



# By the Numbers

► by *Tonya Amen*, American Angus Association/Angus Genetics Inc.

## GeneMax™: What Angus breeders need to know

*Thanks to the progressiveness of Angus breeders across the country, through the years the American Angus Association has amassed a large and enviable database, which has allowed for the development of extensive selection tools in the form of expected progeny differences (EPDs) and dollar value indexes (\$Values) for Angus breeders and commercial cattlemen who use registered Angus seedstock. In recent years, this same database has allowed for the development of valuable genomic tests for registered Angus cattle, which has allowed for quicker and more accurate identification and propagation of animals with desirable genetics for various traits of interest.*

### Good position

Now, we are in a place to combine the knowledge and resources of the Association and its partners along with the ever-growing database on Angus cattle and extend genomic testing to commercial cattlemen who use registered Angus genetics on their farms and ranches.

Last month's column (see the "By the Numbers" column on page 242 of the September 2012 *Angus Journal*) discussed DNA tests currently available for Angus breeders and their customers. Since that time, lots of questions have developed around Certified Angus Beef LLC's (CAB) GeneMax (GMX) test. This month, I'd like to take a stab at addressing some questions that have come up from Angus breeders surrounding the GMX test, as well as introduce a new feature of the test.

### Something new

As part of the GMX test, producers may be able to take advantage of the Sire Match feature for no additional charge. Sire Match may be requested at the time the GMX test is ordered, or at any time after results are received. To take advantage of this feature, producers suggest a list of potential sires of GMX-tested animals. The following day, results will be available indicating which bull is the most likely sire of each calf.

### Common questions

#### How do commercial cattlemen order kits and tests, and access results?

Test kits, as well as the GMX test itself, can be ordered from AAA Login on the Association website ([www.angus.org](http://www.angus.org)). Commercial cattlemen who have a registered and transferred Angus bull can use their affiliate code and sign up to request a

password to gain access to AAA Login. For those who may not have a customer or affiliate code, please contact the Association at 816-383-5100 to request one.

GMX results are delivered in two ways:

- first, as a PDF attachment via e-mail, and
- second, in a sortable and downloadable format via AAA Login.

#### Whoa! The GMX test kits are only 50¢. Can I use them instead of FTA cards for purebred animals?

GMX test kits include blood cards specifically meant for GMX testing and may not have the longevity or achievability of traditional FTA cards, so they are not recommended for sample collection for seedstock.

#### What do the results look like?

Results are given for an economically weighted index that includes both marbling and gain; this is referred to as the GMX score and is reported as a percentile rank from 1 to 99, with a higher score being more desirable (NOTE: This is the opposite of EPD percentile ranks). Scores are also given for the separate traits of marbling and gain — these traits are scored from 1 to 5, with a higher number being more desirable.

#### Are animals tested with GMX compared against HD50K-tested animals?

No, the animals used as the base population for the purposes of calculating the GMX score are high-percentage Angus

commercial cattle (currently about 4,000 head are represented).

#### Why do bulls have to be HD50K-tested in order to access the Sire Match feature?

The GeneMax test was derived from a subset of markers on the Pfizer HD50K panel. When bulls are HD50K-tested, and calves have been GeneMax-tested, this provides genotypes for both animals at the same markers, which allows the most likely sire to be identified.

#### Can I use the GeneMax Sire Match feature to verify parentage of registered Angus cattle?

No. The panel used to verify parentage for registered Angus seedstock was developed by the USDA specifically for the purpose of parentage testing. This is important for two reasons:

First, in order for laboratories and breed associations to be able to accurately verify parentage, it's important for animals to have been genotyped for the same

markers so results from every lab can "talk" to each other in the same language.

Secondly, the test for parentage was designed specifically for the purpose of parent verification and thus has very high exclusionary power. Since GMX was not developed for this purpose, its exclusionary power may not be equivalent.



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**Editor's Note:** *Tonya Amen is genetic service director for the American Angus Association and Angus Genetics Inc. "By The Numbers" is a column by Association performance programs staff to share insights about data collection and interpretation, national cattle evaluation, genetic selection and relevant technology and industry issues. If you have questions or would like to suggest a topic for a future column, contact Sally Northcutt, Bill Bowman or Tonya Amen at 816-383-5100.*