Lessons from the
Angus Sire Benchmarking Program

EBVs RELIABLY PREDICT PROGENY PERFORMANCE

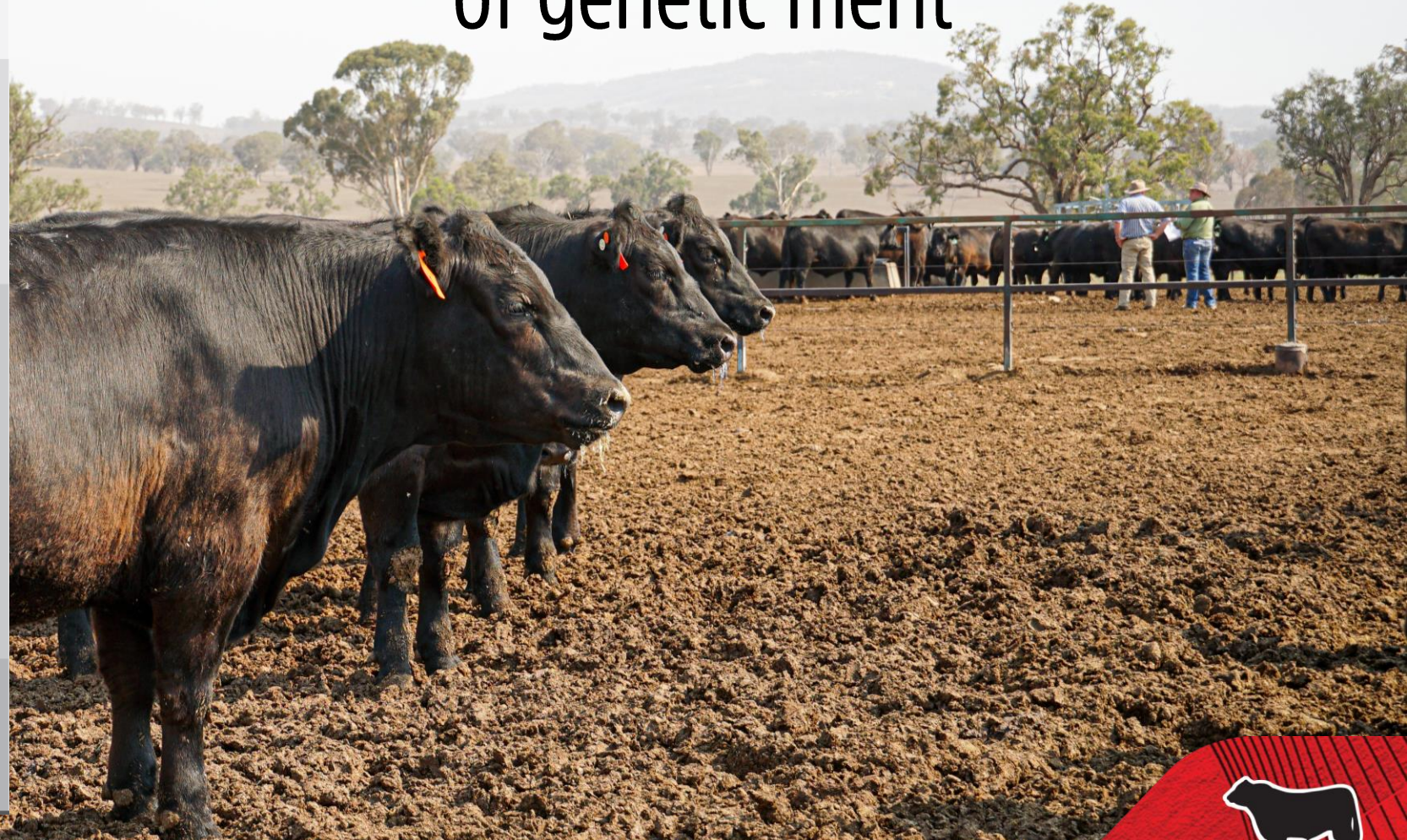# How well did the EBVs of bulls entered in the ASBP predict the performance of their progeny?

