



TransTasman Angus Cattle Evaluation

MSA Marbling

RESEARCH BREEDING VALUES

AUGUST 2024

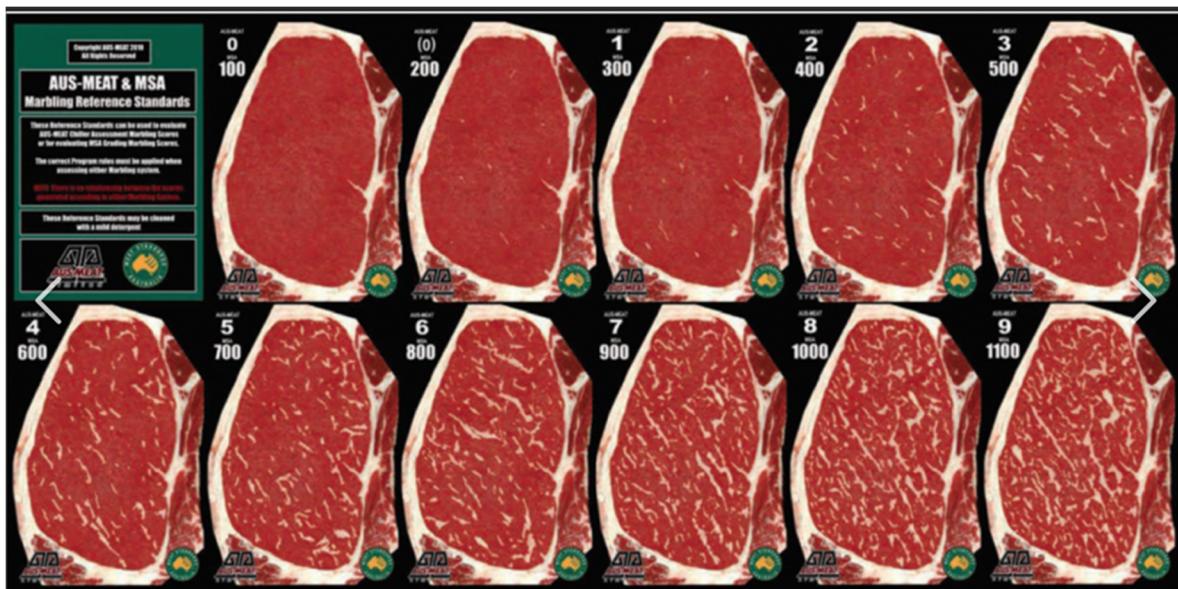
BACKGROUND

Angus Australia has partnered with the Animal Genetics and Breeding Unit (AGBU) and the Agricultural Business Research Institute (ABRI) to undertake research into the genetics Meat Standards Australia (MSA) Marbling Score in Australian Angus Cattle.

MSA Marbling Score, being the subjective visual assessment of intramuscular fat at the chilled carcass grading site, has been identified as a trait of importance, particularly as it is related to Angus carcass value and consumer eating experience. It is also the commercially recognised method for describing marbling in the national grading system, MSA.

As a result of this collaborative research, MSA Marbling Score RBVs are now routinely analyzed every two weeks in the TransTasman Angus Cattle Evaluation (TACE). To underpin this analysis, MSA marbling scores are utilised from both member collected data and from progeny in the Angus Sire Benchmarking Program. Angus animals, mostly steers, that are MSA graded between 300 and 1000 days of age at slaughter are included in the analysis.

MSA Marbling scores are collected using the industry standard 100 – 1100 scoring system (with increments of 10 score unit). A score of 100 indicates no/minimal marbling and a score of 1100 indicates abundant marbling. Along with the amount of marbling, the scores also take into account distribution and size of fleck (i.e. coarse or fine marbling).



Study of the Angus Australia data by AGBU has demonstrated that a significant portion of the differences in the MSA marbling score of individual animals can be attributed to genetics, having a high **heritability of 0.54**. The study also estimated the genetic correlation between MSA marbling score and a wide range of production traits included in the multi-trait analysis model utilized in TACE (from the BREEDPLAN program). As expected, the genetic correlations with carcass IMF, bull ultrasound scan IMF and heifer ultrasound scan IMF had the strongest relationship of 0.80, 0.35 and 0.35 respectively.

From this collaborative research it is now possible to generate breeding values for MSA Marbling Score and select animals for use within Angus breeding programs with desirable genetics for this trait. This is underpinned by a large and growing reference population of MSA Marbling Scores ($n>10,000$ as of May 2023), coupled with genomic and pedigree data.

UNDERSTANDING THE RESEARCH BREEDING VALUES

MSA Marbling Research Breeding Values (RBVs) are provided in this publication for sires with (i) at least 50% accuracy for their MSA Marbling RBV, and (ii) one or more progeny born in the last two years.

MSA Marbling Score (MMS) RBVs are estimates of genetic differences between animals in MSA marbling score at the 12/13th rib grading site in a 400 kg steer carcase.

MMS RBVs are calculated from MSA marbling scores (taken by a trained/accredited carcase grader), pedigree, genomics and correlated traits (e.g. Carcase IMF, bull and heifer ultrasound scan IMF). MMS EBVs are expressed in MSA marbling score units.

Higher, more positive MMS RBVs indicate the animal is expected to produce progeny with higher marbling scores in a 400 kg steer carcase.

