JUN JUL 2023

INSIDE DAIRY

Your levy in action

Rearing to go

Better systems, genetics and teamwork

DairyNZ

OVER THE FENCE...

I may be leaving DairyNZ, but I'll always be one of dairy's biggest advocates.

As many of you know, I've had a life-long affinity with the dairy sector. We're a team of brilliant food producers and committed businesspeople, producing high-quality nutrition for the world.

We've fronted up to many challenges in recent years, from regulation and disease, to natural disasters, staffing challenges and inflation – and we still manage to keep contributing strongly to NZ Inc.

Last year dairy exports continued to rise, hitting a new high of $22b in the year ending June 2022. Our sector contributed around $50b to New Zealand's economy.

A few years ago, I wouldn't have believed it if someone had said we'd have an $8+ milk price and farmers would struggle to profit. Now, average farm cost forecasts have increased around 11%, to about $9 per kg/MS in 2022/23, putting pressure on cash surplus for many.

As I head into my last few weeks with DairyNZ, I've been reflecting on some of the terrific R&D projects led by our science team. More recently, the Forages for Reduced Nitrate Leaching and Plantain Potency and Practice programmes have successfully helped to reduce nitrate leaching from farm systems.

We're now striving to reduce emissions through our low-methane research. This work aligns with customer needs and the policy discussion around how we farm both now and in the future.

DairyNZ will continue advocating hard for practical solutions that achieve the right outcomes for you, from animal care to water quality. This work will be backed by robust science and economics.

We've had some tough moments over the past two decades, but as a sector we are tight and we always pull together to overcome the obstacles. Because of that, I know dairy farmers will remain focused on achieving the best outcomes for their people, animals, environment, customers and New Zealand communities, no matter the challenges. I'm excited to see that continue.

Many thanks for a tremendous 15+ years. It's been a privilege to work with you, and our terrific team, during a period of great growth and challenge for our sector. I thank you for every opportunity I've had to represent you.

Ngā mihi nui,

Tim Mackle
Chief executive | DairyNZ

In this issue

Regulars

On the cover:
Calving-ready couple Warren Thomas and Nicole Mayberry, from this edition's lead story.

Reader survey – be in to win
What are you enjoying about *Inside Dairy* and how could we make it a better read for you? Complete our quick survey and go in the draw to win one of five $100 Farm Source store vouchers. Head to **bit.ly/insidedairyfeedback**

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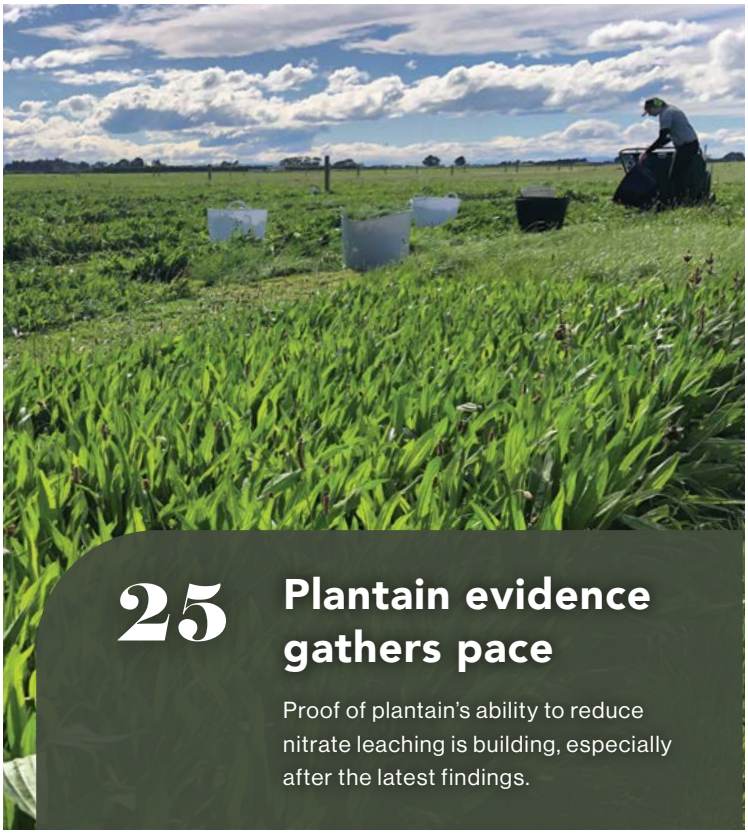

We appreciate your feedback

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‘Better’ campaign lifts public trust

Sharing the dairy farming story with millions of Kiwis is making a difference, according to a recent survey.

DairyNZ’s levy-funded advertising campaign ‘Better’, running since late last year, has been seen everywhere from primetime TV and news websites to gaming platforms and YouTube.

Its purpose? To build the public’s trust and pride in dairying.

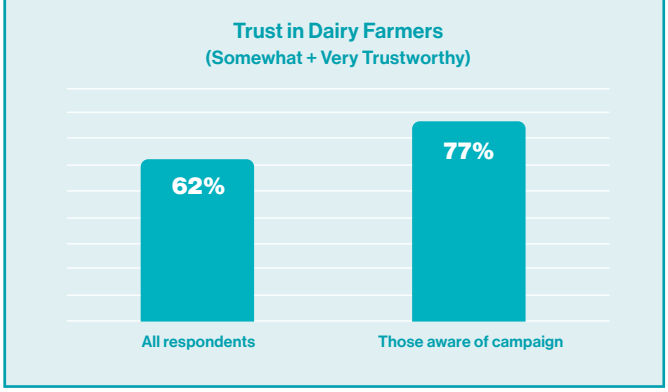
Our public perception survey* showed people aware of the campaign were 15% more trusting of dairy farmers than the general public.

Those aware of the campaign were also 15% more likely to agree that dairy farmers are doing the right thing when it comes to their responsibility towards the environment.

Also, 38% of those who saw ‘Better’ said they felt more favourable towards dairying.

**DairyNZ Public Perception Tracker, Quarter 1, 2023, 789 respondents.*

HERE FOR THE LONG GAME



Milestone for the Hub

The Southern Dairy Hub is celebrating its fifth year of operation this month.

The Hub is the largest operational research farm of its type in New Zealand, providing important data to help southern farmers make decisions. DairyNZ is proud to partner with the Hub on a range of research projects.

Head over to the recently revamped **southerndairyhub.co.nz** to check out the research.

DairyNZ associate director sought

Dairy farmers with a focus on progressing their governance career and their contribution to the dairy sector are encouraged to apply for an associate director role with DairyNZ.

This is a unique opportunity for farmers to contribute to their industry-good body and participate in discussion and debate. It is also an opportunity to gain experience in a governance role.

The position is open to current levy-paying farmers who are demonstrating leadership within their community and/or dairy sector. Associate directors are non-voting roles and are appointed for a one-year timeframe (from October to October), comprising seven Board meetings.

To apply, email **Sheree.Kara@dairynz.co.nz**. Applications close June 26, 2023.

Milksolids levy for the 2023/2024 season

The DairyNZ Board has determined that the levy on milksolids for the 2023/2024 season will remain at 3.6 cents per kilogram of milksolids. This is the same rate as that set for the season June 1, 2022 to May 31, 2023.

Go to **dairynz.co.nz/investment** for more information.

June events

Come and chat with us at Fieldays 2023, where DairyNZ's team will be focusing on science, people and productivity. We'll have scientists and others on hand to share our latest research, initiatives, tools and resources on those hot topics. Find us in the Pavilion, sites PC44, 46 and 48, on June 14-17.

For South Island dairy farmers, SIDE is happening in Invercargill, June 28-29. Hear from sector leaders, attend practical workshops, and network with like-minded farmers. Register at **side.org.nz**

Keep a spring in your step

With calving approaching for many farmers, DairyNZ and ACC have teamed up to reduce injuries from sprains and strains during this season.

Research shows most sprains or strains during calf rearing happen when farmers are:

- training calves to feed
- lifting buckets of milk and bags of meal
- slipping or tripping in the calf shed or climbing over gates.

Tips from farmers to help reduce injury include the following:

- Find ways to reduce the amount of heavy lifting, like piping calf milk into feeders.
- Have jockey wheels on calfeterias so people don't need to lift trailers.
- Have a good roster system for the rearing team, so people can rest.

Take care and look out for each other this spring. Check out brief staff safety videos, plus updates on six farmer-inspired prototypes to reduce sprains and strains injuries, at **dairynz.co.nz/sprains-strains**

Heading to Fieldays in June? See the prototypes mentioned above, including the easy-entry calf trailer, onsite at the Fieldays Innovation Hub.

