

# INSIDE DAIRY

Your levy in action



## AHUWHENUA'S shining legacy

Cost squeeze perspectives **12**

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# OVER THE FENCE...

## We want to see everyone in the dairy sector get home safe – every day.

As a sector, we know calving puts significant pressure on everyone's physical and mental health, which can flow into the rest of the season.

Physical sprains and strains injuries peak during calving, and our *View from the Cow Shed* survey shows roughly half of dairy farmers said they or someone on their farm suffered mental health issues in the past year too. We also know many farms are short-staffed, which adds to the team's stress and working hours.

To help support changes, a new campaign and strategy called *Farm Without Harm* was launched in June by Safer Farms (the Agricultural Leaders' Health and Safety Action Group). This takes health and safety messages to the heart of rural communities. It's a positive step and we look forward to supporting it. DairyNZ, other sector leaders, and farmers, are committed to keeping those working on farms healthy and safe. Find out more at [farmwithoutharm.org.nz](http://farmwithoutharm.org.nz)

DairyNZ has been a long-term sponsor of the Ahuwhenua Trophy Awards, celebrating Māori business excellence in the primary sector, which shifts its focus to dairying in 2024. With entries opening soon, this month's cover story shines a light on the enduring career and business benefits to those who enter. Thanks to Ash-Leigh Campbell and Onuku Māori Lands Trust for your kōrero, and for encouraging others to enter for 2024.

Read also about DairyNZ's Less Methane research (page 25), which is making progress on practical solutions to reduce greenhouse gas emissions.

In October we welcome our new chief executive, Campbell Parker. Campbell steps into Tim Mackle's role and brings extensive experience in the rural and corporate sectors. Campbell joins DairyNZ from GEA Farm Technologies NZ, where he has been CEO since 2020.

We look forward to working with Campbell, as we continue DairyNZ's purpose of progressing a positive future for New Zealand dairy farming.

I welcome the opportunity to hear from you about DairyNZ's work. You can reach me at [chair@dairynz.co.nz](mailto:chair@dairynz.co.nz)

Kind regards,

**Jim van der Poel**  
Chair | DairyNZ

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### On the cover:

Ash-Leigh Campbell, North Canterbury variable order sharemilker, who says entering the Ahuwhenua Awards was a turning point in her career.



### Prefer to read *Inside Dairy* online?

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ISSN 1179-4909

DNZ03-234

*Inside Dairy* is the official magazine of DairyNZ Ltd. It is circulated among all New Zealand dairy farmers, and sector organisations and professionals.

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Five options are under the microscope as DairyNZ researchers seek solutions suited to our pasture-based systems.



**We appreciate your feedback**

Email [insidedairy@dairynz.co.nz](mailto:insidedairy@dairynz.co.nz) or call us on 0800 4 DairyNZ (0800 4 324 7969).



**To find out how to recycle the plastic wrap used to protect this magazine during postage, visit [dairynz.co.nz/insidedairy](http://dairynz.co.nz/insidedairy)**



## DairyNZ's new chief executive

### Campbell Parker will step into the role of DairyNZ's chief executive this October.

The Waikato-based executive brings a wealth of expertise to the role, including extensive experience in the rural and corporate sectors. Campbell joins DairyNZ from GEA Farm Technologies NZ, where he has been CEO since 2020.

"I am genuinely humbled and excited to be joining DairyNZ as the next chief executive. I am passionate about the

role the dairy sector plays in creating jobs, building communities, and contributing to the success of the New Zealand economy," says Campbell.

"It is important to build on the good work Tim and the team have done over the past decade, and to keep that moving – working collaboratively to ensure long-term sustainability and profitability of the sector."

Acting chief executive, Peter Scott, will be in place until Campbell arrives.

## Help lead our sector, apply your governance skills

### Interested in contributing value to the dairy sector and helping to shape its future?

DairyNZ levy-paying farmers are invited to apply to join the organisation's Board of Directors. Two farmer-elected positions are available, and a second election will be held for one member of DairyNZ's Directors' Remuneration Committee. Nominations for all three positions are open from Monday, July 31 until noon on Friday, August 25.

Ideally, candidates will have:

- an understanding of farm systems, research and development, policy and advocacy
- an interest in progressing DairyNZ's strategy
- broad networks and established relationships in the dairy sector
- strong commercial skills, strategic expertise and governance experience.

For more information, go to [dairynz.co.nz/agm](https://dairynz.co.nz/agm) or scan the QR code on the right.





## Fieldays winners

Well done to Otorohanga's Susie and Michael Woodward on winning \$1500 worth of native riparian plants from Restore Native plant nursery through DairyNZ's survey competition at this year's Fieldays.

After scanning our barcode on-site and answering a few short survey questions, the Woodwards' names were drawn as the big prize winners! The couple has an on-farm area in mind and has chosen suitable plants with help from nursery owner Adam Thompson.

Two other prize winners drawn received a \$100 Prezzy Card each: Ingrid Ormandy, and Daniel Tahu and Olivia Scott.

## New report highlights biosecurity investment

Biosecurity is serious business for New Zealand's dairy farmers and in 2022 you invested \$48 million in our biosecurity protection system.

We've recently released the *DairyNZ Biosecurity Report 2022-23* to give an overview of this investment. It shares how DairyNZ is working alongside our partners and farmers to safeguard what we have and ensure a strong biosecurity system.

Read the *DairyNZ Biosecurity Report* at [dairynz.co.nz/biosecurity](https://dairynz.co.nz/biosecurity)

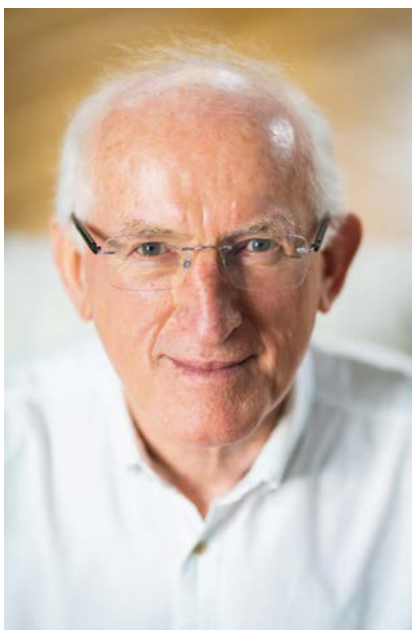


## Honours for genetics and breeding pioneer

Former New Zealand Animal Evaluation Ltd (NZAE) manager Dr Brian Wickham has been named a Companion of the New Zealand Order of Merit in the 2023 King's Birthday Honours, in recognition of his services to dairy through genetics.

He's well-respected in the sector, having worked for the Livestock Improvement Corporation for 22 years and helped develop the national breeding objective, which led to the Breeding Worth (BW) NZAE now manages. NZAE is working to improve BW to help Kiwi dairy farmers remain internationally competitive.

Dr Wickham's pioneering work has showcased New Zealand dairy internationally. For that the sector owes him a huge debt of gratitude.



# Hit replay on Farmers' Forum

Couldn't get along to Farmers' Forum in person? Catch up on all the action online.

Nearly 500 farmers attended DairyNZ Farmers' Forum events in Waikato and Canterbury recently, but we know many couldn't make it.

