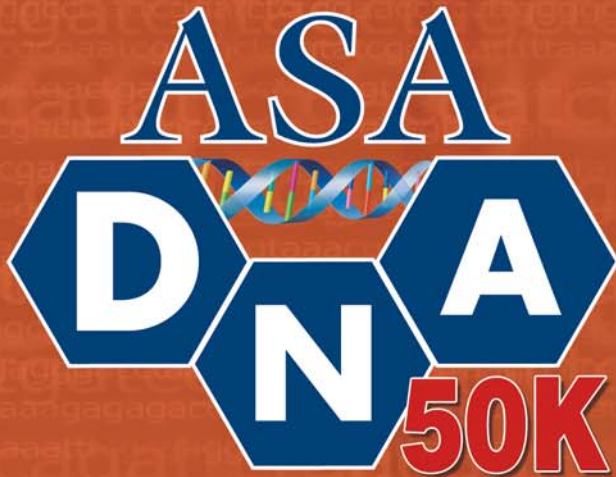


It's Here!



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Increase EPD accuracy***

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***For more information,
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THE FUTURE IS HERE!

By Wade Shafer Ph.D.

Approximately a year ago we ran an article in *SimTalk* to update readers about the state of genomic use in our industry. The article closed with the following paragraph: "Unless you have Angus cattle that are evaluated in the American Angus Association's genetic evaluation, currently available DNA tests are of little to no value to you for EPD enhancement; however, don't be dismayed if you don't fit this description. The recent evolution in genomic technology has spurred organizations to take the steps necessary to harvest its value. For example, ASA is presently working on the development of DNA tests specific to our population, as well as the capacity to incorporate test results into ASA's genetic evaluation."

One year later we are pleased to announce that the future has arrived at ASA. We are now offering a DNA test that, when incorporated into our genetic evaluation, can add significant enhancement to lower accuracy EPDs. The result of a multi-year collaborative effort, test development was fueled by ASA members and staff, carcass merit cooperators, USDA, University of Illinois, University of Missouri, Montana State University, GeneSeek and the National Beef Cattle Evaluation Consortium.

Test development was initiated several years ago through requests for donated semen on high accuracy sires. ASA members stepped up to the plate and delivered, with hundreds of DNA samples being collected via donation. Besides older sires, virtually all of the current 500 most heavily used sires were sourced. Samples were also collected on the sires and their offspring fed at the University of Illinois. In total, over 2,700 samples were genotyped.

The genotypes, along with the equivalent of millions of phenotypes (data submitted by breeders and the Carcass Merit Program over the years) were amassed and analyzed by University of Iowa researchers. The analysis resulted in the parameters required for genetic evaluation.

The multi-tiered effort culminated in a very successful outcome. The standard measure of a DNA test used in EPD prediction is the correlation between test results and the traits of interest. **Table 1** displays correlations for ASA's test when used on ASA's population. To provide prospective, correlations for Pfizer and Igenity's tests gleaned from the American Angus Association's website are included in the table.

Table 1. Correlations between DNA test results and trait

Trait	Igenity ^a	Pfizer ^a	ASA ^b
CE	0.47	0.33	0.45
BW	0.57	0.51	0.65
WW	0.45	0.52	0.52
YW	0.34	0.64	0.45
Milk	0.24	0.32	0.34
MCE	NA	NA	0.32
Stay	NA	NA	0.58
CW	0.54	0.48	0.59
Mrb	0.65	0.57	0.63
REA	0.58	0.60	0.59
BF	0.50	0.56	0.29
SF	NA	NA	0.53

^aWhen used on the American Angus Association's population

^bWhen used on American Simmental/SimAngus™ population

ASA is utilizing a new DNA test to enhance EPDs

As you can see, correlations for ASA's test are stronger for some traits and weaker for others compared to the commercially available Angus tests. All in all, however, ASA's test sizes up well. The relevance to genetic evaluation is that the stronger the correlation the more information the test adds — and therefore the greater the increase in EPD accuracy and potential EPD movement.

Results from ASA's DNA test will be incorporated into our multi-breed genetic evaluation system in a new, more precise method than current industry standard — culminating in more informative EPDs. Under the standard approach, each animal's DNA test results are assumed to add an identical amount of information to genetic evaluation. Though this approach lends itself to ease of incorporation, it glosses over the fact that there can be large difference between animals in the actual amount of

Besides being contingent on an animal's connectedness to the development population, the usefulness of ASA's DNA test will be greatest on the traits having a strong correlation with the test (e.g., birth weight, marbling, etc.). It will also add more value to animals with lower base (i.e., starting) accuracy values. **Table 2** provides examples of this.

