

December 2019

BEEF LEVIES

For Dairy Farmers



By Farmers. For Farmers



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Our strategy 2017-22



INSIGHT

ACTION

IMPACT

Vision

Our desired future for NZ's sheep and beef producers

Profitable farmers, thriving farming communities, valued by all New Zealanders

Purpose

How and why we do what we do

Insights and actions driving tangible impact for farmers

Priorities

How we generate impact



Unlocking market potential



Enhancing our environmental position



Supporting farming excellence



Government and public insight and engagement



FOREWORD

Dairy farmers are an important and valued part of Beef + Lamb New Zealand. On average, dairy farmers pay around \$400 to B+LNZ annually on cull cows and other animals they send to slaughter. Therefore B+LNZ takes responsibility for delivering value to dairy farmers “beef business”.

This book sets out to answer the two questions most commonly asked of us by dairy farmers; what value are you delivering from our beef levies and how is B+LNZ working collaboratively with DairyNZ and other organisations to avoid duplication and make the most efficient and effective use of resources and capability.

Chapter one sets out the projects and initiatives, led by B+LNZ, aimed at adding value to dairy beef at every stage of the supply chain, from the calf shed through to the consumer. Chapter two highlights the many areas where B+LNZ is working alongside DairyNZ and other organisations for the benefit of levy payers and the wider industry.

The final chapter of the book is dedicated to the many farm management tools and resources that will help farmers drive productivity and profitability while protecting and enhancing their natural resources.

We recognise that having a dairy farmer voice is important. We've been driving initiatives over the last year to ensure dairy farmers have a more formal voice in our organisation. I am pleased that we now have dairy farmer representation on each of B+LNZ's regional Farmer Councils. These Farmer Councils act as a critical sounding board for the organization and provide B+LNZ with advice, guide decision-making, help us communicate with our farmers, and develop regional extension programmes.

We've also carried out an extensive research programme to identify on farm research and extension needs. Of nine focus groups, two were specifically dairy farmer groups. We also survey farmers six monthly on key issues; confidence in the industry, key priorities and how we're doing against them, 15% of the farmers surveyed are dairy farmers. In early 2020 we're going to constitute a specific dairy farmer advisory committee which will utilise our existing Farmer Council dairy farmers plus additional members.

I encourage you to have a read of this document and come back to me with any comments and ideas.



A handwritten signature in black ink that reads "SAM MCIVOR". The signature is written in a cursive, flowing style.

SAM MCIVOR
CEO, Beef + Lamb New Zealand Ltd



INTRODUCTION

So what do you get for your Beef + Lamb New Zealand beef levy investment? This booklet highlights the range of activities funded by Beef + Lamb New Zealand, and the benefits for dairy farmers.

New Zealand's dairy, sheep and beef industries are closely linked, with a significant portion of New Zealand's beef exports coming from dairy beef.

Many sheep and beef farmers view dairy support as a critical part of their business. By paying a beef levy on adult cattle (there is no levy on bobby calves) dairy farmers pay around 20% of Beef + Lamb New Zealand's overall levy income. Dairy farmers are therefore a vital part of the organisation. This money is directed towards activities that improve returns to dairy farmers for the meat component of their business.

These include market access, market development and genetics and areas where there is strong integration between the drystock and dairy industries.

B+LNZ works collaboratively with DairyNZ and other organisations such as Federated Farmers in areas of mutual concern and to avoid duplication of resources.

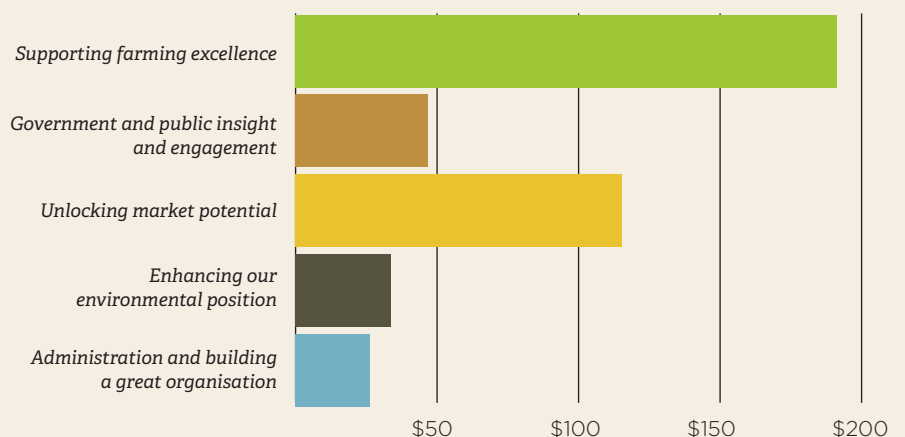
The levy breakdown

The dairy herd contributes to four areas of beef production:

- Dairy bull calves bought and reared on sheep and beef farms as bull beef (subject to a \$5.20/head B+LNZ levy at slaughter)
- Cull dairy heifers and bulls (subject to \$5.20/head B+LNZ levy at slaughter)
- Cull dairy cows (subject to \$5.20/head B+LNZ levy at slaughter)
- Bobby calves (nil B+LNZ levy).

The average dairy farmer pays ~\$400 a year in beef levies.

Graph 1: Breakdown of beef levy expenditure for the average dairy farm



Summary of key dairy-beef projects funded by levies

Dairy-beef market access

A priority for B+LNZ is advocating for the opening up of markets for beef exports through tariff elimination in free trade agreements (FTAs), which benefits dairy farmers.

A focus over the past few years has been on maintaining existing access—such as our beef exports into the European Union and United States. In terms of trade agreements, major tariff liberalisation of benefit to dairy-beef exports in the last decade include: the ASEAN Australia New Zealand FTA (covering most of South East Asia); the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), which has immediate tariff savings of \$60 million for the sector, and the China-New Zealand FTA.

In the United States, B+LNZ works to foster good relationships with key industries and influencers to ensure the maintenance of New Zealand's beef quota, under which the majority of New Zealand's manufacturing beef is exported to the US.

We have also supported the Meat Industry Association's (MIA) trial of chilled beef into China, and have taken a leading role, alongside MIA and the New Zealand Meat Board, in preparing the red meat sector for Brexit.



Taste Pure Nature

Our Taste Pure Nature origin brand has been designed to add value to New Zealand's red meat exports, including dairy-derived manufacturing beef.

The brand, which leverages off New Zealand's naturally raised and grass-based farming systems, will complement rather than replace company-specific brands with the aim of building a premium for New Zealand's red meat by appealing to a group of consumers who are willing to pay extra for food that meets their high ethical and environmental standards—the "conscious foodie".

Launching in California, Taste Pure Nature connects values such as animal welfare, sustainable production and the gate to plate story with the New Zealand beef consumers see on the supermarket shelves and in food service outlets. Work is also underway to launch Taste Pure Nature in China in early 2020.

Alternative proteins research

Alternative proteins is a significant risk and direct competitor to beef derived from dairy cows. In 2018, B+LNZ released New Zealand's most comprehensive research into alternative proteins, which indicated that alternative protein mince is likely to reach large scale manufacturing in three to five years.

This research identified an opportunity to better position New Zealand's red meat to meet this competition and was one of the drivers behind the creation of the Taste Pure Nature origin brand. The values that drive consumers to choose alternative proteins will also drive them to select New Zealand's naturally-raised, grass-fed meat over red meat produced in intensive grain-based systems.



Dairy-Beef Integration programme

The five year B+LNZ Dairy-Beef Integration programme completed in 2016 analysed and demonstrated the benefits and risks involved throughout the supply chain in order to increase the supply of quality dairy beef calves to the finishing industry. This programme led to the Dairy-Beef Progeny Test.

Dairy-Beef Progeny Test

The Dairy-Beef Progeny Test, launched in 2015, is a four year project which aims to calculate the additional value that can be added by using high genetic-merit Angus and Hereford bulls, versus the unrecorded bulls traditionally used as “follow-up bulls” in many New Zealand dairy systems.

Dairy heifer raising workshops with DairyNZ

Well-grown heifers underpin the future productivity and profitability of a dairy herd. Growing-out weaned calves through to the point of calving as rising two-year-olds is an important part of many farm businesses. To support dairy graziers, B+LNZ has worked alongside DairyNZ to run workshops and provide information and resources about best-practice heifer management to ensure the best outcomes for the grazier, the dairy farmer, livestock and the environment. In 2019, B+LNZ held 16 Heifer Rearing field days with a total of 812 attendees.


Bobby calves

B+LNZ is working with DairyNZ, the Ministry for Primary Industries (MPI), and MIA to find a workable solution for bobby calves. This builds on a project from 2018 that examined options to reduce the number of bobby calves produced or to raise what is produced and ensure they deliver value to everyone involved. This work will include examining potential markets to determine what consumers want and then seeing how our farming systems can adapt to meet these needs. The aim is to get farmers ahead of future demands both in New Zealand and overseas. The market development team is also in discussions with processing companies about a project focused on developing opportunities for bobby calves.

Areas where B+LNZ works with the dairy industry to increase efficacy and avoid duplication

- Pastoral Genomics—a research consortium for forage improvement using biotechnology
- Pastoral Greenhouse Gas Research Consortium (PGgRc)—researching knowledge and tools to help farmers reduce the methane outputs of their livestock
- Advocating and developing policies and regulations on biosecurity, common environment issues, animal welfare and health and safety
- B+LNZ has worked closely with DairyNZ and MPI on the eradication of *Mycoplasma bovis*. We jointly invest in OSPRI for TB eradication and NAIT traceability
- Dairy farmers are invited to attend any B+LNZ workshop. Topics covered at workshops, which are of interest to dairy farmers, include: winter grazing, deferred grazing and helicropping, carbon farming, and water quality. In B+LNZ’s farm environment plan resources there is advice on ways to protect and manage water and soil while grazing dairy cattle
- Attracting new talent into careers in agriculture through supporting capability development behind the farm gate
- Public advocacy on behalf of farmers to help New Zealanders better connect with the agricultural sector.





