

was higher than the accuracy of 0.14 reported by Zhang *et al.* (2014) when the trait was defined exclusively in cows which had successfully weaned a calf from their first annual mating. Given the high inputs in management, operator expertise and therefore cost associated with accurate measurement of lactation anoestrous, the opportunity to evaluate the trait using genomic technologies is particularly attractive. The results of this study show that by expanding the definition of the trait to include data from cows whose first lactation was from their second annual mating, the accuracy of genomic breeding values was increased by a factor of almost 60%.

CONCLUSIONS

Lactation anoestrous is an important determinant of reproductive performance in northern Australia's Brahman cattle population. Results of this study have shown that expanding the definition of the trait to include results from cows whose first lactation was from their second annual mating, increased the number of records available for analysis while not significantly changing heritability for the trait. A genome wide association study showed that more significant SNPs were identified for LAI12 than were found for LAI. Importantly, the accuracy of genomic breeding values estimated for LAI12 were also significantly higher than those estimated for LAI. Lactation anoestrous is a difficult and time consuming trait to measure accurately, particularly under the extensive conditions which prevail in northern Australia. As more data becomes available for the trait from research, beef information nucleus and seedstock herds, genomics will provide opportunities to improve lactation anoestrous in Brahman cattle by selection.

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