The good news is that video recordings of the sessions are now available at [dairynz.co.nz/farmersforum](https://dairynz.co.nz/farmersforum)

This year's theme was 'Research to reality – practical solutions for dairy farmers'. Check out quick summaries of the recorded sessions and speed sessions below.



## Headwinds and tailwinds – challenges and opportunities for dairy

Foresight practitioner and strategist Melissa Clark-Reynolds talks about current and future trends affecting the dairy sector. Melissa's presentation covers shifting consumer expectations and technological changes impacting dairy over the next decade.

## Designing internationally competitive farming systems for the future

DairyNZ senior scientist Dr Paul Edwards discusses how our Frontier Farms project aims to improve the competitiveness of Kiwi dairy farms. By analysing some of our global competitors – starting with US mega-dairies – we can prioritise what aspects need attention when designing new farm systems.



## Strategies for remaining profitable in a high-inflation environment

Catch up on a farmer discussion panel and hear advice from high-performing farmers on how they're managing their farms to stay profitable as costs rise.

## Science-based solutions – now and in the future

Bridget Maclean, DairyNZ's general manager of new systems and competitiveness, shares how DairyNZ's science programme is tackling key challenges facing dairy farmers.

## Can technology help solve farming challenges?

DairyNZ scientists Dr Callum Eastwood and Brian Dela Rue share the latest on how technology could assist on-farm challenges, what tech could work for you, and the future of dairy technology. They also talk through the 2023 technology and workplace practices survey.

## Changing the job: improving workplace productivity and attractiveness

DairyNZ researchers are looking at how to reduce working hours without affecting profit, enhance safety through good design, and study technology adoption. Watch an overview of this research from DairyNZ senior scientists Dr Callum Eastwood and Dr Paul Edwards.



## From forum to farm

What did farmers find most useful at this year's Farmers' Forum events?



*"Hearing about the science and research being performed by DairyNZ, as they are going to be game-changers for our industry going forward."*

**Matthew Zonderop**  
SHAREMILKER, MATAMATA



*"Farmers' Forum reminded me that we need to keep challenging the way we do things. To meet our environmental and financial goals, we need to keep working to make a number of small changes on-farm."*

**Caleb Strowger**  
CONTRACT MILKER, ASHBURTON



*"I enjoyed the three-minute science presentations on what is happening. We haven't seen that at previous forums, and it was good to see."*

**Ian Storey**  
FARM OWNER, NORTH WAIKATO



### Working together to reduce N loss – how plantain can help

DairyNZ plantain programme leader Kate Fransen covers the latest trial results, showing plantain can significantly reduce nitrogen losses without affecting production. Kate also discusses current and upcoming plantain research. Meanwhile, programme partner farmers Wim and Maria Makker provide advice on establishing and maintaining plantain.

### Getting fit for the future – reducing greenhouse gas emissions on-farm

Dr Elena Minnée shares an update on DairyNZ research into solutions to reduce methane emissions. Research areas include changes to diet, studying methane-reducing compounds, vaccine development and low-methane genetics.

# LEADERS OF THE LAND

**After a reset, Ash-Leigh Campbell realised a dairying career was the real hot property. Read how taking part in the Ahuwhenua Trophy Awards has led to long-term benefits for her – and another entrant, Onuku Māori Lands Trust.**



**Ash-Leigh Campbell**  
**PEPEHA**

*Ko Aoraki te mauka  
Ko Waitaki te awa  
Ko Puketeraki te marae  
Ko Kai Tahu, Kati Mamoe,  
Waitaha ka iwi*

*Ko Lloyd, Parker, Clement,  
Dempsey ka whānau  
Ko Ash-Leigh Campbell tōku ikoa*



“I look at my 20s as a game of two halves. In the first half I didn't know what I was doing, but there was that pivotal point at age 25/26 where I thought, 'I'm going to make a go of this'.”

That's North Canterbury farmer Ash-Leigh Campbell (Ash), who says her experience as an Ahuwhenua Young Māori Farmer of the Year (dairy) finalist at the 2016 Ahuwhenua Trophy Awards has opened many doors for her across the sector.

“It also catapulted my confidence to put my name forward [in the sector] and really dig my heels in and make a career out of dairy farming.”

Born and raised in Canterbury, Ash is of Ngāi Tahu descent. She variable order sharemilks 880 Kiwicross cows on Ngāi Tahu's Timutimu Farm in North Canterbury (with friend and business partner Jason DeBoo), which she juggles with her customer success manager role at agritech company Halter.

### **From property to pivoting**

Before switching to dairying and completing two diplomas and a Bachelor of Commerce (Agriculture) at Lincoln University, Ash was heading down another route.

“When I look back at my early 20s, I was really lost. I'd had pressure from the school's careers adviser to go

into continuous study. I attempted a property valuation degree but failed miserably and got kicked out of uni.”

She became a farm assistant to bring in the dollars, and that's when she realised she loved dairying and revised her study focus.

Ash spotted the Ahuwhenua Trophy Awards on social media in 2014, but initially hesitated to enter, thinking she wasn't up to the challenge.

“I didn't have a clue about any of the financial side of things like budgeting and cashflows. I didn't really get deep into that until five years later. However, I had been starting to think about the impact of farming on the whenua (land), through working as a sustainability coordinator/summer intern with Ngāi Tahu farming, who were already leaders in that space.”

““

*For anyone entering, you only have gains to be made.*

Contrary to her fears, Ash received plenty of support from the Ahuwhenua team and others assisting – and her placing also gave her the confidence to enter other awards.

As well as being the Ahuwhenua Trophy Awards' first-ever female finalist in

the Young Māori Farmer of the Year category, Ash was a finalist in the 2019 Women of Influence Awards (rural). In 2020, she was also named the youngest-ever Fonterra Dairy Woman of the Year, and from 2010 got involved in NZ Young Farmers, becoming their National Chair from 2018 to 2021.

### **Feel the fear, do it anyway**

Ash didn't realise until after her Awards year that farm managers and/or farm employers could also nominate their staff or kaimahi (casual workers or labourers) for Ahuwhenua's Young Māori Farmer of the Year Award (YMF). Now she wants to spread the word on that.

“Sometimes the biggest barrier is to complete and submit that nomination form. So, if you're a farm manager or employer, you can see their strength and growth and how awesome they are at their role first hand. They may not be aware of that and be quite nervous and shy about entering. So, it's great if you can put them forward,” says Ash.

“For anyone entering, you only have gains to be made – and it's not over after the Awards. A lot of people continue to reach out after and ask how they can help you. The sponsors provide that care and support as well, they go above and beyond, they really do have a deep care about how they can continue to unlock opportunities for these young people.”

### **Māori success a win for the sector**

The Ahuwhenua Trophy Awards reflect a legacy that's almost a century long (see page 11). Both the Trophy and the YMF Award recognise the value Māori add to dairying in Aotearoa/ New Zealand, which DairyNZ's general manager farm performance, Sarah Speight, says can't be underestimated.

In 2018, the Māori dairy asset base was worth \$4.9B, and Māori farmers comprise approximately 10% of NZ dairy farmers overall, says Sarah. "Many finalists and winners have also progressed into various leadership, ambassadorial and prominent roles within the wider agricultural sector."

DairyNZ has supported the Ahuwhenua Trophy Awards (dairy) since 2008. Sarah says the Awards align well with DairyNZ's focus on building the capability of people on-farm and progressing a positive future for NZ dairy farming.