Trait	Expected Difference	Actual Difference
Birth Weight	1.9 kg	1.5 kg
Gestation Length	2.8 days	2.7 days
200 Day Weight	8.7 kg	8.6 kg
400 Day Weight	14.6 kg	14.2 kg
600 Day Weight	21.1 kg	19.9kg
Carcase Weight	15.4 kg	13.4 kg
Carcase Rib Fat	1.8 mm	1.8 mm
Carcase Rump Fat	2.0 mm	0.9 mm
Carcase EMA	$3.3cm^2$	$2.6cm^2$
Carcase IMF	1.3%	1.5%
DTC	2.2 days	1 days
NFI-F	0.3 kg/day	0.2 kg/day

EBVs provide an accurate prediction of genetic merit

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Project Design

Birth Weight Example

ASBP Cohort Sires

Highest 10 Bwt EBV Sires

Lowest 10 Bwt EBV Sires

Bred to

Avg. EBV = +6.4 kg

Avg. EBV = +2.4 kg

> EBV Difference
> = 4 kg
>
> = 2 kg difference expected
> in progeny

ASBP Cooperator herds

Progeny Avg. of
Highest 10 Bwt EBV Sires = 34 kg

Progeny Avg. of
Lowest 10 Bwt EBV Sires = 32 kg

> Performance of progeny
> Difference = 2 kg
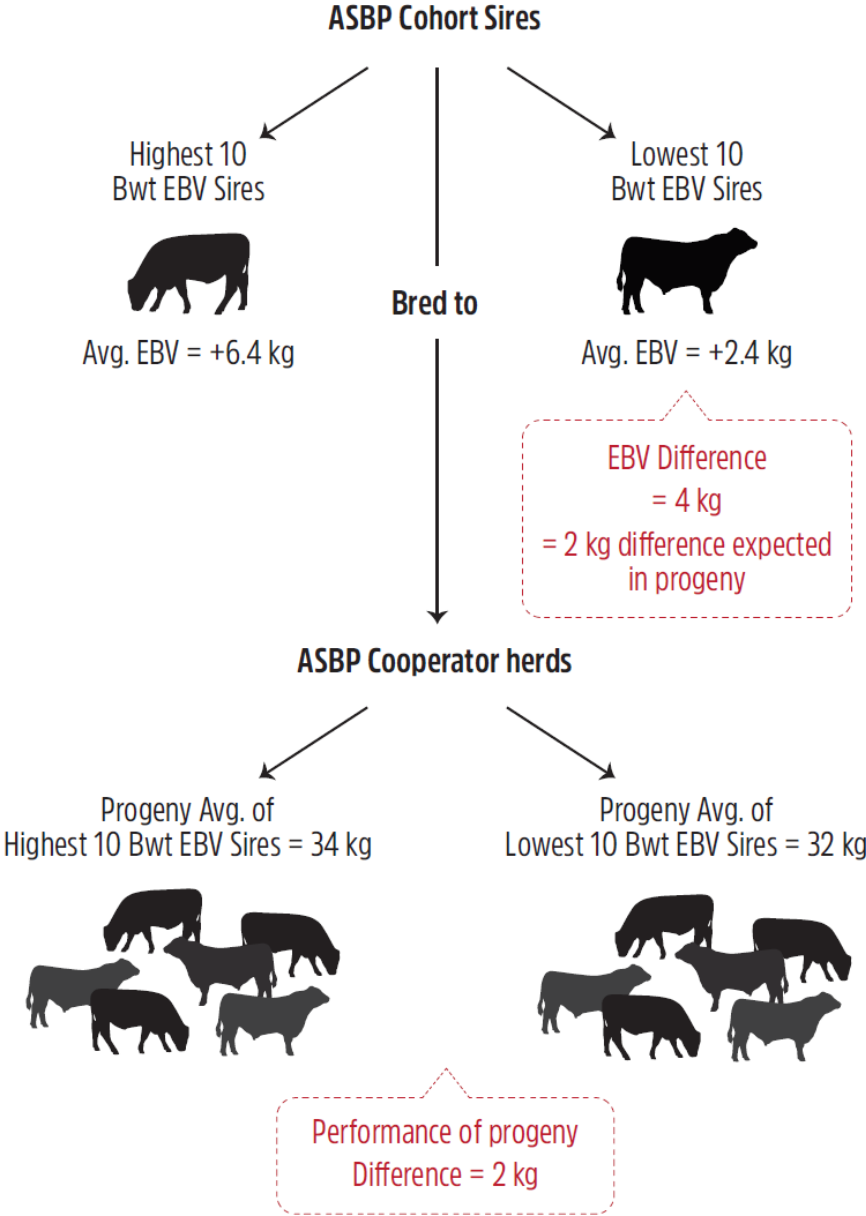
Predicted (EBV) vs Actual (LSM) – Birth Traits

