Informing New Zealand Beef (INZB)

Quarterly Progress Report: July – September 2023

Background

Beef + Lamb New Zealand with the support of Ministry for Primary Industries is leading the Informing New Zealand Beef (INZB) programme. The overall aim of the seven-year programme is to improve profitability and enhance sustainability across the beef industry through the development and adoption of improved genetics.

The objectives of the programme are to:

1. develop a beef genetic evaluation system that includes traits that are important to NZ beef farmers and supports a sustainable beef farming industry in NZ,
2. create easy to use tools which enable data to be efficiently collected, managed, analysed and used by farmers to make profitable decisions for their operation,
3. create a new approach to extension design with the goal of increasing farmer engagement across the beef industry.

Summary of progress during this quarter

Economic model and selection index development work kicked off

Selection index development work is well underway, with these indexes set to increase the rate of genetic gain in the New Zealand beef industry.

Selection index development includes three core activities which are being carried out by AbacusBio in collaboration with B+LNZ:

1. Development of an index model to support delivery of prototype indexes for NZ beef systems.
2. Selection index modelling to assess the impact of the indexes on GHG emissions.
3. Selection index modelling to assess the impact of the inclusion of proposed new traits within the indexes.

This work has been informed with input from farmers (farmer trait prioritisation survey), the INZB Industry Advisory Group and Technical Advisory Group, B+LNZ economic services team and data from the Beef and Dairy-Beef Progeny Tests.

Methane measures taken on a subset of Beef Progeny Test animals

In Q4, 120 Kepler Beef Progeny Test 2022-born heifers were put through Portable Accumulation Chambers (PACs) at AgResearch's Invermay site to take GHG measures on these animals. Smaller versions of these chambers have been used to take measurements on sheep. The purpose of this experiment is to test the appropriateness of the chambers for taking GHG measures in beef cattle, and to see if the results scale up from sheep to beef.

Rumen and buccal samples were also taken from each animal. Each of these samples are profiled using sequence microbial profiling technology, which is currently being run on these animals at AgResearch. The purpose of testing rumen and buccal samples alongside PAC measures is that these samples are much easier to collect on a larger scale and so if they are related to GHG measures from PACs would provide an easier, faster and more cost-effective solution to scaling at an industry level. This experiment will provide an initial indication as to the relatedness of PAC GHG measures and rumen/buccal profiles.

Using new technology to develop more accurate fertility traits

The INZB team is progressing with fertility trait development using CowManager tag technology. The aim of this work is to break fertility down into more detailed components, including age at first cycling (puberty), days to conception (from bull introduction), gestation length, and post-partum anoestrus (time from calving to re-commencement of cycling) with the aim of increasing accuracy of fertility trait predictions.

These tags have been used in the dairy industry but are relatively new to the beef industry. Therefore, we will pilot the technology on two beef farms before we make a decision on whether the technology is appropriate for beef farms. If the technology is appropriate, we will look to scale up to between 10-20 farms. Our aim is to have CowManager tags installed on two pilot farms before mating this year.

Commercial farmers onboarded and genotyping has started

Commercial farmers were sent welcome packs in Q4. These packs included an introduction to the programme and Project Lead, Sonya Shaw, answers to frequently asked questions, a Body Condition Score (BCS) booklet and flipchart, as well as tissue sampling and genotyping guidelines.

The majority of these commercial farmers are carrying out genotyping, which will ensure their data can be linked back to bull breeders. This genotyping is well underway and the genotype subsidy system operational.

USA/Canada breeders study tour a success

A group of eleven breed society representatives were hosted by B+LNZ on a trip to Canada and the USA. The trip kicked off with the group attending the Beef Improvement Federation Symposium as well as field tours in and around Calgary. After Canada the group headed to the US, where they visited eleven different businesses and farms across seven states.

Highlights of the trip:

- The impressive collaboration between universities, commercial companies, farmers and breed societies - everyone united to tackle the tough challenges in the industry.

- The convergence between big data, reproductive advancements, and superior genetics.
- A recurring topic at every visit was methane emissions - a challenge faced by agriculture worldwide.
- One thing the team noticed about our North American counterparts is their swift action.

During the almost three-week trip, great relationships were formed. Meeting passionate individuals and forging connections with like-minded people left a lasting impression on the tour group (pictured), with the group excited to bring back the valuable knowledge and education they've gained to our farmers in New Zealand.

Key highlights and achievements

- GHG work carried out with AgResearch
- Selection index development work underway
- Commercial farmers onboarded and genotyping commenced
- Selection of bulls for this season's mating at INZB BPT sites
- USA/Canada breeders study tour a success

Upcoming

- Artificial insemination at Kepler BPT site
- Delivery of prototype selection index model
- Fertility trait recording using tags commenced on pilot farms
- Annual assessment of the programme by Scarlatti

Investment

Investment period	Co-investor contribution	MPI contribution	Total investment
During this Quarter	$563,287	$375,525	$938,812
Programme To Date	$3.34 m	$2.22 m	$5.56 m