The Awards also give Māori businesses a chance to showcase the love they put into their whenua.

"It provides good context for all New Zealanders. The Awards also remind people that farming can be an attractive place for young Māori to come into. I know that's a real focus for many of the entrants for the Awards – how they get their people back on the land."

### **Multiple success, long-term benefits**

Many Awards finalists or winners over the last few years have come from farms featuring mixed operations.

Onuku Māori Lands Trust, winners of the Ahuwhenua Trophy, Excellence in Māori Farming Award 2018 (dairy), is a great example of that diversity. It runs a profitable and sustainable dairying operation alongside different types of farms within one large business (the trust was also a finalist in the Trophy's 2022 Sheep & Beef Award).

As well as its four dairy farms, the trust runs a drystock operation featuring sheep, cattle and grazing, plus a collection of forestry blocks. Onuku's farm environmental plan has been in place for over 10 years. The trust also retired all of its waterways and reserves 30 years ago, including 772ha of reserve land.

Angela Wharekura, general manager at Onuku, says they thought many times about entering the Ahuwhenua Trophy Awards but, each year, said "we're not ready".

"But when it came to the 2018 dairying round, we were feeling that it was time to actually just do it. Even if it was just a trial run, it would help us to look at ways we could improve."

“

*It's just such a beautiful experience. Attending the Awards, you feel incredibly proud.*





1. Onuku's 2018 winning team (left to right): Alan Rondon (farm manager), Moyra Bramley (chair, Onuku Māori Lands Trust), Peter Livingston (farm consultant), Angela Wharekura (trust GM), Barnett Vercoe (chair, farm committee).  
 2. Celebrations as Onuku accept their Ahuwhenua Trophy Award (and the smaller replica trophy they took home on the night).  
 3. Onuku's Ahuwhenua Trophy Awards field day.

Photos this page: Alphapix.co.nz

### Ongoing recognition and reward

As well as providing a good process to look at what you're doing, Angela says the Awards acknowledged the efforts of the trust's staff, governance team and the farm's owners, who went on to share what they'd learned with other similar Māori farming trusts.

"Having that recognition at the Ahuwhenua Trophy Awards that your operation is up there with the best is really rewarding," says Angela. "We gained a lot of pride from it. It also cast us in a new light, in terms of how we can assist other similar trusts and develop our role as mentors and leaders and help lead the way for others."

Taking part in the Awards is also a great checking and benchmarking opportunity.

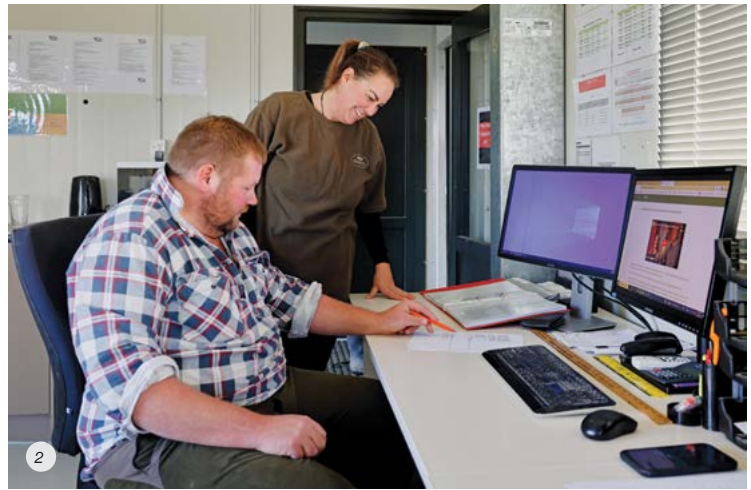
"You get to look more closely at your operation and find out where you can improve it, by sharing ideas with other entrants and sector experts."

For example, after their involvement in the 2018 Awards, Onuku reviewed its health and safety practices.

Angela says the prize packages for finalists and winners are fantastic too.

"The money is great, of course, but the packages also contain other kinds of prizes which we can use on-farm."





1. Ash says taking part in the Awards is still one of her career highlights. 2. She and friend/business partner Jason DeBoo are 'Partners in Cream Limited'. 3. Ash's herd has A2 genetics (the farm is Synlait 'Lead With Pride' Gold Elite accredited). 4. Onuku farm field day, 2018. (Photo: Alphapix.co.nz)

"The indigenous quality that Māori farming has, the care for the land, and the ongoing benefits of what we do for people is important for us too," adds Angela. "It's not just for New Zealand eyes, either. We feel that is becoming more important from a worldwide perspective in terms of marketing our products. People want to see that we're not just about production, we're about supporting people, making sure we're environmentally sustainable."

Onuku's achievements are still being noticed: they're hosting this year's Grassland Conference in Rotorua, in November. Angela describes being asked as "a huge honour, bringing with it mana and kudos".

The conference's key focus will be on land use change in the region, including the challenge of farming with changing environmental regulations, and realising the potential of farming by Māori (for details visit [grassland.org.nz](http://grassland.org.nz)).

Both the Onuku team – and Ash-Leigh Campbell – are hopeful that plenty of entries will roll in later this year for the 2024 Ahuwhenua Trophy Awards when it's dairying's turn again.

"It's such a special Award," says Ash. "It's just such a beautiful experience. Attending the Awards, you feel incredibly proud. The love that's there, I get quite emotional thinking about it."

## Why enter?

The Ahuwhenua Trophy Awards' judging process recognises Māori farmers and the uniquely Māori approach and strength they bring to their farm and/or role.

If you enter, you'll be part of the Awards legacy and you'll:

- turbo-charge your dairying career, connections, opportunities and your farm's operation and success
- access knowledge from the judges and other entrants while reconnecting you and your whānau to the land
- get heaps of support and guidance, whether that's for farm visits, field days or one-on-one sessions.

Ahuwhenua Trophy, Excellence in Māori Farming Award 2024 entries close Friday, December 8, 2023. Ahuwhenua Young Māori Farmer of the Year Award entries close in February 2024.

If you'd like to chat about the 2024 Awards first before entering, contact [Clinton.Hemana@dairynz.co.nz](mailto:Clinton.Hemana@dairynz.co.nz)

For full details and entry criteria, visit [ahuwhenuatrophy.maori.nz](http://ahuwhenuatrophy.maori.nz)

# A LEGACY

## for the land and its people

The Ahuwhenua Trophy competition has a history that spans more than 90 years.



1933

Sir Apirana Ngata awards first Ahuwhenua Trophy to William Swinton (Bay of Plenty). The first Awards year was only open to individual dairy farmers in the Waiariki Land District.

1934

The competition is extended to include entrants from North and South Auckland, Gisborne, Whanganui and Wellington.

1954

The Awards are opened up to include sheep & beef farming, as well as dairying.

1990

Trophy put on hold.

2003

Ahuwhenua Trophy Awards relaunched.

2005

The dairying, and sheep & beef categories were separated out into alternate years.

2012

Ahuwhenua Young Māori Farmer Award category added (also alternating dairying one year, sheep & beef the next). The inaugural winner was Tangaroa Walker (Ngāti Ranginui/ Ngāti Pukenga) – dairying.

2020

Horticulture joins dairy, and sheep & beef, with the Awards rotating each sector focus 3-yearly.

