



# UNDERSTANDING & USING GENEMAX<sup>®</sup> FOCUS<sup>™</sup>

GeneMax Focus is a genomic test created through collaboration between Angus Genetics Inc. (AGI), Certified Angus Beef<sup>®</sup> (CAB) and Zoetis to help inform commercial Angus replacement female selection, breeding and marketing. Features of GeneMax Focus include: an economic index (GMX Score), genetic predictions for four individual traits and Sire Match to HD 50K and i50K tested bulls. More detailed information about each of these features is available in the GeneMax Focus Technical Bulletin.

## GETTING STARTED - TESTING STRATEGY AND SAMPLE COLLECTION

GeneMax Focus can be used to support a variety of genetic improvement strategies. A common strategy used by many producers is as follows:

- Test the top two-thirds to three-quarters of the heifer crop that were earliest born and meet visual appraisal criteria (i.e. sound feet and legs, acceptable growth and frame, calm temperament, etc.).
- Collect tissue (Allflex), blood card or hair samples during pre-weaning, weaning or vaccination processing.
- Submit samples and completed order forms to AGI at least 30 days in advance of selection decisions. Information about DNA collection options, instructions and ordering are available at [genemaxfocus.com](http://genemaxfocus.com).
- Watch your email for results and a link to secured AGI customer login.

## GENEMAX FOCUS RESULTS

GeneMax Focus results are delivered by email in a variety of formats, including:

- An attached printable PDF report sorted by GMX Score.

- A link to online login, access, management and customization of results on the AGI customer website. An example screenshot of results and information about various interactive functions is included herein.
- **Exportable PDF and Excel<sup>®</sup> reports can be generated and downloaded from the AGI login, which can be used for offline recordkeeping and decision making.**

## SELECTION DECISIONS

Depending on the number of replacements needed, the typical strategy is to select the top one-half of tested heifers based on their GMX Score and Sire Match results (retain heifers out of bulls with the highest genetic merit for maternal traits). For the majority of operations, this will help build Angus-based cow herds (replacements) and feeder/fed cattle with improved genetic merit that yield the highest net returns across the CAB supply chain.

GeneMax Focus results from tested heifers are also helping producers fine-tune their bull buying. When GMX Score and individual trait predictions point to specific opportunities for improvement (i.e. marbling and gain), emphasis on the GE-EPDs powered by HD 50K and i50K helps guide customers to the most complementary Angus bulls.

## BREEDING DECISIONS AND FEEDER CATTLE MARKETING

GeneMax Focus results enable a lifetime of more informed breeding and marketing decisions for greater net returns, including:

- Use of Sire Match information to avoid inbreeding and associated depression in performance primarily related to reproductive, survival and fitness traits.

- Annually throughout their lifetimes, tested females can be bred more wisely to A.I. and/or bull batteries that accentuate genetic strengths and correct weaknesses using GMX Score, individual trait and Sire Match information.
- Annually, GeneMax Focus information from tested heifers can be used to help inform marketing and price discovery through various feeder cattle marketing programs that integrate genetic and health information.

GeneMax Focus DNA Test result(s)

No items in cart.



[Export To Excel](#) [Print GMX Summary PDF format](#)

**SIRE IDENTIFICATION**  
- Sires for File 1131833 : [Click here to add or edit sires for sire identification with your GMX tests.](#) (Sire Count: 0)

71 record(s) found.

Tag	Sex	Reg Num	Birth Date	Recvd from Lab Date	GMX WW	GMX Gain	GMX CW	GMX Marb	GMX	Notes	Most Likely Sire	
											Sire Tag	Sire Reg Num
30	C	624025308	01/01/2016	10/20/2016	68	60	32	76	84			
5040	S	624025414	01/01/2016	10/20/2016	76	83	76	76	83			
20	C	624025379	01/01/2016	10/20/2016	85	82	74	61	82			
38	C	624025363	01/01/2016	10/20/2016	88	83	64	42	80			
36	C	624025407	01/01/2016	10/20/2016	74	66	45	63	78			
34	C	624025306	01/01/2016	10/20/2016	65	74	37	53	76			
19	C	624025391	01/01/2016	10/20/2016	71	76	57	56	75			
45	C	624025300	01/01/2016	10/20/2016	56	48	45	80	74			
37	C	624025374	01/01/2016	10/20/2016	57	55	28	63	73			