Birth Weight	Cohort 5	Cohort 6	Cohort 7	Average
Average High EBV	6.1 kg	6.7 kg	6.0 kg	6.3 kg
Average Low EBV	2.6 kg	2.7 kg	2.4 kg	2.6 kg
Difference in EBV	3.5 kg	4.0 kg	3.6 kg	3.7 kg
Expected Difference (EBV)	1.8 kg	2.0 kg	1.8 kg	1.9 kg
Average High LSM	38.5 kg	38.3 kg	38.4 kg	38.4 kg
Average Low LSM	37.3 kg	36.3 kg	37.1 kg	36.9 kg
Actual Difference (LSM)	1.2 kg	2.0 kg	1.3 kg	1.5 kg

Birth Weight (kg)
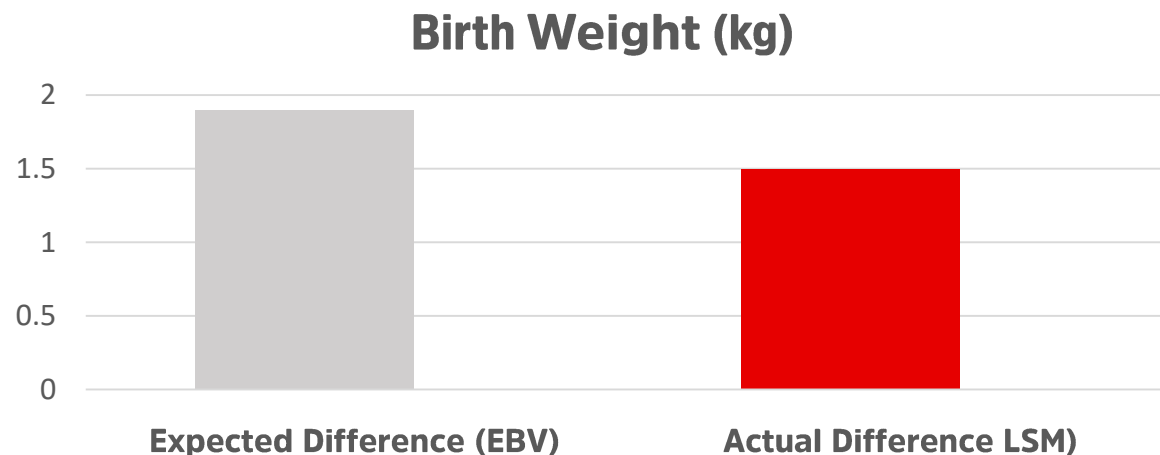
Predicted (EBV) vs Actual (LSM) – Birth Traits

Gestation Length	Cohort 5	Cohort 6	Cohort 7	Average
Average High EBV	-1.5 days	-2.2 days	-2.7 days	-2.1 days
Average Low EBV	-8.3 days	-7.9 days	-7.0 days	-7.8 days
Difference in EBV	6.8 days	5.7 days	4.3 days	5.6 days
Expected Difference (EBV)	3.4 days	2.9 days	2.2 days	2.8 days
Average High LSM	280.9 days	281.1 days	281.4 days	281.1 days
Average Low LSM	277.7 days	278.7 days	278.8 days	278.4 days
Actual Difference (LSM)	3.3 days	2.3 days	2.6 days	2.7 days

Gestation Length (Days)