Tim a passionate, farmer-focused advocate for dairy

By Jim van der Poel, DairyNZ chair.

This month we farewell DairyNZ chief executive Tim Mackle.

During Tim's 15 years leading DairyNZ, the dairy sector has expanded significantly. So too has the role of its industry-good body and, therefore, its chief executive.

DairyNZ's roots in research and development, farmer extension and farm systems very much continue today. But shifting regulations and challenges such as biosecurity, environmental progress and staffing have created a dynamic, ever-changing climate, particularly in the past decade.

At every straight, turn and bump in the road, DairyNZ is right there alongside its farmers. Tim, as chief executive, has represented dairy farmers at many junctures where it was vital their voice was heard.

Advocacy has been a key shift for DairyNZ and something Tim was a firm believer in, because advocating for farmers is vital in securing the best possible outcomes.

At times, Tim has been personally involved in a wide number of sector conversations and negotiations, where his influence helped get the best outcomes for our farmers. In particular, Tim has played a central role in the *Mycoplasma bovis* response, championing for farmers at every step.

Tim's affinity for and sense of responsibility to dairy farmers has been highly regarded within DairyNZ and beyond.

He's taken his duty seriously every day, thanks to being hugely passionate about farmers and DairyNZ's role in helping them. You can take the boy off the farm, but you can't take the farm out of the boy!

Beyond the board table, Tim has also been a proud public advocate for dairy farming – often stepping up on behalf of farmers, talking about their great work, farming's role in solutions and NZ Inc.

Tim's genuine drive, farmer-centred passion and breadth of knowledge will be missed.

We have our work cut out for us in replacing Tim. Interim chief executive Peter Scott will be keeping the seat warm from July, while the Board moves forward in recruiting DairyNZ's new chief executive.

> *Tim's genuine drive, farmer-centred passion and breadth of knowledge will be missed.*

The Board members are keen to get the right person to continue Tim's great work and keep DairyNZ moving forward. We are very encouraged by the calibre of candidates so far.

Personally, I have immense respect for Tim – his integrity, passion and commitment. And I see firsthand how hard he works for farmers and the people in DairyNZ. A more dedicated person, you will not find.

Tim, I thank you for your years of unwavering dedication to DairyNZ, its team and farmer members. You've been incredibly loyal and committed to delivering 110% every day, and we salute you.

On the ground at Farmers' Forum

Farmers at this year's two events, held in Waikato and Canterbury, share what they found most interesting on the day.

"It's going to be a challenging couple of years, but DairyNZ showed today that they are clearly here to help us through with their science and resources."

Tom Buckley
SHAREMILKER, REPOROA

"It was great to get some new ideas and to meet a new friend at Farmers' Forum. Finding out more about genetics was most interesting for me."

Jay-Arr Teano
FARM ASSISTANT, TEMUKA

"I really enjoyed the future farming presentation, and the interesting concepts shared which will help keep us competitive in the future."

Anna Kalma
FARM OWNER, NGARUA

"I enjoyed hearing about the latest science. The new technology I saw like the safety suit to reduce calving injuries, and the calf trailer, could be useful on our farm in the future."

Roel Ermio
FARM MANAGER, METHVEN

"It was interesting to hear about the challenges that face the industry and how we need to adapt to stay ahead of the game."

Matthew Macdonald
CONTRACT MILKER, GORDONTON

"I really enjoyed the opportunity to network with other farmers. I feel more informed about potentially using plantain after attending the session to hear more about the research."

Kerry McArthur
FARM OWNER, TEMUKA

"I loved coming along and hearing about the upcoming science and where it is going to take us in the future."

Johanna Bishell
TRUSTEE AT DAIRY TRUST TARANAKI, TARANAKI

"We farm in an area with sensitive groundwater and we've been working on reducing N loss for a while. It's good to see more research coming through on this, and also hear about research into reducing methane emissions and improving wintering."

Paul Jarman,
FARM OWNER, DARFIELD

To see recordings from Farmers' Forum information sessions, go to **dairynz.co.nz/farmersforum**

Genetics and teamwork approach to calf management

Canterbury couple Warren Thomas and Nicole Mayberry are focused on getting the best from their young stock. They've spent three seasons refining their system to both maximise calf care and minimise non-replacements.

Westingdon Farm owner Warren and his partner Nicole are in a strong position to ensure all their calves are given a good start and positively contribute to the farm business.

Having spent his early years building up equity and scale, Warren now has just the one farm to focus on. Admittedly, it's a large farm, but its singularity prompts them to double down on policy and practice, ensuring they get the best out of their land, staff and herd.

Their calf-rearing policy focuses on a simple philosophy: to ensure all calves, whether replacements, those reared for beef, or bobbies, get to enjoy a healthy, well-cared for time on the farm. The couple also pay close attention to where their calves go when they leave the farm.

That approach aligns well with the growing number of farmers wanting to explore options for non-replacement calves and ensure as many calves as possible are used in a meaningful way.

Wood chip is Warren and Nicole's preferred bedding material for the 14-bay rearing barn.

Better options with beef breeds

With the 294ha farm under Synlait's Lead with Pride programme, Warren and Nicole started considering how best to minimise the number of non-replacements to manage in the first place.

"We opted to use sexed semen, which we put over the top one-third of the herd. Sexed semen does come at a cost, but as an investment, the genetic gain we get from it is significant," says Warren.

Last season, they went a step further, synchronising their 230 heifers to cycle and be mated with sexed semen.

"The results were not quite as good as we may have hoped for, with only a 34% in-calf rate. That's not as high as we would like, and we are still not sure if it's a synchronising issue or a semen issue, but we are determined to stick with it. The level of genetic gain you get with the heifers and sexed semen represents a couple of years' gain in one," says Nicole.

1

2

For the past two seasons, they've also put the balance of their herd to Wagyu genetics. The offspring are a high-value Wagyu-cross calf, which Warren and Nicole sell for a premium to a rearer at five days old.

They appreciate it's an option not available to all dairy farmers in all areas, but the opportunity generates a premium, reduces potential bobby numbers, and generates an income to help fund the sexed semen programme through the remainder of the herd and heifers.

Tidying up the late-calvers is done using Hereford genetics to make the distinction from Wagyu clearer at birth.

"We manage to sell about 80% of them too. They are generally good, rearable white face calves, and the markings define them well from the Wagyu," explains Nicole.

Gold-standard calf care

With their breeding programme producing more valuable replacement calves, more calves for beef, and fewer bobbies, the couple have also refined their rearing process. It's a simple stepped approach that staff engage well with – one that keeps calf health front and centre.

"It is helped by us both working together on it. That's probably quite unusual, but it works well and we leave the rest of the team to manage the milkers and bring the calves and cows in from the paddocks," says Warren.

Preparation well before calving includes laying fresh wood chips through the 14-bay rearing barn, ensuring each pen has a water supply and meal box in place from day one. Wood chip is a perennial favourite thanks to its ability to absorb moisture and be easily refreshed between mobs of calves.

Thanks to some well-coordinated teamwork between contract milker Dan Burrows and his team, who collect the calves, on arrival at their pens they're efficiently allocated to their rearing area. Wagyu, replacements, and bobbies are penned separately.

1. *After formerly owning multiple farms, Warren says he loves being able to concentrate on one farm now, rather than feeling "spread thin".*
2. *Achieving the highest-quality colostrum has become a lighthearted competition between the team.*
3. *Getting more sexed heifer replacements out of their heifers is a major aim for Warren and Nicole.*

> *"The level of genetic gain you get with the heifers and sexed semen represents a couple of years' gain in one.*

FARM FACTS

Warren Thomas and Nicole Mayberry

ROLE:
Farm owner (Warren), calf rearers

LOCATION:
Charing Cross, Canterbury

FARM SIZE:
294ha

HERD:
1000 milkers

PRODUCTION:
480,000kg MS/year

3

"They will be tubed with colostrum on arrival and sprayed with a dot to confirm they've received it, and be blood-tested to prove they're at their required colostrum level. We treat that first colostrum dose as vital; regardless of the calf's type, it sets them up so well," says Nicole.

Last year, they recorded no outbreaks of rotavirus or salmonellosis among the calves reared. Nicole attributes that to calves receiving a good level of quality colostrum early on, and a strict regime of spraying out pens weekly with Virkon and topping up the wood chips with fresh batches.