- **Export to Excel and Print GMX Summary PDF Format** – Within the secure customer section of the AGI website, select “Export to Excel” to download customized results in spreadsheet format. Click “Print GMX Summary PDF Format” to access a print-friendly PDF version of the results.

- 4 **Carcass Weight (CW)** – Cattle with higher scores have genetic potential for heavier carcass weights. While heavier carcass weights are generally more valuable, nonconforming excessively heavy carcasses - currently greater than 1,000 and/or 1,050 lbs. - are severely discounted.

- 1 **Tag, BIR/Assn Num, Birth Date, Recvd from Lab Date** – Animal identifiers include the ranch tag number, American Angus Association (Assn) assigned beef improvement record (BIR) number, birthdate and the date that results were received from the lab (Recvd) for internal monitoring of turnaround times.

- 5 **Marbling (Marb)** – Cattle with higher scores have greater genetic merit for marbling and more favorable USDA Quality Grades

- **Individual Trait Scores** – GeneMax Focus individual trait scores range from 1 to 100 and are based on underlying genomic predictions. Higher values are generally better with a score of 50 representing the average of a reference population of more than 37,000 commercial Angus females.

- 6 **GMX Score** – Predicts differences in returns from fed cattle progeny due to gain, carcass weight and CAB carcass merit (quality grade). These scores range from 1 to 100, and higher values are generally better with a score of 50 representing the average of a reference population of more than 37,000 commercial Angus females.

- 2 **Weaning Weight (WW)** – Cattle with higher scores possess genetic merit for more rapid growth - heavier weaning weight (lbs.).

- 7 **Most Likely Sire** – The Sire Match feature reports the tag, registration number and name of the most likely Angus sire from the HD 50K and i50K-tested, registered and transferred Angus bull battery. Angus bulls may be tested and Sire Match may be included either before or after candidate daughters are tested with GeneMax Focus. Commercial producers are encouraged to buy registered, transferred and HD 50K or i50K-tested Angus bulls to enable the Sire Match feature. Sire Match may also be used to confirm A. I. sires.

- 3 **Gain** – Cattle with higher scores have more genetic potential for post-weaning growth – gain in the feedyard. Typically, scores for weaning weight and gain are highly related.

# FREQUENTLY ASKED QUESTIONS

October 2016

## GENEMAX<sup>®</sup> Focus<sup>™</sup>: Build High Performing Angus Cattle and Get Paid for Them



### **Q. What is GeneMax Focus?**

**A.** GeneMax Focus is a genomic test that helps commercial cow-calf operations select the heifers that will produce the most valuable calves. Growth and carcass quality drive the majority of value throughout the post-weaning segments of the beef chain, and no amount of management can fully compensate for a lack of genetic potential. GeneMax Focus helps you select the right heifers and breed them the right way to produce the calves feedyards and packers want to buy, and the beef consumers demand. Created from a collaboration between AGI, CAB and Zoetis, GeneMax Focus has been rebuilt from the ground up to provide higher accuracy predictions for Gain and Marbling, new predictions for Weaning Weight (WW) and Carcass Weight (CW), and easy to interpret 1 to 100 scoring. GeneMax Focus is designed for use in commercial black Angus replacement females (75% or greater).

### **Q. What index scores are included in GeneMax Focus?**

**A.** GeneMax Focus has one economic selection index (GMX Score) that ranks animals (1 to 100 with 100 being generally most desirable and 50 representing the average) based on combined genetic merit for weaning weight, gain, carcass weight, and marbling as evaluated by Molecular Value Predictions (MVP) and the latest reported economic assumptions used for dollar value indexes calculated by AGI for Angus seedstock. GMX scores simplify multiple trait selection for growth, carcass weight and quality grade.

