# Shaping the future of New Zealand farming – Part two

## Optimising farm systems

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# Optimising farm systems: How agritech is helping to drive efficiency, resilience and performance

## Executive summary

New Zealand's primary sector is built on efficiency, ingenuity, and a strong track record of adapting through cycles – but the operating environment is tightening. Labour is harder to find, input prices are volatile, and pressure is increasing to demonstrate strong outcomes across productivity and environmental performance. When constraints stack up, systems matter. The businesses that perform consistently are often those that reduce variability, remove friction, and keep their operation ticking even when conditions aren't ideal.

In our first paper of this series, 'Building a profitable farming business', we analysed the financial performance of more than 4,000 ANZ customers across dairy, red meat, kiwifruit, arable, and pipfruit, using a decade-long lens. The results illustrated a simple point. While farms differ in physical attributes, management and execution tend to have a greater bearing on returns than asset quality alone. Top performers create options by combining disciplined cost control with production gains.

This paper builds on these findings by asking: what does that management advantage look like in practice?

This isn't a paper about 'more agritech'. It's about how the right tools can help build more robust, repeatable farm systems – from reducing rework and improving timing, to growing staff capability and tightening the link between inputs and outputs. Throughout our conversations with farmers and growers across different systems, this was a common thread that emerged again and again.

We'll explore this idea in depth through five areas where high-performing operators are focusing their efforts:

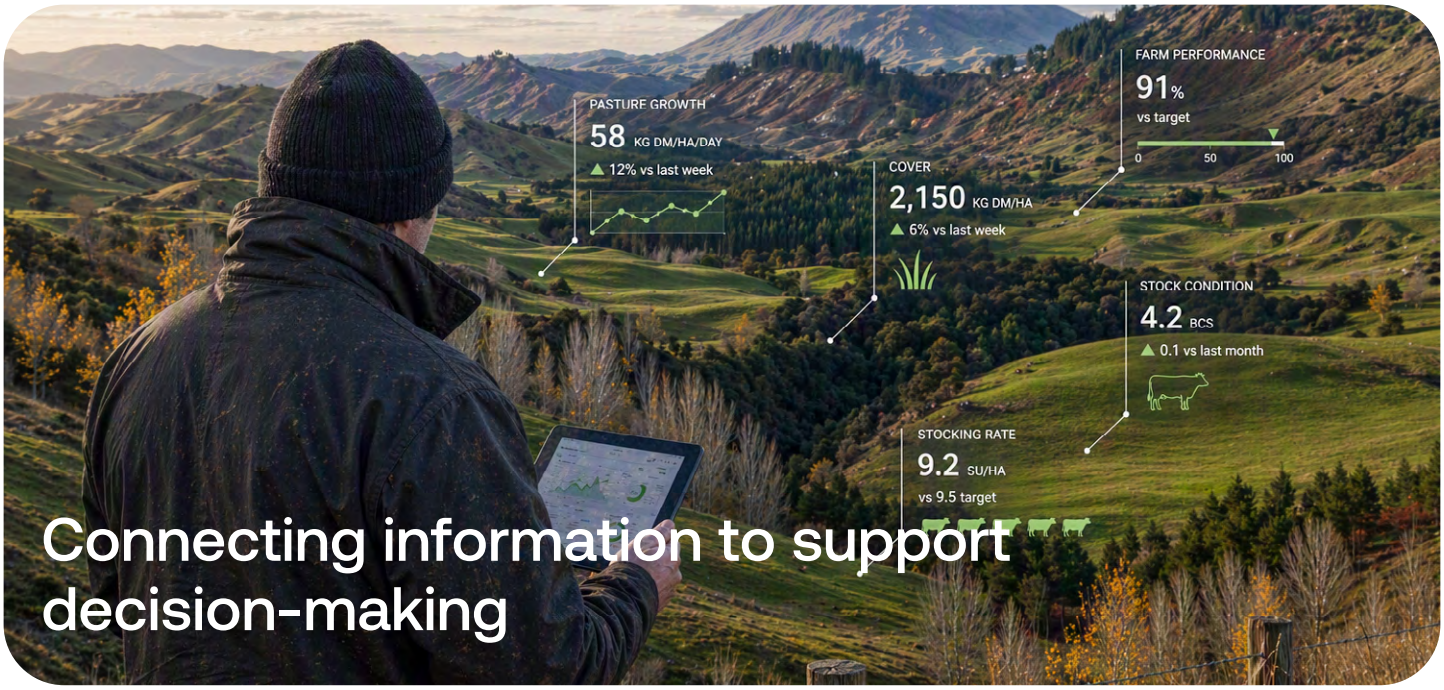
1. Connecting information to support decision-making
2. Lifting input efficiency to build resilience
3. Using automation to reduce pressure and improve efficiency
4. Optimising land and environment to protect long-term productivity, and
5. Scaling what works through investment.