They've ensured their staff are well-engaged with the colostrum's importance, turning the colostrum testing regime into a bit of a competition to see who can achieve the highest, healthiest levels at test time.

"They enjoy the competition, and understand the science behind it too," says Nicole.

Rearing to go

Warren and Nicole's sole focus for spring is on the calf rearing. That gives them the time and space to "take as long as it takes" to ensure the calves are all capable of drinking on their own, are looking healthy, and well on their way as a mob before being moved into dedicated paddocks.

Every week the local vet team comes in to humanely disbud and prevent horn growth, sedating the calves and using a local anaesthetic to minimise pain and stress.

Once they're happy with each group of calves, the animals are moved into dedicated calf paddocks. North-facing shelters are popular with the calves during the nights. In-paddock feeding of milk tails off as the calves approach 80kg, and none are sent to the grazier until they hit 100kg.

Simple system, tight team

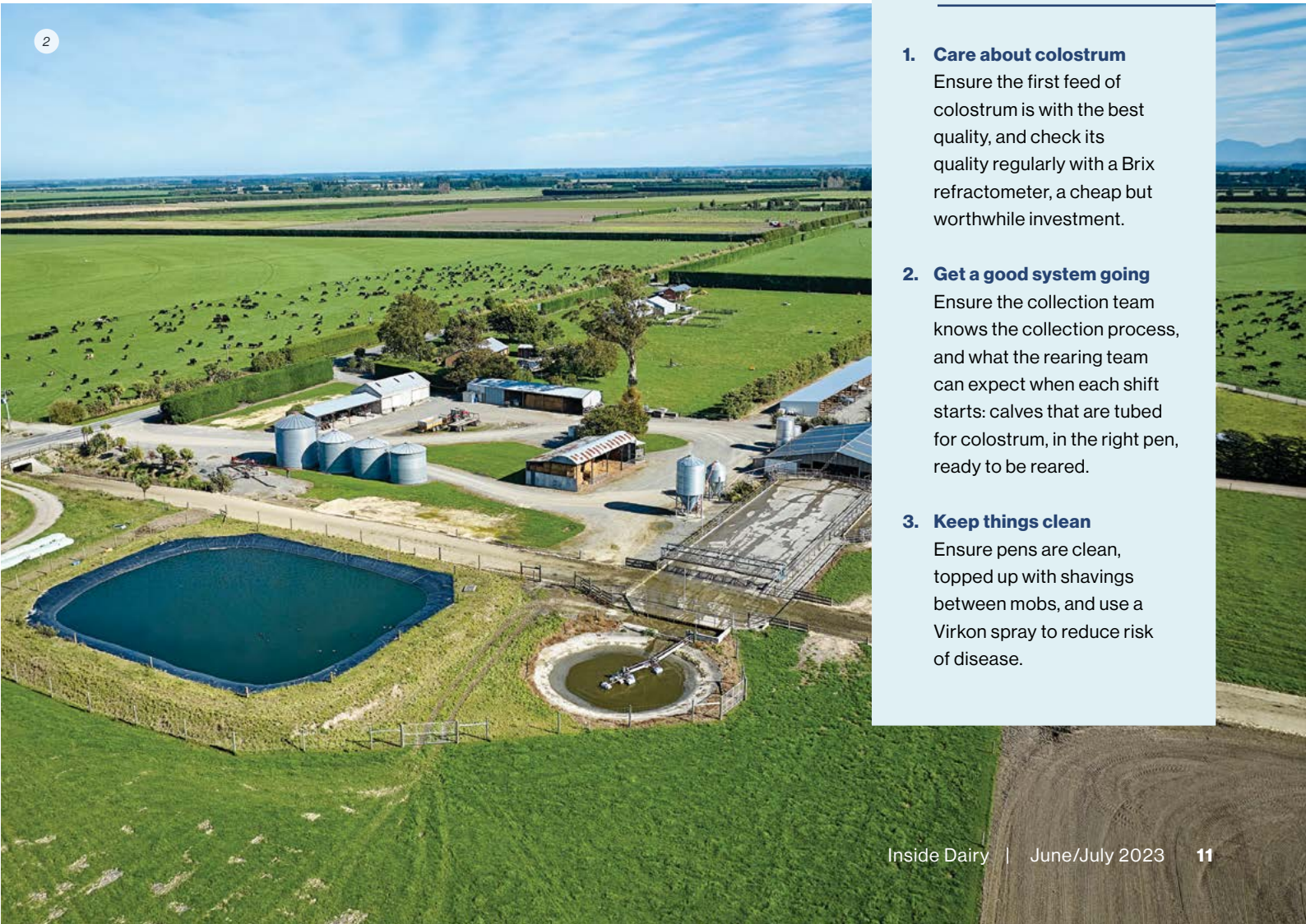
Warren and Nicole are quick to point out their system has few complexities in a process they've been fine-tuning for three seasons.

Nicole attributes it to a good farm team backing them up, taking care to bring calves in regularly, and being invested in the value of high-quality colostrum in those early hours of life.

"I think if there was anything else we would like to work on, it would be just getting more sexed heifer replacements out of our heifers," she adds.

> *We treat that first colostrum dose as vital; regardless of the calf's type, it sets them up so well.*

1. *Nicole and Warren with farm assistant Max Mitchell and herd manager Tim Madden (far right).*
2. *Aerial view of 294ha Westingdon Farm.*
3. *Max, aka 'Maxinator', is into his third season on the farm and Warren says he's growing in confidence all the time.*
4. *Once spring arrives, Warren and Nicole devote most of their time to rearing the calves together.*



Warren and Nicole's calf-rearing tips

1. **Care about colostrum**
   Ensure the first feed of colostrum is with the best quality, and check its quality regularly with a Brix refractometer, a cheap but worthwhile investment.

2. **Get a good system going**
   Ensure the collection team knows the collection process, and what the rearing team can expect when each shift starts: calves that are tubed for colostrum, in the right pen, ready to be reared.

3. **Keep things clean**
   Ensure pens are clean, topped up with shavings between mobs, and use a Virkon spray to reduce risk of disease.

Managing a turn of events

How are top operators budgeting for the new season?
We caught up with two of DairyNZ's Budget Case Study farming couples.

The Watsons

$ BUDGETING $8.25kg/MS

Kaipara Harbour farmers Kirsten and Don Watson are split-calvers farming on mainly marine clay soils. After February's Cyclone Gabrielle, more than 40ha of flooded pasture needed re-grassing, and beef stock had to be sold off early, reducing their 2023/24 income potential.

The Watsons are factoring in $6.64 for farm working expenses and a target of $2 stock income, with the extra value coming from autumn-born calves and beef cattle grazed on the runoff.

However, with farm expenditure up by 25% last season, six years' investment in farm development is now on hold. The couple also didn't apply lime in autumn; and they've cut back on drainage repairs and maintenance.

"We expect farm costs to stabilise and overall costs to remain similar this season, but we hope to see drops in items like PKE, urea and diesel," says Don. "Labour supply will remain tight though."

Kirsten says coding and keeping your budget on track is key. "Monitor it monthly rather than quarterly, making adjustments as you go."

They've also increased staff wages for 2023/24, Don says.

"We let them know they're doing a good job, pay them well and ensure they get good time off."

See farmers' budgets and access DairyNZ's budgeting tools at **dairynz.co.nz/budgeting**

TALKING DAIRY
DairyNZ

Listen to farmers talk about how they're managing the cost squeeze at **dairynz.co.nz/podcast**, episodes 41 & 42.

The Davie-Martins

$ BUDGETING $8.50kg/MS

Ironically, Cyclone Gabrielle provided just enough rainfall to minimise the need for irrigation on Alan and Sharron Davie-Martin's farm in Hurunui near Culverden; and was especially helpful on their unirrigated support block at Loburn near Rangiora.

Alan says their breakeven* point is $7.43 kg/MS.

The couple had a 12% cost increase last season, partly due to them upgrading a water system on land they purchased last year, and switching from a salaried manager to a contract milker.

"I'm doing my budget this season on an interest rate of 7.75% – a floating rate. All our debt is on floating," says Alan.

He emphasises the importance of communication.

"That's with staff and the people you do business with: your bank, your accountant, your suppliers of goods and services. A banker just likes to be in the loop; they don't like surprises.

"We also ensure our fertiliser bank is topped up in the good times, so we can cut back on fertiliser inputs in the bad. It's the same with repairs and maintenance."

The Davie-Martins are big on looking after their team first.

