## GE-EPDs and Genomic Trait Tests

**Genomic Enhanced Expected Progeny Differences (GE-EPDs)** – GE-EPDs are the best estimate of an animal's genetic worth as a parent. These values make use of known pedigree, performance and genomic information about an animal, its progeny and other relatives.

Adding a genomic test to GE-EPDs:

- Enhances predictability of current selection tools
- Increases EPD accuracy on young animals
- Characterizes genetics for traits where it's difficult to measure the animal's own performance (e.g., carcass traits in breeding stock or maternal traits in bulls)
- Allows EPDs to be calculated for animals that may have had blank boxes previously (e.g., single animal contemporary groups, or those without an EPD for a specific trait).

Genomic trait tests:

- Are used as indicator traits to compute EPDs (genetic correlations between the high-density genomic tests and American Angus Association's phenotypic database effectively range from .60 to .70, except for milk and heifer pregnancy).
- Provide similar amount of accuracy as if unproven animals already have 8-20 progeny.
- Include a genomic percent rank (1-100) for each trait. Though percent ranks are provided with the purchase of a genomic test, GE-EPDs are the selection tool of choice because they account for all sources of information (pedigree, performance and genomics).

Companies providing genotyping services for genomic trait tests:
Breeders have a choice regarding which company they would like to provide the genotype for their high-density genomic test. Current genotype providers are GeneSeek and Zoetis. Genotypes from both companies:

- cost the same amount
- impact the EPD by the same magnitude
- include parent verification
- allow for addition of certain genetic conditions at a reduced cost, if genetic condition testing is ordered at the same time as the genomic trait test.

Potential differences between the companies:

- Turn-around time may vary
- Additional services or products available
- Choosing Zoetis as the genotyping provider allows the opportunity for future use of the Sire Match feature of the GeneMax™ test for commercial Angus cattle.

**Importance of phenotypic performance data**
Genomic trait tests do not completely describe the genetic variation in the traits of interest. Therefore, is it still crucially important to collect weights and measures (e.g., weaning weights, carcass data, heifer breeding records) as they are an important component in EPD calculations. Additionally, phenotypic data plays a vital role in further development of improved genomic panels and the refinement of this technology over time.

For more information, please visit www.angus.org or call 816.383.5100