

NZGROWER & ORCHARDIST[®]

VOL 98 | NO 01 | FEBRUARY 2025

HORTICULTURE NEW ZEALAND

LEADERSHIP REFRESH AT FAMILY BUSINESS

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New LeaderBrand chief executive Richard McPhail shares his vision. See page 6. Photo by Kristine Walsh.

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.

NZGrower & Orchardist:

ISSN: 3021-3606 (Print)
ISSN: 3021-3614 (Online)

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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.

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NEW MAGAZINE OUTLOOK

Kia ora koutou,

Over the last six months Horticulture New Zealand asked for your feedback as we trialled improvements to our long-standing grower magazines *NZGrower* and *The Orchardist*.

Based on your feedback, we are excited to share that, starting in this February 2025 issue, *NZGrower & Orchardist* will continue as one combined monthly magazine covering both fruit and vegetable sectors.



This decision fits with our direction towards a united horticulture sector.

HortNZ is committed to *NZGrower & Orchardist* which we see as an important tool and grower resource to drive resilience and growth of horticulture in New Zealand. Thank you to our readers and in particular our funding partners, sponsors and advertisers who have supported us throughout this trial.

Ngā mihi

Kate Scott, HortNZ chief executive ●

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HortNZ levy payers are entitled to a free printed copy of the *NZGrower & Orchardist* magazine each month. Other interested readers are welcome to subscribe. Print subscriptions cost \$165 including GST for 11 issues per year (New Zealand postal addresses).

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Grow a better tomorrow

2025 A NEW YEAR, AND HERE WE GROW AGAIN

2025 is a year we haven't grown in before so new opportunities are with us, and will it be great year, will it be an okay year, or will it be awful? Unfortunately, we often remember more about the bad growing years than we do about the good ones.

By Barry O'Neil : HortNZ chair

After celebrations of entering the new year quickly passed, and we unfortunately heard reports of wind and hail damage in some of our growing regions, I needed to remind myself of why we actually continue to grow, when we seem to always be up against the head winds of the elements, or new biosecurity threats like the oriental fruit fly response, or new government red tape, along with average to low returns.

While it's no doubt a personal issue, to me there are so many reasons why we should be growing our fantastic horticulture products, not the least being that consumers want and need our healthy, nutritious and safe fresh produce.

Growing is incredibly fulfilling, and it really is awesome to think that we take bare land and create a field of amazing vegetables or an orchard, and then manage it through the seasonal growing stages to produce a substantial crop.

My favourite time in my orchard is not harvesting, but during bud burst and flowering, when new life and colour comes back into the orchard and the bees get on and do their work. Harvesting is nice, and hopefully rewarding, but it's just one of the many activities all of which have their own satisfaction, and challenges!

I didn't appreciate until I became a grower how skilful growers are to anticipate what the needs of the crop are, and then get on and make it happen. It is to me one of the most understated areas of horticulture. To be able to just look at a plant or a field of plants and know what is needed to make them healthier, or to increase production, is an incredible feat.

We are so diverse, both in what we grow but also in how we grow and who is doing the growing, and that makes horticulture such a fascinating area to work in. With over 100 different product types, and at least twice that when varieties are included, we have such an incredibly rich diversity of produce.

Growing in soil or hydroponically, in vast open fields or sheltered orchards, in plastic tunnels or under hail netting, indoors under glass or vertical growing systems, organic or conventional, and with every one of these growing systems is a large amount of technology being used with innovation being continually introduced.

“

We are so diverse, both in what we grow but also in how we grow and who is doing the growing, and that makes horticulture such a fascinating area to work in



And then there is the diversity of New Zealand growers - Māori, Indian, Chinese, Korean, European, etc. etc. - all of whom bring their own cultural knowledge and approaches to growing which makes growing even more rewarding.

Relationships and links with community have always been a vital part of growing. We predominately grow close to urban and rural communities, and the people in our local communities are such a key part of our industry - for labour, for supplies and support, and for sales. They also tolerate our noise, our dust and our spraying, and we are always grateful for the support we have from our communities; and it is important and rewarding for our businesses to be active community participants.

A big plus to me for growing is that it's such an environmentally friendly means of food production, along with being an efficient use of land resulting in lesser impacts on water quality, and with low greenhouse gas emissions, and aligns well with our natural biodiversity. It is great for our wellbeing to know that as part of horticulture we are a leader in this area for not only current times but for future sustainability and prosperity.

This new year 2025, a year we haven't grown in before, brings lots of predictions about greater impacts from climate change, what a Trump Presidency will do to our economy, along with the effect of China's economic woes. Even Nostradamus didn't believe 2025 was going to be a good one...!

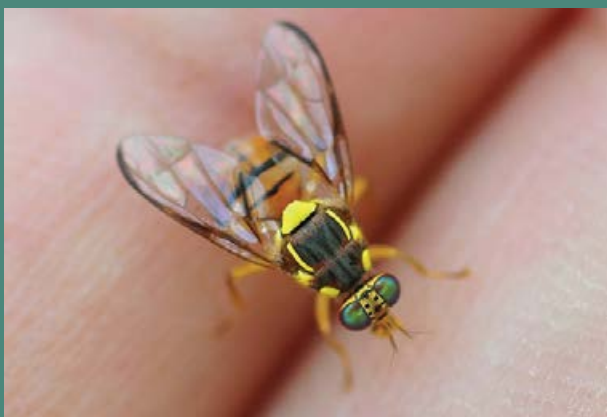
But as growers we know the great reasons why we grow, and we are resilient, so we adapt as we need to and pick ourselves up when we get knocked down. The reality is we are at our best when we work together, and my New Year's prediction is I believe that together we can make horticulture New Zealand's leading agribusiness sector, for all the reasons it's great to be a grower.

As we begin the year I want you to know that our board and staff will make sure that Horticulture New Zealand does everything it can and more, to deliver on supportive policy settings from central and local government, along with the enablers we all need to make us grow.

I wish everyone a successful and prosperous 2025.

Kia kaha. ●

FRUIT FLY INCURSION



On 16 January Biosecurity NZ confirmed that legal controls on the movement of fruit and vegetables in south Auckland would remain in place until mid-February following the detection of a single male Oriental fruit fly on 3 January.

No further Oriental fruit flies had been found in surveillance traps, which is very encouraging, however Biosecurity NZ wants to be absolutely certain that it is not dealing with a breeding population.

Horticulture New Zealand supports these measures. The restrictions are critical to protecting New Zealand's horticulture sector and export markets. While the fruit fly poses no risk to human health, its establishment would have significant economic consequences for growers.

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LeaderBrand chief executive Richard McPhail shares ownership with his brother Gordon (left) and father (and company founder) Murray

PUTTING THE 'FAMILY' BACK INTO FAMILY BUSINESS

After a shuffle in the executive offices at major grower LeaderBrand, the focus – for the short-term at least – is on getting control of costs to help consumers do the same.

Kristine Walsh

For newly-minted LeaderBrand chief executive Richard McPhail the toughest thing about being the boss, is not being the 'boss'.

"You might get out in the field but you have to recognise that any issues out there are not yours to deal with ... you have people you trust to manage them.

"So what I am working on hardest is resisting the temptation to get in there and fix stuff, and instead supporting our team to do what they need to do."

After nearly 20 years in the Gisborne business, most recently as general manager (production), Richard officially took up his new job at the beginning of this year, with former chief executive Richard Burke staying until the end of 2024 to ensure a smooth transition.

At the same time older brother Gordon added executive director to his existing role of general manager (farming),

firmly putting 'family' back into the family business founded by their father Murray 50 years ago.

But Richard says it doesn't signal the approach of any explosive moves from the executive suite as – in the short term – his focus will be on strengthening the existing operation.

It's a big ship to steer: in the decades since Murray planted 40 hectares of potatoes on the family sheep and cattle station, the company has expanded to farm over 2500 hectares in Gisborne and Pukekohe, plus supporting LeaderBrand South Island general manager Mike Arnold.

For the North Island operation that requires a full-time-equivalent team of 450 staff plus the up to 150 casuals required in the busy summer months, with another 50 full-timers working the South Island crops planted in Chertsey, near Ashburton.

Over time, LeaderBrand has shifted its focus from export to the domestic market; established the \$20-million salad house that makes it one of the biggest suppliers of cut greens in the country; launched pouch products like beetroot and sweetcorn; built a covered-cropping facility to help shore up year-round supply; and engaged in sustainable farming research and projects to take the company into the future.

“But like any business, over the last two or three years we’ve seen our costs absolutely skyrocket, so first on the agenda is getting a handle on that,” Richard says.

“There has been a lot of bad news about the cost of vegetables and we are looking to turn that around by getting fresh vegetables on the shelves at affordable levels, starting by working really hard on our efficiency.”

That’s going to require some tough decisions, one being last year’s call to pull out of a joint venture farm in Matamata.

“The reason for farming in multiple regions is to give enough weather diversity to ensure steady supply, but we found we just weren’t getting the diversity needed to justify having three operations across the North Island,” Richard says.

“Backing away from Matamata meant we were able to really focus on our two main farms at Gisborne and Pukekohe. In the last six months the team has done an outstanding job and the results speak for themselves.”

In general, Richard says he and Gordon are following Murray McPhail’s approach of never being afraid of change.

“Our father always urged us to take ownership and we responded by doing some major pivots into things like growing the salad business and really focusing on the domestic market,” he says.

“He was never interested in legacy building ... what he’s interested in is seeing a business that is flexible enough to adapt to the environment as and when it changes.”

LeaderBrand founder Murray McPhail did not have a lot of choice as to the direction his life would take ... he was just 18 when his father died and within three years he had committed to buying the family farm.

In the interim he travelled to Canada and the United States where he worked in the rural sector before bringing home the learnings he poured into his new venture.

“But he and our mother (Lyn) always wanted us to have the choices he never had,” says Richard McPhail.

“So they made sure all four of us (siblings) went away to boarding school and were not pressured into entering the family business.”

There were always the holidays though, when (for a fee) the junior McPhails would work in the fields mainly around the Poverty Bay Flats, just out of Gisborne.

“As kids we worked in the business as soon as we were old enough to ride along with our father and spent many summers stacking sweetcorn crates and working in the packhouse,” Richard says.

“We’d slowly progress to doing less of the hard yakka and more of the tractor-driving type of work, but Gordon was always the one who showed he was the agronomist in the family.”

LeaderBrand’s Richard McPhail moved into the chief executive role this year

Like their father before them, both sons travelled overseas before returning to Gisborne to sign on with the LeaderBrand team, while their two sisters established successful careers of their own.

Though a whisker younger than his brother, then-20-year-old Richard was first to make the move, heading home in 2006 after deciding that while life in Canada as a winter ski instructor and summer water taxi driver was a blast, it wasn’t where he wanted to be.

“I guess I needed that distance to realise how much I enjoyed the lifestyle of growing vegetables, the ethos of it all,” he says.

“You are working bloody hard while all your mates are out at the beach, but you’re also producing something good and having fun with the people you work with and that makes it worthwhile.”

Upon his return Richard headed straight out to the farms to work, but admits his questionable tractor driving was quickly noted.





Last April LeaderBrand hosted Regional Development Minister, Shane Jones, to officially open its completed 11-hectare mega greenhouse project at Makauri, just out of Gisborne. Pictured from left: Gordon McPhail, Minister Jones and Murray McPhail. While LeaderBrand was founded in the fields, Richard and Gordon McPhail are passionate about expanding the facility. "In that space you still have to have good crop husbandry and problem-solving skills," Richard says, "but it's a powerful way to achieve the consistency of supply our customers should be able to rely on."

"It was decided my skills could be better used elsewhere so I divided my time between squash production and the export team," he says.

"The value of that was in being involved in the whole life cycle of the product, from spring planting to packhouse, to spending time overseas doing things like checking arrivals and the conditions on the ground. So you're going from the seed stage to the consumer, all in a 150-to-200 day window."

Working in export, particularly in Japan, was a formative experience, he says.

"I was fortunate in that our largest importer of the time - who had a son about my age - really took me under his wing, taking the time to mentor and instruct me in all sorts of areas of business. I learned a lot in that period, so it was an invaluable experience.

"Now his son is running the business, and we still work together, so it's been nice to be able to maintain that connection."

By 2013 Gordon too had rejoined the fold, focusing on the farm management role for which he had showed early promise.

"We work in different areas but are both passionate about the same things, like the value of covered farming and the technological advances that are revolutionising the agricultural sector," says Richard.

"But neither of us are interested in tech for tech's sake. Any innovations have to actively solve a problem and help

achieve our goal of creating better and cheaper produce for our consumers."

In business, Richard McPhail's core belief is that creating longevity requires adapting to the conditions at hand: "What worked for one generation won't work for the next," he says, "and you have to be prepared to respond to that."

From a personal perspective, he wants to balance the twin aims of driving LeaderBrand through its next phase, while also spending quality time with wife Teresa and their four children.

“
It's not like the old days when Dad would make decisions while driving around in his ute. We have a board to answer to so we're working things through as a team, and that's a good thing

"Looking back, my main regret would be that in my nearly 30 trips to Japan, I never once dropped focus enough to head off for a weekend's skiing," he says.

"So now when any of our team are going on a work trip, I always urge them to tack an experience on at the end. Life is too short not to." ●

WEATHER CHALLENGES 'NOT GOING ANYWHERE'

The summer of 2024-2025 has been a game of two halves for horticulture operators like LeaderBrand, even though it aims for weather diversity by farming in both Gisborne and Pukekohe.

While the company has consistently rolled out product lines like salad greens, two other categories – sweetcorn and watermelon – expose the impact of a hot dry spring followed post-Christmas by cooler temperatures and rain.

And it was a lot of rain: MetService says December 2024 was a month of low sunshine (189.4 hours compared to a December average of 269.3) and record rainfall of 229.9mm, of which 88.7mm fell on Boxing Day alone.

But thanks to a record-breaking spring and good weather in early December, LeaderBrand was able to hit stores early with sun-ripened sweetcorn on the shelves a couple of weeks before Christmas ... so early that for the first time in years they planned to be planting and harvesting corn in the same week.

Meanwhile, indoor watermelons were available around the same time, with their outdoor counterparts also due in stores early, just after New Year.

Some parts of that plan panned out, others didn't, and LeaderBrand chief executive Richard McPhail says it's "just weather".



And while the company has started the Future Farming journey (including covered cropping) to help mitigate challenges from above, the weather isn't going anywhere.

"Our company has been through cyclones like Bola (1988), Hale (2023) and Gabrielle (2023), so it's certainly not the worst of it,"

Richard says.

"We do have a lot of diversification – and that's a big strength for us – but in farming the weather does and will have an impact, so you just have to be resilient and keep on moving."



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Blueberry growers in New Zealand produced around 4000 tonnes of blueberries in the 2023-24 year for both domestic and export markets

BLUEBERRIES BOOMING

The Waikato is home to a large part of New Zealand's blueberry crop and the industry has room to expand according to Blueberry Country general manager and chair of industry organisation, Blueberries New Zealand, Kelvin Bezuidenhout.

Geoff Lewis

Photos by Trefor Ward

Blueberries New Zealand is a voluntary organisation with two part-time paid employees. Membership is a blend of growers and exporters - about 60 grower members out of about 100 growers nationwide from Kerikeri to Southland. A number are farm-gate level producers.

New Zealand produced around 4000 tonnes of blueberries in the 2023-24 year with the majority going into the local market. Exports are around \$48 million in value, with the largest export market in Australia, which can only import from New Zealand under current agreements and takes about one-third of the national crop, Kelvin explains.

"Australia has a large domestic supply, mostly from the eastern seaboard of New South Wales. But they run out in January. Our produce arrives in late January, February, March and early April."

Statistics NZ data shows a record export value of almost \$45m to Australia in the 2024 season with volume still below the 2020 peak.

Internationally New Zealand's biggest blueberry competitor is Peru which produces about 330,000 tonnes a year.

Kelvin has been in horticulture most of his working life including 14 years in kiwifruit in China and ten years in veggies with Wilcox and export onions with Onions NZ.

Blueberry Country was established about 40 years ago on 180ha of peat east of Ōhaupō. This planting is now fully developed and in the throes of a replacement programme involving about five percent of its area each year.

However, the company has blocks around New Zealand including 45ha at Ngatea, located to access the pick-your-own market on the popular SH2 route between Auckland and the western Bay of Plenty.



Kelvin Bezuidenhout is Blueberry Country general manager and chair of industry organisation Blueberries New Zealand



Bird nets: Dan Peach inspecting the crop at Oakberry Farms

It grows on 8ha at Waipu in Northland which was planted eight years ago and is developing 180ha in Southland, Kelvin says.

“This was bought 12 years ago and we are planting about 20ha a year. Down there the winters are colder. The plants take longer to establish but the winter chill creates a sweeter product. Labour is also an issue and we rely to a far greater extent on backpackers.”

