FEB MAR 2022

INSIDE DAIRY

Your levy in action

NEW TOOLS

Farmers taking hold of environmental solutions

DairyNZ

OVER THE FENCE...

Move aside 2021 ... 2022 is coming through.

After a mammoth year for dairy, we're kicking off this year with a roadshow across the regions in February, so you can have your say on how agricultural emissions are priced from 2025.

Reducing New Zealand's contribution to warming and building greater resilience to climate change is one of the biggest challenges facing our country and the agriculture sector today. We need to build on the great work you're already doing to reduce greenhouse gas emissions and ensure we can move ahead maintaining our competitive advantage on the global stage.

The Primary Sector Climate Action Partnership – He Waka Eke Noa – has outlined alternative pricing options that are more practical, and reward positive change: a farm-level levy and a processor-level hybrid levy (see pages 14 and 15).

It's important to acknowledge that while we don't have a choice on whether emissions are priced (it's already in government legislation), we continue to advocate very strongly for an alternative that is fairer for farmers and still contributes to the environmental outcomes we all want. That's the discussion we now need to have.

Meanwhile, DairyNZ is working hard to find solutions to environmental challenges, while ensuring you're able to improve profitability. We know any changes you make on-farm have to stack up financially, and that's front and centre in our research. We're using science and innovation to help develop a better future for you, and for the long-term, sustainable prosperity of New Zealand. You can read about some of the research in this edition of *Inside Dairy*.

Also in this edition, we cover Brian Wickham's amazing contribution to NZAEL (page 2), look at innovative approaches being taken by farmers Francesca Bennett and Gerard and Ann Vallely to reduce their environmental impact (page 6), and explain recent improvements to the Breeding Worth index (page 18).

I always appreciate your feedback, so please email me with any thoughts on this edition or ideas for future editions – **tim.mackle@dairynz.co.nz**.

Tim Mackle

Chief executive
DairyNZ

Features

03 **Methane under the microscope**

Which lines of inquiry are DairyNZ scientists pursuing to help farmers meet emissions reduction targets?

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ISSN 1179-4909

DNZ03-225

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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We appreciate your feedback

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A lifetime of dedicated service

Brian Wickham, who retired from DairyNZ last year due to ill health, made significant and enduring contributions to international cattle breeding.

Brian implemented four foundations for genetic improvement. First, a central database for pedigree, performance, and genomic information. Second, systems to transform this data into predictions of genetic merit for individual traits (estimated breeding values). Third, the National Breeding Objective that sets a unified selection direction for an industry. And finally, the creation of teams of passionate and informed people to drive innovation across the sector. Brian never took these foundations for granted, and throughout his working life he committed expertise and tenacity to maintaining and improving the industry's footing in all these areas.

Brian's career began in the Farm Production Division of the NZ Dairy Board, before he became the group manager for research and development at LIC, when it was established as a subsidiary of the Dairy Board. It was his vision, and under his leadership, that a single world-leading database to store pedigree and performance records was developed. That ground-breaking database was initially funded by NZ Dairy Board, and the core aspects now comprise DairyNZ's Dairy Industry Good Animal Database (DIGAD).

Committed to developing the skills of people around him, Brian mentored many people through various stages of higher education and career development. In this way, he has deepened the pool of talent contributing to cattle breeding around the world.

In 1998, Brian moved to Europe to establish the Irish Cattle Breeding Federation. While there, he continued to deliver huge value to farmers. His notable achievements were building a foundation that includes a national database for dairy cattle, beef cattle and sheep; and leading the development of evaluation systems, national breeding objectives, and many other information systems and servicing activities.

He returned to New Zealand in early 2019, managing further developments of DIGAD, animal evaluation and the National Breeding Objective. Brian's goal was to ensure New Zealand farmers enjoyed the world's best rates of genetic gain.

On behalf of New Zealand dairy farmers, DairyNZ extends its heartfelt thanks to Brian for a lifetime of dedicated service and achievement.

> **Brian's goal was to ensure that New Zealand farmers enjoyed the world's best rates of genetic gain.**

Methane under the microscope

Finding ways to reduce agricultural greenhouse gas emissions is a pressing priority for researchers, writes DairyNZ senior scientist Jane Kay.

What does seaweed have to do with reducing methane? It's just one line of inquiry scientists are pursuing to enable farmers to meet emission-reduction targets.

To maintain our world-leading efficiency, scientists are focusing on developing solutions to reduce total methane emissions (kg methane produced), while enhancing methane efficiency (less kg methane per kg milksolids). We need to find a way to uncouple the relationship between the amount of feed a cow eats and the amount of methane she emits.

Specific compounds such as red seaweed (asparagopsis) or Bovaer™ are proven methane inhibitors, but they must be present in the rumen to be effective. This is easily achieved when the compound(s) can be mixed into a total mixed ration, and cows consume them with every mouthful of their diet. However, it's not so easy in our pasture-based system, where cows are predominantly out grazing pastures or crops.

That's why the DairyNZ Less-Methane research is evaluating the methane, animal health, product integrity and overall farm systems response to the following:

1. Feed ingredients/rumen inhibitors (e.g., seaweed, bromoform, Bovaer™) fed to cows twice daily to mimic farm systems with in-shed feeding or feed pads.

2. Alternative delivery mechanisms (e.g., an automated in-paddock feed station) to deliver the inhibitor several times throughout the day while the cow is grazing.

3. Methane inhibitors fed to newborn calves for their first 12-14 weeks. The aim is to alter the default rumen microbiome (bugs in the rumen) so these calves produce less methane throughout their lifetime, long after treatment has ceased.

4. Different forages (e.g., plantain, spring vs. autumn pasture) and commonly used supplements (e.g., silage, grain) with the aim of understanding the traits and composition of feeds that lower methane emissions per amount eaten.

The current Less-Methane Project is part of DairyNZ's ongoing commitment to develop mitigation packages that are adoptable at farm level. Our aim is to ensure solutions are available in time for farmers to meet the first methane reduction target in 2030.

DairyNZ has partnered with the Pastoral Greenhouse Gas Research Consortium, the NZ Agriculture Greenhouse Gas Research Centre, other research organisations and commercial companies to research, identify and develop solutions.

- Keep up to date on this work at **dairynz.co.nz/lessmethane**

Snapped on-farm

Here are some of our favourite photos from social media over the past few months, showing what's been going down on farms around the country. If you'd like your photo to feature, share your snaps by tagging us on social media or using the **#dairynz** hashtag.

Photographer:
Andrew Macky,
farm manager in Paterangi, Te Awamutu.
Milking 315 Jersey cows, full-season OAD.

The Once A Day Farmer

"There are a few times of the year that I particularly look forward to, like the end of May when we dry the cows off, and the start of calving as I get to see what our next generation of replacement heifers are going to look like. But I also look forward to the last cow calving and this year it happened to be a cow #333. A nice easy birth wrapped up another calving season and now look forward to mating."

Photographer:
Wayne Langford, farm owner in Takaka, Top of South Island.

"My morning commute started like this, which was pretty darn impressive. From there, I beat the mother-in-law at tennis, which led to her shouting the ice creams. A quick dip to cool off in the river before meeting a new friend at ours for a bbq dinner. One of those classic Kiwi summer days!"

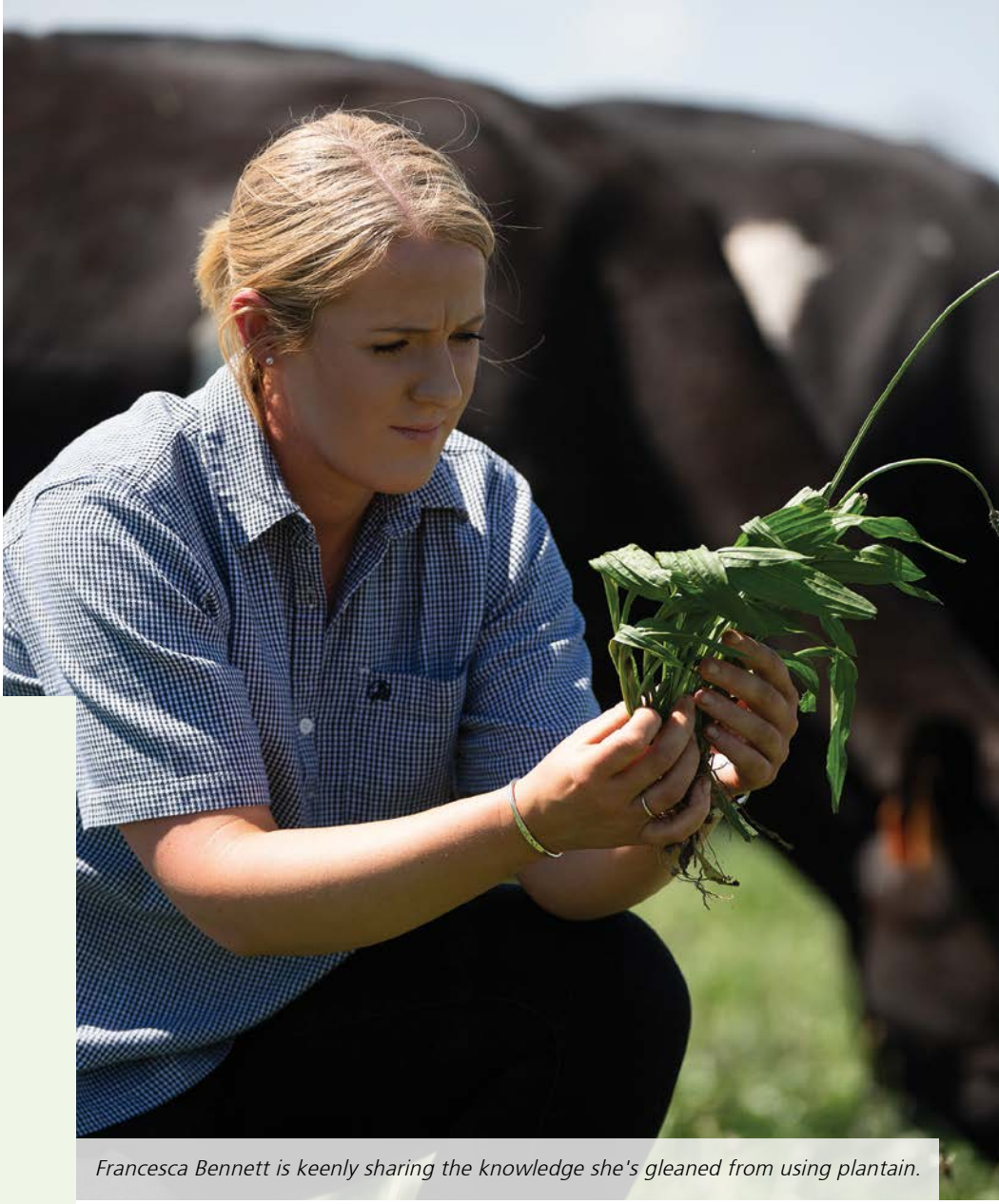
Photographer:
Chloe Mackle, contract milker in Hūkerenui, Northland.