2023

90th Anniversary celebrated with the launch of book: *Ahuwhenua – Celebrating 90 Years of Māori Farming*.

## Winners

2021 Tataiwhetu Trust

2018 Onuku Māori Lands Trust

2016 The Proprietors of Rakaia Incorporation

2014 Te Rua o Te Moko Ltd, Taranaki

2012 Kapenga M Trust

2010 Waipapa 9 Trust, Taranaki

2008 Takapau, Cespel Lands Limited

2006 Parinihi Ki Waitotora Incorporation's Farm 12



2021 Quinn Morgan

2018 Harepaora Ngaheu

2016 Jack Raharuhi

2014 Wiremu Reid

2012 Tangaroa Walker

# Big picture vital, say farm owners

**They're feeling the cost squeeze like everyone else, but two farmers reckon it helps to keep a long-term view of the business.**

Bryce Anderton's farmed his way through more than a few challenging economic cycles in his three-decade dairying career.

This time, it's the rapid interest rate rise that's hit his business most sharply.

"It has been a real shock to the system. Twelve months ago, we bought some extra land, so our debt loading's gone right back up again," says Bryce, who owns 420ha total in Tirau, Waikato.

But he's learned over the years not to get discouraged by "short-term setbacks".

"Keeping your eye on the big picture is so vital. We all go through tough times, but you've just got to remind yourself to persevere – things will come right. Stay in it for the long haul and you'll get those rewards," says Bryce.

Aleisha Broomfield, who became a farm owner (107ha in Morrinsville, Waikato) with partner James for the first time this year, and is also sharemilking on 115ha, shares a similar perspective.

"It's important to know what you want in five and 10 years. We're not really focusing on or getting upset about this poorer year; we're thinking about what our farm's going to look like in 10 years' time, which really helps take the pressure off right now."

That doesn't mean Bryce and Aleisha aren't pulling levers to improve their immediate financial situation.

"We've been using the fixed milk price system to really smooth out the seasons," says Bryce. "The two previous seasons we probably lost a little bit of money with the fixed milk price, but certainly this past season we had a big gain."



*Aleisha Broomfield and Bryce Anderton speaking at Farmers' Forum earlier this year.*

Running a low-input system has left his business less exposed to rises in fuel, feed and fertiliser costs, says Bryce.

"Also, with our interest rates, we were able to fix in some money two years ago when the rates were quite low."

Aleisha's focusing on nailing "all the little one-percenters, like keeping our animals healthy, managing the pastures right, doing the right things at the right time, back-fencing. We've gone through pretty much every line in the budget and stripped out what we can".

Moving to sire-proving has helped too, she says.

"We've got cheaper semen and still getting quality animals through that, which has saved us over \$5000 on each farm.

"We've also been rearing less heifers, so just keeping the top heifers and doing them better."

Bryce adds that it's important to have a life outside of farming, to stay mentally fresh and energised to farm at your best.

"Just enjoy your farming. It's a great life. We're so blessed to live in this country, in the best farming land in the world."



Listen to the full conversation with Bryce and Aleisha in *Talking Dairy* episode 54, 'Coping with cost pressures', at [dairynz.co.nz/podcasts](https://dairynz.co.nz/podcasts)

# Introducing the DairyNZ Econ Tracker



## Clear, accurate data in one place, helping farmers make stronger business decisions.

Getting a firm grasp on your operating environment when it comes to farm costs, budgeting and financial planning is an important part of strengthening your farm business.

To support farmers and industry professionals to do this, DairyNZ has created the DairyNZ Econ Tracker ([dairynz.co.nz/econtracker](http://dairynz.co.nz/econtracker)). It's a one-stop shop for up-to-date economic information relevant to the New Zealand dairy sector right now.

### How can it support my farm business?

Find information within three key areas – below. Use the interactive features to gain tailored data by region and ownership type.

#### 1. Farm economics

- Explore trends in farm budget items over time.
- See data from previous seasons and forecast data for the current and future seasons, to help you make informed farm budgeting decisions.

#### 2. Sector economics

- View a snapshot of the current economic position of the New Zealand dairy sector, including whether the sector is likely to expand, contract or maintain its current size in the coming seasons.
- See the role of dairying described in dollars, land use, labour and other measures.

#### 3. International markets

- See price and quantity changes that directly contribute to farmer income and expenditure.
- Use this information to understand how major farm expenses are likely to change in the coming years, with an emphasis on commodities and fertiliser.

Try the Econ Tracker today at [dairynz.co.nz/econtracker](http://dairynz.co.nz/econtracker)

## 'Love the tool'



King Country farm owner Pete Morgan says he loves the Econ Tracker because it provides a wider view of industry issues and trends, essential when developing farm business strategies.

“DairyBase has been a valuable benchmarking tool for our performance. Econ Tracker fills the broader perspective on industry and world dimensions. The quarterly update and three dashboards are an easy way to assess our current place in the landscape to stay grounded.

“With inflation impacting COP, debt servicing challenged by interest rises, and production exposed to climate risk, it's vital to balance insights from all trends related to our industry.”

Pete adds that the Sector Economics section holds the most surprises.

“Time goes by in farming, and the accumulated subtle changes throughout the regions in land use, herd, farm, size, production and, in particular, people, are valuable to recognise in the context of our current staffing and other challenges.”



*The quarterly update and three dashboards are an easy way to assess our current place in the landscape to stay grounded.*

# Go slow before you grow

## Wise advice in spades from guests on a recent *Talking Dairy* podcast.

Johan van Ras didn't expect to spend so much time with his trees.

Since he began planting and maintaining 4ha of his 76ha Morrinsville dairy farm in 2019, the project has ended up being more demanding than anticipated. Still, Johan can't stop dropping by to admire the result.

"Dad and I pass each other a lot on the race. 'Where are you off to, dad?', I ask. 'Oh, I'm going to go check out the trees' – and that's just what I've been doing.

"It looks amazing. We go back there so much just to sit and admire it. That's one of the things I didn't think we'd do as often as we do," says Johan.

Johan recently shared his planting project experience – and mistakes – on DairyNZ's *Talking Dairy* podcast.

If he could do it again, he'd use plants from local nurseries, make sure he was putting the right species in the right place, plant at a greater density to

minimise weed control, and eliminate weeds beforehand.

"Those were mistakes we made, and you'll learn from those as you go, but try not to, because it is expensive."

Johan says he can see now it would have been wiser to plant the 4ha in stages.

That's a common misstep from farmers, says Antony Snodgrass, co-founder of Waikato-based native tree planting company Koroneiki Developments, who also joined the podcast.

"Set a budget you can stick to each year. That could be 1500 trees or 5000 trees, but do it properly: if it needs to be at 1.5m spacing, do it at 1.5m spacing," says Antony.

"Try to do it right the first time and spend your money on your maintenance, rather than trying to plant heaps and then trying to catch up."

Antony's other tips for a successful planting project include:

- Identify your goals – know what you want to achieve from the planting.
- Outline the cost of the entire project, including fencing, plants, planting and maintenance.
- Focus on priority areas first, like your wetlands and streams.
- Knock the weeds out before you plant.
- Put the right plants in the right place.
- Plant at the right density – usually 1.5m.
- Don't neglect maintenance.
- Build a good team around you: catchment management officers, a planting crew, a catchment group, etc.