As you can see from Table 2, since the test has the strongest correlation with BW, the increase in BW accuracy is greatest at all base levels; however, as the base level for BW increases, the smaller the increase in accuracy. On the trait with the weakest correlation (BF) the increase in accuracy is miniscule, even at low base levels. The take home message is that the test is minimally effective for some traits and only has utility on animals with low to mid accuracy EPDs.

Table 2. Average impact of ASA's DNA test on Acc. at base Accuracy of .00, .20, .40 and .60*

Trait	Base Acc.	New Acc.	Base Acc.	New Acc.	Base Acc.	New Acc.	Base Acc.	New Acc.
BW	0.00	0.24	0.20	0.34	0.40	0.47	0.60	0.62
YW	0.00	0.11	0.20	0.26	0.40	0.43	0.60	0.61
BF	0.00	0.04	0.20	0.22	0.40	0.41	0.60	0.60

*BIF accuracy gain for any base accuracy can be obtained with ASA's DNA-Enhanced Accuracy Tool @: <http://www.simmental.org/site/index.php/herdbookhome>

information harvested from their DNA tests. (These differences are largely due to how well connected the animal being tested is to the population used to develop the test.) Because the information added by a DNA test varies by animal, assuming it all has the same value (i.e., the standard approach) tends to over or underweight the information. Since ASA's system will individually assess the amount of information added by each animal's DNA test, the resulting EPDs will be more accurate.

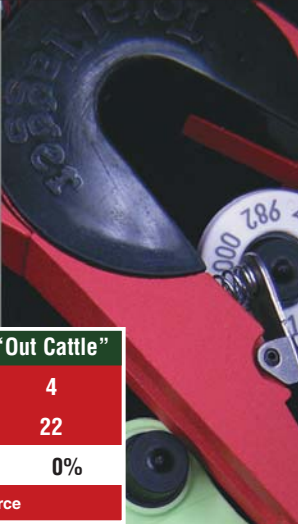
The 50K genotyping required for the test is being performed by GeneSeek. Upon completion of genotyping, results will be interpreted and incorporated immediately into an animal's EPD profile. The test is currently priced at \$90. As a bonus, the test also generates the DNA profile required for parental validation — a \$45 cost if performed separately. Contact Leoma Wells at ASA for more information on how to participate in ASA's revolutionary genetic enhancement program. ♦

Keywords: DNA test, genomics, 50K

70:70 BEEF

Marketing Grid Highlights Simmental Plan to Capture Value

The American Simmental Association and JBS SA have teamed up to offer a better approach to grid marketing with the new 70:70 value based marketing grid available now at Swift's Grand Island Nebraska and Greeley Colorado harvest facilities. This carcass pricing option offers the opportunity for producers to take advantage of significant premiums for superior Yield Grades in addition to the standard premiums for Quality Grade offered by nearly all grids. The time has come to price harvest cattle at levels that more closely reflect their actual red meat cutout value. 70:70 is a positive step in that direction. The beef industry has given significant lip service to the goal of 70:70:0 for some time because loads of cattle that produce carcasses which are 70% Choice or higher, 70% Yield Grades 1 and 2 with no or minimal "outs" make money for every segment of the production chain. The USDA publishes beef industry averages of 66:47:22, hardly getting close to meeting the needs of this business and the 22% "out" cattle, cost the beef industry and its participants hundreds of millions of dollars each year. Simmental cross steers that approach 50% Continental and 50% British genetics offer the industry's best chance to produce cattle that can achieve the goal of 70:70:0. Over 4,500 sire identified SimAngus steers fed through the American Simmental Association progeny carcass testing program average 73:65:4 and with built in heterosis and maternal value for commercial cattlemen, they make money for everyone involved in their production.




	>Ch	YG1&2	"Out Cattle"
*SimAngus	73	65	4
**Industry Avg	66	47	22
SimChoice Goal	70%	70%	0%

*Over 4,500 sire identified test steers **2009 NCBA Source

If you believe producing cattle that make 70:70 can help you and the greater beef industry be more profitable or you have interest in the new 70:70 Grid from JBS SA and American Simmental, please contact:

Mark Guge • 515-231-6849 • mguge@netins.net



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