"Just another day at work for Belle and Sue."

NEW TOOLS TO LOWER N LOSS

Choosing an alternative to ryegrass, and to not drain viable farmland, would have been counter to most farmers' approach even 10 years ago. But today, two farmers have taken those approaches to help address environmental challenges – and they're seeing other major benefits too.

Plantain a low-N summer lifeline



Francesca Bennett is keenly sharing the knowledge she's gleaned from using plantain.

The light soils of the Tararua District pose a challenge for those dairying in the region. Although highly productive, the soils also leach nitrogen (N) easily and are prone to drying out over summer.

Compounding the challenge is Horizons Regional Council's One Plan, requiring significant N leaching reductions on dairy farms within identified target catchments.

On one of those farms is Francesca Bennett, who sharemilks with her partner Riley Collinge on 110ha near Dannevirke. She's landed what many farming peers in her native United Kingdom would regard as a dream job in a country she maintains is the "best place in the world to farm".

As an extension partner for DairyNZ, Francesca is doubly conscious of the need to comply with the regional plan, while still meeting the seasonal challenges presented by dryland dairying in northern Tararua.

Francesca was grateful for the proactive approach of her farm owners Mark and Tanya Diamond, who jumped aboard when the Tararua Plantain Project kicked off three years ago. The DairyNZ-led project aimed to trial the forage plantain on commercial farms, studying its ability to capitalise on research findings of plantain's environmental impact, and how it fits within local farming systems.

"Our farm owners decided to be part of it, and we started by including it in re-sown longer-term perennial pasture swards, using a variety marketed as environmentally active," says Francesca.

It quickly became apparent that plantain persisted well over summer. While seemingly outcompeted by ryegrass and clover over spring, once temperatures rose nearer plantain's ideal level of 25°C, it kicked away as the other grasses faltered in the summer heat.

Plantain's summer persistence is aided by its ability to tiller like a ryegrass, and it's the only dicotyledon herb plant that does, rather than relying upon a sole tap root to source moisture.

Heading into summer and autumn, plantain "goes for gold", says Francesca. Its fine seed head isn't disruptive to grazing, in contrast to ryegrass's less-than-palatable seeding action.

"So, if you can manage ryegrass, you can manage plantain," she says.

"It does still require N, but we work on a little and often, following up behind the cows."

Plantain can experience growth rates of 80-140kg DM/ha/day at its summer peak, compared to 15-35kg DM/day in winter.

Francesca says, after their success in the first year, they opted to plant 7ha of plantain-clover-only-mix paddocks. The mix provides an invaluable summer and autumn homegrown feed source.


2


1

"... plantain offers N-reducing benefits while also helping to increase profitability ..."

"Our main driver for using plantain is that it contributes to feed supply when there's a strong demand for it (December to March). Of course, that means more milk in the vat, and increased revenue, which would have otherwise come from imported feed. The fact that plantain offers N-reducing benefits while also helping to increase profitability makes it a win-win."

The farm already operates to a low environmental footprint, losing only 28kg N/ha/year (the Tararua District average is approx. 41kg N/ha/year*) with their 240-cow herd averaging 445kg MS/head.

Francesca says plantain has a higher moisture content and diuretic properties, resulting in animals urinating more frequently with a lower N content. It has a lower crude protein content of 16-28% and averages 9-20% dry matter (compared to 18-30% for ryegrass).

*source Horizons One Plan farm data.

FARM FACTS

Francesca Bennett

Role:
Sharemilker with her partner Riley Collinge, and DairyNZ extension partner

LOCATION:
Dannevirke, Tararua/Southern Hawke's Bay

COWS: 240

FARM SIZE: 110ha

PRODUCTION: 107,000kg MS

1. *Raparapawai Stream, feeding the Manawatū River, is seeing the benefits of farmers' environmental actions.*
2. *Plantain's fibrous root system provides the foundation to favourable summer production.*
3. *Animals find the herb highly palatable.*
4. *Francesca and partner Riley discuss the farm's plantain management strategy.*
5. *One of 90 paddocks being monitored by Tararua Project technicians.*

"It really has given me faith that there is a future farming here in New Zealand."

With 90% of N leaching associated with urine patches, any reduction in that concentration can be invaluable in helping lower total losses.

Extensive project monitoring on Tararua dairy farms indicates plantain use will maintain forage supply, and in some cases, an increase in yield is likely to happen over summer and autumn.

"As an N-mitigation measure, every 10% of plantain in the pasture sward can help lower leaching by 2-3kg N/ha," says Francesca.

"Add in that it may have secondary plant compounds that suppress nitrification, something that's currently being researched, and plantain becomes something of a low-hanging fruit for farmers to utilise to lower N losses."

Francesca is adamant plantain has improved the farm's summer resilience, particularly during the bad drought two summers ago.

"For me as a young sharemilker, plantain has proven to be more than just a tool to improve resilience and lower N losses.

"It really has given me faith that there is a future farming here in New Zealand. We had seriously questioned whether it was going to be worth our time and investment, but plantain has been an empowering way to take control of our farm operation, address compliance pressure and be more resilient."

Francesca says her only wish is that she'd advocated for using plantain earlier.

"It has proven to be significantly beyond my expectations, and I can only recommend it to more farmers."

Learn more about the Tararua Plantain Project at **dairynz.co.nz/tararua**

Wetland engages community on water quality

Gerard and Ann Vallely have given their farm a kidney transplant with the creation of a 9ha wetland on their Otago dairy property. It's a transplant that will help remove nutrients and *E. coli* as water ultimately makes its way into the mighty Clutha River.

But the wetland's full value extends much further – the couple's vision is to leave a legacy asset for the Waipahi community that is accessible to locals, and inspirational for other farmers.

The Vallelys own two South Otago farms totalling 450ha and milking 1200 cows. Although retired, the couple remain actively engaged in the farming operations from their home in Karitane.

Their flat-to-rolling properties have two streams crossing them that flow into the Waipahi River, which in turn flows into the Pomahaka River. The latter is subject to a major restoration project being run through the Pomahaka Water Care Group, of which Gerard is a member.

In five years, bacteria levels in the river have fallen by 90%, and nitrate losses by up to 40%. This shows the plan for water quality restoration is in play and ensures the river remains a thriving place for the local community, as well as those travelling to the region.

Gerard could have easily drained his 9ha swamp and turned it into pasture.

"It was always going to be the last part of the farm I developed, but I started thinking differently about it when I joined the Water Care Group six years ago."

He initially struggled to find the expertise to start changing the hydrology for the wetland to work. But things turned a corner when he connected with agribusiness manager Shane Bocock through the Water Care Group.

Shane, who soon became the Waipahi Wetland project manager, played an invaluable role in getting the project consented through council, with both rules and staff unused to dealing with applications to turn land into wetland.

"But Shane would not let it go – he kept at it and maintained we had a compelling case to push on with," says Gerard.

That was two years ago, and starting with an initial $2500 grant for earthworks, the family fenced off the stream edges and set to riparian planting using flaxes and carex grasses. Pomahaka Water Care Group also put in $10,000 for hydrology surveying and to help with initial plantings.

Construction included building a rock dam that's lifted the creek by over a metre, with a 400mm freeboard, allowing for flood capacity. Meanwhile, zig-zagged groynes planted on the flat country help hold water in place year-round.

The nitrogen-hungry carex sucks nitrates from the seeping water in the wetter areas, which also include plantings of toetoe, mingimingi and flaxes.

The higher, drier areas are planted in trees typical of a lowland native forest, including kahikatea, kowhai, cabbage and five-finger, along with miro, totara, pittosporum, ribbonwood and broadleaf.

Establishing native trees as seedlings isn't easy or cheap, and Gerard estimates survival rates have been between 60% and 80%, with hares eating some and smaller plants having a tough time getting started.

The couple have put $50,000 of their own money into the wetland, and also welcomed support from Sir Stephen Tindall's Trees That Count charity.