Overall, Blueberry Country produces around 1200 tonnes a year, all of which goes into the domestic market.

“We don’t use pesticides in order to keep the ‘beneficials’ – insects which are used to keep other destructive pests under control. As a result, we can’t export to Australia.”

About half of Blueberry Country’s production goes into the domestic retail and wholesale market as fresh berries and the rest is frozen in packs so it can mete out production to sales throughout the year. This also enables more consistent employment of staff.

Kelvin sees ample opportunity to expand the industry.

“When we look at our per-capita consumption of blueberries, New Zealanders consume about half the berries Australians do – and Americans consume twice as much as Australians, so there’s plenty of room to grow the market. We could double consumption.



“We usually pack in 125 gram packs but (Hawke’s Bay growers) NZ Gourmet and ourselves are now using the larger 250 gram packs.

“Demand is only going to grow. Blueberries are the only fruit some kids will eat. Everyone is looking at how to reduce costs to ensure we can market at an attractive consumer price-point.”

There are about 50 different varieties of blueberries, with most of the genetics originating from the United States.

Growers are not only looking for varieties which have better crunch, sweetness and longer shelf life, but also varieties which detach easier from the parent bush to better allow for mechanised harvesting.

As with other horticultural crops, blueberries can lend themselves to growing on frames or wires, which can allow greater concentration and the easier use of automation in harvesting.

“This speeds up the whole process. There’s no reason why we can’t do it.”

When it comes to the development of growing facilities, a key focus is reducing the losses to natural pests – with the primary pest being birds. All of Blueberry Country’s plants are outdoors while some growers work in tunnel-houses, and the single largest grower – NZ Gourmet in Hawke’s Bay – is going for greenhouses to enable better control of growing conditions.



Loading berries for sorting at Oakberry Farms



Patrick Thomsett checking the tunnel house crop at Oakberry Farms

“We (Blueberry Country) are toying with the under cover idea. Birds are our biggest problem. We have bangers and bird netting. It is all about cost-benefit. This seems to be marginal although it would make controlling birds easier.

“One thing that has remained constant is my belief that to be successful, maximising production as efficiently as possible is critical. Our means of achieving this in the berry industry is to use crop protection methods. For some of these methods, like bird netting structures, if you don’t have them, you don’t survive as a grower,” Kelvin says.

Not far away is Oakberry Farms Ltd which has some of its 8ha of growing area and a packhouse on SH26 about halfway between Hamilton and Morrinsville, with the remainder on nearby Woodside Road.

In the 2023-24 year it produced 168 tonnes of blueberries. It also packs for other growers and plans to add another five hectares.

Oakberry Farms was established in 1997 with varieties ranging from de novo and Southern Highbush in substrate, through Northern Highbush and Rabbit Eye. Their harvest season currently stretches from the beginning of September to the end of May. Oakberry Farms packs around 70 percent for export and 30 percent to New Zealand customers.

Oakberry Farms started in-ground and began growing under plastic about six years ago with hydroponics in substrate.

General manager Dan Peach says growing under cover provides protection from climatic events like hail and frost – a danger Waikato growers discovered in the October 2022 frost event which destroyed more than 90 percent of the crop.

“We started from the bottom and there’s a lot of money tied up. We have to go forwards or we go backwards.”

All of Oakberry Farms’ production goes to market via the Fresh Berry Company. Nothing goes to retail and the grower has no customer interface.

Dan keeps an eye on international developments like the biennial BerryQuest conference in Australia and says the industry needs progress focused on newer and better genetics to improve the quality of the fruit to consumers.

The growers say opportunities ahead for the blueberry industry include access to the South Korean market which is currently being worked on with the Ministry for Primary Industries (MPI). Negotiations are also underway with China around pest risk assessment with the aim of gaining preferred market access in the next two years. Current key Asian markets include Thailand and Taiwan.

Challenges include international competition – several South and North America countries along with Morocco are seeking access to the New Zealand market. The local industry organisation is working with MPI to ensure this does not result in the introduction of new biological pests. ●

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Leaning Rock Cherries supervisor Erin Bennie and picker Gabriel Girard from Canada on the Springvale Orchard near Alexandra

MAKING THE BEST OF STONEFRUIT SEASON

Central Otago cherry growers are having another mixed season with variable weather conditions during spring and rain over the Christmas period.

Aimee Wilson

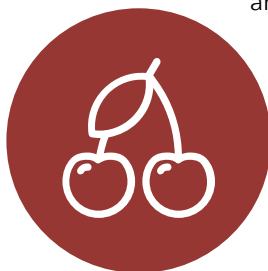
Remarkables Orchard owner Sid Birtles, in Roxburgh East, says the constant weather disruption has been “a bit tiresome”, and they are just making the best of what they have had.

The season started off well for most growers across Central Otago with a strong crop, but the warm temperatures mixed with rain have been detrimental for some.

Sid estimates that between ten and 15 percent of his crop has been affected, following a good fruit set in spring, but he has strong volumes for the Chinese New Year starting 29 January.

Last season export cherry volumes increased four percent to 4407 tonnes and were forecast to grow another seven percent this year, with revenue expected to be around \$98 million.

The season in Hawke’s Bay and Marlborough has been favourable with fruit reaching maturity a few weeks early, while in Central Otago it is slightly later, with some orchards experiencing frosts in November and mid-December.



The Ministry for Primary Industries says in its market report, with Chinese New Year being two weeks earlier, the impact on export revenue is likely to be offset by the fruit quality.

In Springvale, east of Alexandra, Leaning Rock Cherries owner Pete Bennie says there is definitely a lot more fruit around this season, but it is slightly smaller.

“Size is money, but so is volume – but you really don’t know until the end of the season.”

The orchard has been in operation since 1993 and grows over 60ha of summerfruit - the majority being export cherries, with 15 different varieties.

In mid-December he had already picked about seven tonnes of Burlat and that compares to just four tonnes in previous years.

The main export varieties of Lapin and Sweetheart ripen a bit later in early January.

"The fruit is running late but that's a good thing," he says.

Pete employs his son Cameron and daughter Erin to work as supervisors on the orchard, and this year they had 39 pickers, with many high school students working in the packhouse.

Back in the Teviot, Sid says the challenge for growers has always been size, "where once 24mm was a small acceptable cherry, now nobody wants them."

Growers are all aspiring for cherries in the 32-34mm range because the Asian market will pay top dollar for those.

As well as cherries, Remarkables Orchard also grows 80ha of other stonefruit and apples as well.

Owner of Suncrest Orchard in Cromwell, Michael Jones, says the season has been good so far, but there has been a bit of damage to fruit from the rain. Overall, the season has been better than usual.



A heavy crop of Lapins for export from the Leaning Rock Cherries orchard

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“Everything is looking okay - it’s been a good start,” he said in early January.

While it is uncommon to have frosts in December, Michael says he can remember one in January several years ago, and growers are becoming increasingly tolerant to four seasons in any given day throughout summer.

“But we probably had a worse frost in November, that was more difficult to control,” he says.

Fifth generation Teviot Valley grower Gary Bennetts says the rain “had certainly taken the gloss off things,” and he had not started to export cherries until mid-January.

His cherry crop had been “patchy” in places and a few of his later varieties had let him down.

“Some of them would have given me difficulty with the Chinese New Year anyway, so it may be a good thing.”

Otago’s heavy rain event in early October that resulted in flooding along the coast did have some impact on orchards, especially those with later flowering blocks.

But Gary says apricots are doing well this season, and they just keep on ripening, while his cherries have slowed down.

“At the end of the day we have fruit on the trees, which is a good thing.”

One of the new companies in the district, Southern Fruits International, the largest covered cherry orchards in Central Otago at Tarras and Cromwell, expects to harvest a record crop of more than 500 tonnes this summer.

The 160ha orchard is split into two blocks - one at Lindis Peaks and another at Mt Pisa, and the harvest began in late December, with fruit being sent offshore to the Middle East, China and Taiwan.

“
Last season export cherry volumes increased four percent to 4407 tonnes and were forecast to grow another seven percent this year



Last season, strong winds blew down protective nets from 120 out of 163 hectares just before the harvest, which impacted volume.

Director Sharon Kirk says all the nets were replaced ahead of the flowering and fruit set period in spring 2024 and a bumper crop is the outcome.

The volume is expected to increase to 2000 tonnes by 2026-2027 when most trees reach full maturity.

Lindis Peaks 80ha cherry orchard is set on the historic Lindis Peaks Station and has a natural elevation of 400 metres above sea level, making it less prone to frosts. Photo supplied



Also apricot growers, including of the new NZsummer series, this will be the company’s first season sending the fruit offshore.

Ardgour Valley Orchards is the largest producer of the new apricot varieties, with 25ha planted over the past three years.

NZ Summerfresh Ltd released the names of the five varieties before Christmas - Summer Spark, Summer Desire, Summer Charm, Summer Passion and Summer Blaze.

Following a favourable blossoming and fruit set period, chair Stephen Darling estimates approximately 250 tonnes of NZsummer apricots will be produced this season, with plans to export 140 tonnes and distribute 110 tonnes to the New Zealand market.

Stephen, Gary and Sharon are all on the NZ Summerfresh Ltd board, and Gary was one of the first to trial the apricots ten years ago.

Gary, the NZ Summerfresh vice chair, has just 4ha of the apricots on his property, and is confident this season his fruit is good enough for the international market.

A total of 44,000-45,000 trees spanning 44-46 hectares had originally been planted in the new apricot varieties.

The apricots have been under trial everywhere from Tarras to Alexandra, Waikerikeri and Manuherikia, as well as some non-traditional areas such as Canterbury and around Christchurch, along with the Hawke’s Bay. ●

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The Franklin family: Alan, Saskia, Monique, Jasmine, Luke, Arlo, Lucy and Graham. Photo supplied by Franklin Family

AFLUTTER WITH PASSION FOR THE INDUSTRY

Fifth-generation farmers Luke and Jasmine Franklin operate a celery-growing business to the northwest of Auckland. HELENA O'NEILL talks to Jasmine about her new role on the board of Vegetables New Zealand, and recent developments at Franklin Farm.

Franklin Farm produces about 62,000 crates of celery per year on 12 hectares of its 28ha property at Waimauku, northwest of Auckland. Jasmine says they produce a lot more in the spring and early summer and less in the winter, but still pack for market six days a week.

"Our supply is very reliable all year round which the market really likes, and why we have such a good name."

Jasmine and Luke bought the farm from Luke's family in 2020 just as the Covid-19 outbreak was beginning and the government was implementing lockdown restrictions. It was a challenging start, but the couple are very passionate about growing celery and providing food for New Zealanders.

Luke and Jasmine also share a goal of regenerative farming.

"It's a fine balancing act of pushing towards our regenerative goals, as well as being sustainable and being able to produce a beautiful product that pays the bills," Jasmine says.



In August Jasmine was named future director on the board of Vegetables NZ. This came not long after Jasmine completed a six-month governance training programme with Mayfield Group (funded by MG Marketing) and found it really interesting.

"When the opportunity to apply at Vegetables NZ came along I was interested, as it applied to my sector and I wanted to learn more about the industry as a whole. I care deeply about growers, their struggles etc. as they're all the same problems Luke and I face, and I believe change happens in the boardroom with our passionate advocates."

Although only a few months into the role, Jasmine is finding it to be an eye-opening experience.

“There is way more going on behind the scenes than I originally realised, and came to learn there is a group of people on the board working incredibly hard to support our growers on so many issues I didn’t even know about. I also got into the role at the start of our busy period on the farm so it’s been hard to fully apply myself, and I’m looking forward to the first few months of 2025 when I can focus a little harder on the role.”

The team at Vegetables NZ have been very inclusive and supportive, she says, and Jasmine is excited to work alongside such a passionate group of people.

Her vision for the industry is for growers to be celebrated and thanked for their efforts and for people to better understand where their food comes from.



We’re more than just The Butterfly House; we’re part of an educational movement that teaches about regenerative practices, the importance of pollinators, and sustainable practices

“This in turn would help the nagging narrative of ‘vegetables are expensive’. I believe people feel connected to their food when they know the back story - we definitely experience that on our own farm and with our social media. People love knowing our back story and being a part of our journey.”

She also has three main goals: to promote awareness and education about healthy eating, advocate for better industry exposure, and to drive positive change.

“I am dedicated to increasing public understanding of the benefits of eating fresh vegetables, believing that strong leadership can help drive initiatives that educate communities on the importance of a nutritious diet and the role of horticulture in providing healthy food options. Our population is so sick, unhealthy and overweight, hospitals are full - and honestly it can so simply be corrected by thinking about what we put in our mouths. This is a huge one though, but probably the most important.”

“I want to raise the profile of the horticulture sector, ensuring that the hard work of growers is recognised, valued, and sustainable financially - both within New Zealand and internationally. I feel like the story that ‘fruit and vegetables are too expensive’ is a boring narrative people repeat and don’t realise produce is cheap both short and long-term in all regards.”

She says we need to make sure growers are supported and get good prices, otherwise in a few years we won’t have growers.



Luke and Jasmine Franklin in one of their sunflower fields at Waimauku

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Applications **close at 11pm 30 March 2025**. Applications will be reviewed in April and announced in May.
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A red admiral perches on Jasmine Franklin's hand in Waimauku. The butterfly was named The Entomological Society of New Zealand's Bug of the Year in 2024



The ICU (intensive care unit) for chrysalises

"Luke and I definitely notice at growers' meetings there aren't a lot of younger growers, and to be honest the prices we've had the last few years have made it really challenging for us. We need good support and good prices to retain our growers and the up-and-coming ones."

Jasmine is passionate about implementing innovative practices and sustainable farming methods, believing that strong leadership is key to guiding the industry towards a more resilient and prosperous future for both the industry and her family.

Recently Franklin Farms has diversified with the introduction of sunflower fields and now The Butterfly House. Jasmine says this came about for a variety of reasons - for regenerative practices, for education, and to stay financially viable as celery farming alone isn't currently paying the bills.

"The sunflowers were a fun way to tell our story - everyone loves sunflowers and it was easy to link it back to our farm as a regenerative aspect. People love learning on our social media about all the wonderful ways sunflowers support our soils and our pollinators. In our first year our main tractor broke down and spent six months at the mechanic and needed \$25,000 in repairs, as well we lost all our sunflower crops to the summer floods and the cyclone we experienced, so that proved an expensive year! Last year our season went well, and people enjoyed it."

Jasmine says they also noticed the decline of monarch butterflies in the sunflower fields, and decided to do something about it.

"We're more than just The Butterfly House; we're part of an educational movement that teaches the next generation about regenerative practices, the importance of pollinators, and sustainable practices that benefit the environment."

"After further research we learnt they're now endangered for a variety of reasons, and our next passion project then came about! [Luke's dad] Alan initially wanted to build a small shade house on the sunflower farm, but of course our plans blew out hugely. I used to be a school teacher many years ago, and I feel a huge desire to teach people about how they can help the monarch butterflies, and I think doing this in an interactive environment makes people care or change. Our family, especially Luke, Alan and [Luke's mum] Monique, have put a huge effort into building this and making it happen this year and we are all so proud of it."

When NZGrower & Orchardist visited The Butterfly House, it was aflutter with activity. In the space of about five minutes more than six monarch butterflies emerged from chrysalises. Alan says 50 butterflies were ready to emerge that day alone. The family has been releasing thousands of monarchs into the wild each week, and people enjoy coming to watch this.

The butterfly house made use of an old palm nursery which has sat unused for the past 17 years.

"This turned into a much more elaborate and expensive project than what we had envisioned. Plenty of people through the doors to make it sustainable would be ideal. Jasmine has donated hundreds of plants to local schools and kindergartens to make sure there is enough food around once the butterflies are released," Alan says. ●

BEJO AND PREMIER SEEDS ARE EXPANDING TO ASSURE FUTURE DEVELOPMENTS



THE FIELD TEAM

Left to right: Michael Rawnsley, Benjamin Carrell, Imke Blackett, Nathan Gorter-Smith, Ken Jeanes, Damien Gibson



THE NEW PREMIER SEEDS TEAM

Left to right: Benjamin Carrell, Judy Men, Imke Blackett, Nathan Gorter-Smith, Joanne Manders, Ken Jeanes

Bejo Seeds has made global changes to future proof the organisation, to manage and realise our future growth, and continue to provide high quality products and the best service to our customers.

As part of Bejo – this provided opportunities for two members of the Premier Seeds team. Damien Gibson and Michael Rawnsley have accepted positions in the expanded global Bejo organisation.

Michael Rawnsley has accepted the role as a Regional Crop Manager for the Americas (North and South America) and Oceania, specialising in onions and carrots. Michael was a founding member of Premier Seeds and has been with the company 20 years. He has developed the business in the Franklin, Northern,

Waikato and Ohakune regions for all field crops for Premier Seeds. With his extensive knowledge, particularly in onions and carrots, Michael makes an excellent candidate for his new role. Whilst Michael is now working regionally for Bejo, he remains a vital contact for our national product development.