The third guest on the podcast was DairyNZ senior manager – environment, Aslan Wright-Stow, who dug deep into the science behind riparian planting and the benefits for water quality and stream health outcomes.

*Johan and wife Kylie with children Dana and Blake, ready for another day planting.*

*Photo: Rabobank NZ*



Hear the full conversation on ep. 52 at [dairynz.co.nz/podcast](https://dairynz.co.nz/podcast) – and subscribe to get notified when new episodes go live.





# Scientists in your corner



Meet some of the DairyNZ scientists working for you.

Find out more about DairyNZ's research and our scientists at [dairynz.co.nz/research](https://dairynz.co.nz/research)



Dr Konagh Garrett

SCIENTIST

Whether brandishing gumboots, getting stuck into some fieldwork, or working from the office, Konagh's in her element.

She's part of DairyNZ's team researching how to reduce methane emissions on pasture-based farms.

After interning (and before returning) to DairyNZ, Konagh completed her PhD, worked on other research projects, and led or co-authored more than 25 science journal articles.

"I'm very grateful for all the scholarship support during my studies."

Konagh is enjoying working with a bunch of passionate and inspiring people within DairyNZ's science team.

"I love the unique challenges and variety that research provides; no two days are the same."

Konagh's now looking forward to helping develop some practical solutions for farmers.

✉ [Konagh.Garrett@dairynz.co.nz](mailto:Konagh.Garrett@dairynz.co.nz)



Dr Kirsty Verhoek

SCIENTIST

Since finishing her PhD on methane emissions from ruminants fed forages, Kirsty's career has taken her to the UK and back.

A past DairyNZ intern/contractor, she joined our science team last October. She also sharemilks near Morrinsville with husband Nic.

"As a farmer myself, I'm proud of our farming community and how we support each other. Meanwhile, the work environment inspires new research ideas and solutions."

Kirsty's work includes identifying when heat stress might occur, to help farmers manage their herds and lessen its impact. She's excited about new technologies too.

"The opportunity's there to change the way we farm and forge a new way forward."

"I want to represent our farmers' voices, so they're valued and recognised for what they do. We have a lot to be grateful for from our farmers."

✉ [Kirsty.Verhoek@dairynz.co.nz](mailto:Kirsty.Verhoek@dairynz.co.nz)



Dr Charlotte Reed

SCIENTIST

"Our science team's belief in DairyNZ's purpose is why we work together really effectively – progressing a positive future for New Zealand dairy farmers."

Charlotte's Bachelor of Science degree led to a stint as a DairyNZ intern. After that, she completed her PhD on oocyte\* quality in cows with divergent fertility genetics as part of DairyNZ's Pillars of a New Dairy System programme (\*oocytes are cells in developing eggs).

"That programme showed the fertility Breeding Value's worth. I'm proud of my contribution and of what the programme's achieved overall."

She was also involved via Fonterra in DairyNZ's plantain research, looking for milk-based markers showing whether cows were being fed plantain.

In the future, Charlotte is keen to enable farmers to get better use out of sensor data by working on how the data can be integrated to be more useful for farmers.

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# Upskilled and owning it

Farmer-led and freshwater-focused workshops deliver – and then some.



Over the last three years, more than 70 workshops in the Upper North Island have supported farmers to start writing their own Farm Environment Plan (FEP).

Managed by Hauraki Plains-based P3 Trust, and funded through the Ministry for Primary Industries (MPI), the programme originally aimed to help farmers produce 240 FEPs by the end of May 2023. The programme exceeded its target and has assisted farmers to create over 300 FEPs.

P3 Trust chair and farmer, Craig Zydenbos, says some farmers were initially sceptical about the programme, but that changed once they attended the first workshop.

“We had buy-in from farmers, as they weren’t being dictated to,” says Craig. “But we got there. A good turnout of farmers, a lot of engaged farmers, and a heap of support from the sector really made it happen.”

Each farmer group attended two on-farm workshops, an individual/group plan-writing day, and an educational session on greenhouse gas (GHGs) emissions. A representative for their milk supply company then visited each

farmer on their property to continue developing their plan.

With DairyNZ working in a coordinated way with other supporters, the programme came in under budget, which is why the team was able to run two additional programmes in other regions, says Craig.

Workshops also went wider than just the Hauraki Plains, “thanks to strong support from Waikato Regional Council, Open Country Dairies, Fonterra, Tatua, Synlait, Pioneer and Dairy Goat Co-Op, who saw an exceptional amount of value in the programme”.

The programme also had input from DairyNZ (GHG workshops) and Waikato Regional Council, which had originally created the workshop approach. DairyNZ’s subsidiary, Dairy Training Limited, built on this work and ran the FEP workshops, which can be used by other regions in NZ too.

The funding was “money very well spent” according to one workshop attendee.

“We wouldn’t have known any of this otherwise. I’m very grateful for the

opportunity – we’re better off for it,” said the farmer.

The programme’s ‘helping hand – but hands-off’ approach also appealed. Another farmer commented, “nobody knows a farm like its own farmer. By doing the workshops and working through the plans ourselves, we can say, ‘look, we won’t graze that paddock for three months, because we know it’s wet for three months”.

Meanwhile, Craig says relationship-building was another win. “I think the workshops gave a lot of farmers on the programme confidence that the council’s not out to get them; they’re there to work with them and be supportive.”

The FEPs developed will help inform Freshwater Farm Plans, which are being phased in region-by-region over several years, with the rollout beginning August 1, 2023 in parts of Waikato and Southland.

For more information, visit [environment.govt.nz/freshwater-farm-plans](https://environment.govt.nz/freshwater-farm-plans)

# The business of wellbeing



Craigmore's Stuart Taylor and Margaret Pengelly.

## What happens when wellness sits inside, not outside, a whole farm system?

"We believe managing the wellbeing of our managers and teams can't be considered as separate from the rest of the farm system. To put it off to the side leads to less successful outcomes."

That's Craigmore Sustainable's general manager of farming, Stuart Taylor, who says the business was set up in 2009 to give farmers the space to be the best they can be.

Craigmore manages more than 25,000ha of dairy, forestry and horticultural properties throughout the country. Stuart says pasture utilisation, animal welfare and productivity, and people wellness are three key areas related to the performance of the farming business.

"If you deliver profitability but all your people are burnt out, that's not delivering with integrity. To have profitable results, you need to do it with a team that's thriving, successful and well."

Margaret Pengelly, Craigmore's people and safety business partner (farming), oversees a number of tools aimed at taking care of their people.

These include an employee assistance programme, working closely with Rural Support Trust, regular staff wellbeing newsletters, running a Good Yarn

programme and building wellbeing questions into Craigmore's 360° leadership training programme.

As well as farm managers' one-on-ones with their team members, Craigmore also has a 'psycho/social' risk programme featuring staff workshops and individual surveys, which helps identify wellbeing priorities and where to fine-tune things.



*If you deliver profitability but all your people are burnt out, that's not delivering with integrity.*

"We also encourage our people to take responsibility for their wellbeing and seek support, whether that's in relation to themselves, their farm team or their neighbours," says Margaret.

Stuart says farmers will benefit from being open to making changes when something's not right, whether that's with the farm system, the cows or the people.

"For example, on one farm with lots of K-line and manually moved irrigation,

we switched to once-a-day milking during the irrigation period to free up more staff time to shift the irrigation structures."

