



By the Numbers

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Understanding EPDs and profile scores

Expected progeny differences (EPDs) have been around in plain view since the early 1980s. Now, with the arrival of genomic-enhanced EPDs for carcass traits, some confusion has surfaced regarding other descriptive values that accompany genomic profile results. This month's column provides a guide as to what to expect from EPDs in comparison with available profile scores in your AAA Login account.

What are profile scores?

The Igenity® profile scores are provided as part of the report on animals that have genomic profiles accessed through Angus Genetics Inc. (AGI) and the American Angus Association. Profile scores, located in the breeder AAA Login account, are provided in a simple categorical ranking on a 1-to-10 scale, until EPDs are available for a trait. Higher scores are simply higher values; they may not always be “best” in terms of breeder selection goals, so individual emphasis on scores will vary.

Profile scores do not predict actual phenotypes. The scores reflect the animal's genetic potential for that particular trait based on the combination of the DNA markers analyzed.

Fig. 1 illustrates the sequence of AAA Login screens that allow you to view profile

scores on individual animals through the “Work History” main menu item. By selecting “DNA Profile” for an individual animal, the individual profile scores are displayed as shown in Fig. 2.

Igenity profile scores are available on 14 traits and are generated by the genomics lab and posted as received to AGI and American Angus Association AAA Login customer accounts.

Genomic-enhanced EPDs for carcass traits

Fig. 3 shows the performance record with EPDs and profile scores. In the case of the carcass EPDs available for carcass weight, marbling, ribeye and fat, genomic results from Igenity are incorporated directly into the national cattle evaluation (NCE) along with available pedigree, ultrasound and carcass data at the Association.

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The simultaneous analysis of all these sources of information goes beyond the categorical profile scores and allows more detailed characterization of Angus cattle for use in selection decisions.

Table 1 illustrates the ability to fine-tune genetic decisions with EPDs in comparison to just using profile scores. The profile score of 7 gives a general categorization of the five bulls on a 1-to-10 scale, with the scores closer to 10 being associated with more marbling effect. However, the genomic information can be combined with their individual scan data and pedigree information to generate a comprehensive genomic-enhanced Marbling EPD and accuracy.

Fig. 1: Sequence of AAA Login screens that allow you to view profile scores on individual animals through the ‘Work History’ main menu item

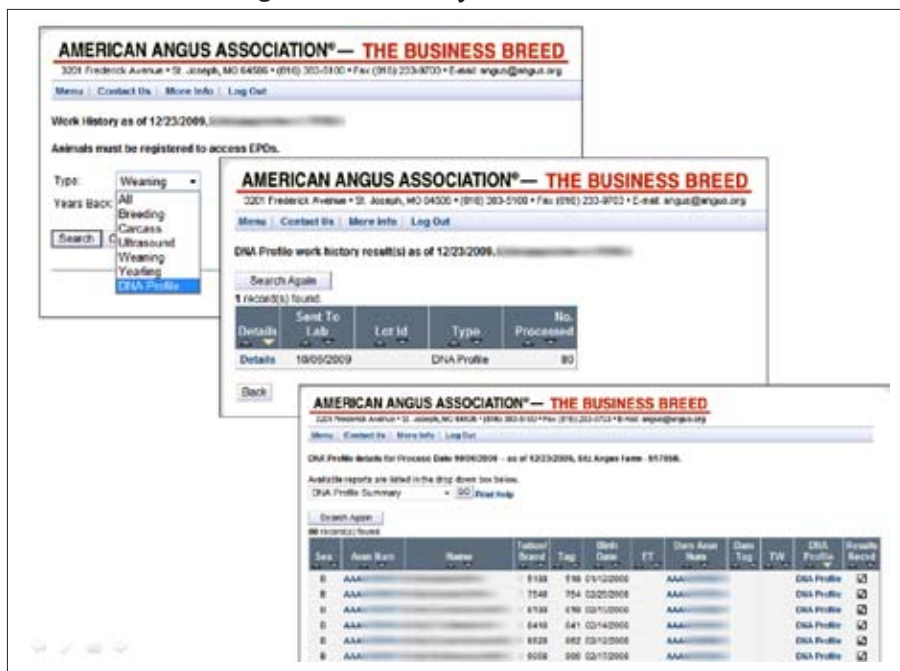


Table 1: EPDs and accuracies of bulls with same profile score

Bull	Igenity profile score	Marbling EPD	Marbling Acc
1	7	.37	.17
2	7	.30	.24
3	7	.53	.21
4	7	.32	.17
5	7	.23	.18

What if a genomic-enhanced EPD is not available?

If neither a genomic-enhanced EPD nor a classic NCE EPD is available, then profile scores should be assessed strictly as a category ranking to sort animals. If some form of an EPD is available for the trait through the Association, then the EPDs should be considered in the selection decision. For example, a profile score is available for yearling weight (YW); however, an NCE EPD