Expected Difference (EBV)   Actual Difference LSM)
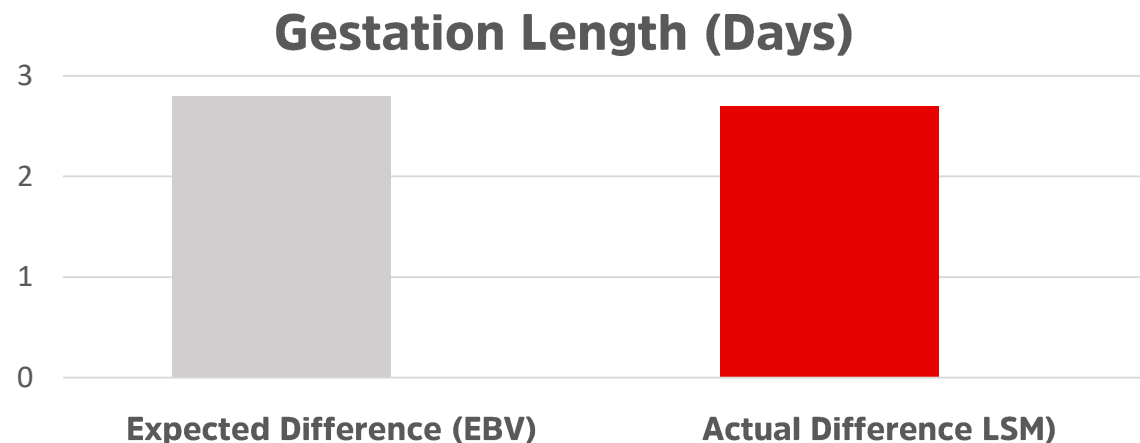
Predicted (EBV) vs Actual (LSM) – Growth Traits

	200 Day Weight	400 Day Weight	600 Day Weight
Average High EBV	56.7 kg	103.3 kg	137.7 kg
Average Low EBV	39.4 kg	74.2 kg	95.6 kg
Difference in EBV	17.3 kg	29.1 kg	42.1 kg
Expected Difference (EBV)	8.7 kg	14.6 kg	21.1 kg
Average High LSM	233.4 kg	366.3 kg	593.8 kg
Average Low LSM	224.8 kg	352.1 kg	573.8 kg
Actual Difference (LSM)	8.6 kg	14.2 kg	19.9 kg

Growth traits (kg)
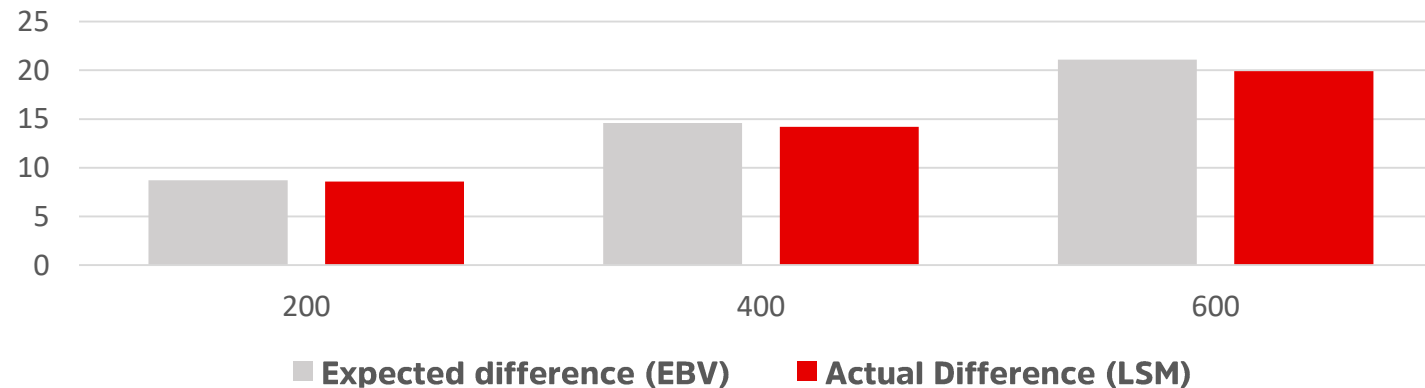
Predicted (EBV) vs Actual (LSM) – Carc. Composition