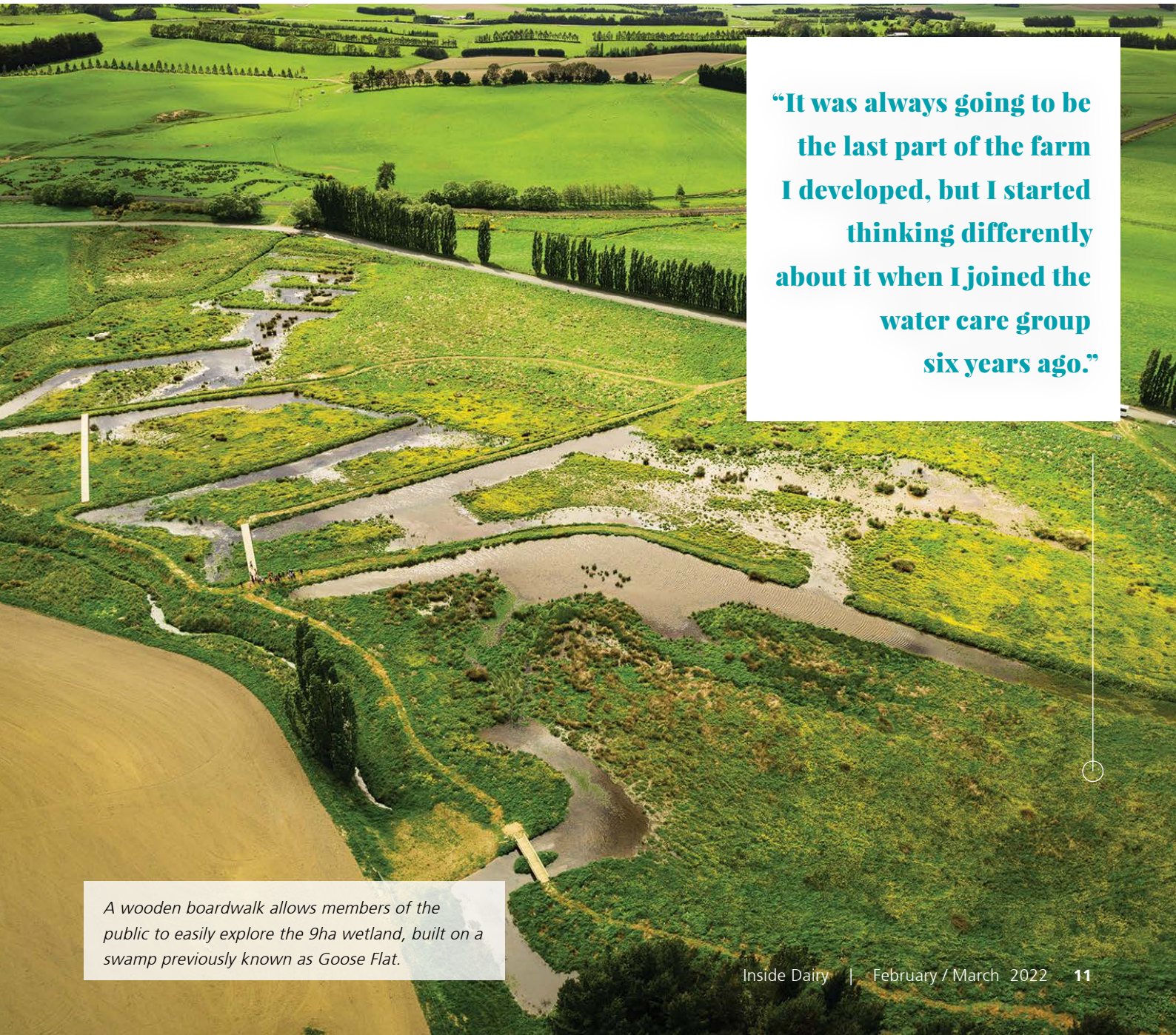
"The 'Jobs for Nature' initiative also helped us out to the tune of $85,000 and the Otago Regional Council's enviro-fund put in $20,000.

"We had two school groups, Longford Intermediate of Gore and Blue Mountain College of Tapanui, come through and plant 1000 trees. Overall, we would have planted about 14,000 plants in here, and we'll have 20,000 by the time we're finished."

The couple also upgraded the fencing around the wetland area. This met the standards for Queen Elizabeth II Trust, which they're covenanting the land to, protecting it in perpetuity.

Contributors to the planting have included Fonterra, Beef + Lamb NZ, Ravensdown, Westpac, Fish & Game, and members of the local community.

The Clinton Lions Club also helped by contributing to 100m of wooden boardwalk around the wetland to improve public access.



"It was always going to be the last part of the farm I developed, but I started thinking differently about it when I joined the water care group six years ago."

A wooden boardwalk allows members of the public to easily explore the 9ha wetland, built on a swamp previously known as Goose Flat.

> **"My only wish is that we'd done it 10 years earlier."**

1. *Gerard's vision is to leave behind something of worth for future generations, including grandson Ted, age 2.*
2. *Waipahi Wetland is serving as an educational resource for the community.*
3. *Young natives like this kahikatea will one day form a forest on the higher ground.*
4. *The Vallelys run a combined herd of about 1200 KiwiCross.*

The wetland, which opened in June 2021, will be an indicator for farmers in the district. The regional council is monitoring nitrate, *E.coli* and sediment levels at different points throughout its length, providing insights to such a system's effectiveness in improving water quality.

Gerard appreciates the high level of community involvement and ownership locals have taken in the wetland project. To reciprocate, he and Ann have provided a carpark and are ensuring the public can walk around the wetland at any time.

"Really, thinking about it, my only wish about this project is that we'd done it 10 years earlier. Then we'd probably get to see a lot more of the final result, as the trees would have grown."

Read about the science behind constructed wetlands in our *Tech Series* article on pages 22-26.

FARM FACTS

Gerard and Ann Vallely

Role: Farm owners

LOCATION: Waipahi, South Otago

COWS: 1200

FARM SIZE: 450ha

PRODUCTION:
560,000kg MS 2021-22 (total)

Selling our dairy story

What do our overseas consumers want? We asked Lara Phillips, Fonterra's senior manager sustainability solutions.

Lara, does our global farming reputation play a part in the way overseas consumers view our products, and does that give us a competitive advantage?

"New Zealand is in a unique position. We're the most carbon-efficient dairy farmers in the world, and this, combined with our pasture-based systems and high animal welfare standards, puts us in a good position."

How do you find out what overseas markets want and how do you feed this information back to farmers?

"We have sales teams around the world who speak to our customers daily. We also have sustainable solutions and insights teams who collect international research about what consumers want. Sustainably produced, high-quality dairy is at the forefront.

"In June 2021, we introduced the Co-operative Difference payment of up to 10 cents per kilogram of milksolids when a farm meets our on-farm sustainability and milk quality targets. It's part of the Co-op's strategy to add value to New Zealand milk, and it responds to increasing demand from customers here and around the world for sustainably produced dairy."

Are different things important to different markets?

"Historically, we've seen different needs from different markets, whether that's proven food safety quality or more environmentally friendly products. But increasingly, the thing that unites international consumers is their need to know where their food comes from and the sustainability of the product. For example, we see a strong interest in grass-fed and animal health and wellbeing with consumers in Asia, as they connect this to product quality, safety and nutrition. In markets such as North America and Europe, we see increasing interest in the carbon footprint of food and beverage, providing an opportunity for us to differentiate with our low-carbon dairy. These attributes help to inform brand preference and willingness to pay, helping us to deliver our strategy to drive more value from the goodness of New Zealand milk."

Do you think the global market will be different in five years' time, given the uptake in plant-based products?

"It's always changing, but fundamentally, the world wants high-quality, nutritious and sustainably produced foods and New Zealand's pasture-based system puts us in a strong position to meet that need. We expect dairy milk to maintain a significant market share. With continued population growth, there will be a role for both dairy and alternatives in feeding the world's population – they can be complementary."

EMISSIONS PRICING – IT'S CRUNCH TIME

Agriculture greenhouse gas emissions will be priced in the New Zealand Emissions Trading Scheme (ETS) by 2025 if we don't work together to find a better solution.

This decision would strip farmers of the ability to influence change, and you would be faced with a broad-based tax that would increase each year.

That's why DairyNZ and ag sector partners established The Primary Sector Climate Action Partnership, He Waka Eke Noa, with Government and Māori in 2019. It gives our sector the best opportunity to design an alternative approach that's more practical, fair and credible for all farmers.

The partnership has released two options for you to review and give feedback on: the **farm-level levy** and the **processor-level hybrid levy**. Your feedback is critical to the advice the partnership gives to the Government in April 2022 on a potential pricing option.

To have your say, register for a roadshow event or webinar in February, or you can submit your thoughts online. Visit **dairynz.co.nz/roadshow** for details.

HOW THE OPTIONS WORK

Farm-level levy

- Individual farms or collectives will be responsible for entering farm data into an online calculator to calculate an emissions charge for short- and long-lived gases.
- On-farm efficiencies, mitigations and sequestration will be reflected as credits within the emissions charge as they are implemented.
- Farmers will pay an emissions charge directly to an independent authority.

Processor-level hybrid levy

- Processors pay an emissions charge for short- and long-lived gases applied to fertiliser bought or milk/meat supplied by farmers, using national averages.
- This cost may be passed on to a farmer through a reduced payout or increased cost for fertiliser.
- To offset costs, individual farms or collectives can opt in to an Emissions Management Contract to receive a payment for emissions reductions made on-farm, and/or a Sequestration Management Contract to receive a payment for sequestration.

YOUR QUESTIONS ANSWERED

Why is carbon capture in soil not included?

Soil carbon was considered bythe partnership but won't be recognised at this stage. Right now, there's a lack of scientific evidence to accurately measure soil carbon within New Zealand's different farm systems in a cost-effective way. Further investment into research and development is required to integrate soil carbon sequestration into the partnership system.

Does DairyNZ support the methane targets?

During the Zero Carbon Act consultation, DairyNZ advocated for methane to be recognised as a short-lived gas. Of 16,000 public submissions made to the Government, most opposed the split-gas approach and wanted agriculture to adopt a net zero approach for all gases. So, securing the split-gas approach despite opposition was a huge win for our sector. The 2024 target review gives us the opportunity to advocate for targets that use the latest science, in line public and customer expectations, technology availability, and the competitive market.

