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HORTICULTURE NEW ZEALAND

BREEDING YAMS

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

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Woodlands Farm's Alistair Boyce in Waimate is fascinated by the genetics of yams. Read more on page 14. Photo by Tony Benny.

FANTASTIC CONFERENCE AND THEN THE AGM…!

What a great week we had in Tauranga for the New Zealand Horticulture Conferences, with over 700 people attending each of these, and then a fantastic gala dinner not only recognising three amazing people in the horticulture sector with awards, but also farewelling another amazing person, our outgoing chief executive Nadine Tunley.

By Barry O'Neil : HortNZ president

Conferences to me are really important for networking and catching up with colleagues and this was a great conference for doing that, both during the sessions and workshops, and at the networking drinks and dinner.

We also had our Annual General Meeting (AGM) at the conference, and my thanks to our members who attended or sent in proxies, and for the support that we received.

All our resolutions were adopted by members which I am grateful for, bar one. That was resolution 8 which was proposing changes to our rules to modernise as well as make them compliant with the new Incorporated Societies Act. While 70 percent of our members who voted supported the changes proposed, this resolution required 75 percent support, so the minority who were not in support were able to vote it down. Again my thanks to those members who voted in support.

The issues raised by those opposing the resolution related to the board's attempt to modernise what are to me very old-fashioned rules by replacing very prescriptive provisions to make them more enabling. The main area of discussion was the current specific rule requiring us to hold three Horticulture Industry Forums per year, whose invitees exclusively are affiliated product groups and district associations, with any information to growers then hopefully disseminated through them. The board had proposed turning this into a more general provision, with the aim of being less prescriptive, including being able to invite grower members if they wished to attend future industry consultation and engagement meetings.

We will now work with the product groups and district associations who voted this remit down to find a way of engaging that will hopefully allow a more modern approach, and one that will provide for all our members to participate in industry wide meetings we convene. We will then bring the revised rules back to our AGM next year with the proposed changes, including that required by the Incorporated Societies Act. Thankfully we still have time to get the required mandatory changes approved.

In hindsight, I am sure we could have done a better job in explaining the proposed changes to members, but we are committed to working together to get the right outcome.

> **"We need new people coming onto our boards with different ideas and thinking, along with refreshed energy**

But I also must admit to being extremely disappointed, even somewhat sad, that this issue consumed such a large amount of time at our AGM. We didn't get any discussion on the big policy issues facing us, such as water storage, gene editing, climate change and adaptation, food security, or implementation of the Aotearoa Horticulture Action Plan. And no discussion on future opportunities, including the need to remove duplication by rationalising our organisations into fewer more focused entities; instead we spent our time discussing what in comparison is a minor detail.

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CONFERENCES TO ME ARE REALLY IMPORTANT FOR NETWORKING AND CATCHING UP WITH COLLEAGUES

Another important part of the proposed rule change was to make it clear that the maximum period a director can stay on the Horticulture New Zealand board is for nine years. Important as when I look around our industry good bodies we have governors that have been in their roles for far too long, well-meaning I am sure, but the reality with good governance and leadership is that we need new energy and ideas coming into our boards, whether that be HortNZ, affiliated product groups, or district associations. As Einstein said, "We don't solve problems by using the same kind of thinking we used when we created them", which is why we need new people coming onto our boards with different ideas and thinking, along with refreshed energy.

And that brings me to my term on the board. I was initially appointed as an independent director and then subsequently as a grower director when the board elected me as chairman in 2019. I am now in the last year of my second term, five years as chair but also my tenth year on the board. The revised rules if agreed, would have required me to stand down once registered at the end of our financial year.

I strongly believe these big and busy governance roles need regular refreshing, so I will do what we intended the revised rules would require and stand down on 31 March 2025. The Board had discussed the rule change implications and already agreed to Bernadine Guilleux, our current deputy chair, taking over as chair, and Brydon Nisbet as deputy chair, both of whom I fully support, and I have every confidence they will be successful in these roles once appointed.