He adds it's also vital to invest in leadership training for managers.

"You can put in any wellbeing programme you like, but in the end it's the relationship between the farm boss and their people that matters."



### Craigmore's tips for managing wellbeing

- Think of wellness as part of your farm system, and not separate from it.
- Set up ways of monitoring the wellness of the individuals in your teams.
- As wellbeing is so individual, invest in leadership: managers create the wellness.

# Snapped on-farm

A handful of dairy farming social media pics that have caught our eye over the past few months. If you'd like your photo to feature, share your snaps by tagging us on social media or using the #dairynz hashtag.



*Me: We start calving mid July.  
#78: No, you don't.*

*Starting our new journey  
at Larry Creek.*



@renae\_flett



@renae\_flett #dairynz

*Feeling really lucky to be having such a stunning winter so far ... cold but stunning.*



@amorangi\_farms



@amorangi\_farms #dairynz



@kernowpasture



@kernowpasture #dairynz

*Sometimes the end of the season means saying haere rā to one of the farm family. Tonight we farewelled our girl Fin with the usual farming family team dinner and yarus.*

*Snow day.*

# Building a solid mating plan

Hit the ground running this mating with these foundations for success.

There are many ways to tailor your mating programme to ensure your cows have the best mating this season. However, the following three foundations are key to giving you the best chance of hitting your mating goals.

## Monitor your herd's body condition score

Cows calving in body condition score 5.0 for mature cows, and 5.5 for first- and second-calvers, have substantially better reproductive performance than cows in lower body condition score. Switching to once-a-day milking in middle to late lactation can reduce condition score loss if done early enough. Cows, especially first-calvers, milked once a day from calving, may achieve higher submission rates and in-calf rates with fewer non-cycling treatments, than if milked twice a day.

## Maximise heat detection performance

Pre-mating cycling rate is like the herd's submission rate in the three to four weeks before mating even starts. If you get 85% of cows cycling pre-mating, you should achieve a 90% 3-week submission rate to artificial insemination, along with a good conception rate.

The 3-week submission rate of your early-calved mature cows is a useful indicator of heat detection performance. Top farms achieve a 95% 3-week submission rate for the early-calved mature cows. If less than 90%, this is a strong indicator that heat detection rates are low, and reviewing your mating

strategies should be a high priority. For more advice, head over to [dairynz.co.nz/heatdetection](https://dairynz.co.nz/heatdetection), or reach out to your local DairyNZ regional team or breeding company.

## Motivate the team

Use the three weeks before the planned start of mating as an opportunity to upskill your team members, and get them to start identifying and recording cows in heat. You could even use a WhatsApp or Facebook group chat. Encourage staff to take their time when in the paddock or sitting behind the cows to observe and record cows in heat.

Get your team involved by setting a target for a 3-week submission rate or 6-week in-calf rate, and report on the progress throughout mating to keep the team involved. Communicate the mating targets you would like to hit this season and celebrate the wins.



Check out DairyNZ's *The InCalf book* for eight key management areas for improving herd reproduction at [dairynz.co.nz/incalf](https://dairynz.co.nz/incalf)

# Repro – all that it semens?

**DairyNZ solutions and development specialist Odette Chauncy summarises the industry evidence behind different types of semen, so you can know what to expect before you give it a shot.**



Are you exploring different semen types this year? Curious to know what conception rates or gestation lengths to expect? At DairyNZ, we share the same curiosity and have been investigating the research behind different semen types.

If you are considering using liquid fresh sexed semen, New Zealand research indicates you can expect around a 5% decrease in conception rate when compared to your conventional semen results<sup>1</sup>. However, some research has shown a 10% difference in conception rate<sup>2</sup>; speak to your breeding company if you are experiencing differences greater than this. The conception rate is lower when using frozen semen – fresh is best when using sexed semen. Also, you can expect around 10% of calves sired by sexed semen to be males<sup>3</sup>.

Heifer replacement calf cohorts can form more quickly due to condensed calving spread, potentially allowing calves to leave the calf shed earlier<sup>4</sup>. Some other benefits include that you can select your high-Breeding Worth cows for your heifer replacements, and you can increase the total remaining cows available to be mated to different semen types and breeds, such as beef.

If you're thinking about using beef-bred semen, we recommend selecting proven sires that produce, on average, calves with lower birth weights, shorter gestation lengths than other sires from the same breed, and faster growth rates. This



*We suggest starting at a small scale to gain experience before you fully commit.*

is because lighter birth weights and improved calving ease have been associated with shorter gestation lengths in cattle, and heavier weaning weights of progeny sired by proven bulls<sup>5</sup>. It is important to keep in mind that other factors also contribute to calving ease.

Gestation length has a moderately high heritability and variation between sires, breeds and calf gender. Beef breeds typically have a longer gestation length than dairy breeds of 281-282 days, while short gestation length can reduce gestation length by 8-10 days<sup>6</sup>. When using a short-gestation-length beef-bred semen, it can be a similar gestation length to conventional dairy-bred semen<sup>7</sup>.

New Zealand research has proven within-breed sire variation for birthweights and gestation length traits, so selecting the correct sire is important<sup>8</sup>. Proven beef sires can have a shorter gestation length; for example, progeny sired by Angus bulls with the top 10% gestation length estimated Breeding Value were born with an average gestation length of 279 days<sup>5</sup>.

Consider your options when trying new semen technologies. We suggest starting at a small scale to gain experience before you fully commit. Reach out to your breeding company to learn more about what results you can expect from different semen types.

**See page 29 for reference list**

# Seasonal toolbox

Explore tools and resources designed to help you make informed decisions on-farm as we head out of winter and into spring.



## Fit for transport checklist

Calves fit for transport should:

1. be at least four days old
2. be healthy, with no visible disease (e.g. scours), deformity, or injury
3. not be blind both eyes
4. have bright eyes and upright ears
5. have the correct ear tag
6. be strong, able to rise from a lying position unassisted, move freely around the pen and bear weight on all four limbs
7. be walking normally before they leave the farm
8. have a dry and withered navel
9. have a full tummy (with no antibiotic milk).

Make sure your loading facility is designed to keep out the rain and wind, so only dry and healthy calves are collected. Transporters won't accept wet calves.

Get the poster at [dairynz.co.nz/fit-for-transport](https://dairynz.co.nz/fit-for-transport)



## Spring pasture management tools

The Spring Rotation Planner gives you the area of pasture to allocate daily (ideally prior to calving time). With calving now underway, monitor your allocation alongside your feed budget. It'll help you compare how your actual and predicted feed match up, so you can make proactive changes as needed.

Visit [dairynz.co.nz/srp](https://dairynz.co.nz/srp) and [dairynz.co.nz/feed-budgets](https://dairynz.co.nz/feed-budgets)



## Econ Tracker tool

The DairyNZ Econ Tracker is predicting tight times ahead as we move into the most difficult time of the year for cashflow. Added pressures are high interest rates and a lower milk price than last season.

Although things may be hectic, it's essential you keep an eye on your bank balance. If things start to get away from you, get in touch with your bank sooner rather than later, to discuss options and solutions.

[dairynz.co.nz/econtracker](https://dairynz.co.nz/econtracker)





### Helping down cows

Down cows should be a priority no matter what's happening on-farm. They need high-quality care for the best chance of recovery.

