NZGROWER & ORCHARDIST®

VOL 99 | NO 10 | NOVEMBER 2026

HORTICULTURE NEW ZEALAND



APPLE VARIETIES READY FOR MARKET

Page 12

IN THIS ISSUE

18 INVESTING IN TAIRĀWHITI

27 PLAN FOR WATER SHORTAGES

21 INDIA ACTION PLANS



Horticulture Work-based Training

Do you or your team members want to develop new skills and knowledge in horticulture? Get in touch with Primary ITO today to find out more about training options for you and your business.

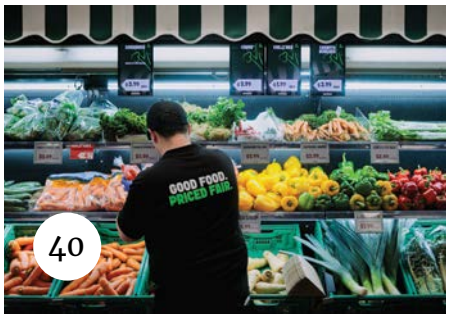
- Level 2 to Level 4
- Certificates, Apprenticeships and NEW customisable short courses available
- Support and Funding Available
- Specialist training programmes in Fruit, Indoor and Outdoor Crop Production, Nursery, Post-Harvest and Distribution.

Talk to your local Training Adviser today:

primaryito.ac.nz | 0800 20 80 20 | info@primaryito.ac.nz

Primary ITO







CONTENTS



NOVEMBER 2026

People and community

3 Chair's word: Assurance that keeps pace with horticulture
4 Chief executive's word: Fairness at the farm gate
6 Apples for Americans
12 JOLI – all in the family
18 Gisborne water storage and post-harvest investments
21 India action plans
24 Wearing the small industry hat

Sector resilience

27 Provisions for growers facing temporary water shortages
28 El Niño choices
30 The heat beneath our feet: low-temperature opportunities

Innovation and know-how

34 Smart & Sustainable: the research protecting New Zealand apples' premium advantage
38 Young Grower finalist's innovative idea to tackle orchard pests

Markets and value add

40 The catchweight kings cutting out the middleman
45 Pick a lane: why the middle of the market is a tough place to grow

Industry good

48 Spray workshops – hosted by A Lighter Touch
51 Technology that pays its way
53 Weekly Newsletter

What's New

A regular advertorial section of new products and services. This publication does not endorse the products or services featured here.

17 Hill Labs – Experience behind the result

On the cover:

T&G Global's head of orchard operations Maurice Windle at the R&D orchard in Hawke's Bay. See page 12. Photo by Sue Linn.

CONTRIBUTORS

Tony Benny



Tony is a freelance writer, photographer and videographer based in rural North Canterbury. He has worked for newspapers and magazines, radio and television, including more than 20 years as a reporter/director with Country Calendar. He heads down to see apples in South Canterbury on page 6.

Jo Pentreath



Jo is Executive Manager at Citrus New Zealand. Her background spans the horticulture sector, including industry engagement, marketing and brand development, and supporting strategic change across grower organisations and produce brands. In this issue she summarises Professor Hamish Gow's presentation at the Citrus NZ Conference on page 45.

Dr Donita L. Cartmill



Donita is a senior lecturer in Horticultural Science and Production at Massey University. An applied environmental plant physiologist, her expertise spans field, orchard, greenhouse and vertical farming systems. Originally from Texas, she has also worked in the American Midwest, bringing a unique perspective on how growers manage crops across contrasting climates and production systems. She discusses El Niño on page 28.

Anya Seward



Anya is a scientist at Earth Sciences NZ who focuses on understanding geothermal and groundwater resources and potential energy use. She is passionate about applying science to real-world energy challenges and translating complex science into sustainable, resilient growth. She helps us understand geoheat on page 30.

Dr Rachel Kilmister



Rachel is the R&D programme manager at NZ Apples & Pears, leading the industry's research, development and extension portfolio. Rachel works closely with researchers, growers and industry partners to deliver practical, science-based solutions that support the long-term success of New Zealand's apple and pear sector. She tracks outcomes of the Smart & Sustainable programme on page 34.

Celia Wells



Celia is the strategic projects director at GeoExchange NZ, leading public engagement, iwi partnerships and government strategy across the company's industrial and commercial decarbonisation projects in order to advance New Zealand's low-carbon heat sector. Celia gives covered crop growers more details on page 30.

Sue Linn



Sue is a horticulturist turned garden writer and photographer. She has enjoyed a career-long association with the nursery industry and is editor of *Go Gardening* magazine. She lives in Hawke's Bay with her viticulturist husband and helps out on the family's boutique vineyard, Wairiki Wines. Sue visits T&G Global in Twyford to see JOLI™ on page 12.

Lachlan Woods-Davidson



Lachlan is a freelance writer and photographer who grew up among the market gardens of Pukekohe and now lives in Christchurch. He has written about producers, eateries and food culture for *The Spinoff, Neat Places* and the Outstanding NZ Food Producer Awards. He visits the independent Kai Co grocery store in Christchurch on page 40.

Kim Parkinson



Kim is a newspaper reporter, freelance writer and orchardist who lives on an orchard in Gisborne with her partner Chris. They grow mandarins, lemons, limes, tangelos, Hass avocados and Avogrey® Greenskins. She spoke with Seeka's Michael Franks and Wi Pere's Tim Rhodes about investment in Tairāwhiti on page 18.

INDUSTRY LEADERSHIP REGULARS

3 Bernadine Guilleux, HortNZ chair

4 Kate Scott, HortNZ chief executive

48 Dinah Cohen, NZVeg Covered Cropping NZ manager

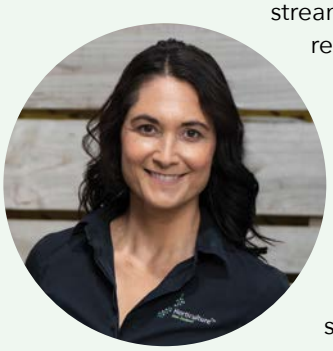
51 Kate Trufitt, Potatoes New Zealand chief executive

ASSURANCE THAT KEEPS PACE WITH HORTICULTURE

For growers, assurance is more than a certificate. It is how we demonstrate that New Zealand produce is grown safely, responsibly and in a way that customers can trust.

Bernadine Guilleux : HortNZ chair

NZGAP has an important role in making that assurance practical. Its purpose is to provide simplified, cost-effective and integrated assurance for New Zealand horticulture.



This is important because growers are operating in an increasingly complex environment, with changing expectations from regulators, retailers and consumers.

A credible local system must meet those expectations without creating unnecessary duplication or cost.

Food safety remains at the core of NZGAP. We all know confidence can be affected when something goes wrong and strong assurance helps prevent problems.

Just as importantly, it gives customers confidence that risks are understood and being managed consistently.

The next phase will require assurance to keep evolving.

NZGAP is focused on emerging technologies and sector-wide engagement to understand future priorities, opportunities and challenges.

Used well, digital tools could streamline evidence, reduce repeat requests and make it easier to identify and respond to risk.

But innovation must remain grower-focused. Technology should simplify assurance, not merely shift more administration onto businesses.

The opportunity is to build an assurance system that is trusted by markets, aligned with New Zealand regulation and workable on orchard and farm. That will depend on listening to growers, maintaining robust standards and being disciplined about minimising duplication and cost.

> **Innovation must remain grower-focused – technology should simplify assurance**

If we get that balance right, assurance will remain more than compliance. It will protect consumers, strengthen confidence in our produce and support the long-term resilience and reputation of New Zealand horticulture. ●

NZGROWER & ORCHARDIST

NZGrower & Orchardist is produced by Horticulture New Zealand and is free for all levy payers. The magazine is partially funded by a grant from the NZ Fruitgrowers' Charitable Trust to ensure all fruit growers in New Zealand receive a copy each month. The magazine is also supported by Vegetables NZ, Process Vegetables NZ, TomatoesNZ, Potatoes NZ and Onions NZ.

The individual comments and views in this magazine do not necessarily represent the view of Horticulture New Zealand.

Copyright © 2026 *NZGrower & Orchardist*

NZGrower & Orchardist:
ISSN: 3021-3606 (Print)
ISSN: 3021-3614 (Online)

Editor:
John Gauldie,
editor@hortnz.co.nz

Advertising Manager:
Debbie Pascoe, 027 485 8562,
debbie.pascoe@hortnz.co.nz

Design:
Scenario.co.nz, 04 385 9766,
joy@scenario.co.nz

Subscriptions:
subs@hortnz.co.nz,
04 472 3795

This publication uses vegetable-based inks and environmentally responsible paper produced from Forest Stewardship Council® (FSC®) certified, Mixed Source pulp from Responsible Sources.

Paper produced using Elemental Chlorine Free (ECF) and manufactured under the strict ISO14001 Environmental Management System.

The wrapper we use is 100 percent recyclable, it is LDPE 4 (Low Density Polyethylene) Soft Plastic and meets the required standards. For further information refer to: www.recycling.kiwi.nz/our-story

FAIRNESS AT THE FARM GATE

Every grower knows the feeling – whether they are growing leafy greens in Pukekohe, apples in Hawke's Bay, kiwifruit in Bay of Plenty or potatoes in Canterbury.

Kate Scott : HortNZ chief executive

They have spent months managing weather, labour, pests and diseases, input costs and crop risk, only to reach the point of sale with too little certainty about what they will be paid.

Timing is always critical. Highly perishable fruit and vegetables cannot be held while negotiations drag on. The crop must move, and that reality shapes the balance of power at the farm gate.

There is no doubt that growers and retailers depend on each other.

Supermarkets need a dependable supply of quality New Zealand-grown produce, while growers need reliable routes to market.



When that relationship works well, businesses can plan, invest and keep supplying fruit and vegetables. When it doesn't, the pressure travels quickly through the supply chain.

The grocery debate needs to look beyond the price shoppers see on the shelf.

Growers need visibility of the deductions, rebates, promotional costs and other charges that sit between the wholesale price and the retail price.

Around 80 percent of the vegetables grown in New Zealand are eaten here at home, so the gap between shelf prices and grower returns has real consequences.

A high shelf price does not mean the grower is doing well. A kilogram of produce retailing for $5.95, for example, might return just $0.70 to the grower.

Once harvesting and freight are deducted, the grower may be left with only $0.30, despite production costs of more than $1.20.

The numbers do not stack up, reinforcing the need for greater transparency over margins and costs.

This is also a social licence issue for our sector. When consumers see high prices on the shelf, it is understandable that they question whether growers are making excessive returns.

The reality is often the opposite – only a small share of the retail price reaches the farm, and rising production costs can leave growers selling below the true cost of production.

Greater transparency would show consumers where their food dollar goes, protect trust in growers and support a better-informed grocery debate.

Growers need clearer expectations about volumes, orders and buying decisions. Most importantly, growers need confidence that speaking up will not put a trading relationship at risk.

New Zealand's 4300-plus commercial fruit and vegetable growers produce more than 100 types of crops.

Around $2.55 billion is spent on horticultural produce here each year. Those figures show what is at stake.

It is not simply the fortunes of individual businesses, but the resilience of our domestic food system and New Zealanders' access to healthy food.

Three practical steps would make a real difference.

Firstly, greater transparency. Regular reporting of grocery margins and financial information would provide a clearer picture of where value and cost sit across the chain.

Better information would replace speculation with evidence and help identify where trading practices need attention.

Horticulture™ New Zealand
Ahumāra Kai Aotearoa

CONTACT US
Freephone: 0508 467 869
Web: www.hortnz.co.nz
Phone: 04 472 3795
Email: info@hortnz.co.nz
Horticulture New Zealand
PO Box 10232
Wellington 6140
Level 4,
20 Ballance St,
Wellington 6011

Secondly, independent oversight and accountability are vital. Grocery-specific expertise must not be lost as the regulatory system evolves.

An independent ombudsman and an accessible specialist tribunal would give suppliers practical avenues to seek answers and remedies, while keeping attention on conduct across the market.

Finally, effective enforcement is critical. Rules only build confidence when breaches have meaningful consequences.

Growers need accessible ways to raise concerns, and they need to know that non-compliance will be acted on. A code that exists on paper but is rarely enforced will not change behaviour.

Supermarket-sector restructuring has become a major political debate, with parties offering various policy solutions.

Proposals range from splitting Foodstuffs by banner or separating wholesale and retail operations, to easing planning and regulatory barriers for new entrants, or creating a publicly owned supermarket chain.

The range of ideas reflects a shared concern that the status quo is not delivering enough competition.

However, growers will judge each proposal on its practical effects.

New Zealand is a small market, and restructuring that duplicates warehouses, buying systems, transport networks or head-office functions may add costs before it creates benefits.

No single model should be treated as a silver bullet.

The test should be straightforward – will the change create effective competition, fairer trading relationships and better outcomes for consumers without reducing supply-chain efficiency, reliability or returns at the farm gate?

> **New Zealand's 4300-plus commercial fruit and vegetable growers produce more than 100 types of crops**

Growers are not asking to avoid commercial pressure or risk. We all know these are part and parcel of the job.

They are asking for clear rules, fair dealing and enough certainty to plan the next crop.

A grocery market that delivers those basics will support stronger grower businesses, more reliable supply and better access to fresh New Zealand produce.

Fairness at the farm gate is not a special favour. It is an investment in the food system we all rely on. ●

GENESIS
NURSERIES®

Plant the Future with Confidence

As the new crop sets on the tree, there's no better time to plan your future plantings.

Whether you're redeveloping an existing block or establishing a greenfield orchard, Genesis Nurseries is here to help with premium-quality trees, expert advice, and competitive pricing.

Our grower-focused approach is simple:
When the grower wins, we all win.

With over 45 years of proudly supplying high-quality trees to New Zealand's horticulture industry, we understand what it takes to support successful orchards.

Order now for the 2027 budding season

Tree delivery in 2028



1023 Links Road,
Waiohiki, Napier

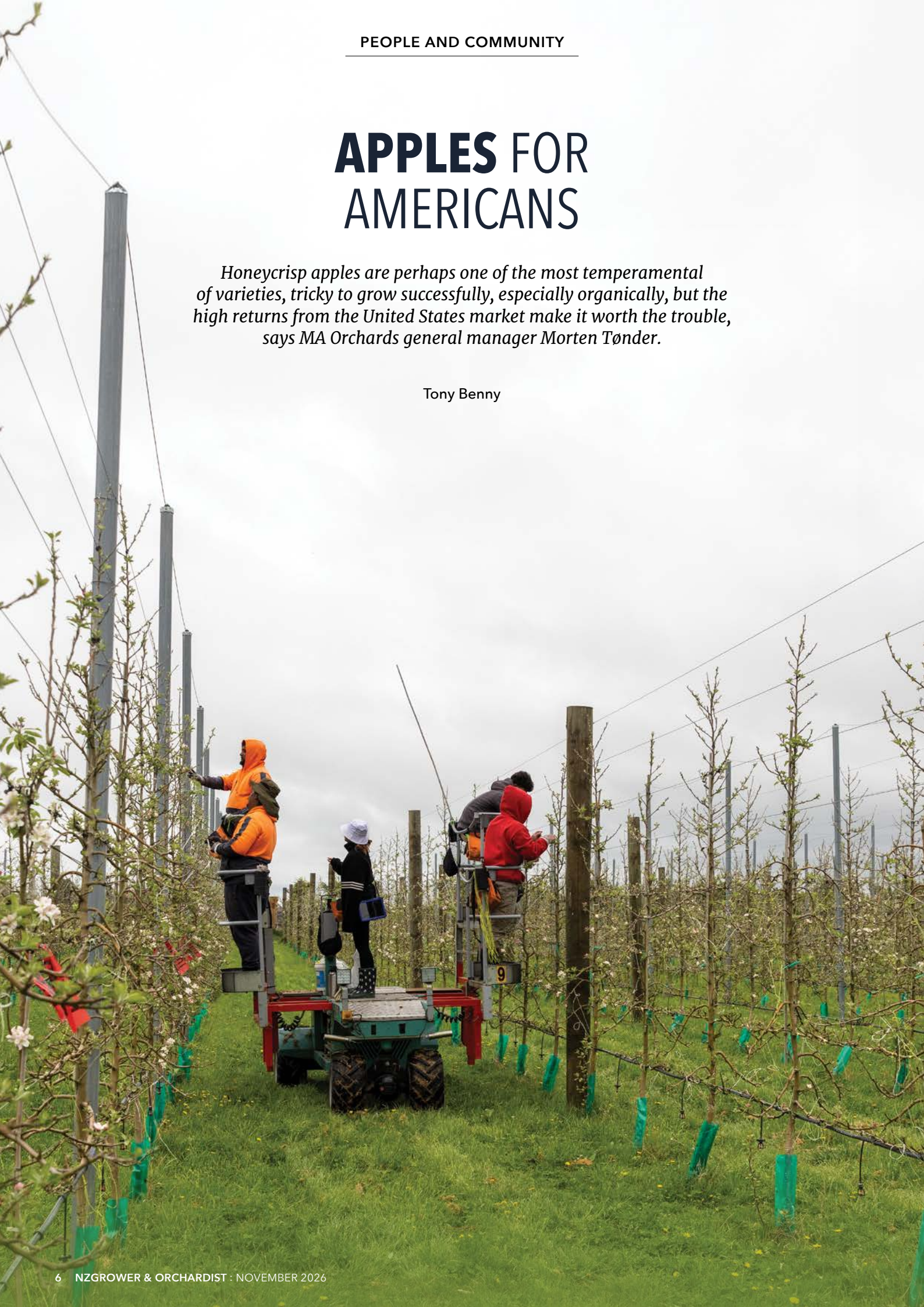
sales@gnl.nz

0800 472 3833
(0800GRAFTED)

APPLES FOR AMERICANS

Honeycrisp apples are perhaps one of the most temperamental of varieties, tricky to grow successfully, especially organically, but the high returns from the United States market make it worth the trouble, says MA Orchards general manager Morten Tønder.

