December / January 2021

Inside Dairy

Your levy in action

Shining through

Dairy's resilience in 2020

PUBLIC PERCEPTION

What do Kiwis think of dairying?

TALKING POINTS

Farmers' hot topics this year

DairyNZ

over the fence...

Dairying's value to the country has been highlighted in 2020.

Dairy is a sector that is never dull. This year has been particularly challenging for all Kiwis, and as we navigate the challenges presented by COVID-19, farming will continue to play an essential role. Dairy has been crucial to the economy (see Cameron Bagrie's comments on page 9) for a long time, but what we're doing to be more sustainable is of added interest.

As a sector, our ambition is to continue producing world-class milk while reducing our footprint. We want to remain the preferred, sustainable product of choice, and we must be profitable.

This month's *Inside Dairy* is a nod to the dynamic nature of dairy – whether it's our farm teams, managing *M. bovis*, adapting to system changes, or adopting new innovations.

We're seeing encouraging trends emerging in public perception of dairy, with our surveys signalling 73% of the public are favourable towards dairy farmers. We're also seeing more positive media coverage, when compared to previous years (see page 10).

Our sector has a tremendous story to tell, including the evolving journey we're all on to continue making great strides in environmental initiatives and as profitable farm businesses. Our new campaign, Rise and Shine, shares the story of how Kiwi dairy farmers are the world's most sustainable dairy farmers – check it out at **riseandshine.nz**

As a sector, we've faced a number of challenges in the past few years. We've faced these head-on, and we're now more prepared and effective as farmers than ever before.

DairyNZ plays a key role in supporting our sector's future direction. We value having direct conversations about what we're doing, so feel free to email me **tim.mackle@ceo.dairynz.co.nz**

In October we announced the re-election of Jim van der Poel and Colin Glass to our Board. Levy payers also voted to confirm Mary-Anne Macleod as a new Board-appointed director, along with incumbent Peter Schuyt. Read more on page 22.

I wish you all a great Christmas/New Year holiday – prioritising a break is important to reconnect with friends and family, and re-energise for the new year.

Tim Mackle
Chief executive
DairyNZ

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FEATURES...

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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IN THIS ISSUE...

On the cover: An early summer sunrise for contract milker Scott Bonenkamp, on John Van Heuven's farm in Matamata.

We appreciate your feedback
Email insidedairy@dairynz.co.nz or call us on 0800 4 DairyNZ (0800 4 324 7969). Alternatively, post to: Inside Dairy, Private Bag 3221, Hamilton 3240. For information on DairyNZ visit dairynz.co.nz.

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TAKE 5...
TIPS FOR FARMERS

1. Festive flexibility

Many farmers switch to milking once a day or three times in two days from Christmas. Planning ahead is a key factor in a successful transition, particularly if feed supply is tight. Avoid restricting the cows' feed, which can occur inadvertently if the milking frequency change coincides with extending the grazing rotation. See **dairynz.co.nz/milking-intervals**

2. Roster on the benefits

Review your farm roster to make sure it's working for you and your staff. A good roster delivers improved safety, reduced stress and fatigue, increased productivity, and fewer mistakes. Happier staff also means better staff retention. Visit **dairynz.co.nz/rosterbuilder**

3. Are you on track?

Take time to reflect on how your budget's tracking and how you're progressing toward achieving your goals. Now is the time to update your budget and set some new goals for the rest of the season. Visit **dairynz.co.nz/business** for more info.

4. FE prevention

Summer's coming and it brings the risk of facial eczema. With no cure, the best way to protect your herd is through prevention – vigilant monitoring of pasture spore counts, dosing animals with zinc, spraying pastures with fungicide, and pasture management. Learn more at **dairynz.co.nz/facial-eczema**

5. Secure your 'farm island'

Your farm's boundary fences are your biosecurity border. Carrying out year-round, regular fence checks is one simple way to protect your herd from diseases – and a farm walk is always more enjoyable in summer! Get more biosecurity tips at **dairynz.co.nz/biosecurity**

Making the best of it

It's been a tough year, but one in which the dairy sector and farmers have proven their worth to all New Zealanders. Whether it's helping keep the economy afloat, tackling *M. bovis*, or providing jobs for career-changers, there's plenty to be proud of. We spoke to six farmers and an economist for their perspectives.

Dairy newbie Tasha Morgan, with the support of her boss Winton Bebbington, has taken to dairying like a duck to water.

"I've never been happier."

A job for life

A newbie to dairy farming this year, **Tasha Morgan** hasn't let 2020's challenges hold her back, thanks to GoDairy training and a positive attitude.

"Four months ago, I was an Auckland city girl who didn't have a clue about farming. But that all changed when my partner and I decided to have a change of scene and rented a cottage on a dairy farm at Te Kauwhata in the Waikato.

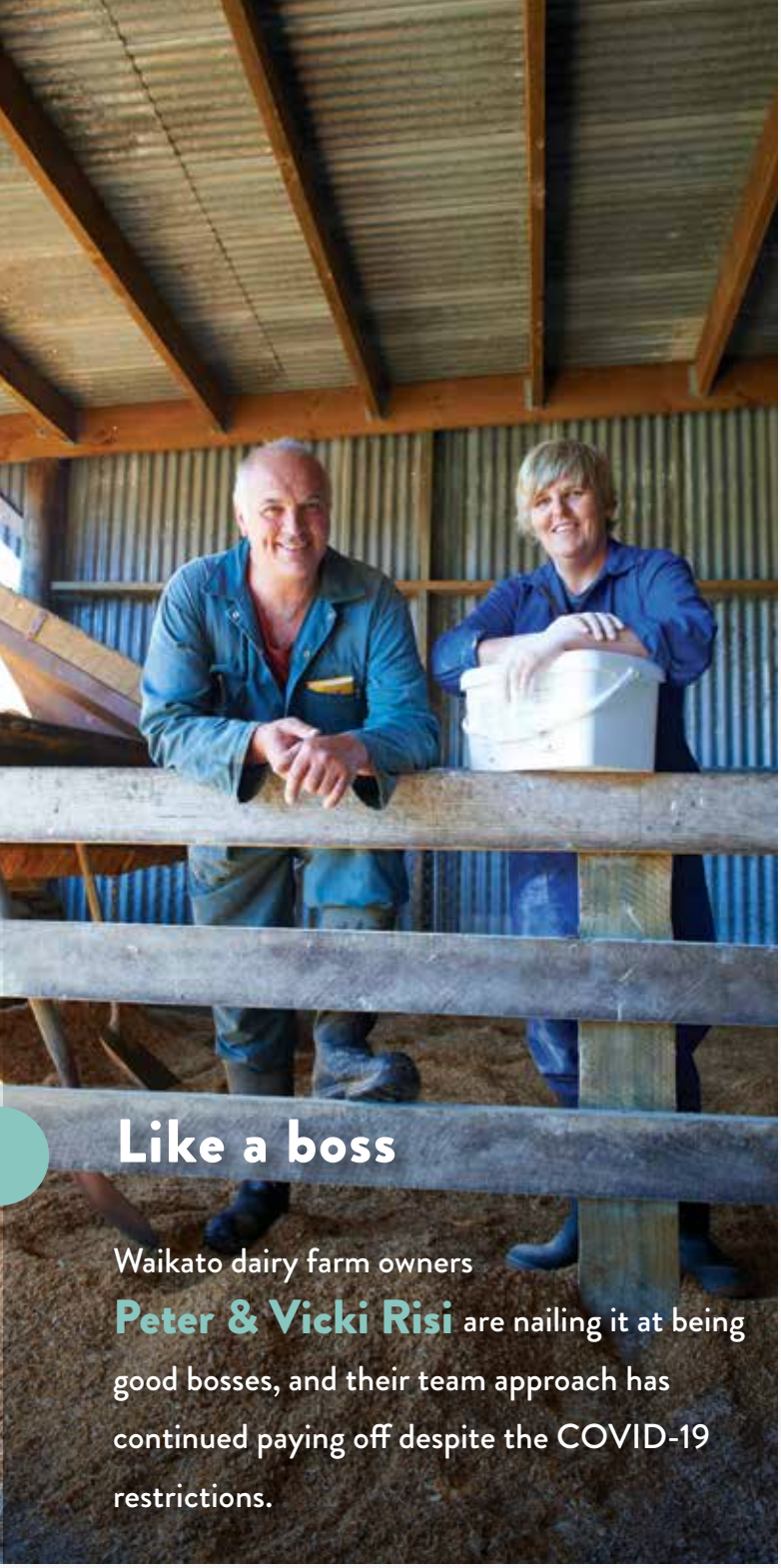
"I'm a nosey sort who loves animals. So, when I spotted the calves arriving, I asked farm owner Winton Bebbington if I could help to rear them. It was perfect timing as one of Winton's team had decided to leave. Helping with the calves got me interested in farming and I signed up for a GoDairy training course. I have since learned the ins and outs of milking and Winton has employed me as a milking assistant.

"Despite the early starts, I've never been happier. I've embraced country life and I don't miss the city one bit. I've found my job for life."

Winton says: "It's always difficult to employ someone with no experience. However, we love to help people get ahead and show them there's plenty of opportunities in the dairy industry.

"Employing Tasha was made easy with her positive attitude and wanting to learn. She's fun to be around, and even though she didn't know a thing about farming at the start, she's making up for lost time now. She's learning everything she can. I gave her DairyNZ's *InCalf* book and the *Facts & Figures* booklet and she got stuck in. She's doing really well."

Visit **godairy.co.nz** to learn more.



Like a boss

Waikato dairy farm owners **Peter & Vicki Risi** are nailing it at being good bosses, and their team approach has continued paying off despite the COVID-19 restrictions.

"Being a good boss makes perfect sense for our business and our team's wellbeing. We milk 720 cows, employ four permanent staff, and are proud that our farm supports a good lifestyle for five families, including our own. Being a good boss means communicating well and holding on to valued staff.

"In any business, the people you employ and work with are one of your biggest assets, so it's important to value them as they can make or break your business. We are very lucky to have this group of guys working for us.

"Health and safety are priorities for us. Accidents happen when people get overtired. We don't want anyone getting worn out, and we have enough staff to ensure the workload is evenly spread. Five years ago, we changed our rosters to seven on/two off, seven on/two off and seven on/three-off, so once a month everyone gets a long weekend. We also build in a certain amount of flexibility to accommodate family commitments. Our staff are our biggest asset, so we need to look after them.

"We pay a fair wage, and don't try and flog it. I believe some people think they can make staff do the hours, as long as they don't get down past the minimum wage, but that's not how we operate.

"Every morning the team sits down to breakfast to plan the day. During COVID lockdown, breakfasts were on hold and with it the accompanying banter – something we all missed.

"We're not comfortable with formal 'sit-down' appraisals but because we work alongside the team every day, we can talk one-on-one about what's happening and can make suggestions if something needs to be done differently.

"It's very much a team effort. We have a good work vibe on the farm and we're really lucky with the people we have here."

To read the full story visit **dairynz.co.nz/risi-story**

In 2020, DairyNZ launched the 'Good Boss' campaign to help build great dairy farming workplaces for New Zealand's most talented workforce. Go to **dairynz.co.nz/goodboss** for simple tools and tips to become a great employer.

Bouncing back from *bovis*

Working with DairyNZ and other key partners, Canterbury farmers **John & Michelle O'Connell** have turned things around after a tough time in 2019 due to *M. bovis*.

