Brahman BIN Projects Update

The Australian Brahman Progeny Test Project is a large scale sire progeny testing project for Brahman cattle and is coming to an end. The Progeny Test Project has been conducted by the Australian Brahman Breeders' Association with funding assistance from the Meat & Livestock Australia Donor Company under the Beef Information Nucleus (BIN) program. A total of 75 Brahman sires were joined either by AI or natural mating to a commercial cow base over three years in three co-operator herds; Banana Station, Banana, Baradoo Station, Bauhinia and CSIRO Belmont, Rockhampton. All calves bred at Banana Station and Baradoo were by AI, while both AI and "back-up" bulls were used at CSIRO Belmont.

The female progeny from Belmont were transferred to Banana Station and run with the Banana Station heifers, while the Baradoo heifers remained at Baradoo to produce progeny which are managed commercially as one cohort and measured for a range of economically important traits. All steer progeny were transferred at weaning to Banana Station, where they were run together and finished on grass to Jap Ox weight. The high quality performance data provides head-on-head comparison between the young and proven sires progeny which is analysed in the Brahman BREEDPLAN analysis.

Performance data has been collected on 844 steers and 949 heifers for the Brahman BREEDPLAN traits for weight, carcase scanning and flight time. Structural soundness assessments were also conducted on these animals. Steers and heifers were scanned for rib fat, rump fat and eye muscle area (EMA). The female progeny have been retained in the project for their first two calves with joining information to be submitted to BREEDPLAN for use in the calculation of Days to Calving EBVs. Heifers from the first two cohorts have had the opportunity to have two calves and joining data has been submitted to BREEDPLAN. The third and last cohort is currently being mated for the second joining. All females were joined for 12 weeks in each of the matings during the project on both Banana and Baradoo.

Full MSA chiller assessments have also been conducted on the carcases of all the 844 steers from the three cohorts. Meat samples from all of these carcases have been analysed by the UNE meat science laboratory for tenderness, cooking loss, meat colour and intramuscular fat percentage (IMF%). The tables below allow a look at some of the results from the data collected on the steers for carcase traits.