Tony Benny





Thinning Honeycrisp by hand to a very exact crop load is necessary for the premium quality demanded by American consumers



MA Orchards general manager Morten Tønder (right) and production manager Luke Upfold

"It's a little bit of a roller coaster. This has been a reasonable year, 2024/25 was not good, the previous season was relatively good. But over the years it's ranked as one of the highest paying varieties in the world."

Morten oversees MA's six orchard blocks, a total of 228,000 Honeycrisp trees on 100ha, near Timaru, South Canterbury. Famously Honeycrisp thrives in cold winter climates with cool summer nights and high chill hour requirements.

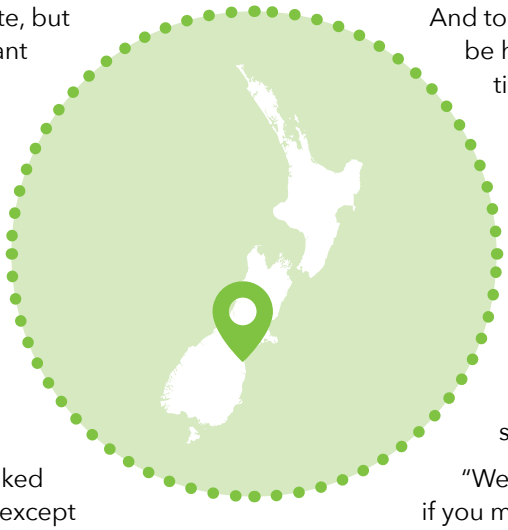
Frost is always a risk in the colder climate, but the variety tends to be more frost tolerant than other apples. Morten says they use frost fans and helicopters when necessary but this is the first spring in almost a decade without a single night of frost into mid-October.

MA grows exclusively for the United States where consumers are prepared to pay top prices for the juicy, crisp, not too sweet and almost fizzy fruit.

"We simply can't get the return that we want anywhere else. It's actually not looked on as a premium apple anywhere else, except maybe a little bit in Canada, but the United States is the target."

Apples are subject to the latest round of United States tariffs, which doesn't help. Additionally, while the returns on average, year-on-year, are higher than for other varieties, so too is the cost of growing Honeycrisp. It's even more of a challenge in an organic operation like MA Orchards, which is owned by Bostock NZ and Milford Private Equity Fund III LP.

"It's one of the most expensive varieties to grow because there are only hands, basically. Thinning is only by hand to a very exact crop load, harvest is only by hand and very slow because it bruises easily," says Morten.



And to get quality fruit, Honeycrisp must be harvested at exactly the right time, within a narrow two-and-a-half-week window.

"They have to be picked on the day. They're almost like cherries, which also have to be picked on the day. If you're early, then lower colour and less flavour comes out and if you delay there can be all sorts of internal issues down the line that you don't necessarily see at the time of harvest.

"We're talking two to three days and if you miss that, you have a problem," Morten says.

One of Morten and the team's most important jobs is making sure they have the labour ready when it's needed. To hand-pick the crop on time, hundreds of workers have to be recruited for that short burst.



On one block, MA Orchards is in the process of removing 12-year-old Honeycrisp and grafting on a new variety, Lumi™

"We need 300 RSE (Recognised Seasonal Employer) workers and 150 fixed-termers for two and a half weeks and after that we don't need them. But if we don't have the people in time, then the worst happens and we won't achieve the right maturity."

"We want to take as many locals as we can, so we work with MSD (Ministry of Social Development) in Timaru and advertise. Usually, we have 60–70 percent covered by our RSEs, maybe 30–40 percent covered by backpackers and locals."

Once harvested, Honeycrisps need special treatment to get them to market in peak condition, something pioneer growers in the United States, where the apple was first developed, struggled with. Although the variety was very popular, it was only really available at roadside stalls because it didn't store and travel well.

It took New Zealand scientist Professor Chris Watkins, based at Cornell University, to figure out how the temperamental variety could be made to last and not get a condition called soft scald when stored. After years of study, it was a mistake that proved to be the key.

> **"We want to take as many locals as we can**

"He had a couple of students who accidentally forgot to put some apples back into a cool store over a long weekend. And then after the weekend they chucked them in the cool store and by accident, they discovered the secret."

L.E.COOKE NURSERYMAN LTD (EST 1956)
Proudly serving the fruit industry for 70 years

Growers of high quality fruit trees
Apples • Apricots • Cherries • Nectarines • Peaches • Pears • Plums

PLANT PASS CERTIFIED PRODUCER PPN:112

Marty & Kelli Cooke, 75 York Road, Longlands, Hastings
06 870 7043 • 0274 396 205 • lecooke@xtra.co.nz
www.lecooke.co.nz

Summerland
Authorised Nursery to propogate Summerland Cherry Varieties in NZ:
Samba® Staccato® Stardust® Sandra Rose™ Santina® Sonnet®





Failaunga Mafoa (left) and Ropati Sakaria Levao thinning the Honeycrisp in mid-October at MA Orchards

Leaving the apple out of the chiller at the ambient temperature for a few days was what made the difference and that changed Honeycrisp from being a trendy roadside novelty variety into one of the most popular commercially produced apples in the United States.

Since that accidental discovery the protocol has been fine-tuned and is now standard practice at harvest.

"It needs to have two to three days of ambient and then we step down to 10°C for seven days and then down to its final stepping of 3.5°C," says Morten.

"If you don't hit this protocol, then you put the fruit at risk. And you won't see the damage until it's in the market when it turns brown either internally or on the skin."

South Canterbury doesn't have a post-harvest facility to handle MA's crop so it's shipped north, a process that incorporates the cool-chain process. After two days sitting in the yard, the apples are trucked to a chiller facility in Rakaia, two hours north, where they're gradually brought down to temperature and stored until being shipped overnight to Nelson for packing and export.

Although they've got the hang of growing this tricky variety and on average export returns are high, Morten says prices are volatile and it's thanks to MA being part of the larger Bostock company that Honeycrisp is viable.

"If you look at us isolated, then we are vulnerable but because we belong to Bostock, then we're less so. We are just one leg of Bostock's six legs and sometimes that leg is up, sometimes it's down.

"If we were alone, then it would have been hard, but because we are with Bostock then we can sort of bail our way out. It's always a risky business to only have one leg to stand on, one variety and one market."

MA is in the process of changing what they grow in one of their orchard blocks, removing the 12-year-old Honeycrisp and grafting on a new variety, PremA047 (Lumi™). Lumi is owned by Prevar, with Fruitcraft holding the exclusive global licence for production and sales. In New Zealand, Bostock NZ and Mr Apple jointly hold the exclusive marketing and sales rights. The original cross was made in 2009, and the variety has undergone 17 years of breeding, selection, evaluation and commercial development before reaching market readiness.

Fruitcraft has encouraged planting of Lumi at MA Orchards because of its targeted production of organic

HONEYCRISP THRIVES IN PLACES WITH

- A COLD WINTER CLIMATE
- COOL SUMMER NIGHTS
- HIGH ACCUMULATED CHILL HOURS

INTRODUCING LUMI IN HONG KONG





MA Orchards is diversifying with a new block of PremA047 (Lumi™). In September Lumi was introduced at Asia Fruit Logistica in Hong Kong by Bostock NZ and Mr Apple. The new variety is the result of years of breeding, selection and trialling by Prevar and Fruitcraft, along with the growers who backed the variety from its earliest stages. Lumi produced in Hawke's Bay will be reaching consumers from May 2027.

fruit for the United States market. With its striking red appearance, crisp texture and distinctive flavour profile, organic Lumi is expected to be a sought-after branded apple in the United States.

> **"It's thanks to MA being part of the larger Bostock company that Honeycrisp is viable**

Lumi will also help to both stretch the season and reduce the bottleneck of labour demand, says Morten. "Without this variety change we would be tracking towards harvesting 20,000 bins and that would require 650 to 700 people for two and a half weeks to harvest and we just can't physically manage that.

"But Lumi flowers earlier so thinning comes earlier and it harvests later so you stretch out the season and we can employ fewer people and they're actually more productive for us."

But the bulk of MA's crop will still be Honeycrisp, a demanding but rewarding variety, he says.

"You put a lot of money and effort into it but we love it because it is a little special. It's a challenge, for sure." ●

Thinking about solar for your horticulture business?

Get independent advice, explore case studies and download our free guide to see if solar makes sense for your business.

Visit eeca.govt.nz/SolarOnFarms
or phone 0800 300 643



EECA

Bay Blueberries, Hawke's Bay



Jareth Russell (left), one of T&G's orchard sector managers, with head of orchard operations Maurice Windle

JOLI – ALL IN THE FAMILY

In a Hawke's Bay orchard on the last day of September, the bees are buzzing around the wide open flowers of T&G Global's latest premium variety. JOLI™, a large red apple that's all about family sharing, has just been launched on the international market, starting in Viet Nam.

Sue Linn

T&G's head of orchard operations, Maurice Windle chaperones our visit to the JOLI trees in T&G's VentureFruit R&D orchard. On the side of his cap is the slogan, 'Love to Share'.

Global head of marketing for apples Jemma Whiten says T&G has developed a portfolio approach to its premium apples, with each differentiated brand targeting a distinct consumer segment. She says ENVY™ is the 'sophisticated me-time' apple of the trio. The smaller sweet tangy sister, JAZZ™ is perfect for 'on-the-go snacking', while new JOLI is being positioned as the premium large-sized apple for everyday 'family sharing'.



"JOLI apples are known for their generous size, with the crop profile skewed towards larger fruit. That's what makes it perfect for cutting up and sharing," says Jemma.

"We know that the family shared eating occasion is a part of the market that's currently underserved by apples. Families are already sharing fruit, but apples aren't as much a part of that moment as they could be. That's a really valuable opportunity – for us and also for driving growth for the apple category.

"With JOLI, we've got an outstanding apple and a brand built around that occasion. We see that as a chance to give people another reason to buy apples, not just swap from one apple brand to another.

"What's exciting about family sharing is that it's an everyday moment. We want people to enjoy JOLI together and keep coming back to it, not just purchase it for special occasions."

> **The family shared eating occasion is a part of the market that's currently underserved by apples**

JOLI has shown consistently strong yields and packout potential, performing well across a range of different growing conditions. Its mid- to late-March harvest complements JAZZ and ENVY, helping growers spread harvest activity across the season.

Certainly, as far as Maurice and one of his orchard sector managers, Jareth Russell, are concerned, JOLI has strong orcharding attributes, ease of cultivation and ability to grow in different growing environments, which brings a significant advantage.



JOLI in a V-trellis single-leader system achieved 73t per ha in its third year, with yields building as trees fully mature





Five-year-old JOLI on a 2D framework at the R&D orchard block, helping build knowledge and evolve practices as trees mature

On the way to the R&D orchard block, the two growers speak confidently about the future of the new variety in production. So far T&G has 92ha of JOLI in commercial plantings on its own orchards in Hawke's Bay, with a further 210ha planted by growers across New Zealand, including the South Island. T&G has plans to grow licensed JOLI hectares in production to around 1500ha globally by 2035.

As befitting their impressive fruit, JOLI trees are strong, hearty growers. Maurice says, "They are not sensitive to disease, easy to grow and have a high yield."

Maurice's 'mobile office' comes to a stop alongside the oldest JOLI trees in the VentureFruit and T&G collaborative R&D orchard. These trees, looking a picture in peak bloom, are the last of the traditional style rows that were planted in the block back in 2018.

Jareth comments on the potential for reduced workload at thinning time. "We haven't used any chemical thinning on these trees. They set just a few fruit per flower cluster, which makes hand thinning so much quicker and easier."



JOLI flowers in the R&D orchard in Hawke's Bay, photographed on the last day of September

Further along the block, a row of JOLI trees is trained in the formal 2D fruiting wall system. The first commercial plantings of JOLI in Hawke's Bay are under this 2D system. Meanwhile, research to determine the optimum future growing systems for the new variety is ongoing in the R&D orchard where JOLI is planted on both 2D and V-trellis.

For now, the formal 2D system provides a better return on investment for JOLI than the eye-catching V-trellis systems.

The high-density V-trellis system supports a dual-paned, angled fruiting wall designed to catch solar radiation evenly as the sun moves across the sky. Within the V-trellis framework, they are trialling three different grafting options over the range of premium varieties: single-leader, double-leader and multi-leader (four grafts per tree).

In the single-leader structure, each rootstock supports just one angled trunk on the V-trellis plane with trees angled alternatively east and west. Double-leader

(twin-axis) grafting provides two separate leaders per rootstock. In the multi-leader structure the energy of a single rootstock is divided across four competing uprights.

While upright 2D systems come into production and reach high yields more rapidly, the per-hectare yield for V-trellis systems is potentially higher than that of the 2D system as trees mature.

"This [V-trellis] block did 73t per ha in its third year, which is a strong result, with yields building as trees fully mature," says Maurice.

He expects this tonnage to increase. However, he is quick to point out that the success of a V-trellis system depends on precise management to ensure higher yields don't come at the expense of premium fruit quality. The costs to establish the orchard are also high, says Maurice.

"The V-canopy infrastructure exceeds $350,000 per ha."

The angled arrangement of the trees is designed to capture more light but vigorous shoot growth can lead to shading and competition between fruit and vegetative growth, Jareth explains. Pruning is particularly important for achieving good red colour development, consistent fruit size and high sugar levels.



The JOLI harvest earlier this year in Hawke's Bay





Despite its higher yields, the V-trellis framework is expensive to construct, making a positive return on investment more challenging

Blind tasting sessions among staff add weight to the consumer tasting tests done overseas. "All of our test tasting has put our ENVY, JAZZ and JOLI apples in the top five," says Maurice.

For the past few weeks staff have been test tasting fruit that's been in long-term cool storage. Again, all three varieties measure up well. "I had a JOLI apple in my fridge for one whole year, cut it open and it was pretty much like it just came off the tree," adds Jareth.

Locally bred, JOLI reflects almost a decade of investment in premium apple innovation by T&G's new variety innovation company VentureFruit.

The brand is being commercialised and rolled out in a deliberate and disciplined way, with initial volumes intentionally limited as plantings mature and supply builds.

Last year rural investment manager FarmRight planted its first 25ha of JOLI at a new orchard conversion in Mid Canterbury, followed by another 100ha this year, demonstrating the apple's adaptability across climates.

For its JOLI apples, FarmRight is using a modified V-trellis system with 3.6m row spacings, a system the organisation knows well from its 194ha Riwaka orchard that it purchased from T&G at the end of 2022. In its partnership with FarmRight, T&G handles the marketing and sales of JOLI apples, and they will be packed at its Nelson Nayland Road facility.

As more fruit becomes available, T&G plans to take JOLI apples into selected premium markets around the world, scaling with strength over time.

"We continue to build our knowledge and evolve practices as JOLI trees mature, with the journey only just beginning. That's the exciting part," says Maurice.

> **"I had a JOLI apple in my fridge for one whole year, cut it open and it was pretty much like it just came off the tree**

According to T&G, the global premium apple category is expected to grow from US$13 billion to US$19 billion between 2025 and 2030, representing a compound annual growth rate of 7.6 percent.

As global head of marketing for apples Jemma says T&G's premium portfolio is strategically positioned to grow beyond this, at 8.4 percent, driven by its established brands and the introduction of JOLI apples.

"While overall global apple consumption is growing modestly, the premium category is expanding rapidly, driven by consumers willing to pay more for brands they trust to consistently deliver a superior eating experience."

EXPERIENCE BEHIND THE RESULT

For growers and exporters, pesticide residue testing plays an important role in meeting domestic and export market requirements. With requirements differing between markets and testing needs continuing to evolve, choosing a laboratory with the right capability and experience matters.