CHAPTER ONE

ADDING VALUE TO DAIRY BEEF

The majority of this country's beef exports originate on dairy farms. Beef + Lamb New Zealand is leading projects that maximise the value of dairy beef at each stage of the supply chain. This starts with the selection of beef genetics that add value to the dairy farmers' calf crop through to the capturing of a premium on NZ's grass-fed, naturally raised beef through the B+LNZ-developed Taste Pure Nature brand. The following is a summary of key projects that B+LNZ has led or is leading to add value for dairy-beef.

Dairy-Beef Integration programme

The beef industry is becoming increasingly reliant on calves sourced from dairy farms, but the sires of these calves are often of poor or unknown genetic potential for beef production. The five-year, B+LNZ Dairy-Beef Integration programme that concluded in 2016, demonstrated the risks and benefits, to the supply-chain, of an increase in the supply of quality beef calves for finishing. This project compared the use of Ezicalve (high EBVs for calving ease and live weight) to unrecorded Hereford sires on a dairy farm and assessed the impacts on mating, calving, calf rearing and beef finishing.

Key findings

1. Mating outcomes

- Using beef semen reduced mating costs by at least 20% per insemination.
- Selecting cows for insemination with beef semen required minimal extra input time.

2. Calving and calf rearing

- No calves born to natural matings by Ezicalve bulls required assistance at birth, compared to the calves sired by unrecorded bulls
- Ezicalve AI sired calves were 3.5 to 4 kg lighter at birth than calves sired by unproven Hereford bulls.
- Despite lower birth weights, calves sired by Ezicalve bulls took a similar time to reach 100 kg live weight as those sired by unrecorded Hereford bulls

3. Finishing Beef

- Cattle sired by AI were consistently heavier during finishing than those sired naturally. This was a consequence of them being born an average of five weeks earlier as opposed to greater live weight gain.
- Selecting bulls with high growth EBVs showed an advantage during beef finishing.

Using beef sires with high EBVs for calving ease and growth on dairy farms can provide benefits for both the dairy and beef industries. The manager of the Dairy Beef Integration Programme, Doug Lineham, said the findings "confirm what we're seeing in the market" where dairy farmers are receiving up to three or four times the value of a bobby calf for a quality dairy/beef animal. He encouraged people to read the final report from the Dairy Beef Integration Programme and speak with their advisors about the best way to get added value from your calves.

FIND OUT MORE

Benefits of dairy farmers using better beef genetics factsheet
B+LNZ Dairy Beef Integration Programme final report

B+LNZ Genetics: Dairy-Beef Progeny Test

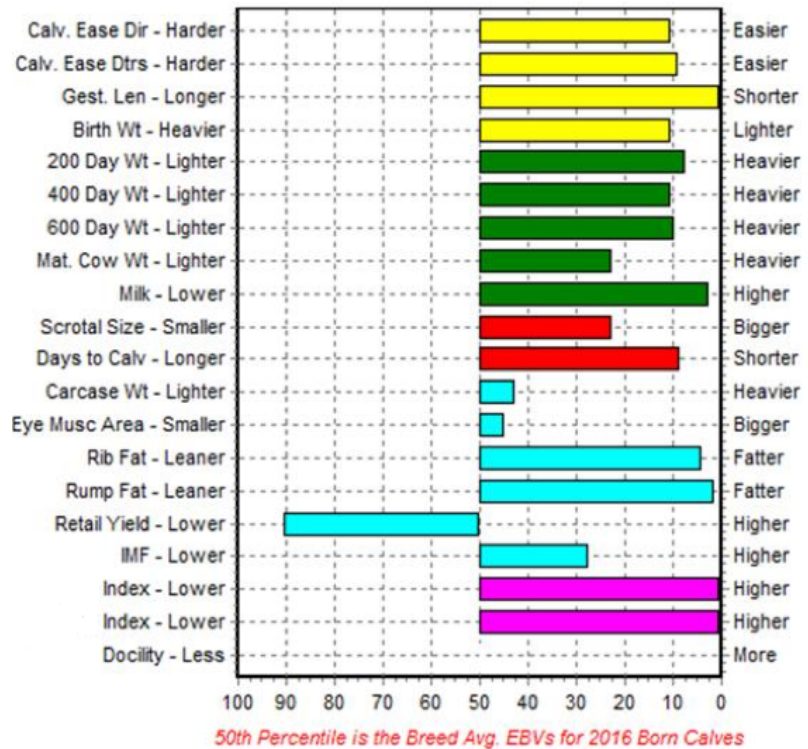
B+LNZ Genetics is driving value for dairy farmers through its Dairy Beef Progeny Test, which was launched in 2015. In its fourth mating of leading beef sires of all breeds across 1500 dairy cows annually—the project is making important inroads to proving the value of targeted beef sire use.

When using a beef sire across dairy cows, the key for generating value is more days in milk and peace of mind at calving. For the beef rearer and finisher, these calves need to grow as fast as possible to meet carcass specifications whilst considering the potential of improved eating quality. Using these criteria, the beef industry’s leading sires have been identified. These sires are progeny tested to identify the best bulls for both dairy and beef outcomes, and for eventual widespread use in Artificial Breeding.

Key findings from using beef sires across dairy cows

1. Selecting the right (recorded) sires for use across dairy cows means equal or improved outcomes for both the dairy and beef industry.
2. The shortest gestation length sires had calves born 14 days earlier than the longest gestation sire and the EBV did an excellent job of predicting this. At \$6.50/kg MS (1.4 kgMS/day), that’s an extra \$127/cow over the season—from using the shortest gestation sire. Leading short Gestation Length Angus and Hereford sires have calves on average as short as 276 days.
3. Leading low Birth Weight Angus and Hereford sires have calves on average as light as 33 kgs
4. Leading calving ease Angus and Hereford sires saw less than one percent of cows assisted at calving
5. Using beef sires does not affect milking performance
6. Beef EBVs are delivering on what they predict—use them with confidence when selecting bulls for use across dairy cows. For example, Graph 2 is an impressive example of a leading sire. Sires with bars towards the right side of the graph tend to be more desirable. This sire is pushing out to the top end of his breed for both calving ease and finishing traits.

Graph 2: An example of a leading sire



FIND OUT MORE

www.blznzgenetics.com/progeny-tests/dairy-beef-progeny-tests

Benefits of dairy farmers using better beef genetics



Taste Pure Nature origin brand

There are a number of initiatives currently underway in the market development space of value to the dairy-beef component of New Zealand's exports.

The Taste Pure Nature origin brand which was launched in California in 2019 is of long-term value as most of New Zealand's beef exports to the US are grinding beef from cows. TPN will be launched in China in 2020.

The market development team is also working with processing companies to identify potential new opportunities for bobby calves.

Taste Pure Nature is a New Zealand origin brand designed to raise the awareness and create customer and consumer preference for New Zealand beef and lamb. The role of Taste Pure Nature is:

- To provide a marketing umbrella for New Zealand meat exporter brand building activities
- To provide integrity to product sold under the brand
- To form part of a long term strategy to grow value for New Zealand beef and lamb supply chains by differentiating the product from competitors.

Our extensive research over the last two years has found that today's modern meat consumer is asking where has this product come from? How was it raised? Is it safe for my family to eat? At the same time New Zealand agriculture has come under the spotlight as both domestic and international consumers question whether New Zealand agriculture is as clean and green as it has been portrayed.

Consumers are making ideological decisions on what to eat, this is linked to the backlash against industrialised food systems. There is a desire for better food at all levels which supports a strong future for 'real' red meat.

New Zealand farming naturally fits in this category. However, while consumers image of New Zealand is positive, it is weak in relation to red meat. B+LNZ's research found that country of origin is a primary consideration when consumers are selecting food and is a shortcut to understanding and trust.

The Taste Pure Nature trade mark and associated brand is owned by B+LNZ and will be licensed for use. The eligibility criteria within the license agreement has been set in consultation with the industry. Only meat from farms that are part of the New Zealand Farm Assurance programme, or a processor equivalent, will be eligible to use the Taste Pure Nature origin brand, this provides assurances on integrity, origin, traceability, biosecurity and animal health and welfare.

As a sector, our future lies in driving more value and ultimately higher premiums for our products. New Zealand can only produce so much food. We have to be smarter about how we do it, to respond to these concerns, to tell the story of our unique grass-fed, free range farming systems, and to achieve better returns for our farmers.

Alternative proteins

In 2017, B+LNZ commissioned a major study to better understand the potential disruption if demand for red meat were to decline over time or shift to alternative proteins. The three key objectives of the study were to:

- Better understand the shifts in food and food production technology
- Identify threats and opportunities for New Zealand's red meat sector
- Identify the activities required to address these threats and opportunities.

The research indicated that alternative protein mince is likely to reach large scale manufacturing in three to five years. This would particularly impact on New Zealand's manufacturing beef exports from cull dairy cows to the United States.

The research also concluded that a number of forces are coming together that are driving governments, investors and consumers to look for alternatives to red meat. These include environmental concerns

relating to climate change and the ability to feed the growing world population in a sustainable way; the use of animals in food production; and the place of meat in a modern diet. Despite these challenges, the research demonstrates there is still a strong future for the New Zealand red meat sector. The report reveals an untapped demand for naturally raised, grass-fed, hormone-free and antibiotic-free red meat with consumers prepared to pay a premium for such products.

The same forces driving the significant investment and demand for alternative proteins, including concerns about industrial farming, health and the environment, offer us a chance to differentiate New Zealand red meat internationally.

It is vital we leverage our grass-fed, hormone and antibiotic-free competitive advantage—and rigorously protect it—to capture higher premiums and raise the value of our exports.

That is why B+LNZ and the sector has developed and activated the Taste Pure Nature origin brand and developed a National Farm Assurance programme.

