Dairy Beef Progeny Test
Interim Sire Report: Cohort 3

March 2019

B+LNZ Genetics Dairy Beef Progeny Test

Phase 1: Limestone Downs

Stats

- 800 Friesian and KiwiCross cows + 220 heifers mated in 2015. 800 cows and 150 heifers mated in 2016.
- Cows mated to 31 Angus and 34 Hereford sires by AI
- Heifers naturally mated to 6 Angus and 6 Hereford sires (compared with 8 breed-average liveweight and gestation length Jersey bulls)
- Bred and finished at Limestone Downs (C. Alma Baker Trust NZ Ltd.), Port Waikato.

Objectives

1. To demonstrate the successful use of beef bulls in a dairy system and dairy-beef finishing system
2. To assess the value added by selection of high merit, recorded bulls
3. To assess the value added by use of easy calving bulls compared with Jersey bulls in a dairy system
4. To identify through a progeny test, appropriate bulls for dairy-beef systems

Phase 2: Wairakei Estate

Stats

- 1600 crossbred cows milked once-daily, mated at Wairakei Estates' Renown farm in 2017 and 2018.
- Cows are lower-merit, typical of those that would be mated to beef bulls in the dairy industry.
- Mated to 26 nominated beef sires each year and is open to all breeds.
- Calves will be reared at Wairakei, and finished on the associated Wairakei dairy support blocks at 18-28 months.

New objectives

1. Identify and prove bulls that have short gestation length, easy calving, excellent growth rates to 600 days of age and high intramuscular fat that would be suitable for widespread use in the dairy industry via AB.
2. Provide a central herd in which bulls from multiple breeds can be progeny tested and benchmarked
3. Allow comparison of finishing performance of dairy-beef versus traditional beef calves, through links with the B+LNZ Genetics BPT

Into the future

The 2018 Sire Cohort intake incorporated the Beef and Dairy Beef Progeny Tests. The objectives of Phase 2 will continue.

Understanding the sire report

This listing provides an indication of how the sires are performing within the DBPT, and can't be directly compared against BREEDPLAN EBVs. For selection purposes it is strongly advised that BREEDPLAN EBVs and selection indexes be used primarily. They are the highest accuracy information to use in selection as they take into account all available industry data. They also account for information from all known relatives and genetic correlations between traits as well as being able to be compared across cohorts and the breed population.

Interpreting the Progeny Performance Listing

Trait = The average performance of sires' progeny. This is calculated using a least squares means (LSM) model which adjusts calving traits for sex of calf and year, and rearing traits for management group and age of calf based on actual birth date. Weaning age is also adjusted for live weight at weaning.

Rank = The ranking position of the sire within the cohort. The ranking order will depend on the trait. E.g. 200 Day weight ranked in descending order, while gestation length is in ascending order. The length of the coloured bars are related to the ranking - higher ranked sires will always have longer bars.

Trait Definitions

Trait	Unit	Definition	Ranking Order
Birth Weight	Kg	Weight at birth recorded on steer and heifer progeny	Sires are ranked in ascending order with lower values indicating lighter calves at birth
Gestation Length	Days	Number of days from insemination until calving	Sires are ranked in ascending order with lower values indicating fewer days in gestation
Weaning Age	Days	Number of days from birth to weaning at a minimum of 85 kg, recorded on steer and heifer progeny	Sires are ranked in ascending order with lower values indicating fewer days till weaning
200 Day Weight	Kg	Weight at 200 days of age (6 months) recorded on steer and heifer progeny	Sires are ranked in descending order with higher values indicating more weight

B+LNZ Genetics Dairy Beef Progeny Test: Cohort 3 summary of adjusted progeny averages (rank) across 26 sires