Damien Gibson has accepted the role as Head of Region for the Americas and Oceania. Damien has moved his family to the Netherlands where he is now based.

Imke Blackett has accepted the role as Northern Region Manager, taking over Michael's previous role. Imke has been part of the Premier Seeds team for more than a decade, leading the Covered Crop sector, a role she will continue next to her new appointment. Imke comes from an extensive horticultural background of more than 35 years.

Nathan Gorter-Smith has been appointed Premier Seeds Country Manager. Nathan has an extensive horticultural background, including several years in the field crops seed industry, based in the Franklin region.

Premier Seeds wishes Damien, Michael and Imke well in their new positions and warmly welcomes Nathan to the team.

While there have been some changes it is business as usual at Premier Seeds. Chris Bone remains General Manager for Australia and New Zealand. Ken Jeanes supports the Eastern and Southern region and Benjamin Carrell the South Island. Judy is our accountant, and Jo leads the warehouse and all orders.

FOR ANY ENQUIRIES, PLEASE CONTACT US:

Nathan Gorter-Smith, Company Manager: 027 2444 664
 Imke Blackett, Greenhouse Crops and Northern region: 027 2444 611
 Ken Jeanes, Eastern and Southern North Island region: 027 2444 654
 Benjamin Carrell, South Island: 027 2444 651

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SPRING RAINFALL IN REVIEW

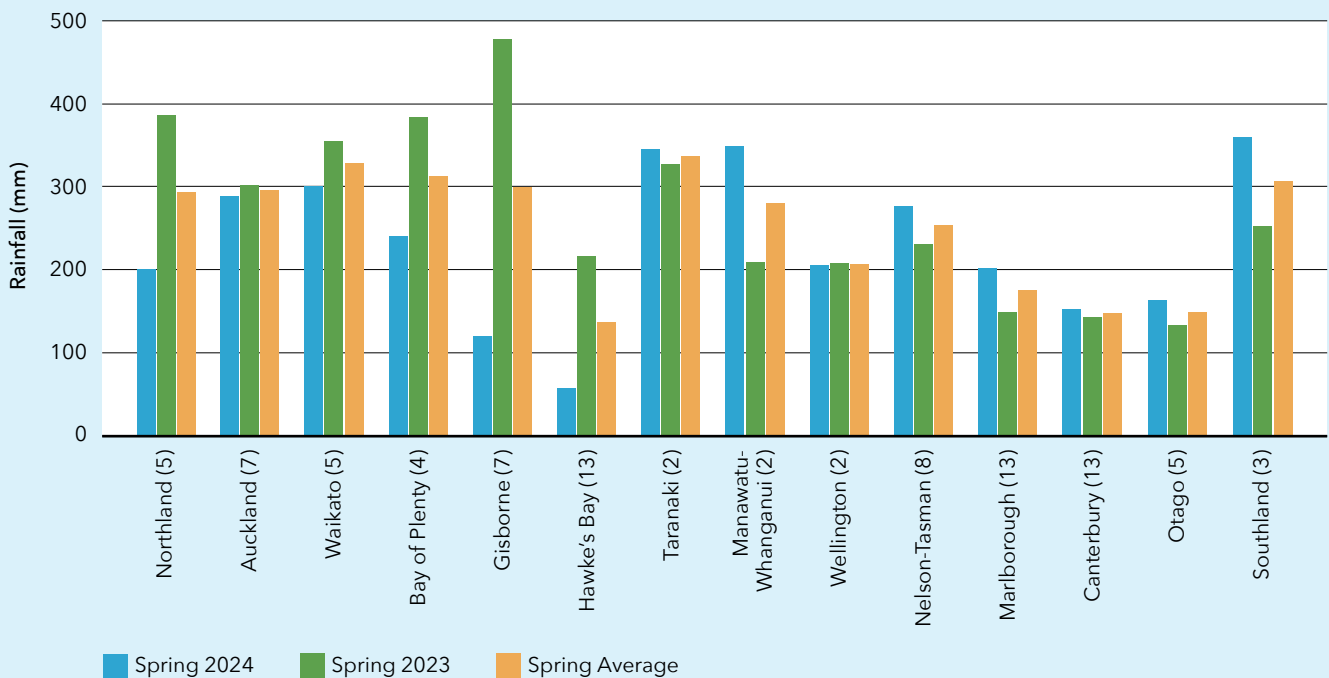
The latest rainfall data from our nationwide HortPlus weather station network offers some insights into New Zealand’s spring season (September to November).

HortPlus (www.hortplus.com)

Eastern regions of the country experienced the most dramatic year-on-year change, with 2024 spring rainfall decreasing by 75 percent in Gisborne and 74 percent in Hawke’s Bay, compared to 2023.

Manawatu-Whanganui saw a notable increase in rainfall compared to 2023, while Southland also experienced considerably more rainfall than the year prior. The driest region in the country during spring 2024 was Hawke’s Bay, while Southland was the wettest. In general, there was considerably more rain in the south and west of New Zealand than in the north and east.

TABLE 1: SPRING RAINFALL IN NEW ZEALAND - 2024, 2023 AND SPRING AVERAGE



ABOUT HORTPLUS

HortPlus is a New Zealand agri-tech company founded in 1998. It has access to a nationwide weather station network and is best known for the crop-specific pest, disease and water management tools it provides on its MetWatch platform. Have questions or need more info? Visit www.hortplus.com or email mike@hortplus.com.

How did this impact the country's horticultural industries? We asked some of Aotearoa's movers and shakers for their thoughts on the crops and growers they know best.

Karen Morrish, chief executive, NZ Apples & Pears

Spring 2024 was a tale of two islands to some degree. Growers in the North Island are feeling more positive than they have for years, while parts of the South Island contended with increased rainfall during spring. The season started early across the board and is continuing that way. Hawke's Bay growers reported good winter chilling and some of the best pollination they had seen in years. On the other hand, Central Otago growers have had to contend with increased spring rainfall and frosts. Despite all this, the overall quality of the crop looks great so far. The hot, dry weather that much of the country saw through late spring and early summer contributed to the growing positivity among growers for the season ahead.

Colin Bond, chief executive, NZ Kiwifruit Growers Incorporated

While growers wish to avoid rain during pollination, in general, rainfall in spring is critical for the cell division of kiwifruit, which will impact on the size of the fruit produced. Subsequently, the highly variable levels of rainfall both across the regions where kiwifruit is grown in New Zealand, as well as over recent years, plays a role in the export value received for our fruit. To offset this variability, many growers utilise irrigation to supplement rainfall, thereby achieving more certainty and profitability from their orchards.

Richard Mills, technical advisor, Summerfruit NZ

Summerfruit growing regions are mostly Hawke's Bay and Central Otago. Spring rainfall has been markedly different in both areas compared to the last three seasons and different from the normally anticipated patterns of the areas. Both areas received more than adequate winter chilling followed by a dry spring in Hawke's Bay and a wet September and October in Central Otago. The result for Hawke's Bay is an abundance of clean disease-free fruit with almost zero rejects at retail level. Where irrigation is designed to be supplementary to rainfall, fruit size has been smaller than ideal. Although Central Otago was wetter than last year, there was adequate time between events such that normal orchard spraying should have controlled diseases.

Daniel Sutton, research, development & extension manager, Vegetables NZ

Spring rainfall is incredibly important for vegetable crops. At this time of year water is critical for plant development and even establishment. As we see every season, rain does not fall evenly. Hawke's Bay and Gisborne in particular stand out as areas well back on last year's spring rainfall. This has created challenges with meeting crop demand for water and the need for irrigation. [It contrasts] with areas such as Manawatu and Southland that have had increases in rainfall, and higher than season average spring rainfall. For vegetable crops, this [wetter weather] results in delays in planting due to ground conditions and can also result in increased disease pressure. This is why it is important to have good data sets for comparison, as well as tools such as evapotranspiration calculators to help with decision-making.

Anna Heslop, communications manager, Foundation for Arable Research

Climate variability continues to challenge arable farmers across New Zealand. In Southland, growers battled wet conditions which delayed the planting of spring cereal crops, while in Manawatu, similar conditions led to a scramble for low CRM (comparative relative maturity) maize hybrid seed as they missed the planting window for their usual higher CRM selections. At the time of writing, Hawke's Bay growers were facing an early harvest and low yielding crops due to persistent dry conditions. ●

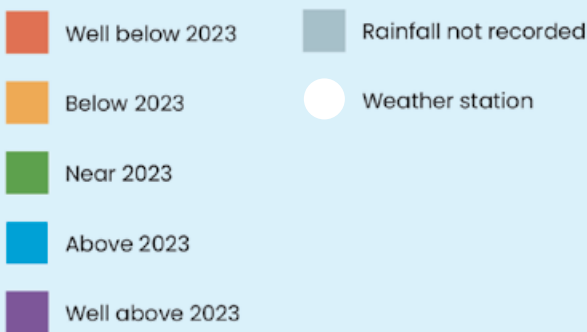
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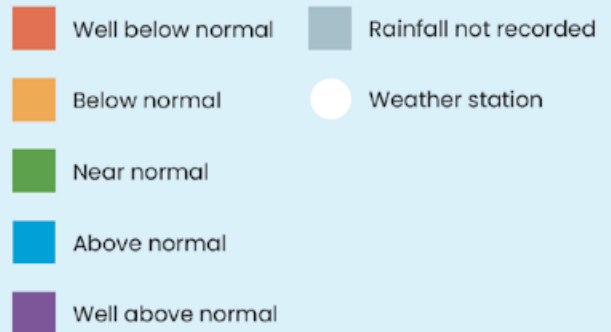
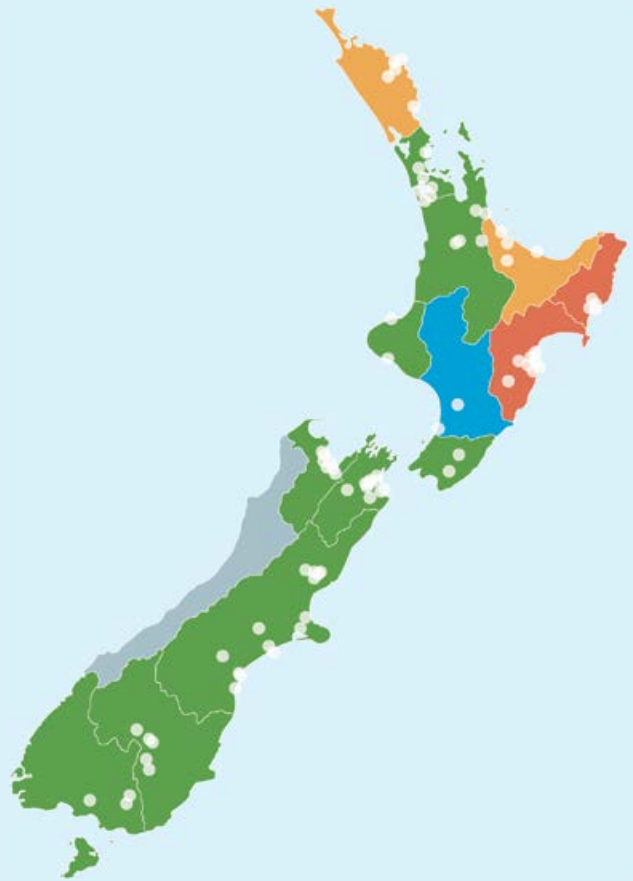
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**FIGURE 1:
SPRING RAINFALL - 2024 VS 2023**



**FIGURE 2:
SPRING RAINFALL - 2024 VS
SPRING AVERAGE**



Note: For the purposes of the figures above, rainfall that is 80-120% of the comparison period (2023 in figure 1 or the spring average in figure 2) is considered 'near', rainfall that is 50-79% of the comparison period is considered 'below', rainfall that is 120-149% of the comparison period is considered 'above', rainfall that is less than 49% of the comparison period is considered 'well below' and rainfall that is 150% or more of the comparison period is considered 'well above'.

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ADAPTATION KEY FOR TASMAN GROWER

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Justin Wehner says he ‘fell into’ the horticulture sector by chance but soon recognised the great career opportunities it offers.

Justin is now operations manager for the Echodale Marketing orchard in Hope in the Tasman region and recently completed HortNZ’s 2024 Leadership Programme.

“I was thinking about going into veterinary but decided it wasn’t for me,” he says. “I just came to Echodale to work as a picker to save money for my OE.

“My boss said, ‘come back when you finish travelling’. I travelled around Asia and next thing you know I’m back in the orchard - this was eight years ago.

“I started at the bottom as an orchard hand, I was then fortunate they sent me to Lincoln University to study horticultural science. I came back and became assistant manager and now I am a manager running the company.”

He sees climate change and increasing costs as the major challenges facing the sector.

“The financial side is always a challenge. It is costing more to grow and the end result is not matching the costs. The pests and diseases are moving faster with climate change and we need to be getting on top of that to be ahead of the game and not playing catch up.

“But New Zealand and our sector has always strived to be better and there are opportunities too, in particular to grasp new technologies. As a sector, we have to be adapting to and adopting that and being more forward thinking. Making the change rather than reacting to the change.



Echodale operations manager Justin Wehner recently completed HortNZ’s 2024 Leadership Programme

“In the future, I guess I want to be a forefront leader in the industry, whether in growing or in governance. In particular, I want to be a leader for those who are new to the industry, and to support growers who may be struggling, help them learn new techniques and adapt to technology, to ultimately secure a growing future in New Zealand.” ●

HORTNZ LEADERSHIP PROGRAMME

Encouraged by industry mentors Andrew Kininmonth and Richard Clarkson, Justin Wehner found the nine-week HortNZ Leadership Programme’s diverse content and networking opportunities particularly valuable.

“I work in pipfruit so it was very interesting to hear from other parts of the sector too. I really enjoyed meeting my cohort. It was inspiring to see so many talented young leaders, from a broad range of backgrounds, doing what they do and excelling at it.

“I think there’s a perception that this is an ageing industry, so promoting youth leadership helps to futureproof the industry and encourage and support that new generation of growers.”

Learn more about HortNZ’s 2025 Leadership Programme at hortnz.co.nz



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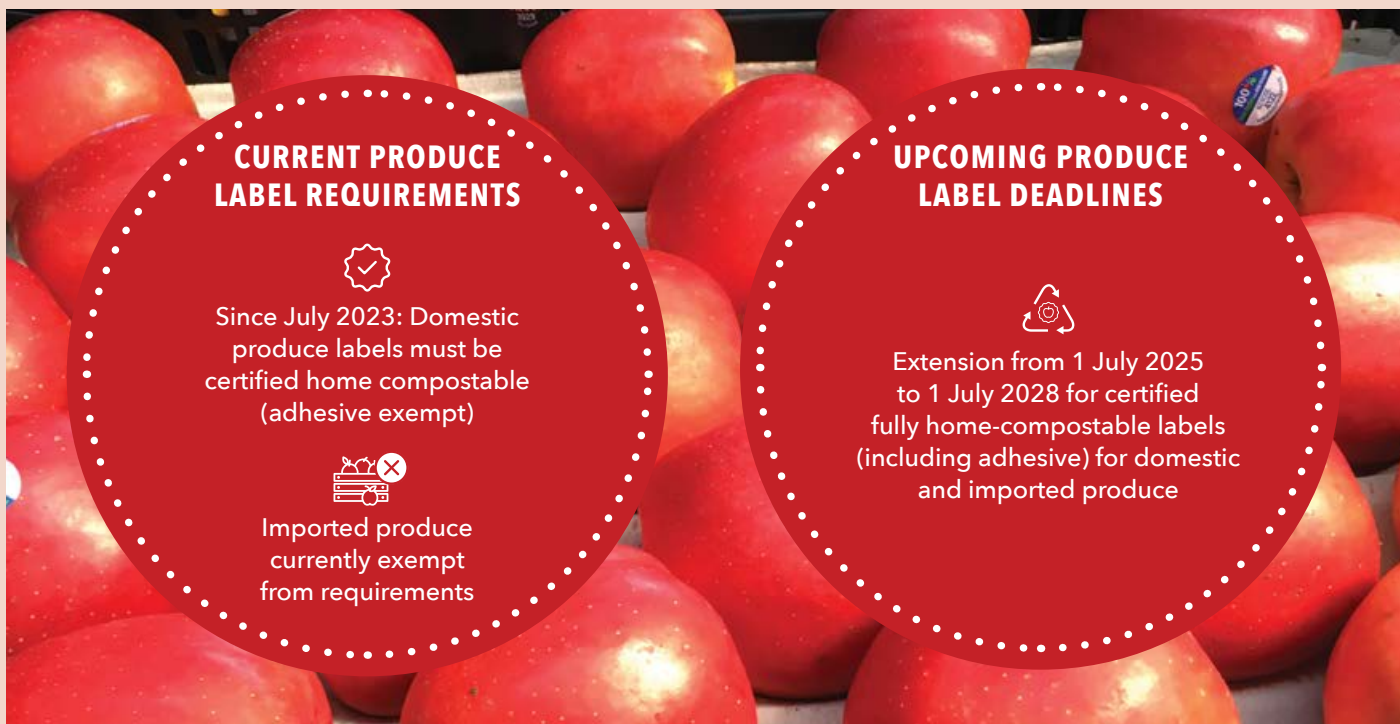
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CURRENT PRODUCE LABEL REQUIREMENTS



Since July 2023: Domestic produce labels must be certified home compostable (adhesive exempt)



Imported produce currently exempt from requirements

UPCOMING PRODUCE LABEL DEADLINES



Extension from 1 July 2025 to 1 July 2028 for certified fully home-compostable labels (including adhesive) for domestic and imported produce

A STICKY PROBLEM

Global innovation is progressing quickly on fully compostable labels and adhesive – with Zespri kiwifruit leading the way. However, the three-year extension to New Zealand’s regulatory requirements is a sensible solution, says United Fresh.