|	Carcase Weight	Carcase EMA	Carcase IMF
Average High EBV	82.3 kg	10.0 cm²	3.6 %
Average Low EBV	51.4 kg	3.3 cm²	0.9 %
Difference in EBV	30.8 kg	6.7 cm²	2.6 %
Expected Difference (EBV)	15.4 kg	3.3 cm²	1.3 %
Average High LSM	431.5 kg	91.2 cm²	9.5 %
Average Low LSM	418.1 kg	88.6 cm²	8 %
Actual Difference (LSM)	13.4 kg	2.6 cm²	1.5 %
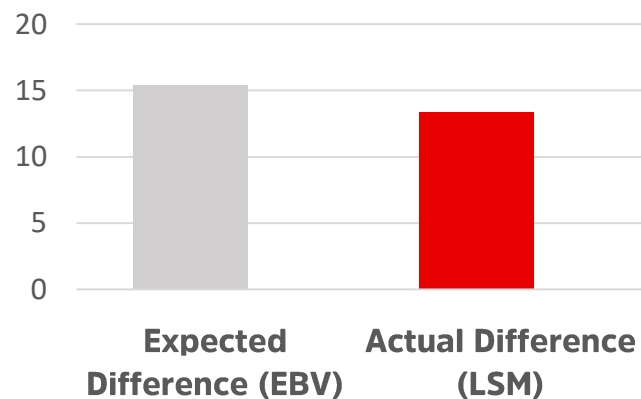
Carcase Weight (kg) — Carcase EMA (cm²) — Carcase IMF (%) bar charts comparing Expected Difference (EBV) and Actual Difference (LSM)
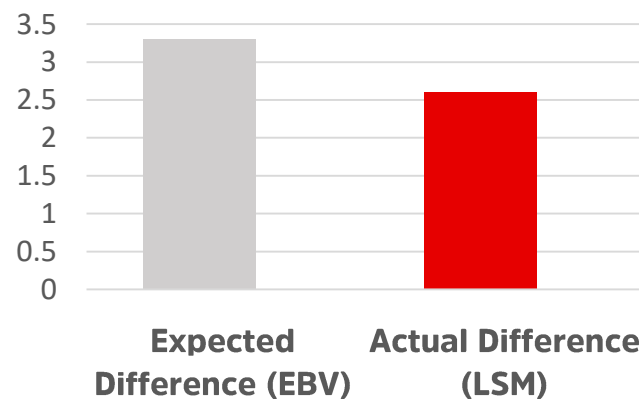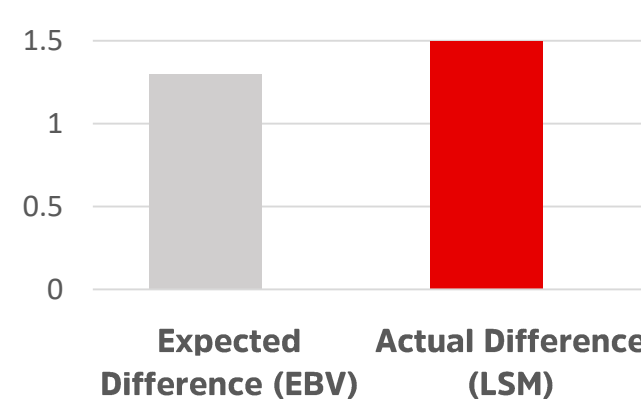
Predicted (EBV) vs Actual (LSM) – Carc. Composition

	Carcase Rump Fat	Carcase Rib Fat
Average High EBV	1.8 mm	1.9 mm
Average Low EBV	-2.2 mm	-1.8 mm
Difference in EBV	4.0 mm	3.7 mm
Expected Difference (EBV)	2.0 mm	1.8 mm
Average High LSM	20.7 mm	16.1 mm
Average Low LSM	19.8 mm	14.3 mm
Actual Difference (LSM)	0.9 mm	1.8 mm

Carcase Rib Fat (mm)

Expected Difference (EBV): 1.8
Actual Difference (LSM): 1.8

Carcase Rump Fat (mm)