					Calving Ease				Growth			
Breed	**AB Code**	**Herd Book number**	**Sire**	**n Calves**	**Birth Weight (kg)**	***Rank***	**Gestation Length (days)**	***Rank***	**Weaning age (days)**	***Rank***	**Weaning Weight (kg)**	***Rank***
Angus	716043	210130144307	EARNSCLEUGH TUSSOCK 144307	16	39.6	*24*	279.4	*9*	96.4	*9*	187.1	*4*
Angus	717054	14572015C200	RISSINGTON C200	35	34.0	*1*	278.8	*5*	96.0	*7*	180.2	*11*
Angus	717114	21159015085	SEVEN HILLS 85/15	32	35.7	*7*	280.7	*13*	105.2	*23*	168.4	*22*
Angus	716058	19507014K5	STORTH OAKS ANGUS PRIME K5	11	35.2	*5*	278.4	*3*	103.7	*20*	163.1	*26*
Angus	717128	19507014K122	STORTH OAKS K122	34	36.2	*8*	279.2	*8*	100.3	*15*	173.3	*19*
Angus	717127	19507015L26	STORTH OAKS L26	38	35.1	*4*	279.0	*6*	101.9	*17*	176.9	*15*
Angus	717125	16932015380	TE MANIA LIMITLESS 15380	29	37.0	*11*	281.3	*16*	99.5	*13*	172.5	*21*
Angus	717124	16932016305	TE MANIA MULLER 16305	6	39.3	*23*	276.9	*1*	97.3	*11*	179.8	*12*
Angus	717126	10752016039	TE WHANGA 16-039	26	34.7	*3*	278.6	*4*	107.0	*26*	166.3	*23*
Charolais	717129	001140506E	KAKAHU GERRY 140506	29	40.7	*26*	282.8	*19*	90.4	*1*	190.4	*1*
Hereford	717121	277155014	ARDO AJAX 5014	39	34.3	*2*	281.1	*15*	104.3	*21*	179.3	*13*
Hereford	716017	277144256	ARDO BISMARCK 4256	24	37.2	*12*	281.5	*17*	106.7	*25*	163.7	*25*
Hereford	717113	1683160022	BLUESTONE 160022	28	37.6	*14*	280.0	*11*	103.0	*19*	180.5	*10*
Hereford	717115	169140260	CRAIGMORE IKE 140260	27	37.0	*10*	284.5	*24*	104.9	*22*	164.4	*24*
Hereford	716097	216122044	KOANUI BRITON 2044	29	38.1	*17*	284.6	*25*	93.7	*4*	183.8	*7*
Hereford	703131	216000219	KOANUI ROCKET 0219	18	39.0	*20*	284.5	*23*	94.6	*6*	183.6	*8*
Hereford	717066	677150368	LIMEHILLS STREAKER 150368	26	38.7	*18*	284.3	*22*	96.7	*10*	183.8	*6*
Hereford	717118	272120012	MONYMUSK HENRY 120012	22	39.3	*22*	280.9	*14*	98.9	*12*	175.1	*17*
Hereford	814104	300130168	SHRIMPTONS HILL 130168	31	38.7	*19*	283.1	*20*	106.7	*24*	173.2	*20*
Limousin	717116	PIWPK1	PIWAKAWA KAGAN	23	39.1	*21*	286.3	*26*	102.4	*18*	173.6	*18*
Murray Grey	716014	1427140123	TORRISDALE KAKANUI K123	33	37.6	*15*	280.6	*12*	101.1	*16*	175.7	*16*
Shorthorn	716105	232314044	HIWIROA PATRIACH 14044	27	37.8	*16*	278.3	*2*	99.5	*14*	177.5	*14*
Simmental	717117	1312AC0004	GLENSIDE CRUMPY C4	36	37.6	*13*	279.5	*10*	93.0	*2*	188.7	*3*
Simmental	717122	1671AE0001	JANEFIELD ED AE1	23	40.1	*25*	284.0	*21*	94.6	*5*	188.8	*2*
Stabilizer	717133	165303	FOCUS 165303	35	35.5	*6*	279.1	*7*	93.5	*3*	181.0	*9*
Stabilizer	717132	165287	FOCUS 165287	31	36.5	*9*	282.0	*18*	96.4	*8*	186.8	*5*
				Minimum	**34.0**		**276.9**		**90.4**		**163.1**	
				Average	**37.4**		**281.1**		**99.5**		**177.6**	
				Max	**40.7**		**286.3**		**107.0**		**190.4**	

To note:

- **Higher ranked sires have the longer colored bars – no matter the trait.**
- Birth weight, gestation length and weaning age - lower progeny averages are more preferable.
- Sire means are more reliable with higher progeny numbers.

Proving EBVs

Expectation (Birthweight example)

1 kg in Bull EBV = 0.5 kg in actual calf birthweight

- In the calf - half the calf genes come from the dam and half from the sire. SO, we expect that half of the bulls EBV will be passed on to his calves in ACTUAL calf weight. Or, if we compare two bulls; Bull #1 EBV= 8kg, Bull #2 EBV= 4kg you would expect to see a difference of 2kg in actual average calf weight between 1 & 2.