Helena O’Neill

In late December the Ministry for the Environment confirmed the deadline extension for certified home compostable labels (including adhesive) from 1 July 2025 to 1 July 2028 for domestic and imported produce. However, the July 2023 requirement for home-compostable labels on domestic produce (excluding adhesive) remains unchanged.

United Fresh New Zealand general manager Paula Dudley explains the extension allows technology to catch up and lets growers use existing stock.

“We also put the case forward that growers had an existing stock of labels that they needed to use otherwise they would just end up in landfill unused. The no-use option isn’t sustainable. The extension gives growers the opportunity to work through existing stock.

“Our fresh fruit and vegetable industry in New Zealand wants to comply as it is important to have home-compostable labels on a sustainability level, we are just not there yet locally or globally.”

MFE also explained that the extension aligns more closely with the timing of regulatory changes overseas. Development of fully compostable labels is well underway – but is proving challenging.

In October, global fruit labelling leader Sinclair and Zespri announced the launch of their newest compostable fruit label. The companies say the sticker provides a minimal packaging solution that reduces consumer waste and can be disposed of in home compost bins along with organic waste.

Tom McLaughlin, Sinclair regional market manager at Jenkins Freshpac Systems Ltd, says Sinclair has spent 15 years developing sustainable labelling solutions, with their most recent label taking five years to develop.

“The most challenging aspect of the most recent development has been starting from scratch; creating completely new materials and adhesives not available on the market just a few years ago. The key attribute challenges include creating a high-performing, robust product, capable of being applied at over ten labels per second, while lasting on a piece of fruit through the entire supply chain, without breaking down.”

The Tauranga-produced labels use imported renewable materials, including plant-based products, and have received certification from TÜV AUSTRIA, ABA, and DIN CERTCO.



The labels will also meet New Zealand regulations when they come into force.

“This has been quite the challenge, and we are literally smiling ear to ear that we have achieved this. Our Research and Development programme will continue at pace, there is still plenty to do, including expanding on the range of compostable inks.”

While no equipment changes are needed to switch to compostable labels, Tom notes significant logistics considerations exist for packers and marketers, along with higher costs due to new materials and supply chains.

Zespri chief executive Jason Te Brake says the collaboration reflects their commitment to sustainable practices, with plans to transition all fruit labels to home-compostable versions over the next year. ●

Fully home-compostable labels, including the adhesive, will be required for all fruit sold in New Zealand

Shamubeel Equb to Keynote Research & Insights Forum 2025!

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Planting of squash seed and starter fertiliser in early December at the Hawke's Bay demonstration site in the butternut squash soilborne disease project. Photo by Dereck Ferguson

GROWER INPUT ESSENTIAL TO PROJECT SUCCESS

Growers will be key to cracking the effective implementation of tools and practices providing an agroecological crop protection solution to soilborne disease (SBD) in butternut squash.

Gina Jewell : A Lighter Touch programme

A grower survey and workshops have been central components of developing a toolkit and a protocol for trials being demonstrated this season in the A Lighter Touch and NZ Butternut Squash Council SBD project. The project's goal is to develop an agroecological 'whole of farm' approach to managing SBD in butternut squash, which costs growers an average of \$20 million a year in lost revenue.

The survey of Hawke's Bay and Gisborne growers was designed to provide an overview of current grower management practices of SBD in squash. It also gathered baseline knowledge of agroecological practices, and an understanding of barriers to their uptake.

A number of growers were also involved in workshops discussing the practical application of findings from a knowledge review of growing practices required to mitigate or break the SBD cycle in squash and other cucurbit vegetables.

Project manager Andrew Barber sees the grower involvement as a fundamental aspect of ensuring the project's findings are implemented and don't sit on a shelf.

"In developing the toolkit, the first step was to meet with growers, have an open discussion on what the project had learnt from the knowledge review and get the growers' input into building that toolkit. It's far more inclusive than saying to growers, here's the guide, please review it."

Andrew, who also leads the Sustainable Vegetables Systems (SVS) project, sees similarities with the approach taken there. "Like SVS, it's about producing a tool, which doesn't need to be finely polished, so people can contribute and further develop it, and it will improve with grower input and subsequent ownership."

Demonstration sites in Hawke’s Bay and Gisborne are growing squash this summer using insights from trials, the knowledge review and grower workshops. These play an important role, not just as a means of engaging with growers, but also in terms of working through the practicalities of implementing the proposed SBD mitigations.

“Clearly you need fundamental research to answer some questions, but at the end of the day the problem’s here and now. It’s about taking the collective knowledge, giving it a go, and the demonstration sites are a really good way of doing that, of giving growers the confidence to take that step themselves,” Andrew says.

Grower appetite to adopting agroecological crop protection practices was among the information gathered through the grower survey, as well as barriers to change. Agronomist and project technical lead Dereck Ferguson conducted the grower survey and led the grower workshops. He says some growers were not familiar with the term agroecology, but showed through their answers they were already practising aspects of it.

“Most had tried to incorporate some agroecological practices, including planting of natives to encourage beneficial insects or use of service crops for soil

biofumigation. They considered agroecology desirable and were willing to adopt more agroecological practices if they have a positive impact on soilborne diseases and their farming operation.”

“**Grower involvement is fundamental in ensuring that the project’s findings are implemented and don’t sit on a shelf**

In terms of barriers to adopting agroecological practices and products, cost and uncertainty around the cost:benefit ratio were the main factors cited by growers, with a desire to see successful trials and scalability of agroecological practices.

Dereck says growers were interested in what had been learned so far from the review of New Zealand and overseas knowledge on the prevalence, management and mitigation of SBD in squash and related cucurbit crops, and from trials conducted last season using biological products.

The demonstration site protocol and the treatments involved, the use of vetch as a service crop, and the possibility of using soil testing to understand pathogen

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loadings of SBD were of particular interest. “These were components growers see they could potentially implement relatively easily and have a positive effect,” Dereck says.

A Lighter Touch (ALT) technical lead for agroecology projects Jeff Smith acknowledges the breadth and complexity of soilborne disease as a crop protection topic even within the confines of a single crop like buttercup squash.

“That said, ALT is the perfect opportunity for the NZ Buttercup Squash Council (NZBSC) to embark on addressing what is such a high cost issue to their industry, not only in leveraging the Ministry for Primary Industries’ (MPI) co-funding of ALT, but also the collective approach of working with rotation crop partners and others grappling with soilborne diseases. It has opened collaborative opportunities less obvious outside of ALT.

“There is still much to learn and although this project cannot provide all the answers, it has already identified control opportunities and will continue to help prioritise and focus research, as well as the agronomic practice change required in an integrated approach to crop protection,” Jeff says.

PGG Wrightson (PGW) vegetables technical specialist Chris Lambert has been involved since the project’s inception, having previously spent five years growing squash with LeaderBrand Produce in Gisborne.

With PGW officially joining A Lighter Touch as a merchant partner in 2024, Chris is once again directly involved in the project. He sees PGW’s involvement as adding another string to the project’s bow, contributing benefits through the company’s research, access and understanding of new products coming to market, and their extension network and relationships with growers.

He sees great benefit in tackling SBD at an industry level through ALT, rather than on an individual grower basis.

“The extra resource from MPI, the in-kind from programme partners, access to Crown Research Institutes and universities, it really enables the research to go a lot further. And with the growers involved and steering it, they have a lot of input in how we do it. We’ve had growers involved right from the start.

“Even with our first input that went onto this season’s demonstration sites, the grower ingenuity was clear. They weren’t equipped to apply one of the products that we wanted to demonstrate, but after some trial and error, they figured it out. Both demonstration site growers came up with a different way of doing it that worked well; they got the right rate even without the typical gear to do it,” Chris says.

“The project is looking for the tools that make a difference to SBD management, but in terms of implementation, it will be the growers who crack that one,” Chris says. ●



Cultivation in December for planting of the Hawke’s Bay demonstration site in the buttercup squash soilborne disease project. This was the final power harrow pass to incorporate biological and soil conditioner products for the ALT treatment. Photo by Dereck Ferguson



WHAT IS AGROECOLOGY?

Agroecology is a contraction of agriculture (including horticulture) and ecology. It is the science and practice of farming and growing, informed by ecological science.

How does it work?

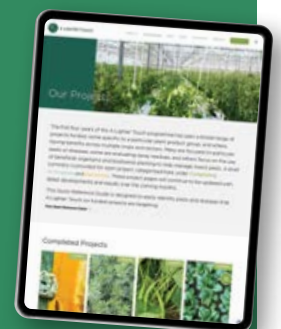
Put simply, agroecology seeks to work with nature rather than against it, to build productive, sustainable and resilient farming systems. Where conventional agriculture relies heavily on agrichemicals and fertilisers, agroecology takes a more integrated approach, promoting biodiversity, enhancing soil health and conserving water resources.

The A Lighter Touch programme focuses on agroecology from a crop protection perspective.

At the heart of the programme is understanding and better management of aspects of agricultural ecosystems that directly or indirectly lead to increased levels of pests and diseases. Reducing the opportunities for pests and diseases to thrive reduces the requirement for crop protection interventions.

Using a combination of new technology, biological tools and cultural practices such as crop rotation, cover crops and biodiverse planting, agroecology provides a framework for more sustainable farming systems and lighter touch food production.

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At the University of Otago technician Prasanthi Namburi works on manual pollinations of some CIAO plants inside the containment growth room. Photo by Miriam Sharpe

BIOTECH RESHAPING POTATO BREEDING

Exciting developments in diploid breeding are accelerating time to market for potatoes with new traits. The technology also clears the way for true potato seed-based growing systems. Although New Zealand plays a small role in global potato breeding, there are good reasons to make sure we stay on top of the technology – and perhaps develop a new export market.

John Gauldie

Scientists at the University of Otago are working on **New Breeding Techniques (NBTs)** for potatoes for a more efficient and flexible approach. Their efforts are part of a global research and development (R&D) push following the development of diploid F_1 hybrid potatoes, a recent biotechnological innovation that opens up the possibility of commercial true potato seed.

Currently, most growers start with clonally propagated vegetative tubers – known as seed potatoes. Potatoes are difficult to grow consistently from seed (often termed true potato seed to avoid confusion with seed potatoes) due to the complexity of potato genetics.

Potato genetics make breeding a new potato variety a slow process. Scientists estimate that generating one new

variety takes about 100,000 seedlings. As a consequence, they say the genetic gain in breeding has been very limited compared to major hybrid crops like maize and wheat.

Some base varieties popular in New Zealand are almost half a century old, such as Agria bred by Kartoffelzucht Böhm in Germany and Nadine from Caithness P.B. in Scotland.

Technology for quicker potato breeding cycles is vital to address the changing climate, evolving diseases and reduced access to crop protection chemistry.

The potato market's myriad endpoints further complicate matters: French fry, crisp, fresh, with different seasonal slots, different flesh and skin colours and whether they will process from cold storage or not.



Potato shoots in tissue culture. Photo courtesy of Plant & Food Research



The University of Otago is working on a more efficient and flexible approach to F_1 hybrid breeding in potatoes. Photo by Miriam Sharpe

Adding to this, global and local regulatory requirements – designed to protect against the potato’s vulnerability to disease – can delay new potato cultivars by an additional six years before they reach the different international markets.

Samantha Baldwin, Plant & Food Research’s science group leader annual crops, says New Zealand also has unique disease and regional challenges of its own.

“In New Zealand, consumer preferences can also be quite different than overseas. And there’s also a passionate belief here in low input production systems. So that’s what we’ve really focused on.”

Moonlight is a New Zealand bred variety that has proven particularly successful since its launch in 2002, but Plant & Food Research’s breeding programme is trialling new lines almost every year. “At the moment we’re working through the pipeline. We have quite a few with commercial potential.”

Unlike most commercial vegetables which are diploids (two sets of chromosomes), most modern cultivated potatoes are tetraploids (four sets of chromosomes).

Scientists are interested in breeding diploid potatoes because they could speed up the integration of new traits and reselection to recover improved varieties.

Some diploids are available to grow from tubers already – for example Mayan Gold. However, diploid potatoes typically have less desirable traits, smaller size and less reliable yield.

That’s where F_1 hybrid potato breeding comes in. First developed by scientists in 2008, hybrid diploid potatoes have the potential to grow with consistent desirable traits when used in a true potato seed production system.

Rowan Herridge, a research fellow at the University of Otago, focuses on biotechnological approaches for F_1 hybrid breeding and self-incompatibility.

“I was at the World Potato Congress a few months ago and diploid hybrids did feature in several talks and sessions. It’s gaining steam. In my eyes it’s just a matter of time before everyone catches on.”

In November, Rowan gave New Zealand potato growers a rundown of the latest global developments in a webinar hosted by Potatoes NZ.

With the world’s fourth-largest crop by volume, the potato industry is not changing overnight, although several diploid hybrids have reached the market.

In 2019, Germany’s KWS partnered with United States-based Simplot to form Aardevo, a Dutch company focused on hybrid potatoes. Other Dutch breeders HZPC and Solynta (the latter in collaboration with Bayer) are also advancing hybrid potato varieties.

In the United States, the government-funded Potato 2.0 Project is working to develop commercial diploid hybrids, while similar research continues at China’s Agricultural Genomics Institute in Shenzhen.



Potato crops flowering in the field. Photo courtesy of Plant & Food Research

WHAT YOU NEED TO KNOW

1

Switching from growing potatoes from tubers to growing from **true potato seed** could reshape the global potato industry

2

True potato seed has not yet been commercially multiplied in New Zealand, but holds the potential for a new **seed export industry**

3

Hybrid potato breeding does not necessarily require **gene technology**, but New Breeding Techniques would be a useful tool in breeders' biotechnology toolbox

In addition to faster genetic gain, diploid hybrid potato breeding offers growers the advantages of growing commercial potatoes from true potato seed rather than propagating clonally.

True potato seed has high potential in regions like Africa where there is limited access to disease-free seed potato, partly due to storage and transport issues, which means yields are typically low.

For these growers, true potato seeds are cheaper to store and transport, less prone to disease, and have a longer shelf life than tubers. For growers, 25 grams of clean, disease-free seed is needed per hectare - compared to 2500kg of seed tubers.

By contrast, New Zealand growers produce some of the highest potato yields in the world, so diploid hybrids don't offer an obvious advantage yet.

"We aren't working on diploid hybrid breeding at the moment," Samantha confirms. "Obviously it's a lot easier than dealing with the tetraploid, but we have to right-size the programme for New Zealand. So we are focusing on our strengths, but keeping in touch with what's going on internationally. If it goes that way, then we'll have to make that flip to diploids."

However, the mechanics of how true potato seed would work in New Zealand's unique growing conditions is still a question mark.

"If you're growing from seed, it's going to be a long season and what are your yields across time?" Samantha explains.

"By contrast, we're getting a lot of interest in short season potatoes, because the shorter the season, the less likely you are to be impacted by climate and disease."

In New Zealand, the most likely application would be that true potato seed would be used to generate mini-tubers for seed tubers and the commercial crop grown from that. The true potato seed would then be the 'clean' starting material to go back to when more was needed, rather than tissue culture plantlets which require ongoing maintenance and multiplication.

However, true potato seeds are not likely to be imported into New Zealand soon, as the one major pathogen that they can transmit is the potato spindle tuber viroid (PSTVd) - a disease not present in New Zealand.

"We're in a fairly unique position because we don't have PSTVd," Sam says. "But that would actually make us an attractive place to grow true potato seed and export it. So that's a potential new industry I would think, for us."

Although diploid hybrids have yet to offer New Zealand growers standout benefits over traditional tetraploid varieties, that is beginning to change as the technology becomes more mainstream, Rowan says.

There is huge potential thanks to the existing bank of potato genetics. After 7000 years of domestication and then targeted breeding, the cultivated potatoes we eat today are very different from their wild relatives. However, up to 300 ancient potato varieties survive in the Andes, which offer an incredibly rich resource of genetic traits compared to other crops.