Behind every result are the methods, technology and technical expertise needed to deliver accurate and reliable testing.

Experience built over decades

Hill Labs has been testing pesticide residues since 1998, when the laboratory began testing for ENZA, then a leading exporter of apples and pears. At the time, methods were developed using chromatography techniques, well before the more advanced mass spectrometry available today.

The science has developed considerably since then. In 2014, Hill Labs senior technologist Dr Bruce Morris, a New Zealander, received recognition at the North American Chemical Residue Workshop for his development and implementation of micro-SPE (ITSP) clean-up (Solid Phase Extraction by Instrument Top Sample Preparation) for QuEChERS (quick, easy, cheap, effective, rugged and safe). This automated approach to sample preparation enabled a wider range of sample types to be included in a single run.

Today, Hill Labs tests for more than 600 pesticide residues and chemical contaminants across fruit, vegetables and other food products, with testing that is accredited by IANZ (International Accreditation New Zealand) available for both domestic and export market requirements.

Supporting New Zealand horticulture

Residue testing relies on sophisticated analytical technology, but the expertise behind it is equally important. Different compounds, sample types and testing requirements can require different approaches.

Hill Labs works with industry groups to keep test suites aligned with compounds relevant to different markets. The laboratory supports a range of export programmes, providing year-round and seasonal testing for industries including kiwifruit, apples and pears, avocados, onions, vegetables and other horticultural crops.

That long-standing connection with New Zealand horticulture means the laboratory's capabilities have continued to develop alongside changing industry needs. An experienced local team also provides a responsive point of contact as testing requirements change.





Capability beyond routine testing

Alongside routine residue testing, Hill Labs undertakes non-routine residue testing projects across food and crop samples. The technical team develops and maintains testing methods, evaluates new analytical technologies and works with clients to identify the appropriate testing approach for individual projects.

This depth of capability is particularly important when testing requirements fall outside the routine. With different compounds and sample types presenting different analytical challenges, experience and attention to detail remain an important part of producing reliable results.

For growers, exporters and industry organisations, confidence comes from knowing there is experience and expertise behind the testing. Decades of residue testing, established methods, technical capability and strong connections across New Zealand horticulture underpin the service Hill Labs provides today.

Hill Labs
Testing | Inspection | Certification



Wi Pere Trust's Waerenga-a-Hika orchard. Photo courtesy Wi Pere Trust by John Cowpland/Alphapix

GISBORNE WATER STORAGE AND POST-HARVEST **INVESTMENTS**

Two announcements in one week in October could provide a real boost for Tairāwhiti Gisborne's horticulture. The first, a new packhouse and coolstore in Gisborne, is good news for growers, particularly if the second, a proposed water storage scheme, gets underway.

Kim Parkinson

Tairāwhiti Gisborne received good news last month with Seeka announcing plans to develop a new packhouse and coolstore investing approximately $15.5 million into the region.

In the same week a water feasibility plan got the go ahead when the Government announced $1.19 million from the Primary Sector Growth Fund towards a one-year $3.07 million feasibility study for a locally led water storage scheme near Gisborne.

Wi Pere Trust and economic development agency Trust Tairāwhiti will lead the water storage project to determine whether the Pouarua Water Storage Scheme and its piped distribution network will work.

Seeka increases existing capacity

Seeka's investment in the post-harvest facility on Lytton Road in Awapuni has been welcomed by Tairāwhiti growers with Wi Pere Trust already committing to put its organic gold kiwifruit through the new plant.

Wi Pere Trust Horticulture has three orchards at Toroa, Waerenga-a-Hika, Tangihanga in Waituhi and Manūtukē growing a mix of apples (Rockit™ and Tarzi®), Zespri SunGold™ kiwifruit, citrus, persimmons and blueberries. It already packs its persimmons with Seeka.

Gisborne already plays an important role in Seeka's operations. During the 2026 season, Seeka handled approximately 2.5 million trays of Zespri SunGold kiwifruit from the region, alongside a growing volume of Zespri RubyRed™ kiwifruit, persimmons and citrus.

The new packhouse and coolstore facility is adjacent to existing Gisborne operations and will support local growers, create jobs and provide additional produce handling and storage capacity for the region.

Seeka will be installing Reemoon fruit sorting machinery at its new site which automates the post-harvest grading, inspection and packaging of fruits and vegetables such as kiwifruit, apples, citrus and stone fruit.

They currently have Reemoon technology at their facility in Kerikeri as well as Seeka Orangewood and Seeka Huka Pak facilities.

Good for growers, good for Gisborne

The existing and new facilities will create a regional produce hub serving Gisborne and the wider East Coast.

The new facility is expected to create approximately five permanent positions and up to 70 seasonal and casual roles, while providing growers with access to local fruit handling, packing, coolstore and operational infrastructure.

Seeka chief executive Michael Franks says the investment reflects Seeka's commitment to the Gisborne region and its growers.

"This investment will provide infrastructure that supports growers and horticultural production in the region. It will create jobs, support local economic activity and help keep fruit handling and storage closer to where produce is grown."



Wi Pere Trust chief executive Tim Rhodes is supportive of the investment Seeka is making into the Gisborne region and is looking forward to working with them

The facility will provide growers with local packing and coolstore services, enabling fruit to be packed and stored within the region before being shipped to market, helping reduce the impact when transport routes experience disruptions.

Wi Pere Trust chief executive Tim Rhodes says they are very supportive of Seeka's expansion in Tairāwhiti.

"It aligns with our long-term commitment to growing production capacity in the region and the positive economic growth it will bring."

Less reliance on State Highway 2?

The investment will also support increased utilisation of Eastland Port and regional export activity.



It will ensure Gisborne growers have access to local packing and storage facilities, staffed by locals, available when they need it.

The investment aligns with Seeka's strategy of regional investment in high-quality assets in the regions where the crops are produced, taking pressure off transport infrastructure and providing resilience in adverse weather events.

In January this year Tairāwhiti experienced extreme rainfall which closed State Highway 2 through the Waioeka Gorge, between Gisborne/Mātāwai and Ōpōtiki.

The shutdown hit right as harvest season was ramping up for regional products like citrus, creating severe supply chain bottlenecks. It cut off access to properties and blocked the movement of fresh produce out of the region to northern markets.

The closure disrupted a vital lifeline route supporting $112 million to $190 million in regional trade and produce movement, costing growers and businesses an estimated $8 million daily.

By building a large coolstore facility in Tairāwhiti, Seeka will mitigate the effect of such disruption to transport routes.



Seeka is investing in a new packhouse and coolstore facility adjacent to existing Gisborne operations

Water feasibility study

Back in 1985 the Ministry of Works and Development carried out a study surveying multiple sites around the Poverty Bay Flats for the best place for a large-scale water storage project. The site that was identified as the best was on the Pouarua stream on Tangihanga Station, which is Wi Pere whenua.

There was a change of government and the project was shelved. Because some of the Wi Pere trustees were part of those initial discussions, they kept the report which included a completed design.

"In 2024 we got the report out and blew the dust off it," Tim explains.

"We got some funding through MPI [Ministry for Primary Industries] Māori Agribusiness to re-scope the report. It's still good to go. It's still at the feasibility stage and is a long-term project.

"First, we have to get it through the resource consent process, which we're starting to file for fast track now. It's a regional scale project which is going to benefit other growers," he says.

Wi Pere has already got water storage with a 250,000 cubic metre water storage dam at Tangihanga Station on the other side of the river from Ormond township.

"We have enough water stored for our land but the way we view it, this project is important to drive production and productivity in the Poverty Bay Flats," Tim says.

"For intergenerational Māori landowners like Wi Pere, it's important to grow the productivity of this region which will result in improved prosperity for all.

"Seeka's investment here is a positive indicator that productivity on the Poverty Bay Flats is lifting and that is something we're keen to support. It ties in with what we're trying to do with regional scale water storage. It also ties in with the Government's aspirations of lifting national productivity."

A report by Trust Tairāwhiti has shown there is a lot of Poverty Bay Flats land that doesn't have any water allocated for it; therefore you're very limited in what you can do from a productivity point of view, he says.

The study will investigate the viability of the Pouarua Water Storage Scheme and its piped distribution network, which could potentially irrigate up to 11,000 additional hectares across the Poverty Bay Flats.

"Seeka is going to increase the post-harvest capacity in the region which is good for the whole economy but the only way we can increase productivity here is if we can improve water storage – it's interconnected."

He says the technology Seeka is going to be putting into the new packhouse is outstanding and he is looking forward to an ongoing relationship with the company.

The new plant at 275 Lytton Road is scheduled to open in March next year ready for the 2027 harvest.



Apple Action Plan project manager Lachlan McKay with Dr Nvaeen Chand Sharma at Mashobra Research Station, Himachal Pradesh

INDIA **ACTION PLANS**

New Zealand's exporters now have preferential access to India for key horticulture categories. Our side of the deal requires New Zealand's industry to support Indian growers – a programme now underway. But industry leaders say the deal is proving greater than just a quid pro quo. It's building deep connections into India's fresh produce value chain.

John Gauldie

The entry into force of the India-New Zealand Free Trade Agreement (FTA) opens world-leading access for New Zealand's Tier 1 apple and kiwifruit exports to arguably the world's largest and fastest growing consumer market.

The trading opportunity was achieved with the promise of leveraging New Zealand's technical knowhow to support India's apple and kiwifruit production, funded by New Zealand growers and the Ministry for Primary Industries.

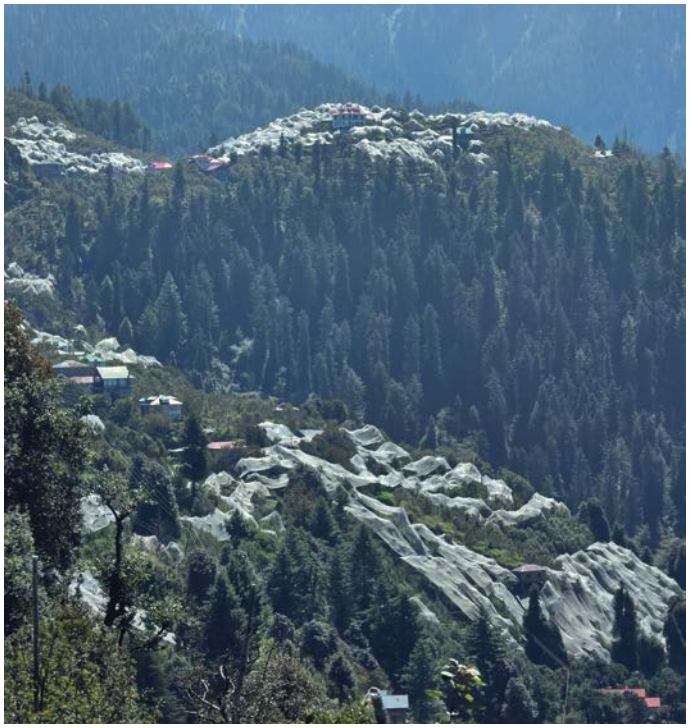
Despite the huge asymmetry of New Zealand and India's respective domestic markets, the agreement effectively leverages New Zealand horticulture's long history of investment in orchard systems, technology and education to gain preferential market access.

The deal was concluded in December 2025 and formally ratified by both governments in September this year. It came into force on 20 October.



New Zealand's horticulture industry has moved rapidly to meet its commitments to work alongside Indian growers, sharing expertise to improve production, quality and supply chain performance. The deliverables have been wrapped up in the Apple Action Plan, led by NZ Apples and Pears Inc (NZAPI), and the Kiwifruit Action Plan, led by the Bioeconomy Science Institute Maiangi Taiao (BSI).

The first Centres of Excellence are now being established in India – a practical demonstration and training hub for apple growers in Himachal Pradesh (supported by a digital centre of excellence online)



Covered apple trees at Himachal Pradesh



Steph Montgomery, BSI programme manager, with Special Agricultural Trade Envoy Nathan Guy in an old kiwifruit orchard on the Centre of Excellence site at Pfütsero at over 2000m elevation in the Himalayan mountains

and green kiwifruit model orchards in Nagaland and Uttarakhand.

The plans also include grower-to-grower technical exchanges, with regular visits by New Zealand experts and opportunities for Indian growers and officials to visit New Zealand.

Supporting smallholder kiwifruit production

Kiwifruit is not a large industry in India, so the Kiwifruit Action Plan supports smallholder development as well as growing overall consumer demand for the category in India. The long-term and complementary nature of New Zealand and Indian production suggests potential to deliver value on both sides, says BSI's Steph Montgomery, programme manager for international development.

"We'll work alongside Indian kiwifruit growers in rural communities to support improved production and supply chain performance," she says.

New Zealand kiwifruit growers stand to benefit from increased demand for New Zealand's counter-seasonal supply, but also from the emerging demand for premium New Zealand fruit thanks to India's rapidly expanding middle class (currently estimated at 435 million, projected to grow to 715 million by 2031 and more than 1 billion by 2047).

Zespri chief executive Jason Te Brake says the future potential makes India a strategically important market for Zespri.

"The improved market access provided through the FTA gives us the confidence to continue investing in the market, strengthen partnerships with our customers and distributors, and increase awareness of kiwifruit among Indian consumers."

More than market access advantage for apples

India's apple growers, in contrast to kiwifruit, are among the world's largest producers – growing five times more than New Zealand. Most production is for the domestic market. There is significant potential to improve productivity, which is held back by low-density orchards, ageing tree stock, old varieties and sometimes difficult terrain. Productivity is around 10–15t/ha.

Last month Nathan joined NZAPI chief executive Danielle Adsett and Apple Action Plan project manager Lachlan McKay in India, meeting with senior government officials, industry leaders and apple growers across New Delhi and Himachal Pradesh.

"Wherever we travelled," Danielle says, "it was clear that apples are enormously important to local communities and regional economies. We met growers and leaders who are passionate about the future of their industry and keen to work together on practical solutions."

Meetings included India's Horticulture Commissioner, Dr Prabhat Kumar, APEDA Chairman Shri Abhishek Dev, Himachal Pradesh Chief Minister Sukhvinder Singh Sukhu, Horticulture Minister Jagat Singh Negi, horticulture officials



NZAPI chief executive Danielle Adsett and NZ Special Agricultural Trade Envoy Nathan Guy with Jagat Singh Negi, Horticulture Minister for Himachal Pradesh



Dr Nick Gould, a BSI physiologist based in Te Puke and Steph Montgomery, BSI programme manager, with farmer Mewe Khutso in his kiwifruit field in the Phek District in Nagaland

and local apple growers, with discussions centring on progressing the Apple Action Plan, developing the Centre of Excellence, and identifying opportunities for technical collaboration and knowledge sharing between the New Zealand and Indian apple industries.

"Like New Zealand growers, Indian apple growers are navigating climate pressures, orchard productivity challenges, pest and disease management, and the need to invest in modern infrastructure."

With the FTA, New Zealand became the first country in the world to secure a preferential, quota-based tariff reduction for apples. Other countries are now in active negotiations with India, including Chile and the European Union.

However, Danielle highlights that technical exchanges under the FTA are delivering more than market access. The opportunity is to increase cooperation between India and New Zealand across the value chain – with researchers, growers, distributors, regulators as well as investors.

"The FTA is about much more than trade," she says. "It has created a platform for genuine cooperation between our industries and an opportunity to build long-term partnerships that benefit growers and apple-growing communities in both countries.

"New Zealand's role is not to compete with Indian growers. Our commitment is to work alongside them, sharing expertise where it can add value and supporting the long-term success of India's apple sector." ●

INDIA-NEW ZEALAND FREE TRADE AGREEMENT MARKET ACCESS

NEW ZEALAND APPLES

50 percent reduction on tariffs (from 50 percent to 25 percent) during the window from 1 April to 31 August on a quota up to 32,500 tonnes in year one, growing in phases to 45,000 tonnes in year six and onwards.

The quota also includes a minimum price of USD$1.25 per kg (CIF). Outside the quota, the 50 percent tariff applies.

NEW ZEALAND KIWIFRUIT

Zero tariffs on exports into India on up to 15,000 tonnes per year, with all volume on top of that subject to a reduced tariff of 16.5 percent, down from 33 percent.

WEARING THE **SMALL INDUSTRY HAT**

Ian Turk is retiring after three decades managing product groups – notably persimmons, feijoas and stints for blackcurrants, blueberries, nashis and even table grapes. For NZGrower & Orchardist *he shares his perspective on the changing fortunes of the small players.*

It's not always easy to make the voice of small-scale crop growers heard among New Zealand's multi-billion dollar horticulture industry. Ian Turk has been sticking up for these small industries for 30 years.

"Although the last couple of years I've been managing persimmons only, I've tried to wear a small industry hat.