- We expect the sires EBVs to (on average) perform well in predicting the performance of their calves. In doing this they should show a positive upward slope where groups of bulls have better EBVs and a result- their calves are better**. In a perfect world the slope of the graph would be *slope = 0.5* where the EBV perfectly predicts calf performance**. However, it is most useful to see whether there is a positive trend line, as EBVs are estimated. This shows us whether selection on an EBV will deliver actual improvement on a commercial farm. How strong that trend-line is compared to the theoretical expected value of 0.5, is the relationship to look at when proving an EBV to work (or not).

Reality (Birthweight example)

1 kg in Bull EBV = 0.65 kg in calf birth weight

- This is a strong result. In fact, the calves were slightly heavier than the sires EBV predicted. Similarly, the Gestation Length EBV did an excellent job of predicting calf performance.

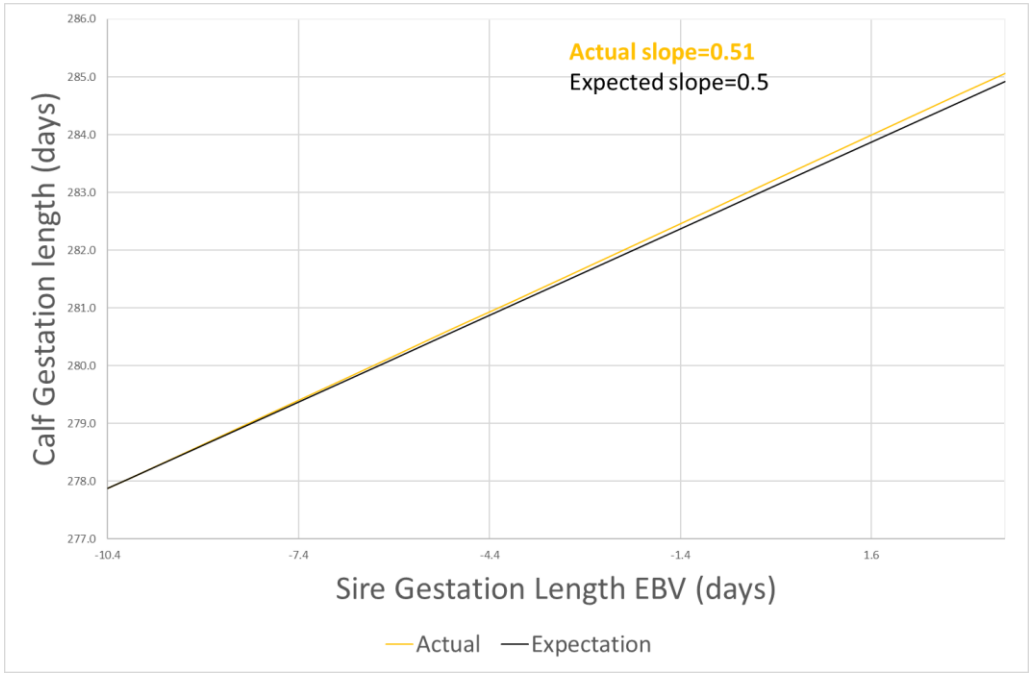
- Most sires EBVs (across the traits) lined up well and predicted the performance of their calves. On average they did a good job of improving ACTUAL performance. The calving ease traits more so than the early growth traits.