"Out of the blue in January 2019, we received a notice to cull 15 cows. A small line of heifers we purchased had been grazing on an infected property. That was the first we'd heard of it, so it was quite a shock, especially because they were very nice cows. *M. bovis* was confirmed in the slaughter swabs and we knew then what was on the cards.

"We're A2 herd-owning sharemilkers for Rural Equities Ltd at Eiffelton south of Ashburton, where the outbreak occurred. We also own a farm at Carew near Rangitata. Over a two-month period, we said goodbye to 1184 cows, 364 yearlings and 32 bulls.

"At the time it knocked us for six, but we realised early on that we couldn't dwell on it. We had to stay positive and keep moving. The toughest time was seeing the first load of cows away. The next 24 weren't so bad.

"It became apparent quite quickly that dotting all the 'i's and crossing all the 't's was important for the compensation process to go smoothly.

"We wanted to get our claims in quickly, so as soon as we got the 'all clear' we could concentrate on buying a new $2 million A2 herd.

"We got into a good routine, and for every 200 cows, we lodged a claim and got paid within 20 days. The cows were valued by PGG Wrightson, and from that sum we deducted what we got paid by the works.

"The team at the DairyNZ, Beef + Lamb New Zealand Compensation Assistance Team (DBCAT) helped us with the paperwork. I must say the service they provided was exceptional.

"*Bovis* happened over two financial years, so it's been a bit tricky and we're still trying to establish our results from last season. For sure, it was a tough couple of months, but from a farming perspective, we're thankful because we couldn't ask for better product prices than we've had for the last four years."

To read the full story visit **dairynz.co.nz/johns-story**

John and Michelle O'Connell are philosophical about their M. bovis experience.

Simplifying the system

By innovating with milking intervals, Taranaki farm owners **Daryl & Karyn Johnson** are not only making life easier for staff, but also lifting their herd reproductive performance.

"Two seasons ago, our herd not-in-calf rates were high and our two staff were working long hours to get the jobs done on a twice-a-day (TAD) system. We thought a new routine would lift cow reproductive performance, decrease working hours and improve conditions. We switched to 3-in-2 milking intervals and, now in our second season, have joined a DairyNZ flexible milking pilot programme.

"By simplifying the system for our two staff, hours have reduced, with the goal that neither works more than a 48-hour week. Milking intervals are 11-18-19; 4pm-10am-5am. Our staff have shown their appreciation through their loyalty and reliability, which is fantastic.

"The animals are also benefiting. An improvement of half a point in herd body condition score has helped more cows get in calf earlier. There's still room for improvement, but the herd's general in-calf rate is better at 67%, and there's been a huge difference in the not-in-calf rate in our first- and second-calvers: just 5% in the two-year-olds, and 3% in the three-year-olds after 11 weeks' mating.

Switching to 3-in-2 milking has improved work-life balance for Karyn and Daryl (left) and their staff Michael Webby and Rebecca Sturgeon.

And because the cows aren't walking such long distances, lameness has dropped by 60%, from 38 treated in 2018/19 to 15 in 2019/20. In general, the cows are more content and stock-handling is a breeze.

"Other positive knock-on effects are reduced bills for power, fuel, and maintenance. With a longer round, we're growing more pasture and are more self-sufficient in silage and hay, so costs for bought-in feed are down too.

"We're excited about the trial and what the outcomes might be. Being part of the group is very motivating. We've already seen benefits, but next year will be the proof of the pudding. If we can achieve our target of 180,000kg MS with 25% less milking, it's sustainable for animals and for people.

"We're just average farmers doing the best we can. We're not necessarily the best at anything, but we're trying to do well at it."

Check out DairyNZ's levy-funded Flexible Milking Project at **dairynz.co.nz/flexible-milking**

For John and Lynley Patterson, looking after the environment means everything.

Getting wintering right

Through sound planning and best practice, Southland farmers John & Lynley Patterson are successfully wintering their cows on crop.

"We contract milk for Richard and Trudy Slee in Lillburn Valley near Tuatapere. We're committed to getting wintering right, and we review, adapt and upgrade our practices every year.

"Planning is crucial to our success. We always plan six to eight months out from getting soil tests done for the next cropping season. We test in June, so we know what crops to put in the following spring.

"This winter we planted 35ha of fodder beet and wintered 850 cows on-farm. We also fed baleage and silage. The in-calf heifers were grazed off-farm on swedes.

"To minimise soil damage, we use back fences and portable water troughs. Where practical, we start grazing paddocks that are furthest from the shed, so the cows are nearer to the dairy shed when it comes time for spring drafting.

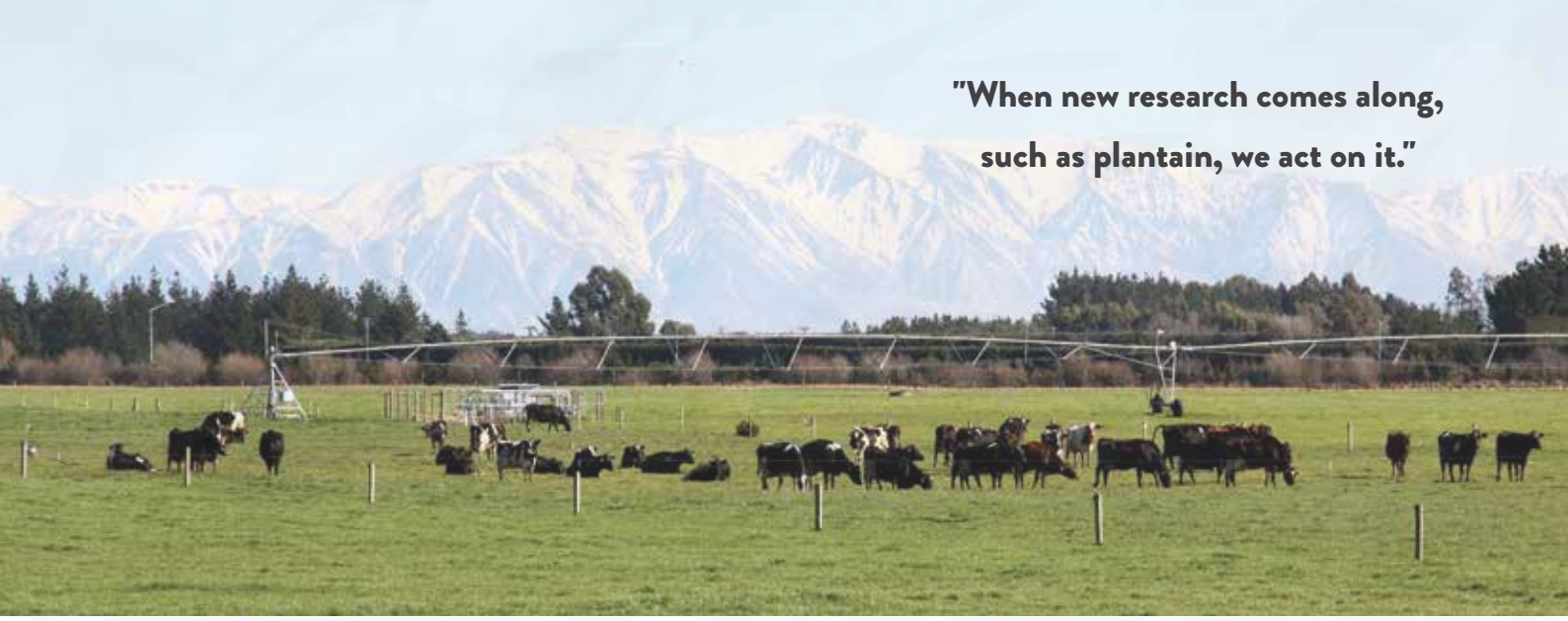
"We constantly review our wintering practices to stay abreast of the latest and best advice. The cows are in better condition, the soil is looked after, and you have peace of mind knowing the waterways are protected.

"We stay on top of the research, make use of DairyNZ resources and talk a lot with other farmers about what they're doing.

"We're passionate about looking after our cows and the environment – it means everything to us. Without a healthy environment and healthy cows, we wouldn't be able to do what we do.

"Dairy farming has been really kind to us – it's giving us the opportunity to eventually buy a farm, so we want to do the right thing and give back to the land and animals that give us so much. We see doing the right thing with wintering as part of being a good farmer."

Get advice for successful wintering at **dairynz.co.nz/wintering**



"When new research comes along, such as plantain, we act on it."

Stepping up for the environment

Canterbury farm owners **Athol & Jane New** have always been environmental champions. They're approaching the latest rule changes with a positive outlook.

"For the last 10 years, we've been focused on how we can do better for the environment, while maintaining profitability. That's why it was a no-brainer for us to join the Meeting a Sustainable Future project. It's part of our philosophy of helping the industry progress, and if we can share our progress and pick up ideas from others that improve our business and the environment, then we'll have a crack.

"We bought the property last season, and we're aiming to create a return that will help us grow the business while achieving sustainability and having a good work-life balance.

"Overall, we think the outcomes of the Essential Freshwater regulations are well intentioned, but we suspect the pace of implementing some of the rules has not been thought through.

"The biggest short-term impact for us is the reduction in N fertiliser to 190kg/ha. We're a new conversion and the mineral N cycle is just starting to work. We had a target of 200kg/ha, so dropping to 190kg/ha is not huge, but the pace and timeframes are difficult. We were aiming for four years; now we must jam that into two.

"A lot of what we do on a day-to-day basis is probably best practice, so we're not having to make huge changes to our system. For example, if we look at our N loss number, we've gone from 69kg/ha to 54kg/ha since we bought the farm a year ago, so we've improved profitability just from implementing best practice. It's a case of refining the system all the time. When new research comes along, such as plantain, we act on it.

Athol New believes a collaborative approach to new environmental rules will bring long-term sustainable outcomes.

"Farming is complicated – it looks simple, but there's a lot of moving parts. So, when you change one variable, it can have a big impact on a lot of other things."

Read more about DairyNZ's levy-funded Meeting a Sustainable Future project at **dairynz.co.nz/sustainablefuture**

Economic pillar

Economist Cameron Bagrie says dairying's value to the country's economy has never been more important.

"The dairy sector has retained the crown as New Zealand's largest and most important export earner. It's a crown it never really lost – it just got misplaced amidst misunderstandings.

"International tourism's contribution was always overstated. Tourists visit New Zealand, and New Zealanders spend overseas – it is the net that counts. COVID-19 might have devastated international tourism, but money previously spent overseas is being deployed locally, which has softened the blow to the economy. A new spa pool has replaced that overseas holiday.

"New Zealand's net exports (exports minus imports) of food and live animals has risen to $30.5 billion, up 8.3% on a year ago, with dairying a major chunk of that.

"Cash has been king in an environment of lockdowns and border shutdown.

"New Zealand's food supply chain and the dairy sector has remained open, producing cash.

"Overall export performance over 2020 has largely mirrored 2019, a remarkable achievement given the economic environment.

"Provisional numbers show exports of milk powder, butter and cheese jumping 9.4% to $16.4 billion in the year ended September 2020. Overall exports are up 2.0% over the year. That contrasts with an 9.1% fall in imports, a result of less demand and problems sourcing supply.

"New Zealand has seen demand for what we produce, and we've been able to supply. Both have been key to our success.

"Amidst a deep global recession, demand has been surprisingly robust for some of New Zealand's key commodities, including milk powder.

"The dairy sector has been making good progress paying down debt. More loans are now interest and principal – not just the former. Dairy sector debt has fallen to $39 billion, a reduction of $2 billion from 2018.