"I go to forums where summerfruit are saying, 'we're a small industry', strawberries are saying, 'well, we're a tiny industry' and I stick up my hand for our 20 persimmon growers and say, so what are we then?

"But you know, the persimmon industry brings in $10 million in export earnings, plus domestic revenue. It's a proven market. It employs people. It's the same with boysenberries, feijoas and some of the others like passionfruit."

Fronting up to growers

With a degree in agriculture, he never intended to end up in horticulture.

"When I went through Massey, I thought trees and horticulture were boring. I've actually grown to find trees amazing. I'm not a grower, but when I go on field trips now, I follow these guys and they're talking about pruning and training. Just the way they know their trees, it's amazing."

Ian joined the Horticulture Export Authority (HEA) in 1995 after meeting Michelle de Jong, an HEA staffer at the time, at a BBQ in Wellington. She mentioned that HEA was looking for product group managers – formerly part of the authority's remit.

"I think the idea of working for groups in a primary industry and working at that level really intrigued me. Although when I came into the persimmon industry, I was quite nervous about fronting up to growers. There was quite a lot of discussion about the levy rates and what the industry body was doing for growers, and a lot of questioning – quite intense questioning.



Ian Turk has managed product groups including the NZ Persimmon Industry Council for 30 years

"I got through that. I quite enjoyed the grower meetings. I've got to know some of the growers really well, enjoyed their company. There have been a few challenging people, some who I was wary of to start with. But that's a good sign that people care about the industry and question it. As I got to know them and work with them, I really began to enjoy the horticulture environment."

> **"The persimmon industry brings in $10 million in export earnings, plus domestic revenue. It's a proven market. It employs people**

After a statutory review of HEA, the product group management function was taken out and became Primary Industry Management Services (PIMS), with NZ Fruitgrowers Federation as shareholder. Ian became a product manager with the PIMS team, which had a complete back office including assistant product managers, finance and support staff based at the Huddart Parker Building in Wellington. In 2002, as NZ Fruitgrowers Federation and VegFed were in the process of merging into what would become HortNZ, PIMS was discontinued.

"Marie Dawkins, who was the Summerfruit NZ manager at PIMS at the time, and I decided we would take on the management contracts ourselves and the product groups agreed. So we bought it off the NZ Fruitgrowers Federation."

Eventually Summerfruit NZ became its own entity and Marie became its chief executive. Ian continued on his own, a one-man band working from home for small crops including the NZ Persimmon Industry Council for export growers.

Market access

Persimmons are widely consumed, with a global crop of about 5 million tonnes – worth at least US$4 billion.

"One of the big changes over time is just how important market access has become and how much of my time that work has taken up."

New Zealand's persimmon crop is evenly split over domestic and export markets, with growers carefully weighing up which to focus on. Exports are spread over many countries – led by Australia, ASEAN countries and Canada. In 2017, persimmons achieved access to the big potential markets of China and the United States, plus India is on its horizon.

Gaining and maintaining access across all these jurisdictions, with all the various SPS measures and rigorous quality requirements, for small volumes, is a battle, Ian says.

"It's a lot of risk with no guarantee you'll get anything for it – a lot of money to recoup. During the China access process, we were probably spending $20,000 a year for 15 years. It's a lot of money for a small industry."

Supply chain cohesion

The persimmon industry relies on a group of very good exporters on the ground rather than investing industry funds into overseas market development.

"Exporters spend a lot of time in the markets and a lot of time with their clients – that's their business, so they know what they're up against. Persimmons won't be the biggest product for any of the exporters, but they have the people on the team who switch on and do their job for the season."

Nevertheless, there are a lot of dependencies between grower and exporter, which have become increasingly fragmented in recent years.

"Transport has become an issue – the SH2 out of Gisborne is a particular vulnerability to persimmons. You've got to get the fruit out of Gisborne just as winter weather is starting to set it.



"And it's got to be a high-quality packhouse. We've lost a big packhouse in South Auckland several years ago, which had a group of 17 growers around it. The packhouse decided that persimmons were not where it wanted to have its future. Now, only one of those growers is still growing persimmons, so that was a loss for the industry.

"It shows the dependence on post-harvest facilities for smaller industries, especially for export. A fragmented industry makes it harder."

Import pathways

From the first crop in 1986, New Zealand's persimmon exports took off in the 1990s.

"When it became commercialised, the government was having a big diversification drive. It was all gung-ho, there was money for development. When I started we had 158 growers."

Since reaching a peak of around 2300 tonnes in 2002, New Zealand's volumes declined and the industry now regularly exports around 1200 tonnes.

"A few people came into the industry with the wrong perception of what they were getting into – like dairy growers who saw it as retirement. There's a good income to be made from persimmons, but it's not a retirement industry. It requires a lot of work. So there's been a drop in numbers."

The industry has also been affected by the changing climate. Not only Cyclone Gabrielle, which hit persimmons particularly hard in 2023, but also several seasons of wetter weather in the key growing regions of Gisborne and Northland. Post-harvest rot and quality issues have affected volumes.

> **"When it became commercialised, the government was having a big diversification drive. It was all gung-ho, there was money for development**

"The persimmon industry relies on one variety, which I'd always thought was a good thing. I mean, there are too many apple varieties now. But some of the persimmon varieties that are available overseas would really benefit the industry in terms of quicker ripening. If you could bring the harvest forward, you'd just get it out of that zone where you're worrying about frost and winter rains."

Last year MPI suspended the import health standard for persimmon nursery stock and tissue culture.

"Persimmons was one of the ones that was thrown out because we hadn't used it for a while. We argued to get it put back into the mix, but we were not successful.

"It's not a complaint about the standards. I think we've got to protect New Zealand, but it would be good to have a pathway to bring material in."



The same applies to feijoas. Ian reckons New Zealand possibly has the world's largest commercial feijoa industry with several commercial varieties in production. However, the bulk of genetic material is in South America where the feijoa originates.

"There are so many interesting feijoa cultivars overseas – in colour, ones you can eat skin and all – just different attributes.

"When we had issues with anthracnose, one of the things we did was test the varieties we have and some are more resistant than others. So, you know, straight away there are benefits in having different varieties."

Innovation and funding

Ian says the industry recognises the need for innovation – it participated in the A Lighter Touch programme – but the costs to industry for importing genetics, breeding programmes and commercialising innovation are major barriers. Government investment has shifted to focus on higher return sectors.

"For a small industry to get assistance for market development or research, it's much harder now. And a good example of that is the Sustainable Food and Fibre Futures fund, now the Primary Sector Growth Fund. By pushing up the industry contribution and reducing the in-kind contribution, it's made it really difficult for smaller industries."

Some growers have had to look at their business and decide to switch to other crops. But despite the challenges of exporting, post-harvest logistics, climate adaptation and R&D funding, Ian says the persimmon industry is in a good place.

It is a mature industry with a well-developed export structure and has a core community with a lot of growing experience and know-how. As he bows out, Ian hopes the small industries will continue to be heard.

"There are things going on in New Zealand horticulture that are really quite amazing. If we can find ways to apply them to our small horticulture industries, I think they have a really bright future." ●

PROVISIONS FOR **GROWERS FACING TEMPORARY WATER SHORTAGES**

Increased dryness in some regions is likely during the current 'super' El Niño event, including potential drought conditions. Find out how water shortages will be managed in your region.



Councils in each region have their own plans to respond to temporary water shortages. Council provisions can include restricting use, rationing, rostering, no take days or suspending takes.

To help growers prepare, HortNZ has prepared an overview of regional plan provisions and water management requirements. Provisions vary as each council takes different approaches. In some areas there are specific rules to allow for water for uses such as rootstock survival or washing produce intended for human consumption. In other areas, councils take a priority approach based on a set of defined uses, and in some cases there is no specific guidance or policy in place.

HortNZ seeks changes through resource management reform

Following enactment of the Planning Act and the Natural Environment Act (the legislation passed by Parliament in September to replace the Resource Management Act), a new planning system will be implemented, which will also shape how water is managed in the future.

The National Policy Direction (NPD) is a key component of the new planning system. The Government has published an early 'illustrative' view of the NPD. The illustrative NPD recognises the need for secure, reliable and resilient water supply for existing and future primary production, and a more consistent approach from councils when developing future plan provisions.

HortNZ has submitted on the illustrative NPD, raising important issues – from access to rootstock and crop survival water for horticultural crops, to the development of freshwater security strategies. That includes strategic community-scale water storage through spatial planning to achieve future secure and reliable access in a changing climate, including the infrastructure needed to harvest, convey and distribute stored water.

To see the overview of regional plan provisions, visit **www.hortnz.co.nz/preparing-for-el-nino**

To read HortNZ's full submission on the illustrative NPD, visit **https://www.hortnz.co.nz/about-us/submissions**

Irrigation Express
Online Orchard Irrigation Supplies
Call our experts 0800 130 905
www.irrigationexpress.co.nz

EL NIÑO **CHOICES**

The current El Niño event is a reminder that while every growing system is different and conditions will vary, the question all growers face is the same. Are you prepared?

Dr Donita L. Cartmill : Massey University senior lecturer in Horticultural Science and Production

A dry, sunny spring can be welcome in an orchard or vegetable field. It can make planting and harvest easier, ease some disease pressures and create good conditions for fruit development. But the weather that helps a crop today can leave it short of water a few weeks later. For growers, the challenge is to make the most of favourable conditions while recognising when the balance begins to shift.

El Niño does not bring the same 'season' to every part of New Zealand. More frequent westerly winds, especially in summer, tend to leave eastern districts drier and bring relatively more rain to the west. Soils, shelter and access to water can create further differences between neighbouring properties. I would use the seasonal outlook to ask what could happen on this property, with these crops, rather than treat it as a prediction of the harvest.

For orchard growers, there is a genuine potential upside. Sunshine and suitable temperatures can favour fruit development, while fewer wet periods may reduce the risk of diseases that need moisture to spread. Dry weather becomes less helpful when trees cannot get the water they need. Fruit size and quality may suffer, and an orchard must also sustain the trees beyond this year's harvest. A dry outlook does not remove the need to respond to disease risk when rain does arrive.

Vegetable growers may have less time to adjust. Dry conditions can improve access for planting, crop care and harvest, but a young crop in rapidly drying soil can lose ground quickly. What matters is often when water becomes scarce. A shortage during a sensitive stage of growth can reduce yield and leave a greater share of the crop unsuitable for sale.

That makes water planning a business decision as well as a growing decision. Which crops or orchard blocks would be hardest hit by a shortage? Can the irrigation system meet demand when several areas need water at once? What will trigger a change in priorities if water restrictions apply?

Checking equipment, tracking soil moisture and making a water budget early can help growers answer those questions while they still have choices.

Water and nutrients also need to be considered together. Fertiliser may offer little immediate benefit when dry soil is limiting growth, while excess irrigation or heavy rain can carry nutrients beyond the root zone. Knowing how quickly each soil drains helps growers meet crop water needs without unnecessary losses. Where irrigation water quality or repeated fertigation raises a concern, checking salt levels is sensible, too. The aim is to protect both crop performance and the water and soil resources on which production depends.

Pests are another reason to keep looking closely at the crop. Aphids and thrips can cause serious problems in susceptible crops, with some species transmitting viruses. That does not mean El Niño will bring an outbreak. Pest pressure depends on the weather that actually develops, the crop and its natural enemies. Regular inspection and crop-specific advice offer a better guide to action than the seasonal forecast alone.

My advice is to welcome the good growing days and use them well. Check irrigation systems and soil moisture now, and decide which crops or orchard blocks would take priority if water became scarce. Where it suits the crop and site, mulch or other soil cover may help retain moisture. Time fertiliser applications to match crop growth and available water, and inspect crops regularly so that decisions about aphids, thrips and other pests are based on what is happening in the field.

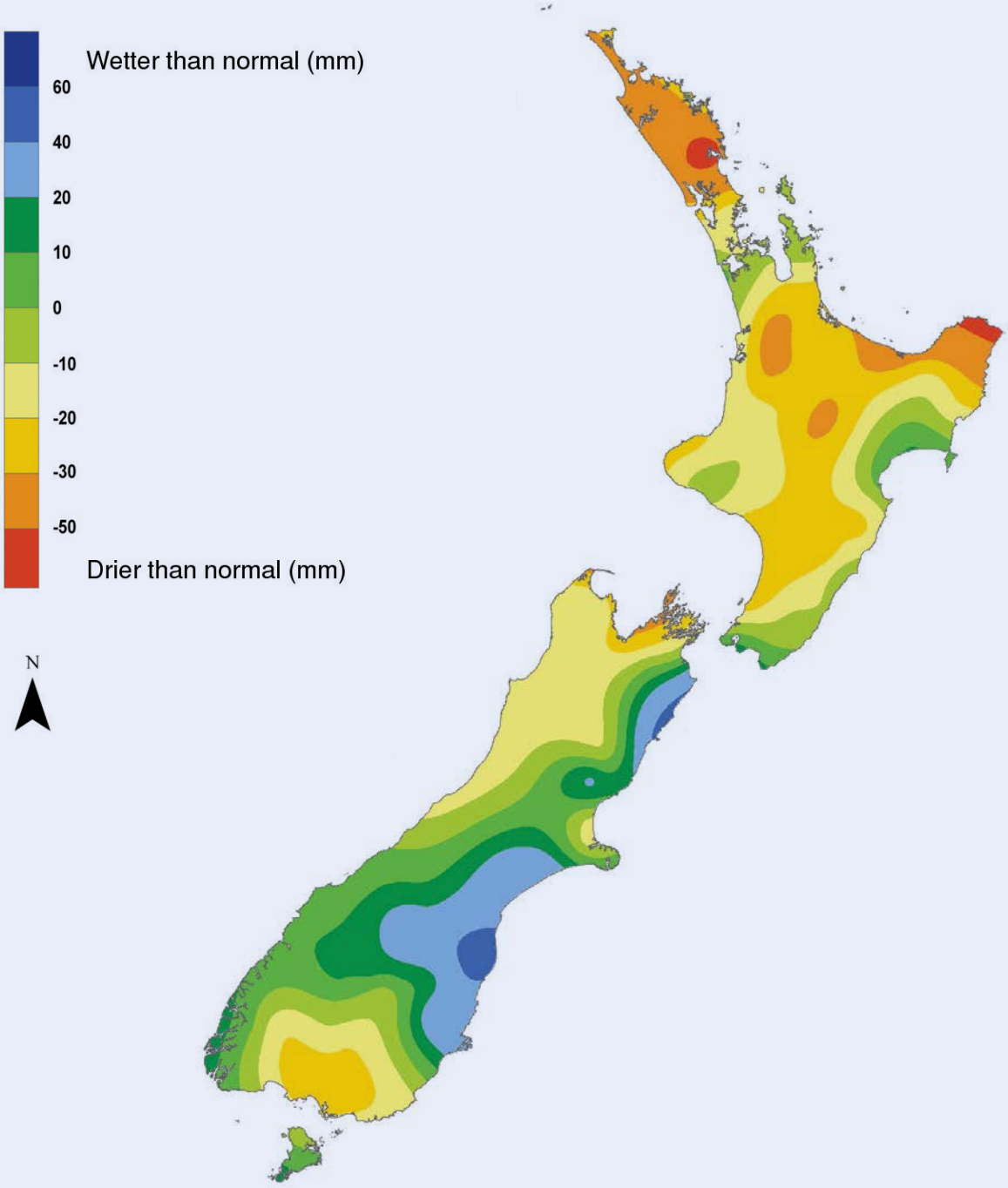
El Niño may help one grower achieve an excellent harvest while leaving another with difficult choices. Thinking through those choices early gives more room to respond.