### **Q. How do I interpret the index and individual trait scores?**

**A.** Using intuitive 1 to 100 scoring, GENEMAX Focus provides an easy to use measure of overall potential with the index GMX Score, as well as fine tuning capability with individual weaning weight, gain, carcass weight and marbling scores. Higher values are generally better, and a score of 50 represents the average of a reference population of more than 37,000 commercial Angus females.

### **Q. What changed in 2016 as part of the update?**

**A.** Several upgrades and changes have been made to GeneMax Focus:

- Updated, expanded and recalibrated panel of markers to increase explained genetic variation in targeted traits
- More markers enabled inclusion of predictions for two additional traits, weaning weight and carcass weight
- Modernized economic assumptions, synergized with those used in dollar indexes for Angus seedstock

- The 1 to 5 and 1 to 100 rank scoring has been replaced by 1 to 100 continuously distributed scores for both individual traits and GMX Scores, respectively, to provide greater resolution into differences in genetic merit.
- Report format has been updated to allow for the new information provided.

**Q. Will any of the changes affect previously tested animals?**

**A.** The new and improved GeneMax Focus is an entirely new design – with an appreciably different and expanded set of more informative markers and marker effects. As such, results cannot be compared directly against previously tested animals, and previously tested animals would need to be retested to receive results from the updated version.

**Q. What is Sire Match, and how do I use this information?**

**A.** GeneMax Focus matches tested females to registered and transferred HD 50K and i50k tested Angus bull batteries and A.I. sires. Sire identification enables complementary mating decisions and management of inbreeding by providing the Tag#, Association registration #, and new in 2016: Angus Sire Name. Angus bull buyers are encouraged to select bulls based on GE-EPDs powered by HD 50K and i50K. Beyond selection and mating decisions for enhanced growth and grade, the GeneMax Focus Sire Match feature also enables selection of heifers out of bulls with superior genetics for maternal traits.

**Q. How can I receive Sire Match information if the Angus bulls I use are not HD or i50K tested?**

**A.** Candidate Angus sires must be Zoetis HD 50K or i50K tested for sire parentage to be assigned to GeneMax tested daughters. Commercial cow-calf producers should request Angus bull purchases be registered and transferred to their ownership to enable seamless sire parentage assignment for GeneMax tested progeny. Sire candidates may be HD 50K or i50k-tested either before or after potential daughters are tested with GeneMax. Ideally, the registration numbers of possible sires should be provided to AGI on GeneMax Focus order forms.

**Q. What are the advantages of GeneMax Focus if I am using Zoetis HD 50K or i50K-tested Angus bulls?**

**A.** Bull selection based on superior American Angus Association® GE-EPDs powered by Zoetis HD 50K and i50K sets the stage for producing the best calf crop possible. GeneMax Focus enables selection of heifers for higher net returns. An especially valuable attribute of a Zoetis HD 50K or i50K-tested bull battery is GeneMax-tested progeny are likely to have specifically assigned sires. This information can be used to make strategic marketing and breeding decisions while minimizing inbreeding.

**Q. Can I use GeneMax Focus in males?**

**A.** GeneMax Focus is designed for use in commercial Angus females 75% or greater Angus breed composition. It cannot be used to test bulls, but could potentially be used to document the genetic merit of feeder steers.

**Q. Can GeneMax Focus be used in heifers that are less than 75% Black Angus?**

**A.** GeneMax Focus may be used in heifers slightly less than 75% Black Angus breed composition, but customers should understand expected efficacy (explained genetic variation) is anticipated to be compromised since animals are of lower percent Angus.

