

October | November 2020

# Inside Dairy

Your levy in action

**POSTER  
ENCLOSED**

Your step-by-step  
guide to using  
MaxT

# MAXT

Making milking fun again

**PASTURE  
DEFERRAL**

Feeding a spring  
surplus in-situ

**BUSTING MYTHS**  
about milking to time

**DairyNZ** 



## over the fence...

As we head into October, things are back in full swing with herds in the shed and mating underway.

This month's *Inside Dairy* is all about milking. In particular, we look at how the maximum milking time (MaxT) strategy helps to improve efficiency in the dairy, not only shaving off time, but also leading to happier people and cows.

It's worth investing time into streamlining your systems in the dairy. MaxT is a proven strategy for this, originating from a farmer problem that DairyNZ researched and trialled with farmers. Hear what other farmers have to say about MaxT in this month's articles.

Many of you will be getting your heads around the new freshwater regulations. These rule changes have different impacts across the country, depending on your catchment and farm system. DairyNZ supports the intent of the regulations: to improve our waterways. We were supportive of some aspects, such as farm environment plans, but believe there are still some significant issues to work through.

Like many groups, DairyNZ strongly advocated against a number of the proposed freshwater rules, but we couldn't reach agreement with the Government on everything. We continue to champion an evidence-based, pragmatic policy that meets water quality aspirations in a fair, efficient way. We'll keep communicating with you on this issue, and regularly updating our website – [dairynz.co.nz/freshwater](http://dairynz.co.nz/freshwater)

This month, we're inviting farmers to vote for two candidates to join DairyNZ's Board of Directors. Our Board plays an important role in setting our strategy and deciding research investment priorities, so we encourage you to have your say on who will represent you. See the candidate profiles on page two. Voting is both online and by mail, closing 20 October. If you haven't received a voting pack in the mail yet, call the election helpline on 0800 666 946. (Note: we're also seeking applications for two associate directors – see page 22 for details.)

Finally, our AGM is on this month in Ashburton. We're keen for you to join us to learn about the work we've completed over the past year, and our plans. The AGM is at the Hotel Ashburton, 21 October, starting at 6.30pm. Please drop me a line if you have any feedback – [tim.mackle@ceo.dairynz.co.nz](mailto:tim.mackle@ceo.dairynz.co.nz)

**Tim Mackle**  
Chief executive  
DairyNZ



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On the cover: Bay of Plenty farmer Gordon McFetridge says milking has become easier, more efficient and fun again since he and his team started milking to a maximum time.

# TAKE 5... TIPS FOR FARMERS

**1. Freshwater regulations**  
Head to [dairynz.co.nz/freshwater](http://dairynz.co.nz/freshwater) for info on what the new freshwater rules mean in your region, and how you can get support. Meanwhile, DairyNZ continues to raise concerns on farmers' behalf around implementation practicality. We're working with regional councils and government agencies to resolve these issues.



**2. Weaned calves to grazing**  
Selling weaned calves or sending them to grazing? Make sure they're tagged and registered in NAIT, and record the movement within 48 hours. This ensures they can be easily traced, just like contact tracing for COVID-19.

**3. Save time at milking**



Did you know that up to 55% of your time is spent in the milking dairy? Use the Milksmart app to find out how much time you're spending, and how much time you can save, by benchmarking your milking performance. Go to [dairynz.co.nz/milking-app](http://dairynz.co.nz/milking-app)

**4. Heating up mating**  
Monitor your heat detection performance during mating. If there are any concerns, consider adding a fresh heat detection aid to the whole herd anytime during the mating period. A little proactivity can go a long way. Find out more about creating a heat detection strategy – [dairynz.co.nz/heat-detection-strategy](http://dairynz.co.nz/heat-detection-strategy)

**5. Entering your bubble**



One way to minimise on-farm biosecurity risks is to keep everyone's boots clean. Ensure all farm visitors wash and disinfect their boots on arrival. Watch the 'how to' video at [dairynz.co.nz/visitor-management](http://dairynz.co.nz/visitor-management)

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### We appreciate your feedback

Email [insidedairy@dairynz.co.nz](mailto:insidedairy@dairynz.co.nz) or call us on 0800 4 DairyNZ (0800 4 324 7969). Alternatively, post to: Inside Dairy, Private Bag 3221, Hamilton 3240. For information on DairyNZ visit [dairynz.co.nz](http://dairynz.co.nz).



# Vote now for DairyNZ directors

Your vote could make the difference, so don't miss out on having your say on who will represent you.

DairyNZ is inviting farmers to vote by 20 October for two candidates in this year's Board of Directors election. The successful candidates will play a key role in supporting DairyNZ's governance and leadership. Hear from the three farmer candidates below.

## Colin Glass

"It is my privilege to seek re-election to the DairyNZ Board for a further term. My experience:

- Dairy Holdings CEO since 2001
- dairy and dairy-beef farmer
- governance – irrigation and agribusiness companies
- fellow chartered accountant
- Young Farmers – UK exchangee, contest – runner up, practical winner.

"We are confronted by change as new regulation and legislation comes into effect. This requires:

- profitable businesses
- a proud industry
- a toolbox supported by robust science and strong advocacy
- leadership.

"I am committed to our future."



## Cole Groves

"Dairy farming and the industry is my passion, having progressed through the industry over the last 12 years and building my governance experience including the Associate Director role in 2018 with DairyNZ, it is now time for a fresh perspective around the Board table.

"Our industry is facing significant challenges and the role of DairyNZ is vital as long as we deliver on the levy investment our farmers make and build trust at the same time."



## Jim van der Poel

"I am putting myself up for re-election as I believe that I can continue to play a critical role helping dairy farmers and DairyNZ navigate through these changing times. New Zealand dairy farmers are leaders in on-farm production systems.

"The key for us at DairyNZ to help farmers include new standards into their farming systems and to work with central and local government to make sure these are science-based and practical to implement."



## How to vote

All levy-payers should have received a voting pack in the mail. You can vote online or by postal vote. If you have queries or haven't received a pack, please contact the election helpline on 0800 666 946.

## Join us at our AGM

Farmers are invited to attend our upcoming AGM to hear about DairyNZ's highlights over the past year, our key research projects and investments, future priorities, and to vote on resolutions. Successful Board candidates will also be announced at the meeting.

**When:** Wednesday, 21 October. Refreshments will be available from 6pm and the AGM starts at 6.30pm.

**Where:** Hotel Ashburton, Racecourse Road, Ashburton.

## Directors' Remuneration Committee

DairyNZ also invited nominations for one vacancy on its Directors' Remuneration Committee, which reviews directors' payments. We received one nomination, and Shirley Trumper of Rotorua has been elected unopposed.

To learn more about the candidates, go to [dairynz.co.nz/agm](https://dairynz.co.nz/agm)



# It's about time

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Frustrated that milking wasn't more enjoyable for his team, Bay of Plenty farmer Gordon McFetridge decided it was high time to seek help from milking expert Josh Wheeler. Several changes, including adopting the MaxT (maximum milking time) strategy, are starting to make a big difference for both people and cows.



“A bit all over the place” is how Gordon McFetridge describes the milking routines on his farms until about a year ago.

The McFetridge family – parents Dennis and Judith, with son Gordon and wife Kate – run two farms in Omanawa, Tauranga. A mature herd is milked in a 20-aside herringbone twice a day (TAD), while a young herd of mainly two- to three-year-olds is milked in a 14-aside herringbone once a day (OAD) on the other farm, 5km away.

Gordon says that by late 2019, he’d become bothered by the different milking practices, cow behaviour issues, and staff complaining about slow-milking cows. It was time for a change.

“We have three or four people, including me, who milk. With the mature herd, probably two-thirds of the milk was being harvested in the morning because of our eight-hour and 16-hour milking interval [hours between milkings], and milking was taking a long time,” he says.

“The milking routine got quite messy because we were jumping around the pit looking for cows to change cups on, so we never knew where we were. We all wanted to milk the cows out completely as well, because that was our mindset. That’s why I decided to get in touch with Josh [Wheeler].”

Previously, Gordon had changed the milking interval on the mature-cow farm from 10 hours between the morning and afternoon milkings, and 14 hours between the afternoon and morning milkings, to an eight-hour and 16-hour TAD interval. His aim was to have his people home at a reasonable hour in the



The McFetridges have been farming in the Kaimai Ranges for three generations. Gordon came home to work alongside his father Dennis in 2009, after five years in the rural banking industry.

evenings during spring. It worked well, with the team getting home between 4.30pm and 5pm, but it meant more milk needed to be harvested in the morning, making that a slower milking.

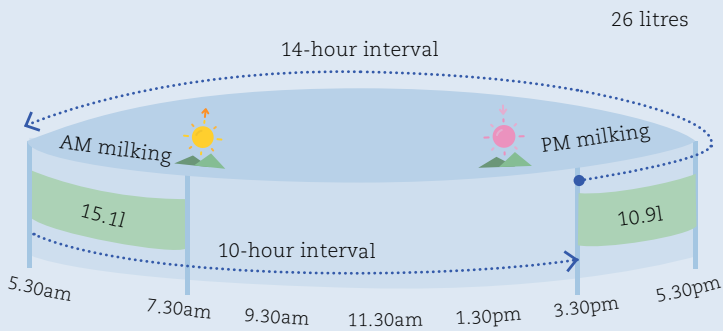
### Slow milkers or slow machine?

Josh Wheeler from QCONZ is a recognised milking expert and DairyNZ Milksmart consultant. After receiving the call from Gordon, he visited McFetridge Farms in February 2020.