Looking for more El Niño advice?
For more resources, head to:
www.hortnz.co.nz/preparing-for-el-nino

SOIL MOISTURE ANOMALY (MM)

at 9am on 26/10/2026

Earth Sciences New Zealand Te Whatu Ao



Soil moisture heading into late spring is a mixed story for growing regions. The graph, courtesy of Earth Sciences NZ, shows the anomaly compared to the 30-year period to 2020

Part 2 of 3 Geoheat series

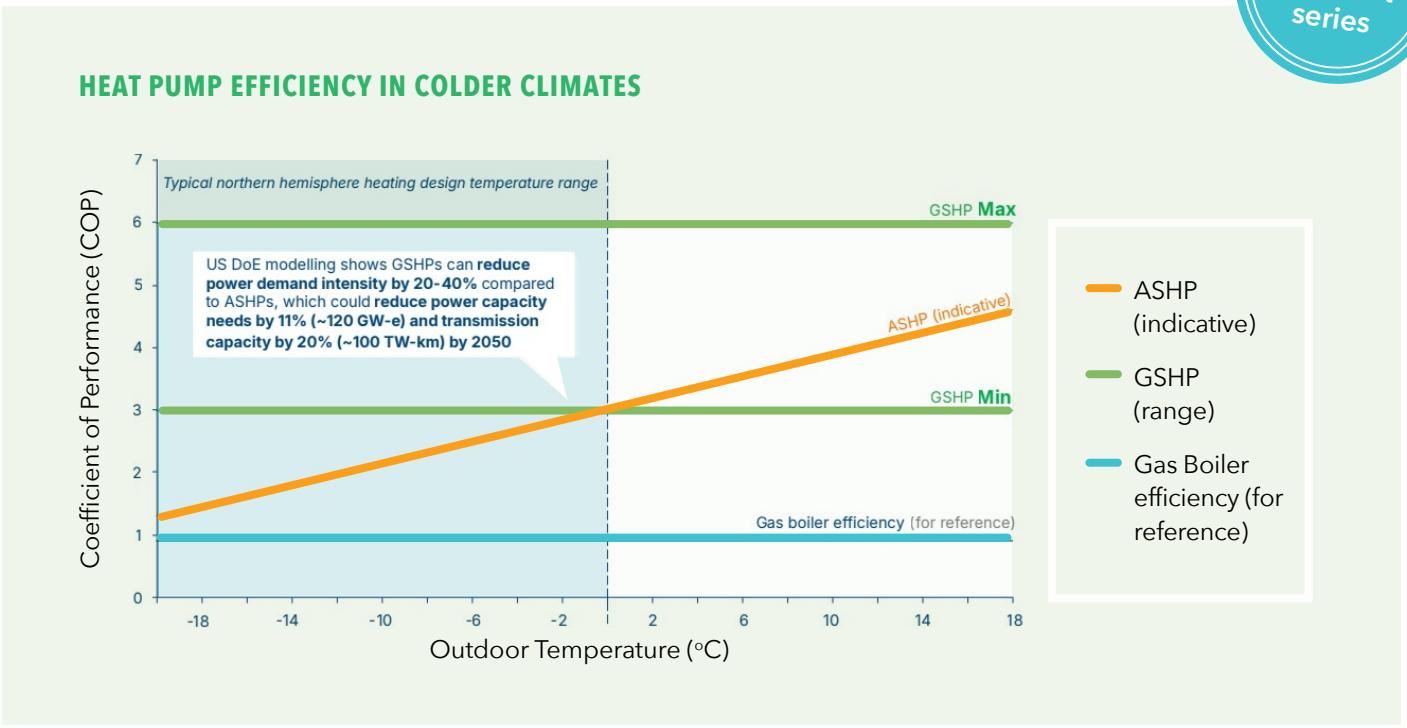


Figure 1. Chart showing the advantages of GSHP vs ASHP. Note that GSHP COPs are typically higher in New Zealand than the max shown above; this is due to different average climate, space cooling demand (e.g. a hospital requires efficient heating and cooling), and also favourable geological conditions like warmed groundwater. Source: Energy Transitions Commission, Beneath the Surface, 2026

THE HEAT BENEATH OUR FEET: LOW-TEMPERATURE OPPORTUNITIES

In our first article in this three-part series ('Benefits of going geoheat', NZGrower & Orchardist October 2026) we explained that you don't need hot groundwater to run an efficient geoheat system. In fact, ambient groundwater temperatures (between 10° and 18°C in New Zealand) are very useful. In part 2, we explore low-temperature ground source heat pump opportunities in more detail.

Anya Seward and Celia Wells

KEY TAKEAWAYS

- The ground stays at a steady temperature all year, which keeps ground source heat pumps efficient on the coldest days.
- For big heat users like greenhouses, that can mean a smaller electrical upgrade and lower running costs.
- Warmer groundwater helps, but a reliable flow rate matters just as much.
- Judge options on whole-of-life cost.
- Check consent requirements with your regional council early.

What is low-temperature geothermal?

There is a reason our distant ancestors lived in underground caves. Beyond providing shelter from the elements, the temperature underground is much more stable than at the surface, protecting them from extreme heat and extreme cold. Underground temperatures usually stay between 10° and 18°C. That constant temperature and lack of fluctuation is an important factor in making a ground source heat pump (GSHP) efficient. A GSHP uses that stable temperature as its starting point. Instead of pulling heat from cold winter air, it draws on the ground or groundwater, which stays at much the same temperature all year.

In New Zealand's geothermal industry, anything below 150°C is classed as 'low-temperature geothermal'.

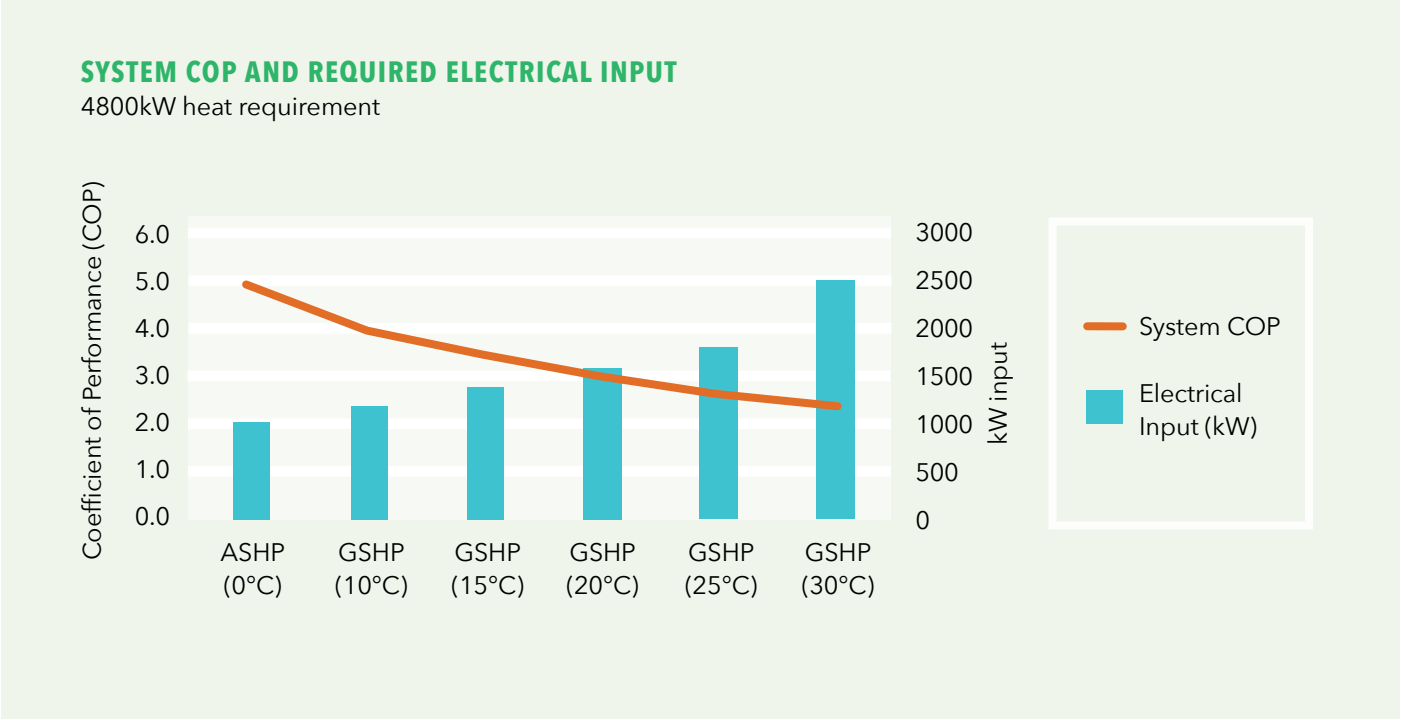


Figure 2. Geothermally enhanced groundwater or other 'warm' thermal sources improve the COP of a heat pump when used for heating-dominant activities. Source: Bay of Plenty Regional Energy Transition Accelerator, EECA 2024

Within that, resources below about 30°C are often described as ambient. For this article, we're focusing on what most people would think of as low temperature: that is, ambient groundwater found across all of New Zealand. We'll also include a look into what becomes possible as it gets warmer, up to around 30–40°C.

Why the ground beats the air on cold days

GSHPs are widely used in homes across North America, Scandinavia and parts of China where sub-zero winters are normal (see figure 1). Air source heat pumps (ASHPs) lose efficiency and output as air temperatures fall, so they work hardest on the coldest days, when you need heat most. A GSHP doesn't have that problem, because its source temperature barely changes. In New Zealand homes, the case for GSHPs is less clear cut, thanks to our milder climate. But for large heating applications like greenhouses, swimming pools and public buildings, the case for investing in a GSHP stacks up.

Why it matters for greenhouses

To see why, it helps to understand a heat pump's coefficient of performance, or COP. This is the amount of heat a heat pump delivers for each unit of electricity it uses. A COP of 4, for example, means 4kW of heat for every 1kW of electricity. The higher the COP, the cheaper the heat.

An ASHP's COP drops as the air gets colder, while a GSHP's stays higher and more stable because its source temperature changes very little. Heat pump systems have to be designed for extreme weather events or peak heating loads, not the average day. For a huge energy user like a greenhouse, a falling COP on the coldest days can drive up the capital cost of an ASHP as it can require a massive electrical upgrade.

How a ground source heat pump works

A GSHP works like any heat pump. It takes low-grade heat from a source, here the ground or groundwater, and lifts it to a temperature you can use.

Most GSHPs deliver water at up to 60–80°C, which covers most greenhouse heating requirements. Specialist high-temperature heat pumps operate between 80°C and 100°C, with international prototypes currently reaching steam temperatures as high as 180°C.

RUPEX
"we grow together"
QUALITY PLUG-PLANTS
High quality and healthy seedlings supplied on time
Veges, strawberries, summer crops, herbs, shelterbelts
www.rupex.co.nz
info@rupex.co.nz | rupexnz@outlook.com
Mob: 027 278 3789 | O: 09 2363738
760 Glenbrook Road, Pukekohe, Auckland 2679
Serving commercial growers since 1998

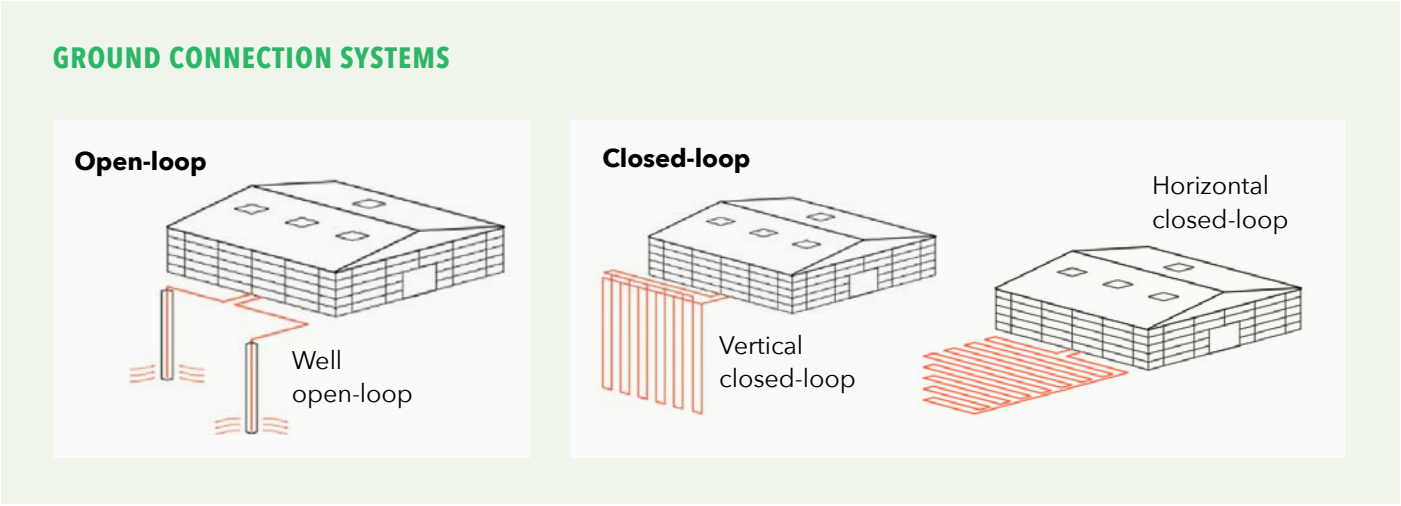


Figure 3. Open-loop systems, which take and discharge groundwater, are often the most cost-effective for large heat loads, but they need a productive aquifer and consents

Will it work with my existing heating system?

In most cases, yes. A GSHP can feed the same hot water pipes, rail heating or fan heaters already in your greenhouse. The catch is efficiency. Heat pump efficiency falls as the gap between the source temperature and the output temperature grows, so the lower the temperature your heating system runs at, the better a GSHP performs.

Many greenhouse heating systems were designed around gas boilers, which run hot, often supplying water at much higher temperatures than a heat pump runs at most efficiently. A GSHP can still deliver those temperatures; this isn't a question of capability. But running it hot lowers its efficiency and raises running costs, which affects the business case.

There are a few ways growers can close that gap. Adding more heating pipe means each length can run cooler and still deliver the same heat. A buffer tank can store heat to cover peak demand. And many growers keep their existing boiler as a backup for the coldest nights, letting the GSHP carry the bulk of the heating load the rest of the year. A feasibility study will show which approach suits your site.

When the water is warmer: geothermally influenced groundwater

What if the groundwater is warmer than average?

The Resource Management Act defines groundwater that is ≥30°C as geothermal water. Groundwater in the 20s (°C) is likely to be influenced by geothermal activity, or sourced from deeper drilling, and this can be an advantage for heating-dominant GSHP systems like greenhouses.

Accessing geothermally influenced groundwater and pairing it with a GSHP to lift temperatures further is an efficient approach for heating-dominant applications and can improve system economics. Figure 2 shows the improved COP achieved when using geothermally enhanced groundwater temperatures, an underutilised opportunity in New Zealand.

Temperature isn't the whole story, though. For the amount of heat delivered, the flow rate you can draw from a bore matters as much as the temperature. A strong, steady supply of cooler water can deliver more heat than a weak supply of warmer water.

Does the source have to be the ground?

A heat pump can draw on any reliable source of low-grade heat. For growers, options include rivers, lakes and ponds, treated wastewater and waste heat from your own site, such as the heat rejected by coolstore refrigeration in packhouses, or from a neighbouring site.

Open or closed-loop? Connecting to the ground

There are two main ways to connect a heat pump to the ground (see figure 3).

Open-loop systems pump groundwater from a bore, pass it through a heat exchanger, and return it to the ground through a second bore. They are often the most efficient option and the most cost-effective for large heat loads, but they need a productive aquifer and consents to take and discharge water.

Closed-loop systems circulate fluid through sealed pipes buried in the ground, either in vertical boreholes or horizontal trenches. No groundwater is taken, so consenting is usually simpler. Horizontal loops need plenty of land, which many growers have, while vertical loops suit space constrained sites but cost more to drill.

It's important to note that the Geothermal for Greenhouse calculator calculates open-loop direct use geoheat and GSHP systems only. This doesn't mean closed-loop systems aren't an option, it just wasn't possible to include closed-loop systems in the calculator's logic.

EXAMPLE 0.8HA GREENHOUSE WITH 945KW PEAK HEATING LOAD

	Annual thermal load (kWh)	Peak load (kW)	Capital cost	Annual Energy Consumption (kWh)	25 year Opex	Annual Carbon Emissions (kg CO_2e)	25 year carbon tax*	LCOH ($ / kWh)
Gas heaters	1,190,464	945	$580,000	1,340,854	$13,461,517	292,521	$468,033	$0.49
ASHP			$1,050,000	541,120	$6,293,499	37,878	$60,605	$0.28
GSHP (20°C GW)			$1,300,000	345,067	$4,013,306	24,155	$38,648	$0.18

Table 1: GSHP figures assume 20°C geothermally influenced groundwater and climate modelling from Tauranga. Results will vary with site conditions, groundwater temperature and operating profile

Consents and permitting

As noted above, under the Resource Management Act, groundwater at ≥30°C is classed as geothermal and managed under geothermal consenting rules. Below 30°C, it is managed as ordinary groundwater, although that doesn't mean no consent: taking and discharging groundwater, and drilling bores, are still controlled by regional councils, and the exact process and requirements vary by region.

Further consenting advice has been written by Traverse Environmental in EECA's Geoheat Business Guide, which can be found at **https://www.eeca.govt.nz/assets/Uploads/Geoheat-business-guide-in-Aotearoa.pdf**

The main advice is to talk to your regional council early about your intentions and what consent pathways they foresee. With Resource Management Act reform expected, specific advice on consents is likely to change, reinforcing why seeking local advice is a sound approach.

Does it stack up? The economics

A GSHP usually costs more to install than an air source heat pump or gas system, mainly because of drilling and extra pipework. The payoff comes from lower running costs, which matter most for energy-intensive sites that operate around the clock, like greenhouses.