Our first paper was about understanding the performance gap. Our second is about what can help to close it: clearer systems and disciplined decision-making that make businesses easier to run, easier to improve, and easier to back – through good seasons and tough. The goal is not a one-size-fits-all playbook, but to identify a set of patterns that farmers and growers can adapt to their own reality.

## And the size of the prize is big

If the five sectors featured in this series were to achieve 5% revenue gain and 5% cost reduction, farm profitability could lift by $2.9b – a compelling opportunity built on winning at the margins through closing the performance gap[1].

[1] Estimate based on ANZ analysis of more than 4000 customers across dairy, red meat, kiwifruit, arable and pipfruit (see 'Building a profitable farming business', Agri Insights Paper 1). The $2.9b figure is an illustrative scenario showing the combined profitability impact of a 5% increase in revenue and a 5% reduction in costs across the revenue and cost base represented in that analysis, before interest, tax and rent. Actual outcomes would vary by sector, season, market conditions and individual farm circumstances.




# Connecting information to support decision-making

When information is connected and easy to access, farmers and growers can spend less time analysing data and more time running their business.

Technology doesn't replace human judgement; it can help support more consistent decision-making.

As systems become easier to connect, emerging tools like AI assistants can help combine information, reduce duplication and make reporting easier to manage.

## Building a clear picture

Across high-performing farms, results generally reflect how the business is run day-to-day. Clear roles, shared standards, and disciplined decision-making show up time and again as a blueprint for what good looks like.

Maintaining that discipline often comes down to visibility – knowing what's happening across the operation and why. This kind of clarity becomes more important as farms grow in scale, complexity, or family involvement. When decisions are well understood and consistently applied, businesses tend to be better placed to handle pressure from the likes of tight seasons, volatile prices, or succession. Importantly, it can also make investment and change easier to back, because everyone involved understands the rationale behind decisions, not just the outcome.

Mark, Hamish, and Tom Humphries of Humphries Farming, a multi-generational farming business operating four farms near Waipukurau, describe discipline as something that is built over time by putting some structure around decision-making – whether that's regular reviews, benchmarking, or bringing in outside perspectives when it matters.

> "Early on we were part of an RMPP (Red Meat Profit Partnership) group, and as a business we learned a lot from that process. It created more discipline in our business – we were pretty helter-skelter at the start, busy developing properties – but it gave us focus to sit back and really work on our goals.
>
> From there, we've just continually wanted to improve, whether it's stock performance, profitability or improving the farm."
>
> – Tom Humphries, Director, Humphries Farming

The high performers in our first paper succeeded not through technology alone, but through the ability to translate data into better decision-making. In many cases, that came from making effective use of available data to help support better decisions, even where information sat across separate systems, spreadsheets, or adviser processes rather than one fully integrated platform.

Phillipa Wright, Director of Orchard & Business Operations of KWKIWI, a family-run kiwifruit operation in the Bay of Plenty, explains it this way: “Information is really important to becoming a better business – but it’s about measuring what matters, not just collecting data for the sake of it.”

Technology supports the way the business runs – it doesn’t replace it.

## Connecting the dots – and what comes next

Farmers today have access to a wide range of data platforms. From accounts and production records to environmental tracking tools, these platforms are becoming central to maintaining discipline and visibility across the business. However, while each system serves a valuable purpose, they’re often fragmented, adding cost and complexity – particularly where the same information must be reworked to meet compliance, assurance, banking, and supply-chain requirements.