REDUCING EMISSIONS ON-FARM

We know farmers want to reduce their environmental footprint but often don't know where to start. That's why we established the Greenhouse Gas Partnership Farms Project, to support dairy farmers in reducing on-farm methane and nitrous oxide emissions long-term, while maintaining or increasing profitability. To download the full case studies report, and for more partnership farm case studies visit **dairynz.co.nz/ghg-farms**

→	**Flemington Farm, Canterbury (273ha)**	**Tokoroa Pastoral, Waikato (70ha)**
SCENARIO 1	Reduced: • nitrogen (N) fertiliser use • on-farm cropping area • replacement rate of young stock while maintaining production.	Reared fewer replacements. Currently the farm rears 32% replacements, of which 22% enter the herd and 10% are sold. This scenario is based on 15% heifers reared.
SCENARIO 2	Built on Scenario 1 by reducing N loss a further 12% by further reducing N fertiliser and substituting pasture grown with low-N supplements.	Planted low-producing pasture on sidelings in pine trees. The farm's effective area was reduced from 70ha to 63.5ha. Cow numbers were reduced by 11. Stocking rate on the effective area stayed the same.

RESULTS	**SCENARIO 1**	**SCENARIO 2**	**SCENARIO 1**	**SCENARIO 2**
N leaching	-28%	-40%	-2%	-5%
Greenhouse gas losses	-8%	-11%	-3%	-6%
Profitability	+11%	-11%	+5%	-12%

What we learned

- Before you start, it's critical to understand where your on-farm emissions come from through robust farm data. How efficient your farm is, and the people involved, will determine the mitigation options available and their cost.
- There isn't a 'one-size-fits-all' package of good management practices or mitigations that every farmer can use – they need to be farm-specific.
- There's a high correlation between reducing N loss and emissions. Lower N surplus will reduce feed imported/ harvested, which reduces methane.
- Some mitigations resulted in conflicting environmental outcomes (observed in other case studies). For example, cows spending less time in the paddock might reduce N loss but might also lead to increased emissions because cows are eating more supplement.
- Rural professionals need training to better support farmers with consistent guidance on mitigation options, and how those options are accurately implemented on-farm.

Better mating results start now

Focusing on a few key areas now will pay off later, writes DairyNZ extension partner Vanessa Bates.

With pregnancy results coming in across the country, you may be thinking about how to lift your numbers next season. Although we're still six months or more from mating, here's a reminder of some things to concentrate on.

Cows that calve at body condition score (BCS) 5.0 produce 12kg MS more and are 6% more likely to cycle pre-mating than a cow that calves at BCS 4.0.

Reaching body condition targets at calving is one of the most important drivers for good reproduction. Planning is needed in late lactation to ensure cows are dried off with enough time to reach their pre-calving BCS targets: 5.0 in mature cows, 5.5 in two- to three-year-olds.

- Draft lighter cows into a separate mob to preferentially feed.
- Reduce milking frequency for the light mob, or the entire herd.
- Dry off cows in mobs, based on their individual BCS, so lighter cows have time to gain condition.
- Do a feed budget to ensure you have enough feed to get cows up to BCS in time.

Remember, cows don't gain condition for up to 40 days of their dry period – that's the first 10 days after dry-off and last 30 days before calving.

Lactating heifers approaching their second mating with a low BCS have a 7-8% lower conception rate than mature cows with a similar BCS.

After calving, heifers lose more condition and are more sensitive to low BCS than mature cows, so their pre-calving targets are BCS 5.5 and 90% of mature liveweight. Heifers that meet these targets have fewer calving difficulties and higher production.

Rising one-year-old heifers that meet their six-month liveweight targets are more likely to hit puberty before mating starts.

Fertility and puberty in cattle are linked to weight, not age, so reaching pre-mating targets will optimise conception rates and ensure heifers calve early.

Weight targets				
% of mature weight	Age	Liveweight (kg)		
100%	6-8 years	450	500	550
90%	22 months	405	450	495
60%	15 months	270	300	330
30%	6 months	135	150	165

Check your yearlings' weight gain regularly and alter their grazing management if they start to fall behind.

Genetic gain can deliver an estimated $250,000 per herd in profit gain over the next 10 years.

The decisions you make now about which bulls to use, and cows to mate, impact your herd five to seven years from now.

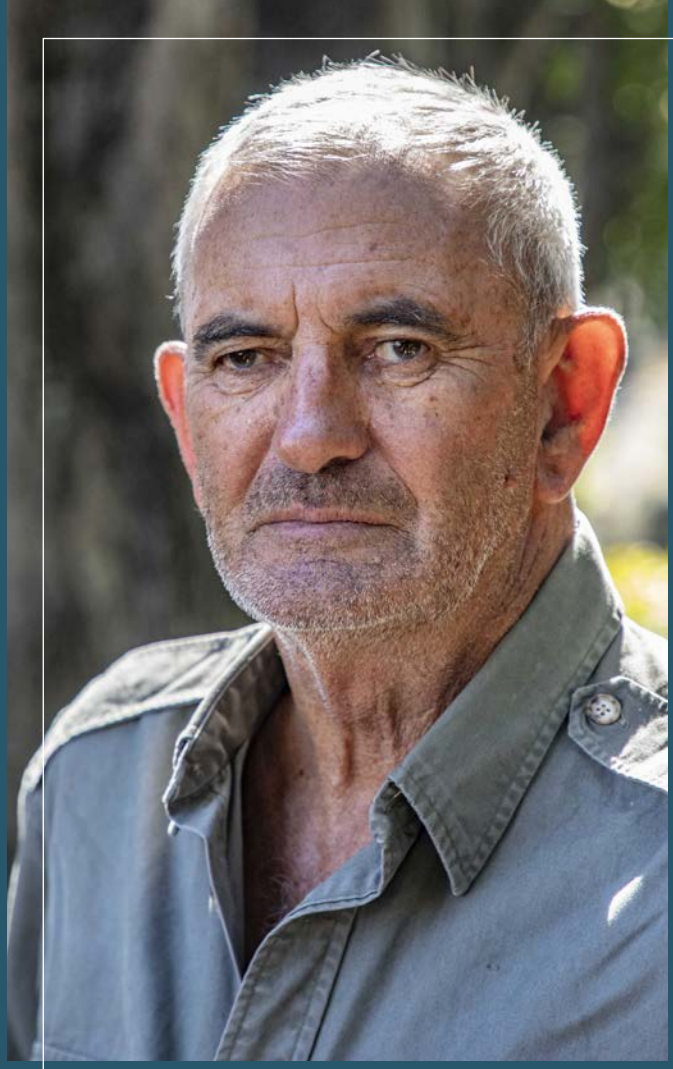
- Use AI across maiden heifers and high-Breeding Worth (BW), early calving cows.
- Consider sexed semen to maximise replacements.
- Mate low-BW, late calvers to beef.

Talk to your herd improvement representative about the best options for your farm.

For everything you need to know about body condition scoring, visit **dairynz.co.nz/bcs**

A better way of working together

By Ray Grubb, chair of the New Zealand Fish & Game Council.



For years I lived in a strong dairy area and fished for trout in the rivers, streams and spring creeks that flowed through dairy farms. These trout are owned by the public of New Zealand, as is the water they live in. I appreciated the courtesy of access through your farms and tried very hard not to interfere with your work. We had the kind of relationships farmers and anglers have enjoyed locally for many years.

Yet over recent times, at the political level, a confrontational approach has crept into the relationship between Fish & Game and farmers, often to the consternation of our members. That has coloured our interfaces on local issues like water management and access, to the point where an angler or game bird hunter may be denied the opportunity to cross land because there's an unhealthy tension in the traditionally harmonious relationships. We recognise this was a backwards step.

"Not one of the farmers I know wanted to pollute their local streams."

Not one of the farmers I know wanted to pollute their local streams. In contrast, most want to manage the environmental effects of their farming operation. Off their own bat and with the support of organisations like DairyNZ, significant numbers of farmers have made massive environmental improvements over the past few years. Waterways have been fenced, streams lined with vegetation, wetlands created, run-off controlled.

We all recognise there is still more work to be done to improve water quality across the country. Nitrates, phosphorus and sediment are sometimes at unsustainable levels. If there is to be clean water to drink and use for recreation in the future, then recovery and prevention work needs to continue. Freshwater angling and game bird hunting rely on healthy habitats and clean water, and the Conservation Act spells out that Fish & Game must advocate for that.

There are two ways we can do that. The first approach is the one that Fish & Game have historically taken, which involves making a lot of noise in the media about issues we disagree on, and running confrontational campaigns. The second approach, which I strongly believe is better, is to work quietly and constructively with landowners and farming organisations of all persuasions to put in place water quality standards to address the current problems and then work co-operatively with the sector to achieve results.

This second course, co-operative and non-confrontational, is a matter of mutual respect and common courtesy. You don't hear about it, but it is happening. Please remember that next time an angler asks for access.

Closer to the cow of the future

Improvements to the Breeding Worth index put dairy farmers in an even stronger position to breed a more efficient, sustainable and profitable cow.

When you think of the cow you'd like to be milking in five years' time, how is she different to your current animal? Are there particular traits you'd like to see more strongly represented in the herd?

To breed that 'cow of the future', our primary tool remains the Breeding Worth (BW) index. BW ranks cows and bulls according to their ability to meet the National Breeding Objective – see box below.

A major review of the NBO last year, which included asking farmers about the traits they value most highly, showed the significant changes being made to BW were in line with what farmers wanted. These changes came into effect in December 2021.

Low-down on the NBO

The National Breeding Objective (NBO) is 'to breed dairy cattle that are able to efficiently convert feed into profit'. New Zealand Animal Evaluation Ltd is responsible for setting the NBO and deciding which traits are used in the BW, and how they're weighted, to achieve the NBO.