A cow should only be lifted if it's highly likely she'll be able to bear her own weight.

If she's not ready to stand, try rolling her. It takes less time and it's less risky for her.

Watch a short video, get more information, and check out the rolling technique and best practice guidelines for nursing down cows, at [dairynz.co.nz/down-cows](https://dairynz.co.nz/down-cows)

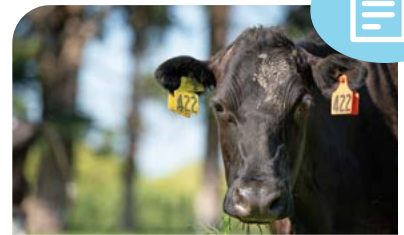


### Heifer-rearing tool

Growing heifers well, so that they meet their liveweight targets, can improve farm productivity and profitability. To meet targets, heifers need to grow at appropriate rates over two years.

Use the Heifer Development Plan to set a plan for the first two years of a heifer's life. Set expectations for the animal's weights, feeding levels and animal health requirements. Your grazer can help you with your plan and checking its progress.

[dairynz.co.nz/hdp](https://dairynz.co.nz/hdp)



### InCalf Fertility Focus Report

This single-page report assesses current herd reproductive performance and reveals which management areas to focus on for improvement. The report can provide clues from past seasons which assist in assessing heat detection performance and it can also display any recorded pre-mating heats.

It's a useful reference tool when you're talking to your breeding company to discuss options and opportunities.

[dairynz.co.nz/fertility-focus-report](https://dairynz.co.nz/fertility-focus-report)





# Doing wintering differently

Some wintering practices in the Lower North Island differ from those elsewhere, as DairyNZ's Justin Kitto explains.

For the last two years, DairyNZ has been collecting information from farmers throughout NZ to find out what they're doing to reduce environmental and animal welfare risks around winter cropping.

Last winter brought new regulations in to guide high-risk decision-making around this. While the practice is more common in the South Island, an estimated 25,637ha of winter crop needs to be managed well in the North Island too.

Recently, we asked some Lower North Island (LNI) farmers what they do as part of their wintering plan. This identified opportunities where these farmers could further improve environmental and animal care outcomes within their systems, including:

- continuing to establish crop by direct drilling
- leaving a 5m minimum buffer around waterways
- changing grazing direction based on weather, soil conditions or risky paddock areas (e.g. swales)
- using portable troughs and back fencing, especially when cows are not on-off grazed with pasture
- having a plan on what to do during wet weather, so cows can still easily lie down when they need to.

The timing of these considerations will vary from farm to farm. However, all

farmers across the country who use winter crop need to make decisions now on paddock selection and crop establishment, so they're in a good position to winter well in 2024.

There's good news from regulators from around NZ too about how farmers have achieved the rules so far, reduced their environmental footprint and

looked after their cows. Continuous improvement over time is the key – and progress is being made.

Check out our wintering tips at [dairynz.co.nz/wintering](https://dairynz.co.nz/wintering) and use the table below to work out the risks in your own wintering paddocks and choose lower-risk options.

Guide to winter crop paddock selection			
Risk Factor	Low Risk	Medium Risk	High Risk
<b>Slope risk</b>	0-5°	5-10°	>10°
<b>Soil risk</b>	Well-drained, structurally resilient soil	Artificially-drained soil	Soil is poorly-drained and/or vulnerable to compaction
<b>Waterways/drains</b>	Paddock distant to streams and drains	Paddock has an extensive network of artificial subsurface drainage	Paddock is directly adjacent to stream or wetland
<b>Critical Source Areas</b>	No CSAs present	A few CSAs present that are easily fenced off and left ungrazed	Many CSAs, occupying >5% of paddock area
<b>Shelter available</b>	Yes	Very little	No
<b>Flood risk</b>	Never floods	Very occasional surface flooding, over a small % of paddock	Flooding is known to occur over a large % of paddock
<b>Paddock history (soil fertility and weed/pest issues)</b>	Good fertility and no weed/ pest problems	Fertility OR weed/pest issues	Fertility AND weed/pest issues
<b>Years out of pasture</b>	First year in forage crop	Second year in forage crop	Third+ year in forage crop
<b>Tillage method</b>	No till	Minimum tillage	Conventional (full) cultivation
<b>Ease of management for staff</b>	Multiple access points and easy access to reticulated water		One access point and no reticulated water



# The low-down on less methane



**Here's what DairyNZ's Less Methane Research team is doing to find practical solutions, so dairy farmers can meet environmental goals while remaining productive, profitable and competitive.**

The Government has committed to reducing agricultural greenhouse gas (GHG) emissions, with methane reduction targets set for 2030 and 2050. Consumers are also increasingly seeking environmentally sustainable products, and producers, manufacturers and retailers are responding to this. For example, Nestlé has set itself environmental targets that are more ambitious than our Government's<sup>1</sup>.

New Zealand is currently the most emissions-efficient producer of milk in the world<sup>2</sup>. We need to continue to improve on that to maintain this position.

### What do we need mitigation solutions to achieve?

For mitigation solutions to work for Kiwi dairy farmers, they must meet a range of criteria, including:

- reducing total methane emissions
- fitting NZ's farm systems
- maintaining or improving:
  - methane emissions per kg of milk solids (efficiency)
  - animal health, welfare, and performance
  - product composition and integrity (e.g., milk and meat)
  - farm profitability and productivity
- being accepted by local and global consumers
- being credited in on-farm methane accounting and in the national GHG inventory.

### Research team:

**Jane Kay**  
PRINCIPAL SCIENTIST  
DAIRYNZ

**Elena Minnée**  
SENIOR SCIENTIST  
DAIRYNZ

**Konagh Garrett**  
SCIENTIST, DAIRYNZ

**Kirsty Verhoek**  
SENIOR SCIENTIST  
DAIRYNZ

**Katie Starsmore**  
EXTENSION PARTNER  
DAIRYNZ

**Ellie Stubbs**  
MASTERS STUDENT  
DAIRYNZ/MASSEY  
UNIVERSITY

*Above:  
DairyNZ's research team recently held an open day for farmers at Lye Farm to share the Less Methane programme's activities and goals.*



*Pasture samples being freeze-dried before being ground and sent for lab assessment. This method is more effective than oven drying to preserve sample quality.*

are effective at reducing methane by 30-90% in housed cows fed a TMR<sup>4</sup>. However, in our pasture-based system (which gives New Zealand its international competitiveness), they are not as effective. This is because it is difficult to administer a controlled amount of product frequently enough to achieve an effective reduction in emissions.

This poses a challenge and has resulted in DairyNZ research to date being focused on five options:

1. Early-life intervention.
2. Slow-release and bolus formulations containing methane-reducing products.
3. In-paddock delivery of methane-reducing products.
4. Forage species and management.
5. Vaccines.

### **Early-life intervention to change gut microbiome**

This aims to alter the rumen environment in the developing calf, so that mature cows are lifelong low-methane emitters<sup>4</sup>. This strategy is implementable for both beef and dairy cattle. The intervention occurs early in life, well before product processing (i.e., milk and meat production). The treatment duration is short, and its effects can potentially be immediate and permanent.

However, permanently altering the rumen environment is a challenging prospect. In adult cows, the rumen environment is stable and resistant to change.