New Zealand is in a prime position to take advantage of the unprecedented global demand for quality protein. We now have a better understanding of technologies, business models and consumer trends and how quickly advancements are being made that could impact on the New Zealand red meat sector.

Far from it being a crisis for red meat, we see these trends as an opportunity. B+LNZ wants to focus on raising the value of our exports and gaining higher premiums.

There is a window of opportunity to position ourselves globally as leaders in that naturally raised grass-fed space, and we must grab it with both hands.

FTAs and Brexit

Brexit remains a major focus for B+LNZ's trade team which is working closely with the Meat Industry Association (MIA), New Zealand Meat Board and the government. Alongside the Meat Board and MIA, B+LNZ has contingency plans in place to prepare for the scenario of UK leaving the European Union with or without a deal. This has involved a significant amount of work updating Meat Board software and processes in a bid to eliminate any possible delays of shipments of New Zealand red meat to the UK and EU.

B+LNZ continues to advocate for a sensible approach to be taken by the EU and UK to the WTO quotas and remains opposed to the UK and EU's proposal to split our WTO quotas for sheepmeat and beef if or when the UK leaves the EU Customs Union. B+LNZ will continue to advocate for a long-term solution that does not erode NZ's WTO rights.

B+LNZ is closely following the EU and New Zealand FTA negotiations. The negotiations are still in their early stages and we will continue to seek improved access for our products, particularly beef.

A fundamental principle for our industry is that WTO rights are set in stone, and we will not accept any cut back of our WTO access for the promise of improved access under an FTA in the future.

We are also keeping a close eye on the United States and have employed agricultural trade expert Jason Frost, who was based in the New Zealand Embassy in Washington and has 20 years' experience working on market access.

The Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) entered into force on 30 December 2018 providing access to four new markets (Japan, Mexico, Canada and Peru) and levelling the playing field with competitors like Australia. The timing of the CPTPP meant the sector has benefitted from two rounds of tariff cuts in quick succession from all member countries. Consequently, Japan's tariffs on beef have been reduced from 38.5% to 26.6% saving our sector approximately NZ\$5 million in the first three months of 2019 and based on last year's trade, is estimated to save our sector \$NZ19 million in 2019 (approximately \$7.90 per cattle beast slaughtered, more than the entire beef levy).

Innovation Farm programme

B+LNZ's Innovation Farm programme showcases innovation and puts new science to the test.

Innovation Farms are intended to showcase a narrow category of farming activity rather than taking a whole-farm approach. For example, an Innovation Farm may be forage-specific or production-specific for either sheep or beef.

The programme, which has been running since 2012, is aimed at farmers who want to help identify tools and practices that result in real financial improvements. Innovation Farms are likely to be technical in nature and involve unproven or new-to-market technologies. Each B+LNZ region has one Innovation Farm programme operating at any one time and farms are in the programme for three or four years

The Innovation Farm programme is 'innovation in practice' and carries some risk of not being successful.

Previous projects focused specifically on beef, including dairy beef production are: Raglan farmers Sandra and Steve Parrot who measured the effects of Facial Eczema on cattle, Northland bull beef farmers Grant and Christine West looked at ways to counter the cost of pugging, finishing bull beef on legumes in Southland, virtual fencing on a Waikato bull beef operation and developing an in-paddock weighing system on a large-scale beef finishing and dairy heifer export operation in Manawatu.

FIND OUT MORE

www.beeflambnz.com/knowledge-hub/PDF/innovation-farm-programme-2012-2016



Profitable calf rearing

Approximately 1.5 million calves are reared annually in New Zealand, both as dairy replacements and for the beef industry. Artificially reared calves account for approximately 65% of New Zealand's beef output through the slaughter of bulls, surplus heifers and cull cows. Various studies were undertaken from 1999-2010 with B+LNZ and other industry funders to compare differing calf rearing systems and provide advice and information to calf rearers about which systems provide the best advantages for raising calves.

Poukawa Calf Rearing Project

The Poukawa calf rearing project was run at the Poukawa Research Farm in Hawkes Bay from 1999-2010. It was funded by B+LNZ and a range of other funders, including the then Ministry of Agriculture, Dairy Insight, The Sustainable Farming Fund (MAF SFF) and The Agricultural and Marketing Research and Development Trust (AGMARDT).

A number of different calf rearing practices were tested and results from this work now form the basis for advice given to farmers raising calves in both the beef and dairy industries. The Poukawa Calf Rearing Project has become known as this country's best source of independent information on calf rearing.

Calf rearing at Poukawa—A summary and practical tips

While there is a wide range of calf rearing systems; there are advantages, both in the success of calf rearing and cost saving, to be gained through:

- Purchasing the right calf—When purchasing calves for rearing, it is recommended that four day old calves should be a minimum of 35 kg and have been fed at least two litres of colostrum.
- Facilities and animal health—While the type and construction of calf rearing facilities is not critical, all facilities must have good drainage, dry weather vehicle access for unloading calves and milk feeding. Hygiene and attention to animal health must be addressed each day
- Feeding—Once-a-day feeding with low volume milk systems and feed supplementation. For example, studies indicated calves receive a restricted volume of milk (200 g milk powder/per one litre of milk) and free access to cereal based meal or pellet for the rapid development of rumen tissue. The use of high protein meal is recommended, weaning off milk when calves are >60 kg in live weight and consuming sufficient pelleted feed to meet their maintenance needs (typically 1 kg head/day).

FIND OUT MORE

[Profitable Calf Rearing factsheet](#)



CHAPTER TWO

WORKING IN COLLABORATION

B+LNZ works closely and collaboratively with DairyNZ in many areas of shared interest. As well as avoiding the duplication of resources, this means the sharing of knowledge and skills across both organisations for the benefit of levy payers.

Dairy heifer grazing

Growing-out dairy heifers plays a significant part in many dry stock businesses and Beef + Lamb New Zealand is working alongside DairyNZ to promote best-practice dairy heifer management.

B+LNZ features DairyNZ-developed resources on its website to give farmers grazing dairy heifers the information they need to ensure the heifers in their care have the opportunity to realise their genetic potential over their lifetime.

Dairy farmers are trusting graziers with the future performance of their dairy herd while for graziers, dairy heifers generate valuable cashflow and are a valuable stock type to accommodate within a dry stock system.

Dairy heifers are managed as a “finishing animal” and should gain weight almost every day they are on a grazier’s property. Their feed requirements, both in terms of quantity and quality, take careful planning to meet.


To help graziers understand the nutritional requirements of dairy heifers, a Heifer Feeding and Nutrition resource details the energy and protein requirements of heifers at different ages and stage as well as the quantity of drymatter required to drive growth rates. It also provides weight-for-age liveweight targets.

Nutrition pre-puberty influences the skeletal size of the heifer and well-grown heifers will ultimately produce more milk, compete better with mature cows and have greater longevity within the herd.

The resource also covers the use of crops and supplements and water and mineral requirements.

A Weights and Weighing resource provides practical advice around weighing, including targets, timing, weighing systems, how to take into account gut fill and identifying the reasons behind poor animal performance.

Both the Heifer Feeding and Nutrition and Weights and Weighing resources have links to more detailed information about related topics which allows graziers to drill down into detail about specific management practices.

 **FIND OUT MORE** www.beeflambnz.com/knowledge-hub

Winter grazing

Winter grazing practices have come under the spotlight in recent years from both government and the general public.

To help farmers minimise their environmental impact, B+LNZ led work to promote good management practices for the winter grazing of forage crops.

B+LNZ and DairyNZ have developed a series of factsheets, multi-media resources and over the past two years, have run a comprehensive media campaign targeting farmers, contractors and people working in rural support services.

Winter grazing resources include advice around the management of livestock and crops including paddock selection, identification of Critical Source Areas, pre-grazing management, strategic grazing and post-grazing management.

These resources, which include fact sheets, podcasts and video clips, draw on research carried out by AgResearch which shows how the correct management can reduce nutrient losses and run-off from winter feed crops by as much as 70 percent.

B+LNZ has dedicated a webpage to winter grazing on the B+LNZ Knowledge Hub.

Understand the risks of winter grazing

Winter grazing can increase the risk of sediment, harmful bacteria and nutrients ending up in waterways. Reducing this risk begins with paddock selection. Paddocks with water flowing through or over the soil present the most risk. For example: paddocks with sub soil drainage systems, paddocks on slopes or paddocks with stony free draining soils.

Once a suitable paddock has been identified, to reduce the risks think carefully about:

1. Establishment methods,
2. How they will be grazed and
3. What animals will be grazing them.

It is also important to consider catchment-specific water quality issues when selecting paddocks for winter feed crops.

In catchments where nitrogen leaching is a problem, be aware that growing and intensively grazing crops increases the risk of nitrogen leaching so avoid intensively winter grazing on shallow, stony soils.

In catchments where phosphorus and sediment loss are the main issue, focus on the proximity to waterways and reducing overland flow.

If a paddock is too steep to get a tractor on, it is too steep for wintering cattle. We recommend not sowing a crop in paddocks or areas in paddocks steeper than 20 degrees.

To slow down water and soil moving down the hill consider cultivating and sowing across the slope, this reduces nutrient and soil loss.

However only when it is safe and practical to do so do not attempt this when the slope is too steep.

Consider the risks in each paddock

Make sure winter feed crop paddocks are set right back from all waterways or wet areas, we recommend a buffer of at least five meters. This will reduce the risk of topsoil, phosphorus, nitrogen and fecal contaminants reaching water bodies. Identify Critical Source Areas (CSAs) which are areas that are prone to surface run-off and contaminant-loss such as gullies and swales. CSAs should ideally be left intact and not be sprayed, cultivated, sown in crop or grazed. They should be fenced off during grazing to reduce the risk of contaminating waterways.