It is important to note that hybrid breeding is not considered genetic modification. Many diploid hybrid potato projects categorically state their non-GMO status.

However, Rowan sees potatoes as ideal candidates for New Breeding Techniques (NBTs) in F_1 hybrid breeding.

Together with his colleagues Professor Richard Macknight and Associate Professor Lynette Brownfield at the University of Otago, he has helped develop a new technique called Combined Inbreeding and Outcrossing (CIAO) – offering a more efficient and flexible approach to F_1 hybrid breeding.

The CIAO process produces null segregants – a similar result to the oft-cited fast-flowering fruit trees scenario. Null segregants are themselves not genetically modified, although gene technology is applied during the breeding process. However, as always with molecular biology, things get a little messy in the detail.

“When you make changes to the potato genome, you could potentially make other changes that you haven’t spotted, that were not what you expected.”

Just like conventional breeding methods, risk analysis tools and extensive field trials will be used in assessing any new null segregant plants or cultivars to exclude any plants not performing well or exhibiting negative traits. In this way, null segregant plants are not likely to pose any more of a risk than conventionally bred plants.

In January 2024 the Environmental Protection Authority (EPA) released a clarification that null segregants are not considered GMO (genetically modified organisms), following an application from AgResearch and co-applicants from across the primary sector. However, there has been no guidance on validating a null segregant.

“In theory you can plant a null segregant in New Zealand,” Rowan explains. “But nobody has done it, and nobody has decided exactly what you would need to do to prove that it was a null segregant.”

In December 2024, the government invited public submissions on its Gene Technology Bill. These regulations would specify those techniques and technologies that are not regulated, including null segregants. The closing date for submissions is 17 February.

Rowan believes gene editing could be a useful tool for potato breeding. “If you want to have a potato that is resistant to a pathogen that it doesn’t already have some resistance to, what are your options? Gene editing potatoes is a way to introduce new traits to existing varieties. I think that’s one reason why it should take off in potatoes. Plus, it’s comparatively easier to do gene editing and genetic modification in potatoes than in grasses for example.”

“There are climate changes coming our way,” Samantha says. “And if a new disease comes in and it normally takes ten years to breed a resistant variety, it would be very useful to have these tools available and the knowledge and capability to use them.



Released to growers in 2002, Moonlight had become the most grown potato cultivar in New Zealand by 2007

“Every tool available to us is a good thing,” she says, “and gene technology is just another tool. But there could be other ways that we can use our understanding of the genetic systems. I think the important thing is not only the advances in tools and techniques, but also being able to link and integrate, to really understand what’s going on. To understand where we start targeting to come up with new ways of regulating plant growth and dealing with disease and pests.” ●



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FRUIT MATURITY PARAMETERS

Every grower wants to maximise their class 1 yield to receive the highest returns available from the market and spread production costs across higher volumes.

Sarah de Bruin and Meg Becker : AgFirst Consultants

Class 1 fruit quality parameters differ depending on fruit type, variety and marketing requirements. It is important that growers are aware of these to ensure they are growing to the correct target.

A critical component to class 1 fruit is the maturity parameters that underpin the fruit's quality. For fruit such as gold kiwifruit and some premium apple varieties, growers are financially incentivised to grow within certain maturity parameters to ensure the product reaches the market at the optimum eating quality to provide a positive consumer experience.

This article will serve as a refresher of the different maturity parameters that are tested pre-harvest, followed by on-orchard strategies growers can use to influence the outcomes of the different parameters.

What are maturity parameters?

The plant hormone ethylene aids in the ripening of maturing fruits. Biologically, ripening fruits become more appealing in colour, size, texture and taste, to increase the likelihood of the fruit being eaten, allowing for the dispersal of seeds or pips and therefore the reproduction cycle of that plant to continue. There is however, a tipping point where the fruit begins to degrade and commercial shelf life is compromised. Harvesting at the critical point maximises class 1 outcomes, as well as ensuring storability, eating experience and fruit quality.

Human consumers have a preference range of fruit maturity, therefore determining when the fruit is at its best eating quality. Marketers then have the job of considering the interactions of the various maturity parameters and fitting these to their sales programmes to ensure *consumer preference* is met adequately and eating experience is optimal, all while ensuring product consistency between shipments and seasons.

To get consistent fruit products into market, some marketers require specific maturity parameters to be met prior to harvest, and when these parameters are exceeded, enforcing a stop harvest directive. The post-harvest portion of the supply chain is then controlled to allow for fruit to arrive in market at the optimal maturity, therefore offering a premium eating experience.

What are we testing for?

Fruit maturity parameters commonly tested for include:

-  Fruit weight (size)
-  Dry matter content
-  Pressure
-  Brix
-  Starch Pattern Index
-  Colour, including background, foreground, kiwifruit hue and seed colour.

Fresh weight

Fresh weight is the first maturity test carried out by the lab, providing data on fruit size or count size.

Some varieties have minimum and maximum size specifications, and this gives the grower an indication of potential size outcomes as well as whether any further orchard practices should be carried out to improve the size outcomes at harvest.

Dry matter content

A fruit's dry matter refers to the weight of the fruit once all the moisture has been removed. This is measured by taking the weight of a fruit slice before drying it in a dehydrator, and then reweighing it, to understand the weight difference once there is no moisture content. So the proportion difference of the wet weight and dry weight determines the dry matter percentage.

Dry matter is largely made up of starch, which is then converted into sugars as the fruit ripens. The more dry matter a fruit has, the more potential there is for a high soluble solids concentration, giving an indication of the brix content at harvest, as well as being indicative of the storage life of the fruit.

As dry matter has a direct influence on desirable fruit quality characteristics, there is a positive relationship between consumer preference (liking, acceptability and purchase intent) and dry matter content.

Pressure

Fruit pressure is tested using a penetrometer. This gives a measurement of the firmness of the fruit and is reported with an average value of the pressure measurement of each side of the fruit.

The penetrometer measures the amount of force required to push the bar of the penetrometer into the fruit.

The most accurate form of measurement is by using an electronic penetrometer mounted on a stand. Handheld machines can also be utilised for in field testing to track maturity trends. Kilogram-force (kg-f) is determined using different diameter probes for different fruit types.

Brix

Fruit brix is a measurement of the concentration of dissolved sugars in the fruit. This is measured using the fruit juice on the face of a digital refractometer. The light refraction through the juice is then used as a proxy value for the concentration of sugar.

Brix levels in a fruit are interlinked with dry matter content, as the higher dry matter is, the higher the brix levels will be.

Starch Pattern Index (SPI)

Starch Pattern Index is a measurement used with apples. As the fruit ripens, starch is converted into brix. The stage of starch conversion is measured by making an equatorial cut through an apple and spraying iodine solution onto the cut side. The iodine reacts with the starch in the apple and stains it a deep dark blue, giving a visual indication of the amount of starch still present. This can be carried out as an infield test as well as in a laboratory, with SPI scored on a scale of 1-7 for some varieties, with others scored on a scale of 1-9.

Colour

Colour as a maturity parameter can be assessed as foreground or background colour or percentage of blush. Flesh colour in kiwifruit is also assessed as a maturity parameter, and in Hayward kiwifruit, seed colour is also used. In apples, although not used as a measurable maturity metric, the darkening of an apple seed also indicates readiness of physiological maturity.



An iodine solution reacts with the starch in apples, giving a visual indication of the amount of starch not yet converted into brix

Apple specific

Specific varieties and marketers require a range of maturity specifications, with club varieties tending to have more tightly controlled parameters than commodities. Many club varieties have regulated standards which provide specific guidelines to growers to drive fruit quality at harvest. Commodity apples, such as many Gala strains and many European-centric cultivars, don't outline specific parameters the fruit must be harvested at, however knowing when to pick to enhance fruit quality outcomes is essential.

Growers tend to sample fruit for maturity tests using the location of fruit within a tree as well as the foreground colour standard.

Apple maturity is generally determined using foreground and background colour, starch pattern index, fruit firmness (pressure), and brix. Quality parameters such as dry matter percentage are also commonly assessed to determine fruit quality at harvest and therefore specific storage regimes to ensure the fruit makes it to market at optimum fruit quality standards.

Maturity trends tend to be block specific, however generalised regional averages can be used to guide timing and maturity progression.

FOR FRUIT SUCH AS GOLD KIWIFRUIT AND SOME PREMIUM APPLE VARIETIES, GROWERS ARE FINANCIALLY INCENTIVISED TO GROW WITHIN CERTAIN MATURITY PARAMETERS TO ENSURE THE PRODUCT REACHES THE MARKET AT THE OPTIMUM EATING QUALITY



Removing the moisture content of fruit slices reveals the dry matter content

Kiwifruit specific

Kiwifruit maturity monitoring is largely focused on monitoring the front end of the kiwifruit harvest, focused on ensuring fruit quality, with the kiwifruit monitoring programme financially incentivising early, high dry matter fruit. This programme ensures fruit is not harvested too early, with independent fruit sampling and testing facilities issuing KiwiStart dates for each maturity area within a KPIN (Kiwifruit Property Identification Number).

The fruit maturity parameters assessed help Zespri ensure a minimum taste standard is met to satisfy consumer requirements. The different cultivars have varying minimum taste standards determined by the key markets.

Using the maturity parameters of the fruit when a harvest date is issued, a 'TZG' (Taste Zespri Grade) is allocated, and the higher the TZG, the higher the maximum taste payment.

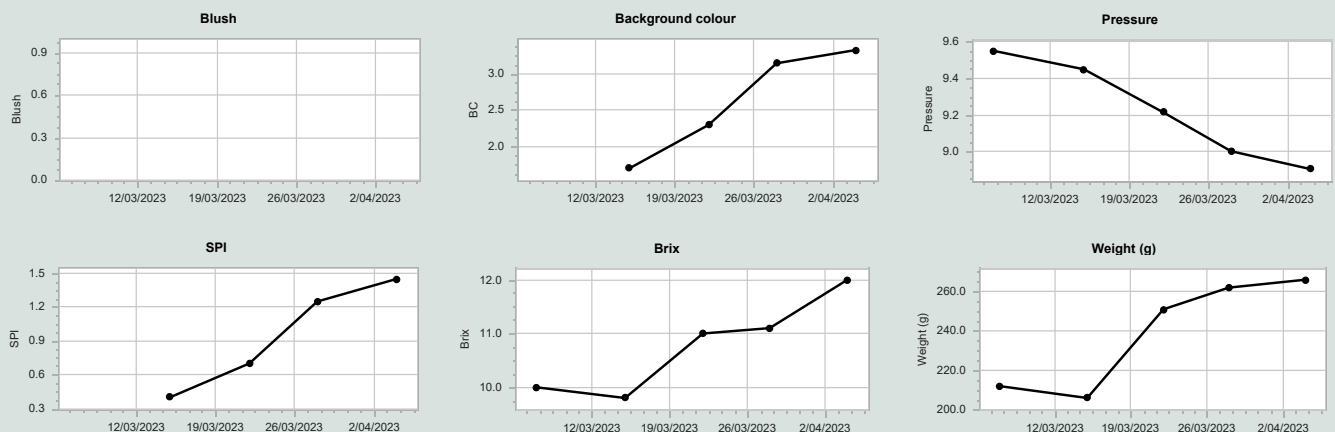
Fruit weight, hue colour, pressure, brix, dry matter and for Hayward - seed colour - are all assessed. For G3 kiwifruit the hue of the internal flesh is assessed to determine the maturity. This is a precise assessment using chromameter technology to assess the colour fractile in the fruit flesh.

Sample size and sampling technique have been carefully determined by Zespri to ensure consistency and accuracy between samples, management areas and KPINs.

EXAMPLE BLOCK MATURITY TREND



Date	Type	Blush	Brix	Colour	Pressure	SPI	Weight (g)
07/03/2023	Pre harvest (DM)		10.0		9.6		212.0
15/03/2023	Pre harvest		9.8	1.7	9.4	0.4	206.0
22/03/2023	Pre harvest		11.0	2.3	9.2	0.7	251.0
28/03/2023	Pre harvest		11.1	3.2	9.0	1.3	262.0
04/04/2023	Pre harvest		12.0	3.3	8.9	1.5	266.0



In-season orchard husbandry techniques that influence maturity parameters

Grower management practices and manipulations in field, measurements at harvest, and then the post-harvest aspects of the value chain are carried out in such a way as to preserve maturity parameters and to ensure the best eating experience for the customer.

Some on-orchard pre-harvest techniques growers can use to manipulate maturity parameters include:

- **Cropload**
 - has a high influence on maturity progression and many quality parameters including fruit size, dry matter outcomes and ability to colour at harvest.
 - Getting the trees or vines to target cropload as early in the season as possible is key to ease of harvest management.
 - A groom thin prior to harvest can also still improve potential outcomes.
- **Root pruning to increase dry matter**
 - Inhibits vegetative growth and thus reallocates carbohydrate into fruit.
 - This method can however impact on fruit size outcomes.
- **Summer trunk girdling to increase dry matter in kiwifruit**
 - A cut executed around the trunk which interrupts the phloem, causing the carbohydrate to remain in the top of the plant and go into the fruit rather than going back down into the roots.
- **Water or soil moisture ratios**
 - Excessive watering results in lower dry matter and consequently lower brix outcomes, as the plant is allocating resource to vegetative growth (vigour).

- Lighter soils give greatest increase in dry matter.
- Limitations in available water or soil moisture can lead to undersized, defected fruit.
- **Application of plant growth regulators**
 - Aid growers in manipulating fruit maturity to either bring forward harvest (using ethephon) or push it back (e.g. using ReTain® or Harvista™) to manage labour, harvest windows and in some cases hold maturity to support a longer pre-harvest period and therefore fruit size outcomes.
- **Leaf blowing, leaf plucking, summer pruning, or the use of reflective matting**
 - Improve the light environment in the canopy to help bring on colour.
 - These techniques allow growers to potentially pick more fruit in a lower number of picks. This can be helpful in blocks that historically move quickly with maturity, or where growers are trying to manage labour costs at harvest.

In the post-harvest section of the fruit supply chain, maintaining the correct maturity parameters is also a major consideration. Cool storage regimes are carefully controlled to ensure the correct temperature and relative humidity are maintained, with the addition of ethylene blocker treatments to hold the fruit in a steady state and prevent the ripening process.

Fruit maturity monitoring is the final stage which determines the optimum time to harvest fruit. It is the final management practice prior to harvesting a crop to ensure growers achieve their desired targets and harvest fruit that meets the fruit type and varietal requirements. ●

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Planning is underway to complete the Energy Farm on 4 hectares (Land Use Capability Class 2) of Lincoln University owned land in Selwyn district. Visual impression courtesy of Lincoln University

SOLAR CROPPING TO INCREASE PROFITS?

Solar farming has a bright future judging by the number of projects in New Zealand that are attracting investment. These projects are often being developed as agrivoltaics on existing grazing land. However, a team at Lincoln University wants to determine if high-value agrivoltaics – in other words solar farming combined with horticulture crops – could be an even more efficient use of land. For growers, it's an approach that raises opportunities as well as concerns.

John Gauldie

Pieter-Willem Hendriks, lecturer at the Department of Agricultural Sciences at Lincoln University, says the Energy Farm team wants to demonstrate the highest profitable use of land.

That might mean agrivoltaics – the dual use of land for solar energy production and agriculture – in this case horticulture.

“Instead of producing one crop on your field, technically speaking, you’re producing two crops. One is electricity, the other one is a consumable crop, but you have two incomes coming from that same piece of land.”

Lincoln University is preparing to develop a four-hectare parcel of university-owned land adjacent to the campus in Selwyn District (Land Use Capability Class 2).

When completed later this year, the new Energy Farm will be the first demonstration of high-value agrivoltaics in New Zealand.

While solar installations commonly incorporate sheep grazing to control grass (which in itself is creating a new ‘solar grazing’ industry), the Energy Farm aims to demonstrate more valuable outcomes through high-value horticulture orchards and cropping.

“There is no production that we could think of that would produce as much economical outcome per hectare as what we’re setting up right now,” Pieter-Willem adds.

Demand for renewable energy is growing. Forecasts suggest solar photovoltaic technology could generate up to 6 percent of New Zealand electricity supply by 2035.

Such projections seem to be outpaced each year, says Shannon Page, senior lecturer of the department of environmental management at Lincoln University.

“It’s simply now the cheapest way of generating electricity on a levelised cost.”

Shannon notes that “the income you generate from your land from leasing it out to a solar developer is significant and it sometimes will beat out other agricultural productivity.”

This economic reality has already impacted food production – which is the concern that growers have.

Demand is increasing for solar installations on flat, sunny land close to the grid and urban centres – land which often overlaps with the limited fertile soils that are needed to grow healthy, affordable produce – particularly vegetables – for domestic supply.

HortNZ reports one solar farm has displaced over 300 hectares of vegetable growing after the landlord cancelled the grower’s lease.