I will focus my efforts for the remaining time I am chair on supporting our new chief executive, Kate Scott, and trying my hardest to engage with you to progress the issues that are vital for horticulture to succeed into the future.

Kia kaha.

NZGROWER & ORCHARDIST

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Guest contributor Dr Stuart Davis has played a significant role in the vegetable sector for more than 35 years

STATE OF **CHANGE**

Anyone Googling my name might find a confusing collection of hits on projects involving integrated pest management, release of biological control agents and regenerative farming alongside submissions advocating for retention of old, broad-spectrum pesticide chemistry for uses where no practicable alternative control is yet available.

Dr Stuart Davis : 2024 Bledisloe Cup recipient

As a wise farmer said to me "People are like cattle, if you want them to move you have to give them somewhere to go". Sweet corn growers aren't going to roll over on broad spectrum insecticides until there is a viable alternative to controlling green vegetable bug (or worse, brown marmorated stink bug) in their crops.

Likewise, growers of other crops are not going to switch to IPM (integrated pest management) or adopt the SVS (Sustainable Vegetable Systems) nitrogen budgeting tool until they are confident of managing the associated costs and risks.

So it's good to see maturing industry projects like A Lighter Touch and Sustainable Vegetable Systems putting effort into extension and especially on-farm demonstration. Too often in the past, reports on successful projects have not been widely implemented because researchers and industry bodies under-invested in bridging the implementation gap.

Last month Dr Stuart Davis was presented with the Horticulture Bledisloe Cup for outstanding and meritorious contribution to the industry by HortNZ board vice-chair Bernadine Guilleux and board chair Barry O'Neil

Perhaps a more appropriate term is the integration gap: successful growers have an established farm system and integrating improved practices often involves more complex changes than just merely bolting them on.

Growers have a role in road-testing the recommended practices and adapting them to their own conditions. The new practices won't be 100 percent right the first time – for example, anyone who has tried the Quick N-test on volcanic clay soils knows it is anything but 'quick'. And it seems as soon as you think you have a solution another problem crops up: for example, the destruction of working IPM systems by new incursions – think tomatoes and tomato-potato psyllid, or lettuce and currant-lettuce aphid. But it's a lot easier to work on a remaining or new problem area when you can integrate the solution back into an existing proven platform.

> **Growers have a role in road-testing the recommended practices and adapting them to their own conditions**

Regulators have a role in 'giving them somewhere to go.' Sometimes it is enough for regulators to signal a direction of travel and show some respect for the time needed for the industry to develop and implement solutions. Other times we need to get past purist attitudes to 'subsidising farmers' and facilitate their collaboration towards the common good with some public co-funding.

Let's not forget our international farming competitors get plenty more direct support for environmental initiatives than that.

As a nation, we have an enviable international reputation for 'clean' agriculture. Energy spent on arguing over how much we deserve that advantage is better turned to actions that ensure we preserve or enhance it. While we might be having a domestic political 'cup of tea' on the rate of environmental regulatory change, the drivers for improvement aren't going away.

I have been involved in Ministry for Primary Industries (MPI) co-funded projects since the first round of the Sustainable Farming Fund in 2002 and spent several years on the Assessment Panel. In my experience, the SFF (now Sustainable Food & Fibre Futures (SFFF)) is the most important investment the New Zealand government ever made in facilitating positive environmental change and the farmer community collaborations needed to achieve it.

Over the last two decades, I thought this had rightfully earned bipartisan support. Now I watch without enthusiasm for the rumoured repurposing of those public funds towards projects that are more about short-term export market impact and allow greater private capture by individual enterprises. I have more faith in letting market forces develop commercial opportunities than I do in relying on 'the market' alone to facilitate industry collaboration and environmental gains.

DR STUART DAVIS : 2024 BLEDISLOE CUP RECIPIENT

Dr Stuart Davis has received New Zealand's highest horticulture honour. The Bledisloe Cup is awarded by Horticulture New Zealand annually in recognition of individuals who have made an outstanding and meritorious contribution to the horticulture industry in New Zealand over decades.

For more than 35 years, Stuart has championed the introduction of science and innovation to enhance sustainable vegetable and fruit production.