Soil type can impact productivity, nutrient loss and animal welfare. If you have light or stony soils, seek advice on using catch crops to capture nutrients. Consider only grazing lighter classes of stock on heavy soils during winter. Heavy soils are at greater risk of pugging, compaction and structural damage.

If your soils are prone to pugging, consider leaving areas of the paddock in grass for animals to rest on.

Damage to soils from poor grazing management of winter crops will impact on the future productivity of that paddock.

Take note of local regulations, some regional councils have specific regulations in place.

Things to consider when selecting paddocks

- What class of stock will be grazing in that paddock? Consider using high risk paddocks only for wintering sheep while lower risk paddocks can be used for cattle and deer.
- Consider the aspect—is the paddock north or south facing? South facing paddocks may be slower to dry out and therefore more prone to pugging.
- Think about catch-crop options—the quicker a follow-up crop is established after the feed crop has been grazed, the less chance of losing valuable nutrients.
- Animal welfare factors—Is there appropriate shelter and somewhere free of mud for livestock to lie down?
- Is there drinking water in the paddock, where are the troughs, are portable troughs required?
- Is the paddock easily accessed—even in winter? Ideally supplementary feed should be put into the paddock prior to grazing to reduce heavy traffic on wet soils.
- Consider biosecurity—ensure stock (particularly cattle) don't have nose-to-nose contact with your neighbor's animals.
- Make sure you adhere to all local regional council rules and regulations around winter grazing

 **FIND OUT MORE**
www.beeflambnz.com/wintergrazing

Mycoplasma bovis

A key focus for B+LNZ in 2018 was working with government and DairyNZ on the eradication of *Mycoplasma bovis* (*M. bovis*). Alongside government, the Rural Support Trust, and DairyNZ, we increased our support for affected farmers to navigate the compensation process, including the implementation of new compensation support teams and improved guidance on the compensation process.

We have also boosted efforts to provide practical on-farm advice to manage biosecurity risks specific to *M. bovis*, including a comprehensive *M. bovis* booklet that was sent to all farmers in June 2018.

B+LNZ representatives participated in the MPI-run national *M. bovis* roadshow to ensure all farmers had the information they needed. In conjunction with other industry partners, B+LNZ has hosted a separate series of interactive workshops aimed at raising awareness of on-farm biosecurity. These workshops helped farmers to begin or further develop formal biosecurity plans for their farms.

According to recent research by UMR undertaken for B+LNZ, 57 percent of farmers have taken precautions against the disease, although only 40 percent have an active biosecurity plan. One of the main reasons farmers said they don't have a plan is that they are unsure where to begin. B+LNZ is planning to hold further biosecurity workshops to support farmers to build practical and robust biosecurity plans.

In December 2018, B+LNZ and DairyNZ agreed to share the cost of the phased eradication with a 94 percent dairy and 6 percent beef cattle split. This was recommended by an independent panel established for this purpose, and is explained by the potential severity of clinical disease in milking herds compared with extensive beef systems and the relative values of beef and dairy production (approximately \$2.7 bn beef versus \$10.6 bn dairy) at risk from the disease. Dairy farmers do not pay beef's share through cull cows, they only pay through milk solids.

Biosecurity workshops

Biosecurity workshops are a time-efficient way for all livestock farmers to assess their on-farm biosecurity practices and begin developing an action plan that addresses any gaps in those practices.

The workshop, which has been led by B+LNZ (who worked alongside DairyNZ and OsPRI), will give farmers a clear understanding of the biosecurity interventions they need to take within their own operation and the importance of excellent on-going biosecurity practices for their industry.

Interventions will vary depending on the type of farm, species kept, disease status and existing management practices.

Biosecurity is defined as a set of measures designed to prevent the entry, establishment and spread of pests and diseases into a country, area or property. At the farm level, this mainly involves preventing the introduction of pests and disease onto the property and limiting the onward spread of any pest or disease following introduction.

After completing the workshop, farmers are encouraged to discuss their plans and processes with their veterinarian and develop a written biosecurity plan for their farm.

 FIND OUT MORE

www.beeflambnz.com/compliance/biosecurity

www.ospri.co.nz

www.dairynz.co.nz/business/biosecurity

NAIT and E-ASD's to improve traceability

B+LNZ has been united with the other shareholders in OSPRI, DairyNZ and DINZ in seeking better performance and usability of the NAIT system. This is a good example of an area where the industry bodies routinely adopt a team approach to supporting each other in policy discussions and in developing submissions in response to legislative consultations on behalf of levy payers.

We all recognise that better compliance with NAIT rules is required but that this also needs to occur

alongside improvements to the system to make it easier to use. Part of this has been a review of NAIT standards with the aim of achieving more alignment with systems such as MINDA, where dairy farmers should ideally only have to enter information about traceability into one system.

In addition to NAIT, B+LNZ, as a lead funder in the Red Meat Profit Partnership (RMPP) has invested heavily in the development and testing of a system to make Animal Status Declarations electronic

(eASDs). These have proved very popular with the meat companies and farmers that have used the system, and eASDs offer huge potential for efficiently capturing whole of life farm management information of value to customers of meat and dairy products. eASDs may also provide an efficient and effective mechanism for capturing information about the location and movements of animals not currently captured by NAIT, most importantly sheep, pigs and goats.

Sector capability

B+LNZ invests in a range of initiatives that help support the industry's international competitiveness by building the skills and knowledge of its people. In most of these programmes we invest in collaboration with DairyNZ to maximise benefit for both industries.

Currently, we support agricultural career promotion in schools via PICA, NZ Young Farmers and Young Enterprise Trust. This includes the national careers expos that host over 35000 High School students each year, and specialised agriculture days for school clusters in targeted localities. DairyNZ and B+LNZ are partners in these programmes alongside other parties. We also invest in Primary ITO sheep and beef programs, and every year we host a number of dairy

employees who choose to do the beef strand of the national certificate. We are also partnered with DairyNZ to support the St Paul's Collegiate School's agriculture curriculum project. This program has 'taken the bull by the horns' and addresses the lack of substantial agricultural curriculum for pre university high school students.

B+LNZ supports programmes that ensure leaders are developed at all levels of the sector. Such as the Kellogg Rural Leadership Programme, Young Farmers and a range of programmes for women and farming couples delivered by the Agri Women's Development Trust which focuses on having 20% dairy industry women on their programmes.

Animal welfare

B+LNZ is actively involved with other sector organisations in the Farm to Processor Animal Welfare Forum in undertaking a review of animal welfare standards and codes of welfare in NZ. We are currently chairing the working group for the review of the Sheep and Beef Cattle code while also sitting on the working group for the Dairy Cattle code review and the review into animal welfare interventions.

We are also consulting with MPI on behalf of the sector regarding new regulations for significant surgical procedures performed on animals. Procedures consulted upon range from routine farm practices such as docking lambs to performing a caesarean section. These regulations are likely to be taken to cabinet for approval in 2020.

Novel Endophytes

World-leading New Zealand research, which B+LNZ helped fund, discovered new and novel endophytes including AR1 and AR37.

These endophytes have given farmers the ability to protect their pastures from specific insect pests while having little or no impact on animal health, welfare or productivity.

Endophyte is a naturally occurring fungus. Its complete life-cycle occurs within grasses such as perennial ryegrass and tall fescue where it produces chemical compounds known as alkaloids. In their "wild" state, these confer some pasture pest control, but may also cause production-limiting animal health issues.

The discovery of naturally-occurring new or novel endophytes has given all livestock farmers the ability to select an endophyte specific to their pest status while maintaining animal productivity.

Biocontrol of clover root weevil

White clover is a critical part of New Zealand's pastoral scene and any threat to its productivity poses a serious risk to the agricultural sector. B+LNZ is involved in efforts to control one such threat—clover root weevil. Its larvae attack clover roots and nodules and adults eat leaves. They are capable of reducing clover production by up to 33%.

In 2006, AgResearch entomologists released a biocontrol agent—a tiny Irish wasp (*Microctonus aethiopoides*)—to help control the clover root weevil. The Irish wasp strikes at the adult weevil, injecting one or more eggs into the abdomen, rendering the female weevil sterile and breaking the weevil's life cycle. The wasp larvae grow inside the weevil, killing it when the last larval stage bursts out of the weevil's body. The larva then pupates in the pasture litter, before emerging as a wasp to start the next generation. In 2015, B+LNZ and DairyNZ collaborated to run a series of workshops to provide South Island farmers with advice and vials of parasitized Clover Root Weevil for release. This was to ensure the parasitoid spread was as effective as possible.

The Irish wasp has established successfully at multiple sites in the North and South Islands, and the focus is now on how drought, locality and pasture management have affected impact and spread. Over the past 12 years, financial contributors to the project have been B+LNZ, the Foundation for Research, Science and Technology, DairyNZ and AGMARDT.





Pastoral Greenhouse Gas Research Consortium

Pastoral Greenhouse Gas Research Consortium (PGgRc) is working to reduce greenhouse gas emissions from agriculture and since 2002 has invested around \$75 million in scientific programmes aimed at giving farmers the knowledge and tools to mitigate the greenhouse gases produced by grazing animals.

B+LNZ is a partner in the Pastoral Greenhouse Gas Research Consortium (PGgRc), alongside AgResearch, DairyNZ, DEEResearch, the Fertiliser Manufacturers' Research Association, Fonterra, PGG Wrightson Ltd and Landcorp. The board includes Andrew Morrison, B+LNZ Farmer Director for the Southern South Island.

The research

PGgRc has produced internationally acknowledged research on the production of methane and nitrous oxide from grazing livestock as part of the most comprehensive programme of its type in the world.

 **FIND OUT MORE**
www.pggrc.co.nz

Pastoral Genomics

Pastoral Genomics is a consortium for forage improvement through biotechnology, comprised of B+LNZ, DairyNZ, DEEResearch, Grasslands Innovation (a joint venture between Grassland Technology and PGGW Seeds), Agriseeds, AgResearch and Dairy Australia. The board includes George Tatham, B+LNZ Farmer Director for the Eastern North Island.

