

# B+LNZ GENETICS BEEF BREEDER UPDATE



**ISSUE 2**  
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The past six months have been busy in the beef genetics space. The 1600 cows involved in the B+LNZ Genetics Beef Progeny Test scanned an average of 49% and we now await calving.

We hosted a breeders' forum as part of May's Beef Expo in Palmerston North and about 100 of you came along. B+LNZ Genetics has a very clear strapline Genetics for profit and this theme came through strongly during the breakfast forum. Across all the B+LNZ Genetics projects, we are constantly asking:

"Will this ultimately increase profitability for the commercial farmer?"

Meanwhile, we recently undertook some analysis within the dairy-beef space to determine the potential to add value there. See page 6 for details. Please feel free to contact me if you have any questions or feedback on any of our work.

We always welcome and value your input.

## **Graham Alder**

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*Hereford cattle from Mendip Hills in Canterbury, one of the properties involved in the Beef Progeny test. See page 4 for an update on this project.*

## **B+LNZ GENETICS: INTRODUCING THE FOUR CORNERSTONES**

B+LNZ Genetics has now been up and running for one year. Over those 12 months, we have fine-tuned our focus. It is to provide selection tools for breeders and commercial farmers, so you can make the most profitable breeding choices for your management system.

We have developed four cornerstones and each B+LNZ Genetics project contributes to one or more of these cornerstones.

At the recent B+LNZ Genetics breeders' breakfast, Senior Geneticist Dr Mark Young introduced the four cornerstones and explained how they each relate to projects underway.

## The four cornerstones:

- 1. Understanding heritable performance**
  - Within BreedPlan, develop breeding values for traits relevant to New Zealand
- 2. Ongoing, reliable assessment of genetic merit**
  - B+LNZ Genetics Beef Progeny Test
  - Genomics projects: pedigree accuracy, increased accuracy of BVs, new traits, lower-cost DNA testing and gene discovery
- 3. Aligning breeding values to farm management and goals**
  - Investigation into beef maternal genetics
  - Economic evaluations – developing relevant indexes and traits
- 4. Achieving ongoing genetic gain**
  - Decision support tools for breeders and commercial farmers
  - Providing information that is more relevant, more accurate and more accessible
  - Hosting industry workshops and rolling out quality extension.

See [www.blznzgenetics.com](http://www.blznzgenetics.com) for a video of Senior Geneticist Mark Young speaking at the breeders' breakfast, where he outlined these genetic cornerstones in relation to beef projects underway.



## INSIGHTS TO “THE UNSEEN WORLD”

A presentation demonstrating the latest beef genetic selection tools in the US had New Zealand bull breeders asking how long before they could access such tools here. The B+LNZ Genetics breeders' breakfast included a video linked presentation from Dr Kent Anderson of Zoetis USA.

Dr Anderson introduced “GE-EPDs” – an acronym for “genomic-enhanced expected progeny differences”. EPDs are equivalent to New Zealand's estimated breeding values (EBVs). US bull breeders have access to the Zoetis HD 50K, a genotyping technology which helps predict a bull's performance much like the Sheep50K technology does in New Zealand. To help communicate the accuracy added by the test, Zoetis talks about “progeny equivalents”. For example, if you were looking at maternal traits and buying a bull with GE-EPD figures (i.e. the bull had been tested using HD 50K), it would be the equivalent of buying a bull that already had 14 daughters worth of information contributing to its performance data – that is “14 progeny equivalents”.

“On the growth and efficiency front, buying tested bulls with GE-EPDs is like buying bulls that already have 17 offspring, with all the performance measures contributing to their predictions. On the carcass front, it's the equivalent of buying bulls with 10 progeny that already have carcass data available.” Dr Anderson said some breeders were also testing females because the resulting information was more accurate than two lifetimes worth of calves. “This is empowering smarter mating decisions through the lifetime of the female, so she can then maximise the value she contributes for the breeder and the breeder's customers.”