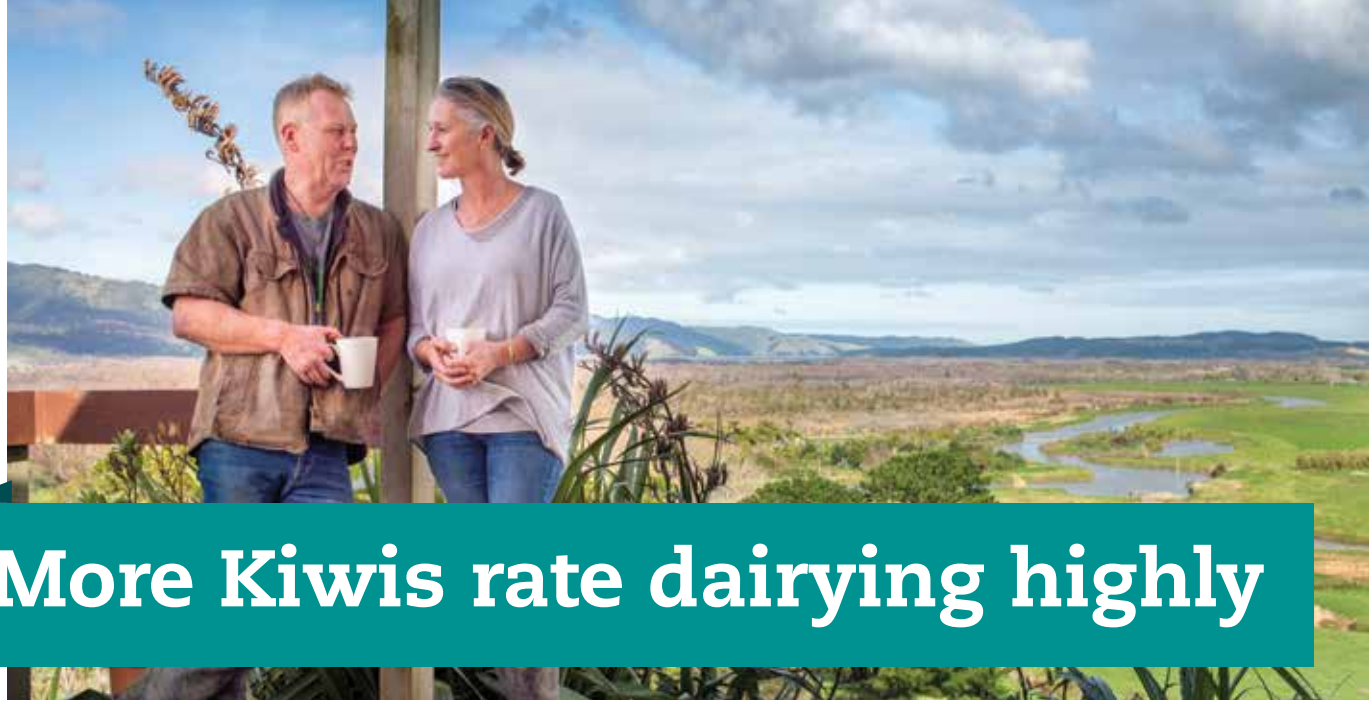
"There have been some hard discussions along the way, but much-needed de-leveraging has been occurring and in a relatively orderly fashion. That is reducing the sector's vulnerability.

"In a world where deposit rates continue to plumb new lows, suddenly the returns on dairy farms do not look so out of whack.

"Uncertainty remains high as COVID-19 challenges continue. Border control is likely here for a while, suppressing tourism and education. In the face of it, the farming sector, and dairying in particular, will be critical to bringing in export dollars."

"In a world where deposit rates continue to plumb new lows, suddenly the returns on dairy farms do not look so out of whack."

Cameron Bagrie, managing director and chief economist at Bagrie Economics.



More Kiwis rate dairying highly

Sharing great dairy farmer stories is making a big difference to how the public sees our sector, according to a recent survey.

Dairy farmers have told us that public perception is one of the biggest issues facing the dairy sector.

In November 2018, to help address this, DairyNZ launched The Vision is Clear. This movement aims to improve water quality and the public's perception of dairying. How? By raising the profile of dairy farmers' environmental work and inspiring Kiwis to look after our waterways.

Radio, print, and online videos have led 414,000 people to visit The Vision is Clear website since its launch. The movement has reached, on average, more than 500,000 people on social media every month.

Through The Vision is Clear, a large number of dairy farmers have stepped up to share their inspirational stories about how they care for the land for future generations.

Two of those farmers are Stu and Kim Muir (pictured above). On their Waikato farm, they've retired land, restored waterways and a wetland, added 48,000 plants, and created a public boardwalk.

"The Vision is Clear is an amazing opportunity to highlight work done on farms all around the country," says Stu.

Schools, media and research

The Vision is Clear is part of a wider levy-funded programme to improve public perceptions of dairy farmers.

DairyNZ's education programme helps around 3500 children visit a dairy farm each year. To complement these farm visits, **DairyNZschools.co.nz** provides teachers with curriculum-based learning resources so children can learn about dairy farming and where milk comes from. At **Rosiesworld.co.nz** children are taught about dairy farming through fun and engaging activities.

Meanwhile, DairyNZ's media team is sharing great stories from dairy farmers, the dairy sector and DairyNZ with media, and providing dairy's perspective on key issues and news stories. In the past year, the team interacted with media more than 700 times, and issued more than 300 media releases and news articles.

Alongside this work, DairyNZ is investing in a wide range of research to develop practical on-farm solu tions. The aim is to help farmers reduce their environmental footprint while improving profitability.

> "The Vision is Clear is an amazing opportunity to highlight work done on farms all around the country."

What Kiwis said

To keep track of the public's perceptions and attitudes about our sector and its people, DairyNZ runs an independent survey every three months. Here's what more than 800 people questioned in our August 2020 survey told us:

- 73% percent of all respondents felt positive towards New Zealand dairy farmers.
- 62% of all respondents felt positive towards our dairy sector.
- Half said dairying was an attractive career option – up from 43% in February 2020.
- People said the top thing farmers could do to make them feel more positive towards them was to show their commitment to the environment and caring for animals.

Why they said it

The most common reasons why survey respondents felt 'somewhat positive' or 'very positive' towards dairying were:

- dairying is important to New Zealand's economy
- dairying is a quality industry with good products

- New Zealand's dairy farmers do a good job.

The survey results reflect the public's growing recognition that dairy is playing an increasingly important role in our economy, with other key sectors such as tourism and tertiary education continuing to be adversely affected by COVID-19.

Dairying's attractiveness as a career option has improved as a result of GoDairy, a joint campaign by DairyNZ and the Government. This provides free farm-ready training for those who have lost their jobs due to COVID-19.

The Vision is Clear changes views

The survey also clearly demonstrates how The Vision is Clear movement is changing perceptions of dairying and dairy farmers, with a record high 24% of respondents saying they'd seen or heard of the campaign.

Of those respondents who had heard of the campaign:

- around half said they now felt more positive about the dairy sector
- 43% said they had more understanding of the dairy sector
- 70% felt positive towards the dairy sector.

Media coverage increasingly positive

Dairy stories are now being covered more positively by the media. In September 2020, more than 1100 stories mentioning dairy were published. Of these, 50% were positive, 46% were neutral and just 4% were negative.

This is a significant shift from media coverage a year earlier, when just 31% of stories were positive, 16% were negative, and the balance were neutral.

For more stories about how farmers are improving the environment, see **thevisionisclear.co.nz**

SURVEY SNAPSHOT

How they felt

73%

of the public had a positive view* of dairy farmers

15% were neutral and 12% were negative

62%

had a positive view* of the dairy sector

Up from 58% in August 2019

24% were neutral and 11% were negative

The Vision is Clear

59%

of those who haven't been exposed to The Vision is Clear had a positive view* of the dairy sector.

Positivity improves to 70% for those who have seen the campaign.

What they liked

Farmers are inspiring to young Kiwis and contribute to local communities.

Dairy is important to our economy and is a quality industry.

** Survey responses were either 'very positive' or 'somewhat positive'.*

THE VISION IS CLEAR

DairyNZ

On the front foot for summer

Keeping it simple, being proactive and remaining nimble are all part of a successful summer/autumn management plan, writes DairyNZ's Kieran McCahon.

When faced with challenging conditions, having clear contingency plans in place and adapting these as conditions change can set up farmers like Ashley Des Landes and Teagan Gray for a swift recovery.

Ashley and Teagan contract milk 480 crossbred cows on 173ha near Turua on the Hauraki Plains in Waikato. Last season, the area was hit hard by drought, with only 50mm of rainfall between January and mid-May.

"We had to adapt our plans early to ensure the current season's performance wasn't compromised," Ashley explains.

With early indications of a dry summer, the couple started milking the cows once a day from December 10, two weeks earlier than usual, to proactively protect body condition score (BCS). By mid-March, average pasture cover (APC) had fallen to 1500kg DM/ha.

Each cow in the herd was body condition scored, and from mid-March, cows were dried off on BCS and calving date to ensure each cow had sufficient time to reach targets. With dry conditions persisting, the entire herd was dried off by April 20, two to three weeks earlier than usual.

Ashley and Teagan then set about protecting their pastures to ensure they could respond quickly when it did rain. Being the only green thing left on the farm, the chicory crop (12ha) was grazed for an extra round more than normal. Grazing was then restricted to 15ha of pasture near the shed for six to eight weeks, pushing the rotation length toward 160 days. This protected the rest of the farm from overgrazing, limiting the area in need of renewal.

Supplementary feed was offered to 'top up' the herd's intake to maintenance levels. An additional 100t DM palm kernel expeller and 30t DM maize silage was purchased on top of what was initially planned. In addition, heifers were grazed off for another month, and 20 late-calving cows were sold in May to reduce animal demand.

"Our careful decisions around dry-off date ensured the herd landed just shy of their BCS targets, at an average of 4.9 at calving," says Ashley. "On top of this, by protecting pastures from overgrazing, growth rates responded quickly when the rain eventually came in late May, with APC climbing to 2400kg DM/ha by July.

"Although the summer dry limited last season's production, our decisions put us in a great position to capture favourable winter growth, giving us a head start through early lactation."

Key points

- A simple summer/autumn management plan is crucial – farm what you have in front of you and update your plan as conditions change.
- Protecting pastures ensures they can respond quickly when conditions improve.
- Prioritise cow condition and make decisions accordingly.

Step back yields a step change

Taking a step back to review their whole farm system has enabled the Sowman family to reduce their 'purchased N surplus' and improve business efficiency.

Uruwhenua Farms is the Sowman family business in Tākaka, Golden Bay. Brothers Corrigan (with wife Ruth) and Sam (with wife Cara) manage the 500ha operation, comprising a 268ha dairy farm (partially irrigated), dairy support blocks, and a dairy beef farm.

Triggers to targets

The Sowmans have always tried to keep an environmental focus to their business, but a series of events triggered a review of the farm system.

They wanted a more financially resilient approach for their dairy farm following the 2014 fall in milk price (it had been a System 3 to 4 farm, with palm kernel expeller (PKE), grain, silage, and winter grazing). So, they dropped back their grain use to 20 tonnes total, fed only during spring, as a carrier for the cows' mineral pellets.

"Total production dropped after the change, but we now focus on cash surplus rather than production. We target $1/kg MS of free cash after capital re-investment" says Corrigan.