The strategy could be used in newborn calves, as their rumen microbiome starts developing immediately after birth. This process has been trialled with several products, but so far results have been inconsistent<sup>5</sup>. DairyNZ is working with research partners to study this option and assess if it is a potential solution for use on New Zealand dairy farms.

### **What are the options?**

As a key driver of methane emissions from dairy cows is total feed eaten, farm system changes that lower feed eaten are an option to reduce methane emissions. Possible solutions include reducing supplementary feed, reducing nitrogen fertiliser, reducing stock numbers, changing the diet, and/or land-use changes<sup>3</sup>.

However there is a limit to which reducing feed eaten on-farm can be implemented while maintaining production and profit. Several regional research farms are investigating possible solutions and measuring the effect of farm system changes on the physical, financial, and environmental outcomes of the farm (see feature box on page 28, for details).

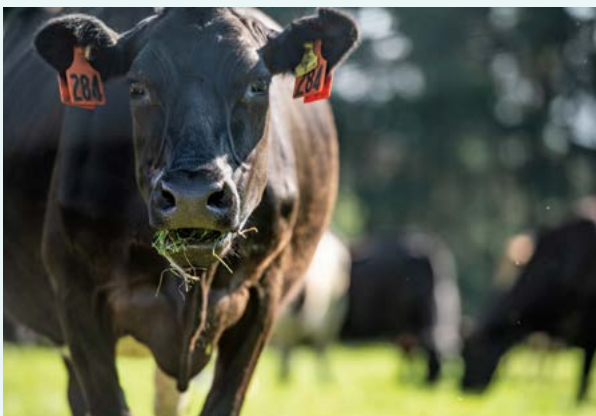
An alternative to reducing feed eaten is to adopt technologies that change the relationship between feed eaten and methane emitted<sup>4</sup>. Over the past 20 years, many potential technologies have emerged to reduce methane emissions from ruminants. These include:

- altering rumen fermentation (e.g., synthetic and natural products)
- nutritional strategies or feed additives early in life to create lifelong effects (early-life intervention)
- selecting/breeding for low-methane animals
- low-methane forages and crops (e.g., spring ryegrass, brassicas, fodder beet)
- changing pasture management (e.g., pasture quality and composition)
- changing diets (e.g., level of concentrate, lipid supplements)
- increasing animal efficiency.

### **Which options could work in NZ?**

Only some of these options suit our pasture-based farm systems. Others are more suited to overseas systems where cows are housed and fed a total mixed ration (TMR).

For example, products that alter rumen fermentation (e.g., Bovaer™, bromoform, and natural red seaweed)



*Understanding how pasture quality and composition affect methane emissions is an opportunity for our pasture-based farm systems.*



*DairyNZ research technician Addam Knight (right) demonstrates the GreenFeed/SmartFeed unit that measures methane and cow intake.*

### Slow-release formulations and boluses

To overcome the short-lived response to methane-reducing products when fed infrequently to grazing cows, companies are developing slow-release formulations and boluses<sup>5</sup>.

An example is the slow-release prototypes of Bovaer™ developed and currently being tested by Dutch company DSM. If these products are effective at reducing methane for a longer period in grazing cows, they will provide an adoptable solution for pasture-based farms using supplementary feed twice a day over most of the year.

Several companies are also developing boluses that release methane-reducing compounds into the rumen at a constant rate. DairyNZ's research team is evaluating some of these.

Consistent methane emissions reduction on NZ's pasture-based farms would require the development of boluses that are effective for six months or more. Daily handling or supplementary feed would not be required to achieve this reduction.

### In-paddock delivery of methane-reducing products

In-paddock automated feeders can be used to control the frequency, timing and amount of methane-reducing products delivered to grazing cows throughout the day. This may be more effective in reducing overall methane emissions than feeding products twice daily. In-paddock feeders can also offer a solution for farms that don't provide supplementary feed in-shed or on feed pads throughout the season, or don't handle cows twice daily (e.g., farms using flexible milking or wintering cows).

DairyNZ has investigated animal use, economic feasibility and farm system fit of in-paddock feeders to deliver methane-reducing products. This shows potential for some farms.

### Diet

While total feed eaten is a key driver of methane emissions, methane emissions change when cows are fed different diets. More specifically, there is variation with different forage species, chemical composition, digestibility, and whether the feed is fresh or conserved. Methane emissions could be reduced by adopting different forages and management approaches on-farm.

Trials are proposed to understand the methane emissions from cows fed different forage species (e.g., plantain compared with ryegrass), and forages at different times throughout the season (see feature box, page 28).

In addition to altering methane emissions, the cows' diet may also alter the response to methane-reducing products. It is important to understand and quantify this effect. This will ensure mitigations are used effectively in our systems and that farmers using them are fairly rewarded.

### Key points

1. NZ dairy is world-leading when it comes to efficient methane emissions, but continual improvement is needed to meet future emissions targets and stay globally competitive.
2. A significant challenge is to identify practical, adoptable solutions suited to NZ's pasture-based systems, while maintaining productivity and profitability.
3. Another challenge is obtaining regulatory approval for the use of methane-reducing compounds in NZ.

## Vaccines

Research is seeking to develop a vaccine that reduces methane from ruminants by 30% through one treatment per year or per lifetime. The advantages of a vaccine are that it would be easily audited, can be used in all farm systems, is easy to roll out on farms as vaccines are already administered. Vaccines are also not expected to affect animal performance or product (milk and meat) integrity.

Developing a safe and effective vaccine requires many studies. Progress is promising, but vaccines are likely to be a longer-term mitigation solution. For example, a collaborative programme headed by AgResearch and NZAGRC with investment from many organisations, including DairyNZ, has been working to develop vaccines.

## Where to from here?

DairyNZ is investing in research to develop technologies that are effective and adoptable on our pasture-based farms, with promising options emerging.

DairyNZ is committed to helping farmers reduce methane emissions, while maintaining profitability and productivity. Finding effective solutions for our pasture-based farms and providing dairy farmers with a suite of mitigation strategies continue to be a research priority, and a work in progress.



*Calves in the Early Life Methane measurement facility have their total intakes and methane emissions measured.*



*Using a Calan gate system enables our researchers to measure feed intake and methane from lactating cows fed pastures over time.*

## Research and funding

Most of DairyNZ's methane research takes place at Lye Farm, a world-leading methane research facility in Newstead, Waikato. Methane emissions and animal performance (including dry matter intake, milk production, growth) are measured from trial animals (e.g., newborn calves, growing heifers, and lactating dairy cows) at Lye Farm. The farm system is similar to those on most New Zealand dairy farms, to ensure solutions can be easily and effectively adopted.

Methane mitigation research conducted at DairyNZ is funded by dairy farmers (through DairyNZ's levy), the NZ

Government (New Zealand Agricultural Greenhouse Gas Research Centre/NZAGRC, AgriZeroNZ) and commercial companies.

Regional research into farm system changes to reduce methane emissions is also underway at the farms listed below, with DairyNZ support. Read more:

- Northland Dairy Development Trust – [nddt.nz](http://nddt.nz)
- Dairy Trust Taranaki – [dairytrusttaranaki.co.nz](http://dairytrusttaranaki.co.nz)
- Southern Dairy Hub – [southerndairyhub.co.nz](http://southerndairyhub.co.nz)

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