The fairest way to compare options is the Levelised Cost of Heat (LCOH): the average cost of each unit of heat over the life of the system. It combines installation, running costs (including energy price inflation and carbon costs) and equipment replacements into a single figure.

Table 1 shows a worked example for a 0.8ha greenhouse with a 945kW peak heating load. The GSHP costs $720,000 more upfront than gas heaters, and $250,000 more than an ASHP. But over 25 years, it costs $9.4 million less to run than gas, and $2.3 million less than an ASHP.

It's worth noting that this comparison is conservative, because it excludes electrical upgrade costs, which are typically larger for an ASHP (due to peak electrical load requirements). GSHP equipment also tends to last longer than ASHP equipment, reducing replacement costs.

Focusing on capital cost alone is understandable, given decades of cheap fossil fuels. But with energy becoming more expensive, less secure and less environmentally acceptable, whole-of-life cost gives growers a truer picture.

The economics depend on the site. Groundwater temperature and flow rate both affect how efficiently a GSHP runs. Drilling deeper can sometimes reach warmer water or stronger flows, improving efficiency, but it also adds cost. In other cases, a shallower bore delivers the better overall result. There's no single right answer, which is why every site needs its own assessment. You can explore how these variables affect the economics using our calculator.



Find out more next month in our third and final article in the series. Access the Geothermal for Greenhouse calculator and mapping tool: **www.gns.cri.nz/research-projects/decarbonising-covered-crops-with-low-temperature-geothermal**



Adoption of Smart & Sustainable programme technologies has been heavily supported by extension activities, case-study orchards and grower engagement

SMART & SUSTAINABLE: THE RESEARCH PROTECTING NEW ZEALAND APPLES' PREMIUM ADVANTAGE

New Zealand's apple and pear industry has earned a reputation for producing the world's best apples. But that reputation has not happened by chance. It has been built through decades of investment in research, innovation and the development of practical tools that help growers meet the demands of increasingly sophisticated global markets.

Dr Rachel Kilmister : NZ Apples & Pears R&D programme manager

Today, we see that investment in NZ Apples & Pears (NZAPI)'s Smart & Sustainable programme. The $14.8 million research programme is co-funded by NZAPI and the Ministry for Primary Industries through the Sustainable Food and Fibre Futures fund (now Primary Sector Growth Fund) and is focused on protecting and strengthening New Zealand's comparative and competitive advantages.

From biological control and disease forecasting models to spray optimisation technologies, advanced pest detection systems and innovative post-harvest treatments, the programme delivers a practical toolbox for growers and packhouses. It produces tools that protect orchards from pests and diseases, reduce reliance on agrichemicals, support increasingly demanding market requirements, and maintain New Zealand's position as one of the world's most trusted suppliers of premium fruit.

While the programme is future-focused, it is also the latest chapter in an extensive legacy of industry-led research that has consistently delivered commercial benefits for growers.

A research legacy built around market access

Foundations for success were laid in the mid-2000s when stringent retailer and consumer expectations, particularly



Smart & Sustainable research demonstrated that black spot disease pressure could be significantly reduced by relatively simple ground-based sanitation practices, which have since been widely adopted by growers

in European markets, created growing pressure to reduce agrichemical residues on fruit.

NZAPI, then Pipfruit New Zealand, responded through the development of PipSafe, a pilot programme designed to find a way for New Zealand growers to produce export-quality fruit with extremely low or virtually non-existent agrichemical residues.

The results were game changing.

PipSafe quickly evolved into Apple Futures, which, between 2008 and 2010, established practical, commercially scalable production systems that enabled growers to produce ultra-low residue fruit while maintaining premium quality and commercial returns.

By 2009, 63 percent of New Zealand's export apple industry was operating under Apple Futures protocols. The programme, which itself cost just $3.2 million, delivered a $152 million increase in pipfruit export value over five years.

By 2011, 75 percent of non-organic apple growers had adopted Apple Futures practices, including virtually all growers supplying European markets.

As European residue requirements became increasingly manageable, growth opportunities emerging throughout Asia brought their own set of phytosanitary requirements.

Apple Futures II, running from 2014 to 2021, shifted emphasis from residues towards a systems approach for pest management and technical market access solutions.





Bioeconomy Science Institute researchers are providing growers with insights into beneficial insect monitoring

The programme invested more than $5 million over seven years and is credited with the sector's accelerated growth of New Zealand apples in high-value Asian markets including China, Viet Nam and Taiwan.

Between 2013 and 2020, total apple export earnings increased from $501 million to $907 million. Export value to Asia reached $498 million by 2020, representing 48 percent of total export volume.

Behind these export figures however sits an extensive body of science.

Researchers developed new codling moth monitoring technologies, including improved pheromone lures and attractants. They established a comprehensive systems approach for managing apple leaf curling midge, incorporating monitoring tools, orchard interventions, washing technologies and packhouse detection systems.

Research also produced improved management options for bull's eye rot, hot water treatment technologies supporting market access requirements, enhanced food safety systems and high-pressure washing technologies that improved removal of pests from export fruit.

An ongoing challenge

Today, growers face a complex challenge of simultaneously meeting ultra-low residue expectations in European markets while maintaining the phytosanitary outcomes required for Asian markets.

It was this challenge that acted as the catalyst for Smart & Sustainable.

The New Zealand apple industry is a world leader in producing fruit that meets both low residue requirements and nil pest standards across global markets.

To maintain that position we need to continuously seek and develop new solutions. Existing chemistry continues to come under pressure, and growers need practical, effective tools that allow them to keep supplying the world's highest-paying markets.

Launched in 2022, Smart & Sustainable is designed to do more than generate scientific knowledge. Its goal is to create practical tools that growers and packhouses can adopt.

Four years into the programme, evidence of that adoption is already visible.

The programme has tested 34 technologies for pest and disease control and detection. This includes 23 that have been evaluated for orchard use, 11 that are ready for implementation on orchard and three post-harvest technologies that are ready for commercial uptake.

Twenty commercial orchards have participated as case-study sites, helping test technologies under real-world conditions and demonstrating outcomes directly to growers.

It's an approach that appears to be working.

A grower survey conducted during year four found that nine Smart & Sustainable tools had already been actively adopted by growers. Among the most widely adopted practices were orchard sanitation, implemented by 69 percent of respondents; chemical-free shoot ripping for apple leaf curling midge management, adopted by 56 percent; and spray optimisation practices, adopted by 44 percent of growers.

We've deliberately focused on looking beyond research for research's sake. The programme has been heavily supported by extension activities, case-study orchards and grower engagement. That means we're already seeing technologies being readily adopted and delivering benefits in commercial orchards.

Success stories emerging

Orchard sanitation for black spot management has been a critical area of work and it's been fantastic to see such high adoption rates.

Research demonstrated that relatively simple ground-based sanitation practices could significantly reduce disease pressure by lowering inoculum levels in orchards.

Smart & Sustainable has delivered potential solutions for fire blight management through the testing and validation of biological control products designed to replace antibiotic use. Research has also validated disease risk forecasting tools that enable more precise spray and risk management, helping growers target applications more effectively while maintaining disease control.

Growers want science that delivers long-term solutions to current and potential market access challenges. We are looking for solutions to problems before they arrive so that if or when they occur, our sector is able to meet that challenge head on and continue delivering significant export value and economic benefits to New Zealand.

Therefore, our research must be solution-focused and value driven, and with a focus on securing or increasing productivity.

This is seen in research such as an apple leaf curling midge counting application, which is now receiving wider field testing, and 3D canopy modelling that allows researchers and growers to optimise sprayer settings across different tree architectures to reduce agrichemical use without compromising efficacy.

Research on green lacewing biological controls, residue-free mealybug management options and enhanced disease detection systems are all progressing through the programme pipeline.

While much of the work is orchard-focused, Smart & Sustainable is also delivering significant innovation in packhouses.

Hot water drenching technologies have progressed through semi-commercial trials and are now available for industry adoption to improve disease management outcomes, while another project has researchers working with artificial intelligence grading systems capable of improving detection of codling moth damage or presence.

Collectively, this work represents a growing toolbox of options that supports the sector's growth ambitions, sustainability goals and market access requirements.

Looking beyond 2029

Smart & Sustainable is funded through to 2029.

By then, the programme is expected to have delivered a suite of tools capable of reducing residue risks, improving pest control, strengthening phytosanitary performance and supporting grower profitability.

However, it is already an example of industry-led R&D repeatedly delivering the science needed to protect market access, secure premium returns and create new growth opportunities.

As the sector looks toward the ambition of reaching $2 billion in exports by 2035, maintaining investment in science and innovation will remain critical because the markets delivering the highest returns tomorrow will likely depend on research being undertaken today.

And as the Smart & Sustainable programme continues to demonstrate, science remains one of the most valuable tools available to New Zealand apple and pear growers.



Packhouse innovations include hot water drenching to improve disease management – a process that has progressed through semi-commercial trials and is now available for industry

Specialist Training Provider

Horticultural and Industrial
Mobile Elevated Work Platforms

Our Services

- Specialising in HYDRALADA® elevating work platform operator training
- Nationwide Training (BOP based)
- "Non Unit Standard" training courses
- Conducted at your site
- Base level theory content
- Practical assessment appropriate to your business
- Training Reports provided
- Certificates of Competency provided
- Refresher courses available

Contact
Steve Hall
Mobile: 027 233 3310
Email: stevehall@xtra.co.nz

Pathway Solutions



Maddi Sheridan, Hawke's Bay finalist in the Young Grower of the Year competition, pitches her idea to the judges, clockwise from top left: Miriam Hall from Bioeconomy Science Institute, HortNZ's Anna Rathé, Hillary Booker and Elyse Price from South Pacific Seeds

YOUNG GROWER FINALIST'S **INNOVATIVE IDEA TO TACKLE ORCHARD PESTS**

When Hawke's Bay finalist Maddi Sheridan was looking for inspiration for the Innovation module for the 2026 Young Grower of the Year competition, mice came to mind.

"I was racking my brains for an innovative idea," says Maddi, who is quality and compliance manager – growing at T&G Global in Hastings.

"It struck me that potentially the kind of ultrasonic sound deterrent devices that are plugged into walls to deter rodents and unwanted pests could be adapted and scaled up for use in orchards, to deter others such as codling moth and apple leaf curling midge."

The Innovation module is a key part of the competition, supported by long-term sponsor South Pacific Seeds. This year's Young Grower of the Year competition was held in Cromwell on 27–28 August. The competition celebrates the success of young people in the industry as well as encouraging others to consider a career in horticulture.

GROWING TOGETHER 2035
AHAP aligned

Participants needed to submit a written proposal describing their novel horticulture industry innovation idea and then pitch it to a panel of judges from Bioeconomy Science Institute, HortNZ and South Pacific Seeds.

HortNZ's Anna Rathé said entries also had to support the pillars of the Aotearoa Horticulture Action Plan.

"The judges were impressed by all seven competitors, particularly the compelling way that each framed the problem they were tackling and the quality of the presentations."

Maddi gained a Bachelor's degree in Horticultural Science before joining T&G as a supply and quality technician in 2020 and returned to take up her current role in late 2025 after two years working in Canada.

During her time with T&G, she has also developed a 2D Best Practice Scorecard to improve orchard accountability.

Maddi's innovation idea proposed a device, suitable for outdoor use, that would emit ultrasonic sound waves, too high pitched for humans to hear, but which could potentially deter insect pests.

"I proposed that each individual device would be powered by a battery, recharged by a solar panel located on top," she says.

"I did a lot of research online and calculated the cost of creating the module would be approximately $7,000 per hectare, which was competitive compared to the current costs of controlling these pests, including costs of pesticide, labour for application and codling moth mating disruption in high pressure areas."

> **"The judges were impressed by all seven competitors, particularly the compelling way that each framed the problem they were tackling and the quality of the presentations**

Maddi's proposal included a model of leasing the devices to growers, rather than selling them, so that they could be exchanged when software was upgraded and the older models recycled. She also designed branding and created a mock-up of the device and solar panel.

"We had to send our written proposals in a couple of weeks before the Young Grower of the Year final and then make a 15-minute presentation/sales pitch to the judges on the day of the competition.

> **"Some research around how insects react to sound waves is beginning to happen, but it is very early days. A lot of research and testing would have to happen first to put my idea into practice**

"I developed a PowerPoint to support that. It was a really good exercise to be involved in, the feedback was positive and the judges made some very good suggestions and pointed out possible issues."

Details of the Innovation module idea entries are not usually made public, in case finalists want to take them further. Maddi offered to share hers as she isn't planning to pursue the idea.

"Some research around how insects react to sound waves is beginning to happen, but it is very early days. A lot of research and testing would have to happen first to put my idea into practice.

"But it was very cool to be challenged to come up with an innovative idea and work through that process. I really enjoyed the entire competition." ●

Horticulture undergraduate and postgraduate scholarships

Applications are now open for our 2027 scholarship programme.

Scholarship opportunities are available for students with a special interest in the commercial fruit and vegetable industry.

Students studying towards an undergraduate degree or diploma, with the intent to support the New Zealand fruit and vegetable industry post study are encouraged to apply for a 2027 Horticulture Undergraduate Scholarship.

Students undertaking postgraduate study focussed on innovation and tackling challenges critical to the horticulture industry's success are encouraged to apply for one of our postgraduate scholarships.



Find out more and apply www.hortnz.co.nz. Applications close Tuesday, 1 December.



Kai Co co-owner Ethan Vickery and produce manager Sam Elliott

THE CATCHWEIGHT KINGS
CUTTING OUT THE MIDDLEMAN

With the food price index continuing to climb (although fruit and vegetable prices have dipped), it's no surprise the duopoly is an election issue. Challengers Kai Co are opting for a decidedly fresh approach. But will it improve trading for New Zealand's fruit and vegetable growers?

Lachlan Woods-Davidson

Since opening their one Christchurch store earlier this year, Kai Co's social media following has grown to 40,000 on Facebook alone – predicated upon an unpolished, funny, frank and at times needling voice. Shoppers are conscious of the widening chasm between corporate action and public interests, and Kai Co's approach seems to hone in on this.

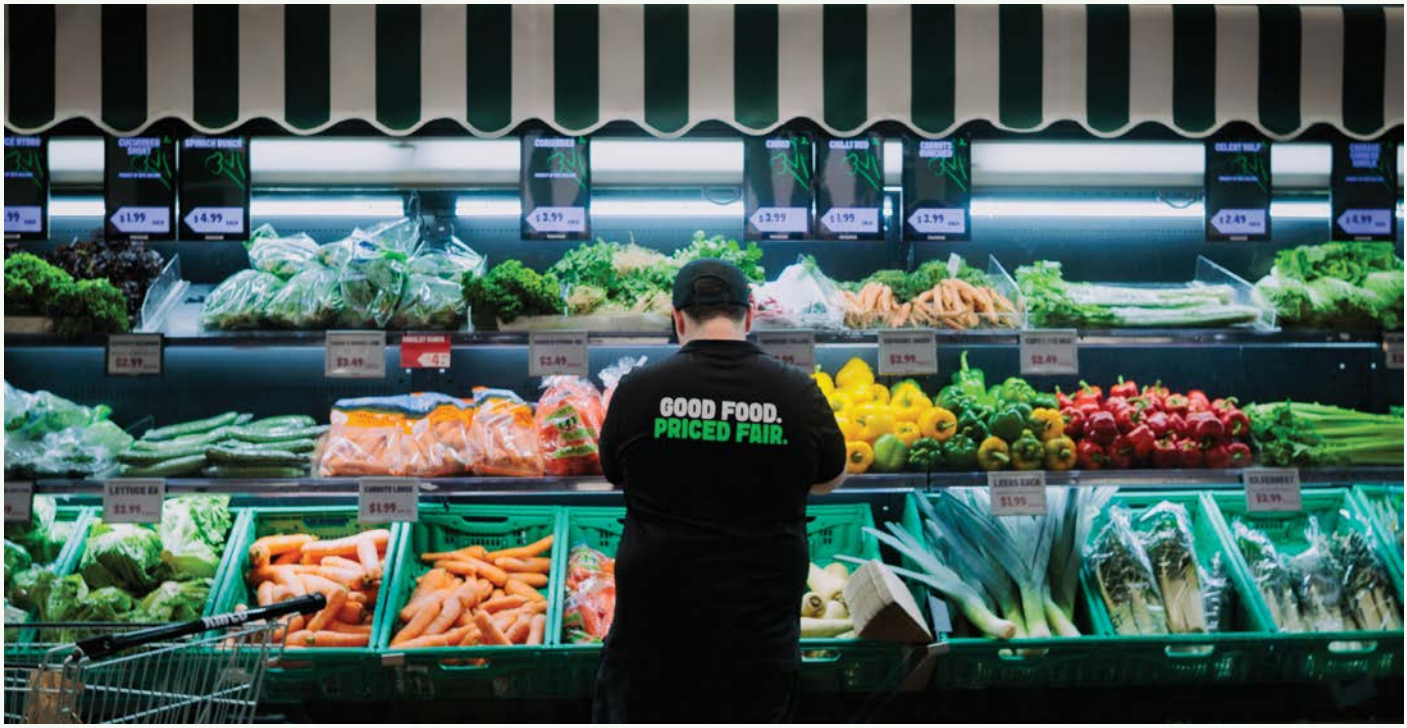
"We wanted to be quite 'New Zealand', not take ourselves too seriously," explains Ethan Vickery, co-owner of Kai Co with his father Shane. "Have a personality, have a soul – which are the things the supermarkets don't have."