A rethink about their fertiliser use was prompted by evolving environmental regulations on water quality, especially given the farm is also near an aquifer that supplies the Te Waikoropupū Springs.

"We thought we were possibly being inefficient with N fertiliser use through both our feed and fertiliser," Corrigan says. "So, in one year we dropped that in half. The change in farm performance confirmed that had been the case."

Corrigan says their purchased N surplus has now dropped by more than 100 units between the systems. The exact change will be estimated this season using OverseerFM.

Future step change

The Sowmans would like to lift production again over time as they capture further efficiencies on-farm. One opportunity is bringing the calving date earlier, after initially putting it back, as milder winters and drier summers indicate the original date is still appropriate despite the farm system change.

While going completely supplement-free isn't practical for this farm, which is prone to the summer dry, the Sowmans feel their business is now more sustainable with a lower environmental footprint, thanks to the 'step changes' made.

"Overall, we can see the direction of travel for the dairy industry and we want to reduce our business risk both for the environment and for our balance sheet. Adapting our system now makes the business more bankable."

> **"Overall, we can see the direction of travel for the dairy industry and we want to reduce our business risk both for the environment and for our balance sheet."**

Check out DairyNZ's Step Change project at **dairynz.co.nz/step-change**

Purchased N surplus

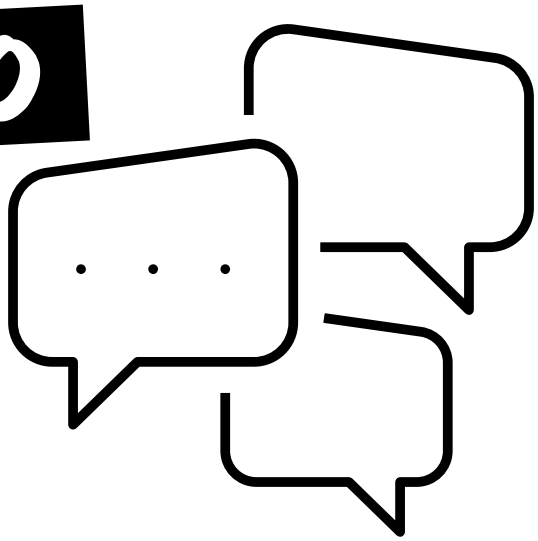
Purchased N surplus is an easy-to-calculate indicator of nitrous oxide emissions and N leaching to water. It's the difference between N brought on-farm via imported supplement and N fertiliser applied, minus the N exported in milk production, meat, or supplement grown on-farm. Farmers can influence this with careful management, on-farm policies and day-to-day decision-making.

Differences between systems

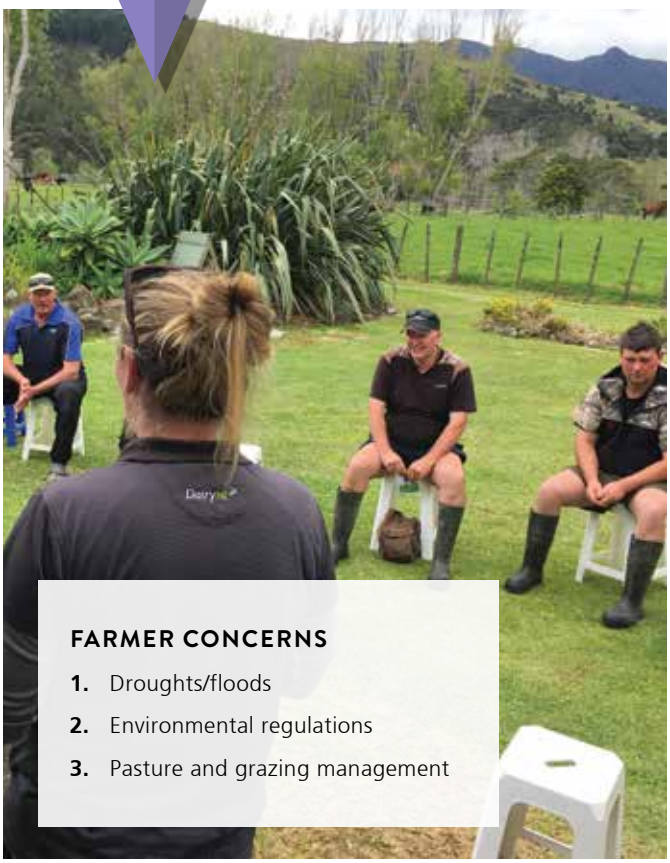
	BEFORE	CURRENT
Dairy platform (ha)	268	268
Cow numbers	880	700
Stocking rate	3.3	2.6
Annual milk production	405,000	315,000
MS/ha	1511	1175
Tonnes of imported supplement/ha	4.0 (PKE, grain and silage)	2.2 (silage and 20t grain)
N/ha	200	100
Budgeted farm working expenses	$5.50	$3.95
Estimated purchased N surplus	165	51 (based on 20/21 budgets)

FARMERS' TALKING POINTS IN 2020

DairyNZ consulting officers outline the top three issues farmers talked to them about at discussion groups and other meet-ups this year.



NORTHLAND



FARMER CONCERNS

1. Droughts/floods
2. Environmental regulations
3. Pasture and grazing management

AMY WESTON, CO for the Far North

"Droughts and floods were a big issue this year. With droughts, farmers wanted advice on how to make plans to get through and not carry their effect into the next season. Other related discussion areas were making feed budgets and feed plans, ensuring cows had enough feed, and ensuring water supply.

"Then, with July's big rains, the conversation switched to flood relief – how to get through, how to cope with flooded pastures and silting, and relocating cows. We also helped connect farmers and communities together so they could support each other.

"With the Essential Freshwater package, we've been discussing what that will mean on-farm, and we've also been encouraging farmers to get involved and have a voice at council level. With our new Step Change project, we've been taking workbooks out to farms, helping farmers to benchmark where they sit, and understand what the targets and metrics mean.

"We've also been helping farmers to gain confidence in using the Spring Rotation Planner too, so they've got enough grass to get through to balance date. Ryegrass persistence and diversification to other grass species has become a topic up here, given it's so dry in the summer. Our input has included running webinars to make farmers aware of the Northland-focused research work on alternative pasture species."

AMY'S TIPS:

- Drought – be prepared, plan ahead. Use a feed budget with different scenarios, and revisit it regularly. Ensure you have adequate water supply and increase your water storage capacity if necessary.
- Environmental regulations – check out **dairynz.co.nz/step-change** for information on key metrics and to see where your farm sits.
- Pasture and grazing – there are things you can do to help your ryegrass persist. Don't over-graze your pastures in summer; and cut your silage early for quality and quicker regrowth.

TARANAKI

FARMER CONCERNS

1. Environmental regulations
2. Pasture and grazing/supplement use
3. Progression and succession

EMMA HAWLEY, CO for Central Taranaki

"The Essential Freshwater policy was top of farmers' minds – nitrogen (N) use and the N-cap coming in, how they're going to manage that while remaining profitable. We're not as hard hit as other regions on the winter grazing side of things, but farmers still need to change a few things. We've got lots of consents for effluent-discharge-to-water to sort too – many farmers need to upgrade their effluent management systems.

"For pasture and grazing, farmers wanted to know about how to manage pastures as their main way of enhancing production, and how to use supplements to complement their system.

"With progression and succession, we had a lot of discussions around how older farmers can exit their farms, but also how do the younger ones come in and take over. Especially with high land prices and banks tightening their books currently."

EMMA'S TIPS:

- Environmental – use the DairyNZ Envirowalk App (**dairynz.co.nz/envirowalk**) to highlight some easy changes you can make while you work on your Farm Environment Plan (FEP).
- Pasture and supplements – monitor residuals, complete regular pasture walks and use DairyNZ's grazing management tools.
- Progression and succession – deciding what your next steps might be? Our 'Do your Homework' due diligence resources include checklists, decision trees, and a five-step process to support and guide your decision-making. Visit **dairynz.co.nz/homework**

SOUTHLAND/ SOUTH OTAGO

FARMER CONCERNS

1. People management/retaining existing or finding new staff
2. Environmental – winter crops/wintering practices
3. Career progression options for farmers and their teams

NATHAN NELSON, Senior CO for Eastern Southland

"People management topics have been top of mind, including staff recruitment and retention. Farmers want to know how to tap into the pool of people keen to get into the sector, those with the right skills and attitudes.

"In my time at DairyNZ, wintering's been a conversation every year, shaping our whole farming calendar here. Environmentally, that's getting stronger with Essential Freshwater coming on board.

"Career progression's come up frequently too. Farmers want advice on understanding their goals and targets for stepping up or growing business equity."

NATHAN'S TIPS:

- People management – talk to other dairy employers who are doing a great job, to understand why they are and identify what ideas you could implement.
- Winter crops – seek clarity if unsure about the new and proposed rules, get informed through your local catchment groups and through DairyNZ field days around good management practices.
- Career progression – sign up for DairyNZ's Biz Start and Biz Grow courses on offer. If you have two to three years' worth of self-employment experience in the sector, look at attending the DairyNZ Mark & Measure course.

To find a DairyNZ discussion group happening near you, go to **dairynz.co.nz/events** or contact your local consulting officer – see **dairynz.co.nz/CO**

NO TURNING BACK FROM 3-IN-2

Milking three times in two days gives Nick Dowson more time to be with his family (and avos), while improving life for his manager and cows.

Farming in the Bay of Plenty, Nick has long used the strategy of milking three times in two days (3-in-2) over summer. But in July 2020, he made the switch to full season.

There were various reasons for making changes. Improving cow reproductive performance was high on the list, along with the flexibility to diversify. The farm is small and can't support two full-time staff.

Apart from 46ha owned by Nick and wife Mary, the rest of the farm has several leased pockets, so the future is uncertain, especially when land in the area is fetching $100,000/ha. To hedge his bets, Nick decided to plant avocados. Changing to 3-in-2 gives him time to tend to the orchard while Rick Phillips manages the dairy operation.

"DairyNZ's milking expert Josh Wheeler suggested we have a crack at 3-in-2 milking," says Nick. "In the beginning, we tried 16-hour intervals, which wasn't much fun. But research by DairyNZ's Paul Edwards made us realise the hours aren't that critical, so we've adjusted our intervals 10-19-19, at 5.30am-3.30pm-10.30am."

So far so good

One of the biggest surprises of 3-in-2 has been the vast improvement in somatic cell count, partly because they now have time to strip the herd once a week, says Nick.

Flexible milking is paying off for Nick Dowson (right) and his farm manager Rick Phillips.

"It was completely the opposite of what I thought would happen."

"It was completely the opposite of what I thought would happen. This time last year (early October), we were at 180,000 cells/mL, and now we're sitting around 80,000 to 90,000. It'll be interesting to see how we go this summer, because last summer we were around 200,000 mark."

Rick says cow flow has improved too. "I've noticed a real change in their behaviour. They're definitely calmer."

The three-week submission rate was 89% with 12% hormonal treatment. "In the past, we've usually had 70% to 80% using 25% hormone implants. It's probably too early to know if the improvement is as a result of 3-in-2, but either way, it's encouraging," says Nick. The farm's production is tracking 2% ahead for the season to date.

Unforeseen consequences

Nick says something they didn't think about was milk storage and cooling. Two 19-hour milkings won't fit into the vat, especially during the peak period. They're discussing their options with Fonterra, whether that's a bigger vat and chiller, or a different pick-up schedule.

Pressure's off

Nick says they wouldn't change back to twice-a-day. "We're locked in."