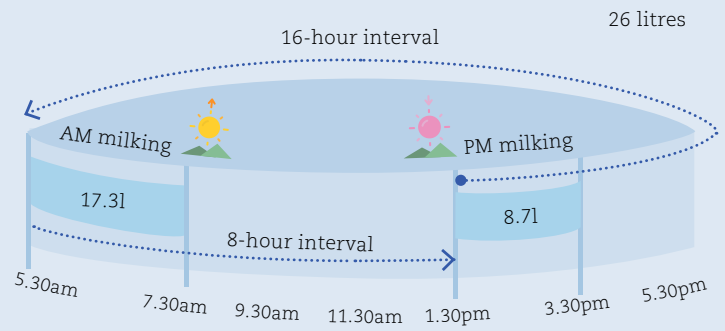
“The McFetridges have a high-genetic-worth herd, bred for milking, but when I got involved, 15 to 20 cows were labelled ‘slow milkers’. And because of the change in the mature cows’ milking interval, there was a lot of milk to harvest in the morning

## Volumes at peak milk production

### Previous



### Current



Changing from a 10/14 hour milking interval to 8/16 hour meant there was a larger volume of milk to harvest in the morning milking at peak lactation.

and the milkers were getting frustrated with slow-milking cows. That was driving illogical thinking and routines,” says Josh.

“Everyone had a different point at which they’d take the cups off and this led to varied row times and a lot of walking during milking to remove the cups from the slow cows.”

It wasn’t all a people problem, as Gordon had suspected. Fairly quickly, Josh figured out the milking machine was harvesting very slowly, and part of the problem with the ‘slow milkers’ was the significant difference in pulsation ratio between bails. Some pulsators were milking 10% slower than others.

### Quickening the pulse

Josh suggested to Gordon that, by implementing a MaxT milking routine, he’d be able to increase the pulsation ratio to milk out the cows more quickly.

“I explained that if he used MaxT, each row would have a set maximum milking time. Therefore, the risk of teat damage during low milk flow caused by the greater pulsation ratio would be negated,” says Josh.

Once Josh suggested the change to the pulsators, Gordon spent \$500 to replace worn parts and increased the pulsation ratio from what was meant to be 60:40 (but was probably more like 55:45) to 65:35.

These changes have resulted in a consistent milk-out speed across all pulsators, which is 8% to 16% faster, depending on the initial pulsator performance. (Josh suggests consulting your milking machine technician before changing the pulsation ratio.)

Gordon says that during peak milk last spring, they were under a lot of pressure at the morning milking because the farm was first on the artificial breeding (AB) run. So, having the milking machine operating more efficiently would be a big time-saver.

“We were starting really early to get all the milk out and draft



*The timer was set at six minutes for each row in autumn, but it's now at eight to 8.5 minutes for spring milking.*



*Milking by time means everyone finishes at the same time, no matter who's milking. Pictured is farm manager Dayne Blair.*

the cows for AB, whereas in the afternoon, they flew through, so that’s when Josh suggested implementing MaxT.”

Josh says the other problem to overcome was the team’s inconsistency around when to end milking.

“We needed the milkers to slow down a bit and allow the cows time to milk, rather than jumping up and down the row changing cows that had finished, and machine-stripping cows that hadn’t.”

## What is MaxT?

The MaxT (maximum milking time) strategy involves milking cows to a pre-determined end point, normally based on time. The idea is to estimate when about 80% of your cows have completed milking and to remove the clusters from all your cows at this time. This can increase the number of cows milked per hour, without changing infrastructure, affecting milk production or udder health.

Further details at  
[dairynz.co.nz/maxt-herringbone](https://dairynz.co.nz/maxt-herringbone)  
or [dairynz.co.nz/maxt-rotary](https://dairynz.co.nz/maxt-rotary)



*Milking consultant Josh Wheeler (right) says MaxT's farmer uptake is on the rise.*



“We spend less time in the shed, making for happier people and cows.”

### Less walking, less waiting

Josh and the team implemented MaxT in March, and they installed a timer in the dairy. The strategy Josh recommended was to set the same MaxT time – based on the expected morning milk production – at both the morning and afternoon milkings. The target was to shorten the slowest 20% of cows at the morning milking, then fully milk them out at the afternoon milking.

“The real pressure on milking times was during peak milk, so by implementing MaxT during the autumn, we planned to have the team up to speed on the milking routine for peak milk,” says Josh.

Gordon says the milkers didn’t know how much time they were spending, so everyone was changing cups at different times. They felt under time pressure and their frustrations were causing the animals to become agitated.

“We really didn’t understand the problem until Josh explained it.”

Once MaxT was implemented and each row was milked based on a set time period, everyone could slow down and take a breath. They no longer needed to make decisions about when to end milking – the timer told them.

“Before we had the timer, milkers were rushing around, chasing the last drop of milk out of every slow cow, holding up the entire row. In a herringbone, without a timer, the milkers had no idea how long they were taking on each row,” says Gordon.

Josh says the first cow in the row was used to set the row’s



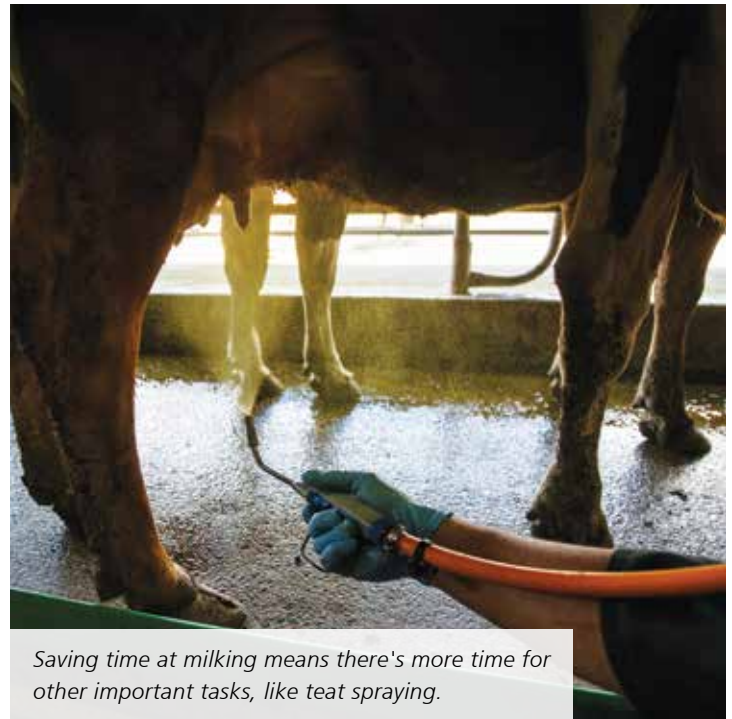
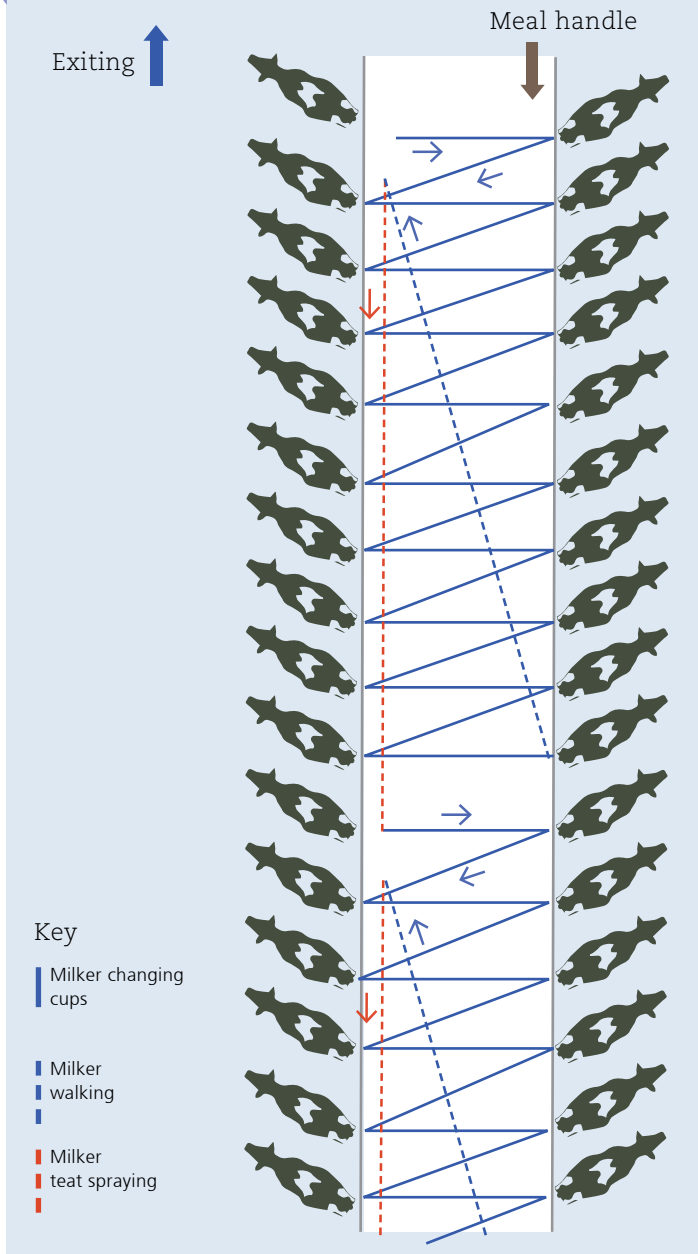
*Using MaxT hasn’t affected milk production at McFetridge Farms.*

milking time, and the timer was activated as that cow was cupped. During autumn, with the lower milk production, the MaxT time was six minutes – each row was given this amount of time to milk.

Instantly, milking became easier for the team, as they now spent less time walking and waiting for slow cows, reducing time



## McFetridges' new milking routine



in the dairy.

Another notable change was that all the waiting time was now at the front of the dairy; they were typically back at the first cow with up to three minutes' wait. This meant the milkers could give cows time to exit and enter without rushing them, as they knew they had time.

### No second-guessing

Rob Acunin, who generally milks the young herd in the morning and milks the mature herd when needed in the afternoon, says MaxT has been good for cows and people.

