Where we have been and what lies ahead!

Presented below is an overview of recent advancements in livestock breeding as presented by researchers from the Animal Genetics and Breeding Unit (AGBU, UNE) at the AAABG Conference Perth 2023. The rise of genomics is presented as a major turning point and further advancements could change the structure of these genetic industries forever.

1

SINGLE-STEP BREEDPLAN DELIVERS INCREASED ACCURACIES ACROSS ALL EBV'S AND BREEDS

The results of this validation study showed genotyped animals had higher prediction accuracy with single-step EBVs than with pedigree-based accuracies for all breeds and traits. This study has shown the benefits of single-step genomic evaluations, and the opportunity to increase rates of genetic progress.

2

NEW BREEDPLAN EBV TO ALLOW SELECTION TO IMPROVE COW SURVIVAL

This study presents a new method to describe body composition in lactating cows. Developing a new BREEDPLAN EBV to describe the genetic difference in body composition for breeding females could provide an indirect means for selection to improve cow survival.

3

REMODELLING THE GENETIC EVALUATION FOR NET FEED INTAKE (NFI)

The NFI phenotype currently used in BREEDPLAN is based on a 70-day test period, but this protocol is currently costly and time prohibitive. Recent test results suggest that genetic NFI EBV's can be obtained from daily feed intake records combined with BREEDPLAN live weight traits, providing opportunities for shorter test lengths and cost reductions per animal in recording NFI.

4

VALIDATION OF CALVING EASE EBVS

Calving difficulty scores are challenging to analyse due to low frequency of difficult births. Improvements in the accuracy of prediction were observed when genomic information was included using single-step genomic BLUP.

5

NEW MODULE FOR PREDICTING REPRODUCTIVE TRAIT EBVS

The aim of this study was to develop a genetic module to predict reproductive performance by using mating outcomes from AI (artificial Insemination), NAT (natural mating) in females and scrotal circumference (SC) in males. The study concluded benefits from the inclusion of AI data and by modelling parities as different traits.

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Full conference proceedings for the 2023 AAABG conference are also available. Downloaded here:

230710-AAABG-Proceedings-2025-FINAL.pdf (aaabgconference.com.au)

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"BREEDPLAN: Accelerating genetic progress in beef cattle since 1985

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