The real issue is not a lack of data, but the inefficiency created by disconnected systems. When data is brought together in a way that’s easy to understand and use, it can become a powerful management tool, enabling consistent measurement, clearer insight into performance drivers, and more informed decisions – ultimately helping to lift farm performance.

As reporting requirements increase, connecting these systems becomes even more important.

For Cameron Henderson, who, with his wife Sarah, runs a dairy farming business near Oxford in North Canterbury, the need is straightforward: “I don’t want more data. I just want something to help me make better decisions with the data I’ve already got.”

As interoperability improves, AI assistants are likely to become useful for pulling together data across multiple systems, summarising what matters, and reducing repetitive reporting effort. Over time, that could make it easier to reuse the same information across financial reviews, farm environment plans, and supply chain audits, rather than recreating it each time.

> “I don’t want more data. I just want something to help me make better decisions with the data I’ve already got.”
>
> Cameron Henderson, Director, Summit Farming

# Lifting input efficiency to drive resilience

Input efficiency helps build resilience by reducing waste and making businesses easier to run.

When things run smoothly day-to-day, farmers and growers are less likely to get caught out when conditions change.

Key is using data to help make consistent decisions when conditions are variable and time is tight.

## Reducing exposure

Resilience shows up in the parts of the system that keep working when conditions tighten: a wet winter, a cold spring, volatile schedules, input prices shifting, or labour not turning up when needed. For the farmers and growers we spoke to, resilience is less about changing the philosophy of the farm and more about reducing exposure to known weak points. It's about smoothing volatility, building buffers, and making choices that preserve optionality.

In orchards and arable farming operations, reducing exposure can be as simple as reducing rework and decision-drift through the season – fewer extra passes, clearer triggers for action, and better timing across blocks. That often starts with being clear on what the land can reliably do and where effort and spend are genuinely returning value over time.

In dairy systems, input efficiency often comes down to how consistently feed can be managed, particularly when conditions make it easy for variability to build up. For Simon Scott, Director of Waihuna Dairies at Ikawai, near Waimate, that shows up most clearly on hill country in wet conditions:

> "Last winter was really wet, and one of the big bonuses for us – especially wintering on hills – was that with Halter we could run multiple breaks. On wet days we probably saved two to three kilos of feed per cow just by doing that. On a good day it might only be a kilo, but over a wet winter that really adds up.
>
> We probably wouldn't have got through last winter like we did without Halter."
>
> – Simon Scott, Director, Waihuna Dairies

## Going against the grain

Sometimes, it's about having the confidence to do things differently. As Phillipa Wright describes:

> "We've challenged a lot of conventional growing practices over time. We're not organic, but we're low-input by industry standards – and still high performers. We typically apply half the number of sprays when compared to most growers.
>
> It comes back to understanding your system, risk management, and a willingness to look at how your operations can be improved constantly."
>
> – Phillipa Wright, Director of Orchard & Business Operations, KWKIWI

A consistent message was the importance of matching land use and management intensity to land capability. In red meat systems, Humphries Farming used analysis tools to work through the economics of different land classes, then make straightforward decisions about where livestock should be excluded and where forestry or natives made more sense – a process driven not by ideology, but by the need for risk management and a long-term improvement pathway.

Flow-on effects of taking marginal or problematic areas out of grazing included fewer injuries, less time lost, and fewer recurring issues that drag down performance year after year. Says Hamish Humphries: "When the maths is in front of you, it becomes an easy decision: exclude livestock from poorer areas and put them into forestry or natives."

Over time, consistency becomes a buffer in its own right – reducing surprises and helping the system maintain performance through tougher periods.

"It comes back to understanding your system, risk management, and a willingness to look at how your operations can be improved constantly."

Phillipa Wright, Director of Orchard & Business Operations, KWKIWI

# Using automation to reduce pressure and improve efficiency

Automation can become a practical extension of good management, supporting labour efficiency, safety, and performance across seasons.

High-performing operators are intentional about where they adopt automation technology, focusing on where timing and consistency matter most.