According to the Ministry for the Environment, solar panels are projected to occupy 11,040 hectares of highly productive land by 2030.

If solar farms push vegetable growing onto less productive soils, it will affect the yield, quality and profitability of production. Because New Zealand cannot import the vegetables needed to feed our population, this could affect the supply available to consumers.

However, rather than encroaching on existing production on elite soils, high value agrivoltaics could be a means to increase horticulture on land currently not under cultivation.

Working with solar developers, growers could provide a useful service by managing vegetation – which means rather than paying to lease land, growers may be paid to cultivate it.

Pieter-Willem explains that the Energy Farm’s approach differs from many European studies that add solar panels to existing horticulture production.

“The way the Energy Farm is set up, our main product is electricity and we want to demonstrate that you can still produce high value crops underneath.”

The 1.5 MWp solar installation will comprise around 2800 photovoltaic panels, generating 2.3 GWh of renewable energy annually. The design includes rows of bifacial PV panels mounted on an east-west tracking system, with varying height configurations to accommodate different crops.

The focus on electricity first is two-fold: firstly, as a power purchase agreement with developer Solar Bay, part of the university’s decarbonisation plan; and secondly as the team wants to demonstrate applications with widely applicable commercial arrays, rather than tailor-made experimental installations.



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The Energy Farm's new compact electric 55hp Knecht 404G2E - an acquisition made possible by the Energy Efficiency and Conservation Authority (EECA) Demonstration Fund, Meridian Energy and Power Turf New Zealand

The research will test various high-value crops under solar panels and work with the horticulture and wine industry to determine the need for leading-edge practices that can be rolled out on a commercial scale. Currently the team is planning cherries, blueberries and some market garden crops like bok choy. "There will probably be some grapevines growing underneath those panels as well," says Pieter-Willem.

"This is a stock-standard setup for photovoltaics. So we need to think about wind breaks, what type of crops can go underneath, how high are the panels, how tall will the crop grow? Can we think about more adapted trellising systems?"

Associate professor Clive Kaiser is contributing his expertise in fruit production. The approach requires careful adaptation of traditional growing methods. "For example for cherries we're going to look at pedestrian orchards so that they don't grow as tall and won't block sunlight," Pieter-Willem explains.

Shannon continues, "Blueberries came to the table as a good alternative value crop in case we have some issues with waterlogging, for example."

A key concern is competition for sunlight between solar panels and crops. Because the farm will focus sunlight management on electricity production first, horticulture yields may be lower - however the combined productivity per hectare will still be higher than horticulture alone.

In addition, emerging research suggests potential benefits from partial shading, including frost and hail protection. Shannon points to encouraging findings: "We've just done a literature review looking at the impact of crop growth under panels. And it really varies. There's been some really good studies or experimental setups in Europe that have looked

at partial shading of the solar panels on raspberries, for example, and just substantial benefits to the crops.

"It's this balance between, yes, reduced light levels, but then you get all these other benefits of reduced temperature, reduced heat stress, increased lower evapotranspiration, other microclimate benefits that can outweigh some of the negatives," Shannon explains.

Ensuring the highest fruit and vegetable quality remains crucial. As Pieter-Willem notes, "For example, cherries, where you make your money is exporting great cherries. So we'll be looking at firmness, size, because they're key to make this an export type of grade product."

He adds that the project will examine ecological impacts and other factors such as soil health - involving researchers from a wide range of disciplines from the start. "We're looking at this as a broader aspect with the sense of can we produce as well or better underneath these panels, how can we be more sustainable?"

In that vein, the farm will have its own electric tractor, a new Knecht 404G2E 55HP sourced from the Netherlands with the help of Wim de Koning, co-director at Lincoln University's Centre of Excellence in Transformative Agribusiness.

"This is an open research site for all our colleagues who want to do for example robotic mowing, or looking at spraying. But one of the things we need to be careful of is we are not allowed to impact the production of electricity on in our activity."

Finding a practical way to combine solar and horticultural production could contribute to more efficient use of land. So will the future see growers become solar developers, or solar developers become growers? Watch this space in Selwyn... ●



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OUR POWDER SUPERPOWERS

Fruit and vegetable powders are becoming big business in growing wellness markets around the world. New Zealand nutritional claims for these dietary supplements are a bit of a grey area, but new legislation on regulating and exporting these dietary supplements is coming. Will it be enough to help New Zealand growers benefit from this emerging market?

John Gauldie

New Zealand's blackcurrant production is growing again, likely reaching 5000 to 6000 tonnes in the next couple of years, according to Mike Callagher, general manager at NZ Blackcurrant Co-operative Ltd and board director at Blackcurrants NZ.

While still below pre-2016 levels, Mike attributes the uptick partly to rising demand in the wellness market, but growing conditions in Canterbury and Nelson are also a key factor.

"Last year's winter has made a for a good growing year, but the prior couple years were challenging - so while this year's increase is down to a good old-fashioned cold winter, we are realistic that low winter chill will be challenging going forward."

Currently, 70 percent of New Zealand's blackcurrant crop supplies the global wellness market for extracted anthocyanins - compounds sought by sports nutrition and eye health nutraceutical manufacturers.

"These days we talk about selling anthocyanins as opposed to blackcurrants. When you look at the extract market, pretty much all the anthocyanins sold around the world where high levels are required will originate from New Zealand fruit."

New Zealand dominates because our fruit contains up to two or three times the anthocyanin levels of European blackcurrants - a crucial advantage for extract manufacturers.

"We've targeted anthocyanins in our breeding programme," he explains. "But we also have a sort of natural advantage around UV (ultraviolet) and sunshine hours."

Extracting anthocyanins to standardised concentrations previously occurred in Palmerston North. Since processing of botanicals ceased there in 2019, most blackcurrants leave New Zealand as frozen fruit or frozen concentrate.

"Between Japan and China, they're doing all of the extraction, and they've got very good at it. So unfortunately that takes a huge value out of the fruit and takes it offshore. There are still live attempts of getting the processing going back down here which shows that investors see future growth potential in the wellness market. Any initiatives that will help grow the blackcurrants sector are a positive development."

However, while extracts are sold as highly concentrated anthocyanins capsules, there is also a growing market for wholefood powders.

"The wholefood powder wellness market sprung out of nowhere in the last decade and is gaining traction," Mike says.

In contrast to anthocyanin extraction, drying to a powder only takes out the water - typically 85 percent of the weight - leaving a very dry powder with a lot of the wholefood nutrients and dietary fibre intact. Freeze drying is particularly good at preserving nutrients.

Powders are typically sold to be reconstituted with water into a wellness supplement drink.

Dozens of brands in the United States have become household names as the powder wellness market continues to grow.

The United States-based Athletic Greens, founded by New Zealand entrepreneur Chris Ashenden, reported a market valuation of over US\$1 billion in 2022.

Last year Athletic Greens became the subject of a Newsroom Delve podcast "Powder Keg" about the company's previous claims that the powder was made in New Zealand - claims that the company no longer makes.

Many New Zealand companies are marketing to our growing domestic demand for wellness powders - but also looking to leverage New Zealand's powder superpowers to generate trade offshore.

Tommy Roff, founder of Auckland's Fresh As, started in fresh produce before launching his freeze-drying company 20 years ago. Alongside his own Fresh As brands for hospitality and retail, he offers contract drying services to the wellness sector.

"Everybody is thinking about wellness. We're doing hundreds of tonnes of kiwifruit. We're also working with avocados. And vegetables. Personally I love eating whole vegetables, I'll eat 20 vegetables a day. But I do believe powders are a good thing. It's convenience for a lot of people, an easy way for people to do something good for their bodies."

Tommy says there is a lot happening internationally.

"Powder is definitely growing worldwide. New Zealand is a tiny player. China is huge. I have six machines, but over there, they'll have hundreds. The only way for us to grow is being the best, doing it at a higher quality and getting the branding right."

While 'Brand New Zealand' appeals to clients, maintaining stringent quality standards is crucial.

"There are no accepted limits, to the best of my knowledge, for spray residue in freeze dried powders. The fact that we remove around 90 percent of the product's volume, primarily water, means that our resulting powder concentrates all of the properties of the whole fruit, including spray residues."

Fresh As conducts rigorous pesticide residue testing.

"We've never been asked about it by a New Zealand client but contamination is definitely a big thing for our export clients. In Taiwan they test for it carefully. A problem is that there are no global standards to test for. In Taiwan they apply the same rules as for tea."

Carolyn Lister at Plant & Food Research sees opportunities in powders, particularly using secondary products to reduce waste and enhance nutrition.

She says eating the recommended 5+ a day of whole fruits and vegetables is by far the best nutritional goal, but if consumers want to buy powders, they should at least have confidence in the product's claims.

"For some of these phytochemicals, the recommended dietary intakes haven't been established yet. A product can say anthocyanins are present and they have these health benefits, but they might contain a fraction of what's needed to deliver the health benefits. On the other hand, if you concentrate a nutrient too much you might affect the uptake of other nutrients or get higher amounts of toxicity."

Many brands are investing in solid technical evidence with New Zealand's world-renowned researchers. When trustworthy research reveals the benefits behind naturally occurring compounds, it creates a buzz with consumers.

Blackcurrants are not well known in the United States, but an upcoming high-performance sport symposium in Atlanta could help awareness





Most of New Zealand's blackcurrant harvest is destined for the global wellness supplement market

A recent collaboration between Plant & Food Research, Callaghan Innovation, and New Zealand drink maker Ārepa discovered sarmentosin, a novel bioactive compound in blackcurrants. Research suggests blackcurrant powder and juice may improve mood and reduce mental fatigue in healthy adults. Ārepa has patented sarmentosin for mood and cognitive function support.

Claims for dietary supplements are regulated differently to fresh foods in New Zealand. Food claims fall under the Food Standards Code, while natural health products follow the Dietary Supplements Regulations 1985 administered by MedSafe. Wholefood powders are in a regulatory grey area.

"Companies can make a lot more claims on a supplement without making full validation," Carolyn says. "That's why you'll see far more claims on dietary supplements compared to fresh foods. It's up to consumers to use some judgement. I think there are opportunities if you think about it as a whole and make sure that there is scientific validation and thought behind the product."

Associate Health Minister Casey Costello's October Cabinet paper outlined plans for natural health product regulation following the repeal of the Therapeutic Products Act 2023. New legislation will be developed through sector engagement over the next year.

In the paper she states, "Some exporters will need or want an export certificate, as this is an import requirement in some countries. We also want to maintain confidence in the quality of New Zealand-made products."

Under the NZ Horticulture Export Authority Act, the export marketing strategy for blackcurrants, for example, covers export licences for whole fruit, frozen, juice and concentrate, but not retail or bulk powder trade, among others.

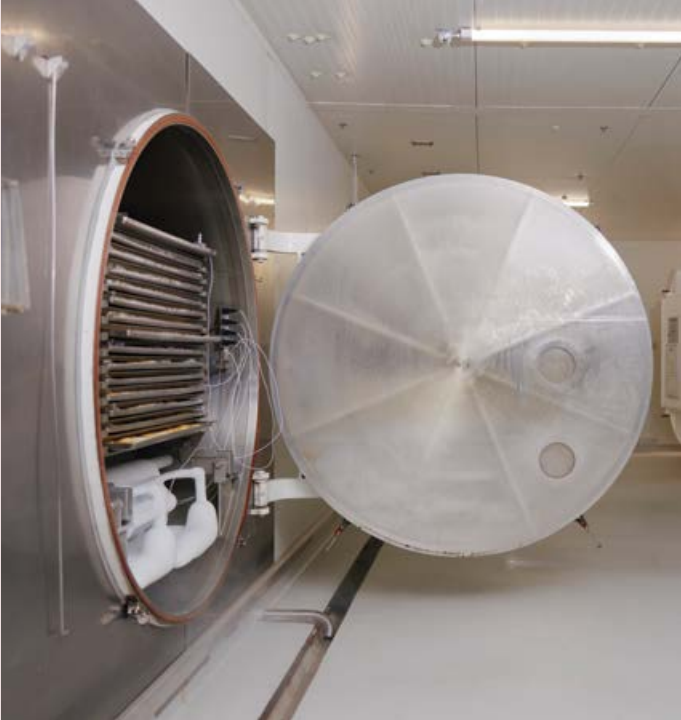
Samantha Gray, government affairs director at Natural Health Products NZ, says that New Zealand could become a global force in wellness because our science and research ecosystem is respected worldwide.

However, she notes that varying international requirements create export challenges. Natural Health Products NZ estimates that New Zealand is missing out on up to \$500 million in export trade of dietary supplements.

For instance, some Middle East markets prohibit the "Dietary Supplement" label that is mandatory in New Zealand. That's why the industry body is advocating for export exemptions.

"The fundamental hurdle we face currently is that product claims are severely limited by the current regulations, meaning that excellent science cannot be used in the market to support health benefit claims. This is frustrating for industry because New Zealand companies would love to invest more in science-based research but without being able to meaningfully communicate with consumers, the ROI (return on investment) is questionable."

Mike Callagher advocates for more research into new blackcurrant applications but believes scaling New Zealand's advantages requires better marketing focus, too.



Auckland's Fresh As provides contract freeze drying services as well as its own retail and hospitality products

**NEW ZEALAND
BLACKCURRANT ANTHOCYANINS**

**NEW ZEALAND
BLACKCURRANTS
700MG
PER 100G**

**EUROPEAN
BLACKCURRANTS
300-400MG
PER 100G**

“We’ve got a significant quantum of research on blackcurrants but we are still trying to find that one consumer message that hits home. We like to compare it with cranberries. Everyone knows what cranberries are used for.”

For anthocyanins, it might be as simple a message as improved blood circulation – a mechanism that supports eye strain, mental acuity, and sports recovery.

For the high-performance sports market, Plant & Food Research and the NZ Blackcurrant Co-operative have created the Adaptive™ brand as an endorsement for a defined quantity of New Zealand blackcurrants.

By taking 120mg of anthocyanins before you exercise, your body switches on pathways that protect your cells from excessive stress and inflammation, aiding a faster recovery.

Mike says researchers studying New Zealand blackcurrant extract will present at the high-performance sport symposium of the American College of Sports Medicine in Atlanta, Georgia in May this year.

“That’s a really exciting upcoming event because blackcurrants are not well known in the United States and this puts us in front of thousands of high-powered nutritionists and sports medicine professionals.” ●

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Colebrook, a 14.8 canopy hectare orchard near Edgecumbe, is one of 17 orchards rolled up in the new MyFarm KiwiFruit Fund

REFORMS TARGET HIGHER INVESTMENT

Late last year the government announced proposed reforms of the Overseas Investment Act, KiwiSaver investment and climate-related disclosures. Will these regulatory changes increase capital investment in horticulture and help the industry achieve its ambitious goal to double farmgate returns? We asked Andrew Watters, chief executive of MyFarm, for his opinion. MyFarm manages several hundred hectares of apple, cherry and kiwifruit orchards – including its new MyFarm KiwiFruit Fund.

John Gauldie



Andrew Watters, chief executive of MyFarm, shares his thoughts on investment reforms

? Do investors outside horticulture have confidence in the sector's potential for returns?

"Higher interest rates, higher labour costs and high inflation have all been headwinds. Whilst we have to absorb the higher costs, interest rate relief is welcome.

"Many of the risks that can be foreseen have become actual over the past two or three years. Wet, frost, flooding, fruit quality, markets, poor local organisation. This is why horticultural investments need to return four to eight percent more than 'money in the bank' to compensate for the risk.

“Any industry can expect to experience highs and lows but to be successful over the long run we need productive crops, good market prices and high orchard gate returns – both in absolute terms and relative to the value of the asset base.

“Long term MyFarm has confidence in SunGold™ kiwifruit, specialist apple production and modern design cherry production. But we cannot be complacent, we need to lift productivity and evolve into new varieties if we are to be successful in the longer term.”

② Are we focused enough on attracting domestic investors including KiwiSaver’s \$110 billion funds under management?

“There is a good case for local investors to have a small proportion of their investments with exposure to horticulture returns. There is limited exposure available via the New Zealand Sharemarket, so direct ownership is required.

“Prior to Christmas, the government announced some reforms to the operation of KiwiSaver, which if implemented may allow direct investment into the sector. However, schemes suitable for KiwiSaver investment will be limited; professional standards will be required.”

② Is the government’s overseas investment reform on the right track to increase direct foreign investment in horticulture?

“Overseas investment regulation has been out of step with New Zealand’s needs for investment for some time. We have the most restrictive settings in the OECD (Organisation for Economic Co-operation & Development) and this contributes to low productivity growth and stagnating export growth.

“The reforms announced in October 2024 are going to result in some form of liberalisation, the extent to which will be unknown until early to mid-2025.

“However, we shouldn’t expect funds to flood into New Zealand; real asset investment globally is at lower levels at present, and the scale of opportunities in New Zealand tends to be on the small side for overseas investors today. Over the long run a more liberal approach should be welcomed, as new capital underpins growth.”