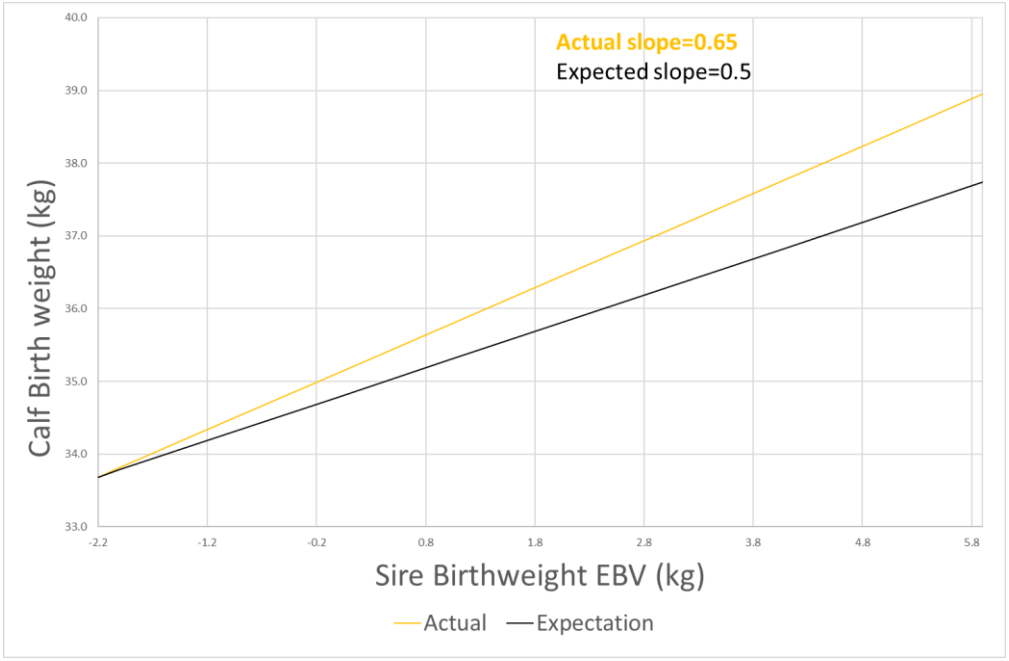
So why bother?

- Most traits are developed into EBVs because they have an economic consequence or result in more or less revenue.

- **Better EBVs = better calves = better money**

	Expectation	Reality	Result	% of EBV turned into calf performance	So why bother?
Gestation Length EBV	1 day in Bull EBV= 0.5 days *in calf Gestation Length*	1 day in Bull EBV= 0.51 days *in calf Gestation Length*	Strong	102% *Calves had slightly longer GLs than expected*	The shortest GL sire had calves born 14 days earlier than the longest sire. At $5.50 per Milk Solid (1.4 MS/day) that's an extra $107 per cow from using the better sire
Birth Weight EBV	1kg in Bull EBV = 0.5 kg *in calf weight*	1kg in Bull EBV = 0.65 kg *in calf weight*	Strong	130% *Calves were slightly lighter than expected - from low birthweight bulls*	Lighter birth weight calves often have reduced dystocia