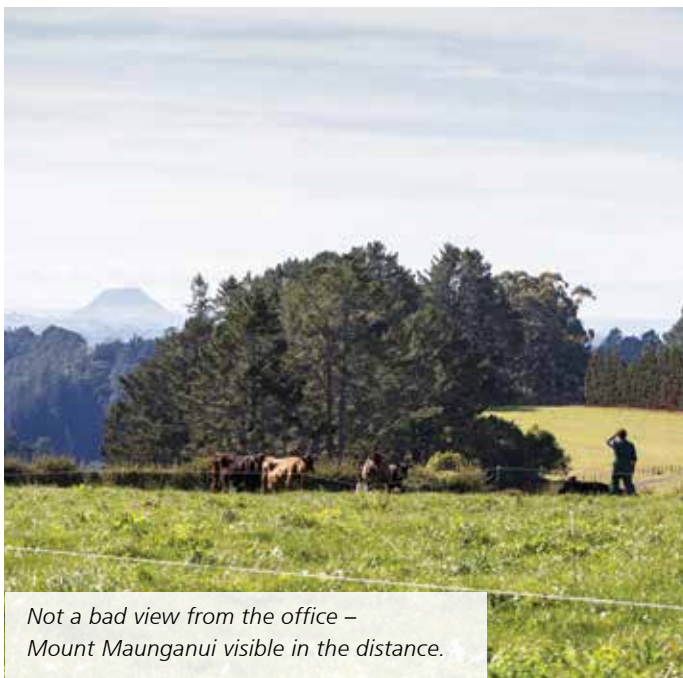
"Waiting for cows to finish milking is a bit like waiting for someone to arrive when you don't know what time they're coming. Because of the timer, we don't have to wait for slow cows to finish and we're not walking backwards and forwards. You can check the time, get the teat spray on and still have time

to wait. It's much better – MaxT has made milking easier, more efficient and fun again."

Everyone in the team was involved in deciding on the new routine and how each milking task should be completed with the MaxT milking strategy. They trialed the new strategy from March 2020 until the end of the season, to ensure the system was ready to go this spring.

Gordon says once they'd implemented MaxT in the autumn, they were milking 180 cows/hour with no variation between milkers. Previously, it was about 140 to 150 cows/hour but could vary depending on who was milking.

"We're aiming for 130 to 150 cows/hour during peak milking, compared to the previous 110 to 120, and to have the morning milking completed in two hours or less. In the past, milking was taking up to or over 2.5 hours in the morning during peak," says Gordon.



Not a bad view from the office – Mount Maunganui visible in the distance.



Assistant farm manager (on the 'Lower Farm') Rob Acunin says MaxT has been good for cows and people.

### Backing off the chase

The team also learnt that leaving milk behind doesn't cause mastitis. "That was a shift in our mindset," says Gordon.

Josh showed them DairyNZ's animation on how the udder works. "They learnt that if there was more milk in the cistern, the cows milked faster at the next milking. So, they now know they don't have to chase every last drop of milk," says Josh. "I also explained that it's good practice to have control of your bulk tank SCC prior to implementing MaxT."

Dayne Blair, who milks the mature herd, says he's stopped looking out for slow milkers, and instead now focuses on the timer to decide when to end milking.

"After a while, you don't notice the slow ones and you don't have to stress about milking the cows right out. It helps that we're all on the same page. It's way easier to stick to a time and know that it's not necessary to milk cows until their udders are pancakes."

### Time for teats

Another frustration for Gordon was teat spraying not being done well, which MaxT has helped them to remedy.

"Previously, our teat spraying was a bit slap-happy as everyone was rushing putting it on. With the new routine, we know the time and have more time to focus on teat spraying instead of waiting for slow cows. Everyone's doing a better job. It was one of the key things we wanted to get better at."

### Spring routine

This spring, MaxT times will target eight to 8.5 minutes each row at AM and PM milkings, depending on peak production. The herd typically peaks at 26L/cow, so the MaxT time will be recalculated weekly as the cows head towards peak milk. The MaxT times will then be used to set the row time.

Gordon is also expecting his cows to be milking faster due to the better pulsation consistency between bails and the slightly higher pulsation ratio.

"We'll have no slow cows marked because all cows will be given the same milking time," says Josh. "We'll be monitoring

MaxT times as we go because we're aiming to shorten 20% of the cows in the morning, and if we're not doing that, we can speed up the time. If we're shortening more than 20%, we'll slow down the time."

For Gordon, milking by time means everyone finishes at the same time, no matter who's milking.

"In September [2020] we consistently milked 150 cows an hour, and we're shortening 12% of cows in the morning and 3% in the afternoon. Our SCC is sitting between 90,000 and 125,000. With an efficient routine, we have a lot more time (about three minutes a row) to focus on things like pre-mating heats," he says.

"We spend less time in the shed, making for happier people and cows. MaxT has made milking more enjoyable."

Learn more about MaxT at [dairynz.co.nz/maxt-herringbone](https://dairynz.co.nz/maxt-herringbone) or [dairynz.co.nz/maxt-rotary](https://dairynz.co.nz/maxt-rotary)



## Farm Facts

**McFetridge Farms**

**OWNERS:** Dennis & Judith, Gordon & Kate

**LOCATION:** Omanawa, Tauranga

**SIZE:** 70ha (effective) for the mature herd

**BREED:** Jersey/Jersey-Friesian-cross

**FARM:** 260 mature cows (four years plus)

**FARM SYSTEM:** 3-4

**PRODUCTION:** 110-120,000kg MS/year

# Tried, true and coming to you

**New farming practices that've passed the test in Canterbury are now being made available to all dairy farmers around the country.**

One of DairyNZ's key projects right now is called Step Change. It aims to help dairy farmers achieve financial gains, while making progress towards their environmental goals and adapting to pending regulations.

We've already worked with farmers in some regions to achieve these goals. Now, through Step Change, we'll be taking these lessons wider, testing them with farmers around the country.

## Head start in Canterbury

Since 2018, 50 dairy farms in Canterbury's Selwyn and Hinds catchments have been taking part in a five-year DairyNZ project that's influencing change on hundreds of farms in the region.

Under targets set by the Canterbury Regional Council, farmers in Selwyn need to reduce their nitrogen (N) losses by 30% by 2022; in Hinds, staged targets require reductions of 15% by 2025 and 36% by 2035.

Along with the 50 partner farms, 210 dairy operations (out of 460) in both the Selwyn and Hinds catchments have been surveyed, and almost all have adapted their farming practices.

Virginia Serra, DairyNZ's new systems co-development lead, says many of the changes made by Canterbury farmers are relevant to farmers in other parts of the country.

"The most common actions farmers reported included improving effluent systems (90%) and reducing N-fertiliser use (80%)," says Virginia.

"Reducing N losses isn't easy but this project shows it is possible – and there are a number of options available. There is a huge commitment by farmers to make changes and they're also willing to share what they have learnt in order to help others like in the Hinds and Selwyn Project."

## Top tips for low-N fertiliser use

Here's an example of how some farmers in the Selwyn and Hinds catchments have reduced their N-fertiliser use:

1. Lowering application rates to no more than 40kg N/ha in early spring and then to 0.8kg N/ha per day of round length.
2. Optimising conditions for clover growth, ensuring good soil fertility (pH, P, K and Mo) and grazing management to avoid shading of clover.



*Nick Hoogeveen speaks to local farmers during a field day about how he's reducing N losses on his farm near Hinds.*

3. Skipping a few paddocks from routine applications when pasture growth rates are high and silage making is not wanted/needed.

For more top tips, visit [dairynz.co.nz/stepchange](https://dairynz.co.nz/stepchange)

## What's next?

DairyNZ consulting officers are now using information from the Hinds and Selwyn Project, and other similar projects, to help farmers start adapting their farm systems to make early progress. Give your CO a call today if you'd like to discuss making similar changes. Find your local CO's contact details on page 24, or at [dairynz.co.nz/CO](https://dairynz.co.nz/CO)

# Benefits from top to bottom

Late last season, Dairy Holdings began adopting the MaxT milking approach across its farm portfolio. Already, the company's seeing multiple benefits at all levels of the business.

"It's a no brainer."

That's what Dairy Holdings Limited (DHL) chief operating officer Blair Robinson thought when he first heard about the MaxT (maximum milking time) approach to milking efficiency.

It wasn't only the time savings and associated benefits for people and cows that captured Blair's enthusiasm, though – it was MaxT's ability to be adapted to farms of all sizes and setups, without major expense.

"Milksmart MaxT fits the DHL Strategy to focus on its people's training, upskilling and growth through the application of simple repeatable processes to deliver efficient results at scale," says Blair.

DHL's head office is based in Ashburton. Together, its 60 pasture-based farms produce 17 million kg MS/year from 50,000 milking cows, with most supplying Fonterra.

"Our largest farm has 1450 cows with a 50-bail rotary, down to a farm with 380 cows using a herringbone shed," Blair says. "The principles of MaxT can be applied to them all."

## Maxing up on MaxT

Blair says that, before last season, Dairy Holdings had the odd operator doing MaxT to a certain degree, but it certainly wasn't consistent across the business. After attending a DairyNZ Milksmart field day featuring QCONZ consultant Josh Wheeler,

**"Right away, cow flow into and out of the shed – especially into it – improved massively."**

Dairy Holdings held their own field days for staff, extending invites to surrounding farmers too.

"It's early days yet," says Blair, "but I'm hoping MaxT will gain on average a half-hour saving on each milking across our 60 farms, over 270 days in milk. That will also lead to happier people and healthier cows – and help us and the sector attract and retain people, for little or no cost.

"However, if the sole benefit out of doing this is giving more time back to our people, then that's enough for us to try MaxT. Everything on top of that is just a bonus."

## Powerful outcomes

Mick O'Connor, a supervisor for DHL since 2014, oversees 14



*DHL's COO Blair Robinson is impressed by MaxT's adaptability and low cost.*



*DHL farm supervisor Mick O'Connor says MaxT is "a good system with a pile of science behind it".*

farms in mid-Canterbury (10 contract milkers, two sharemilkers and two managers).