"We're trying to encourage people into this industry and stay in it. Sure, you always analyse every cost, but I wouldn't lay someone off just to balance the books, especially as I may need them again. I'm looking to keep a stable labour force."

**the lowest milk price needed by an individual farmer to cover farm costs, interest payments, tax and drawings.*

‘You’re not on your own’

Dairy farmer Sam Spencer-Bower hopes his mental health story will encourage others struggling with depression to speak up and ask for help.

Off-farm, Sam, Jo, Chloe (10) and Ruby (7) enjoy school and sports activities, and water-skiing near Jo’s family bach at Wanaka.

Sam and wife Jo are fifth-generation farmers in Swannanoa near Rangiora, north Canterbury. They converted their 1400ha sheep, beef and cropping family farm to dairying 11 years ago, now running 3000 Kiwi-Cross across three dairy units.

That’s a big undertaking, and so was Sam’s journey back to wellbeing.

“About eight years ago, I stopped being able to function,” says Sam. “I just wanted to withdraw from people. I struggled to get going every day. Jo was starting to say, ‘things are not great here; you’re not much fun to be around’.”

Workload pressures and his own “over-active inner critic” had slowly been dragging him down. Finally, with his wife’s support, Sam talked to his doctor.

“You say to yourself, ‘that’s not me, that’s for somebody else, I’ll be fine’. But then one day I Googled ‘depression’ and Sir John Kirwan’s name came up. As I read through the symptoms, I thought, ‘that’s probably what’s happening here’.”

These days it’s farming’s increased complexity, regulatory compliance and social issues that can get Sam down.

However, now he knows the warning signs to look for, how to keep on an even keel, and how to support his team’s wellbeing, including focused rostering and time off-farm.

“It’s the sheer intensity of it: having to justify and record everything, sometimes across multiple recording platforms and with different requirements from different regulators.

> *Don’t be scared to talk to others about it. It’s surprising how many other people are feeling the same way.*

“We always wanted to farm well and do the right thing, but when you’re so worried about the paper trail, you lose focus on being innovative and it gets in the way of doing things better.”

With better-managed wellbeing, Sam’s reconnected with what he loved about farming in the first place.

“It’s in the family, in the blood: growing things, looking after cows and a patch of land, bringing our family up, and enjoying what working on the farm can offer.

“As for managing depression, you’re not on your own. Don’t be scared to talk to others about it. It’s surprising how many other people are feeling the same way. There’s plenty of help out there – you’ve just got to ask for it.”

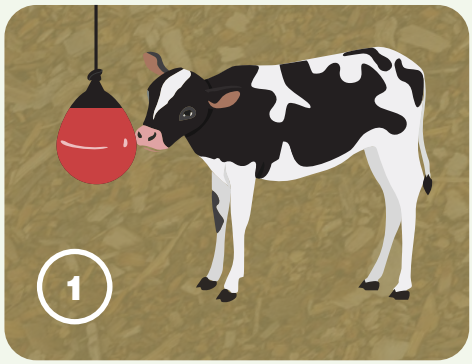
Sam’s tips

- Be honest about what’s going on in your head: talk to friends and family about it.
- Try to concentrate on what you can control.
- Focus on diet, exercise, sleep, social interactions and breaks.

Go to **dairynz.co.nz/wellbeing** for more farmer stories, tools, podcasts, and contact info to get help if you need it.

View from the calf shed

What would calves tell us about their preferences for bedding, socialisation, play and feeding? Studies help to fill in the blanks.



"I love to play, and my life is more enriched with some interesting items to explore."

A NZ study found that, when given the opportunity, young calves interacted with an automated brush and a rope for more than an hour a day[1]. Young calves enjoy options for play and some preferred the rope over the brush, and vice versa.

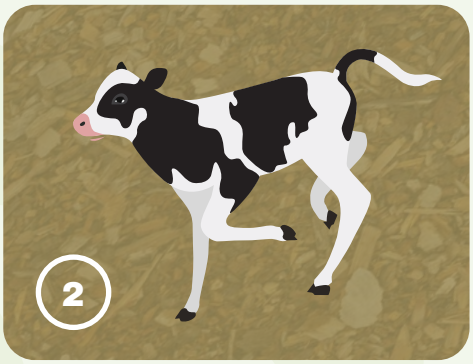
Rope is an easy, cheap option for enrichment. Just check the rope isn't treated, and try it with a ball or fishing buoy on the end to prevent fraying.

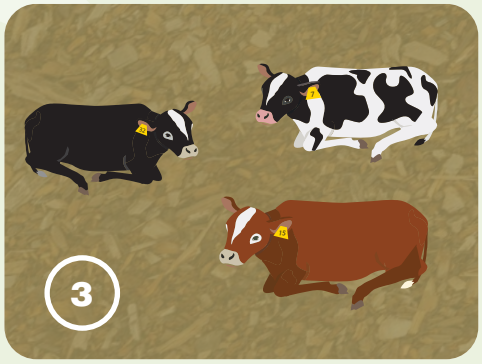
"Slippery and uneven surfaces make it hard for me run around and play."

Several NZ studies have looked at bedding options. One trial asked calves to 'vote with their hooves' by giving them access to four options: wood shavings, rubber chips, sand, and river stones (20-40mm)[2].

Calves spent most of their time on the wood shavings, preferring it over the other bedding types. Wood shavings are warmer, more absorbent, and the even, non-slip surface gives calves confidence to run around and play.

Calves reared on river stones spent less time playing and lying and had lower skin temperature than calves on wood shavings.





"Hanging out with my mates in the calf shed is fun. We get to play all day, then cosy up at night to sleep."

Group housing is so common in NZ that we sometimes forget the benefits.

While individual calf hutches make it easier to allocate milk accurately and prevent disease spread, calves reared in groups enjoy increased positive social behaviours, like grooming and play. Social contact leads to greater feed intake, body weight and confidence[3].

Disease can spread more quickly in group housing. Farms need good systems to prevent, identify and respond quickly. Ill calves may need to be penned individually while they recover. Keeping them within sight or hearing range of other calves will help to meet their behavioural needs.

"I'm going to grow up to be healthy and strong."

Calves are born without immunity and need to receive enough high-quality ('gold') colostrum early. Failure of passive transfer (FPT) occurs when calves don't receive gold colostrum soon enough after birth.

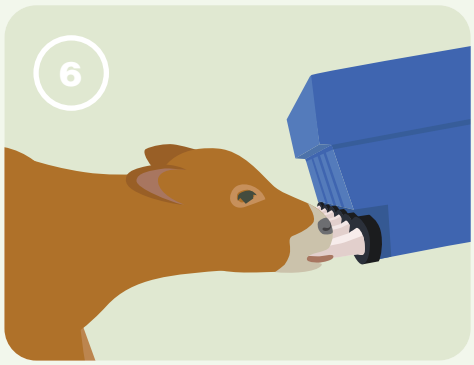
A recent NZ study indicates that, on average, about a third of calves have FPT, but this varies widely between farms[4].

Providing quality colostrum (Brix reading of 22% or higher) within six hours of birth ensures calves have the best chance to absorb the immunoglobulins through their gut wall. FPT has been associated with reduced lifetime production and increased culling rate.

"I'm tired. I don't have the energy to play or groom and I don't want to drink milk either."

When calves get sick, they display decreased activity, appetite, and grooming, and lie down in a tucked position. Being less active helps a sick calf conserve energy for use in the immune response and helps them overcome infection.

Anti-inflammatory pain relief improves the welfare of sick calves and has been shown to improve their appetite and weight gain[5].



"When I get 'hangry', I can't think as clearly."

When calves don't get enough milk, their affective state (how they feel) is negatively impacted[6]. Their memory is hindered, they become unhappy and stressed, and they become increasingly vocal. This is a bit like humans when we feel 'hangry'.

So, give calves the best start possible by feeding more milk, and avoid sudden milk restrictions. When weaning calves, lower their daily intake of milk slowly and provide access to roughage and water to reduce feelings of hunger.

See page 29 for reference list

If you have any questions about this article, contact:

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- Odette Chauncy, DairyNZ solutions and development specialist, **Odette.Chauncy@dairynz.co.nz**

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Find out more about DairyNZ's research and our scientists at **dairynz.co.nz/research**

Dr. Roshean Woods

SENIOR SCIENTIST
CANTERBURY

A DairyNZ high school visit helped Roshean visualise wider science opportunities within the agricultural sector.

"All of a sudden, I could picture myself in a job that included being out in the paddock with farmers."