Automation's value isn't necessarily found on a balance sheet, but in the reduction of key pressure points.

## The case for automation

Labour is one of the biggest constraints on farm and orchard performance – not just from a cost perspective, but considering availability, fatigue, and the ability to get key jobs done well during peak periods. In our first paper, we saw that top performers separate themselves through execution: clear goals, disciplined management, and good timing. Automation is most valuable when it supports that execution and takes some pressure out of the system.

## The power of 'physical' artificial intelligence

A lot of the current excitement in robotics is generated by AI technology that can perceive, reason, and act reliably in the real world. Agriculture is one of the hardest places for this to scale. Farms and orchards are variable by design: terrain, weather, biological systems, and operating rhythms change constantly, and robots need to work safely and repeatedly across that variability. Technical reviews continue to point to real-world robustness and cost as constraints on widespread adoption. That helps explain why robotics has often felt incremental in New Zealand's pasture-based systems – farmers have effectively voted with their wallets when earlier automation waves didn't fit their practical reality or economics.

The step-change will come when automation can run largely unsupervised and integrates cleanly into the broader farming system (people, data, and day-to-day routines). We can already see what this looks like in more controlled environments overseas: autonomous machines supervised remotely by one person, with built-in safety behaviours and more targeted application that reduces input use – shifting the value case from interesting technology to genuinely farm-suitable operational infrastructure.

In red meat systems, automation can ease the workload and safety exposure in mustering, shifting breaks across steeper country or bigger blocks, and keep routine tasks consistent when staffing is tight.

In horticulture, where costs can be heavily labour-weighted, automation often shows up in better work planning, faster feedback loops, and fewer 'rework' tasks through the season.

In dairy systems, automation technology can already reduce the time and physical effort required for routine shifting, drafting, and day-to-day cow flow. It also reinforces a key principle, eloquently summed up by dairy farmer Peter King, who runs Sandbrook Farm west of Christchurch with his wife, Adele, and son, Sam: “Staff are our most important assets, so any technology has to enhance their performance – not replace it.”

## Where the value lies

High-performing operators tend to adopt automation selectively, targeting the parts of their operation where timing and consistency matter most. The strongest results come when automation supports a clear way of working, rather than adding complexity. For a tool to stick, it needs to be easy for staff and contractors to use, fit naturally into daily routines, and produce information that can be acted on quickly. The benefits are often indirect but meaningful: fewer unplanned shifts, better use of feed or inputs, improved animal or crop outcomes, and more management time freed up for higher-value decisions.