"I can't really see any negatives from using MaxT, including on somatic cell counts (SCC) or production," says Mick. "It's a good system with a pile of science behind it, which gets you thinking about efficiencies across the whole farm system."

Initially, Mick's group of contractors were 50/50 on the idea of MaxT. Then they saw others benefitting from it.

"One guy with 950 cows and a 48-bail rotary had a big power



DHL contract milker Aidan O’Leary (right, with Mick O’Connor) says MaxT is “a win-win for man and beast, which is always nice”.

bill. We told him MaxT would save him time and money. He ummed and aaahed. We said, ‘ok then, keep the \$40,000 power bill’. He really wanted to sort that bill though, so he gave it a go. He saved three hours a day, and around \$12,000 on the bill too. Also, SCCs sitting around 270 dropped down to around 150.”

### Far from lame results

Aidan O’Leary is on his fourth season contract milking for DHL, supervised by Mick O’Connor. Aidan’s team is peak milking 1380 Kiwi-cross cows (in four herds) using a 56-bail rotary with no in-shed technology, which Aidan says hasn’t been a limiting factor.

“We had zero change to production and to SCC. Right away, cow flow into and out of the shed – especially into it – improved massively. Milking times were much shorter. We’re able to milk more cows per person per hour. There’s less shed time for people and the cows, and more time in the paddock for cows to eat grass.

“We’ve had a big improvement in cows’ teat condition and a drop in mastitis. We also reduced last season’s 10% lameness down to 2.5%.”

### ‘Win-win’ for staff and cows

Aidan says MaxT has been a win for the business due to lower shed-running costs, and for efficiency, giving more time back to his team.

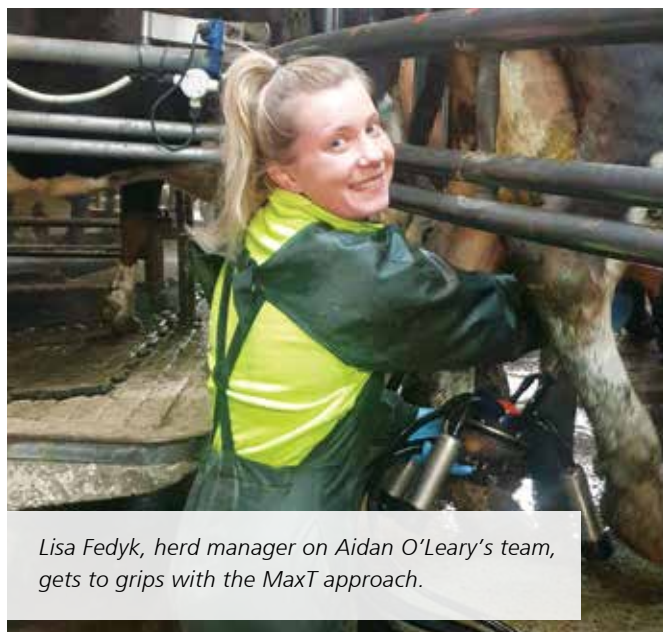
“It’s also a win for the cows, because if cow flow improves and milking times decrease, they’re back in the paddock, they’re happy, their teat condition is better, they’re getting lame less.

“It’s a win-win for man and beast, which is always nice.”

### Milking changes across DHL's farms



- Used MaxT to standardise milking start and finish times.
- Improved cow flow using markers to indicate backing gate use.
- Put up panels to guide cows into the dairy and minimise distractions.
- Adjusted pulsation rates (e.g. to 70:30), platform speeds and clusters used.
- Used cup liners to reduce ‘teat slip’ (front teats/ square; back teats/round).
- Identified better cupping techniques and when to get the cups off early.



Lisa Fedyk, herd manager on Aidan O’Leary’s team, gets to grips with the MaxT approach.

Have a go at implementing MaxT yourself. Check out our step-by-step guide and download our Milksmart app for help calculating your MaxT time at [dairynz.co.nz/milking](http://dairynz.co.nz/milking)



## Busting common MaxT myths



Maximum milking time (MaxT) is a strategy backed by research and farmer experience, but a handful of persistent myths continue to prevent some from giving it a go.

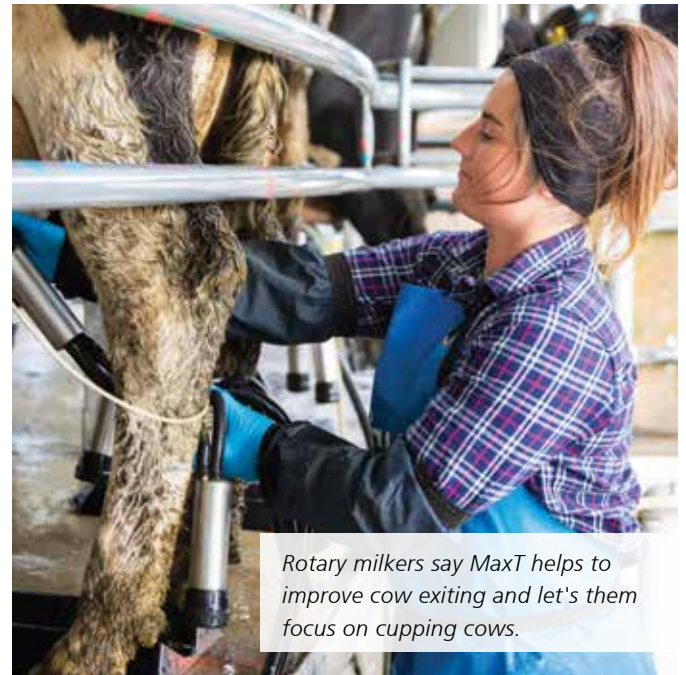
### MaxT sounds too complicated

Farmers who've adopted MaxT tell us that it simplifies the milking routine. The most complicated part is calculating the maximum milking time (MaxT), which is based on how long it will take 80% of your cows to finish milking. When implementing for the first time, MaxT is typically applied at the morning (highest volume) milking. Calculate your MaxT time with the DairyNZ Milking App (Apple App store and Google Play store).

**Herringbone:** the time begins once the first cow in the row is cupped. Then, cup the rest of the row. Once the MaxT time has passed, take the cups off the first cow and work your way down the row changing clusters, removing cups from all cows.

**Rotary:** the MaxT time is the time taken from cups on to cups off. Once you've set the platform speed to achieve this time, remove the cups from all cows at the end of their first rotation, either with the automatic cluster removers (ACRs) or manually.

Check out the poster included with this edition of *Inside Dairy* for step-by-step details on how to implement MaxT in both a herringbone and rotary.



*Rotary milkers say MaxT helps to improve cow exiting and let's them focus on cupping cows.*

### I can't do MaxT because I can't work any faster

MaxT doesn't mean you have to work faster. In most cases, you'll be working at the same speed or more slowly.

**Herringbone:** milkers who use MaxT say it provides a logical milking routine and less walking back and forward to deal with slow-milking cows. This allows for a longer break at the front of the pit while waiting for the MaxT time to elapse.

**Rotary:** the platform speed is set to ensure about 80% of cows complete milking before the cups-off position. Milkers say cow exiting improves and they can focus on cupping cows.

### I can't manage my in-shed feeding

Meal feeding generally shouldn't be a barrier to implementing MaxT. At peak milk, the full row/rotation time is likely to be between eight and 10 minutes, which should provide plenty of time for cows to finish their food ration. Farmers have found that, by implementing MaxT on rotary dairies with feeding meal, cow flow actually improves. The cows get used to exiting at the end of one rotation and there aren't as many free-riders.



*In general, meal feeding shouldn't be a barrier to implementing MaxT.*



*Contrary to common myths, using MaxT and leaving milk behind in the udder has no negative effects on milk quality, milk production or somatic cell counts.*

### I can't do it with my ACRs

ACRs make implementing MaxT simple. For most devices, this is achieved by setting the 'Maximum Time' setting or 'Point Take-off' setting (for rotaries) in the ACR to achieve the desired MaxT time (some models might need a modification from a service provider).

Another way is to lift the ACR low-flow threshold (similar to MaxT). For a rotary with one operator, set the platform speed to provide the required MaxT time between the cups-on and cups-off position, so more cows complete milking by the end of one rotation. Keep adjusting the low-flow threshold until you reach your desired balance.

### I can't adjust pulsation ratios when doing MaxT

Increasing pulsation ratio is a good strategy to reduce milking time in situations where the risk of overmilking is low – such as when using MaxT. Increasing the pulsation ratio will mean fewer cows are shortened than the estimated 20% for a given MaxT time. A key requirement when doing this is to achieve a d-phase of  $\geq 20\%$ .

- Set your pulsation ratio at 70:30 and pulsation rate at 55ppm if you have ACRs and are doing MaxT.
- Otherwise, set the ratio to 65:35 and rate to 60ppm if you are doing MaxT without ACRs.

Consult your milking machine technician to assist with changing your pulsation ratio.

### MaxT will cause mastitis

No research or field study over the past 30 years has supported

this theory. In fact, there's a greater risk of mastitis when cows are overmilked at the end of milking. MaxT often results in a better let-down and removal of milk at the next milking for slower milking cows – and reduces overmilking for the rest of the herd.

Research shows that when a 500mL of strip milk is routinely left in the udder after milking, there's no detectable increase in cell counts for both infected and uninfected quarters.

### MaxT will increase my bulk milk SCC

Anecdotally, we know that herds milked using MaxT often see a decrease in somatic cell count (SCC). As mentioned earlier, there's a greater risk of teat congestion, damage and mastitis when cows are overmilked at the end of milking.

### My cows produce too much milk to use MaxT

Research in high-producing overseas systems does not support this theory. The most comparable study was in Denmark, where there was no significant difference in milk production or udder health when the ACR low-flow limit was doubled from 0.2 to 0.4kg/min, and cows were averaging 2.5kg MS/cow/d (32kg milk/cow/day).

### I can't use MaxT unless I'm milking TAD

Although there's been no research yet to specifically test MaxT with milking three times in two days (3-in-2) or once a day (OAD), farmer feedback suggests it can work successfully. DairyNZ is expected to begin an experiment into this in October 2020.