Roshean's involved with DairyNZ's Low-Nitrogen Systems programme, fodder beet research and plantain studies, and was an FMG Young Farmer of the Year national finalist in 2021.

"I love working with farmers and analysing data. We're working on the edge of knowledge to benefit farmers – it's a forever-learning kind of job.

"One highlight, the fodder beet project, involved farmers and focused on animal health considerations and environmental benefits.

"I think our project farmers also really enjoy the connection with the researchers and being able to ask us anything."

Roshean.Woods@dairynz.co.nz

Dr. Katrina Macintosh

SENIOR SCIENTIST
CANTERBURY

Irish-born water quality scientist Katrina arrived in NZ from Northern Ireland before COVID-19 hit, having landed a job at DairyNZ.

"I've met some fantastic people here with a common purpose. NZ's a beautiful country, with such a wealth of science knowledge and expertise."

Katrina's proud of her involvement in an AgResearch/DairyNZ research collaboration revisiting five Best Practice Dairy Catchments, which had studied the uptake of best management practices and water quality over 20 years.

"So, there's a long-term globally unique dataset, and it's been fantastic to get stuck into that. We found the catchment water quality has generally improved in those locations. We can link that back to farmers' great work around things like effluent management."

Katrina's now focusing on understanding and managing *E. coli* with a catchment group in Manawatu.

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Dr. Elena Minnée

SENIOR SCIENTIST
WAIKATO

"I've been working with plantain since 2017," says Elena, whose PhD focused on how nitrogen use efficiency varies between pasture species. She's worked extensively on forages and crops while at DairyNZ. Now investigating climate solutions, Elena's leading DairyNZ's Advancing Forage Frontiers research and working in methane reduction.

"I enjoy going after practical solutions that will benefit farmers. For example, we've had farmers visit our research farm to discuss what we'd learned about plantain's benefits as a forage crop.

"Next time we caught up, they'd taken things on board, implementing plantain on-farm to the next level."

Elena also works with other organisations and companies on methane mitigation, guiding the development of technologies.

"We help ensure technology is fit for purpose, and adoptable on-farm. Guiding development is a key role DairyNZ can play for farmers."

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mythbuster

Do pour-ons promote production?

A drench in the dry period or early lactation is common on many dairy farms, but is there proof that it increases production or reproductive performance? Ginny Dodunski, Wormwise programme manager and veterinarian, explores.

If you're watching the half-time advertisements in the rugby or flicking through the glossy ads in the press, you could be forgiven for thinking every cow in New Zealand should be given a pour-on drench to maximise milk production.

Worldwide, a large number of trials have assessed the outcomes of treating dairy cows for worms. Many of these are not relevant to New Zealand (e.g., cows in tropical countries with heavy burdens of exotic parasites). The trials show a wide variation. In one review of 75 clinical trials, 53% showed a significant increase in milk production after treatment.

Data from the small number of New Zealand studies is similar – positive overall but with wide variation between response in individual cows and between herds. In a large 1980s trial involving 47 herds, only one showed a statistically significant increase in milk production to a treatment given in the dry period.

A 2012 study of three herds in the Lower North Island went as far as suppressively treating cows every 28 days throughout lactation. This completely removed the effect of the most pathogenic worm (*Ostertagia*) on the treated cows throughout the study.

Treatment resulted in a significant increase in milksolids production (17.3kg/cow) in one of the herds but not in the other two. In herd one, the cows were on a mostly pasture-based diet and under irrigation in the summer.

The other two herds consumed more supplement in their diet, and the pasture was not irrigated. Parasites need moisture to complete their life cycle on pasture – it's likely that on the irrigated farm there were more worm larvae available to cows through the warmer months.

Feeding levels per se and cow body condition were not measured, but there is ample evidence that well-fed and well-conditioned adult stock are better able to tolerate parasite challenge. Differences in these aspects may have also influenced the results.

The 1980s study identified that cows grazing paddocks previously grazed by calves were more likely to show a milk production response to treatment.

Young stock are the worm 'multipliers' in a grazing system, so it fits that cows can come under higher worm challenge when sharing a grazing area with calves.

No New Zealand trial work has shown reproductive benefits to treating cows for worms. If you're concerned that parasites are impacting your cows' health, talk to your vet.

Myth **Treating adult dairy cows for worms results in an increase in milk production.**

BUSTED

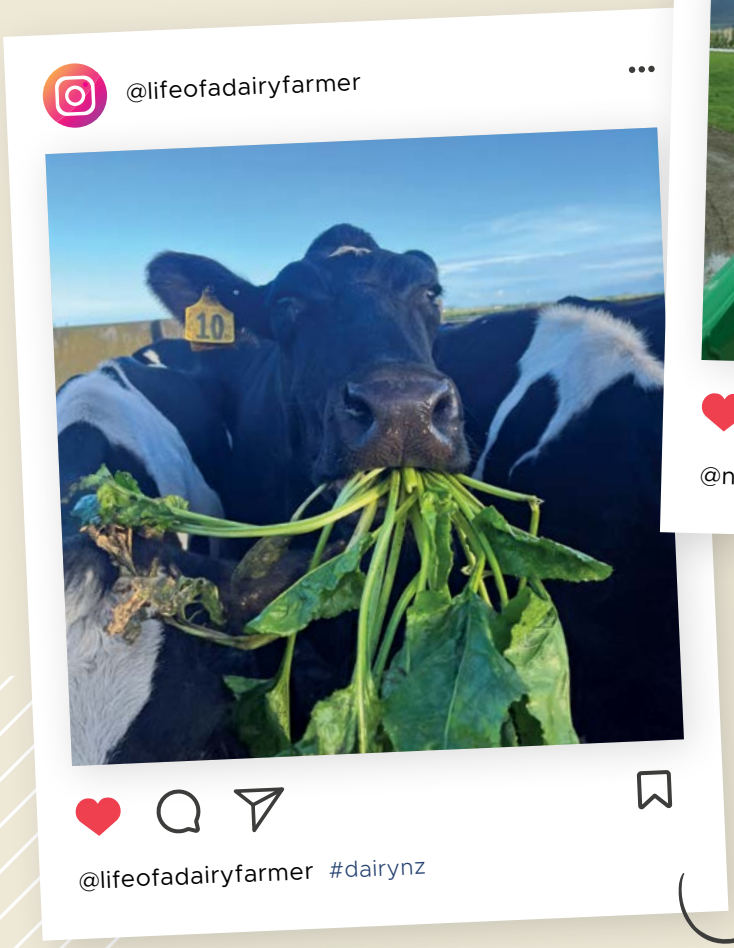
Kind of – the results vary. Production responses are not a given.

Photo: Zoetis Animal Health

Snapped on-farm

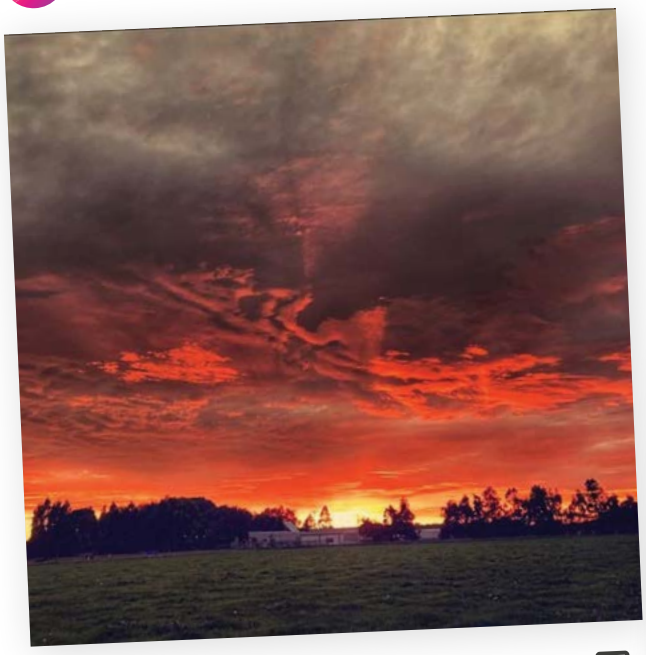
A handful of dairy farming social media pics that have caught our eye over the past few months. If you'd like your photo to feature, share your snaps by tagging us on social media or using the #**dairynz** hashtag.

Just finished feeding out on a cold morning here in Five Rivers.



Can't beet it.

@renae_flett



@renae_flett #dairynz

Mother Nature, you can make or break farmers. Please be nice for the next couple of months.

