by breed

Using the phenotypic data that breeders submitted to breed associations, universities performed the complex analysis of pedigree, individual performance and progeny data to calculate expected progeny difference (EPD) values for economically important genetic traits. Plus, the value of EPDs gained recognition.

The future of structured genetic evaluation came into question, however, with eventual changes in university philosophy and resource allocation. According to Ridge Spring, S.C., Angus breeder Kevin Yon, some far-sighted folks saw it coming. They created Angus Genetics Inc. (AGI), a wholly owned subsidiary of the American Angus Association, which, in 2007, assumed responsibility for genetic evaluation of registered-Angus cattle.

"I tip my hat to the Association leaders serving at that time. They formed a much-needed and well-crafted entity," says Yon, who for the past year chaired the board that advises and governs AGI. "A breed association's core services are registering and transferring cattle, but formation of AGI assured that genetic evaluation of Angus cattle would not only continue, but improve.

"AGI develops technology, including genetic (DNA) testing, and makes it available to all Association members. They all have access, at a fair price, regardless of the size of their operations," adds Yon. "Because AGI works with more than one testing laboratory, it helps keep the cost of genetic testing competitive. That's good for Angus breeders, and it's good for the whole industry."

Moving the job in-house brought increased frequency of Angus genetic evaluation, which is performed weekly, rather than twice per year. Calculation of EPDs now incorporates DNA, or genomic, information, resulting in genomic-enhanced EPDs (GE-EPDs) for a growing number of traits. GE-EPDs offer significantly increased accuracy of selection for those traits, according to Association Director of Performance Programs and AGI President Dan Moser.

"AGI's mission is to provide comprehensive information characterizing animals, using as much information as breeders provide, including genomic information, to predict their genetic worth," states Moser, previously a Kansas State University geneticist. "Using genomic-enhanced EPDs for selection reduces the risk involved with investment in genetics. Especially for young animals (having few or no progeny), incorporating genomic information provides a more accurate prediction. So, a producer is much more likely to get exactly what he or she asked for."

Dan Moser

Tonya Amen

Genetic education

According to Moser, another aspect of the AGI mission is education. It's important, he says, to help producers understand the processes behind genetic evaluation and to understand the power of the technology AGI offers. Instrumental in helping producers understand the technology and how they can use it in their operations is Genetic Services Director Tonya Amen.

Since assuming that role in early 2013, Amen has spent much of her time meeting with seedstock breeders and commercial producers across the country. She has seen appreciation for the value of genetic testing spread through both producer segments. Typically, seedstock breeders who initially applied high-density genomic tests to genotype a few select animals have expanded application to their sale offerings and then deeper into their breeding herds.

"With the cost of testing coming down, uptake of the technology has been incredible. It's becoming standard procedure for most performance-minded seedstock breeders," says Amen. "On the commercial side, acceptance of genomic-enhanced EPDs is high. More and more commercial producers are trying GeneMax™, too. Once they try it, commercial producers seldom back away. They recognize the value."

In cooperation with Zoetis, AGI offers two GeneMax (GMX) tests designed specifically for use by commercial producers. The first available test, now known as GeneMax Focus, is intended for use in prospective commercial-Angus replacement heifers, cows or feeder cattle. Test results offer predictions for feedlot gain (GMX Gain), carcass quality grade (GMX Marbling) and combined genetic merit for gain and grade (GMX Score). Also available are options for sire assignment for tested cattle, provided candidate sires have been tested with the Zoetis high-density (HD) 50K test.

Herd insight advantage

Amen says adoption is growing well for a second, more inclusive test called GeneMax Advantage. Intended for use on high-percentage Angus replacement heifers or cows, GeneMax Advantage results provide three multi-trait economic indexes expressed as scores.

Cow Advantage scores represent maternal traits and rank females for net return, from heifer development through weaning of progeny. Costs associated with milk production and cow size, as well as weaned calf revenue, are considered in Cow Advantage scores.

Feeder Advantage scores for tested females represent the genetics transmitted to their calves for net return from growth and feed efficiency in the feedlot, as well as from carcass merit. Feeder Advantage scores are based on the assumption that finished calves will be marketed on a *Certified Angus Beef*® (CAB®) grid.

Total Advantage scores represent a combination of Cow Advantage and Feeder Advantage scores, and rank tested females for net return from heifer development through marketing of CAB carcasses of their progeny.

GeneMax Advantage also reports outliers representing extremes in expected cow costs (due to milk and mature size), unfavorable temperament, undesirable tenderness, and high or low marbling potential. Also provided are optional sire assignments utilizing sires tested with the Zoetis HD 50K test.

Moser says the widespread use of Angus genetics places the breed in an enviable position. He credits leadership past and present for focusing on services to members and their commercial customers that have made the Association the leading organization of its kind.

Moser says he expects to see services offered through AGI to expand through continued innovation — a growing suite of GE-EPDs and more genetic tests of value to producers. Keeping AGI on the leading edge of technology adoption also affords opportunity to provide services to an expanded clientele.

"I don't know how many people know that AGI provides services to other cattle organizations in the U.S. and Canada. It isn't our primary mission, but it is good to help other industry partners. It also offsets costs and helps us maintain a staff with some of the best IT (information technology) people available anywhere," says Moser.

"There may even be opportunities to offer services beyond the beef cattle industry. Other species are using similar tools. I see no reason that we shouldn't provide services to organizations outside the beef realm."

Editor's Note: *Troy Smith is a cattleman and freelance writer from Sargent, Neb.*