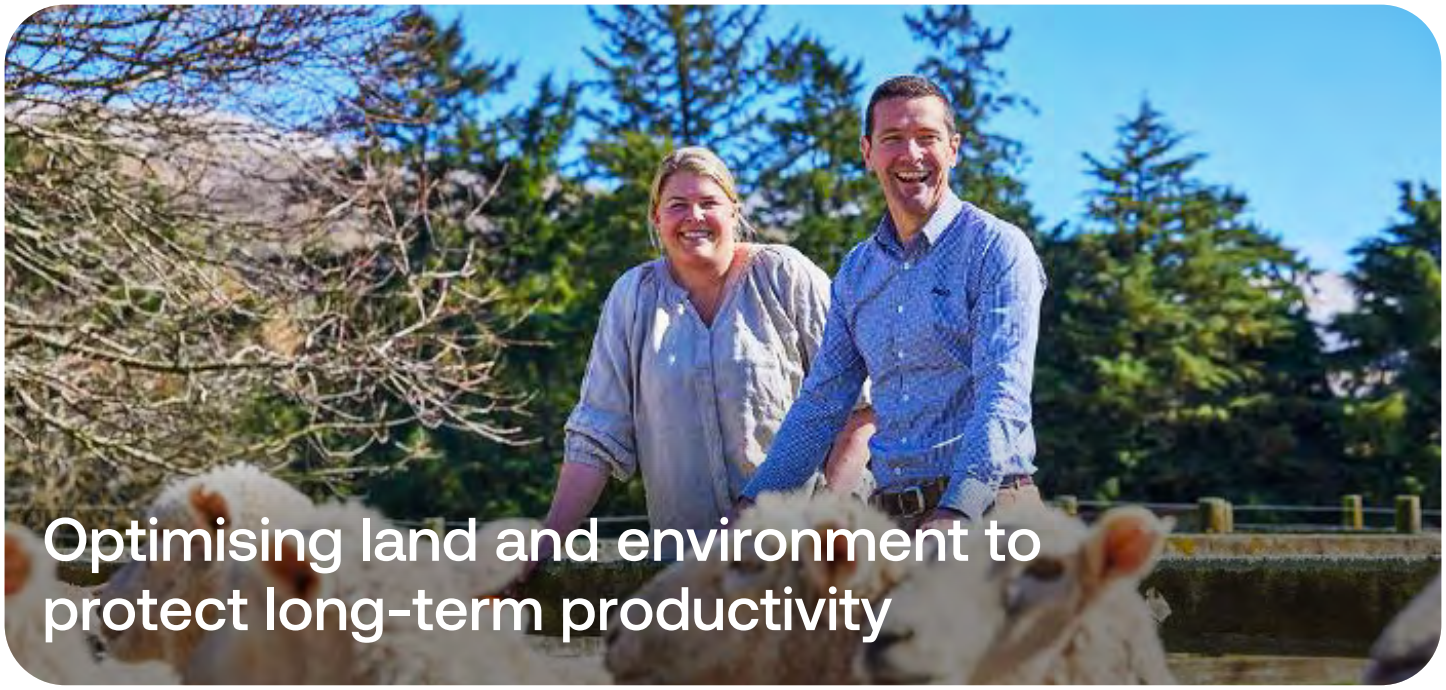
This is also why many farmers and growers struggle to put a simple dollar figure on the return. The value often sits in pressure removed – fewer late nights, fewer manual workarounds, and a safer, more sustainable workload for the team. As Simon Scott of Waihuna Dairies puts it: “There’s a real health and safety benefit. People aren’t as tired, and it’s a much better place to work.”

## Human expertise remains critical

While it’s widely accepted that technology advances cannot replace the importance of labour, focus should be on enhancing its performance in key areas like animal husbandry and feed management. Farmers we spoke to voiced a genuine concern for the future dairy workforce, especially the risk that basic animal husbandry skills could be lost due to an over-reliance on technology. This reinforces the value of a quality farming apprenticeship where skills to master the physical environment of farming are taught early. Done successfully, this positions farm employees to leverage agri technology – AI or otherwise – in the future.

“Staff are our most important assets, so any technology has to enhance their performance – not replace it.”

Peter King, Director, Sandbrook Farm



# Optimising land and environment to protect long-term productivity

Environmental performance tends to stick when it's built into how a farm or orchard runs – not bolted on.

Practical, targeted decisions can help protect vulnerable areas, improve how land performs, and preserve long-term productivity at the same time.

## The link between performance and resilience

Environmental performance is increasingly being shaped by practical decisions that protect land and water while keeping systems productive. For many farms and orchards, the priority is simple: avoid repeat damage, reduce avoidable loss, and leave the land in better shape. Resilience isn't a separate programme – it's the result of taking pressure out of the parts of the system that are most exposed.

On highly erodible land, environmental performance and resilience are intertwined. The Humphries described what this means in practical terms: keeping vulnerable areas stable, reducing sediment risk, and avoiding the downstream costs that come when land repeatedly slips or breaks down. The goal is to protect the asset and prevent problems recurring season after season, while improving how the farm looks and functions over time.

## Future focus

For the Humphries family, environmental performance is also about leaving the land in better shape – not just for the next season, but for the next generation, too.

> "We want people to walk through the gate and feel proud of what's being done here – improving the land from where we started. That's also why we've gone for NZFAP (New Zealand Farm Assurance Programme) Plus Gold. It's the pinnacle of farm assurance standards, and we want to be a frontrunner so consumers know what we're producing is to a really high standard."
>
> – Mark Humphries, Director, Humphries Farming

We heard a similar philosophy from the King family of Sandbrook Farm. They focus on balance across the business – people, livestock, environment, and financial performance – rather than chasing any one in isolation. The results don't necessarily show up in any single year; they're seen in long-term progress and wealth accumulation built from consistently backing a 'do what's right' approach. One example: recognising their location relative to a growing Christchurch, Sandbrook Farm adopted its own voluntary nitrogen cap long before it became a regulatory requirement.