② How has the MyFarm KiwiFruit Fund performed since its launch in July last year?

“The fund is performing ahead of financial targets for its first year of operation and we are optimistic about our outlook for next year and beyond.

“The KiwiFruit Fund aims to own up to 7.6 million Zespri shares by the end of 2026 – that’s around four percent of Zespri shares on issue. Buying additional ZGL (Zespri Group Ltd shares) is a goal of the fund, and there are dry shares which should come to the market in 2025. The return on these shares is yet to be seen and will be influenced by the strength of the SunGold licence auction this autumn.”

② What are your expectations for the fund’s kiwifruit assets heading into the harvest?

“After two difficult seasons following the 2022 and 2023 harvest, the SunGold kiwifruit sector has returned to good levels of orchard profitability. Orchard gate returns have been boosted by good crop volumes and good pricing and with falling interest rates, ownership of a good SunGold orchard now meets its cost of equity capital. We look forward to the 2025 harvest with some optimism – forecast yields are on track with the plan and we remain confident that Zespri can sell our fruit well, provided we can provide them with high quality product.” ●



MYFARM’S ORCHARDS UNDER MANAGEMENT

Among its primary sector offerings, MyFarm offers investors syndicated ownership of Hawke’s Bay and Gisborne Rockit™ orchards totalling approximately 100ha, plus its partnership in the 73ha Central Cherry Orchard in Central Otago. In July last year, MyFarm rolled up its kiwifruit partnerships into the MyFarm KiwiFruit Fund, formed as a product for wholesale investors. The fund now owns an asset portfolio worth close to \$200 million, including 17 orchards with over 155 canopy hectares of SunGold fruit and over 2.5 million Zespri shares. About 120ha is leased to DMS, EastPack and Seeka (Northland). MyFarm also manages assets on behalf of an institutional client totalling over 110ha made up of cherries, kiwifruit and apples.



CONSULTATION ON INVESTMENT REFORMS

The Ministry of Business, Innovation & Employment is consulting on changes to the climate-related disclosures regime and KiwiSaver settings. Submissions close on 14 February 2025.

In October Associate Finance Minister David Seymour confirmed that Cabinet has agreed to principles for reforming overseas investment law. Land Information New Zealand is the regulator and says that detailed proposals are now being developed, with the aim of passing legislation before the end of 2025.



In December the New Zealand horticulture delegation to India, including Himanshu Arora (right), head of APAC South at Zespri International, ran into a delivery of kiwifruit. Photos courtesy of Simon Hegarty

INTEREST IN TRADE WITH INDIA INCREASING

A New Zealand horticultural delegation visited India in December, making fruitful steps towards stronger collaboration with the world's most populous country. NZGrower & Orchardist takes a look at the trading picture.

John Gauldie

India produces a staggering 206 million tonnes of vegetables and 113 million tonnes of fruit. Land area used for horticulture quadrupled to 28 million hectares in the two decades to 2023, according to data from *Invest India*. It certainly puts New Zealand's 80,000 hectares of fruit and vegetable production in context.

Despite its huge production, India only exports about one percent of its horticulture output. The industry is heavily focused on meeting domestic demand - which continues to grow. The population of India surpassed 1.43 billion in 2024, making it the world's most populous country.

More than half of its huge population work in agriculture, a sector dominated by smallholder farming. India aims to strike a balance in protecting the livelihoods of this vast

block of voters while meeting rapidly developing consumer demand for high quality fresh produce.

Demand for premium products is increasing as the average real income of Indian citizens has increased by 50 percent in the last decade. India's organic market is also increasing in urban centres.



The gap between demand and supply is predicted to continue growing. India's government is focused on food self-sufficiency and increasing prosperity and security for its growers.

Compared to India's vast production volumes and soaring demand, New Zealand remains a niche and distant producer. However, our focus on low input sustainable growing systems and our experience scaling

horticulture businesses into high yielding operations makes us a world class partner to help India increase the efficiency and productivity of its horticulture sector.

The New Zealand horticulture delegation to India last December was part of a flurry of diplomatic and industry activity in the last year.

The delegation included Karen Morrish from NZ Apples and Pears, Himanshu Arora from Zespri, Raj Singh from Summerfruit NZ, Brad Siebert from NZ Avocado and James Kuperus from Onions NZ. Simon Hegarty from the NZ Horticulture Export Authority (HEA) also joined. Peter Chrisp, chief executive at New Zealand Trade and Enterprise, was also in India.

Only days later in December, Trade Minister Todd McClay was in New Delhi, which was a great way to build on the delegation's work strengthening New Zealand's relationship with India. It was the Minister's third visit to India last year.

India has existing preferential or free trade agreements with several countries, including notably the Australia-India Economic Cooperation and Trade Agreement (ECTA), which entered into force two years ago.

In its first year, the agreement resulted in Australian agricultural exports to India increasing by 50 percent, particularly sheep meat, seafood, broad beans, citrus and almonds, according to Australia's Minister for Trade, Don Farrell.

Under the current agreement, a total of 13,700 tonnes of Australian citrus is granted entry to India with the tariff reduced from 30 to 15 percent.

Citrus Australia stated its trade to India to date had traditionally focused on smaller sizes and composite grade quality driven by market dynamics and high tariffs - for a very low return. Citrus Australia is now investing in developing a market for class-1 fruit.

Australia is hoping to further expand its trade relationship with India through a proposed Comprehensive Economic Cooperation Agreement (CECA) to further reduce tariffs and increase or remove quotas.

New Zealand and India previously entered into Free Trade Agreement (FTA) negotiations in 2010, however negotiations stalled in 2015.

Despite currently having no bilateral trade agreement and tariffs averaging 46 percent, New Zealand horticulture exports to India doubled last year to \$78.9 million, according to the latest trade barriers report by HEA. However, the cumulative change over the last six years is a 28 percent increase, reflecting the volatility in recent trade.

The recent export growth has been driven by an 83 percent increase in apple exports (up to 33,830 tonnes), generating NZ\$61.4 million FOB in 2024. Apples are New Zealand's largest export crop to India, and India is New Zealand's fourth largest export apple market by volume (behind China, Vietnam and the United Kingdom), according to the HEA report.

New Zealand's export crops on their way to New Delhi consumers. Photo courtesy of NZ Apples and Pears



Mowers and forklifts designed for New Zealand orchards and vineyards.

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KEY FACTS



New Zealand horticulture exports to India are on the rise, but characterised by significant ups and downs over recent years.

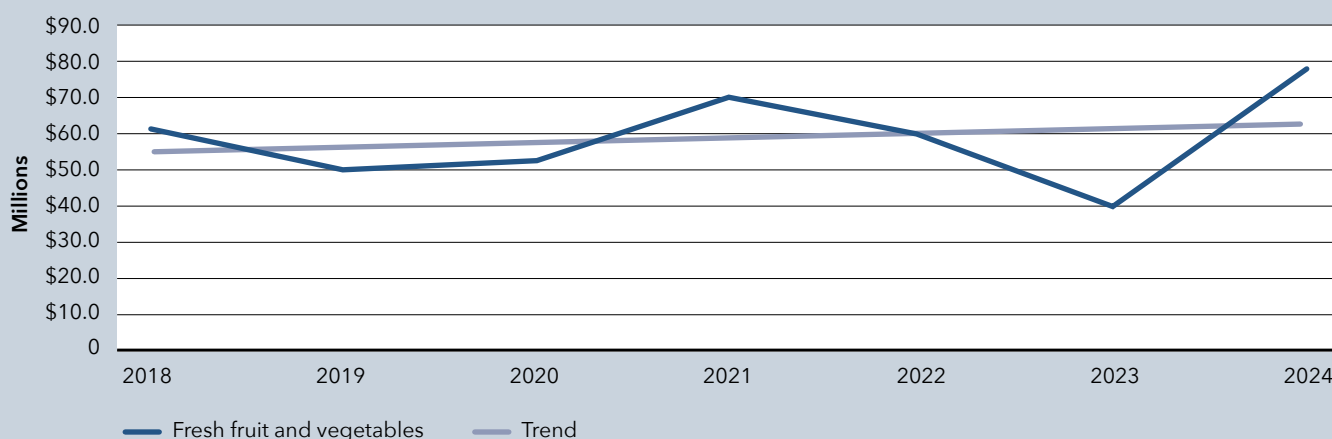


Compared with India's vast production of fruit and vegetables, New Zealand is a tiny player, but has a lot of knowhow to offer India's growers.



Unlike New Zealand, Australia already has a trade deal with India - and is seeking a comprehensive new agreement to further reduce or remove quotas and exemptions.

NEW ZEALAND FRESH FRUIT AND VEGETABLE EXPORTS TO INDIA



Since 2018, New Zealand fresh fruit and vegetable exports to India have seen large swings, with last year seeing a doubling of exports to \$78.9 million. Source Stats NZ & HEA Trade Barriers reports

Apples are a major crop in India, with orchards comprising 310,000 hectares (compared to New Zealand's total of approximately 11,000 hectares) producing 12 percent of the global total. Nevertheless, India is also a major importer of apples - notably from Turkey, Iran, the European Union, and the United States. In the counter season, India imports from South Africa, Chile and New Zealand.

India's 50 percent tariffs on apples apply equally to importers from major producer countries. Under Australia's ECTA with India, apples are on the exclusion list, so the 50 percent tariff on Australian apples remains in place. However, the agreement does provide for a reduced tariff quota of 3700 tonnes for pears.

"The delegation has assisted in fostering a far deeper understanding of India's complex and vast market environment," says Karen Morrish, chief executive of NZ Apples and Pears. "It also shone a light on where and how each nation can support the other's horticulture sector.

"While New Zealand's production is dwarfed by India's, New Zealand can share advanced knowledge in R&D, production, sustainability, and regulation. Meanwhile,

India has a growing audience who is looking for value for money and niche quality produce."

Last year's growth of New Zealand exports to India was offset by a 39 percent decrease in kiwifruit and a 23 percent decrease in avocados.

Zespri's head of global public affairs Michael Fox says India represented an immense opportunity but the exporter is constrained from realising India's demand potential by the 33 percent tariff on New Zealand kiwifruit.

With the global demand for Zespri kiwifruit exceeding supply, the company allocates fruit to markets based on the need to optimise returns to New Zealand growers.

"Should that tariff be removed, India would be a growth market, receiving more fruit and investment to grow the market. This would benefit Indian kiwifruit growers too, as they are counter seasonal. Discussions on improving market access are ongoing."

Under Australia's ECTA with India, Australian kiwifruit can be imported into India with tariffs reducing from 30 percent to 15 percent under equal annual instalments over a seven-

year period. Australian avocados have a phased reduction from 30 percent tariff to zero percent over the same period.

Tariffs on Australian onions, shallots, leeks, cabbages, lettuce, asparagus, artichokes, aubergines, spinach, celery and cucumbers are reducing from 30 percent to zero percent over the seven-year period.

Currently India is not importing any New Zealand onions. Onions make up a major domestic and export crop in India, with 1.9 million hectares producing 31.7 million tonnes annually.

Despite being an onion exporter, India does import onions to stabilise its market during periods of domestic shortage, mostly from Egypt, Iran, Afghanistan, Turkey and UAE, according to a report commissioned by Onions NZ under the Humble to Hero project funding. Adverse weather conditions, such as water scarcity and natural disasters, often lead to price surges between August and January, a crucial period before the next harvest.

Red onions dominate India’s market, however growing demand for yellow-brown onions suggests increasing potential for New Zealand onions. ●



Sudhir Suri, managing director and chair at Suri Agro Fresh Private Limited - one of the largest distributors and importers of fresh produce in India - with Peter Chrisp, chief executive at New Zealand Trade and Enterprise (NZTE), and Graham Rouse, NZTE trade commissioner and consul-general for India and South Asia. Photo courtesy of NZ Apples and Pears

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DROP INSECTICIDE COSTS BY UP TO \$50 A HECTARE



Daniel Sutton : Vegetables NZ research, development and extension manager

The latest workshop series on integrated pest management (IPM) in Pukekohe has shown that IPM can reduce insecticide costs by up to \$50 a hectare.

The workshops ran from mid-October through to early December. During this time, the A Lighter Touch (ALT) demonstration farm in Pukekohe hosted broccoli, onion and barley crops. The workshops involved input from Vegetables NZ, Onions NZ and the Foundation for Arable Research (FAR). This allowed attendees to learn and engage with multiple crops, experts, and control strategies.

Format

The workshops ran each week, over eight weeks. They each included a field and a classroom session. In the field, attendees would scout crops, identify pests, diseases and beneficial arthropods and note any other relevant information in the crop.

In the classroom, attendees worked their way through a process to decide how the crop should be managed. Factors to be considered included pest numbers, stage of the crop, trends from the previous week, etc.

Attendees would then discuss whether intervention was required, and if so, what kind of intervention. For example, was beneficial arthropod activity maintaining control of insect pests? Was a soft biological insecticide required or was a synthetic insecticide needed? What would give the required protection to the crop, while minimising the impact to beneficials and the wider environment?

'Marketable standard' attained using IPM

The broccoli crop, which was the focus for the workshops, did well. The final crop reached a marketable standard with fewer synthetic insecticide inputs than the commercial comparison. Both crops (workshop and commercial) received an application of an insecticide drench before planting, and an indoxacarb insecticide application before harvest. However, the workshop crop received two applications of a biological insecticide, while the commercial comparison crop received two applications of a synthetic insecticide.

Overall, insecticide costs in the workshop crop were approximately \$50 less per hectare.



Participants in the integrated pest management Spring workshop series

Third successful workshop series

The Spring 2024 workshop series was the third held at the ALT demonstration farm in Pukekohe. The previous two series were spring lettuce workshops in 2023, and summer broccoli workshops in 2024.

Attendance remained strong, with an average of 30 people attending each workshop each week. Again, this was a combination of in-person and online attendance. Feedback also continues to be positive, with 90 percent of participants rating the series a four or five out of five.

Key takeaways

- ✓ Insecticide use could be significantly reduced and still produce a marketable crop.
- ✓ Gaining a better understanding from growers of their approaches and needs, as well as how biologicals can fit into an IPM strategy to benefit both growers and end consumers.
- ✓ Reducing the number of broad-spectrum sprays through crop monitoring and the use of selective biological insecticides encourages beneficial predators and improves biodiversity in the paddock, without negatively affecting the crop.



The workshop series included field sessions to scout crops, and identify pests, diseases and beneficial arthropods

The latest series of workshops was the first to feature a mix of different crop types, compared to individual crops in previous workshops. This was well received by attendees with 80 percent of feedback stating it was good to have the mix, with a further 20 percent stating there needs to be more of a focus on including other crops.

As attendees registered for the event, they were asked to rate their understanding of IPM. On registration, attendees averaged a score of some knowledge (3/5). After the workshops, attendees, on average, rated moderate knowledge (4/5), which shows attendees have taken key information with them.

Feedback

Feedback from the event included:

- 👍 "This was one of the best workshops I've attended, as it included diverse crops and helped me understand neighbouring practices to enhance our IPM control."
- 👍 "Great to have time to review alternatives and different ways of approaching crop pests and diseases."
- 👍 "Very informative and interactive learning."

There was a clear desire from the attendees to dive deeper into wider aspects of crop production. In particular, soil health and how, when the soil thrives, crops do well and are more resilient to pests and diseases. This will be investigated for future events.

Thanks to

The IPM workshops would not be possible without the support of multiple people and organisations:

- Foundation for Arable Research and Onions NZ for bringing in their expertise for their crops.
- Olivia Prouse (Cropping Services Ltd) for her knowledge and expertise in the broccoli crop.
- Howe Young from Balle Bros and Scott Fong from Desloe Produce for growing and managing their crops.
- Molly Green from Horticulture, Pukekohe who helped facilitate several of the workshops. ●

Excellence In the Field

JUSTIFY



- Great dome-shaped head with fine & tight blue green beads
- Nicely tucked head for high yield weight
- High quality cool season broccoli
- Evenness of maturity, 80-90 days

GRICALE

- Very healthy, erect frame showing good field tolerance to leaf diseases
- Curd is very firm and white with good depth, tuck and weights
- Uniform harvest meaning increased harvest efficiencies



RUBYCUT



- Crisp double dark red & green multi-leaf.
- Offers a vigorous plant with an erect plant habit for greater harvest efficiency
- Slow bolting with good adaptability for all year round growth in mild growing regions. Bl: 29-41; Nr0; LMV1;Fol 4

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BUILDING OUR FUTURE

Kate Truffitt : Potatoes NZ chief executive



Planning, education and training, strong industry networks and the smart use of technology will create a long-term and sustainable foundation for the next generation of New Zealand potato growers.