Rick agrees. "There's a lot less pressure and the early finish every second day is nice. There's more time to spend with family and friends."

The Dowson farm is part of DairyNZ's levy-funded flexible milking pilot programme. Read the full story at **dairynz.co.nz/nick-dowson** and check out **dairynz.co.nz/flexible-milking**

Making the most of 'mini-goals'

Despite a number of curve balls, sharemilkers Gina and Dan Duncan are staying on track by using a to-do list and a flexible approach.

The Duncans are 50:50 sharemilkers based in the Waikato. Two years ago, they downsized from milking 1100 cows in Northland to 750 in Pirongia, to achieve a better life balance for themselves and their two boys, Lachie (5) and Brock (2).

"We keep our to-do list balanced with family, business and personal development goals," says Gina.

Only in their second season here, they're still fine-turning things – and this year has thrown in a few surprises.

"We've had some reproductive improvements to make after last season's 69% 6-week in-calf rate, and the drought affected our production goals. There were also uncertainties around feed prices and availability due to the COVID-19 lockdown," says Gina.

"With the repro situation, usually we achieve 75 to 79% for our 6-week in-calf rate, so we're sorting that right now. We also want to bring that calving date forward a little bit and condense our calving spread."

> **"We feel like a to-do list is a bunch of 'mini-goals' that you're going to use to achieve your long-term goals."**

Financial key performance indicators (KPIs) are another big focus of their to-do list, says Dan.

"We'd like to keep our farm working expenses around $2/kg MS, but realistically we've probably crept closer to $2.20 – we were $2.10 in the 2018/19 season. We're always striving to keep those as low as possible. Another KPI, return on equity, is what we use to ensure we are making the gains we need."

The couple think uncertainty in the market can create opportunities.

"We've just got to be prepared to jump on those," says Dan. "We also want to keep pushing on the equity growth we achieved while in Northland too. We could possibly lease another farm; get another 50:50 job and put a manager on; or buy a farm. We're definitely factoring in plenty of flexibility into our planning."

They'll also be attending a rescheduled DairyNZ Mark & Measure course in the near future.

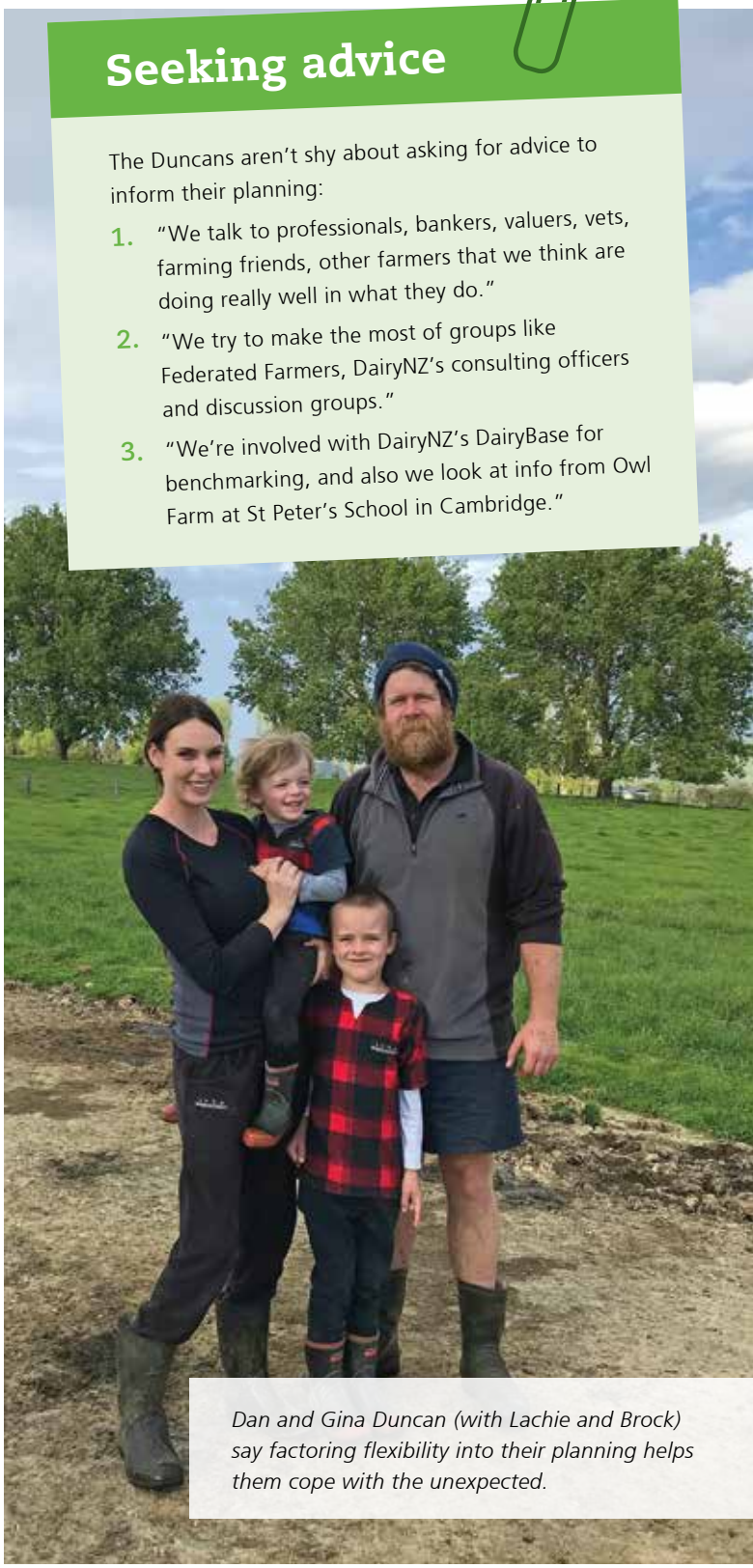
"We feel like a to-do list is a bunch of 'mini-goals' that you're going to use to achieve your long-term goals," says Gina. "You can't reach those goals without succeeding in your to-do list along the way."

To-do lists are just one planning tool. Get the full picture and tips at **dairynz.co.nz/planning**

Seeking advice

The Duncans aren't shy about asking for advice to inform their planning:

1. "We talk to professionals, bankers, valuers, vets, farming friends, other farmers that we think are doing really well in what they do."
2. "We try to make the most of groups like Federated Farmers, DairyNZ's consulting officers and discussion groups."
3. "We're involved with DairyNZ's DairyBase for benchmarking, and also we look at info from Owl Farm at St Peter's School in Cambridge."



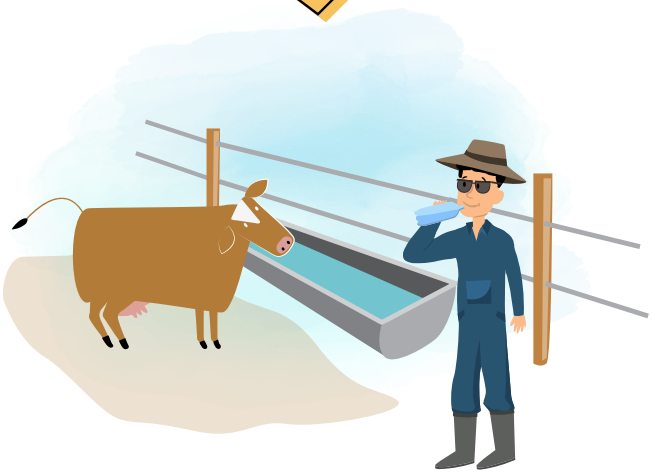
Dan and Gina Duncan (with Lachie and Brock) say factoring flexibility into their planning helps them cope with the unexpected.

HOW WILL YOU KEEP YOUR TEAM COOL THIS SUMMER?

Cool people and cool cows are more productive and less irritable.

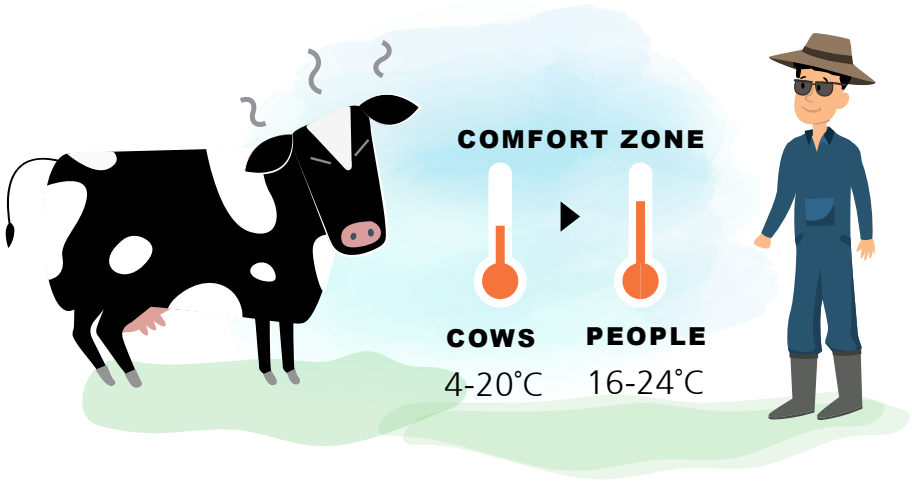
Provide protection from the sun

Take regular drink breaks



Slow down or avoid strenuous work in heat of the day

Too hot? Cool down with water



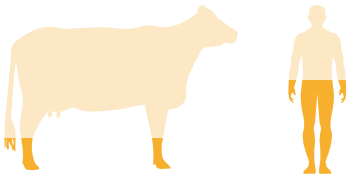
Hot weather affects cows more than us

BRAIN

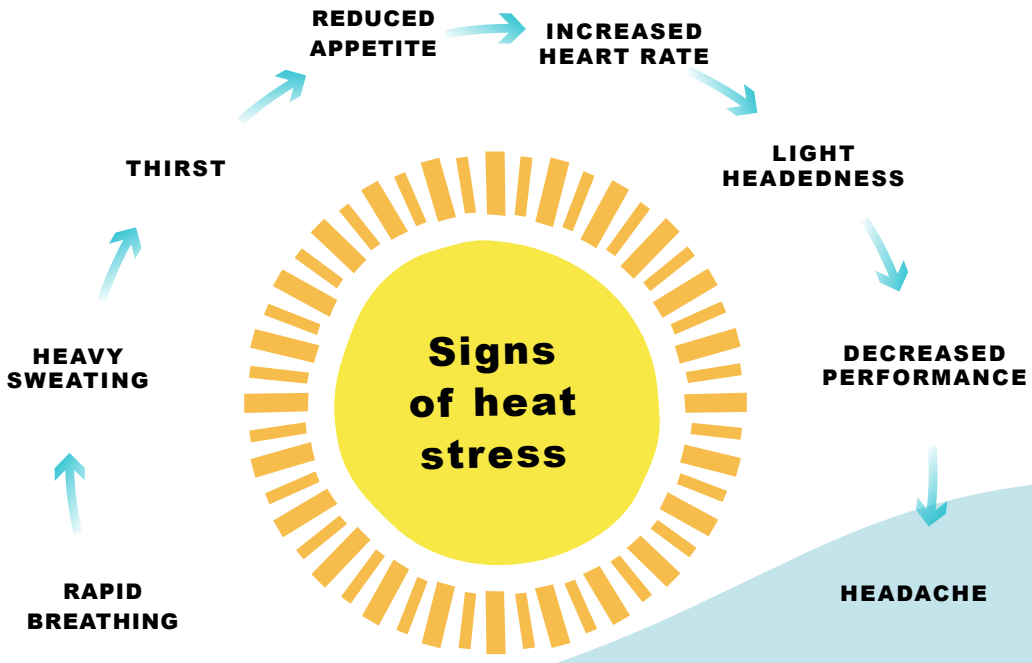
75% of brain tissue consists of water. Dehydration leads to mistakes and headaches.