Tweaking the traits

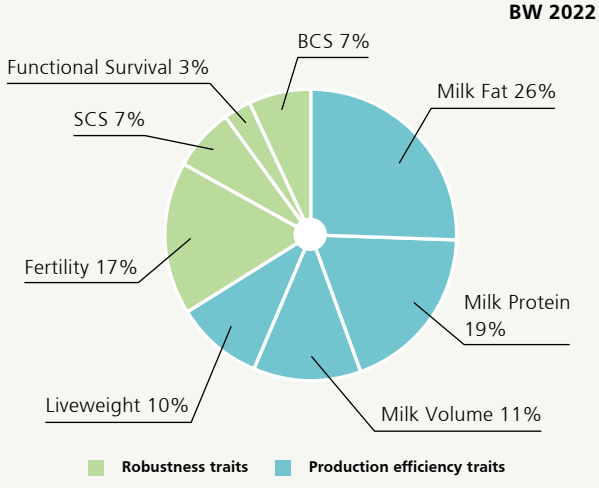
BW comprises eight (soon to be nine) key traits directly linked to farm profit: Milk Fat, Milk Protein, Milk Volume, Liveweight, Fertility, Functional Survival, Somatic Cell Score (SCS) and Body Condition Score (BCS).

Functional Survival has replaced Residual Survival. This better accounts for a cow's ability to survive (excluding poor fertility and low production reasons) by being based more directly on the animal's own records and functional traits, i.e., Traits Other Than Production (TOP).

An updated Fertility trait better captures the time to get in calf, penalises empty cows, uses heifer data, and filters for quality herd data. Not only is the new trait more accurate at predicting an animal's ability to get in calf earlier, but it has a greater spread of Breeding Values. In NZAEL 3.0, the Fertility Breeding Value and Economic Value increase the emphasis on fertility in BW by approximately 70%.

In response to strong desire from farmers to emphasise functional (especially udder) traits, Udder Overall will be added as the ninth trait within BW in April 2022.

Effective emphasis of traits in the BW index



Higher milk price drives EV changes

December 2021 also saw an update to the Economic Values (EV), which represent the value of each BW trait to you in terms of profit per unit, e.g., one additional kg of milk fat creates $5.18 of additional profit. EVs form the weighting of each trait in the BW index.

EVs are updated yearly with input from a number of organisations, including DairyNZ, Fonterra and meat processors. The updates incorporate major expense and revenue streams for the average New Zealand dairy farm, ensuring BW remains relevant to the changing market. Although this has typically occurred in February, future updates will happen in December so we're aligned with routine changes internationally.

The biggest EV changes are increases for Milk Fat, Milk Protein, Fertility, SCS and BCS. An increased five-yearly average milk price (from $6.32 to $7.29/kg MS) is the major driver for most of these changes.

- Milk Fat and Protein EVs increase by 22%
- SCS EV penalty increases by 16%, mainly due to the greater penalty of discarded milk from antibiotic-treated cows
- BCS EV increases by 13%, mainly due to the greater penalty of early dry-off of low-BCS cows
- Fertility EV increases by a modest 7%, reflecting the increased penalty of empty cows.

Overall, the EV update has led to an increase in BW for most animals, and the BW of cows and bulls that rank highly for milksolids has increased the most. Combined with changes to the trait definitions in BW, there will likely be a significant re-ranking of some animals within and between breeds.

Changes in Economic Values

Trait (units)	EV ($/unit change)		% Change
	Previous (BW 2020)	Current (BW 2022)	
Milk Fat (kg)	4.25	5.18	21.9%
Milk Protein (kg)	4.26	5.21	22.3%
Milk Volume (litres)	-0.094	-0.0951	-1.2%
Liveweight (kg)	-1.38	-1.38	0.0%
Residual Survival (days of average herd age)	0.11		*NA*
Functional Survival (% surviving)		2.65	*NA*
Somatic Cell Score (log of cell counts/ml)	-37.11	-42.89	-15.6%
Fertility (% calving in 1st 42 days of calving season)	5.92	6.33	6.9%
Body Condition Score (units)	101.96	116.93	14.7%

The end goal

These changes mean you can more accurately select bulls that add the most value to your breeding programme. In particular, EV changes further improve the popular and proven BW index for maximising on-farm profit, while trait improvements still benefit those of you who have breeding goals involving specific traits. The net result is improved genetics in your herd and nationally, which lays the foundation for how our cows produce milk efficiently, sustainably and profitably.

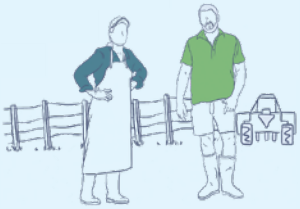
BW remains a popular and proven index to maximise your on-farm profit.

Learn more about Breeding Worth and its recent updates at **dairynz.co.nz/BW**

TAKE 5

Tips for farmers

1.



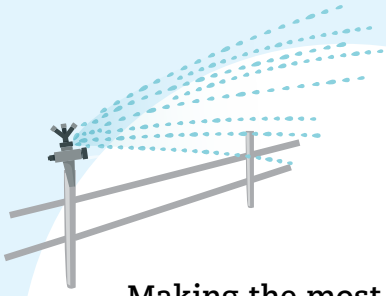
Support for rural employees

Rural Employee Support Hub (RESH) is free and available to all rural employees. The experienced team at RESH can provide your employees with a range of advice, from managing stress and burnout to understanding their payslips. Check it out and share it around – **ruralemployeesupport.co.nz**

2.

Hitting the BCS target

Achieving pre-calving BCS targets will set your cows up for the season. To ensure you hit those targets, start planning now. Get all the cows in your herd body condition scored so you can make good decisions around autumn feeding and drying off. Learn more at **dairynz.co.nz/bcs-strategies**



3.

Making the most of sprinklers

An hour under sprinklers keeps cows cool for several hours after they leave the shed. Combining water sprinklers with an earlier afternoon milking or 3-in-2 milking ensures your cows are cooled during the hottest part of the day. Get more ideas by listening to our recent podcast on heat stress at **dairynz.co.nz/podcast**

4.

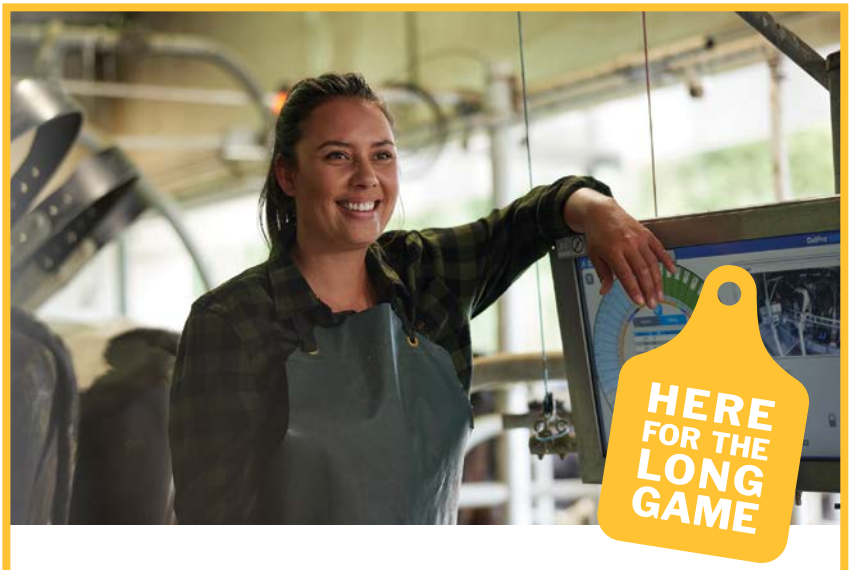
Farming in the flesh

Want to give school kids a real taste of dairy farming this year? With the help of volunteer farmers, DairyNZ's School Farm Visits provide children with a unique and memorable on-farm experience. If you're keen to host a school visit or visit a school and talk about dairy farming, go to **dairynz.co.nz/school-farm-visits**

5.

Calcium essential for cull cows

Did you know hundreds of cull cows get milk fever during or just after transport? This is because they don't receive any nutrients to replace what they're putting into milk. The risk of milk fever increases by 30% for every 100km travelled, but you can reduce that risk by giving them extra calcium and magnesium before transport and choosing the closest processor/destination. Learn more at **dairynz.co.nz/transport**



Connecting with the public

You've told us building trust with the public is important to you. To help achieve this, we've launched a new campaign with a fun twist to connect with the New Zealand public and help them understand what drives us as dairy farmers.

Keep an eye out for our video featuring dairy farmer Shannon Munro, who farms in Whakatāne with her husband and three kids.

Shannon's passionate about raising awareness of what it takes to be a dairy farmer. This is just the start of our new '*Here For The Long Game*' platform to build trust and pride with our fellow Kiwis.

Scan this code to check it out

New heat stress index

Did you know existing dairy cattle heat stress indices such as Temperature Humidity Index don't consider the effect of wind speed or solar radiation?

In response, AgResearch, DairyNZ and Fonterra have developed a new and improved grazing heat load index that considers outside temperature, solar radiation and wind speed. This index is now part of a prototype txt and email service for predominately Waikato farmers, alerting them to upcoming heat stress events.

Lincoln University's Ashley Dene and the Northland Agricultural Research Farm are also testing if the grazing heat load index can accurately predict heat stress in other regions and with different pasture types.

This work is part of the NZ Bioeconomy in the Digital Age project.

SIDE '22: Off to the opera

The incredible Oamaru Opera House is the backdrop for 'Dynamic', the South Island Dairy Event (SIDE) 2022 on June 8 and 9. Join us in this historic harbour town in the Waitaki District for inspiring keynote speakers, workshops, field trips and the famous SIDE dinner.