Expected Difference (EBV): 2.0
Actual Difference (LSM): 0.9
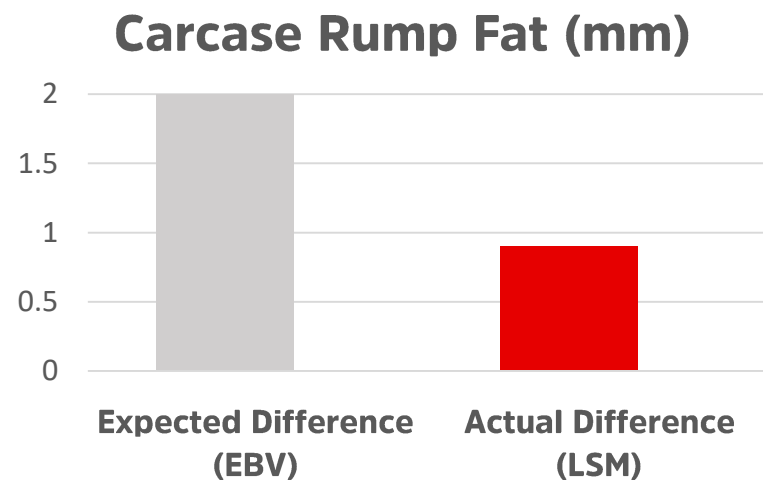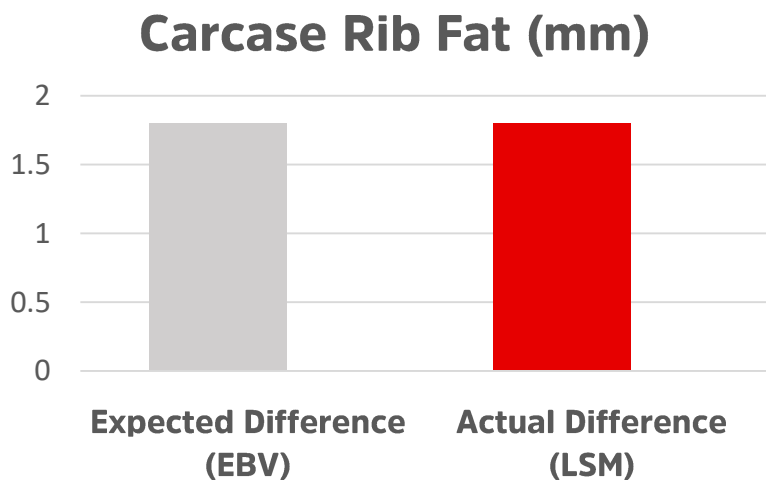
Predicted (EBV) vs Actual (LSM) – Fertility Traits

Days to Calving	Cohort 5	Cohort 6	Cohort 7	Average
Average High EBV	-1.3 days	-2.5 days	-3.5 days	-2.4 days
Average Low EBV	-6.6 days	-6.5 days	-7.8 days	-6.9 days
Difference in EBV	5.3 days	4.0 days	4.3 days	4.5 days
Expected Difference (EBV)	2.7 days	1.9 days	2.1 days	2.2 days
Average High LSM	302 days	298 days	305 days	301 days
Average Low LSM	302 days	298 days	308 days	302 days
Actual Difference (LSM)	0 days	0 days	3 days	1 days