MILK

per cow drops **10-15g MS** per **1˚C** rise in max temperature.



COWS have **7 times** as much heat to get rid of but can sweat only **40%** more.



Making money, not just milk

A three-year farm systems experiment in Northland is helping us understand how feed management affects farm profit.

With climate predicted to become more variable, and the use of palm kernel expeller (PKE) restricted, farmers are asking: What is the profitability of different feed management systems? A Northland Dairy Development Trust (NDDT) trial, underway since 2018, goes some way towards answering that question.

The trial is being run on the Northland Agricultural Research Farm at Dargaville, with funding from DairyNZ, the Ministry of Primary Industries and the Hine Rangi Trust, with support from commercial sponsors.

Three systems are being compared:

- PASTURE – 2.7 cows/ha feeding pasture only.
- PKE – 3.1 cows/ha feeding pasture and PKE.
- PKE PLUS – 3.1 cows/ha feeding pasture, PKE and other supplementary feeds.

Farm profit per system

During the first season of the trial, the PKE farm was the most profitable. There was no difference in profit between the PASTURE and the PKE PLUS farms, despite a production difference of more than 300kg MS/ha.

In 2019/20, a high milk price ($7.14/kg MS) and a difficult season (wet spring and very dry summer/autumn), meant the PKE PLUS farm was slightly more profitable for the first time. That's because the PASTURE and PKE cows were milked once a day (OAD) and dried off early, due to very poor pasture growth.

Strict decision rules are followed for all the farms. Pasture and cow targets, and milk Fat Evaluation Index (FEI), are all considered when decisions are made to increase feed supply (e.g. pasture allocation, imported supplements) or reduce feed demand (e.g. OAD milking, drying off, removing culls).

These rules ensure the pasture substitution that occurs when supplements are added to a grazing system is managed positively (i.e. used to achieve target residuals and rotation lengths to grow more pasture).

This resulted in an above-average MS response of 100g MS/kg DM imported feed (the New Zealand DairyBase average from the last 12 years is 80g MS/kg DM).

PKE treatment herd on the feed pad at the Northland Agricultural Research Farm. Photo: Northland Dairy Development Trust.

Key findings

The trial indicates that disciplined use of lower-cost imported supplements can add profit to a grazing system, but farmers should use them wisely, while retaining focus on good pasture management. More milk doesn't always mean more profit.

Similar to DairyBase analyses, on average over the two seasons, operating costs for the PKE and PKE PLUS farms increased by approximately $1.70 for every $1.00 spent on supplement. This created a marginal cost for the extra milk produced in the PKE and PKE PLUS farmlets of $6.00/kg MS and $6.50/kg MS, respectively.

So, even with an above-average milk response and a high milk price, care must be taken when using supplements in a pasture-based system to ensure the additional milk produced is returning a profit.

For more details on the trial, visit **www.nddt.nz**

	2018/19 season at $6.35/kg MS			2019/20 season at $7.14/kg MS		
	Production		Profit	Production		Profit
	kg MS/cow	kg MS/ha	$/ha	kg MS/cow	kg MS/ha	$/ha
PASTURE	372	996	3002	313	816	1877
PKE	403	1177	3301	359	1129	2119
PKE PLUS	423	1290	2991	407	1279	2336

No backing down on *bovis*

Eradication of *Mycoplasma bovis* is going to plan, but we have a way to go yet.

Significant progress has been made in driving down the number of farms affected by *Mycoplasma bovis (M. bovis)*. However, remaining vigilant is critical if we are to eradicate this disease.

Although we're on track to achieve eradication, there's still a lot of hard work ahead of us – and we expect to find more infected herds as the *M. bovis* Programme continues.

DairyNZ is still actively involved in the programme, at both the governance level and on the ground supporting farmers.

As at November 12, 2020:

- There have been 257 confirmed properties to date, with seven Active Confirmed Properties and the remaining cleared.
- Of these, 137 confirmed properties have been beef, 63 dairy, and 57 classified as others (such as calf rearer, grazing and lifestyle).
- $184.9 million has been paid out in compensation.

Bulk Tank Milk screening

Screening is continuing on dairy farms. Each month, a sample is taken at the point of collection, as part of the normal milk collection process.

As at November 12, there were six new properties confirmed with *M. bovis* as a result of Bulk Tank Milk (BTM) screening: one dairy in Canterbury's Selwyn District, three dairy farms in Ashburton District, and a further two farms in this area linked by cattle movements. Recent BTM screening gives confidence that this is an isolated cluster connected by animals movements.

These newly identified properties show the national surveillance programme working as it should – detecting possible cases and showing where to look to eliminate the infection.

Beef surveillance

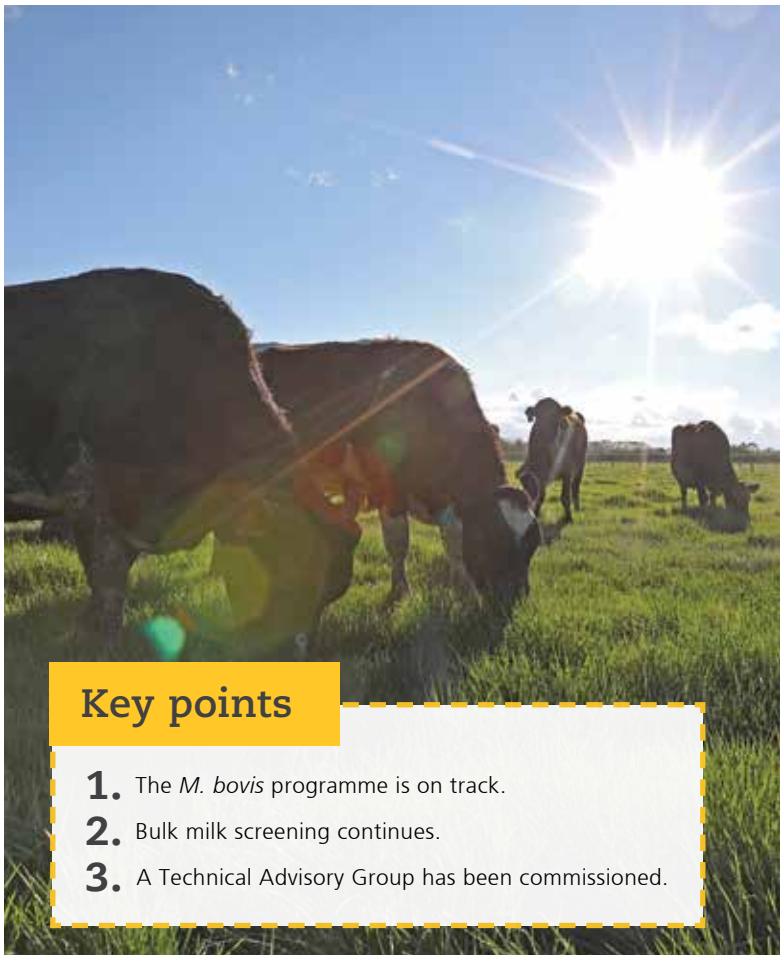
The National Beef Cattle Surveillance Programme covers screening of beef cattle not connected to the known network of infected properties, sampled at meat processing or alongside TB testing.

As at November 12, samples have been collected from about 86,600 animals, from over 4000 farms. No beef farms have been confirmed as infected from the surveillance programme.

Other initiatives

As we continue to find fewer cases, the *M. bovis* Programme's efforts will be focused on national surveillance to provide confidence that the disease is absent. An independent Technical Advisory Group has been commissioned to review the existing performance measures and surveillance programme. The group will provide technical advice to support the next stage of the Programme.

Meanwhile, the Programme partners – DairyNZ, Ministry for Primary Industries, and Beef + Lamb NZ – are considering how to ensure the lessons we've learned from dealing with *M. bovis* can help improve future responses to other diseases.



Key points

1. The *M. bovis* programme is on track.
2. Bulk milk screening continues.
3. A Technical Advisory Group has been commissioned.

just quickly

Farmer directors appointed to DairyNZ Board

Jim van der Poel and Colin Glass have been re-elected by levy payers onto DairyNZ's Board. Both are current Board members, and Jim is the existing Board chair. We asked Jim and Colin what DairyNZ should focus on to deliver a better future for farmers.

Jim van der Poel

"In consultation with our farmers, we have defined a better future as one that makes our farming systems more sustainable and protects or enhances our competitive advantage, and farmer profitability.

"Key focuses to deliver this are:

- working closely with local and central government to make sure we are aligned on that future vision
- a joined-up approach with our industry partners and stakeholders to deliver that vision
- exceptional two-way communication and engagement with farmers and key on-farm decision-makers to agree and share best practice in every region."

Colin Glass

"A better future is possible where we are proud, profitable, and not ashamed to be successful dairy farmers. To achieve this, we must have clarity about what delivers profitable farm systems. Our communities need to acknowledge our desire to be sustainable, and we must have the confidence to invest in science that will deliver our future solutions.

"Key focus areas for DairyNZ are:

- leadership – to empower DairyNZ to collaborate and advocate for our farmers
- delivery of our strategy – by engaging with every dairy farmer to believe in the future."

Rise and Shine is resonating

Rise and Shine is DairyNZ's campaign to tell the story of why New Zealand dairy farmers are the world's most sustainable dairy farmers. Why? To help Kiwis understand how we farm in New Zealand, and why we should feel proud of our farmers and dairy products.

In October, we shared a video to launch the campaign. That video has reached over 25,000 people and is one of DairyNZ's most-shared videos of all time. The campaign videos and advertisements have reached over 200,000 people online, and the positive anecdotal feedback supports these numbers.

Check out the campaign and share it with your friends – **riseandshine.nz**

School farm visits return

Good news – DairyNZ's school farm visits programme will resume in 2021. After being put on hold from March 2020, we've managed to run a few visits in recent months and will be back to normal next year.

Farm visits are part of our wider education programme to help children, parents and teachers learn about dairy farming. We're hugely grateful to our volunteer farmer hosts who provide the public with a fun and educational experience, which makes an impact to how they view dairying.

Want to host a school on your farm, or just learn more? Visit **dairynz.co.nz/schoolfarmvisit**

Students from Mount Eden Primary School visiting Brian Gallagher's Pukekohe farm.

Trustees and whānau from one of the seven farms (Waiawa Farm east of Opotiki), who meet regularly as part of the extension programme.

Māori dairying on the move

Blending best practice with whanau aspirations and values is opening up opportunities for Māori in dairying that could benefit the whole sector.

DairyNZ's Kaiārahi Ahuwhenua (Māori agribusiness specialist) Hemi Dawson is pretty happy. That's because he's seeing some real breakthroughs for several Māori farms based in the Eastern Bay of Plenty, thanks to an innovative extension initiative co-funded by DairyNZ and the Ministry for Primary Industries (MPI). The initiative is part of MPI's Māori Agribusiness Extension Programme.

Strength and capability

The Eastern Bay of Plenty Māori Cluster has been running for two years, focusing on seven Māori-owned dairy farms governed by six different trusts.

Hemi's role within the programme is to lead and strengthen relationships with Māori in dairying (governors, farm operators and farm teams), and also with their trusted advisers and other rural professionals.