He studied at Massey University, focusing on both horticultural production (BHortSc (Hons)) and research (PhD in Horticultural Science).

Stuart started his career at the Wattie's group, now Kraft Heinz. During his 16 years at the company, he progressed to crop procurement manager Australasia and managed Heinz Wattie's agricultural research and development investment in Australia and New Zealand.

For nine years from 1993, Stuart led the *Grow Organic with Wattie's* programme which grew the Wattie's organic supply base from less than ten to almost 1000 hectares. This research and extension programme developed a number of practices (particularly with biological control agents and integrated weed, pest and disease management) that, in addition to solving problems for organic growers, were also incorporated into conventional crop production programmes.

Stuart then moved to LeaderBrand's Gisborne base, where his positions included fresh crops business manager, general manager operations and technical director. After 14 years in Gisborne, he relocated to become general manager of the Pukekohe farming operation until his current position of sustainability manager was established in 2021.

He has been a director of Vegetables NZ, chair of the Vegetable Research and Innovation Board and has had leading roles in many industry projects, especially in integrated pest and disease management.

Stuart helped lead the *Sustainable Agrichemicals for Minor Crops* project from 2011 to 2015, which developed minor use patterns for multiple products and strengthened working relationships across the sector (five vegetable and seven fruit product groups) and with crop protection companies, research providers, regulators and international minor use programmes. Following the project's success, he co-initiated a proposal to evolve the programme into A Lighter Touch. Currently, he is the chair of the A Lighter Touch Industry Stakeholder Advisory Group.

Stuart currently leads the LeaderBrand contribution to the collaboration with Woolworths in the Sustainable Food & Fibre Futures project *Regenerative Management Systems for NZ Vegetable Production*.

During his career, Stuart has recruited, trained and worked with a whole generation of agronomists from New Zealand and overseas who are now spread through the industry.

Given my employment history at Heinz Wattie's and LeaderBrand, I sometimes field questions about corporate investment and consolidation in our industry. In the outdoor vegetable cropping industry, I think a big change in the level and reliability of return on capital would be needed to attract corporate investors. People who worry themselves about consolidation taking out the sustainable family farm should remember that none of the big growers started out big – bold maybe, but not big. There's still room if you're smart and persistent enough to find the right niche to build an operation from the ground up.

> **"I think a big change in the level and reliability of return on capital would be needed to attract corporate investors**

If we want our industry to be profitable and attractive to smart young people, then scale (achieved by consolidation or collaboration) helps provide access to the latest technology, and employment for the specialists needed to make the best use of it. The clearest vegetable grower views on sustainability that I have heard in New Zealand and overseas have come from younger growers looking to future-proof established family businesses that they are taking over. They are going to require competent staff and external advisors to help build and maintain the farming and business systems needed, because being a 'simple farmer' continues to get less simple at an increasing pace.

We are hearing the right noises once again from our agricultural universities about rebuilding their horticultural science degree programmes. There have long been people in the tertiary sector who disparaged the applied science degrees as 'vocational training.'

We need to change the mindset that studying to be a good agronomist, food technologist or agricultural engineer is any less of an academic challenge than qualifying as a solicitor or a medical practitioner.

In times of shortage, hiring alumni of overseas institutions that maintained academic programmes with a strong industry connection had a positive effect in adding diversity of experience. Getting back to successfully 'growing more of our own' is going to need the industry and universities to work together to broaden and strengthen their collaborations. It is hard to see that there will be a return to the days of full university departments of horticultural scientists with deep industry roots.

Scholarships, internships, 'sandwich' years, industry secondments and guest lecturers are the sorts of connections that need to be reinvigorated to ensure healthy cross-fertilisation amongst industry, research institutions and universities. If we are serious about life-long education, then industry refresher and short courses are another area that needs attention.