BrightSIDE, a popular workshop designed to help entry-level farmers, is back for a third year. This time it's a full day event – a perfect opportunity for your staff to learn key skills and network with others from the dairy sector.

Follow us on **facebook.com/SouthIslandDairyEvent** and visit **side.org.nz** for more information about the biggest dairy event of the year.

DairyNZ was deeply saddened by the passing of Bruce Eyers in January. Bruce joined DairyNZ more than 10 years ago as an Animal Extension Specialist, working with farmers to improve animal husbandry and welfare practices. A highly valued member of our DairyNZ family, Bruce was always kind and generous with his time. He had been ill for some time, and we know many of you who got to know Bruce will be sad to hear of his passing. Our thoughts are with Bruce's family and friends.

Photo: Chris Tanner

Science-backed performance of constructed wetlands

Constructed wetlands are an innovative solution for farmers looking to improve the quality of water leaving their farms. But how do they work and how effective are they at removing contaminants as water leaves the farm? DairyNZ teamed up with NIWA to assess their performance.

Craig Depree
Principal scientist water quality, DairyNZ

At DairyNZ, our water quality scientists knew the potential of constructed wetlands. However, we also knew we had to get the science in place to show farmers (and regulators) how effective wetlands are at removing contaminants. Importantly, we also needed to design guidance to help farmers construct wetlands that perform effectively.

To do this, DairyNZ has undertaken a significant programme of work with Dr Chris Tanner and his team at NIWA, based in Hamilton, who have been working on the design and performance of constructed wetlands for more than two decades. We'll get to the results of our work with NIWA, and what they mean for farmers, later in this article.

Key points

- Work by DairyNZ and NIWA shows constructed wetlands perform well at removing sediment and nutrients.
- Performance estimates have been endorsed by a technical group that included regional council staff.
- A constructed wetland about 1% of the catchment size can remove, on average, around 20-25% of nitrogen and 50% of sediment.
- Constructed wetlands enhance biodiversity and create new aquatic habitat on-farm.
- Nitrogen removal by constructed wetlands does not increase a farm's GHG emissions – there is no 'pollution swapping'.
- Before constructing a wetland, seek advice from your regional council or rural professional on the local consenting requirements.

Why are we interested in constructed wetlands?

Constructed wetlands tick many boxes for what constitutes a good mitigation option for farmers:

- They replicate natural contaminant-removal processes.
- They effectively remove multiple contaminants from farm run-off/seepage.
- They're generally sited on farm areas with low pasture production.
- They do not increase overall farm greenhouse gas emissions (i.e., no 'pollution swapping' – see page 25).
- They increase on-farm biodiversity, and enhance mahinga kai (the value of natural resources that sustain life) and aesthetic values.

Constructed wetland vs seepage wetland

Many farmers will be familiar with wet or 'swampy' areas on their farms, where shallow groundwater is at or very close to the surface. Often referred to as 'seepage' wetlands, these areas are valuable for reducing the transfer of contaminants from the land into surface waterways (streams and drainage channels).

In fact, previous levy-funded work by NIWA indicated these wet areas remove up to 75-98% of the inflowing nitrogen[1]. We encourage farmers to recognise and value these natural (and largely free) assets.

Constructed wetlands are built to either enhance the contaminant-removal ability of existing wet areas on-farm, or are placed where they can intercept contaminants transported in drainage and/or run-off. They generally need a reliable source of water to prevent them drying out. Depending on their location and water source, constructed wetlands will receive most inflows from surface run-off (during storms) or tile drains when soils are saturated. They can also be sited alongside waterways (off-line) where they can treat a proportion of the flow with, for example, high nitrate concentrations.

For reducing contaminants in farm run-off/drainage, the best type of constructed wetland is a shallow surface-flow vegetated constructed wetland. These are referred to as simply 'constructed wetlands'.

How do they remove contaminants?

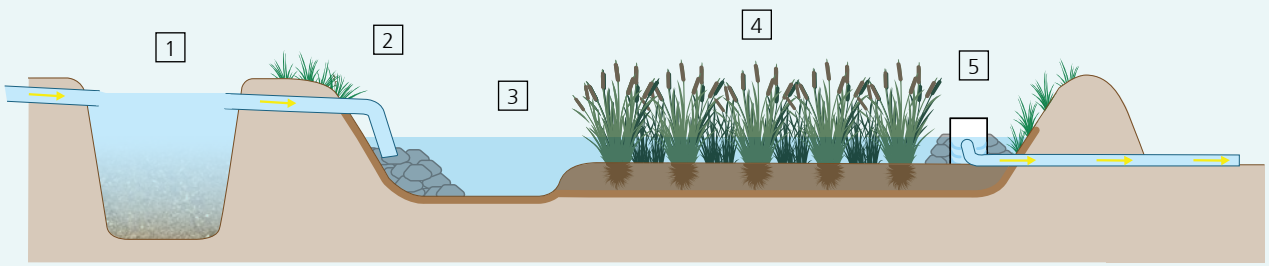
Constructed wetlands reduce sediment and nutrient loads through a combination of physical and biological processes.

Suspended sediment and phosphorus attached to soil particles are predominantly removed through settling and deposition. Larger or denser particles (e.g., sand and soil aggregates) will deposit in inlet zones, while finer particles (silt and clay-sized particles) will be dispersed through the wetland, where they may be removed by adhesion to biofilms (microbial slimes) growing on the surfaces of plants and detritus.

Meanwhile, nitrogen is mainly removed by microbial conversion of nitrate (NO_3) into environmentally harmless dinitrogen gas (N_2), which makes up nearly 80% of the air we breathe. This process, denitrification, is performed by special bacteria living in the low-oxygen environment of wetland sediments and decaying plant matter.

Despite the large biomass of plants in a constructed wetland, uptake of nitrogen by plants is minor compared to denitrification. However, wetland plants play an essential role because they are the main source of carbon, a food source for denitrifying bacteria. Without carbon, microbes can't convert nitrate into nitrogen gas, and so the wetland wouldn't remove much nitrogen.

Components of a basic constructed wetland



1. Deep sediment pond for when inflow carries high amounts of sediment/soil.
2. Inlet to wetland – inverted/bend or t-shape diffuser to promote dispersion across the wetland.
3. Deeper, non-vegetated pool to help with dispersion of inflow across full width of the wetland.
4. Main vegetated constructed wetland cell – the workhorse for nitrogen removal.
5. Adjustable outlet allowing control of the water level within the wetland.

[1]Rutherford, K., L. McKergow, A. Hughes, and F. Matheson. 2018. Natural seepage wetlands: can they reduce nitrogen losses? DairyNZ's Technical Series 39:10-13 (**dairynz.co.nz/TS-Sept-2018**).

Size (and time) matters

Both sedimentation and denitrification rely on inflowing water being slowed down and spending as much time in the wetland as possible before discharge. The length of time water spends in the wetland is called the hydraulic retention time (HRT). Long HRTs require wetlands with large treatment volumes; however, because vegetated wetlands require shallow depths (typically 300 mm) for denitrification, large treatment volumes require large wetland surface areas. This means constructed wetlands aren't just deep holes dug into the ground.

Ideally, constructed wetlands designed to receive surface run-off should be around 1-5% of the contributing catchment area. So, for every hectare of catchment land-area, the wetland (water surface area) should be between 100 and 500m^2. Wetlands designed to take inflow diverted from an adjacent stream or drain require a larger area to ensure an average HRT of at least 1-2 days (3-6m^2 of wetland per m^3 of daily flow).

To get the most from your wetland, it needs to be designed so water flows as uniformly as possible. This is achieved through long length to width ratios (minimum of 3:1, but preferably in the range of 5:1 to 10:1), and deep inlet pools that encourage flow dispersion across the width of the wetland. The key is to avoid short flow distances between the inlet and outlet, as this can allow flow 'short circuiting', resulting in stagnant areas that don't see inflowing water. The result is much shorter retention times, and hence, reduced wetland performance.

Expert-endorsed performance estimates

As part of our project with NIWA, which ran from 2018 to 2020, Dr Tanner and his team did a comprehensive review of national and international wetland performance studies. They've now provided science-backed, robust estimates of the proportion of nutrients and sediment that can be removed by constructed wetlands ranging in size from 1-5% of the contributing catchment area.

Assuming a constructed wetland meets the recommended design guidance, then as its size increased from 1% to 5% of the contributing catchment area, on average, the percentage of contaminants it is likely to remove from inflowing water increases from:

- 50% to 90% for **sediment*** *(Figure 1)*
- 25% to 50% for **phosphorus*** *(Figure 2)*
- 25% to 50% for **nitrogen** in warm climates (>12°C), and 20% to 40% in cool climates (8-12°C) *(Figure 3)*

Figure 1.

Performance estimates for reduction in total suspended solids* (TSS) based on wetland size

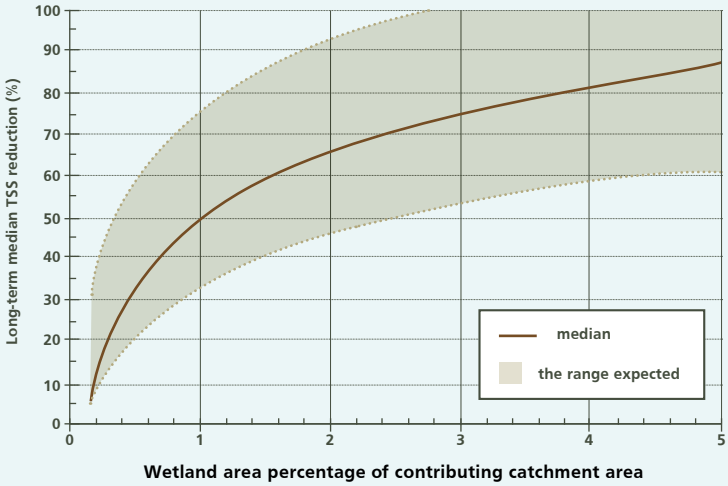


Figure 2.