Forage improvement

The aim of Pastoral Genomics is to deliver smart, sustainable forages to New Zealand, using plant biotechnologies to improve the productivity, sustainability and quality of New Zealand forages. Pastoral Genomics has developed tools to breed cultivars with smaller environmental footprints, greater productivity and other traits to meet industry targets. It is working towards cultivars with more dry matter, more metabolisable energy, better digestibility, more efficient fertiliser use, tolerance to drought, greater persistence and control over traits like flowering.

The Pastoral Genomics strategy is to use genomics in pre-breeding and breeding programmes for ryegrass and clover, delivering profitability gains to New Zealand farmers and creating a more resilient and sustainable pastoral sector.

PG+

Pastoral Genomics' latest research proposal is called PG+ and focuses on genomic selection in commercial breeding programmes and using genomics to discover, characterise and use novel traits that exist in ryegrass and clover populations. PG+ will link research through to commercialisation and adoption by farmers.

 **FIND OUT MORE**
www.pastoralgenomics.com



Pastoral 21

Pastoral 21 (P21) was a five-year collaboration jointly funded by B+LNZ, MBIE, DairyNZ, Fonterra, the Dairy Companies Association of New Zealand (DCANZ) and AgResearch with the goal of boosting farm profits and production while reducing environmental footprint. The programme, which included sheep and beef farming as well as dairy, began in 2007 and concluded in 2012. P21 was run in two phases. Phase II drew on the work of Phase I and aimed to produce efficiency gains which reduced the environmental footprint while maintaining production gains.

Objectives

Objectives covered three broad areas:

1. Next generation dairy systems—dairy production systems were tested in four key dairy regions, using readily adoptable approaches expected to increase profitability from production while reducing nutrient losses to water. Researchers found that profitability can be maintained while reducing nutrient losses by significant amounts.
2. Lifting profitability for mixed livestock systems—to optimise the forage grown on farms where lambs and young beef animals are finished on hill country.
3. Breakthrough technologies—to prove new concepts that have the potential to change the relationship between production gains and environmental footprint.

Phase II

Phase II's goals were to achieve:

- \$110/ha/year increase in average profitability from dairy production, with a 30% reduction in nitrogen and phosphorus losses to water
- Three percent annual meat productivity increase, while containing or reducing environmental footprint.

What's next?

With the research programme now at an end, researchers are mining results to turn findings into resources for farmers.

 **FIND OUT MORE**

www.beeflambnz.com/your-levies-at-work/pastoral-21



Solutions to manage Johne's Disease

Johne's disease (JD) is a chronic, progressive, contagious and generally fatal infection of cattle, sheep, deer, goats and wildlife. It is an ongoing disease of concern for the livestock industry. While levels are low in New Zealand currently it has the potential to have a significant impact on animal welfare and market access.

The Johne's Disease Research Consortium (JDRC) was a joint venture between industry and the science community that ran from 2008-2016 to coordinate Johne's disease research in New Zealand.

The Consortium's research programme focused on issues "behind the farm gate" and its goal was to develop practical and cost-effective tools which could be used to reduce the prevalence of Johne's disease in herds or flocks in New Zealand. Alongside the research programme the JDRC was responsible for developing a coordinated set of resources for the management and control of Johne's disease in cattle and sheep in New Zealand.

Upon closure of the JDRC in 2016 the Johne's Advisory Group (JAG) was established as working group to provide ongoing support and insight for industry on research and development and the control and management of JD in New Zealand. The group is jointly managed by B+LNZ, DairyNZ and Deer Industry New Zealand.

JDRC Dairy Cattle Key findings

- A toolbox for the control and management of JD in dairy herds was developed by the JDRC which recommends a number of practical strategies to reduce the impact of JD on farm, which include:
 - Test and cull of clinical and high-risk animals from the herd, as they are a major source of contamination on farm.
 - The management of calves and heifers to minimise their exposure to contamination from adults or their environment, as young animals are most susceptible to the disease.

- Clinical JD reduces the productivity of dairy cattle both seasonally and across the lifetime of a cow. Milk, fat and protein yields could be significantly lower in JD positive cows. Simulation modelling also suggests that JD may reduce income on a dairy farm by 6-15%.
- Prevalence studies suggest that *Mycobacterium avium Paratuberculosis* (MAP), the bacteria that causes JD, is widespread in New Zealand and infects over 50% of all flocks and herds. However the rate of clinical disease is actually quite low. The JDRC study screened over 5000 dairy herds for JD by bulk vat milk ELISA in 2008-2010; 1% herds tested positive and 5% herds were classified as suspect for the disease.
- Bulk milk vat ELISA testing has been shown to be a useful tool for screening dairy herds for JD, but screening should not be attempted in late lactation as raised antibody levels in milk interfere with test performance.
- Dairy cattle have been shown to most likely test positive to JD between lactations 3-6. There is limited value in testing for JD infection in young cattle as both culture and serology can fail to detect infected animals.
- Herds are more likely to see clinical JD on farm with increasing herd size and if replacement heifers are transported off farm at over five months of age or calves are raised on the property of birth for at least one-month post-weaning.
- Jersey cows were shown to be three times more susceptible to JD than Holstein-Friesians.



FIND OUT MORE


www.jdrc.co.nz

Toolbox for control and management of JD in dairy cattle

Diagnostic guidelines for dairy cattle

Johne's disease—Management for New Zealand beef cattle and dairy replacements

www.beeflambnz.com/knowledge-hub/PDF/johnes-disease-cattle



CHAPTER THREE

FARM MANAGEMENT TOOLS

B+LNZ has developed an array of farm management tools to help farmers make the most efficient and effective use of their natural and human resources to drive productivity and profitability while protecting and enhancing their environment. These workshops, tools and resources are available to all levy payers and we encourage dairy farmers to use them. The following is a summary of some of the more relevant ones.

Farm Safety Management System— processes, plans and workshops

B+LNZ has funded the development and delivery of workshops, events and resources to help all farmers, dairy or drystock, successfully implement good health and safety practice on their farms. These resources and events are available free to all B+LNZ levy payers. Check out B+LNZ's health and safety resources on the website. If you want to attend a workshop to help set up your Farm Safety Management System, please contact us on 0800 BEEFLAMB (0800 233 532) or your local Extension Manager.

On average, 17 people die in farm workplace accidents every year. In addition to deaths, there are thousands of injuries that lead to a loss of productivity and income for farmers. And during the summer of 17/18, almost 550 farmers suffered injuries serious enough to require at least a week off work.

Families and rural communities as well as individuals directly affected bear the cost of these on-farm accidents. Most farmers know someone who has been injured or died as a result of an accident.

Talking about farm health and safety is never a popular topic, but we need to place the same priority on health and safety as we do with fertiliser or any input as part of on-farm business as usual activity.

Although the agricultural sector has made some progress in recent years, health and safety is an area where we can't take our foot off the pedal.

B+LNZ has been investing in initiatives to support our farmers to improve health and safety on their farms. More than 4,000 farmers have already participated in our Farm Safety Management Systems (FSMS) workshops. These have become recognised as the sector's most successful farm health and safety programme.

B+LNZ has also been using its Event Safety Management System for all events with clear standards and expectations for facilitators and farmers, in particular, around vehicle use.

Northland's Beef Profit from Pasture project

In 2016, a three-year B+LNZ funded Beef Profit from Pasture project was set up to identify strategies that lift pasture eaten on Northland farms from May to December by 1000kgDM/ha. The majority of farms in the project were finishing dairy beef bulls.

At 30c/kgDM this is \$300/ha more revenue—or a 25-35% increase for a typical Northland farm. Pasture growth from May to December is typically more profitable and growth rates more consistent than summer and autumn months.

The group, which was facilitated by AgFirst farm consultant Gareth Baynham, worked to identify, test and demonstrate the effectiveness of pasture management strategies and share these strategies with other farmers. They drew on many of the tools and techniques used by dairy farmers.

The focus was very much on managing pasture, rather than re-grassing or cropping, although the group did look at sowing annual (or Italian) ryegrass into Kikuyu.

Amongst the management practices the group considered were rotational grazing versus set-stocking, 30-day versus 60-day winter rotations, autumn Kikuyu management and the relationship between stocking rate and pugging.

What they learnt

Faster winter rotations resulted in less pasture growth, lower pasture covers and more pugging, but rotational grazing was still superior to set-stocking with 29% more pasture harvested, 50% less pugging, 60% more liveweight gain and \$574/ha more income.

A longer 60-day rotation resulted in 77% more pasture harvested, 44% more liveweight gain and \$212/ha more income than a 30-day winter rotation. Pasture quality was also better in winter and spring under the longer rotation.

Mulching or mowing Kikuyu. This increased liveweight gain by 35% over hard-grazing which only increased liveweight gain by 18% compared to doing nothing.

There was a net benefit of around \$150/ha for hard grazing or mulching compared to no kikuyu control, but mowing had the highest net financial benefit of around \$240/ha or 60% more because it was cheaper than mulching.

Stocking rate and pugging. Two of the three winters in the project period were very wet, highlighting that pugging is a major issue on Northland farms. A 2017 demonstration comparing R1 and R2 cattle highlighted significant differences in pugging, production and profit.

There was more pugging in the R2 cattle system (78% pugged compared to 50% for R1). While production was good under both systems, weight gain in the R1 cattle was exceptional at 941 kgLWG/ha which was 72% more than the R2 cattle. Pugging would have contributed to this difference in performance.

While running lower stocking rates reduced pugging, production and revenue were similar across low, medium and high stocking rates.

Variable stocking rates. A strategy of running lower stocking rates through winter then topping up with extra cattle in spring did benefit with high pasture covers and reduced pugging even after the extra stock was added. This resulted in 29% more liveweight gain, however this was off-set by the premium paid for extra cattle in spring—so revenue was similar.

