

Contributed paper

POPPLEWELL TROPICAL BEEF COMPOSITE BREEDING PROGRAM UPDATE

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INTRODUCTION

Popplewell Composites was founded in 2007 as a tropically adapted beef seed-stock company with the goal of breeding genetics that improved their bull customers' profitability. The breeding program was started by assembling proven performance genetics from foundation lines of adapted *Bos taurus* both British and European, and *Bos indicus* breeds with a focus on naturally polled genetics. Over a decade of performance recording and objective selection, genotyping every animal and GBLUP analysis since 2016, has now been applied to make the herd a world leading genetic resource for Tropical Composites. In 2022, over 280 breeding bulls will be distributed into Multiplier tiers and long term commercial customers.

BREEDING PROGRAM OVERVIEW AND UPDATE:

The program is focussed on advanced Genomic Evaluation and an intensively recorded nucleus tier run in the Sunshine Coast Hinterland, Queensland Australia. The environment there is similar to tropical Brazil with high rainfall, C3 and C4 grasses, and parasite challenges from Buffalo Fly and Cattle Tick. Yearling bulls bred from the Nucleus are used to supply multi-property customers with multiplier tier sires as well as a customer base of progressive family business commercial breeders, all in Northern Australia.

In partnership with Hicks Beef in New South Wales, sexed semen technology is also used to create F₁ Adapted *Bos taurus* x British-European bulls in large quantities. Using Popplewell sires and Hicks dams, both selected using Genomics, F₁ 'Pathfinder®' Line bulls are being supplied on mass to customers to use over *Bos indicus* females for wholesale change to Northern Australian beef production.

With our Bull product offering combining breed change, planned heterosis and the benefits of our additive genetic progress, customers are experiencing up to 30% increases in calving rate, rapid increase in proportion of polled (no horn) calf phenotypes and increased marketability of their cattle into meat quality focused supply chains.

In collaboration with The University of Adelaide's Davies Livestock Research Centre and 3D Genetics (Wagyu), we have developed customised and automated genomic evaluation processes badged GenoRater™. These processes include GBLUP, SNP BLUP, Genomic Parentage and interpretation of Genes of Interest (GOI) from raw Genotype files. Information is stored and evaluated on a 'super computer' server, allowing fast seamless analysis, as well as secure storage of large volumes of data including Whole Genome Sequences.

Since 2007 significant additive genetic gain has been made by the Popplewell Composites program in fertility, carcass and adaptation traits. Introgression of favourable Poll and Slick Coat genes has also been progressing well. Trends will be reported at our AAABG online presentation in November 2021, which will be available via AAABG as well as stored after on our web site Popplewell.com.au