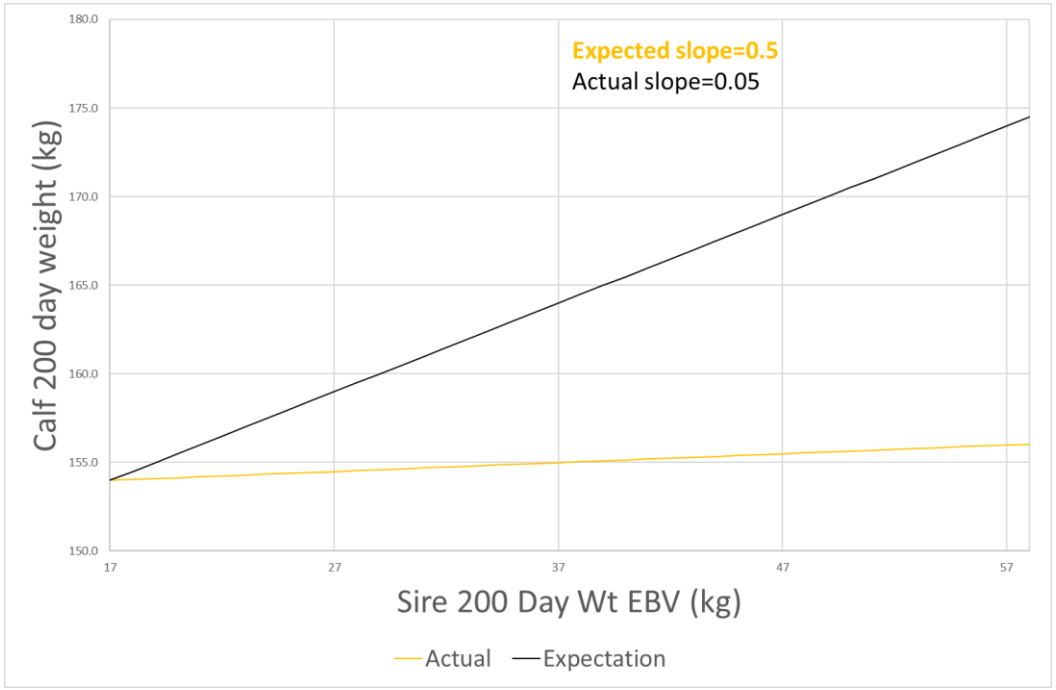


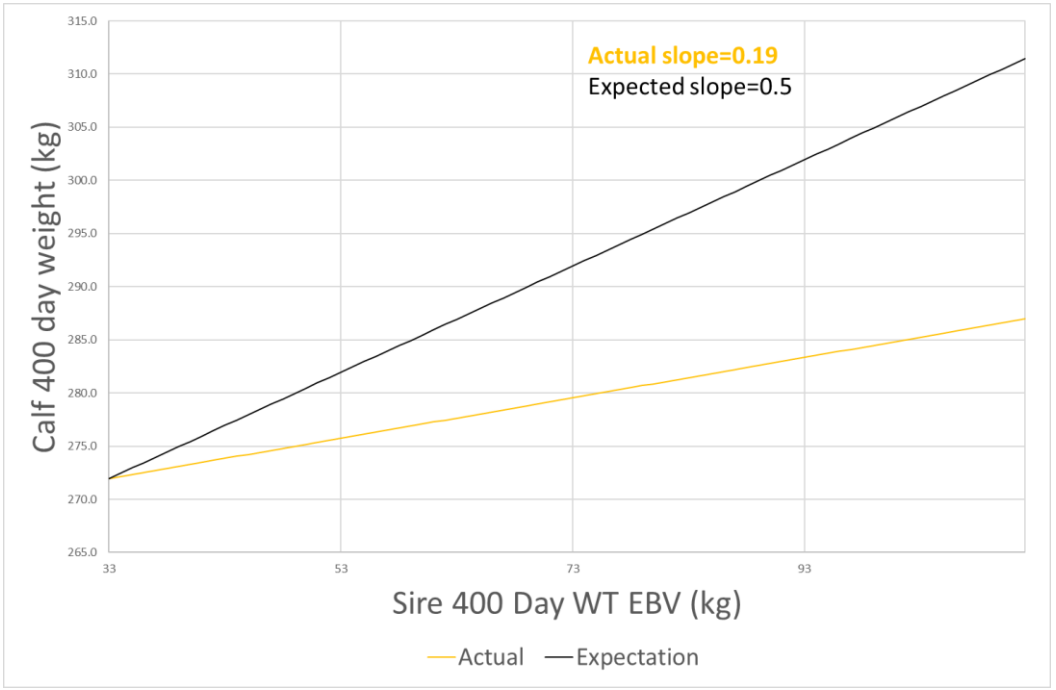


	Expectation	Reality	Result	% of EBV turned into calf performance	So why bother?
200 Day Weight EBV	1kg in Bull EBV = 0.5kg *in calf weight*	1kg in Bull EBV = 0.05 kg *in calf weight*	Not significant	10% **Calves were lighter than expected*	**Although sire 200 Day Wt EBV was not a good predictor of calf weight at 200 Days, it did a good job of predicting weaning age. The earliest sire weaned calves 17 days earlier than the latest sire. At 4l milk per day (at 50c per litre) that's $34 saved per calf
400 Day Weight EBV	1kg in Bull EBV = 0.5kg *in calf weight*	1kg in Bull EBV = 0.19 kg *in calf weight*	Moderate	38% *Calves were lighter than expected*	The heaviest sire's calves had an extra 33kg as yearlings. At $3/kg* that's worth an extra $99 per calf

*Beef + Lamb New Zealand Economic Service 2018

** 200-day weight EBV was not a good predictor of live weight at 200 days in the dairy beef system. This is likely because calves were weaned to a fixed weight (min. 85 kg) so calves of lower growth bulls were fed milk for longer. In addition, the rearing environment of early-weaned dairy-beef calves is quite different to that of the pre-weaned beef calf, so different genes may be required to achieve good growth in these two different environments. This effect appears to have reduced by 400 Day Weight and is expected to do the same for 600 Day Weight as shown in the Beef Progeny Test.





Acknowledgements

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PhD students Natalia Martin & Lucy Coleman

Participating herds: Thank you to the numerous bull owners and nominators that have entered the progeny test. For sire information please visit our website: www.blnzgenetics.com/progeny-tests

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