Performance estimates for reduction in total phosphorus* (TP) based on wetland size

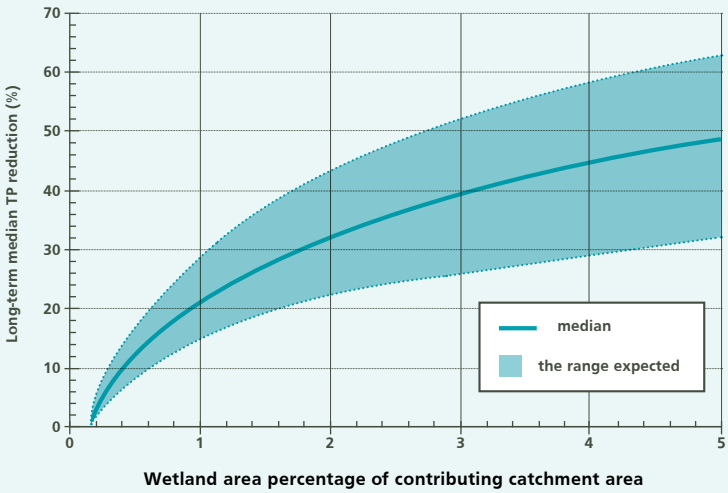
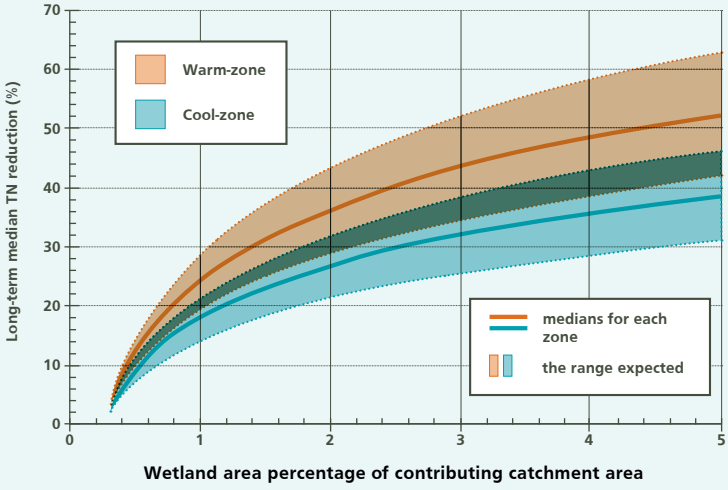


Figure 3.

Performance estimates for reduction in total nitrogen (TN) based on wetland size



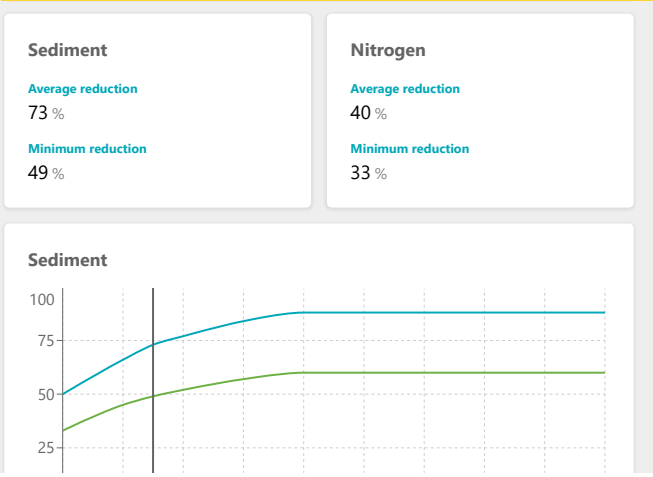
** Note that the sediment and phosphorus performance estimates do not apply to tile drainage flows or areas with high (more than 35%) clay content in soils. We need more information to predict performance for these situations.*

These estimates were endorsed in mid-2020 by a technical group comprising representatives from regional and central government, the dairy sector and non-governmental organisations. For farmers, this means you'll receive greater support when constructing a wetland, you can be more confident about how the wetland will perform, and you'll receive greater recognition for the contaminant-removal benefits of your wetland.

This project has culminated in constructed wetland guidelines for farmers (**dairynz.co.nz/wetlands**), produced in partnership by DairyNZ, NIWA, regional councils, Fish & Game and other non-governmental organisations.

Wetland planner tool for farmers

DairyNZ has also developed an online Constructed Wetland Planner tool for farmers. It helps with sizing, estimates of contaminant removal, and even defines and calculates the surface catchment area contributing run-off to a user-defined wetland location. Here's what the tool's dashboard looks like:



What about pollution swapping?

Some farmers might be concerned about the potential unintended consequence of generating nitrous oxide, a greenhouse gas, from the denitrification processes that occur in constructed wetlands. To address these concerns, DairyNZ approached greenhouse gas experts at AgResearch, who explained that nitrate lost to water is subsequently denitrified in downstream receiving environments (groundwater, stream, river or estuary). That means denitrification in farm wetlands will result in 'pollution swapping' *only* if nitrate lost as nitrous oxide in constructed wetlands is greater than losses that would occur in downstream receiving environments.

Based on a review of national and international literature, AgResearch's experts concluded nitrous oxide emissions from leached nitrate in wetlands were lower than estimates of nitrous oxide emissions from other water bodies. Accordingly, the review authors concluded that the potential for pollution swapping in wetlands is unlikely.

Constructed wetlands in action

Case study 1: Warnock Farm, Southland

In 2015, the Warnock family in Southland developed an in-line open-water constructed wetland. The 2200m^2 wetland is located downstream of a pre-existing duck pond and is on a permanently flowing small stream. It treats water collected from a 34ha catchment.

The duck pond measures 4200m^2 and functions as a sediment collection pond. Constructing and planting the wetland cost approximately $100,000, including two experimental phosphorus filters, which added to the cost.

The wetland removed (on average) 42% nitrogen and 28% dissolved inorganic nitrogen (DIN) in 2017 and 2018. It reduced phosphorus by 33% and faecal indicator bacteria (*E. coli*) by 73%. Sediment was reduced by the duck pond by 90%.

Figure 4.

Location of the constructed wetland downstream of an existing duck pond

1 = inlet to the constructed wetland (at the base of the duck pond)

2 = vegetated (planted) wetland

3 = channel re-joining with the farm stream

Figure 5.

View of the constructed wetland from the inlet end

Wetland was planted with native tall spike rush/kuta (*Eleocharis sphacelate*). Photo: Aquatech/Environment Southland.

Case study 2: Kaiwaiwai, Wairarapa

In 2014, a 5000m^2 (water surface area) constructed wetland was installed at Kaiwaiwai Dairies in the Wairarapa at a cost of around $60,000 (adjusted to 2021).

Approximately 1000-1300m^3 of high-nitrate water from a nearby permanent drainage channel was diverted into the wetland.

Between 2016 and 2018, the wetland removed (on average) 626kg of nitrogen per year, corresponding to 10% of the farm's total nitrogen loss.

Figure 6.

Flow pathway and channel dimensions of the 'serpentine shaped' constructed wetland at Kaiwaiwai Dairies

Photo: Neville Fisher

High-nitrate water is piped to the inlet (foreground right), and travels through long, narrow wetland channels where nitrate is progressively removed by natural dentrificaiton processes.

Farm data provides 'reality check'

Lifting the hood to find out what profitable farmers do differently is helping a group of Canterbury farmers understand how they stack up.

For the last five years, data has been collected from 55 profitable Canterbury farms as part of DairyNZ's Step Change project. Those sharing information include farm owners, sharemilkers and contract milkers who, by combining data with their farm owners' data, get a wider perspective of what's happening in their own operation.

Jimmy Emmett, a contract milker on Pye Group's Grantlea 1 farm, says it's been a very useful exercise.

"You can have the feel-good factor on-farm and think you're doing everything right, but benchmarking provides a reality check. It's been great being part of the group because it gives you an idea of how your farm compares to others and what you need to do to become one of the exemplar farms. Knowledge is power," says Jimmy.

DairyNZ senior extension partner Robb Macbeth says the analysis has revealed that highly profitable farmers have something in common: expert pasture management. Many are also experts at efficient supplement use, but all system types can be profitable, he says.

"There's been a consistently strong correlation between operating profit (EBIT/EFS) and pasture and crop eaten. Although this has decreased in recent seasons because of higher milk prices, it still sits at a 36 percent correlation, down from the normal range of 48-50 percent. Putting it another way, in the 2020/21 season, for every additional tonne of pasture eaten, a farmer would add $390 to their operating profit."

Another significant trend over the years has been a steady reduction in nitrogen use, says Robb.