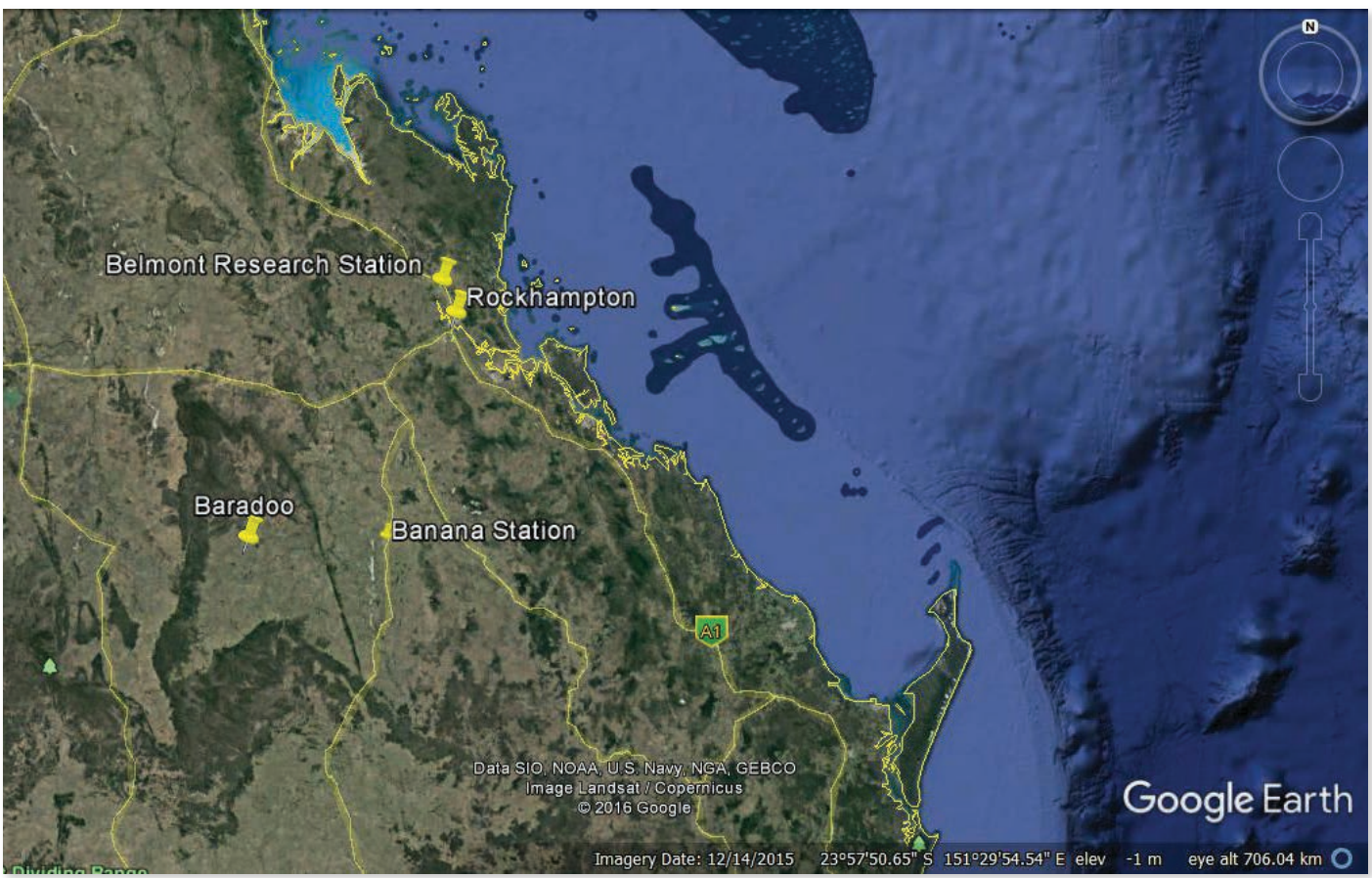

Figure 3. Frequency distribution of F3 Wagyu cross animals

Table 1: Summary of Brahman BIN Slaughter Data

Group	Number	Age (Days)	CarcWt (kg)	P8 Fat (mm)	Rib Fat (mm)	EMA (sq.cm)
1	96	1013	322	11	7	81
2	141	1011	317	13	7	-
3	120	941	326	12	8	80
4	171	951	313	13	7	77
5	119	942	314	12	7	65
6	197	938	310	12	7	65
Totalw	**844**	**962 (903 to 1045)**	**316 (253 to 383)**	**12 (2 to 30)**	**7 (1 to 20)**	**73 (44 to 107)**

The slaughter data results are presented in Table 1 and summarise the average for age, carcase weight, fats and EMA over the six slaughter groups. Steers in groups one and two were slaughtered in 2014, groups three and four in 2015 and groups five and six in 2016. The steers were turned off at a younger age in the last two years while maintaining very similar fat cover and carcase weight across the six groups. There was large variation in all of the carcase traits, with carcase weight at slaughter varying by 130 kg, P8 fat varying by 28 mm and Eye Muscle Area varying by 63 cm2.

The top five sires had an average Carcase Weight EBV of 38.0 kg and the bottom five sires had an average Carcase Weight EBV of 18.8 kg (Table 2) as young bulls. As the expected average progeny difference is equal to half of the difference in EBVs between the two sire groups (e.g. expected average progeny difference = 19.2/2), the expected average progeny difference between these two groups is 9.6 kg. Analysis of progeny carcase weight for the top five sires (carcases averaging 334 kg) and bottom five sires (carcases averaging 294 kg) shows that there was an observed average difference of 40 kg in carcase weight between the progeny of these two groups of sires (Table 2). In this case the difference in the EBVs of the top five and bottom five sires significantly underestimated the differences in the carcase weights of the progeny.

Table 2: Top five sires and bottom five sires for Carcase Weight with more than 10 progeny

Sire	N	Weight	EBV
ELROSE YOU BET	10	340	34
LANCEFIELD AMBITION	11	337	40
BUNGOONA CORBEN MANSO	17	332	46
SHA ANN WISE N UP	11	331	34
LORIMAR PARK EXODUS	11	330	36
.....	...	...	...
LANCEFIELD BURTON MANSO	10	301	26
PBF AUSTIN MANSO	11	300	24
CBV TOM RABIDO	13	294	11
RAGLAN MR JOSHUA	13	291	19
FBC D MONDO MANSO	11	286	14

Table 3: Top five sires and bottom five sires for Shear Force with more than 10 progeny

Sire	N	Weight	EBV
LANCEFIELD MADIGAN	13	3.9	-0.24
BATANDRA NEVADA	16	4.0	-0.40
LANCEFIELD S BUCHANAN	15	4.0	-0.09
BATANDRA TOBY	11	4.0	-0.04
CBV 10-8194 TOM RABIDO	13	4.1	-0.25
...	...	...	...
GARGLEN DIGGER	10	5.4	0.24
FAIRY SPRINGS RED LEADER	10	5.5	0.32
ROCKLEY MANCHESTER	16	5.5	0.11
LANCEFIELD AMBITION	11	5.7	0.08
SAMARI PLAINS LUKE	15	5.8	0.76

Shear Force, a measure of tenderness, is measured using the Warner-Bratzler shear force test. The unit of measurement is kilograms of force needed to shear a 1 cubic centimetre muscle sample. The top five sires had an average Shear Force EBV of -0.2 kg and the bottom five sires had an average Shear Force EBV of +0.3 kg (Table 3). The average shear force measurement for the progeny of the top five sires was 4.0 kg while the progeny of the bottom five sires averaged 5.6 kg (Table 3). In this case the expected average progeny difference was 0.25 kg in shear force, while the observed progeny difference was actually 1.6 kg of shear force.

This is just a snapshot of some of the carcase trait results from the Brahman Progeny Test Project. The reason that the young bull EBVs for carcase weight and shear force underestimated the measured differences in their progeny is most likely because they were based on very little actual carcase data for relatives and were therefore very low accuracy. Even with the lack of actual data behind the young bull EBVs they were able to predict the high and low performing progeny for these traits.

For more information on the Brahman Progeny Test Project please contact Paul Williams from Tropical Beef Technology Services (TBTS) on 0427 018 982 or via email paul@tbts.une.edu.au.