Digital marketing is proving the great equaliser for small businesses taking on the big boys, and after nine months the Vickerys' forest green darling of Christchurch's northern suburbs is one of the most closely watched independent grocers in the country. They now welcome 9000 customers through their doors weekly, more than doubling forecasts.

Competing on price with transparency

Shane and Ethan started under the Mad Butcher banner, with Shane running two stores over the past two decades. "With that business we also had a produce store connected to it," explains Ethan. "So we had a bit of experience with that. Not a hell of a lot. It was more complementary, because we always thought the biggest threat to butchery businesses is the fact that they're also a time cost. So if you can make it a destination, two birds with one stone, you make it a more worthwhile stop."

After finding a suitable building at Northwood's Supa Centre, they set up shop on a simple premise: if a produce



Loose or branded carrots? Customers can decide at Kai Co with no white-label fruit and vegetables in sight

store can be cheaper than a supermarket, then why not just operate one inside the other?

"When we first opened we didn't really think we were doing this to take on [the duopoly]. We were just selling food cheaper, because that's what we've always wanted to do and what we're good at. Then it evolved into something a bit more, with more of a focus on grocery. And the more context we got, the more we found out about how the supermarkets operate, the more we thought, screw these guys.

"We realised there were a lot of people clipping the ticket without adding much value," Ethan continues. "So we thought, we need to get as close to the source as possible, have it as lean as possible. And that's how Kai Co came about, combining more of a grocery offer as well."

The positioning was deliberate, with Ethan explaining that they always planned to compete on price. The butchery is built to roughly the same footprint as their old Mad Butcher stores, though Kai Co's sits behind glass windows for a traditional feel, with staff in aprons slicing meat in full view.

"As soon as you start undercutting everybody else, they [customers] get suspicious," Ethan says. "They ask if this is too good to be true, what's wrong with it? So that's why we've been very transparent."

Fresh produce is a strength

Produce is the area in which the Vickerys needed the most guidance, so they went out and found the best produce manager they could. Sam Elliott now also doubles as





With a background in butchery, the Vickerys realised adding fresh fruit and vegetables made sense to reduce the time cost for customers

a minor celebrity of the Northwood Supa Centre, with customers turning up specifically to comment on videos he appears in. Spikes in foot traffic directly correlate to posts that perform well.

"There's talk about 'third spaces' going," says Sam, referring to the social hubs beyond home and work that provide an opportunity to connect and aren't economically segregated – in this case your local artisan's shop. "The idea of a fishmonger or a butcher or a greengrocer or a baker being a trade and a self-sustaining business in and of itself is less than what it has been previously. And people do want that, they do desire that. We treat what we do as a trade, because it is. This isn't a shelving exercise." It's also part of why the butchery is quite literally transparent.

The look matters too, and it's had real effort put into it. Shane made trips to China to research a clean, premium finish on par with the major chains rather than anything that reads as a discount operation – part of drawing a broad customer base, wealthier shoppers included, rather than positioning Kai Co as a budget-only option. Day to day, that job falls to Sam: keeping shelves and displays clean and tidy is as much a part of the message as anything on the price ticket.

It's a strategy built in deliberate contrast to New Zealand's high-profile attempts to crack the grocery market, such as online grocer Supie, which collapsed in 2023. "[Other new competitors] come in with a lot of focus on dry goods," notes Sam. "The supermarkets' strength, and where they provide the best value to all their customers, is on the shelves. Our strength, and by a massive margin the biggest part of our business, is fresh food. No one's in that."

More flexibility for suppliers

Kai Co's successes have been well covered, which both men admit has helped over the last nine months of trading. For the *NZGrower & Orchardist* reader, the interesting part of the story lies more in the structure they adopt to deliver their biggest strength. Produce manager Sam, formerly at Pak'nSave, has a clear view of what an independent operator can do that a supermarket banner cannot.

> **"We treat what we do as a trade, because it is. This isn't a shelving exercise**

"Especially in fresh food, a lot of suppliers are restricted in what they can put directly into [an individual store from a big supermarket]. If they have a contract to supply a certain category, they can't then supply individual stores with an alternate product at a cheaper price in that same category, because it cuts out the distribution network that the big supermarkets have. So the benefit we have is that we're flexible, we're independent, we don't have big supply contracts with anyone. We just take whatever the best deal is, which means people [fresh produce suppliers] can't say, 'Oh, I can't offer that to you guys because there's a head office that's going to get angry.' There's no head office."



Transparency and a traditional artisan grocery feel are key to customers trusting lower prices

Those supply contracts, he says, were originally set up to give everyone – growers, markets, supermarkets – a shared expectation of spec. But out in the fields, "things don't grow uniformly," says Sam. "There's so much outside of that, that is a really strong value offering to a customer, which because of these supply contracts cannot be offered through the big supermarkets. It's like the tomatoes we've got, right? They look slightly funny, they're perfectly fine, and we can sell them for way less."

Buying outside standard size and weight specs doesn't come at the cost of quality, he says, and can mean the opposite: "Our systems actually allow us to be not only as fresh but often fresher." Ethan illustrates it with broccoli. "Someone who used to work at a supermarket in produce once told me they wouldn't want to get large broccoli in, because they'd rather the customer buys two," he says. "We've actually had a load turn up fresh today which is huge – the broccolis. We may be at a similar price point or cheaper than some supermarkets, but we're twice the size." Sam puts it more simply: "The yield [consumers] get from their spend is so much better."



Spinach

Grow yield with the best spinach
Diamond: Shoulder/early summer, semi savoy, very erect, excellent yield. Pe:1-20.
Summerstone: Summer semi savoy, fast, high leaf numbers. Pe:1-20.
Flintstone: Autumn, semi savoy, thick leaf and high leaf numbers. Pe:1-20.

Cucurbita

T-Rex: High producing main season butternut. Strong vining plant growing 1.5–2Kg fruit.
Baron: Early maturing storage pumpkin, av. 3.5–4kg with a small seed cavity. Vibrant colour. Blemish free skin. Excellent eating.
Pacific King: Early and main season pumpkin. 3–3.5kg fruit. Excellent storage.

Crisphead

Gabasa: Great adaptability for cool season. Excellent vigour, medium large flat round head. Neat frame and clean butt. Bl 1-40, LNSV, Fol:1-4.
Ohau: Has the best vigour and is the most suited to cool conditions. Excellent uniformity and consistent heart fill. Bl 1-41.
Kaniere: Adaptable variety, for warm to cool season. Bl 1-32. New autumn varieties for trial **LEC 5723** & **LEC 5729**.

Lefroy Valley quality seeds

Call us today about our range
0800 Lefroy (533 769)
www.lefroyvalley.co.nz



Sam also points to another squeeze on growers that Kai Co is hoping to subvert: white-labelling and the slow erosion of brand identity. On Kai Co's own shelves, $3.49/kg branded bags of carrots can outsell their loose $1.99/kg compatriots. "People respond to brands they know," Sam says. But when a supermarket owns that brand outright and can switch supply whenever it likes, the grower behind it never really gets to keep the recognition they've built.

"The more players who soak up a lot of that market share, like we're trying to do, and like there are other people trying to do, the more power the suppliers have," argues Sam. "Suppliers having more agency means that in the long term you as a retailer are going to have more people to pick from, fewer people are going to be squeezed out. It's actually good for the whole ecosystem if every part of the supply chain has good control over what they're doing."

> "[We're] trying to change that mindset, and I think we are getting there

It wasn't as easy as simply soaking up market share, however, even if Kai Co did adopt a similar dark green to another familiar player. They were still an unknown quantity – not a dairy, nor a conventional supermarket chain. Suppliers didn't have the structure to deal with them, says Ethan. "To get pricing competitive with the supermarkets, they had to take a bit of a leap of faith in us," to take a chance on volume, in particular. "But as we've grown," adds Sam, "there's been a lot more public interest in it, a lot of them have come round."

Fair competition?

Not every supplier is comfortable being publicly associated with an independent challenger, either. Speaking to RNZ's *Morning Report* in July, Ethan was candid about it: "We have some suppliers who don't even want to put their brand in our shop. They might sell us product, but it'll be unbranded... I guess it's just retaliation. They don't say as such, but you can assume."

He also discussed the packaging on offer in our conversation. "There are some instances where we can't get the same as the supermarket. We wind up the rep, because the supermarkets get really nice packaging and he gives us food-service packaging, which is what he'd give a restaurant. So we've got to wrap it all up ourselves, and we're saying, 'You're selling us this premium product and it looks average. It makes it a really hard sell.' So it's trying to change that mindset, and I think we are getting there."

Working with the supplier to beat the bigger players on price while still maintaining quality involves a nimble approach across both produce and meat – a local-first logic at times, where supply is opportunistic rather than contracted. Kai Co might purchase whole lambs from a Mid Canterbury farmer, killed and processed close to the source, or call poultry suppliers the day before delivery – checking what's left over from promotional volumes the big chains locked in six weeks earlier, and nabbing the surplus. "We're working with the suppliers instead of dictating to them," Ethan says.

Even with this collaborative approach, though, the supplier still risks disturbing the status quo. "We've definitely had a few suppliers that have sold us deals and then told us they've gotten backlash from certain [supermarkets] for selling to us," says Ethan, "but it's hard to tell if that's outside of the normal business."

"It's one thing if it's a butchery manager giving a rep a hard time," Sam adds. "If it's someone who's in charge of a category at [head office] giving them grief, that's probably a different story."

Kai Co has caught a wave of public consensus surrounding the supermarket-policy debate, inflamed by election promises. In any case, Ethan isn't convinced a single new "massive competitor" is really the answer. What he wants is simpler: more buyers.

What would he want *NZGrower & Orchardist's* readers to take from all this? "Pick up the phone and give us a call and let's have a talk about what we can do," he says. "Maybe we can't do anything, but let's have a talk about it."

And they'll surely have shelves to fill. Kai Co is close to signing the lease to a second, larger store, with plans for up to five more sites over the next two-and-a-half years. ●



Lincoln University Professor Hamish Gow speaking at the Citrus NZ Conference

PICK A LANE: WHY THE MIDDLE OF THE MARKET IS A TOUGH PLACE TO GROW

Which value chain are you in, and what is it built to deliver? Lincoln University's Professor Hamish Gow put that question to growers at the Citrus NZ Forum in Gisborne.

Jo Pentreath : Citrus NZ executive manager

Professor Hamish Gow of Lincoln University opened the Citrus NZ Forum in Gisborne in September with a cartoon. Two sealed towers, labelled Operations and Marketing, stand side by side. A report is being passed between them through a slit in the wall.

Plenty of growers will recognise it: orchard, packhouse and marketer each doing their bit without always talking to each other. Hamish's talk, *The growth case for citrus: what are your value chain options?,* was about why that matters and what to do about it.

His advice, in short: pick one way to win, build everything around it and don't end up stuck in the middle.



Why is the middle getting squeezed?

Hamish started with the shopper. None of this is fruit specific: it is grocery-wide research from overseas. But it shows what growers are selling into.

Drawing on Rabobank's work, he described the 'hybrid consumer': the same person buys all of the basics as inexpensively as possible while concurrently paying a premium for a limited selection of halo products with either specific technical or real emotional appeal when appropriate, and largely ignores the middle of the pack offerings between.

Rabobank's 2013 figures make the point. Premium and value segments in Western Europe and the United



SIX TAKEAWAYS FROM HAMISH GOW'S PRESENTATION

1

Choose a value discipline.
Very deliberately select one value discipline and pursue it relentlessly.

2

Pursue it singularly, but don't forget the rest.
Focus is the point, but the other two disciplines still have to be good enough to support it.

3

Design your value chain discipline alignment.
Everything behind the choice has to line up: how you brand, how you price, who makes the decisions and how you innovate. For example, a commodity chain minimises brands and innovates openly. A product leader optimises its brand and innovates in-house. A customer-intimate chain builds a brand portfolio and co-innovates with partners.

4

Choose your value chain partners.
Who you work with depends on the lane. Commodity chains sell at arm's length in open markets, product leaders work under licence with preferred suppliers, and customer-intimate chains build close partnerships.

5

Incentivise and align appropriately.
Everyone in the chain needs a reason to pull the same way. That means rewarding growers, packers and marketers for what the chosen lane needs, whether that is low cost, top quality or meeting a customer's needs.

6

Don't get stuck in the black hole.
The cost of straddling is mediocrity.

States recorded positive figures – the premium segment in the United States was up 9.2 percent. Mid-market segments were negative: −1.5 percent in Western Europe and −0.6 percent in the United States. This has just accelerated over the past decade.

Consumers have moved to the ends. Hamish presented the example of a consumer cooperative in South Australia's Barossa Valley – The Coop – where the owners (the consumers) have a high-end store and a hard discounter operating side by side, and noted that a premium fresh department and an Aldi increasingly look alike. 'Inexpensive' does not mean poor or inconsistent quality. Instead, consistency is the same across both hard discount and premium retail formats today; the difference is the variety and technical specifications on offer. A 2015 Bain survey of Australian shoppers found that abundance, the look and feel of the fresh area, and the smell of produce were the top three influences on how they judge fresh produce quality, at 78 percent, 70 percent and 65 percent. Shoppers also cross-shop: only 18 percent of primary Coles customers and 18 percent of primary Woolworths customers shopped at that chain alone.

On the shelf, that squeeze looks like crowding. His photos from supermarket produce departments showed navels in bags and loose at a spread of prices, walls of apple varieties, and New Zealand mandarins of visibly uneven quality from one display to the next. His verdict: consistent quality assurance is a minimum market entry requirement across all formats.

Three ways to win

Hamish's model (see figure 1), adapted from Treacy & Wiersma and from Micheels & Gow, indicates that successful firms and value chains succeed by adopting one of three value disciplines.

It can have the best product (product leadership), be the best fit for a particular customer (customer intimacy), or be the lowest-cost supplier (operational excellence). Each runs differently, and New Zealand has an example of each.

But do not get stuck in the middle. If you try to be all three, you'll end up in what he called the "black hole of mediocrity", in the middle of the triangle.

What does this mean beyond citrus?

The examples Hamish chose came from across New Zealand's food and fibre sector, which is the point. The same choice faces every grower who sells into a retailer.