Days to Calving (Days)
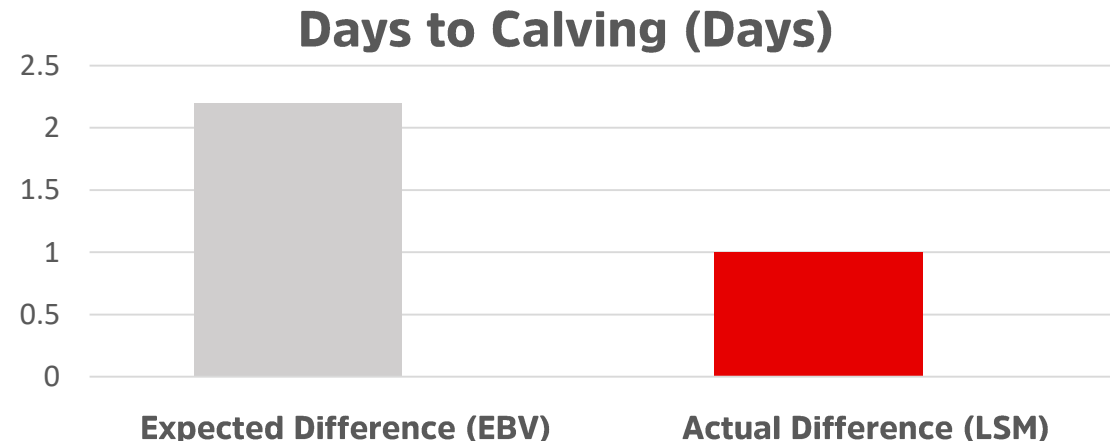
Predicted (EBV) vs Actual (LSM) – NFI-F

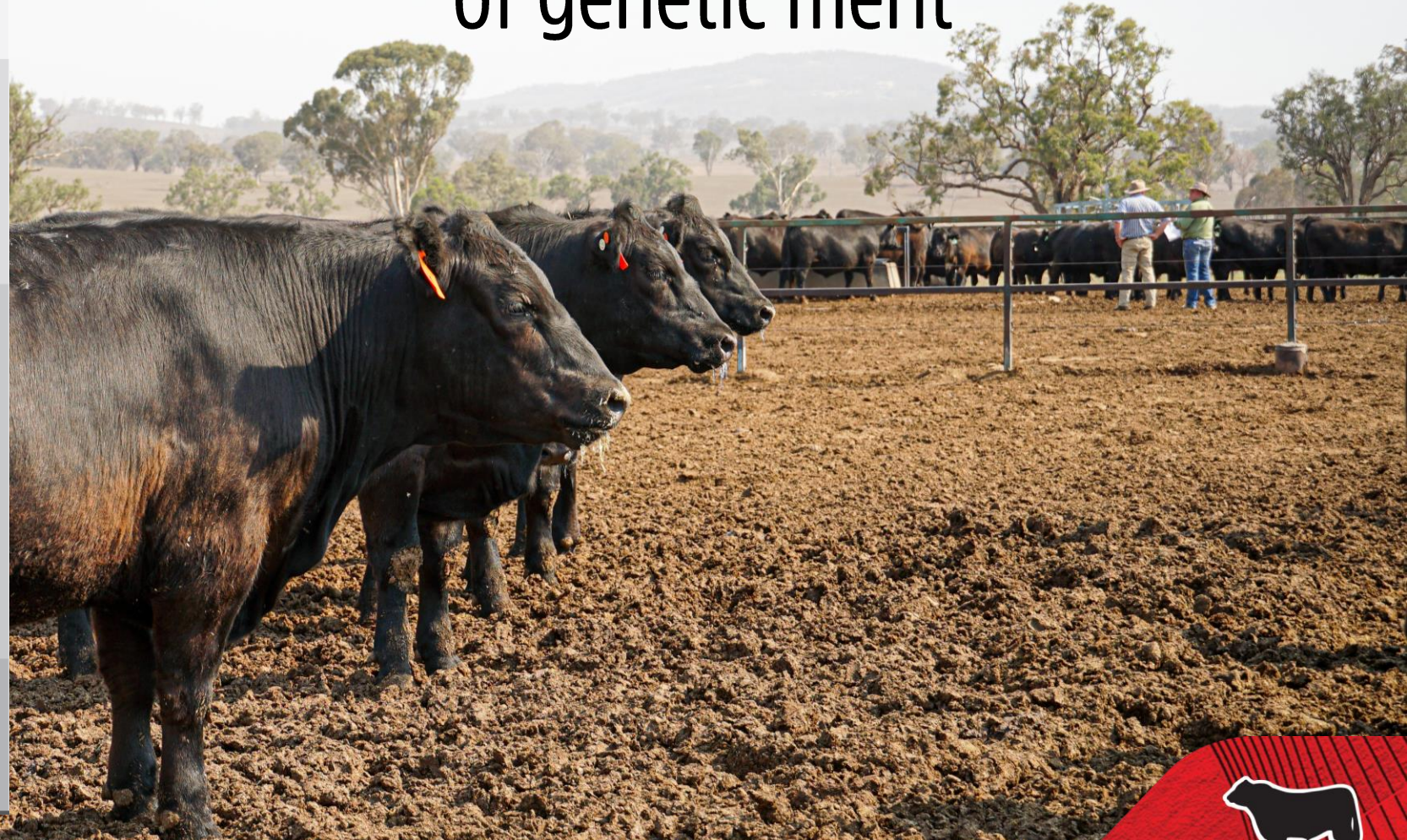| Net Feed Intake - Feedlot	Cohort 5	Cohort 6	Cohort 7	Average
Average High EBV	0.6 kg/day	0.6 kg/day	0.6 kg/day	0.6 kg/day
Average Low EBV	-0.3 kg/day	-0.1 kg/day	-0.0 kg/day	-0.1 kg/day
Difference in EBV	0.9 kg/day	0.7 kg/day	0.6 kg/day	0.7 kg/day
Expected Difference (EBV)	0.5 kg/day	0.3 kg/day	0.3 kg/day	0.3 kg/day
Average High LSM	-1.9 kg/day	-3.4 kg/day	-3.3 kg/day	-2.9 kg/day
Average Low LSM	-2.4 kg/day	-3.5 kg/day	-3.4 kg/day	-3.1 kg/day
Actual Difference (LSM)	0.5 kg/day	0.1 kg/day	0.1 kg/day	0.2 kg/day