@owlfarmnz

@owlfarmnz #dairynz

How about this for a mouthful of annual ryegrass!

@zanderlak_dairy

@zanderlak_dairy #dairynz

When you're a parent, your greatest contribution to life may not be something that you do ... but someone you raise. You're their greatest teacher.

NZAEL – closing the gap in genetic gain

Te Awamutu dairy farmer and genetic breeding fan Wendy Harker.

We're improving Breeding Worth to improve your bottom line.

Better herds mean better farm performance and higher profits for farmers. Better herds come from the genetic gain made from informed and deliberate breeding choices.

Genetic gain refers to the genetic improvement of animals, which benefits farmers by increasing desirable traits for profitability and improved environmental outcomes. It's about improving the quality and efficiency of the national herd. Farmers get animals that are more resilient, more profitable, and easier to farm.

Internationally, technologies for genetic gain have been advancing quickly, allowing for more rapid improvements in herd performance. In New Zealand, slow and inconsistent uptake has meant our herds have lagged behind our international competitors over the last 10 years.

What's holding us back? Genetic gain in the New Zealand dairy herd is supported by a large, complex system involving multiple organisations, such as science research organisations and providers of artificial breeding and herd testing services. Data collection across organisations and among farmers varies considerably in terms of both quality and quantity. Currently, collaboration across the sector is limited and there isn't a consistent approach to animal evaluation (Breeding Worth).

NZAEL wants Breeding Worth to be the best it can be for Kiwi dairy farmers – however at the moment there's room for improvement. To give New Zealand the best chance of achieving internationally competitive genetic gain, NZAEL aims to deliver an independent, accessible and internationally competitive Breeding Worth system by June 2024.

NZAEL's proposal includes:

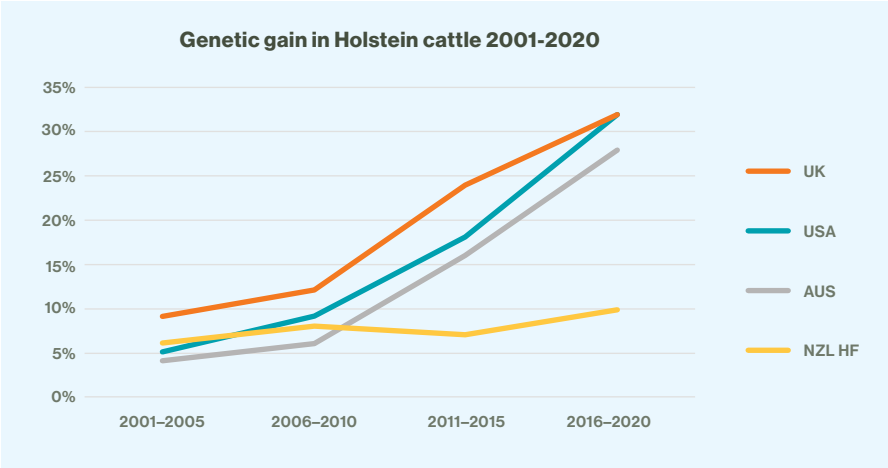
1. **Improving the *accuracy* of NZAEL's Breeding Worth** – by including all relevant New Zealand genomic and phenotypic information.

2. **Creating an *inclusive* system** – giving all dairy farmers the ability to use NZAEL Breeding Worth data to improve their herds.

3. **Creating one *independent* source of Breeding Worth** – enabling farmers to better compare bulls across providers, with the knowledge that they're using the same credible data to inform their choices. An independent Breeding Worth that includes genomics for cows would also assist farmers in making breeding and culling decisions for their herds.

One farmer who's a fan of the proposal is Te Awamutu's Wendy Harker.

"It's important that NZAEL is the one source of the information, so it's a very independent source of data for NZ farmers. We need a single base we can rely on," says Wendy, who's on the NZAEL Farmer Advisory Panel.



Grounded wintering advice

Being prepared yet flexible is the key to weathering winter challenges.

David Balchin (left) with team: Imalka Ishan, Roshan Yahathugoda and Manusha Dilshan.

South Otago dairy farmers David and Robyn Balchin start planning for winter in November, placing baleage at the top of their runoff's sloping paddocks, so tractors don't need to be used there in winter.

"The cows go straight to the runoff after dry-off about late May," explains David. There, the cows are carefully transitioned onto fodder beet.

Cow mobs are shifted twice a day and regularly monitored.

> *It's also important for us as dairy farmers that we make sure we can prove to the rest of NZ that we're really making a big effort around this stuff.*

"If it's really wet, they'll get shifted two to three times a day, or taken off crop," says David.

"We always have a back fence and portable troughs to stop them going back and pugging up."

After the cows are transitioned onto crop, they stay on it in their calving groups.

"Calving happens back on the farm platform onto a pad. The aim is to have no calves born on crop."

David's team communicate regularly via a WhatsApp group, and use a whiteboard to keep track of which paddocks the cows are in, plus mob numbers and feed requirements. They also record health issues on another board and keep a first-aid kit for cows on hand.

David says they have a 10-year winter grazing consent from Otago Regional Council but have to submit their paddock plans every year.

"It's also important for us as dairy farmers that we make sure we can prove to the rest of NZ that we're really making a big effort around this stuff.

"We want to make sure we're doing our best for our environment and Fonterra is encouraging us to do this as well."

Hawke's Bay dairy farmer Greg Mitchell's wintering approach is similar, but he also plants oats for feed after the fodder beet has been grazed. He emphasises that staying flexible is key.

"Our feeding schedule for autumn and winter has been re-assessed following Cyclone Gabrielle," says Greg. "Every week we'll review our wintering plans, evaluating what is going well or needs to change."

Putting a plan together

While planning ahead is the ideal, DairyNZ's Justin Kitto says it's never too late to fix things. In either case, here's what to consider.

- Options to give cows lie-down areas, and to move cows off trouble spots.
- When feeding cows on crops, use portable troughs and back-fencing.
- Ensure cows don't calve on crops.
- Regularly check the weather, cows and paddocks.
- Place feed bales well apart on higher ground.
- An intensive winter grazing paddock plan sets out the most suitable grazing plan (including supplement placement out of critical source areas and paddock swales). See **dairynz.co.nz/IWG-rules**
- A Plan B option will give you a contingency plan for periods of adverse weather.

For more on winter management, and to check your farm's ground conditions using DairyNZ's gumboot score tool, visit **dairynz.co.nz/wintering**

Winter toolbox

Ready to tackle the challenges of winter farming? Explore DairyNZ's top tools and resources, designed to help you make informed decisions for your farm.

WEB RESOURCE

Wintering cows on crops

Looking for information to help with wintering on crops?

Successful wintering systems require thought and planning. Get hold of wintering resources and tools, such as the wintering checklist, grazing plan and gumboot scoring method, at **dairynz.co.nz/wintering**

TOOL

Spring Rotation Planner

Get on track for peak production and mating with the Spring Rotation Planner.

It'll help you take the guesswork out of grazing management and strike the right balance during the critical spring calving period.

Visit **dairynz.co.nz/srp** and follow the steps to design your own plan.

WEB RESOURCE

Getting ready for calving

If you're heading into spring calving soon, start preparing now to set your farm up for success.

Get your pre-calving checklist sorted, stock up the calving kits, get the calf pens ready and find tips for managing the springer mobs.

Also, create a team plan before calving starts and read tips from farmers about how to avoid common sprain and strain injuries.

Get comprehensive tips and advice at **dairynz.co.nz/calves**

WEB RESOURCE

Calf Care Toolkit

Keen to level up your calf care?

Answer our 12 online questions and you'll receive instant, tailored feedback on ways to make your calf care even better. Once you've decided which areas to focus on, simply follow the web links for more advice and support. You can also share your results with your team, vet or consultant.

dairynz.co.nz/calf-care-toolkit

WEB RESOURCE

Feeding the transition cow

Cows transitioning from late pregnancy into lactation require specific feed management. This is one of the most important periods of a dairy cow's life.

A calved cow has a sudden, large increase in nutrient requirements that's not matched by the same increase in her nutrient intake.

The key to successful cow transition is managing individual (not average) cow body condition score (BCS) months earlier. Preferentially manage thin and fat cows accordingly from late lactation to minimise the range at calving. Mature cows should be BCS 5 and younger cows BCS 5.5 one month before calving.

Visit **dairynz.co.nz/transition-cows** to learn more.