Want to learn more about implementing MaxT in your system? Go to [dairynz.co.nz/maxt-rotary](http://dairynz.co.nz/maxt-rotary) or [dairynz.co.nz/maxt-herringbone](http://dairynz.co.nz/maxt-herringbone)

# A walk through time

Where did the maximum milking time (MaxT) concept come from and what's the research behind it? DairyNZ's Paul Edwards looks back at the origins.



## 1940s

Frank Dodd runs a series of experiments in England aiming to increase peak milk flow rate, one of which includes milking first lactation animals for either four or eight minutes at all milkings, for their entire lactation. Milk yield is not significantly different between the groups.

## 1970s

The use of automatic cluster removers (ACRs) raises fresh questions about which criteria to use to end milking. A low-flow limit of 0.2kg/min or equivalent is established as the norm.



## 2000s

**Using flow rate to determine end of milking is fine if you have ACRs, but what about the 61% of New Zealand dairies that don't have them?**

In Australia, Tim Clarke shows that a maximum milking time (MaxT) can be used successfully to shorten the milking duration of the slowest cows. MaxT can be applied without ACRs. In a subsequent study, he shortens the milking time of cows with infected quarters. He concludes that a milking regime that leaves ~0.5L of strip milk, on average, in the udder does not cause a detectable increase in cell count in either infected or uninfected quarters.

## 2007-2009

MaxT is tested by DairyNZ for the first time. Once again, no differences in milk production or udder health are observed. A milking time of seven minutes and 30 seconds at the AM milking and five minutes and 24 seconds in the PM is used from the start of lactation, with a herd peaking at 23L/cow/day.





## 1990s

Danish researcher Morten Dam Rasmussen concludes that increasing the ACR removal limit from 0.2 to 0.4kg/min reduces machine-on time, improves teat condition and doesn't affect milk yield or composition, or the incidence of mastitis.

## 1999-2018

Rasmussen's work leads to at least a dozen studies in the USA, Australia and NZ, and considerably more if robotic milking systems are included. A range of low-flow limits are evaluated, including up to 1.2kg/min. All reach similar conclusions about the lack of impact on milk production and udder health.

Data from DairyNZ experiments identifies that ending milking earlier increases the milk flow rate at the start of the next milking. This explains how it's possible to reduce milking times without compromising milk production.



## 2010s

### How effective are the different strategies when it comes to saving time at herd level?

DairyNZ research concludes that applying MaxT is more effective at shortening herd milking time than increasing the ACR low-flow limit. This is because applying MaxT eliminates go-around cows in rotaries and simplifies the milking routine in herringbones, where slow-milking cows hold up an entire row.

## Today

Farmers adopting MaxT are finding it's simpler to use the AM MaxT time at the PM milking as well. This gives confidence that most cows are milked out in the afternoon, ensures a consistent routine for staff, and avoids the need for different settings (e.g. ACRs) for each milking.

# Career-changers GoDairy

Logan and Shay de Groot were total townies before they decided to 'GoDairy'. Their early experiences on-farm have shaped the way they now operate as bosses.

Southland-born Logan's dairying journey started nine years ago, after working in hospitality and at the freezing works.

"I always wanted to be a veterinarian – but I didn't enjoy school so it wasn't an option," says Logan. "A dairy farmer friend mentioned I should jump on the Farm Source website and have a look at the jobs on there. I hadn't set foot on a farm before my first day. Now I love what I do."

Seven years ago, Shay started working as an accountant. When she got together with Logan, she continued with that profession, travelling from the farm to work.

"Once we became self-employed, I ended up being more hands-on with the farm, so I dropped back to doing part-time accounting work. It's great that I can do both," she says.

As contract milkers running two farms 15 minutes north of Winton, Logan and Shay love working outdoors, even when the weather's not that great.

"We get to work with cows every day – they're awesome creatures," says Logan. "They have their moments, but they've got some cool characteristics and give you a good laugh at times."

## Learning to be a 'Good Boss'

Observing his early bosses gave Logan a pretty good idea of what not to do: for example, during his first farmbike training session.

"The farmer had me riding up and down this hill. Thankfully, I didn't fall off! I wouldn't teach my staff how to ride a bike that way. You're going to wreck your bike and your staff."

Instead, Logan says he's learned that good communication, making the most out of people's skills, getting together socially with staff, and taking training in small, steady steps, form a much better approach as a boss. "Also, if people make a mistake, be reasonable. Don't rip into them – instead, teach them why the mistake is an issue."

As employers, Logan says he and Shay put a lot of value on trust and work ethic, and that looking after their staff is important. "They're our biggest asset. If we don't have the right people, we can't do what we do."

*Logan and Shay (with Kyla, born in July) love working with cows. "They're awesome creatures!"*



## GODAIRY.CO.NZ

DairyNZ is offering free three-week Farm Ready Training, so visit [dairynz.co.nz/godairy](https://dairynz.co.nz/godairy) if:

- you know of someone who might be interested in a dairy career
- you know of anyone who has recently started working on a dairy farm
- you're a farmer looking to employ a career-changer.

## GOOD BOSS



Being a good boss doesn't require big changes to how you manage your team. Pick up some simple tools and tips at [dairynz.co.nz/goodboss](https://dairynz.co.nz/goodboss)

The van Gools and current sharemilkers Wendy and Tony Roubroeks (with kids Max, Oliver and Lewis) were Fonterra's 2018 Southland Open Gate Farm Day hosts. Photo: Fonterra.



# Due diligence 'cuts both ways'

Cromwell-based Tony and Raewyn van Gool know how important it is for both farm owners and sharemilkers to get their due diligence right before signing on the dotted line.

The van Gools live on their cherry farm at Cromwell and own a farm in the Waituna Catchment, Southland. They're pretty big on 'paying it forward', offering young people a chance to get into sharemilking, just like the van Gools were back in the early 1980s.

## Two-way tactics

The van Gools believe that before signing any sharemilking agreement, farm owners and applicants should carry out due diligence on each other: it's not just a one-way street.

"That's why we offer our applicants a reference from the outgoing sharemilker about us as farm owners and business partners," says Tony. "We ask them for one, so why wouldn't we give them one about us too?"

## Sifting and selecting

Tony and Raewyn discuss what they're looking for very carefully before screening the applicants. Tony sorts them into a five- to six-person shortlist and lets them know he'll be dropping by in the near future.

"I don't always choose the ones at the top of the list," says Tony. "Some of them have got the gift of the gab, but when it comes to the nitty gritty, it's often quite different.

"Before I do the visits, I only give them a couple of hours' notice, so everyone's on a level playing field. No one has time to clean the place up before I get there – although we don't expect young families' houses to be super tidy!"

About four years ago, the van Gools added another step into the selection process.

"We were facing the \$3.90 payout," explains Raewyn. "So, we decided to start asking the shortlisted applicants to do a budget based on a \$4.50 payout, along with a letter of credit support from the bank."

## It's a sign

At sign-up time, the van Gools fill in a Federated Farmers Herd Owning Sharemilking Agreement template, then sit down with the incoming team to discuss any changes needed.

Once the partnership starts, Tony and Raewyn step back. Tony checks daily farm info online, and both make occasional trips to the farm, says Raewyn.

"It's a business relationship first and foremost, but that doesn't mean it can't be a friendly business relationship. You've also got to give them the chance to shine."

For the van Gools, that's the 'cherry on top'.

**"It's a business relationship first and foremost, but that doesn't mean it can't be a friendly business relationship."**

## TIPS TO TICK OFF BEFORE SIGNING

Farm owners, sharemilkers and contract milkers alike should:

- take time to understand what's in the agreement
- know what the agreement requires from them (including roles and responsibilities)
- seek out professional advice.

For more information and tips, visit [dairynz.co.nz/homework](https://dairyNZ.co.nz/homework)



# Don't let lepto make the leap

Internationally, New Zealand has high rates of leptospirosis in people. Here's how you can minimise the risk of you, your family, or your team contracting this animal-borne disease.

Leptospirosis (lepto) in cows can be easily caught by people, who can end up being sick for a very long time. Studies show dairy farmers have a high risk of being hospitalised from lepto, so it's important to know how to stop its spread across cattle and other animals and to humans.

## How is it spread?

Lepto is caused by bacteria that live in the kidneys of animals. It's passed from their urine into the environment, surviving for extended periods in damp soil and spreading rapidly in flood conditions.

People can be infected with lepto by direct or indirect contact with infected animal urine, including contact with damp soil and water. The bacteria get in through the body's mucus membranes or cuts and abrasions.

In New Zealand, domestic and wild animals that host the disease include cattle, sheep, deer, pigs, possums, hedgehogs and rodents.

## Minimising risk

Herd vaccination programmes are effective and crucial to minimise the number of bacteria shed by cattle and reduce environmental contamination – but they don't prevent all strains shed by cattle. That's why minimising people's contact with cattle urine is important, even around vaccinated herds.

Vaccinate your herd (and short-stay beef cattle and breeding bulls) against lepto from as young as possible. Also vaccinate other species, including deer, sheep and dogs.

All people in contact with animals must be aware of the risks and know what to do before entering areas where animal urine exposure might occur.

Those feeling unwell must seek medical help early to prevent long-term health effects, especially if flu-like signs are present.



## LEPTO LOCKDOWN

Use these tips to minimise the risk of lepto affecting you and others on your farm.

- ✓ Keep cuts and abrasions covered.
- ✓ Milkers should wear heavy-duty plastic aprons, rubber boots and gloves to deflect urine splash.
- ✓ Practise good personal hygiene – including washing and drying hands before eating, and not eating, drinking or smoking when working around cattle or in a potentially contaminated environment.
- ✓ Take care with effluent disposal and spray it onto paddocks well in advance of the next planned grazing.
- ✓ Wear gloves when handling aborted material.
- ✓ Control rodents and other wildlife, particularly around stored feed.
- ✓ Don't keep pigs on cattle farms.