Net Feed Intake – Feedlot (kg/day)

Bar chart: Expected Difference (EBV) ≈ 0.3, Actual Difference LSM ≈ 0.2
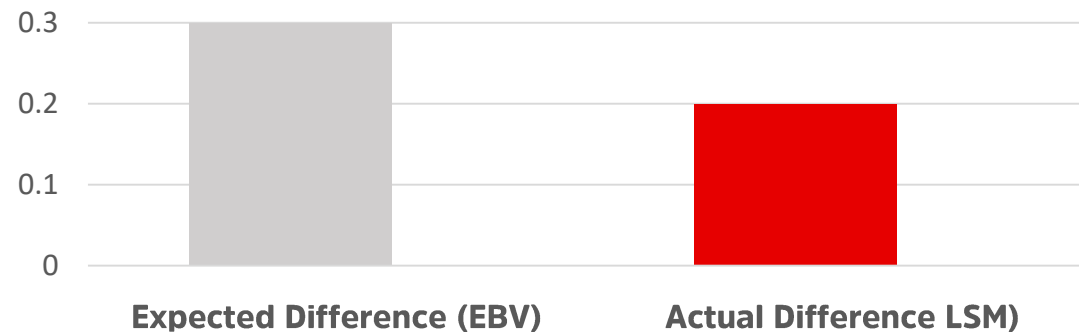
EBVs provide an accurate prediction of genetic merit

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Take Home Messages

EBVs provide an accurate prediction of the genetic merit of sires in cohort 5, 6 and 7 of the Angus Sire Benchmarking Project.

The use of TACE EBVs when selecting animals for use within a breeding program, provides a considerable opportunity to improve the productivity and profitability of beef breeding operations.

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the value of Angus

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HOW DO YOU REALLY KNOW IT'S ANGUS

VERIFIED BLACK ANGUS BEEF
INDEPENDENTLY VERIFIED BY THE ANGUS SOCIETY OF AUSTRALIA

ABOUT	SIRE COHORTS	LESSONS FROM THE ASBP
General Information	First Cohort	Project Overview
Consultative Committee	Second Cohort	Capitalising on genetic variation
Bull Nominations	Third Cohort	EBVs reliably predict progeny performance
	Fourth Cohort	Starting vs. Finishing EBVs
	Fifth Cohort	Individual Sire EBV Changes
	Sixth Cohort	
	Seventh Cohort	
	Eighth Cohort	
	Ninth Cohort	

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Angus Australia gratefully acknowledges the co-funding contribution of the Meat & Livestock Australia Donor Company