DIGITAL GUIDES

Visual learning guides

Learn on the job and get up to speed quickly with these step-by-step self-directed learning guides. Ideal for new-to-dairy employees or anyone wanting to refresh their knowledge.

The guides cover:

- Keeping yourself safe at calving time
- Understanding cows
- Checking springers and newborn calves
- Collecting calves from the paddock
- Bringing cows in for milking
- Cupping cows efficiently
- Preventing mastitis
- Finding cows with mastitis
- Correctly tagging calves
- Selecting calves for transport

These guides are mobile-optimised and also available on desktop computers. Go to **dairynz.co.nz/skills**

1. Simply hold your smartphone camera up to the QR code or enter the URL **dairynz.co.nz/skills**

2. Select a step-by-step guide.

3. Check out the other visual learning guides.

Grass-rooted in the future

An innovative training programme continues to expand, offering dairy sector graduates a fast-track into their next career step.

After three years' intense university study, Kate Schuurmans could be excused for wanting to ease off on the learning for a while.

But Kate's hunger to progress quickly through the dairy sector has seen her take full advantage of the Grassroots Dairy Management Graduate Programme, set up to help university graduates hit the farm ground running.

"I wanted to go further than being a dairy farm assistant. This programme seemed like the way to do it," says Kate, who completed her Bachelor of Agriculture at the end of 2022.

Grassroot graduates are employed by farmers under normal employment agreements, with competitive salaries and accommodation. On-farm experience is complemented by learning modules such as pasture management, goal setting, strategic planning and mental resilience.

Kate says she's loving both working on Athol New and Juliet MacLean's Ashburton dairy farm and getting off-farm for the learning modules.

"My employers have many years' knowledge and experience behind them. I can challenge myself with their ideas and with my own.

"With the learning modules, I can also contact other farmers and experts I meet to ask them any questions about what was discussed that day."

Piloted in Canterbury in 2022, the Grassroots programme brings together a network of highly regarded farmers and dairy sector professionals, including support from DairyNZ and businesses.

Organising committee member and dairy farmer/employer Campbell Tait says the number of applications for this season had doubled. "However, we've kept it to seven people, so we don't lose the personal connections you get in a small group."

Campbell says the graduates will find themselves running a team on-farm before too long, maybe in one to two years.

Grassroots graduate Kate Schuurmans.

> *"It's connected me with future friends and networks within the sector."*

"They're going to have to really own their personal skills around communication and how to be an effective leader, how to react to situations and challenges, and learn a lot around the regulatory side of things, including minimum requirements and best practice."

Kate hopes the programme will help her secure a manager role this year or next, before progressing into sharemilking or farm ownership. Meanwhile, she's enjoying other benefits from the programme.

"It's connected me with future friends and networks within the sector. Networking with the farmers I meet and others within the sector is a great opportunity for me."

Get involved

- Farmers can be part of the programme by employing a graduate.
- Any graduate degree students/exceptional diploma graduates can apply.
- The programme is open to permanent residents or NZ citizens only.

For more information or to enquire about establishing the programme in other regions, visit **dairygrads.co.nz**

Plantain evidence gathers pace

In the search for a low-cost, high-impact solution to nitrate leaching, Ecotain plantain continues to prove itself as a leading candidate. Find out what a decade's research has taught us about this nutritious herb, including impressive results from the latest farm-scale trials.

Kate Fransen
Senior project manager,
DairyNZ

Ina Pinxterhuis
Principal scientist,
DairyNZ

Plantain is becoming an attractive option for New Zealand dairy farmers to reduce their environmental footprint without needing to compromise milk production, make major changes to the farm system, or make a significant capital investment in infrastructure.

We know farmers need to see evidence that plantain works and they need to understand how to implement it successfully. That evidence is building – and with it, confidence in plantain – thanks to around 10 years' research, summarised in this article.

Plantain, specifically the cultivars Tonic and Agritonic (marketed by Agricom as Ecotain), has been consistently shown to reduce nitrate leaching. We saw that in the Forages for Reduced Nitrate Leaching and Greener Pastures projects, and research now continues via the DairyNZ-led Sustainable Food and Fibre Futures Plantain Potency and Practice programme. Meanwhile, research at Massey University, AgResearch and the NZ Agricultural Greenhouse Gas Research Centre has also shown Ecotain plantain's potential to reduce nitrous oxide (N_2O) emissions.

Plantain is currently recognised as a nitrate leaching mitigation option by regional councils in Canterbury, Horizons, Southland and Bay of Plenty, where nitrate leaching limits are in place.

Urine samples from cows on 0%, 40% and 80% Ecotain plantain, showing plantain's effect on diluting the urine. Taken from the Lye Farm Calangate study.

Plantain research at Massey University.

What reductions can be expected?

The amount of nitrate leaching reduction you can achieve from using plantain will depend on the soil, climate, and farm system set-up.

After its first two years, a Plantain Potency and Practice farmlet trial at Massey University, Palmerston North, has shown it is possible to reduce nitrate leaching by between 20 and 60% from grazed pastures containing 30-50% plantain (Agritonic cultivar)[1] compared to traditional perennial ryegrass/white clover. Early results from a second study at Lincoln University, Canterbury, on lighter soils under irrigation, are showing similar trends. To date, there has been no difference in milk production between treatments on either farm.

Figure 1. Nitrate leaching from ryegrass/white clover compared with ryegrass/white clover/Ecotain plantain pastures across two seasons.

	RGWC	LP	MP	HP
%PL$_s$	---	30	42	50
%PL$_d$	---	22	29	35
%WC	10	6	8	7
%RG	70	53	43	36

	RGWC	LP	MP	HP
%PL$_s$	---	32	47	45
%PL$_d$	---	21	31	31
%WC	18	20	20	19
%RG	67	40	28	26

The figure shows nitrate leaching from ryegrass/white clover (RGWC) and ryegrass/white clover/plantain pastures (low plantain, LP; medium plantain, MP; high plantain, HP) in a dairy system at Massey University[1].

Where lowercase letters above the bars differ, they are statistically significantly different.

Red arrows show nitrate leaching reduction compared to ryegrass/white clover.

%PLs = % plantain in the sward (% of dry matter); %PLd = % plantain in the diet; %WC = % white clover in the sward; and %RG = % perennial ryegrass in the sward.

How does Ecotain plantain reduce nitrate leaching?

Based on the research, it appears plantain reduces nitrate leaching via four mechanisms *(Figure 2)*.

Mechanism 1: Urine dilution effect

Nitrate leaching occurs due to a high concentration of nitrogen (N) in the urine patch.

When Ecotain plantain is included in the cow's diet, the number of urination events and total urine volume increases. Consequently, the urinary N concentration decreases.

A meta-analysis of animal experiments showed urinary N concentration dropped, on average, by 30%, depending on the conditions and the proportion of Ecotain plantain in the diet, due to 17% greater urine volume and 22% reduced total N excretion[2].

Why is there an increase in urine volume? At least in part, it is because animals fed plantain ingest more water from the pasture. Ecotain has, on average, around 30% lower dry matter content than perennial ryegrass[3]. Where Ecotain makes up more than 30% of the diet, water intake through the feed alone exceeds animal requirements[4].

It is possible there are other factors contributing to a diuretic effect of plantain. We are investigating these in the Plantain Potency and Practice Programme.

Mechanism 2: Animal partitioning effect

Nitrogen consumed by ruminants is partitioned into different pools, including milk, faeces and urine. Exactly how much N goes into each output depends on the animal's diet. When Ecotain plantain is included in a cow's diet, the portion of N intake partitioned to urine falls, and the amount partitioned to faeces and milk rises, compared to perennial ryegrass. That is due to a lower proportion of soluble proteins and a higher carbohydrate to protein ratio[3,4].

Mechanisms 3 and 4: Direct and indirect soil N retention effects

Research using lysimeters has shown Ecotain plantain may retain N in the soil, giving plants more time to use the excess N in a urine patch, and reducing loss via leaching and N_2O emission.

Lysimeter studies in the Forages for Reduced Nitrate Leaching programme showed nitrate leaching from urine patches was significantly reduced (70-80%) under Ecotain, even when the urine was from cows grazing ryegrass/clover pastures[5]. We believe this is due to release of plant secondary compounds from the roots and litter that slow down the rate of nitrification, i.e., the conversion of ammonium to the more soluble nitrate. This effectively gives the pasture more time to use N before it's lost from the root zone.