"I really enjoy working with Māori and rural communities, and people in general," he says of his role, which sees him leading the establishment of Māori agribusiness learning networks.

"I've also been linking those networks with DairyNZ's tools and resources – such as our DairyBase benchmarking tool – and those of other businesses, and helping the farms to improve their governance capability to meet sector commitments."

Shared learning

The MPI programme focuses on exploring sustainable system changes in shared, group learning settings.

DairyNZ's approach with this cluster includes trustees and farm teams developing and carrying out practical activities within a collaborative, shared learning environment. Hemi says this helps foster stronger relationships between the two.

"Ideally this will enable these Māori dairy farmers to take control of their business strategy and operations, while using best practice farming methods in line with their whānau's aspirations and values."

Hemi says the programme's wānanga (workshop) facilitators also encourage an evolutionary learning approach. This provides a safe place to ask questions, challenge and learn, grounded in Te Ao Māori (the Māori world) and tikanga (customary values and practices).

Shared benefits

The programme has had several positive breakthroughs in its first two years. These have led to the adoption of sector recommendations, open communication, greater contribution from women and increased cross-iwi collaboration.

> "The feedback from participants has been especially positive ..."

"Each trust is also learning what factors, on-farm implementations and governance elements are effective (or not) and checking their performance and progress using DairyBase benchmarking," says Hemi.

"The feedback from participants has been especially positive, and the programme is leading to encouraging and exciting possibilities for Māori dairy farmers within this leadership group.

"It's gratifying to see how the work everyone has done so far is laying a strong foundation for the programme going forward. This will ensure it achieves its desired outcomes, not only for these farms but for the future of Māori dairy farming and ultimately, the sector overall."

December events

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
	1	2	**02** **LOWER NORTH ISLAND** The Tokomaru/Linton Discussion Group's pre-Xmas lunch will be at James & Hannah Finnigan's Palmerston North farm. Call Kate Stewart on 027 702 3760.			6
7	8	9	**10-11** **CANTERBURY/ NORTH OTAGO** Get in now to attend a two-day FeedRight workshop on transition and early lactation to be held in Lincoln. Register with Jane Kay on 027 838 9740.			13
14	**15** **WAIKATO** Attend a Succeed in Business workshop between 10am and 1pm at the Matamata Civic Memorial Centre. Call Lizzy Moore on 021 242 2127.					20
21			24	25	26	27
28	29	30	31			

TO SEE WHAT ELSE IS HAPPENING IN YOUR REGION DURING DECEMBER AND JANUARY, GO TO **DAIRYNZ.CO.NZ/EVENTS**

NORTHLAND

Want to reduce time spent in the milking shed, while maintaining production and not causing additional animal health problems? Find out how at one of DairyNZ's three Milksmart events across the region in early December.

Topics of discussion will include benchmarking your farm performance, key drivers of milking efficiency, optimising your milking plant to improve cow milk out, and cupping techniques.

More details at **dairynz.co.nz/events**

BAY OF PLENTY

DairyNZ has started a new closed Facebook group just for Bay of Plenty farmers. We created the group earlier in the year, during the COVID-19 lockdown, to help us keep in touch with farmers while face-to-face events were on hold.

We're now up to nearly 200 members in what is a private, safe environment for local discussion about industry, on-farm concerns, or just general updates.

If you're on Facebook, join now at **facebook.com/groups/bopdnz**

WAIKATO

Keen to see how the top operators are spending their money? Are there areas for improvement in your own business where savings can be made? Four Waikato farms feature among our popular budget case study series.

We've collected in-depth current season budgets from these farms with a focus on lower 'per unit' cost of production to help you identify opportunities. Check out their 2019/20 season reviews and 2020/21 forecast budgets at **dairynz.co.nz/budget-case-studies**

TARANAKI

As part of the DairyNZ Flexible Milking Project, we are closely following several farms using flexible milking strategies, including Daryl and Karyn Johnson in Stratford.

With 3-in-2 (three times in two days) milking already a tool used by Daryl and Karyn during mid- to late lactation with no loss in production, it was a natural decision to switch to it as a year-round option.

Learn more about the Johnsons' farm and the Flexible Milking Project at **dairynz.co.nz/3in2.** You can also read about the couple in this edition's cover story on page six.

LOWER NORTH ISLAND

Tiller Talk Manawatu, a specialist pasture group, is meeting on January 20 (location to be confirmed). Topics at this group will include the Forage Value Index, re-grassing, analysis on the cost and benefit of summer supplements, and winter crops. The meeting will be hosted by DairyNZ consulting officer Charlotte Grayling.

The Tiller Talk group is a small group of like-minded farmers supported by partner agronomists to provide technical expertise. If you are interested in the above topics, feel free to come along to this group – go to **dairynz.co.nz/events** for up-to-date details.

TOP OF SOUTH ISLAND/WEST COAST

Are you ready for the summer months? Successful summer management means regular monitoring and planning.

Monitoring allows you to evaluate your options for stock and feed management based on the most accurate information. Keep an eye on the weather forecast, and benchmark yourself against others to help with decision-making.

For a range of monitoring tools and summer management resources to help your farm team, check out **dairynz.co.nz/summer**

CANTERBURY/NORTH OTAGO

DairyNZ has been following a group of farmers who have moved to milking three times in two days (3-in-2) full season as part of our Flexible Milking Project. Included in these farms are three properties in Canterbury and North Otago.

Ed von Randow in Oamaru is shifting to full season 3-in-2 milking; John Totty in Staveley is trying out 10-in-7 milking, having previously tried OAD; and Ben Wilson from Kirwee has switched to 3-in-2 milking mid-lactation to help combat lameness in cows.

Visit **dairynz.co.nz/3in2** to keep an eye on their progress and sign up to receive fortnightly email updates from the farms.

SOUTHLAND/SOUTH OTAGO

Two Southland farms have shared their numbers as part of our budget case study series.

A focus on efficient feed usage and maximising livestock profit allows a high-input sharemilking business, situated north-west of Invercargill, to be consistently in the region's top 25% for operating profit.

Meanwhile, a syndicate-owned system 4 Southland farm is focusing on maintaining production levels and increasing revenue from livestock sales, while reducing costs, to achieve a sustainable low-cost dairy farm business.

Read more at **dairynz.co.nz/budget-case-studies**

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‘Unflattening’ the pasture productivity curve

Pasture eaten on New Zealand dairy farms increased strongly from 1990 to 2003 but levelled off between 2004 and 2020. What’s behind this flattening trend, and how should our dairy sector respond?

David Chapman
Principal scientist, DairyNZ

Pasture is the number one feed source for the low-cost, high-value dairy products that we export successfully to markets around the world. Our pasture heritage is something we’re rightly proud of. However, like all things global, complacency and stagnation are an open invitation to others to ‘eat our lunch’. We must continue to focus on – and improve – pasture performance to hold our competitive position in global markets and exploit new opportunities in the future.

Trends in pasture eaten 1990-2003 versus 2004-2019

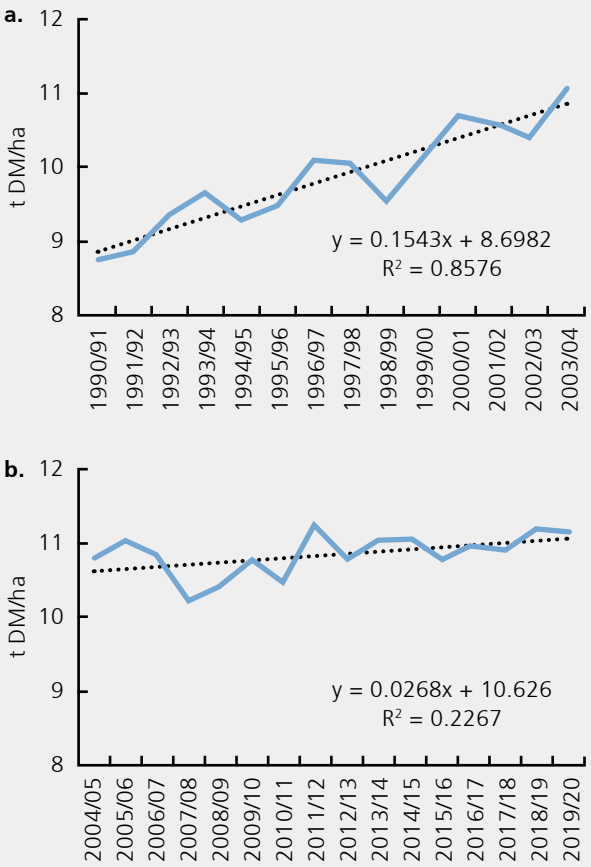
Between 1990 and 2003, national average pasture eaten (PE) on New Zealand dairy farms increased consistently at a rate of about 154kg DM/ha/year *(Figure 1a)*. However, since 2004, PE has remained static at about 11t DM/ha/year *(Figure 1b)*.

The overall increase from 1990/91 to 2019/20 of around 2.5t DM/ha (+100kg/ha/year, or 1.1%) is impressive, but it is the trend since 2004/05 that is cause for concern. Had the 1990 to 2003 trend continued, by 2019/20 the national average PE would be about 13.3t DM/ha, which is 2.2t DM/ha greater than the actual average of 11.1t DM/ha.

Key points

1. Pasture eaten (PE) in the New Zealand dairy industry increased strongly from 1990 to 2003, driven by N fertiliser and higher stocking rates.
2. PE levelled off almost completely between 2004 and 2020, with the sector focusing on milk production supported by more imported feed and cropping.
3. This flattening of the pasture productivity curve is a threat to the long-term competitive advantage of the sector.
4. Issues related to the new N fertiliser cap, climate change, and unwinding of system inputs will make the challenge of lifting PE harder.
5. However, there is significant untapped potential on 90% of farms and a receptive farming community ready to be convinced and/or supported to make gains in PE.

Figure 1. Mean pasture eaten (t DM/ha) on New Zealand dairy farms



A comparison between PE achieved on average farms and PE on the top 10% farms in each of the major New Zealand dairy regions suggests that closing the gap between the two (~ 2t to 4t DM/ha/year depending on region) would increase total farm sector profit by ~ $370 million/year.[1]

There is no other single area of focus with the potential to increase farm sector profits by > $300 million/year without requiring significant new knowledge, technology or resources. The gains are available now, along with tools and information resources that can help realise them.

Meanwhile, other countries are achieving gains in pasture eaten. For example, Beca (2020) calculated that since 2003, South Africa, Tasmania, Victoria and Argentina have all substantially exceeded New Zealand in compound annual growth rate in total pasture harvest since 2003 *(Table 1)*.

Why have pasture eaten rates plateaued?

Two trends stand out: systems change, and climate change.

Systems change: more N, more feed, more milk

The increase in PE from 1990 to 2003 was associated with an increase in nitrogen (N) fertiliser use in the national pastoral sector from around 50,000 tonnes to around 350,000 tonnes *(Figure 2)*, most of which would have been applied to dairy pastures.[3]

At the same time, stocking rate increased by 0.25 cows/ha/decade (DairyNZ Economics Group 2019). Importantly, the introduction of a cap on N fertiliser use of 190kg N/ha/year under the Essential Freshwater legislation means we will need to operate with less N fertiliser. Essential Freshwater's rules also signal the end of unrestricted N use as a way to increase pasture production.