USING THE RESEARCH BREEDING VALUES IN SELECTION

The Research Breeding Values in this publication enable Angus breeders to select animals with desirable genetics for MSA marbling score, balanced with selection for other traits of importance within their breeding objective.

It is important to note that the Research Breeding Values are subject to greater potential change than EBVs routinely reported as part of the TransTasman Angus Cattle Evaluation (TACE) and should be used with caution in animal selection decisions.

Research Breeding Values may change as improvements are made to the analytical models that are used, and as additional performance information is collected.

ACKNOWLEDGEMENTS

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Angus Australia also acknowledges Meat and Livestock Australia (MLA) for the related R&D funding supplied to AGBU and Angus Australia for the ASBP. Also, for overseeing the MSA grading system, including the collection of MSA marbling scores in the ASBP, particularly through the grading by Janie Lau.

DISCLAIMER

The Research Breeding Values contained within this publication were calculated from data supplied to Angus Australia by members and/or third parties. Whilst every effort is made to ensure the accuracy of the data, Angus Australia, its officers and employees, assume no responsibility for the accuracy of the RBVs, nor the outcome (including consequential loss) of an action taken based on the information presented in this publication.

Angus Australia - MSA Marbling Research Breeding Values

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Ident	Name	MSA MBL RBV		Calv-Ease		Birth		Growth			Maternal		Fert		Carcase						Feed	Temp	Structural			Selection Index	
Sire Dam	Reg.			Dir	Dtrs	GL	BW	200	400	600	MCW	Milk	SS	DC	CW	EMA	Rib	P8	RBY	IMF	NFI-F	Doc	Claw	Angle	Leg	\$A	\$A-L
LEJ21S102	WALLAWONG SAFE & SOUND	+138		+6.5	+3.3	-6.2	+4.5	+49	+86	+111	+92	+18	+2.0	-2.9	+64	+6.8	-1.3	-1.4	+0.6	+4.1	+0.41	+13	+0.58	+0.76	+1.12	\$209	\$348
NJWN498	HBR	70%		73%	60%	92%	90%	89%	85%	85%	82%	76%	80%	44%	75%	70%	71%	72%	63%	74%	62%	84%	68%	68%	65%		
ASHL24		11		15	48	23	62	61	67	67	66	40	54	85	62	44	77	68	41	12	71	78	7	9	77	43	51
QKBP29	WARRAWEE PATROL P29 PV	+46		+6.8	+10.8	-12.0	+3.1	+55	+104	+139	+132	+19	+2.2	-9.3	+99	+9.2	+3.5	+1.8	+0.4	+1.8	+0.75	+28	+0.82	+1.20	+1.00	\$266	\$477
SMPG357	HBR	84%		79%	70%	96%	94%	93%	91%	90%	88%	82%	87%	64%	86%	84%	84%	85%	78%	86%	78%	88%	77%	78%	73%		
QKBM01		71		13	1	1	30	31	19	13	12	34	47	1	2	20	3	17	53	61	93	21	45	92	40	3	1
NWPG188	WATTLETOP FRANKLIN G188 SV	+9		+4.1	+6.4	-4.4	+2.3	+64	+109	+141	+116	+25	+3.8	-3.4	+83	+1.1	-1.4	-2.2	-0.2	+0.5	-1.20	+32	+1.10	+0.96	+0.96	\$190	\$354
USA15462648	HBR	93%		96%	87%	99%	99%	98%	98%	98%	98%	98%	98%	77%	96%	95%	95%	95%	93%	94%	88%	97%	96%	96%	94%		
NWPE295		92		34	16	50	17	6	10	12	28	6	8	78	13	95	79	80	84	90	1	11	91	47	28	64	46
CWDJ17	WEATHERLY JAMES J17 SV	+124		-3.7	-3.9	-3.2	+6.0	+49	+83	+110	+117	+3	+1.4	-4.1	+65	+8.4	+1.1	+2.3	+1.1	+3.4	-0.01	+5	+0.86	+1.24	+1.04	\$195	\$327
BNAD145	HBR	90%		79%	72%	93%	93%	92%	92%	93%	89%	87%	86%	67%	90%	89%	89%	90%	85%	91%	84%	87%	87%	87%	81%		
CWDF14		17		88	94	69	87	59	75	69	27	99	75	63	57	27	25	13	16	22	26	96	54	95	53	60	67
CWDM5	WEATHERLY MOXY M5 SV	+52		+3.7	+7.3	-4.6	+4.0	+55	+98	+131	+114	+28	+2.6	-5.7	+89	+7.3	+2.3	-0.5	+0.6	+2.3	+0.19	+20	+0.96	+1.04	+0.94	\$229	\$396
SMPG357	HBR	80%		79%	68%	93%	95%	94%	94%	94%	93%	89%	89%	60%	85%	83%	84%	84%	79%	84%	72%	91%	91%	91%	82%		
CWDJ15		66		38	10	46	50	29	32	25	31	3	32	26	7	38	10	52	41	47	47	50	73	67	23	22	15
Breed Average EBVs		+74.		+1.8	+2.7	-4.4	+4.0	+51	+92	+119	+102	+17	+2.2	-4.6	+67	+6.4	+0.0	-0.3	+0.5	+2.3	+0.22	+21	+0.84	+0.97	+1.02	+200	+344

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