It is also important to remember that adding extra bulls to mobs in spring can be logistically challenging.

Annual/Italian ryegrass. While sowing annual ryegrass into Kikuyu increased pasture growth and cover resulting in a 10-50% liveweight gain, most of the advantage was lost in the cost of buying and establishing seed.



Dairy farmers get Wormwise®

The nationwide initiative, Wormwise®, was established to minimise the impact of internal parasites on New Zealand's stock by assisting all farmers with their on-farm management practices.

B+LNZ is the sole funder of Wormwise and its resources and activities; this funding provides information, advice and resources for all cattle farmers, whether beef or dairy.

Managing internal parasites is one of the biggest challenges that farmers face. Research shows that there is widespread resistance to several drench families across both sheep and cattle. Wormwise is the product of an industry initiative to develop a national worm management strategy. Wormwise delivers this strategy by managing and integrating research work, education, communication and extension services for farmers, veterinarians, key influencers and retailers.

Get Wormwise®

Many dairy farmers are registered to receive Wormwise® resources, including regular seasonal newsletters and the Wormwise® Handbook.

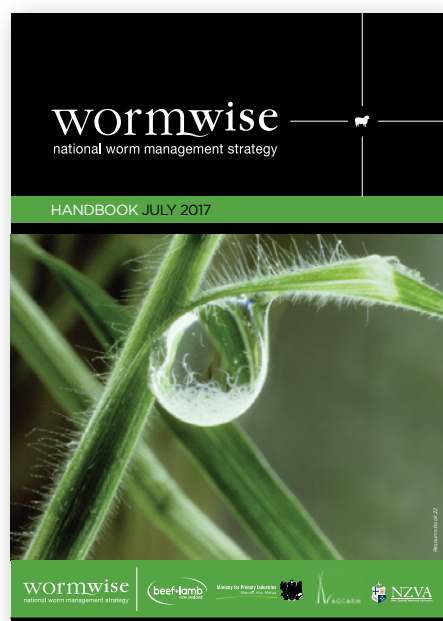
Strategy and action

Dairy industry representatives are involved with regular reviews of the Wormwise® strategy, action plans and extension services.



In summary

- If you are not receiving Wormwise® updates, register on 0800 beeflamb (0800 233 352) or email wormwise2@gmail.com
- Be aware of the internal parasites prevalent in your area and their potential impacts on your farm operation.
- Do you know the levels and types of worm burdens in your stock before drenching? And whether the drench you use is effective?
- There are grazing practices which greatly reduce worm burdens in stock. Consider if any could be integrated into your operation.



What you need to know about internal parasites?

Answering these questions will give you the knowledge to manage your dairy operation as effectively as possible:

- What internal parasites or worms are prevalent in your area?
- What are their life cycles?
- Do you know how they affect dairy cattle?
- Do you know the levels and types of worm burdens in your stock before drenching?
- Do you know whether or not the drenches you use are effective?

 FIND OUT MORE

www.wormwise.co.nz

Wormwise resource book

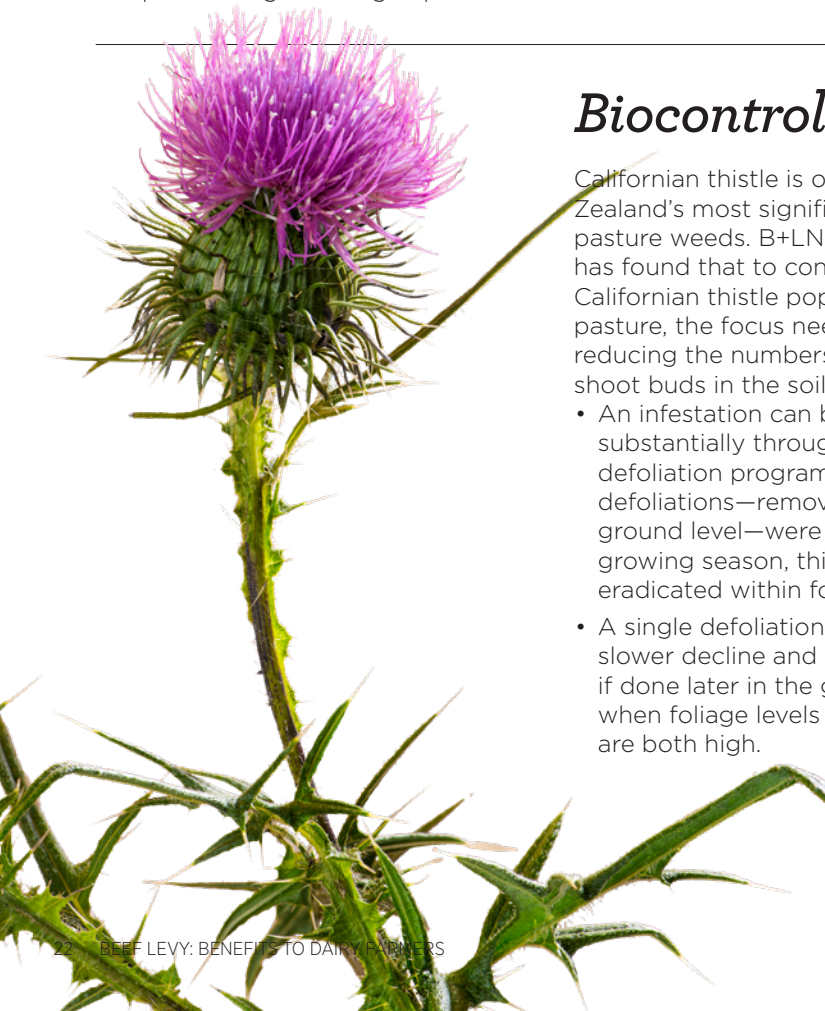
Wise use of nitrogen fertiliser on hill country

A project supported by B+LNZ shows nitrogen fertiliser use on hill country, when applied at normal commercial rates, is unlikely to cause significant adverse effects to the environment. The findings are relevant to farms where dairy replacement and dry cows are grazed on hills. Financial pressure on hill country farming has increased intensification, resulting in a greater use of nitrogen fertiliser. Nitrogen fertiliser can undoubtedly increase out-of-season feed supplies, but there has been concern its use may increase leaching from grazed pastures and contaminate waterways. Over four years, AgResearch conducted paddock trials at Ballantrae Research Station in southern Hawke's Bay and Invermay Research Centre in Otago. A focus farm component, investigating the use of nitrogen fertiliser under commercial conditions, ran in parallel. Fifteen farmer groups took part and each group included one farm in the study. Experiments measured pasture performance, stocking rate and environmental impacts of nitrogen fertiliser applied at rates of up to 750 kg of nitrogen per

hectare per annum over four years. The two research station trials measured a range of pasture and environmental variables, with the most emphasis on nitrogen leaching. Sheep stocking rates were adjusted to utilise the extra feed grown, as nitrogen application rates were increased. (This recognises that nitrogen leaching is mainly from animal urine patches, rather than the fertiliser itself.) Results showed using nitrogen at usual hill country commercial rates of up to 50 kg of nitrogen per hectare per annum had a minimal environmental impact. It was only the considerably higher application rates that showed significant increases in leaching. This suggests current nitrogen fertiliser application on hill country is a safe and viable management option. Alongside B+LNZ, research was supported by FertResearch, and environmental impacts MAF Sustainable Farming Fund, Pastoral Greenhouse Gas Research Consortium, from nitrogen fertiliser applied Ballance Agri-nutrients and Ravensdown Fertiliser.

In summary

- Using nitrogen at usual hill country commercial rates of up to 50kg of nitrogen per hectare per year has minimal environmental impact.
- Paddock trials were conducted over four years at Ballantrae Research Station and Invermay Research Centre.
- Fifteen farmer groups took part in the research and each group included one farm in the study.
- Experiments measured pasture performance, stocking rate and environmental impacts of nitrogen fertiliser applied at rates of up to 750 kg of nitrogen per hectare per annum over four years.
- Nitrogen fertiliser application is a safe and viable option when used at current commercial rates and on small proportions of farmed hill country.



Biocontrol of Californian thistle

Californian thistle is one of New Zealand's most significant permanent pasture weeds. B+LNZ funded research has found that to control established Californian thistle populations in a pasture, the focus needs to be on reducing the numbers of over-wintering shoot buds in the soil.

- An infestation can be reduced substantially through a two-year defoliation programme. When three defoliations—removing all shoots to ground level—were carried out per growing season, thistles were virtually eradicated within four years.
- A single defoliation per year gives a slower decline and is most effective if done later in the growing season, when foliage levels and root growth are both high.

- Defoliation may be achieved by mowing, hard grazing or with a herbicide. Seek advice about suitable herbicides.
- For greatest success from mowing or grazing, Californian thistles should be defoliated as close to the ground as possible.
- Regardless of the defoliation method, it is crucial to remove as much of the above ground vegetation as possible, for as long as possible, thereby minimising root formation.
- Insect and microbial biocontrol agents are potential future defoliators, particularly on hilly terrain.

Tools and apps

B+LNZ supports and funds several tools and apps for the benefit of all farmers nationwide.