Find out more at [dairy.co.nz/lepto](https://dairy.co.nz/lepto)

## Key points

1. Leptospirosis is easy for people to catch from an infected animal and its environment.
2. Dairy cattle host other strains than the ones we vaccinate for.
3. Minimise risk by vaccinating animals, controlling rodents, practising good personal hygiene, using protective equipment, and seeking help early if feeling unwell.



Photo: Walling Contracting Southland Ltd

## Inflating the silage stack

Is it worthwhile applying additional nitrogen (N) fertiliser or feeding palm kernel expeller (PKE) to inflate spring surpluses? DairyNZ's Kieran McCahon explores some potential costs and considerations.



After a challenging summer, many farmers have reflected on the value of homegrown silage to help meet animal demands and manage the Fat Evaluation Index (FEI) during feed deficits. This has reignited questions of whether there's value in using urea or imported feed to inflate pasture surpluses during spring to harvest a greater quantity of pasture silage.

### Cost comparison: urea vs PKE

Actual costs will vary between farms, depending on factors such as pasture management, wastage losses and how the silage is made (e.g. pit vs bale).

N-boosted pit silage may cost around 30c/kg DM, or 2.7c/MJ ME. This assumes a urea price of \$700/t applied (\$1.52/kg N), a response rate of 10kg DM/kg N, and harvesting costs of 12c/kg DM, and accounts for wastage losses during harvesting and ensiling. High rates of N already applied during spring will reduce the potential pasture growth response to additional N, and increase this cost per kg DM. Given impending limits on N use, carefully consider where the greatest value from N could be gained within your system.

In comparison, at a PKE price of \$280/t landed, feeding PKE to create silage may cost between 40 to 60c/kg DM or 3.6 to 5.5c/MJ ME, after accounting for wastage during feeding, feed-out costs (e.g. fuel, repairs, maintenance and depreciation) and further wastage during harvesting and ensiling.

Provided a good response to N can be achieved, at current market prices, N-boosted pasture is likely to be a more cost-effective approach. The cost of PKE would need to be below \$240/t landed, with very good management, to generate silage at a comparable cost.

### Considerations

These costs above should be assessed within your farm system, given your own attitude to risk on:

- market prices (milk, urea, PKE)
- frequency and severity of summer feed deficits, and related contingency plans
- cost of alternatives (e.g. reducing animal demand or the lowest cost alternative supplement to PKE)
- requirements for a protein-dense feed
- effect on cost structure and milk price risk
- N leaching and greenhouse gas emissions.

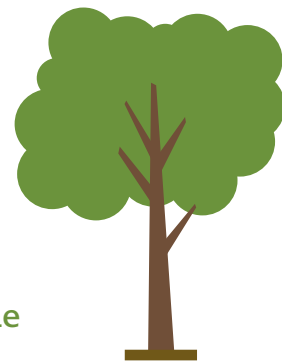
Whichever strategies you employ during spring, pasture surplus management will be critical to your success. Be proactive by identifying surpluses early through regular assessment of your pasture covers and use of a feed wedge. Actively drop paddocks out of the round when an upcoming surplus is identified, and try to consistently achieve your target post-grazing residuals.

Also, remember to communicate with your contractor in advance, as their availability may be challenged this season due to COVID-19.

### Key points

1. N is likely to be more cost-effective than PKE at generating silage, provided you can achieve a good N response.
2. Assess the potential value of additional silage within your own farm system and carefully consider the full costs, market and environmental footprint.
3. Accurate surplus management is key, regardless of your strategy.

# Growing a family legacy



What started with planting some acacia trees 25 years ago has become a multi-generational passion for the Hunt family in Te Awamutu.

“Grandpa was against it at the time; grandma claims she suggested it,” says Sophia Hunt, whose grandparents were the original owners of Ōrākau Dairy in Te Awamutu, Waikato. Sophia now helps farm Ōrākau – a 350-cow operation split into two herds – alongside her parents Rose and Vernon, and sister Margie.

What grandma and grandpa were disputing was Rose and Vernon shutting up a 1.5ha paddock with some mature acacias about 25 years ago, allowing the self-seeded acacias to grow, instead of being nibbled off each time cows grazed the paddock.

The farm had a few stands of mature macrocarpas at the time, planted for timber and used by cows for shade and shelter. But the macrocarpas needed to be milled, and there was concern about the trees causing slips.

So, Rose and Vernon decided to close the acacia paddock and create a new shade and shelter area.

“The paddock was closed to stock for about seven years,” says Rose. “We’d intended to shut it for only five years, but the young trees needed a little longer to establish.”

By shutting the paddock, the seedlings were able to grow into tall trees, creating a shady glade.

## Family tree

Rose and Vernon also planted pin oaks, meaning there are now plenty of trees along races, including ongoing new plantings of pin oaks, kahikatea, blue gum and walnut. It’s fitting that trees are so prominent in their approach because the name of the area, Ōrākau, means ‘place of trees’.

“But you can’t do it all at once,” says Rose, “so we’re fortunate this farm has been in the family this long. And even if we don’t reap the benefits, the next generation will.”

And Sophia is continuing the tradition. “I buy a bunch of trees and think, ‘Where am I going to plant them?’ We’re lucky to have soil that doesn’t allow trees to blow over when it’s windy. We still need more trees, but I’m mindful of gateways, and getting in and out, as well as where roots could potentially block drains.”

Sophia’s latest tree endeavour is to bag up little seedlings growing under the mature oaks, and she’ll plant them elsewhere on the farm in a couple of years’ time. She hopes starting with seedlings that haven’t had the tap root cut, and protecting them as they grow, will produce better shade trees than purchasing large saplings.

*Seeing the wood for the trees: under the watchful eye of Jack, Sophia prepares oak seedlings for planting on the farm that’s been in her family for more than 100 years.*



## Well and watered

These are just some of the many initiatives taken at Ōrākau to keep their cows cool as part of their commitment to animal care on-farm.

“Our motivation is animal wellbeing for the most part,” says Sophia. “We use the acacias on hot days for the second herd because it’s on their way to the dairy.

“We try to keep the cows close to the shed during the day and use the far paddocks at night so cows aren’t using up too much energy during the hotter time of the day.

“It’s uncomfortable for us to see them panting. The flow-on effects of planting trees are happier cows that move a little easier, as they can manage the heat.”

The Hunts allow their cows to move at a “glacial pace” and to take as long as they need drinking before leaving the paddock.

There is a trough at the exit from the dairy, and four big troughs on the races, so cows typically have access to at least two troughs on the way to and from milking. This ensures the animals’ water intake is optimum.

“We all know cows can bully each other in the paddock, so this gives them all a chance to drink,” says Sophia.

All troughs are cleaned every two years.

There have been sprinklers over the yard for 27 years to mitigate heat. “They are very effective. I’m not sure if all the cows like them, but we leave enough space so they can avoid the sprinklers if they want to,” says Sophia.

Sophia would like to make changes to the milking routine in the summer, but for staffing reasons, hasn’t changed the routine yet.

“I would like to try milking earlier in the morning, with the second milking at midday, and put a shade cloth on the feed pad and the back of the yard. I’m very aware of the heat radiating from the concrete onto the cows.”

Download our free guides for planting trees on farms – [dairynz.co.nz/trees](https://dairynz.co.nz/trees)



*The Hunts are taking the long view on shade planting and sustainability.*



*The Hunts describe their acacia glade as a “triple whammy”: it provides shade, feeds the bees, and fixes nitrogen.*



## Hot tips for cool cows

**Sophia’s tips for other farmers wanting to keep their cows comfortable in summer:**

- Make water available in the race and allow the cows time to drink before leaving the paddock – don’t rush them.
- Manage paddock selection to avoid long walks in the heat of the day.
- Misting fans make a huge difference for the cows, as well as helping with flies and making cups easier to clean.
- Try to plant a few trees every year. When planted in the right place at the right time of year, and fenced for protection, you should have a good strike rate.

## DairyNZ seeks associate directors

Dairy farmers with an interest in governance are encouraged to apply for two associate director roles.

The DairyNZ Board roles are a unique opportunity for farmers to contribute to their industry-good body, participate in discussion and debate, and gain experience in a governance role.

The positions are open to current levy-paying farmers who aspire to be leaders in the dairy sector. Associate directors are non-voting roles and are appointed to attend six board meetings: the first role between March and October 2021, the second role between October 2021 and June 2022.

To apply, email  
[kaye.whitfield@dairynz.co.nz](mailto:kaye.whitfield@dairynz.co.nz)

Applications close  
November 5,  
2020, and  
interviews  
will be held  
in early  
December.



## Support for rural employees

**RESH**  
Rural Employee Support Hub

No question is too big or small for the Rural Employee Support Hub (RESH). DairyNZ and partners have launched RESH to give employees the best possible experiences and careers on-farm. RESH has a free and confidential number (0800 694 121) and website to help answer employees' most common questions.

Visit [resh.co.nz](http://resh.co.nz)



## Lift in repro results

New Zealand's dairy sector can be commended for its 2019/20 seasonal efforts, with the national average 6-week in-calf rate rising to 67.8%. This is an increase on 67.5% in the previous season and a continuation of steady improvements since 2015.

Another exciting milestone is achieving the lowest relative not-in-calf rate of 15.6% for the shortest average mating length recorded so far, 10.7 weeks.

The data is drawn from detailed DairyNZ InCalf Fertility Focus Reports. The number of herds analysed has increased over time and was 4430 for the latest season, as more farmers make use of this data.



Learn how to maximise your herd's repro performance – [dairynz.co.nz/repro](http://dairynz.co.nz/repro)

## Findings on flexible milking



DairyNZ researchers are currently investigating the effects of milking three times in two days (3-in-2).

Preliminary results indicate that, for a herd producing 460kg MS/cow on twice-a-day (TAD) milking, switching to 3-in-2 is likely to result in a 0.09kg MS/cow/day decrease. In our farmlet experiment, this equated to a 5% decrease in MS for the full-season 3-in-2 herd, 3% for the herd that switched to 3-in-2 on December 1, and 1% for the herd that switched on March 1. Milking intervals were 10/14 for TAD and 12/18/18 for 3-in-2.