B+LNZ Genetics General Manager Graham Alder says the real benefit of genomic selection comes when such tools are used in young animals. “Breeders will say they have high accuracy EBVs on their sires, so where is the use for genomics? The point is that genomic tools give breeders a window into how the progeny of a young animal will perform. That is immensely valuable for identifying which animals to keep and cull, and also fast tracking genetic goals within breeding operations.”

## Commercial farmer tool: “GeneMax Advantage”

Building on the information gathered from more than 130,000 Angus seed stock animals evaluated via HD 50K, a tool was launched for commercial farmers late last year. It is suitable for replacement heifer selection, where the heifers are at least 75% Angus. The tool provides an insight to all the things in “the unseen world” that commercial producers cannot evaluate visually.

“This tool is meant to augment and provide additional information,” Dr Anderson explained.

## GeneMax Advantage provides three scores per animal:

1. **“Cow advantage index”**  
Which takes into account heifer pregnancy, calving ease, weaning weight and cow size
2. **“Feeder advantage index”**  
Which takes into account feedlot gain, dry matter intake, carcass weight, yield grade and quality grade (marbling)
3. **“Total advantage index”**  
Combined index of the two above.

Index results are presented between 1 and 100, with \$50 being the average. The higher the figures, the better the cow.

See the image below:

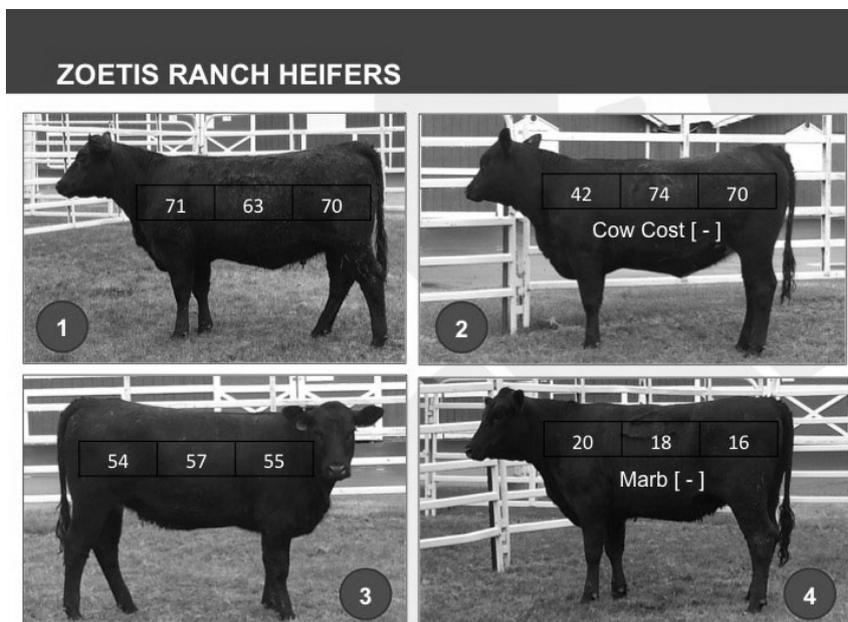
Cow #1 with indexes of 71 / 63 / 70 is a good all-round animal. Cow #2 scores 42 / 74 / 70, so has the same “total” index as the first example, but is a less desirable animal because its maternal traits – summarised under the first figure of 42 (the “cow advantage index”) – flag some issues. In this case, it happens to be a very large heifer. Then there are “outliers” – heifers that look fine, but have terrible specifics within their indexes, as is the case with cow #4.

Dr Anderson points out that being able to pinpoint these animals before they enter the breeding herd is a very valuable exercise. Dr Anderson was asked how feasible it was for a similar tool to be developed for New Zealand. He said it was possible, but relied on having the relevant economic indexes available and some seed stock information to build on.

B+LNZ Genetics beef projects – including the Beef Progeny Test, as well as efforts to collect DNA and performance information under hill country environments for maternal productivity traits – will be a valuable source of information to contribute to a New Zealand-tailored tool. Zoetis says that, while discussions are still underway around what would be most valuable to New Zealand beef breeders, a tool release is expected within the next three years.