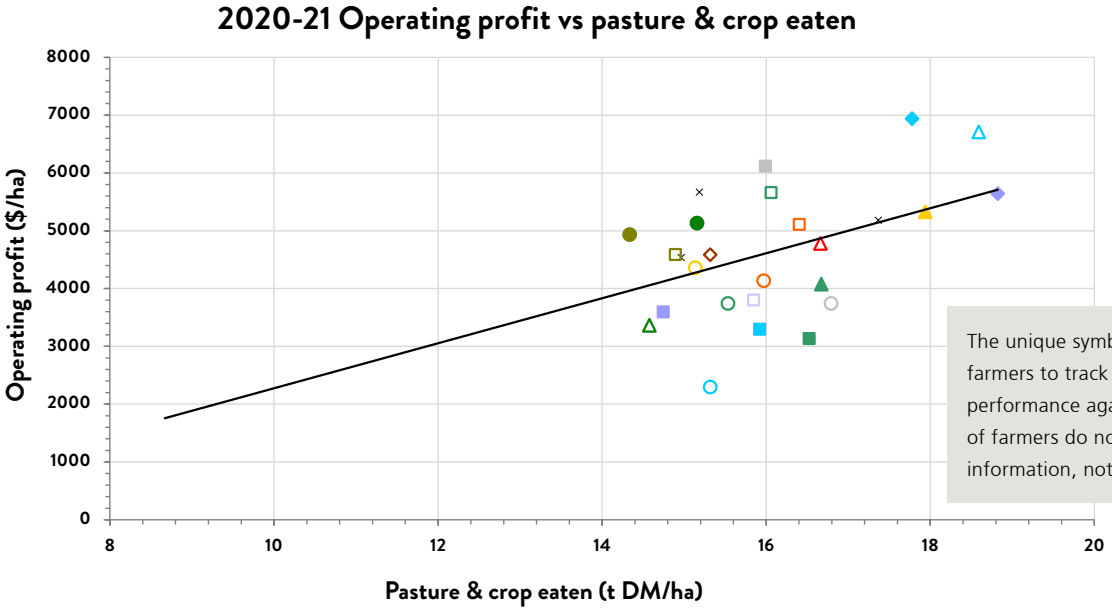
"This is something that was happening well before the 190kg/ha/year limit was imposed. Notably, this has not been at the expense of pasture production, which has remained steady. Across the group, there has also been a decline in purchased nitrogen surplus from 150kg N/ha in 2019/20 to 136kg N/ha in 2020/21," says Robb.

Apart from confirming the key drivers of profitability, this study aims to show it's possible to maintain or improve profitability while improving environmental performance on-farm.

The group's findings will be discussed at events and on-farm field days in March. Details at **dairynz.co.nz/events**

"It gives you an idea of how your farm compares to others ..."

— Jimmy Emmett



△ Grantlea 1, Pye Group

The unique symbols allow participating farmers to track their individual performance against others. As a number of farmers do not have finalised financial information, not all 55 farms are showing.

Feature update

Top of South Island/West Coast

Dan and Kate King run a small operation near Reefton in the Buller District, with a focus on high production per cow from low cost of production. The couple enjoy trying new ideas and their biggest challenge is managing the wet periods.

Due to the prolonged wet weather for the first five months last year, the Kings have had to constantly monitor and revise their farm budget and plan.

Dan and Kate believe a decrease in their cow numbers (to around 150 peak-milked) and a lift in per cow production to 500kg MS/cow could benefit their operation long term, reducing stress on the environment, cows and people.

See their latest budget at **dairynz.co.nz/budget-case-studies**

Northland

DairyNZ extends a warm welcome to Alison Whiteford, who became our regional leader for Northland late last year. Alison will be well known to many of you, having spent the greater part of her career servicing the rural industry in Northland. In previous roles, she's worked in rural finance, fertiliser, for Beef + Lamb NZ extension, and more recently, as a recovery manager in the *M. bovis* Response Team.

Alison has a strong background in both dairy and sheep and beef, having owned farms in both industries. She's committed to growing farmer sustainability and resilience. She is also the chairperson for Ballance Farm Environment Awards and a facilitator for Rural Support Trust.

See who's in our Northland team at **dairynz.co.nz/co**

Waikato

Brigitte Meier has joined the DairyNZ team as regional leader for Waikato South, after working in various leadership roles with DOC and MPI. She and her husband own and operate a once-a-day dairy farm near Te Kauwhata, milking a small herd of Jersey and Jersey-cross cows.

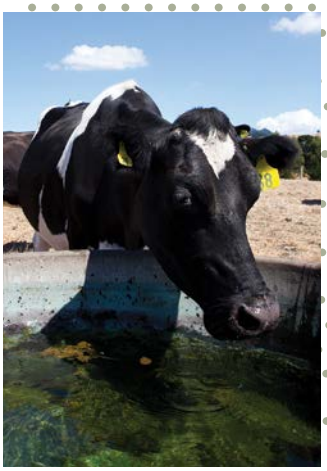
Having started her DairyNZ role during lockdown, Brigitte is hoping to get out and about in the region this year. She's also keen to continue providing support and services to farmers in the region within the new Covid-19 framework.

See the updated Waikato team at **dairynz.co.nz/co**

Bay of Plenty

Have you got your summer strategies sorted for the warmer months?

Our **dairynz.co.nz/summer** webpages contain plenty of information and resources to help your farm team. You'll find a summer management plan, dry summer management guide, heat stress prevention tips, and strategies to get you through summer and ready for autumn. Check them out today.



Taranaki

Keen to get some help with goal setting, financials and budgeting, and building a dream team? Head along to the 'How to build a bloody good business' workshop in Stratford on March 17. Presented by Dairy Women's Network and DairyNZ, the workshop will focus on setting farm businesses up for success. It's suited to anyone with the goal of being a farm owner or employer. Register at **dwn.co.nz/events**

Lower NI

Join us on the Lower North Island DairyNZ closed Facebook group. This is a safe environment for local discussion about the sector, on-farm concerns, or just general updates. We'll also keep you updated on everything we're doing at DairyNZ, including details of events near you.

We encourage you to post questions and concerns in the group to get some discussion flowing.

Join now at **facebook.com/groups/lowerNIdnz**

Southland/ South Otago

Looking for information on milking three times in two days (3-in-2)? DairyNZ's flexible milking research programme is investigating the human, animal and pasture response to 3-in-2.

One of the pilot farms, in Five Rivers, is managed by Angela Reid. Having experienced production losses with once-a-day milking, Angela found 3-in-2 more sustainable and is now keen to explore the additional benefits. Find out more at **dairynz.co.nz/3in2**

DairyNZ contacts

GM Farm Performance: Sharon Morrell 027 492 2907

Northland

Regional leader	**Alison Whiteford**	**021 809 569**
Extension partner	Hamish Matthews	021 242 5719
Extension partner	Stephen Ball	027 1800 3588
Senior extension partner	Mike Bramley	027 486 4344

Recruiting more support for you in this region.

Waikato North

Regional leader	**Wilma Foster**	**021 246 2147**
Regional partner	Kylie Brewer	027 180 03156
Regional partner	Andrew Allen	027 1800 3025
Extension partner	Jaimee Morgan	021 245 8055

Recruiting more support for you in this region.

Waikato South

Regional leader	**Brigitte Meier**	**027 448 3050**
Regional partner	Steve Canton	027 475 0918
Extension partner	Denise Knop	027 513 7201
Senior extension partner	Phil Irvine	027 483 9820
Senior extension partner	Frank Portegys	027 807 9685

Recruiting more support for you in this region.

Bay of Plenty

Senior extension partner	Colin Grainger-Allen	021 225 8345
Senior regional partner	Kevin McKinley	027 288 238
Senior extension partner	Ross Bishop	027 563 1785
Extension partner	Ian Burmeister	027 593 4122

Taranaki

Regional leader	**Charlie McCaig**	**027 244 7915**
Regional partner	John Baylis	027 210 2137
Extension partner	Ashley Primrose	021 246 5663

Lower North Island

Regional leader	**Mark Laurence**	**027 704 5562**
Regional partner	Michelle Greaves	021 280 8405
Regional partner	Gill Haenga	027 1800 3605
Senior extension partner	Gray Beagley	021 286 4346
Senior extension partner	Abby Scott	021 244 3428
Extension partner	Janine Swansson	027 381 2025
Extension partner	Francesca Bennett	027 702 3760
Extension partner	Talissa Squire	027 1800 3499
Extension partner	Katie Starsmore	027 1800 3543

South Island – Head: Tony Finch 027 706 6183

Upper South Island

Regional leader	**Rachael Russell**	**027 261 3250**
Regional partner	Antoinette Archer	027 1800 3122
Regional partner	Anna Hall	027 411 5663
Senior extension partner	Robb Macbeth	027 524 5887
Senior extension partner	Mark Shadwick	021 287 7057
Extension partner	Hugh Jackson	027 513 7200
Extension partner	Vanessa Bates	027 626 3394
Extension partner	Heather Donaldson	027 593 4124
Extension partner	Alice Reilly	027 379 8069

Southland/South Otago

Regional leader	**Guy Michaels**	**021 302 034**
Regional partner	Stuart Evans	027 393 0114
Extension partner	Nathan Nelson	021 225 6931
Extension partner	Keely Sullivan	027 524 5890
Extension partner	Karen Duthie	027 358 7579

DairyNZ directors

Jim van der Poel	021 848 484
Elaine Cook	027 223 2049
Colin Glass	027 486 4064
Jacqueline Rowarth	027 694 4334
Peter Schuyt	027 557 4242
Tracy Brown	027 291 1716
Mary-Anne Macleod	021 923 332

Let's find a better solution to the ETS

It's time to have your say on ag-emission pricing

The Government has legislated that agriculture greenhouse gas emissions will be priced by 2025 to meet emission reduction targets.

The dairy sector is already committed to playing our part in reducing emissions and we know there is need for a better solution to the New Zealand Emissions Trading Scheme (ETS).

That's why DairyNZ is an industry partner of the Primary Sector Climate Action Partnership – He Waka Eke Noa. It's our best opportunity to present an alternative emissions pricing framework to Government that is more practical and fair, and will incentivise farmers to make positive changes.

The partnership has released two alternative emission pricing options for farmers to review and give feedback on: the **farm-level levy** and the **processor-level hybrid levy.**

Have your say.

Join discussions in our nationwide roadshow or submit your feedback online. Your input is critical to the advice the partnership will give to Government in April 2022 on a more suitable pricing framework.

Ag Emissions Pricing

FEEDBACK ROADSHOW

Register Now
dairynz.co.nz/roadshow

Sender: DairyNZ, Private Bag 3221, Hamilton 3240, NZ

New Zealand
Permit No. **174646**
Permit

He Waka Eke Noa
Primary Sector Climate Action Partnership

Industry partner
DairyNZ