AgPest

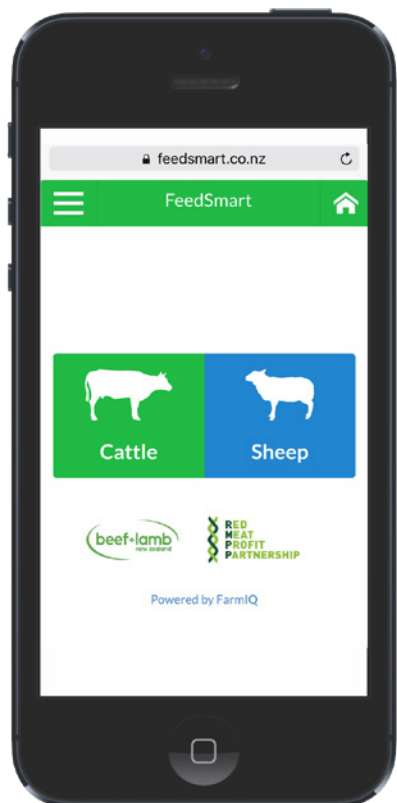
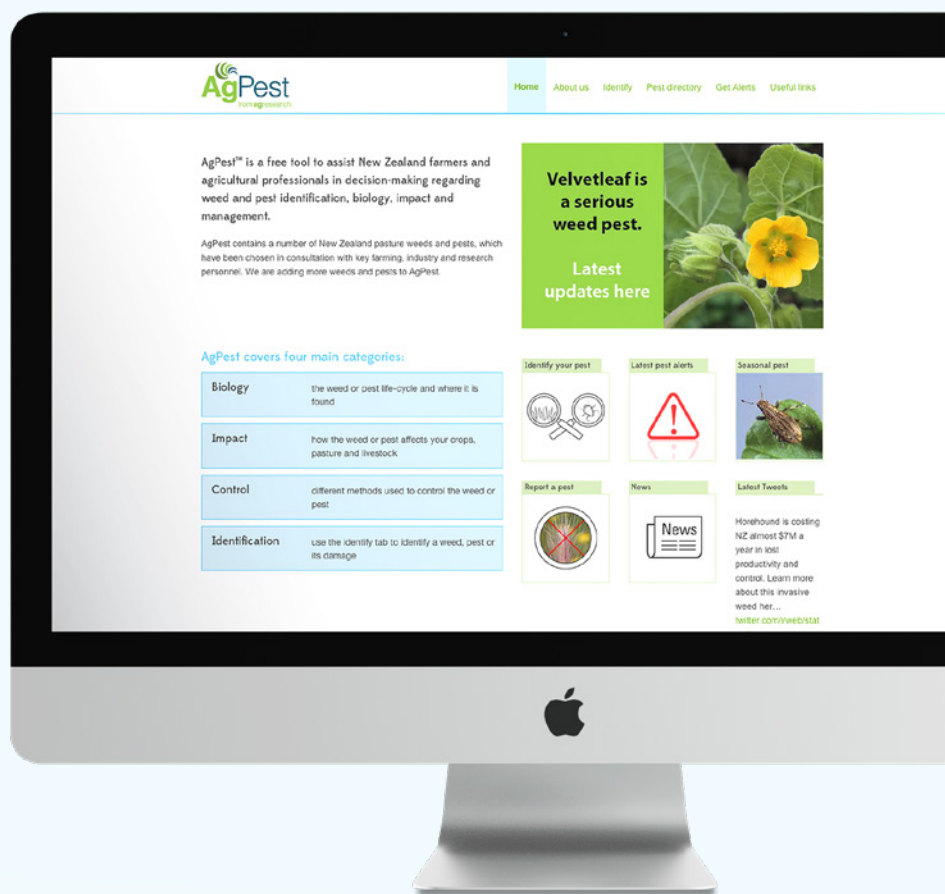
AgPest is a free tool to assist New Zealand farmers and agricultural professionals in decision making regarding weed and pest identification, biology, impact and management. It is focused around four main categories: biology, impact, control, and identification.

The website currently has practical information on over 80 pest and weeds commonly seen by farmers. Register to receive alerts providing timely information warning farmers of pest issues in their region and suggested management responses.

B+LNZ funds and operates a free AgPest text message service for all farmers, whatever their farm type.

 **FIND OUT MORE**
www.agpest.co.nz

Sign up for pest alerts via text message
www.beeflambnz.com/user/newsletter-signup



Feedsmart App

The FeedSmart app brings together a raft of variables to give farmers instant information on nutritional requirements of different classes of livestock, feed values and feed allocation. It is applicable for young dairy stock and wintering cows, as well as beef production.

Developed by B+LNZ in conjunction with the Red Meat Profit Partnership (RMPP), the app helps farmers estimate the feed requirements for sheep and cattle at any time of the year and for different levels of production.

The app is available free of charge at www.feedsmart.co.nz and once downloaded, it works offline anywhere, anytime a device is turned on. FeedSmart is compatible with any computer, tablet or smart phone.

 **FIND OUT MORE**
www.feedsmart.co.nz
Feedsmart app user guide

Lucerne Texts

If you grow or graze lucerne B+LNZ, offer a free text message service for all lucerne farmers, irrespective of stock or farm type, with reminders and tips about lucerne management. Written by Professor Derrick Moot of Lincoln University, these are timely reminders of the best management practices for lucerne. Access to timely updates is available from Lincoln University's ongoing lucerne research and management—such as warnings about potential pest or disease issues. The service also allows farmers to send in questions, which will be answered by Professor Moot or one of our team.

 **TO JOIN THIS SERVICE**

E: resources@beeflambnz.com
P: 0800 BEEFLAMB (0800 233 352)
Please provide your phone number and postal address

Sign up for lucerne via text message
www.beeflambnz.com/user/newsletter-signup



CHAPTER FOUR

ENHANCING OUR ENVIRONMENTAL POSITION

In 2018, B+LNZ launched its new Environment Strategy. The Environment Strategy lays out a progressive long-term vision for the sector based around four priority areas—healthy productive soils, thriving biodiversity, reducing carbon emissions, and cleaner water. B+LNZ works closely with DairyNZ on a number of initiatives under the strategy, and we encourage Dairy farmers to use the tools and resources that are being developed under it.

As part of this strategy, B+LNZ has identified two key goals—every sheep and beef farm having a tailored and active environment plan by the end of 2021; and the sheep and beef sector moving towards carbon neutrality by 2050.

Over the next three years, B+LNZ will roll out a range of environmental initiatives to support sheep and beef farmers (many of which are also of value to dairy farmers). This includes establishing a Catchment Community Group programme to help communities work together to target water quality, greenhouse gas emissions, biodiversity, and soil health issues.

The organisation will also invest in developing a new generation farm plan that encapsulates these four priorities, develop new tools and technologies, provide support and advice and undertake research.

In all of this work, B+LNZ collaborates closely with DairyNZ and other stakeholders. In particular, Catchment Community Groups are an opportunity for all farmers and land managers, irrespective of type of farm, to work together for mutual benefit.



www.beeflambnz.com/environment-strategy

Carbon and freshwater workshops

In 2019, B+LNZ launched two new workshops on carbon and freshwater management which are relevant to dairy farmers. The 'Farms, Trees, and Carbon' workshops help farmers understand climate change, the Emissions Trading Scheme, on-farm tree planting, and the One Billion Trees programme.

The freshwater workshops aim to help farmers monitor and improve freshwater quality on farm. We encourage dairy farmers to keep an eye out for these workshops in their region and attend.



Catchment Community Group Programme

Encouraging and supporting all farmers, whether sheep, beef, dairy or other, to work together at a scale is a key part of implementing B+LNZ’s Environment Strategy. A catchment group is a gathering of people, irrespective of industry, working together, who identify with a geographical area, usually based on a river or lake catchment.

Catchment Community Groups collectively take actions to achieve long-term goals based on a healthy environment (from water quality to biodiversity goals) and a thriving community.

Farmer-led catchment groups are a great platform for building thriving farming communities, valued by all New Zealanders. To be effective, group members need to agree on common goals. Reasons for creating a group include:

- Create and own your future
- Get a greater return on your individual actions and connect them to meet catchment priorities
- Establish an authoritative voice with decision makers and shape rules—working together to influence regional plans
- Engage with, connect and empower your wider community
- Create and demonstrate a catchment story and highlight the great progress that farmers are making to improve the environment
- Improve profitability—creating a demonstrable local story that leads to a value-added product (e.g. Taupo Beef)
- Kaitiakitanga—for your children’s children.

 FIND OUT MORE www.beeflambnz.com/catchments

Land and Environment Plans for dairy farmers

Beef + Lamb New Zealand's Land and Environment Plan (LEP) toolkit guides farmers through a step-by-step process to document the land and environmental issues on their farms and plan how those issues will be managed.

Why have a Land and Environment Plan?

A well-prepared LEP captures land stewardship and provides proof of what measurable environmental actions are being undertaken. If a LEP is written down with achievable timeframes, it is more likely to get done. A LEP may also assist with information transfer.

The LEP Toolkit

The LEP toolkit recognises that each farm is unique in terms of landscapes, natural resources and farming practices. It includes workbooks and guidelines for three different levels

of planning, examples of completed LEPs from around New Zealand, and a reference guide with links and contacts for additional resources and solutions to common problems. The LEP toolkit assists farmers to assess their different soil types and land use capabilities. It helps farmers to make a plan that ensures farm land is managed sustainably, taking into account the farm's specific soil type, fertility, pasture types, susceptibility to erosion and farm management practices, along with other relevant environmental issues. An LEP is usually voluntary but B+LNZ actively encourages farmers to develop a level 1 LEP for their farms by completing the workbook provided in the LEP toolkit (this takes about 20 minutes). As part of B+LNZ's Environment Strategy, we aim to have every sheep and beef farm with an LEP by 2021.

B+LNZs LEP toolkit comprises:

- Introductory pamphlet
- Reference guide listing key information and resources on soil, water and forestry
- Booklet showing different levels and types of LEPs completed for farms nationwide
- Level 1 LEP workbooks for farmers to complete themselves. Two methods can be used: one based on-farm mapping, and the other on risk assessment. Once this workbook is completed the farmer will have a level 1 LEP. The process takes approximately 20 minutes.
- Level 2 LEP guide book for farmers to complete with suggestions for support. This takes approximately 2-20 hours.
- Level 3 LEP guide book, listing specialist resources available to help.





CHAPTER FIVE

SERVICES AND RESOURCES

B+LNZ Economic Service

Beef + Lamb New Zealand's Economic Service provides critical information across the entire agricultural sector, including dairying. It's forecasting and statistical analyses form the basis of much industry knowledge and planning of pasture management, pasture species, management systems and environment management.