This season we'll be following five farmers using full-season 3-in-2. Head to [dairynz.co.nz/3in2](http://dairynz.co.nz/3in2) to find out more.

## M. bovis on track for eradication



A collective effort from farmers, the Government, Beef + Lamb New Zealand, and DairyNZ, is paying off in the bid to eradicate *Mycoplasma bovis* (*M. bovis*) from New Zealand.

Although there's still work to be done, and it's likely that more infected herds will be found, there are currently just two farms (as at Sept. 22) with infected cattle on-farm. There are also 54 farms under Notices of Direction, which means testing is underway.

Find out more at [dairynz.co.nz/mbovis](http://dairynz.co.nz/mbovis)





# Milestone moment for E350

It's been a journey of growth and graft for the first group of farmers to take part in Extension 350.

Extension 350 is a farmer-led and farmer-focused project which kicked off in 2016, supported by DairyNZ. Its long-term aim was to get 350 Northland farmers involved, with each farmer signing on for a three-and-a-half-year programme.

Now in 2020, the finishing line is coming into sight for the first 30 farmers (15 farms) who signed on. Luke Beehre, project lead for E350, says it's been an exciting process of change, challenge and opportunity for these farmers.

"Let's not forget though that E350 can be extremely hard graft, not just for the target farmers, but for the mentors, advisers and project team alike. It's been a dynamic learning curve for us all," says Luke.

E350 focuses on helping project farmers achieve their goals and objectives – profitability, environmental sustainability and wellbeing. It does this through rigorous analysis and benchmarking, the sharing of information between farmers, and regular input from mentors, consultants and the E350 project team.

Luke says E350 also provides a network for farmers, a place to share their stories and experiences, and helps enable positive things to happen in their businesses and home lives.

"Feedback has been positive, with many target farmers agreeing that the benefits, the solutions, and the knowledge they gather along the way far outweigh the programme's challenges."

One of the farmers told Luke that "the secret sauce of E350 was the mentors, and the experience and wisdom they bring; they help you to get through a roadblock and give perspective and confidence to act and plan".

Luke says there's also farmer consensus that the project's support system is fantastic for wellbeing, helping to build a solid foundation of trust. The acquisition of budgeting skills and an increase in production and profit is another major benefit.

A crucial factor in E350's success has been the engagement and collaboration between local and central government, the sector, farmers, and the project team, says Luke.

If you're interested in finding out more about E350 and its related events, visit [northlandnz.com/extension-350](http://northlandnz.com/extension-350)



Farm field days have given other farmers the chance to see Extension 350 in action.

## Northland E350 events

Find out how to achieve your on-farm goals and increase your bottom line. Come along to an E350 field day to find out about the project and hear from farmers involved.

### ► October 6

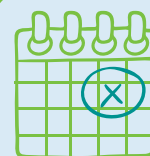
Clunie Farm  
2465 State Highway 1, Okaihau  
Starts 10.30am

### ► November 6

Cutler Farm  
268 Te Rore Rd, Kaitiaki  
Starts 11am

### ► November 13

Oud Farm  
362 Robertson Rd, Ruawai  
Starts 10.30am



# October events

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
31			<b>01 SOUTHLAND/SOUTH OTAGO</b> The East Chatton Discussion Group meets at Jess and Don Moore's Gore farm, 11am to 1pm. Topics include calving, pathways to farm ownership and wintering.			4
5	6	<b>07 CANTERBURY/NORTH OTAGO</b> Are you a Canterbury/ North Otago dairying manager or ZIC looking to progress in the sector? Reach your goals faster with DairyNZ's Biz Start!		<b>08 WEST COAST</b> Catch up with Westpac wellness ambassador Sir John Kirwan between 10am and noon at Whataroa. Get wellbeing tips and talk about topical farm issues.		
12	13			<b>15 WAIKATO</b> Join the Elstow/Springdale Discussion Group to check out a local farm's system and discuss seasonal issues and challenges that are affecting farmers in the region.		
19	20		<b>21 CANTERBURY/NORTH OTAGO</b> Don't miss DairyNZ's 2020 AGM at Hotel Ashburton, 11/35 Racecourse Road, Allenton. Drinks from 6pm, AGM from 6.30pm.		24	25
26	27		<b>28 TARANAKI</b> Get together with the KaiWai/Ratapiko Discussion Group between 10.30am and 12.30pm at Tia and Scott Huta's Ratapiko farm.			

TO SEE WHAT ELSE IS HAPPENING IN YOUR REGION DURING OCTOBER AND NOVEMBER, GO TO [DAIRYNZ.CO.NZ/EVENTS](https://dairynz.co.nz/events)

## DairyNZ consulting officers

Upper North Island – Head: Sharon Morrell 027 492 2907

### Northland

Regional Leader	Tareen Ellis	027 499 9021
Far North	Amy Weston	027 807 9686
Lower Northland	Hamish Matthews	021 242 5719
Whangarei West	Ryan Baxter	021 809 569

### Waikato

Regional Leader	Wilma Foster	021 246 2147
South Auckland	Mike Bramley	027 486 4344
Hauraki Plains/Coromandel	Michael Booth	021 245 8055
Te Aroha/Waihi	Euan Lock	027 293 4401
Cambridge	Lizzy Moore	021 242 2127
Hamilton	Ashley Smith	027 807 3049
Huntly/Tatuanui	Brigitte Ravera	027 288 1244
Matamata/Kereone	Frank Portegys	027 807 9685
Pirongia	Steve Canton	027 475 0918
Otorohanga/King Country	Denise Knop	027 513 7201
Waipa South	Kirsty Dickens	027 483 2205

### Bay of Plenty

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Central Plateau	Colin Grainger-Allen	021 225 8345
South Waikato/Rotorua South	Angela Clarke	027 276 2675
Eastern Bay of Plenty	Ross Bishop	027 563 1785
Central Bay of Plenty	Kevin McKinley	027 288 8238

Lower North Island – Head: Rob Brazendale 021 683 139

### Taranaki

Regional Leader	Mark Laurence	027 704 5562
South Taranaki	Ashley Primrose	027 304 9823
Central Taranaki	Emma Hawley	021 276 5832
Coastal Taranaki	Caroline Benson	027 210 2137
North Taranaki	Ian Burmeister	027 593 4122

### Lower North Island

Horowhenua/Coastal and Southern Manawatu	Kate Stewart	027 702 3760
Wairarapa/Tararua	Abby Scott	021 244 3428
Eketahuna	Andrew Hull	027 298 7260
Hawke's Bay	Gray Beagley	021 286 4346
Northern Manawatu/Woodville	Janine Swansson	027 381 2025
Central Manawatu/Rangitikei/Whanganui	Charlotte Grayling	027 355 3764

South Island – Head: Tony Finch 027 706 6183

### Top of South Island/West Coast

Nelson/Marlborough	Mark Shadwick	021 287 7057
West Coast	Angela Leslie	021 277 2894

### Canterbury/North Otago

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Central Canterbury	Alice Reilly	027 3798 069
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South Canterbury	Rachael Russell	027 261 3250
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Eastern Southland	Nathan Nelson	021 225 6931
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Deferring spring pasture seemed like a no-brainer for Ian and Natalie, seen here with daughter Eloisa on their farm in Leamington.



# Feeding a spring surplus in-situ

Cambridge dairy farmers Ian and Natalie Butler were inspired to try pasture deferral last season after a visit to DairyNZ’s Scott Farm pasture persistence trial site. Has it been the game-changer they hoped it would be?



**Wendy Griffiths**, scientist, DairyNZ

**Steve Canton**, senior consulting officer, DairyNZ

On most New Zealand dairy farms, conserving surplus spring pasture as silage is a routine practice to manage the feed balance. An alternative management practice is the deferral of spring pasture for grazing in-situ either side of Christmas.

A short deferral (40 to 60 days) helps carry feed over month-by-month, usually pre-Christmas. A longer deferral (up to 120 days) shifts feed into late summer and provides the additional opportunity to rejuvenate poorer-performing paddocks through reseeding.

Pasture deferral was tested at the Taranaki Agricultural Research Farm in the early 1990s, showing benefits for harvesting more milk from pasture at a lower cost.

## Farm Facts

### IAN & NATALIE BUTLER

**Position:** Variable order sharemilkers

**Location:** Leamington, Cambridge

**Farm size:** 110ha (effective), 40ha (dry stock dairy support)

**Milking herd:** 300

**Farm system:** 2

**Production:** 99,000kg MS/yr

“I left the trial site thinking, ‘We should try deferring pasture – that could be a game-changer for us’.”

Many dairy farmers, particularly in the upper North Island, report issues with low productivity of perennial ryegrass pastures. A sharp decline in performance is seen after dry summers and increased pest infestation, leading to ryegrass tiller population crashes. What can farmers do to stop or slow down the decline?

In the spring of 2018, DairyNZ investigated management options for recovering ryegrass tiller populations in run-out pastures at Scott Farm, Waikato. One of the treatments we tested was a long (120-day) pasture deferral. A year on, the results of this treatment showed considerable promise for re-establishing ryegrass populations and ground cover.

When local sharemilker Ian Butler visited the trial, he was excited by the lush, newly reseeded pastures. "I left the trial site thinking, 'We should try deferring pasture – that could be a game-changer for us'," says Ian. Subsequently, he and wife Natalie decided to implement pasture deferral on their farm last season.

### What motivated the Butlers?

Ian and Natalie don't shy away from novel solutions.

They've completed two seasons as variable order sharemilkers at Leamington, Cambridge. Having shifted north from coastal Taranaki, they were well versed in the costs of growing crops as alternative summer supplementary feed. Deferring spring pasture and later grazing in-situ seemed a no-brainer, so they decided to put it to the test.