This effect may be further enhanced with the addition of urine from cattle or sheep grazing Ecotain (the indirect N retention effect). Soil microcosm

incubation studies showed a significant drop in the nitrification rate from urine derived from dairy heifers and sheep that grazed plantain monocultures, compared with ryegrass/clover mixtures[6,7,8].

Currently, Overseer's estimates of nitrate leaching do not reflect any effects on nitrification rate, but research suggests these effects are potentially large. The Plantain Potency and Practice Programme will improve our understanding of the soil mechanisms, and the extent of the effects under different proportions of Ecotain in pasture, for different soil types and climates.

Various studies have shown there is less water drainage below the root zone under Ecotain pastures. This is another potential contributing mechanism to reduced leaching[5].

Plantain in Overseer

When plantain is modelled in Overseer, farmers can expect to see, on average, a 6% reduction in nitrate leaching for every 10% of plantain in the pasture.

However, the estimated reduction will vary between farms. This is because of different soils and climate, and differences in use of supplements, which determine the proportion of plantain in the diet ingested.

Currently, Overseer estimates the reduction in nitrate leaching resulting from changes to urinary N only. We expect the magnitude of these modelled reductions to increase when the soil effects of plantain are also accounted for, after the current research programme is completed.

How plantain affects GHG emissions

Plantain has been shown to reduce N_2O emissions from the urine patch by up to 50% in pastures with 30-50% plantain (Agritonic cultivar)[1]. As with nitrate leaching, the reductions were attributed to direct plant/soil effects and an indirect effect from urine from animals grazing plantain. We need to better understand the mechanisms of these effects before N_2O emissions reduction from plantain can be included in models like Overseer.

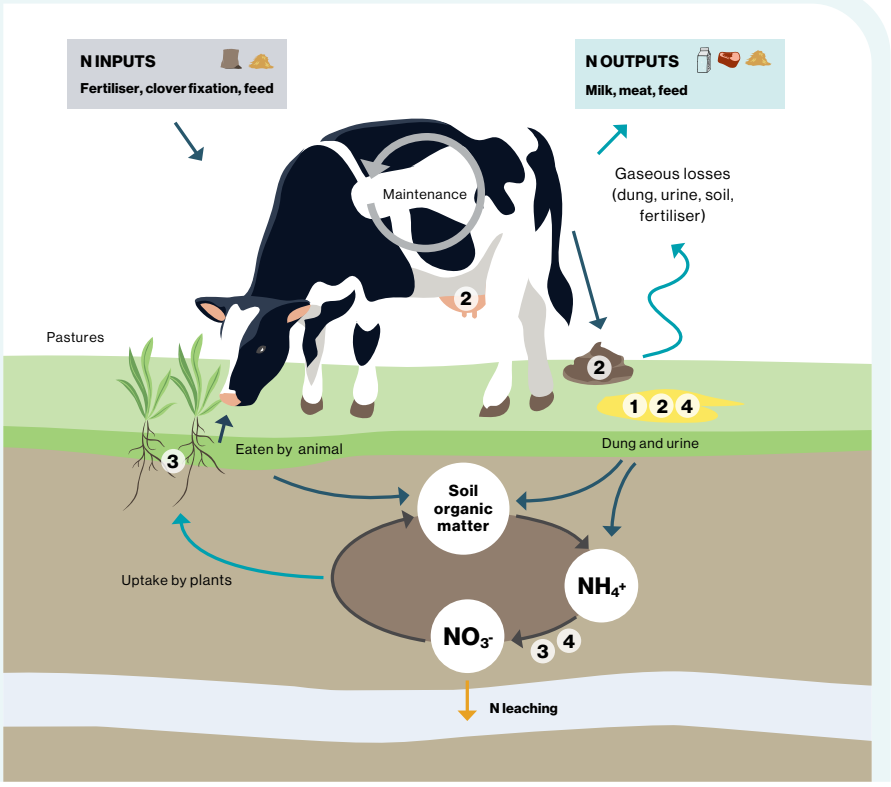
Cultivar differences

Greener Pastures research provided some evidence that plantain cultivars vary in their ability to reduce nitrate leaching. Differences have been shown for urine dilution in sheep[6] and nitrification inhibition properties of urine from sheep fed plantain[6,7].

There is evidence that Tonic and Agritonic (Ecotain) plantain are effective at reducing leaching, but we need to know more about the other cultivars. As such, the Plantain Potency and Practice Programme is developing an evaluation system to test the effectiveness of other cultivars.

Figure 2. Nitrogen cycle and Ecotain plantain's four mechanisms of action.

1. **Dilution effect**
   Higher urination frequency and volume.
2. **Partitioning effect**
   More N partitioned to dung and milk vs urine.
3. **Direct N retention effect**
   a. Secondary compounds from plantain roots and litter slowing nitrification, the conversion of NH_4+ to nitrate.
   b. Less water containing nitrate is lost below the root zone.
4. **Indirect N retention effect**
   Derivatives of plant secondary compounds in urine slowing nitrification.



Initial experiments[9, 10] showed methane emissions per kilogram of dry matter eaten fell significantly when the diet included plantain, but this was associated with either greater feed intake or lower digestibility of the feed. We need more data to better understand if plantain is an option to reduce methane emissions per kilogram of product or per hectare.

Plantain pasture and milk production

Improved plantain cultivars were originally released for greater feed availability in dry summers, to use as a short-term pure crop, or in mixed-species pastures. This was especially successful in sheep and beef dryland systems.

More recent data from commercial dairy farms in Tararua reiterated this benefit. A 10% greater annual yield was achieved from ryegrass/plantain/clover and 13% greater yield from plantain/clover mixtures than from the standard ryegrass/clover mixture. This was mainly achieved from greater yields in summer and autumn:

- In summer a 16% yield increase was achieved from the ryegrass/plantain/ clover mix, and a 54% increase from a plantain/clover mix
- In autumn a 10% and 13% increase was achieved from these same mixes[11].

The meta-analysis of animal experiments[2] also showed an average increase in milk yield of 0.07kg MS/cow/day when plantain made up a proportion of the diet. That was because of a higher yield in the late lactation experiments.

Challenges with implementation

Even though plantain has been used on New Zealand farms for decades, and its environmental benefits are promising, implementation challenges remain.

Key challenges include establishing and maintaining target levels of plantain in mixed pasture swards; limited chemical options for control of broadleaf weeds; plantain moth and grass grub pests in some areas; and occasional palatability issues, seen primarily when rounds get longer in late autumn/winter.

The Plantain Potency and Practice programme is further investigating methods of establishment and management to achieve and maintain meaningful plantain content in multi-species pastures. A partnership with farmers in different regions, and their local agronomists, is helping with developing more measures to control weeds and pests, aided by results from earlier plant breeding[12].

Risks and opportunities

Research in the Plantain Potency and Practice programme has confirmed milk from plantain-fed cows does not pose any risk to human health, and that there are no significant changes to gross milk composition.

There are potential benefits, though. Milk from plantain-fed cows is higher in Omega 3, which suggests there is an opportunity for this milk to be marketed to consumers as a value-added product.

Research continues into risks and benefits for milk products (taste, texture etc.), checking for the risk of accumulation of heavy metals (cadmium) in offal, and assessing the benefits, risks and associated management for animal health.

Key points

1. Research at Massey University showed mixed pastures containing 30-50% Ecotain plantain can reduce nitrate leaching (at paddock scale) by 20-60%, with similar or improved milk production.
2. Ecotain plantain reduces nitrate leaching by reducing N concentration in the urine patch. Further effects in the soil are being investigated.
3. Overseer currently accounts only for the effects of plantain on urinary N concentration. Larger reductions are expected when Overseer can also reflect soil-based effects.
4. When plantain is modelled in Overseer, nitrate leaching can be reduced by an average of 6% for every 10% plantain in the pasture.
5. When grown in a mixed sward with ryegrass and clover, plantain does not negatively affect pasture growth or quality.
6. Research is underway to solve some of the challenges with implementing plantain.

Partners and more information

The DairyNZ-led Plantain Potency and Practice programme is funded by DairyNZ, Ministry for Primary Industries through the Sustainable Food and Fibre Futures initiative, PGG Wrightson Seeds, and Fonterra. Other delivery partners include Massey University, Lincoln University, Lincoln Agritech, Agricom, Manaaki Whenua Landcare Research, Plant and Food Research, and AgResearch.

Learn more about the programme and plantain at **dairynz.co.nz/plantain**, where you can also hear a recent *Talking Dairy* podcast about plantain.

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