Potatoes have long been a cornerstone crop in New Zealand agriculture, playing a vital role in both our domestic and export markets. To ensure an equally strong future for our industry and for the next generation of potato growers, we must be open to fresh perspectives and approaches, and we need to commit to the business and resilience planning that our sector needs to succeed.

A strong network

Growers are certainly not alone in planning for the future of their business and for the wider industry. Potatoes NZ represents growers' interests, and through our work we support and initiate vital research and development (R&D), identifying new technologies and opportunities to improve productivity for the sector, and advocating for better outcomes for the New Zealand potato industry.

To this end, Potatoes NZ is launching a Youth Council in February 2025. The Potatoes NZ Youth Council aims to provide a platform for young people to actively contribute to the potato industry, representing youth interests, fostering growth, supporting each other, encouraging learning and leadership within the industry. Watch this space.

Planning for success

Agricultural growth is essential not only for food production but also for the economic wellbeing of many regions of New Zealand. For growers, whether small-scale family farmers or large-scale commercial producers, careful planning is crucial to ensure sustainable practices, increase productivity and maximise profitability.

Success in any business venture requires a plan. Business and financial planning across the three different horizons – short, medium and long-term – need to be part of the approach of every business. Short-term planning will provide the focus on daily operations and cashflow and help identify the resources and activities required to support the current crop.

Medium-term planning takes a step back to look at objectives for growth, budgeting and resource allocation for the coming one to three years, and opportunities for new products or improved processes.

“

The Potatoes NZ Youth Council aims to provide a platform for young people to actively contribute to the potato industry, representing youth interests, fostering growth, supporting each other, encouraging learning and leadership



Longer-term planning is more critical than ever in the context of our rapidly evolving agricultural landscape and growing list of challenges. Looking at a timeframe of three to five years or more, this provides the opportunity to set strategic goals and think about expanding into new markets, explore options, R&D projects (often in collaboration with other growers and industry organisations), and create diversified income streams (value-added products, agritourism, or even renewable energy projects) to cushion your business against market volatility. Long-term planning requires a vision for the future and the ability to outline a roadmap to achieve it: what steps are needed to turn these ideas into a reality?

Strengthening existing production systems

Assurance programmes, while loathed by some, are now being recognised by government to meet certain compliance requirements. This is surely a win. A focus on freshwater management, sustainability, regenerative practices and effective waste management all whilst adhering to environmental standards will not only protect the land but also ensure the longevity of our industry and the livelihood of our growers, now and in the future.

Best-practice farming will lead to healthier soil, reduced input costs and improved crop yields, creating a win-win for both the environment and our growers.



Potatoes NZ is launching a Youth Council this February, part of industry wide efforts to support the next generation such as the Young Grower of the Year Pukekohe event pictured

Feeding innovation

Along with planning and building strong networks, we need to innovate. The adoption of new technologies such as equipment guided by GPS (global positioning systems), data analytics, drones, robotics, AI (artificial intelligence) and integrated pest management tools are revolutionising the agricultural landscape and can deliver the efficiency and productivity gains that potato growers need.

As an industry, we must commit to understanding emerging trends and adopting best practices to ensure

our growers remain competitive. By embracing advanced technologies we can improve operational efficiency, reduce labour costs and enhance crop management. Through strategic planning, innovation and a focus on future needs, New Zealand potato growers will be equipped to stay ahead in rapidly evolving markets.

By embracing change and fostering collaboration, we can create a sustainable and productive future for the next generation of growers, ensuring they inherit a resilient and successful industry. ●



POTATOES NZ 2024 IN REVIEW

United voice and working together

This year, we made it a priority to amplify the voice of our growers, effective communication is the backbone of any successful organisation. We held several meetings with government representatives and ministers to ensure that the perspectives of New Zealand potato growers were heard and understood. In addition, our presence at the World Potato Congress allowed us to forge valuable international relationships that will benefit New Zealand's potato industry for years to come.

Leadership in the field

Potatoes New Zealand's commitment to advancing the potato and vegetable industries was highlighted by the launch of the \$4.7 million Sustainable Vegetable Systems

(SVS) project, which was officially endorsed by Minister Grigg. We also shared our knowledge and expertise across New Zealand, attending Vegetable Research Roadshows and showcasing key Potatoes New Zealand projects. On the international front, we launched the International Partnership for Research and Development at the World Potato Congress, opening doors for global collaboration.

Working together

2024 was also defined by valuable collaborations across the industry. By partnering with other vegetable groups and key stakeholders, we were able to deliver stronger results for our members, leveraging shared resources and expertise to drive progress and address shared challenges.

ORIENTAL FRUIT FLY

Dinah Cohen : TomatoesNZ general manager



I hope you all managed to have a bit of time off over the festive period.

The year 2025 started with a hasty return to work for Government Industry Agreement partners who are part of the Fruit Fly Council with a single male Oriental fruit fly, aged 9-14 days and sexually mature, detected in a trap as part of routine surveillance on 3 January in the South Auckland suburb of Papatoetoe. At the time of writing, the governance group has agreed to follow the advice of the technical team and continue to monitor traps and fruit from trees in the area until mid-February. According to the life cycle of this type of fruit fly, if the original fly had mated, the pupae would have emerged from the soil and been lured to the traps, so continued extra monitoring was deemed important.

There have previously been 12 incidents of fruit fly in New Zealand and each response has successfully led to an eradication. This is a huge team effort led by Biosecurity NZ, working with multiple agencies, product groups and the media to ensure people within the affected areas are educated about what they can and cannot do. For all the latest information please check the Ministry for Primary Industries website here: www.mpi.govt.nz/fruitfly



Oriental fruit fly, image courtesy of Ministry for Primary Industries



SAVE THE DATE

Spray workshop

TomatoesNZ is pleased to announce a practical spray workshop for anyone in your business who has to spray greenhouse plants and crops.

20 March from 4pm for this in-person technical session in **Waiuku**.

We will also make copies of our spray guidelines available to all TomatoesNZ growers ahead of the workshop.

RSVP for catering here: <https://forms.office.com/r/UbDaSyHieD>



TomatoesNZ AGM date confirmed

Another date for your diaries; the TomatoesNZ Annual General Meeting will be part of the Horticulture New Zealand conference in Wellington **26 (AGM date) and 27 August**. We are making sure that the line-up of speakers is both appealing and useful for all growers, so do look at making it to the capital for these two dates if you can.

WE NEED YOU!

We currently have several projects on the go that need input from our growers:

Water surveillance testing - It is important for us as an industry to be aware of where pepino mosaic virus (PepMV) is in New Zealand. It is also important for the whole industry for us to know as soon as possible if tomato brown rugose fruit virus (ToBRFV) has entered New Zealand to have the best chance of containing it. As a result, TomatoesNZ is working with a laboratory to test samples of drainage water from greenhouses - but we need your help! I will be in touch with you to ask you to take part in this crucial work; and it would really help all growers if you took part. Everything you need will be provided.

Bacterial canker - This is a disease endemic to New Zealand that is a real nuisance for tomato growers. We are looking to undertake a research project into treating bacterial canker but need samples to test theories. If you think you have bacterial canker in your greenhouse, please get in touch so that this important work can be done.

Tomato potato psyllid - Last year we seemed to have few reports of tomato potato psyllid (TPP) affecting our growers, which was great; but we have a project running at the moment with A Lighter Touch looking into the control of TPP with beneficial insects as part of an integrated pest management system. If you have tomato potato psyllid and want to be considered for this research, please get in touch.

Finally, don't forget to keep checking the resources available on the website. For example, factsheets on plant diseases that are present in New Zealand, such as bacterial canker, are available in both English and Korean here:

www.tomatoesnz.co.nz/biosecurity/endemic-pest-fact-sheet

If there is a language you would like to see our resources translated into, or a disease you would like covered, please let me know. ●

If you have any questions about anything fresh tomato related, please don't hesitate to contact me:
dinah.cohen@tomatoesnz.co.nz

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THE POWER OF ENERGY EFFICIENCY

A pathway for packhouses and coolstores.

Embarking on the journey toward energy efficiency might feel overwhelming, but it doesn't have to be. With the right tools and support, even the most energy-intensive businesses can take significant steps toward cutting costs and reducing energy use.

Alongside industry experts, EECA (Energy Efficiency and Conservation Authority) has developed a pathway tailored specifically for growers and other businesses who use packhouses and coolstores within their operations. The initiative provides free tools and resources to help businesses save money and use less energy.

Refrigeration: the polar bear in the room

Refrigeration is the lifeblood of coolstores but also their largest expense. It accounts for up to 85 percent of a coolstore's energy consumption, making it a prime area for improvement. In 2022, refrigeration systems consumed 16,040 terajoules of electricity in New Zealand – making them the fourth-largest electricity user after hot water cylinders, electric furnaces and motors.

Optimising refrigeration systems and adopting smart energy management practices can significantly cut costs while boosting efficiency. Adding demand flexibility – adjusting energy use during peak times to support the grid – can further enhance financial savings and environmental impact.

To help businesses take action, the pathway's **energy intensity calculator** provides a way to establish a baseline for energy use. This tool allows businesses to gauge equipment performance and track improvements over time, helping coolstores make data-driven decisions to improve efficiency.

Energy efficiency checklist: practical savings

Saving energy doesn't have to be expensive. EECA offers an **energy efficiency checklist**, tailored specifically for packhouses and coolstores. This checklist provides low-cost, actionable strategies to improve efficiency across key areas such as:

- ✓ Refrigeration systems
- ✓ Lighting
- ✓ Conveyors and other equipment

By working through the checklist, businesses can identify opportunities for immediate savings and develop a plan to reduce energy consumption across operations.

The role of renewable energy

Coolstores are critical in horticulture, extending the shelf life of produce such as kiwifruit, avocados, apples and pears. Given their high energy needs – especially during hot, sunny days – renewable energy sources like solar power present a golden opportunity.

EECA's **commercial scale solar insights** explore how rooftop solar can help businesses meet peak refrigeration demands, reduce reliance on the grid, lower energy costs, and shrink their carbon footprint. Solar energy not only supports sustainability goals but also offers long-term financial savings.

“

The initiative provides free tools and resources to help businesses save money and use less energy

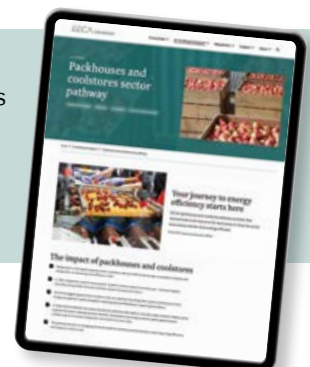
For those looking to understand the practicalities, two **commercial solar case studies** showcase real-world examples of businesses that have successfully integrated solar solutions. Whether through outright purchase of solar panels or power purchase agreements (PPAs), these case studies highlight the versatility of solar energy solutions for businesses of all sizes.

Why efficiency matters more than ever

Efficiency isn't just about saving money – it's about maximising the value of New Zealand's clean energy supply. Even as the share of renewable electricity generation continues to grow, using electricity efficiently remains critical.

By leveraging EECA's tailored tools New Zealand's coolstores and packhouses can take charge of their energy use. ●

Find out more about EECA's Packhouse and Coolstores Sector Pathway by visiting eeca.govt.nz/sector.



EECA
TE TARI TIAKI PŪNGAO
ENERGY EFFICIENCY & CONSERVATION AUTHORITY

CROP PROTECTION SUPPLIER CELEBRATES TOITŪ CARBONREDUCE CERTIFICATION

Nufarm, your trusted partner in quality crop protection, is proud to have achieved Toitū carbonreduce certification, demonstrating their commitment to measuring, managing and reducing greenhouse gas emissions.

Toitū Envirocare is a leader in sustainability verification with its certifications being some of the first in the world to be accredited under ISO 14065.

“Becoming Toitū carbonreduce certified is a huge opportunity for Nufarm to add more value to our customers and end users”, Nufarm’s sustainability lead Debbie Arnold says. To achieve certification, Nufarm measured its emissions for freight, business travel, waste, electricity usage and fuel in vehicles. “We want to do the right thing not only for our people and customers, but for the environments in which we live and work. Our purpose is to grow a better tomorrow, and agricultural sustainability is integral to this.” Key carbon reductions made to the New Zealand business in the past three years include replacing diesel forklifts with electric forklifts and reach trucks; transitioning to hybrid cars in the company fleet and installing solar panels to power its South Island Distribution Centre.

Nufarm is also drawing sustainable connections with its customers. “Our sustainability initiative with PGG Wrightson - ‘Wright for Waterways’ - has been a huge highlight. Together, over the past two years, we grew 180,000 Mānuka trees and supplied these to their growers to plant on farm or donate to rural communities throughout the country,” Emma Ault, Nufarm marketing manager says.

In addition, Nufarm’s move to high active ingredient load products, such as CRUCIAL®, Kamba® 750, Archer® 750 and Nail® 600EC are saving tonnes of plastic packaging and cutting container shipping requirements, when compared to their predecessors.

Becoming Toitū carbonreduce certified means the New Zealand business will now be audited every year to ensure it continues making progress in reducing its carbon footprint. This ongoing commitment is part of Nufarm’s greater corporate focus on creating a more sustainable future. “We are proud to have achieved this certification,



“Wright for Waterways’ sustainability initiative planting trees

and to join the likes of Fonterra, Farmlands, Pāmu, Silver Fern Farms and other agri-sector organisations which have gained this internationally recognised certification,” Debbie says.

Globally, Nuseed, the seed division of Nufarm, has established itself as a pioneer in agricultural biotechnology. It was the first to develop and commercialise plant-based long-chain omega-3 fatty acids from canola, branded as Nutriterra® for human health and Aquaterra® for aquaculture. These products provide sustainable alternatives to marine-sourced omega-3s, reducing pressure on wild fish stocks while delivering essential nutritional benefits.

Additionally, Nuseed’s Carinata® crop is an advanced bioenergy feedstock specifically developed for producing renewable fuels, including sustainable aviation fuel (SAF). The oil from Carinata is certified sustainable and works seamlessly with existing liquid fuel infrastructure. In 2023, Nuseed achieved a significant milestone by harvesting and processing Carinata under a 10-year agreement with BP, marking a step forward in renewable energy solutions. Looking ahead, Nuseed is actively expanding Carinata production to meet the growing global demand for low-carbon energy sources, further contributing to renewable fuel markets and climate goals.

Globally, Nufarm aims to cut type 1 and type 2 greenhouse gas emissions by 30 percent by 2030. Domestically, the target is 20 percent fewer type 1 and 2 emissions by 2027. ●



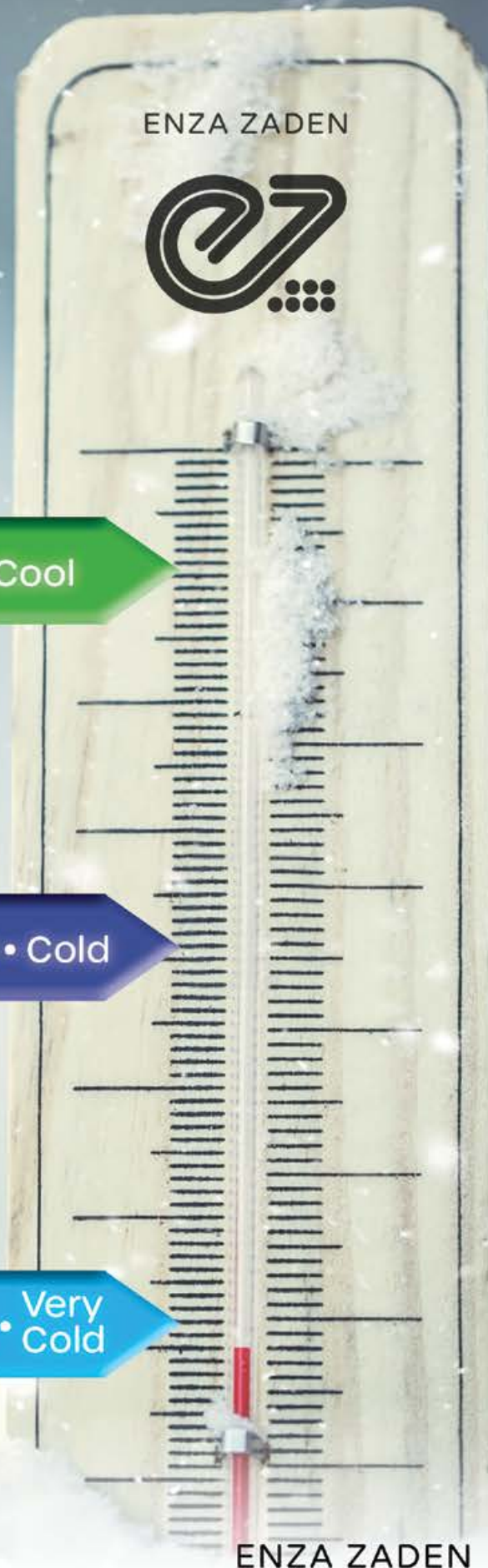
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