## Specific, not sweeping

Across sectors, environmental performance is often lifted through targeted, context-specific changes rather than wholesale system redesign. Businesses like KWKIWI take a deliberate approach to testing and refining practices over time, using small-area trials to build confidence that changes won't compromise output. This kind of targeted approach helps businesses reduce input pressure and improve environmental outcomes without introducing unnecessary risk. The idea is to keep making small decisions that hold up over time.

## The financial side

Environmental premiums offered to farmers and growers continue to evolve. In recent times, exporters have provided additional payments for positive data points on water quality, climate mitigation, regenerative or organic systems, either to start measuring or improve from a baseline. Some farmers note that the cost to prepare for these programmes can be more than the incentive provided in the initial year. However, the long-term benefits support land optimisation – an area that some of our key export markets continue to pay for through preferencing Kiwi product.

"We want people to walk through the gate and feel proud of what's being done here – improving the land from where we started."

Mark Humphries, Director, Humphries Farming

# Scaling what works through investment

Scaling innovation is as much about capability as it is about tools.

High performing businesses invest in changes their teams can absorb, building consistency over time and creating options through the cycle.

Products are more likely to succeed when they are easy to adopt, supported well, and deliver clear on-farm value.

## High performers don't chase every new tool

The farmers and growers we spoke to for this paper shared a consistent view: it's rarely a single tool that makes the difference. What matters most is having a clear way of running the business, a measured approach to investment, and the capability to adopt change without significant disruption.

It's a view shared by Adele, Peter, and Sam King of Sandbrook Farm. They invest where it improves consistency, strengthens staff capability, or supports better on-farm decisions over time. That mindset applies just as much to inputs as to technology – small improvements compound, and discipline matters most when the cycle is against you.

## Cutting through the noise

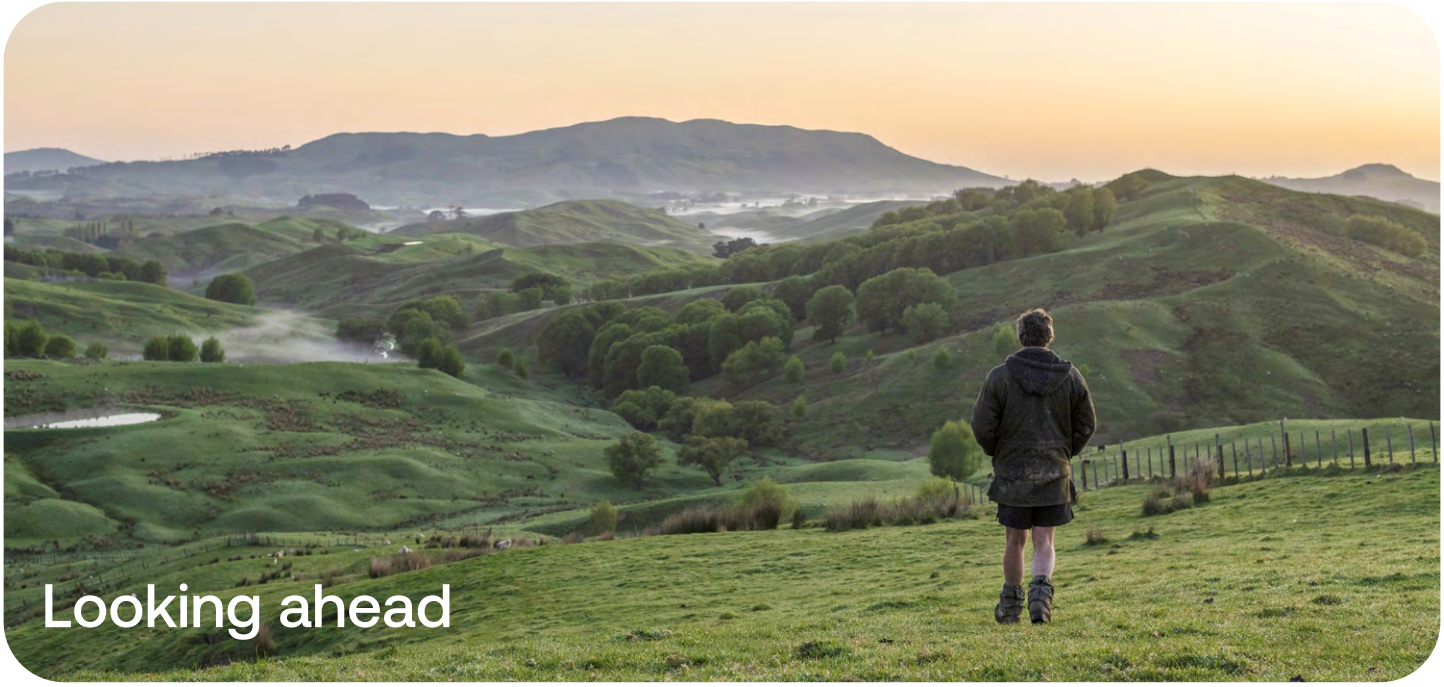
Across both farms and orchards, innovation tends to scale best when the basics are strong. When roles, targets, and decision rules are clear, it becomes easier to assess which investments are worth backing and which are simply noise. Visibility and management information can play an important role here, through the likes of on-farm platforms, reporting dashboards, and adviser support.