See [www.blznzgenetics.com](http://www.blznzgenetics.com) for a video of Zoetis’ Dr Kent Anderson speaking at the breeders’ breakfast, including his demonstration of GeneMax Advantage on the four heifers pictured.

Attendees at the recent breeders breakfast in Palmerston North were asked to make their “pick” from these four heifers. Number 3 was the crowd frontrunner. However, the superimposed figures generated by genetic selection tool “GeneMax Advantage” – complete the picture by complementing the visual assessment and showing what could not be seen.



## BEEF PROGENY TEST: AN UPDATE

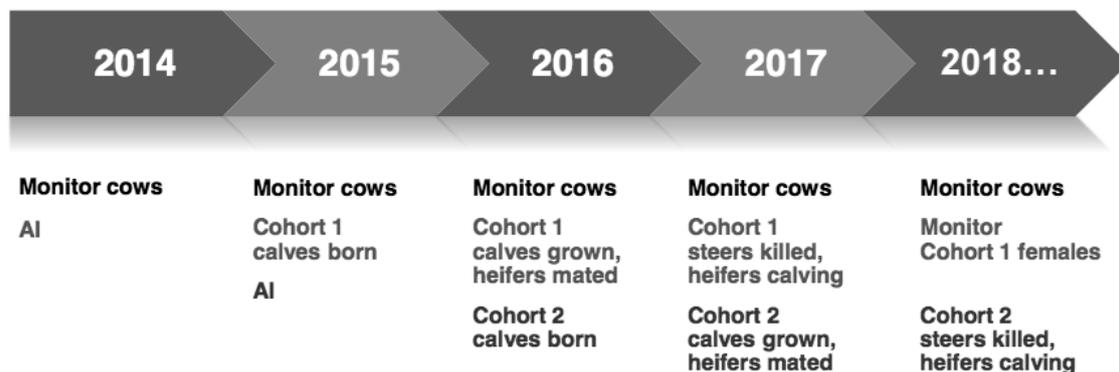
The first crop of calves from the Beef Progeny Test begin arriving this month. First cab off the rank is Taratahi's Tautane Station, with 380 cows involved in the project. The test compares bulls under New Zealand commercial farming conditions on five large properties. It involves more than 50 AI bulls, 50 follow-up bulls, 1600 cows and 600 heifers.

### Its three objectives are:

1. To quantify the value that better genetics can provide a commercial operation
2. Demonstrate the tools currently available tools in the development pipeline
3. Improve the overall toolkit available for breeders and commercial farmers wanting to make improvements through genetics.

Dr Jason Archer of AbacusBio is overseeing the progeny test. He says it will generate the sort of information needed to inform future tools, such as those outlined by Dr Kent Anderson (see separate story) which would need New Zealand specific data to work here.

### Project Timeline:



## Scanning results:

The overall average conception to AI was 49%, which was in line with the assumptions used in designing the trial. There was significant variation between mobs and within single properties, with four of the 18 mobs scanning well below expectations. However in most cases lighter body condition scoring at AI largely explained these outliers, Jason says. "We must also remember that the entire aim of this project is to work under commercial conditions - and lighter condition cows are a consequence of that."

Scanning results are in for the 2200 cows and heifers involved in the B+LNZ Genetics beef progeny test. The overall average was 49%. The wait is now on for calving, due to begin next month.

## Key features for breeding objectives

During the B+LNZ Genetics breeders' breakfast in Palmerston North, Jason introduced the key features for breeding objectives that are on the radar for New Zealand hill country systems. They are:

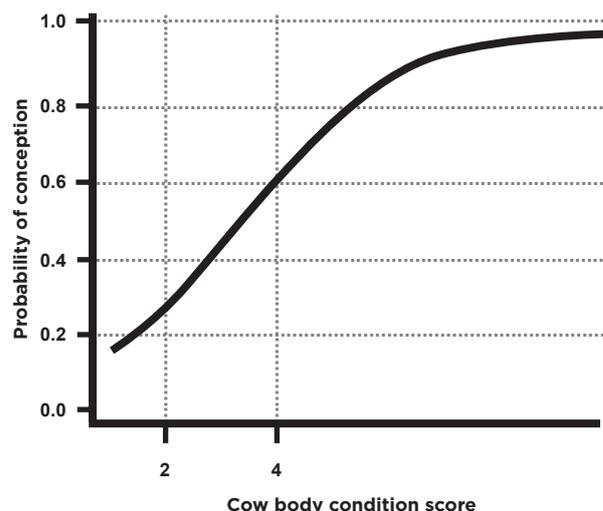
1. Valuing the cow impact on pasture quality a key difference between New Zealand and other countries, the way we use our cows is reasonably unique
2. Impact on cow size and feed deficits
3. Condition score and fertility
4. Eating quality and branded beef programmes
5. Flexibility for different user requirements.



See [www.blznzgenetics.com](http://www.blznzgenetics.com) for a video of Jason Archer speaking at the breeders breakfast.

## Probability of conception vs BCS

This graph is based on 400 mixed-age cows from one of the progeny test properties. It draws on both AI and natural-mating data and shows the clear impact of higher body condition scores on conception rates. At a condition score of 4, the probability of conception is only 60%; at condition score 6, that jumps up to 86%; and at condition score 7, 93%. While this analysis is based on a small number of cows on one property and in one year, it is an example of the information farmers can expect to come from the Beef Progeny Test project. The graph raises the question: what mating condition should farmers work towards in a commercial environment?



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## THE COST VS BENEFIT OF DAIRY-BEEF

B+LNZ Genetics analysis shows there is significant economic potential – of up to \$31 million per annum for the beef sector, if better quality beef bulls are used over dairy cows. And, if the bulls are selected for further improvement specifically focused on dairy-beef production, that annual figure could be up to \$40 million per annum by 2025.

### Breeding beef bulls for the dairy sector

Report author Dr Jason Archer says that, while there are already tools available that would improve beef bulls for use in the dairy sector, only a small number of breeders of recorded bulls focus on this market; the majority of bulls used in the dairy sector are unrecorded. “For that to change, a market structure is needed to adequately incentivise the breeding and use of improved bulls, as well as the finishing of their calves, within the dairy-beef value chain. And that requires a means of identifying calves from improved bulls, and instilling confidence among all value chain participants that benefits of improved genetics will be realised in commercial operations.”

### Possible future investment

Any B+LNZ Genetics’ investment in the dairy-beef genetics domain would support an informed and confident market for genetic improvement. Potential activities include:

1. Implementing a dairy beef index that quantifies the economic benefit of recorded bulls for both dairy farmers and beef finishers;
2. Providing information to give dairy farmers confidence in realising benefits from easy calving and early gestation;
3. Providing information to give beef finishers confidence that calves sired by improved bulls will achieve greater performance and higher profitability.

## HOW TO BUILD A PROFITABLE COW HERD

Lee Leachman of Colorado spoke at the 2015 New Zealand Society of Animal Production conference in Dunedin, last month. Lee is a third generation seedstock cattle breeder, producing Angus, Red Angus, Stabilizer and Charolais bulls. His presentation was sponsored by B+LNZ Genetics and focused on how to produce and maintain herd profitability, as well as key drivers for profit.

See [www.blznzgenetics.com](http://www.blznzgenetics.com) to watch a video of Lee Leachman’s presentation.



What kind of bull?

- We are in the bull business.
- We select Angus, Red Angus, and Stabilizer for maternal traits that maximize cow/calf profitability.
- We select Charolais for terminal traits.
- We produce our bulls through a network of 35 cooperators (7,000 cows) and a pool of ET donors.
- Each year, we place over 1,500 bulls on test at Fort Collins, CO.
- Since 2004, we have marketed over 13,000 bulls. Currently, six annual sales, online, and private treaty.
- We export semen and embryos to UK, NZ, Australia, and throughout South America.

Angus

Red Angus

Stabilizer

Charolais

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