**Q. Can GeneMax Focus test results be used to inform feeder cattle marketing programs?**

**A.** The GE-EPDs of Angus bull batteries and GeneMax Focus results from tested heifers may be used to help inform price discovery of untested herd mates in feeder cattle marketing programs such as Angus Source, Top Dollar Angus and Reputation Feeder Cattle. [insert contact information and links for more information about these programs] For more information on Angus source, visit [www.angus.org/angussource](http://www.angus.org/angussource). For more information about Top Dollar Angus, visit [www.topdollarangus.com](http://www.topdollarangus.com). For more information about Reputation Feeder Cattle, visit [www.reputationfeedercattle.com](http://www.reputationfeedercattle.com)

**Q. Can I use GeneMax Focus in feeder cattle?**

**A.** In some instances, producers may use GeneMax Focus to evaluate the genetic merit of feeder cattle as the traits in GeneMax Focus are linked to key drivers of profitability in feedlot production and carcass quality. This information may be valuable in helping to inform sire parentage for progeny carcass test programs, and to inform decisions about retained ownership or marketing of feeder calves. However, the greatest value associated with use of GeneMax Focus is tied to its application as a heifer selection tool, helping to identify replacement females with higher genetic merit for growth and carcass traits.

**Sample Collection, Submission and Results**

**Q. What sample types are acceptable for GeneMax Focus testing?**

**A.** Blood cards, Allflex® tissue samples, and hair may be used for GeneMax Focus.

**Q. What is the turnaround time from submitting samples to receiving results?**

**A.** Customers are advised to allow up to 30 days from the time of sample arrival at AGI to the delivery of results through the secured customer portal of the AAA/AGI website.

**Q. How do I order tests and where do I send samples?**

**A.** More information and electronic ordering of Zoetis HD 50K, i50K, GeneMax Advantage and GeneMax Focus can be found at [www.angus.org/agi](http://www.angus.org/agi) and all samples must be submitted to:

Angus Genetics Inc. (AGI)  
3201 Frederick Ave.  
Saint Joseph, MO 64506  
Phone: 816-383-5100



**Q. Can I send my samples directly to Zoetis?**

**A.** AGI/CAB are the exclusive distributors of HD 50K and i50K for Angus, GeneMax® Focus™ and GeneMax® Advantage™, and all samples for these tests should always be sent directly to AGI.

**Genomic Testing Overview**

**Q. What other genomic tests are provided by the partnership of Angus Genetics Inc. (AGI), Certified Angus Beef® (CAB) and Zoetis?**

**A.** These tests deliver Angus breeders and commercial producers a comprehensive and powerful genetic game plan to advance productivity and net returns.

- HD 50K and i50K for Angus Seedstock Producers: Genomic Enhanced Expected Progeny Differences (GE-EPDs) powered by Zoetis HD 50K deliver the equivalent of an initial progeny proof to the accuracy of EPDs for 15 traits. This is especially valuable for both commercial bull buyers and seedstock sellers of young Angus sire prospects, as well as for selection and mating of Angus females. The USDA SNP parentage markers included on HD 50K or i50k are used to verifying parentage and inform sire parentage assignment for GeneMax-tested progeny produced from multi-sire breeding schemes.

**Q. When should I use GeneMax Advantage and when should I use GeneMax Focus?**

**A.** GeneMax Focus is recommended if only information about weaning weight, postweaning growth, carcass weight and grade (marbling) and sire match information are needed to inform replacement heifer and associated feeder/fed cattle marketing decisions.

GeneMax Advantage provides more complete genetic information across the broad range of economically important maternal, efficiency, growth and carcass traits that span the beef production chain. This test was developed specifically for replacement heifer decisions.

**Q. Can GeneMax be used by seedstock producers on registered Angus animals?**

**A.** GeneMax Advantage and GeneMax Focus are only intended for use on unregistered, commercial Angus animals. As such, GeneMax predictions do not contribute to GE-EPDs. Zoetis HD 50K and i50K for Angus and resulting GE-EPDs, accuracy and index values, are for registered Angus breeders.

**LEARN MORE**

If you have any questions or need assistance as you get started with GeneMax Focus, contact AGI, your Zoetis Genetics representative or visit [genemaxfocus.com](http://genemaxfocus.com) or [angus.org/AGI](http://angus.org/AGI).

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