They wanted to use pasture deferral to:

- reduce farm working expenses of making and feeding out silage
- stitch up and boost productivity of poorer-performing paddocks and increase the ryegrass content, especially of the paddocks on the peat soils
- suppress weeds.

### Putting it into practice

In early- to mid-October 2019, the Butlers closed 9.7ha after grazing. Many of the paddocks they selected were poor performers on peat soil, with a couple of paddocks (2.4ha) on a sandy soil. Several paddocks had high infestations of buttercup and/or willow weed.

DairyNZ recommends late October closing for late season heading cultivars, and early October closing for mid-season heading cultivars or when the heading date is unknown. This timing capitalises on the natural flowering behaviour of cultivars to maximise the viability and shedding of seed.

In late December, the couple decided to trial a shorter deferral on 2ha. Not allowing the ryegrass plants to reach full

maturity changes the physiological response within the plant; the carbohydrate store that's begun to move from plant base towards the seed head is pushed back to the base. This signals the plant to invest in vegetative growth. Capturing these changes can lead to improved pasture performance through increased tillering, rather than through the new seedlings that come from a longer deferral.

The Butlers adopted a 55-day deferral. While the pasture comprised ryegrass stem (no seed head), the stem was still green and holding its quality. Fifty-five days is at the upper limit of a short deferral before changes in pasture quality begin to kick in.

Across three days, a herd of 200 cows, milked twice a day, grazed a daytime break after Ian pre-mowed to a height of 8cm to 10cm. Cows hoovered up the mown grass, and Ian noted production lifted by 500L/day across the three days, compared to the previous week's production. Pre-mowing protected the base of the ryegrass plants, due to the residual stem barrier effect. Ian commented in May 2020 that, for the remainder of the summer, his cows left 200 to 300kg DM/ha higher residuals, and the

pasture growth rate in the 2ha paddock was noticeably stronger than in other paddocks. Ian noted that the short-deferral paddock was one of the greenest and most productive paddocks during summer.

At DairyNZ, we advise the pre-graze mowing of short-deferral paddocks because the elevated cutting height of an elongating stem creates a barrier that cows don't like to penetrate, and this

helps protect the plant base (think of the spines on a hedgehog). A Massey University trial in the late 1990s showed that, unless the plant base is protected from grazing, the cows' preferential grazing behaviour will reduce the opportunity to capture the plant physiological response. This is critical to the successful production of new tillers.

The Butlers re-opened the first long-deferral paddock (120 days closed) in mid-January. Their decision to re-open paddocks and start grazing the feed in-situ was determined by stomping on ryegrass plants and checking that seed had either dislodged or would dislodge with cow traffic. Tall ryegrass plants tend to lodge after December (as seen on the DairyNZ plot trial the previous year), so it's necessary to look into the base of the pasture and check for seed on the soil surface.

Ian and Natalie experimented with feeding levels in the first paddock. Cows preferentially grazed the clover. With no dry stock available to clean up, and not wanting to finish up with large amounts of wet, dead material on the surface should it rain, the Butlers reduced the 200-cow herd's area to 0.2ha/day. This tightened up utilisation and put the herd on an approximately 60-day round. Moving to a long round at this time

"A long pasture deferral pushed us out to a 60-day round in summer, eliminating the need for any supplementary feed while the deferred paddocks were being grazed. This was a huge simplification of our farm system."



of year allowed the couple to stop feeding supplements for six weeks.

“A long pasture deferral pushed us out to a 60-day round in summer, eliminating the need for any supplementary feed while the deferred paddocks were being grazed. This was a huge simplification of our farm system,” says Ian.

### Feed utilisation

The cows did a good job of clearing out the standing pasture. Ian and Natalie experimented with the effects of pre-graze mowing, or mowing to tidy up, or no mowing, on feed utilisation. All have their benefits, and the couple summarise their learnings as follows:

- Pre-mowing improves utilisation, and is better for cow intake, but involves a commitment to daily mowing.
- Post-graze mowing tidies up the paddock, and:
  - provides a mulch, retaining soil moisture during a dry summer
  - results in faster germination and growth of new ryegrass seedlings.
- As cows become adjusted to grazing dry standing material, mowing becomes less of a prerequisite.
- Break shape and size are important to prevent cows escaping into the next break, even though what’s on offer is more of the same. Escapes were confined to the early stages of adapting to deferred pasture.

- Pre-graze mowing is essential for the first 10% of the paddock to provide bigger breaks and, where necessary, access to a water trough. For the rest of the paddock, the deferred pasture is best fed like a crop face; long narrow strips increase utilisation without the need to pre-mow.

### Feed quality

In late January 2020, the Butlers’ farm, like others in the district, was predominantly brown. Pasture samples from the long-deferral paddocks, and another randomly selected paddock on the peat soil block, showed the ME had declined 3.6 units (from 10.8 to 7.2MJ ME/kg DM for non-deferred and long deferral, respectively). This compares with an ME estimate of 11.0 for good-quality silage.

The estimated DM percentage of feed was approximately 39%, in line with DairyNZ’s expectations. DairyNZ’s Scott Farm persistence trial recorded 30% DM in mid-January under typical summer management.

### Cow behaviour

As in 2019, the 2020 summer was hot and dry, though more severe. On the Butlers’ farm, deferred pasture comprised only part of 200 cows’ daily diet. Initially, cows were offered their break between morning and afternoon milkings, but high temperatures by 11am led to reduced intake and poor utilisation. Ian and Natalie decided to shift to night-time grazing. This worked well for several reasons:

1. It improved utilisation because, following afternoon milking, cows would preferentially graze the clover, lie down for a rest, and be tucking into mature pasture by early evening.
2. Fence shifts could be made during the day rather than after afternoon milking, which improved farm operations from a lifestyle perspective.
3. Walking speed to the shed improved – the cows dawdled less and were more willing to back off the rotary and walk faster to the night break.
4. Afternoon milking was quicker and more enjoyable.

### Grazing re-seeded paddocks

Despite the Waikato's lack of rain, the clover bounced back very quickly in the long-deferral paddocks. To avoid shading out new ryegrass seedlings, Ian gave the paddocks a light grazing to nip off the clover before any ryegrass seedlings emerged. This worked well where practised.

When the drought broke, rainfall events were small and scattered, and the Butlers observed that the pattern of germination was multiple strikes of new seedlings. Seedlings germinated from the first strike were only passing the pluck test as the second or third wave of seedlings germinated. This made it difficult to decide when to put the cows in for an initial grazing.

The distribution of new seedlings was uniform, filling many of the gaps in between older ryegrass plants. Some bare patches were still evident. Because the newly reseeded pastures after the long deferral were thick and dense, some loss of plants was inevitable as the equilibrium between optimum plant size and density was restored. With the delay in autumn rain, the newly germinated seed on all the long-deferral paddocks established at the same time, creating a 'wall of feed'. Pre-graze covers on some of the long-deferral pastures reached 3600 to 4000kg DM/ha, and post-graze covers remained high.

Next season, the Butlers plan to do a grazing earlier in the establishing phase, even if it leads to loss of tillers. Given that deferred paddocks likely received a dump of more than 100kg seed/ha, some tiller loss can be accepted, and the earlier grazing will help get the pastures off to a good start.

### Measuring success

The Butlers estimate they reduced their operating costs by about \$90/ha, made up of savings on silage conservation, feeding out and machinery maintenance. Although season production was down by about 2%, Ian and Natalie believe most of this loss can be attributed to the dry summer conditions rather than an effect of grazing pasture in-situ.

Positive changes in cow behaviour meant Ian spent less time in the dairy (30 min/day), and more time with his family – they're intangible benefits but great for morale.



Grazing breakline. Photo: DairyNZ

Another notable benefit was the increased average pasture cover on non-deferred paddocks, due to the 60-day round. This reduced the stress on plants already suffering from climatic stress. Pre-graze covers on the rest of the farm were 2000 to 2400kg DM/ha in mid-February, well above the district average. Ian believes this contributed to many paddocks going into winter in better condition, and it helped with building cover for calving.

**“It is much easier to defer pasture than grow a good summer crop.”**

Weed suppression could be an intangible benefit. Willow weed and buttercup were common in several paddocks pre-deferral, and the couple hope pasture performance on the long-deferral paddocks between August 2020 and January 2021 will reflect improved pasture composition and feed quality.

Another advantage of pasture deferral, compared to growing a summer crop such as turnips, is that it involves no soil disturbance or soil compaction. The standing mass shaded the soil surface, helping retain soil moisture, which was beneficial to getting an earlier strike of new seedlings with the first sign of rain. “It’s much easier to defer pasture than grow a good summer crop,” says Ian.

### **What’s next?**

Having enjoyed great success with pasture deferral, the Butlers intend to continue with the practice. This season, they’ll be using both the short and long deferral practices. Better-performing paddocks with a surplus will be closed for a short deferral, as the couple are keen to explore how this strategy influences the pre-Christmas feed balance.

The couple will select poor-performing paddocks with a low ryegrass plant density/ground cover (DairyNZ advises a minimum of 20% perennial ryegrass) and close them from mid- to late October for 90 to 120 days. (To avoid re-seeding weeds, DairyNZ advises application of a broadleaf spray on paddocks prior to



*Re-seeded pasture on the Butlers’ farm in April 2020. Photo: Ian Butler*

deferral.)

A mixture of short and long deferral gives the couple more options in managing paddocks and reduces pressure on the farm system in grazing a ‘wall of feed’. After a long dry summer, a farm’s feed wedge is usually flat, so it’s crucial to manage feed appropriately at this time.

Ian believes a mix of the two deferral lengths on up to 10% of the farm should provide sufficient feed reserves to avoid conserving silage. Long pasture deferral is probably a better option for low-input farms in summer dry regions. While the Butlers have no plans to conserve any silage, they’ll tweak these plans if it turns out to be a wet summer.

If you’d like to discuss whether pasture deferral is right for your farm, feel free to get in touch with Steve Canton - [Stephen.Canton@dairynz.co.nz](mailto:Stephen.Canton@dairynz.co.nz)

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