

GENOMICS HAVE ARRIVED FOR CCA GENETIC EVALUATION

The initial EPD run which includes Genomics has now been provided by Angus Genetics Inc. (AGI), our genetic evaluation service provider. AGI used the Spring 2018 EPD pedigree and performance dataset and added information from DNA test results via the Single Step Method (SSE) to each animal in the CCA database that had been genotyped. The new EPDs have been evaluated and Genomics will be added to the CCA July EPD run.

Terms:

EPD – Animals that have not been Genomic tested.

GEPD – Animal that have been Genomic tested

EVALUATION OF GENOMICS:

Table 1. Number of genomically tested animals in the genetic evaluation and a comparison of EPD accuracy and EPD changes between the Spring 2018 and SSE evaluations.

| Trait | Number | Accuracy | | Change in EPD | | |
|-------|--------|----------|-------------|---------------|---------|---------|
| | | SSE | Spring 2018 | Average | Minimum | Maximum |
| CE | 1081 | 0.36 | 0.22 | 0.34 | -5.7 | 6.80 |
| BW | 1365 | 0.65 | 0.40 | 0.07 | -4.7 | 3.8 |
| WW | 1365 | 0.42 | 0.25 | 0.42 | -13.5 | 17.8 |
| YW | 1365 | 0.33 | 0.18 | 0.51 | -25.1 | 31.8 |
| MILK | 1365 | 0.25 | 0.14 | -0.04 | -8.5 | 10.2 |
| CWT | 1365 | 0.16 | 0.10 | 0.2 | -12.0 | 13.0 |
| REA | 1365 | 0.17 | 0.08 | 0.01 | -0.26 | 0.32 |
| Fat | 1365 | 0.16 | 0.10 | 0.00 | -1.03 | 1.55 |
| Marb | 1365 | 0.15 | 0.07 | -0.01 | -1.26 | 1.54 |
| LY* | 1365 | | | 0.00 | -1.29 | 0.87 |

* Lean Yield (LY) is a composite trait and thus does not have an associated accuracy value.

ACCURACY

Table 1 shows that accuracies for the genomically tested animals increased for all traits, but especially for BW +.25, WW +.17, YW +.15, and CE +.14. These results are as good as or better than expected and will be a valuable improvement to the accuracy of EPDs. All accuracy improvement will not be the same as genomically tested animals with no progeny will in most cases, show more improvement. Animals that have more progeny already have higher accuracies and will in most cases, show less improvement. For example, animals with no progeny changed on average from EPD accuracy of .31 to GEPD .61 for birth weight, a change of +.30 while animals with an average of twenty progeny changed from EPD .56 to GEPD .73, a change of +.17. Similar results for weaning weight, animals with no progeny moved from EPD accuracy of .19 to GEPD .38, a change of +.19 and animals with twenty progeny moved from accuracy of EPDs .43 to GEPD .53 a change of +.10.

The greatest benefit for breeders to have genomics added to EPD evaluations, will be the evaluation of young animals before they have progeny.

CHANGE IN EPDs

The results in Table 1 show less than 1% change in EPD value for genomically tested animals across all traits. Most animals GEPDs will be close to their current EPD however, for some individual animals there will be a significant change. This is to be expected as whenever there is a change in information such as the addition of genomics or progeny, changes occur. Genomics adds significantly more information. Table 1 shows the Minimum and Maximum changes experienced by the 1365 genomic tested animals in this evaluation. Animals that have not been genomic tested will likely not experience much change in their EPDs however if their parents, grandparents, contemporaries or progeny have been genomic tested and have changed significantly in a trait, there will be some impact.

Another way to look at Genomics is to equate it to progeny equivalents. Table 2 below shows the approximate number of progeny required to have the same information from a genomic test.

Table 2. Progeny records roughly equivalent to the information provided from a genotype test in the SSE. Milk equivalents are expressed as grand progeny from daughters. Carcass traits are expressed as ultrasound record equivalents.

| | Progeny Equivalents |
|-------------|----------------------------|
| CE | 10 |
| BW | 25 |
| WW | 15 |
| YW | 8 |
| Milk | 10 |
| REA | 6 |
| Fat | 6 |
| Marb | 6 |

BREEDER ACTION

Plan to genomic test your bulls and significant females as young as practical.

Genomics is a valuable new tool to significantly improve evaluation of animals, improve selection decisions and speed breed progress.

The above EPD evaluation was submitted by AGI and the Tables and data above supplied by Sean McGrath

Prepared by Doug Blair July 06 2018 Draft