Forecasts

The Economic Service's forecasts for total beef production—including beef from dairy cattle—are used for planning in the meat industry for production, shipping and marketing. The dairy herd has four inputs into beef production:

- Dairy bull calves bought and reared on sheep and beef farms as bull beef (subject to a \$5.20/head B+LNZ levy at slaughter)
- Cull dairy heifers and bulls (subject to \$5.20/head B+LNZ levy at slaughter)
- Cull dairy cows (subject to \$5.20/head B+LNZ levy at slaughter)
- Bobby calves (nil B+LNZ levy)

Most of this beef is manufacturing and processing beef. Market access, processing and product development are therefore of common interest among dairy, and sheep and beef farmers. New Zealand's tariff-rate quotas into North America (covering both beef and bobby veal) are 29,600 tonnes product weight for Canada and 213,402 tonnes product weight for the United States.

Dairy cows, heifers and cull bulls have been identified at slaughter since August 2016, using data from the Ministry for Primary Industries.

Publications and farm data

Beef + Lamb New Zealand's Economics and Insights and Regional teams work together to carry out data analysis and forecasts used by B+LNZ, local and central government, farmers, agribusiness and economists.

The on-farm information is based primarily on the Sheep and Beef Farm Survey, which is representative of the sheep and beef farming sector, including farmers who rear dairy calves.

Among the publications particularly valued by farmers are the New Season Outlook, Mid-Season Update, On-Farm Inflation, Lamb Crop Survey and Stock Number Survey.

B+LNZ also provides on-farm data and industry production information available on its website. These include a mix of monthly and annual data for exports, global indicators, on-farm benchmarking data, industry production information and farm-gate prices for lambs, sheep, wool, cattle and milk.

Further resources and tools relevant to the dairy industry

Recognising that a significant amount of its beef levy comes from cattle from the dairy industry, B+LNZ specifically takes into account the information needs of dairy farmers when developing resources, specifically in areas where beef farmers and dairy farmers face similar issues such as winter grazing, fodder crops, lucerne management and internal parasite management.

There are a number of free multimedia resources which are useful regardless of species or industry. Our online modules are an interactive way to learn about a range of subjects, featuring a mix of audio, video, features and interactive text. In particular, B+LNZ pioneered the use of podcasts and these have grown to be one of our most popular single type of resources. Many of these are applicable to all farming systems.

FIND OUT MORE

Check out our podcast channel 'Scene + Herd' at www.beeflambnz.podbean.com

We have over 400 resources on our website!

A selection of interest to dairy farming are listed here but there are many more all available at:

www.beeflambnz.com/knowledge-hub



Animal health, welfare and performance

Podcasts

- Protecting your patch—The key biosecurity actions for your farm
- Eradicating *M. bovis*—How to keep your farm free from disease
- Richard Laven of Massey University: Managing the risk of *M. bovis* during the winter grazing season

Online Modules

- Animal welfare on farms
- On-farm biosecurity
- Stock water management

Publications

- Johne's disease in cattle
- Animal welfare obligations for painful husbandry procedures in cattle
- Wormwise resource book
- Heifer calving and breeding cow efficiency
- Management of cattle for high fertility
- *M. bovis*—Precautions for calf rearing
- Worm management
- Protecting your animals from *M.bovis*
- Worms in refugia
- *M. bovis* guidance for beef cattle farmers
- B+LNZ commitment to the welfare of sheep and beef cattle

Genetics

Podcasts

- Better beef genetics and the dairy industry: The dairy beef integration project

Videos

- Dairy beef integration

Publications

- Benefits of dairy farms using better beef genetics



Feed and pastures

Podcasts

- Jim Gibbs—Making the most of fodder beet
- San Jolly—Feed quality
- Derrick Moot—Lucerne and other dryland legumes

Apps

- FeedSmart—www.feedsmart.co.nz

Videos

- Feedsmart app: introduction
- Feedsmart app: feed allocation tools
- Feedsmart app: adjusting settings
- Californian thistle control—Mowing in the wet
- Linklater: fodder beet trial
- Profitable for cattle wintering

Online Modules

- Feed fundamentals
- Principles of pasture establishment
- Stock water management

Publications

- Endophytes on hill pastures
- Extreme dry management and planning toolkit
- Feedsmart user guide
- Management practices for forage brassicas book
- Feedsmart 2
- Summary of the fodder beet profit partnership experiences
- Pasture quality—Q-graze
- Poplars and willows as fodder
- Thistle biocontrol ute guide
- Chilean needle grass ute guide
- Velvetleaf ute guide
- Feedsmart pasture calibration sheets
- Controlling Californian thistle
- Endophyte update
- Lucerne establishment—Spring weed control options
- Lucerne winter weed control options
- Lucerne establishment weed control options

Environment

Podcasts

- Farming the future, the 2019 New Zealand Grassland Association Conference
- Doug Edmeades—Making the most of your fertiliser

Videos

- Land and Environment Plans overview
- LEP, FEMP or FEP: What's the difference
- Best practice winter feeding cattle

Online Modules

- Understanding your soils

Publications

- Flood preparation fact sheet
- Flood recovery fact sheet
- Winter forage crops: management before grazing
- Winter forage crops: management during grazing
- Winter forage crops: management after grazing
- Ten top tips for winter grazing of crops
- Flood recovery factsheet
- Industry agreed good management practices to water quality
- Trees for the farm
- Top tips for winter crop paddock selection
- Overseer nutrient budget form
- Climate change 101
- How to start a catchment group
- Community based freshwater monitoring
- Principles for the allocation of nutrients
- Soil characteristics important to management

Business management

Online Modules

- Understanding your farm business profitability
- Annual cash budgets and monthly cashflows
- Measuring progress—KPIs and benchmarking
- Farm business succession planning
- Business planning

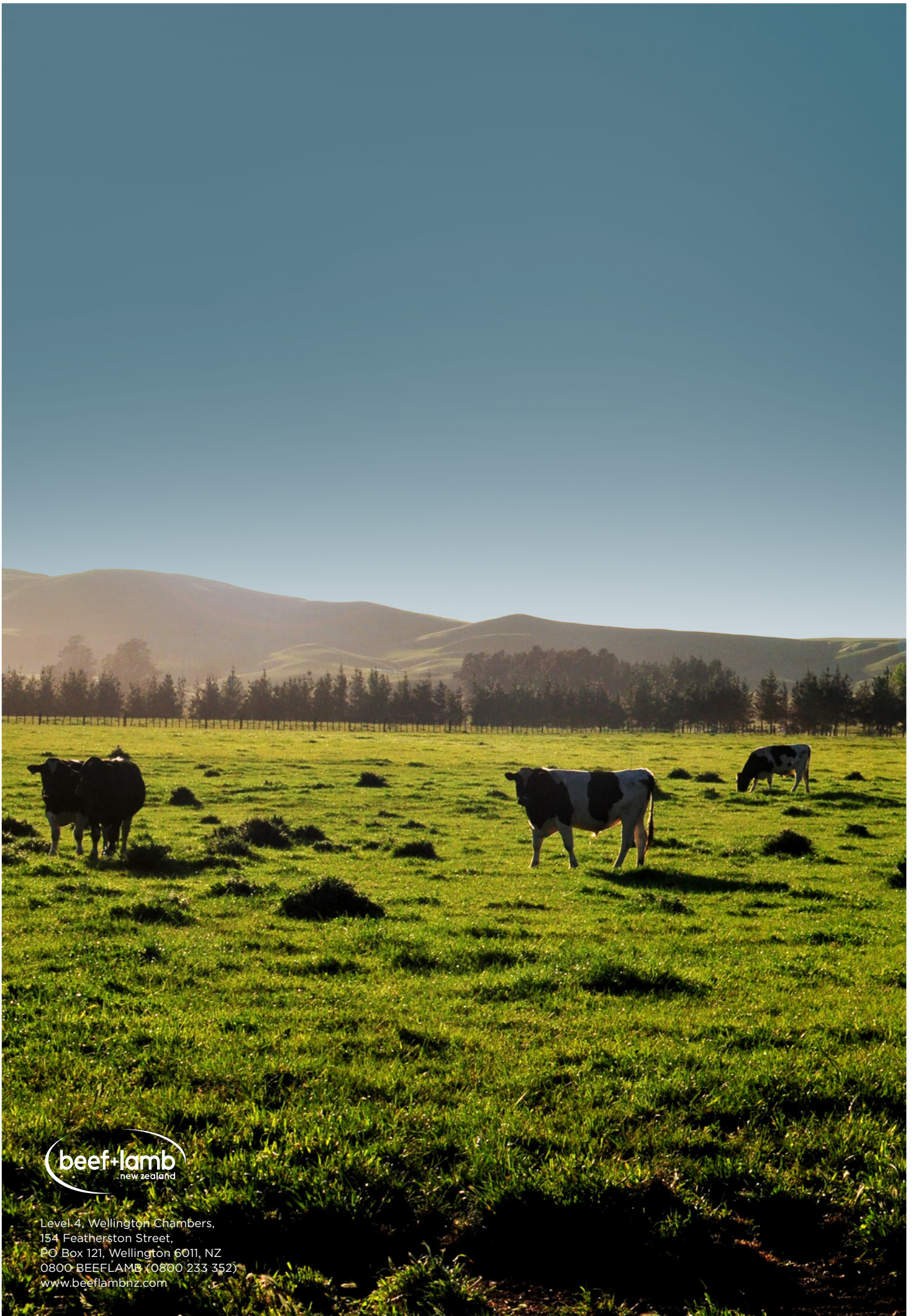
Videos

- Farm transition through an equity partnership
- Pathways in transition of the family farm business
- Family challenges during farm succession
- Bowie family farm succession story

Publications

- Farm safety management system
- Farm ownership and transition
- The road to succession—Bowie family
- Extreme dry management toolkit





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