The practical goal is a system that holds together, with fewer pinch points, fewer avoidable losses, and more options when the next decision point arrives.

## Productivity is only part of the picture

A consistent theme from operators is that the value of investment is often felt first as buffers and options, rather than an immediate productivity uplift. In tougher seasons or when labour is tight, the ability to keep the system running well – with fewer operational disruptions and less reliance on one person – can be the difference between maintaining performance and going backwards.

This is also why some technologies become embedded quickly: even when returns are hard to quantify, they can help protect the system, free up management time for higher-value decisions, and make it easier to attract and retain capable people.



# Looking ahead

The farmers and growers we spoke to for this paper universally agree that improving performance is rarely about a single change. It's the result of building a system that runs efficiently, enables consistent, high-quality decision-making, and removes elements that create repeated pressure. High-performing businesses often build the foundations first, then layer in changes that improve consistency and reduce pressure over time. We've distilled that sequence into five tips.

**Five tips toward high-performance:**

1. **Get clear on how decisions are made**
   Organise and connect your information so decisions are more consistent and well-understood across the business.

2. **Get more from what goes in**
   Focus on using inputs well – improving timing, reducing waste, and removing weak points in the system.

3. **Make the work easier**
   Use tools and automation where they help reduce pressure, improve timing, and support your team.

4. **Look after the parts of the farm or orchard that matter most**
   Make practical changes that protect your assets while keeping the system productive.

5. **Back what works**
   Invest in changes that help improve consistency and performance, with confidence to carry them through the cycle.

None of these tips are one-offs; they're iterative and build over time. When the right tools are in place, you're not constantly firefighting. The system flags what matters, your team knows what good looks like, and that gives you more time to work on the business rather than being stuck in the weeds.

The question to ask isn't where to start, but what to improve next. That might be as simple as tightening decision-making around a key part of the system, reducing variability in inputs, trialling a new tool, or removing just one recurring pressure point. Over time, small, disciplined improvements can compound, creating a farm or orchard that's more resilient, more efficient, and better positioned for what comes next.

Businesses with strong systems and clear visibility over performance will be better placed to navigate change. AI agents can help aggregate data for faster, more informed decision-making, using multiple data points from your farming eco-system.

With that foundation in place, the focus shifts to the longer term: how to structure the business, attract and align capital, and build the capability needed for future generations.

These are the topics we'll explore in our third and final paper, 'Future-proofing the farm business'.

Given the opportunity to reduce costs or grow revenue, the value in acting now has never been more important.

As you look ahead, our team of dedicated agri specialists are here to help your business grow.

## Acknowledgements

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