Price follows the consumers' job to be done and location-based price elasticity. Take Rockit™ apples at $2.99 for a 76-gram two-pack, sold in a New Zealand gas station chiller beside dips and ready meals – a price Hamish highlighted. Work out the price per kilo, that is about $39. Compare that to a five-pack tube of 350 grams in a New Zealand supermarket apple aisle that worked out at $18.54 a kilo. Hamish observed similar price elasticity differences

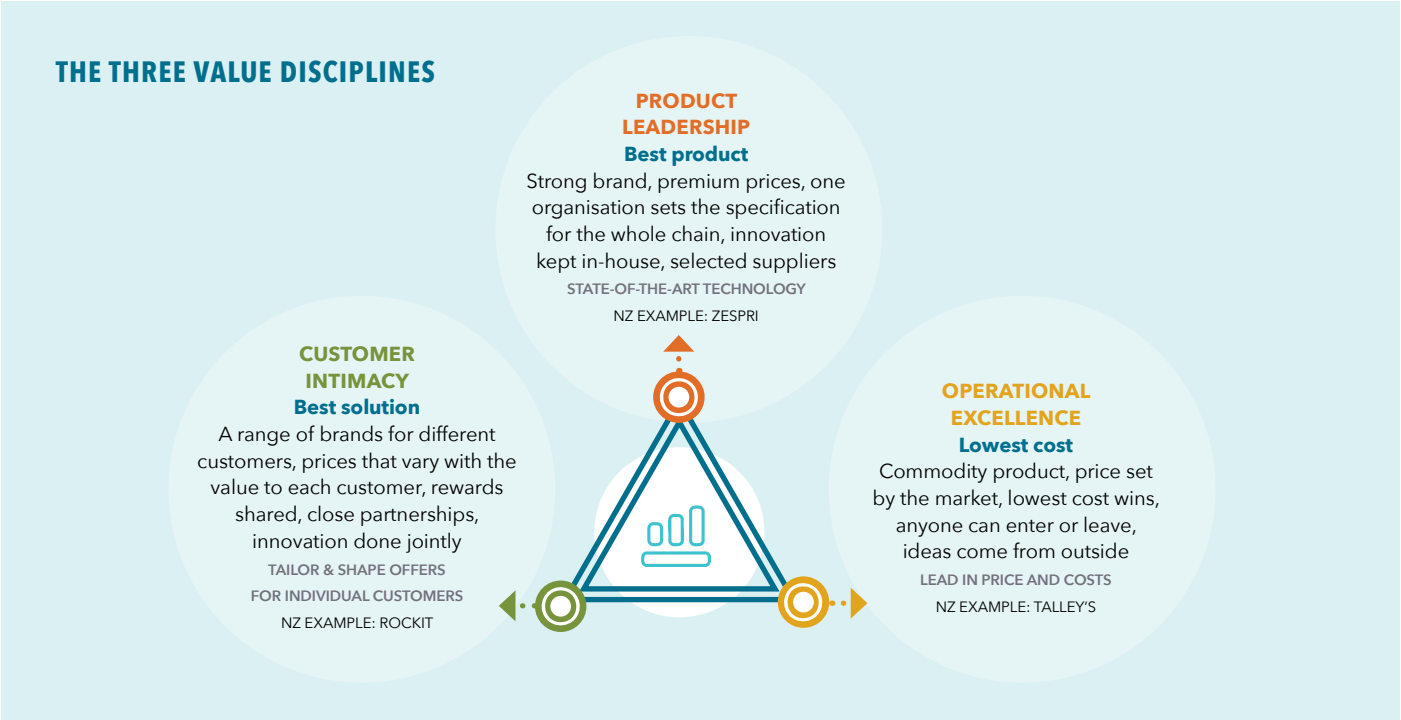


Figure 1: Hamish's model adapted from Treacy & Wiersma and from Micheels & Gow, indicates that successful firms and value chains succeed by adopting one of three value disciplines

overseas where supermarket versus convenience store promotions came to roughly NZ$22 and NZ$50 a kilo respectively. A grab-and-go snack is priced on what the shopper needs it for, not on what the fruit cost to grow.

Start from how people eat. Marketers call the idea 'jobs to be done': shoppers buy food to do a job in their day. The Rabobank thinking Hamish used asks when the shopper will eat, where, what they will buy, where they will buy it and how they will prepare it. His potato example, Wilcox's range of Perlas, Dig Me and Piccolos, showed a commodity crop rebuilt around those occasions.

Quality assurance is the ticket to any lane. A premium brand with patchy fruit, or a commodity with patchy fruit, loses the shopper either way. Hamish's mandarin examples made the point.

There is room for more than one answer. Zespri, Rockit and Talley's sit at different corners of the triangle, and each is a successful New Zealand business. The test is whether a sector, a packhouse or a grower has made the choice deliberately.

Watch the fracture line. Hamish split the three ways to win into two camps. On one side is the traditional route of being cheaper: the lowest cost, commodity approach. On the other are the two routes that give the shopper something extra: being better (product leadership) or more purposeful (customer intimacy). He called the divide between them a fracture line, and the Rabobank numbers suggest the middle ground is where growth is hardest to find.

Citrus NZ independent chair Hugh Ritchie says the forum's lessons feed into a project already under way with Lincoln University.

"Hamish's lanes are a useful test," he says. "We're working with Lincoln University on a value-chain exercise, and it asks the same question: where does value sit in the citrus chain, and who captures it? Our aim is the same: value, not volume. Hamish's framework gives growers a way to read the results. Once we can see where value is made and lost, the next question is which lane the industry wants to compete in." ●



WHAT IS A VALUE CHAIN?

Every step between the shopper's basket and your orchard is the value chain: retail, distribution, shipping, marketing, cool storage, packing and growing. The value chain design starts in the market, which determines who makes decisions along the way and who gets paid what. In a value chain that is designed well, every step and every player is aligned and incentivised to pull together in the same direction.

SPRAY WORKSHOPS – HOSTED BY A LIGHTER TOUCH



In conjunction with A Lighter Touch programme, Covered Cropping NZ organised three practical spray workshops in August and September giving greenhouse growers the ability to learn techniques and tips from David Manktelow in a location that was close to them.

Dinah Cohen: Covered Cropping NZ manager



At Island Horticulture in Kaiapoi, Canterbury, David Manktelow checks that all the nozzles on an upright boom sprayer are working and showing how the angle can affect coverage and range

The workshops were well supported and with over 60 people attending across the three events. David was able to tailor each one to try to address the needs of the audience and left plenty of time to answer questions.

The content built on the spray workshops that David ran 18 months ago in a capsicum and a tomato crop.

Workshop takeaways

Different spray set ups are useful for different pests and different stages of plant growth. For example, early thrips pressure might be best tackled with a handgun to target the heads of the plants.

The following quick and simple four steps can go a long way to improving the effectiveness of your spray applications.

1. Park the sprayer in the crop at a row end and look at how the spray nozzles are oriented relative to the targets you are trying to hit.
   - Will spray reach the full height of the target?
   - Projecting spray upwards will improve leaf underside coverage
   - Projecting spray downwards into growing tips can improve coverage
   - Forwards and/or backwards angling nozzles by 10–15° almost always improves coverage and spray retention over spraying at 90° to the travel direction



David Manktelow (back left) and Kees van der Eijk, owner at the CSM eggplant greenhouse in Dairy Flat, address growers and horticulture specialists from West and North Auckland

2. With the sprayer stationary, run the nozzles at the operating pressure.
   - Look for blocked or damaged nozzles and fix any faults.
   - Look for gaps between nozzles – nozzles should be parallel or converging. Diverging nozzles may cause underdosing.
   - Check the operating pressure against the recommended pressure for the nozzle type. A 'spitty' looking output = pressure may be too low. A 'smoky' looking output = pressure may be too high.
3. Run the sprayer to treat a full row (both sides). Follow it and observe coverage – turn leaves, look for dry areas (adjust nozzle angles and positions to try and improve), look and listen to see how much runoff (dripping) is occurring (reduce spray application volume if too much dripping to waste is occurring).

   It is amazing how much you can visually miss when you look at a sprayer operating. Taking photos, or preferably a video of the sprayer in action will allow you to review what was actually happening and work out what is and isn't working well – is the angle of the nozzles correct, is the output even across several nozzles on a boom?

   If you are not entirely happy with the performance of a sprayer, it is well worth the effort of using water sensitive papers to help visualise and improve coverage.



4. Once you think the sprayer is working well – confirm the coverage with a water sensitive paper test.
   - Aim to use 8–10 water sensitive papers per test – folded in half to give 16–20 target surfaces. Either pin or staple these to leaves (top and bottom surface) or clip them to vertical and horizontal targets spread up a pole.
   - Spray and then glue or staple onto a template – photograph this as soon as possible as papers will grey out in a humid environment.
   - Assess the papers – aim to get at least 80 percent with good coverage.
   - Progressively make one change (travel speed, spray volume, nozzle angles etc) at a time to the sprayer and assess coverage each time.
   - Typically three or four adjustments will give you a visible improvement of coverage on the papers. Record the sprayer setting for that canopy growth stage so that you can repeat this next time.

No sprayer will ever get 100 percent of the crop but managing the crop canopy will enable better coverage – as will spraying in both directions and varying which side you spray going down a row versus up the row. Altering the droplet size, pressure and angle will all have an effect on coverage, but experiment by making one change at a time and observing the difference achieved.

With robotic sprayers, observing the output from time to time perhaps with water will allow you to see if any of the nozzles are blocked given that robotic sprayers often are operated without a person observing what is achieved in the rows.

Biologicals can require nozzles to be cleaned more frequently than chemical applications.

Experiment with 60° output hollow cone nozzles if you haven't tried these before. They're likely to give you better spray coverage than traditional flat fans. What is the nozzle projection (reach) like between different nozzles? What is the reach like at different stages of plant growth and leaf coverage?

Observation of how well your spraying is reaching the target is best done with water sensitive papers. How to use these was talked about in the first spray video (link below).

Spray parts like nozzles do vary in terms of wearability and cost – it's worth shopping around and testing different brands and materials. Although David does consider ceramic to be longer lasting than plastic.

We would like to thank CSM in Dairy Flat, Passion Fresh in Tuakau and Island Horticulture in Kaiapoi for hosting these workshops at your sites. We would also like to thank A Lighter Touch for organising them. A second video is currently being finalised and the link will be circulated soon.

Energy page on the TomatoesNZ website

Information about energy for greenhouses has always been located in multiple places. I have attempted to create a one-stop-shop with a dedicated page for all greenhouse growers on the TomatoesNZ website accessed here: **https://www.tomatoesnz.co.nz/energy-for-greenhouses/**

One of our many resources for growers is a new video looking at the conversion of coal boilers to combust wood pellets. This relatively cheap conversion can be more straightforward than installing a completely new system. Listen to the tips and learnings that Pierre Gargulio talks about from carrying out four of these conversions at JS Ewers in Nelson. Thank you to Pierre for his time and enthusiasm for doing this for the benefit of the wider greenhouse industry.

If you have any questions, please email or phone Dinah Cohen, Covered Cropping NZ manager:

021 922 414

dinah.cohen@tomatoesnz.co.nz

Watch Pierre Gargulio from JS Ewers on their coal boiler conversions to using wood pellets.
https://www.youtube.com/watch?v=tTlaEDQ5mm4

Watch spray workshops run by David Manktelow in the tomato crop 18 months ago.
https://youtu.be/7DfHD_De_js?si=NyOswXLenI8pcMRo

TECHNOLOGY THAT PAYS ITS WAY



Potato growers have never been short of innovation. From improved machinery and irrigation through to advances in varieties, storage and crop protection, the industry has continually adopted technologies that deliver practical benefits on farm.

Kate Trufitt : Potatoes New Zealand chief executive

Recent industry survey results show New Zealand potato growers are already active technology users. Most businesses are using digital compliance and spray records, GPS guidance systems, farm management software, weather tools and other forms of precision agriculture.

As digital tools, automation, artificial intelligence and precision agriculture become more widely available, the challenge is no longer simply adopting technology. It is identifying which technologies genuinely add value to the business.

Start with the problem, not the technology

One of the strongest messages from growers is that cost remains a barrier, but uncertainty around practical value and return on investment is an even greater challenge. In simple terms, growers want proof that a tool will make a measurable difference before committing time and money.

Many of the most useful technologies entering agriculture are not replacing growers. They are helping growers make decisions with more confidence.

Satellite imagery, weather stations, soil moisture sensors, drones and crop monitoring tools can provide earlier information about what is happening across a paddock. Rather than treating every area the same, growers can focus attention where it is needed most.

Artificial intelligence is increasingly being used to analyse large volumes of information and identify patterns that may otherwise be missed. Importantly, these technologies do not replace crop walking, experience or agronomic advice.



Better integration of information across the production system is likely the next stage of digital agriculture

Their value comes from helping growers spend their time more effectively and identify issues sooner.

Precision where it matters

Precision planting, variable-rate application systems and sensor-equipped machinery are becoming increasingly common in major potato-producing regions around the world. These technologies allow operations to be adjusted according to local conditions rather than treating every paddock, or every part of a paddock, the same.

The potential benefits include:

- more accurate seed placement
- reduced overlap and waste
- better utilisation of fertiliser and crop protection products
- improved irrigation efficiency
- greater operational consistency.

The fundamental objective remains straightforward: achieving more consistent crop performance while making the best use of available inputs.

Lessons from Europe

Growers who attended the recent Potatoes New Zealand study tour and Potato Europe event saw firsthand the pace of technology development occurring across Europe. Autonomous machinery, advanced optical grading systems, artificial intelligence applications and highly integrated farm management platforms are becoming more common throughout the international potato sector.

However, one consistent lesson emerged: technology still needs to pass the practical test.

A machine or software platform that performs well in Europe will only create value under commercial New Zealand growing conditions if it suits our paddock sizes, growing systems, labour availability, market requirements and support networks. Local service capability, integration with existing systems and ease of use are often just as important as the technology itself.

Connecting information across the business

The next stage of digital agriculture is likely to involve better integration of information across the production system.

Planting records, crop monitoring, irrigation, spraying, harvesting, grading and storage all generate useful information. The greatest value may come from connecting these data sources and using them to improve decisions throughout the season.

When information is linked across the business, growers gain a clearer understanding of what is driving performance, quality outcomes and profitability.

What will drive future adoption?

Not every technology will suit every operation, nor should it.

The most successful investments are likely to be technologies that:

- address a specific business challenge
- integrate with existing systems
- produce information that can be acted on
- deliver measurable economic benefits
- have reliable local support and servicing.

Growers consistently tell us they value practical outcomes, applied research and information that can be used on farm. The same principle applies to technology. Adoption will be driven by solutions that demonstrably improve profitability, reduce risk and help growers make better decisions.

The next chapter

Grower knowledge, experience and judgement will remain at the centre of successful potato production. Technology's role is to support those strengths by providing clearer information, greater precision and better decision-making tools.

Contact Potatoes New Zealand

0800 399 674

info@potatoesnz.co.nz

www.potatoesnz.co.nz

FIVE QUESTIONS TO ASK BEFORE INVESTING IN NEW TECHNOLOGY

1. **What problem am I trying to solve?**
   Start with a production or business challenge rather than a technology solution.
2. **Will it improve a decision?**
   The best tools help improve timing, accuracy or confidence in decision-making.
3. **What is the likely return?**
   Look for evidence of savings, productivity gains, yield improvements or reduced risk.
4. **Does it fit my existing operation?**
   Consider compatibility with current machinery, software and management systems.
5. **Can my team use the information?**
   Technology only creates value when the information generated leads to action.

CASE STUDY: INNES FIELDS LTD

Andy Innes says it was a simple decision to invest in optical sorting machinery two years ago. Andy and his wife Jo grow seed and processing potatoes as part of their large mixed arable/cropping enterprise.

He says he is always on the lookout for innovative solutions – that's the direction of travel in farming. "If you're standing still, you're going backwards."

He was keen to find better ways to manage wage costs and recruitment during harvest in Mid Canterbury. The return on investment weighed up for optical sorting. He and Jo were convinced by the performance of the Tolsma machinery when they went to the Netherlands to see it in action.

Andy and Jo landed on the Optica Q model. It was installed two years ago. The software is continuously improving its algorithms with machine learning. In terms of productivity and consistency, Andy says the performance has exceeded expectations "by a long way".

Importantly, the automation of labour has achieved his goals, replacing at least five roles and the associated recruitment requirements.



CROP PROTECTION – AGRICHEMICAL ACCESS REGULATORY REFORM UPDATE

The Agricultural Compounds and Veterinary Medicines (ACVM) Amendment Bill was passed before Parliament rose for the election and received Royal Assent on 30 September. This represents an important milestone to improve growers' access to new crop protection products.

Now the amendments to the ACVM Act have been passed, we intend to work closely with the Government on the development of the regulations and implementation arrangements, including regulatory timeframes to help ensure the reforms deliver their intended outcomes and translate into more timely access to new crop protection tools for growers.

Unfortunately, the Hazardous Substances and New Organisms (HSNO) Amendment Bill did not progress further before the House rose for the election. This means a more streamlined and coordinated HSNO-ACVM system has yet to be realised. HortNZ is advocating for the HSNO Bill to be prioritised early in the new parliamentary term and for further amendments to strengthen the use of international assessments in approvals for new active ingredients.

EXTRACTING MORE VALUE – HORTICULTURE HOT HOUSE PARTICIPANTS NEEDED!

Does your horticulture business have a waste stream that is currently underutilised? Would you like some expert help to explore ways to add value to these resources?

The Bioresource Processing Alliance (BPA) together with the Aotearoa Horticulture Action Plan present the Horticulture Hot House, an initiative to foster waste-stream innovation.

Tell us about your challenge, what impact it will have, and what kind of R&D support you might need to solve it. We'll pair you up with a researcher to work with you on an idea.

Finalists will receive free registration to the BPA Sustainable Solutions Symposium in Wellington on 6 May 2027, where entries will be judged by an expert panel.

The BPA will provide funding for R&D to develop the winning idea.

Email HortNZ's Anna Rathé (**anna.rathe@hortnz.co.nz**) with a one-liner about the waste stream or resource you want to add value to before Friday 13 November.

SIGN UP

Get the latest horticulture policy and risk updates, industry programmes and events in your inbox and have your say with HortNZ's Weekly Newsletter. Follow the QR code or visit **hortnz.co.nz** to sign up.





Enza Zaden is proud to be accredited by Seed & Grain New Zealand for quality and traceability.

ENZA ZADEN

We meet and exceed the Code of Practice for Vegetable Seeds for Sowing.

www.enzazaden.com

email: sales@enzazaden.co.nz • Phone +64 9 963 0122