Nitrogen fertiliser use levelled off after 2003, as did stocking rate increases which slowed to the equivalent of 0.05 cows/ha per decade, one-fifth of the 1990 to 2003 rate of increase. But milk production kept climbing after 2003, at a rate of 50 million kg MS/year until 2014/15, after which it too levelled off (*Figure 3a* - next page).

So, the industry went through a decade from around 2003/04 to 2013/14 of producing a lot more milk with no matching increase in pasture eaten. The extra milk had to come from another feed source: either more crops on farm and/or imported supplements. Feed other than pasture increased from 8% of the diet nationally in 2003/04 to 19% in 2013/14. This equates to an additional three million tonnes of feed per year, an average of 1.7t DM/ha across the 1.75 million effective hectares used for milk production.

The effect of this at the system level is seen in *Figure 3b* (next page), where the contribution of pasture to MS/ha is partitioned out based on feed use data from the DairyNZ economics team. The gap between the two lines grew steadily from year 2000 onwards.

Climate and other environmental stresses

Future climate projections point to lower summer rainfall totals across Northland, central Waikato, top of the South Island and coastal Canterbury, but higher summer totals in Taranaki, lower North Island and Southland.

The frequency of extreme summer temperatures is expected to increase across all dairy regions. Projections are variable depending on which Global Climate Model (GCM) is used, what Representative CO_2 Concentration Pathway (RCP) is assumed,

Table 1. Compound annual growth rate* (%) in tonnes of pasture dry matter harvested per hectare per year 2003-2019.[2]

	New Zealand	Victoria	Tasmania	South Africa	Argentina	Uruguay
*CAGR (%)	0.1	0.7	1.3	2.2	0.7	0.2

and the timeframe of interest.

Most GCM x RCP combinations foreshadow higher temperatures, especially in summer. This may favour pasture growth in regions where higher summer rainfall is possible but exacerbate summer moisture deficits in regions where summer rainfall is expected to decrease.

Figure 4 illustrates the potential consequences for perennial ryegrass pasture growth in regions exposed to the combined effects of temperature and rainfall stresses such as Northland and central Waikato. Using the Pasture Growth Forecaster tool, the graph presents modelled pasture growth totals from December to April inclusive, based on 1977 to 2016 actual climate data for Morrinsville.

Five of the 10 years spanning 2006/07 to 2015/16 delivered significant summer-autumn moisture deficits, starting in 2007/08 and culminating in four successive dry years where December/April growth was reduced by between 3500kg and 5000kg DM/ha. The latter trend has continued in recent years, notably in the extremely dry summer-autumn of 2019/20.

Where to from here?

The challenge for the industry is to move the blue line in *Figure 3b* upwards. There are good prospects for achieving this. For example, one recent report suggests perennial ryegrass plant breeding has been delivering genetic gain in DM yield of ~ 0.76% per year of breeding effort since 1990.[4]

Had that increase been realised on-farm consistently since 2004, then PE in 2019/20 should be > 12.5t DM/ha allowing for 80% utilisation of pasture grown. That would represent 1.4t DM/ha more than the actual national average of 11.1t DM/ha PE. This has not eventuated.

Had it done so, it could have provided most of the additional 1.7t DM/ha of other feed sources which helped fuel the national drive for higher production *(Figure 3a)*. Genetic improvement on-farm is definitely one of the tools we can use to 'unflatten' the curve; this requires increased farmer confidence in the value being delivered by breeding.

Figure 2. Changes in N fertiliser use in the New Zealand pastoral sector

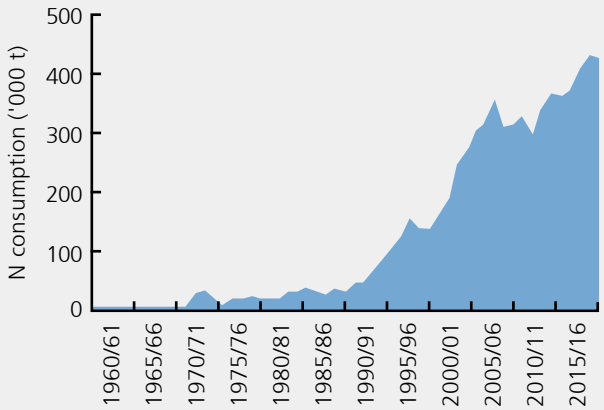
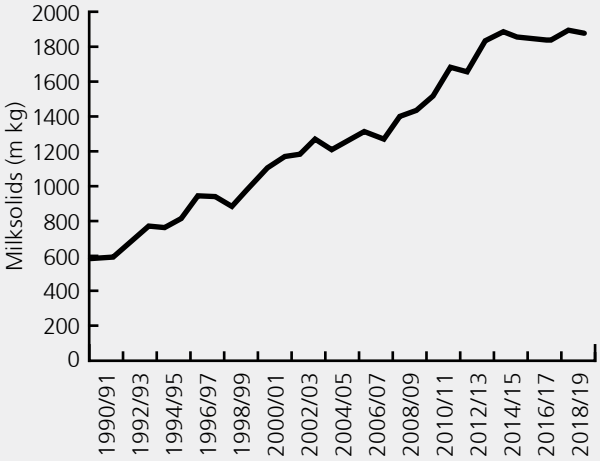
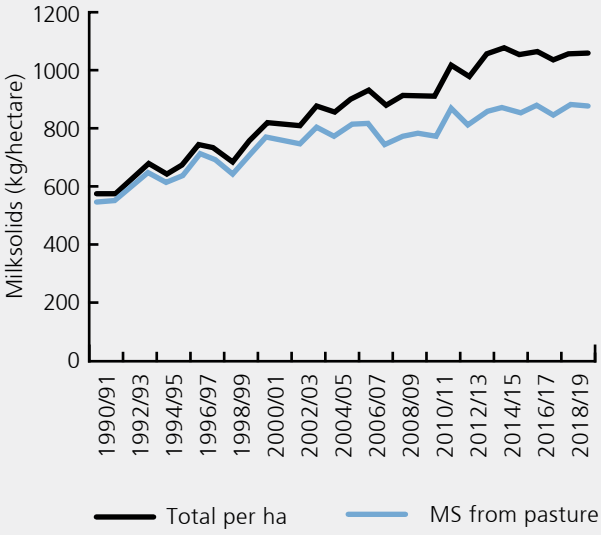


Figure 3. New Zealand milksolids production 1990-2019

a) total industry



b) average per hectare



Likewise, we haven't made much progress in identifying the best future forage systems for climates that will become more hostile for ryegrass growth in the future. New forage system management practices and technology will be important for helping the top 10% PE farmers lift their pasture productivity and reset the bar for the sector. This might require lifting the foot off the grazing pressure pedal at times to allow ryegrass to rebuild populations through tillering and/or natural re-seeding.

There are other perennial grass species better adapted to heat and drought (e.g. tall fescue, cocksfoot), and persistent (self-regenerating) annual legumes, that could work but aren't yet gaining farmer confidence. C_4 grasses should also be re-visited. All will involve some trade-offs between the needs of the plant and needs of the animal, which haven't yet been demonstrated.

Importantly, the effort devoted to extending the principles

and practices for increasing pasture harvest through monitoring, good execution of grazing management, fertiliser use and so on will need to continue.

The good news is that farmers are clearly receptive to the idea that they have scope to increase PE. In a survey conducted in spring 2014 (Sean McCarthy, Chris Glassey, unpublished), more than 60% of 520 DairyNZ discussion group respondents either 'agreed' or 'strongly agreed' there was room to increase PE on their farms. Less than 15% 'disagreed' or 'strongly disagreed' with the idea, and 25% were 'undecided'. This indicates that ~ 85% of farmers are ready to be convinced and/or supported to improve pasture performance.

References

[1] Chapman, D., I. Williams, and C. Lewis. 2020. Productivity of New Zealand dairy pastures – recent trends and future prospects. The Journal (September 2020). New Zealand Institute of Primary Industry Management.

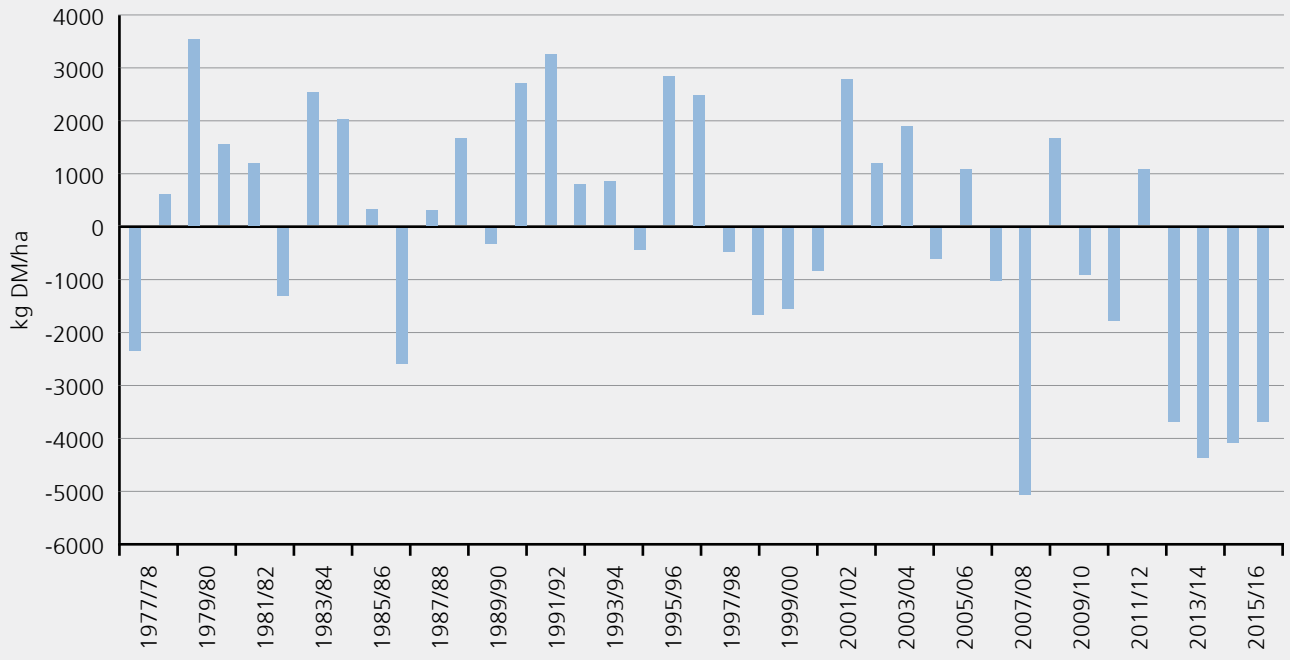
[2] Beca, D. 2020. Evaluating the loss of profitability and declining milk production in the Australian dairy industry. Australasian Agribusiness Perspectives 23: Paper 9. ISSN: 2209-6612.

[3] Moot, D. 2019. Overcoming the weakest link in pastoral farming – a lack of nitrogen. The Journal (No. 1) 23: 12-18. New Zealand Institute of Primary Industry Management.

[4] Harmer, M. J., A. V. Stewart, and D. R. Woodfield. 2016. Genetic gain in perennial ryegrass forage yield in Australia and New Zealand. Journal of New Zealand Grasslands 78: 133-138.

Summers are expected to become hotter and drier across many of New Zealand's dairy regions, as a result of climate change.

Figure 4. Difference (from the 30-year average) in total pasture growth from December to April inclusive at Morrinsville, Waikato.



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Merry Christmas

from all of us at DairyNZ

Wishing you all a safe, healthy and happy holiday season

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