The other area of collaboration we need to address quickly is in our industry product groups. Historically, the vegetable sector has been well-aligned and punched well above its weight. The establishment of Growsafe/NZAET (NZ Agrichemical Education Trust) and NZGAP (Good Agricultural Practice) are good examples of key initiatives that were driven by the vegetable industry. Over time, for various reasons, we have drifted apart and this has introduced duplication of resources and made collaboration more difficult. In my view, the five vegetable product groups are still a natural grouping under the Horticulture New Zealand umbrella and we need to keep pushing our leaders to come up with a way of efficiently delivering maximum collective clout.

Murray and Margaret Turley's family business includes their daughter Belinda Skinner who is chief financial officer

EMBRACING HORT IN CANTERBURY

For more than 50 years, South Canterbury's Turley Farms has been finding new ways to use the agricultural land in the region, adding horticultural crops and hybrid vegetable seed production to traditional arable and livestock options, and now the family company is investing in large-scale apple production as well.

Tony Benny

The Turley operation started when Murray Turley's father Alan bought a small farm near Temuka in 1952 which he gradually expanded and by the time his son came home, the property had grown to 400ha, mainly used for arable production.

Under Murray's watch, that grew to 4000ha, producing an expanding range of crops and including a dairy operation, but has since been scaled back to 1900ha with the sale of the dairy farm when Turley's took a 20 percent stake in corporate farming operator Dairy Holdings instead.

The Turleys have always looked for new, more profitable ways to use the land, and were one of the pioneers of growing potatoes and onions at scale in Mid and South Canterbury.

"Potatoes were a low margin crop, but in the early 1970s we were the first in South Canterbury to mechanically harvest them rather than hand-picking them and that took a lot of costs out of the growing operation for a process crop," says Murray.

In 1993 the potato business was expanded with the purchase of three farms near Chertsey, about an hour north of Temuka, just south of the Rakaia River.

"We converted them to the first of the new generation centre pivots to come into New Zealand, and started growing potatoes there. It was a change of land use for that area and that led to growing sweetcorn for processing as well."

In the late 1990s he spotted an opportunity to grow onions too, originally targeting Russia as a market. "The Russia thing disappeared, but we carried on growing onions and learnt we could grow them on scale here and probably at a lower production cost than some other areas in New Zealand."

Next on the list was hybrid vegetable seed production, and today Turley's has over 200ha devoted to growing carrot, spinach, radish, beet and canola seed for Northern Hemisphere clients. A larger area of land is used for wheat, grass and white clover seed crops, and there are cattle and lambs grazing other parts of the farm as well.

Installing posts first is part of an irrigation strategy to adapt to the local area's stoney soil and lower rainfall

The availability of water from the Rangitata South irrigation scheme has been key to Turley Farms growing arable crop in an area that doesn't have the plentiful groundwater farmers further north in Mid Canterbury can tap into.

"We have low yielding bores, but knowing the Rangitata South scheme was going to go ahead gave us confidence to build a 400,000 cubic metre storage pond to store the scheme water. Rangitata South's given us reliable water to finish the crops."

> **None of this would be possible without our permanent employees and their dedication**

Making the best use of that water is important. "We're always scanning the horizon for what's out there, what new crops we can take on," says Murray, who describes himself as an "ideas person".

"None of this would be possible without our permanent employees and their dedication," he says.

"I guess I pop the idea and then walk away and see what happens. I put some challenges out there for the staff and they respond."

It has always been a family business, with Murray's wife Margaret looking after human resources, payroll and other office jobs, but as the operation has become larger and more complex more staff have been brought in, including their daughter Belinda Skinner, an accountant, who is now chief financial officer.

When Murray suggested they look at growing apples, Turley Farms' board, which includes two independent directors and their accountant and lawyer, needed to see a business case.

"It's a big job working through the feasibility of the orchard. That's Belinda's strength," Murray says.

> **On Turley's Yap Orchard, the trees are being grown under a 2D system, trellised on wires**

"Apples had been on my mind for quite a long time. We're lucky with our land, we can do so many things with it. This particular land is too stoney to grow potatoes or onions so you think, 'what is another land use change?"

Dominic Cosgrove, who until then was in charge of their onion and potato production, found himself in a new role, studying the feasibility of growing apples on a large scale in South Canterbury. "He didn't see that coming!" Murray laughs.

"What I knew about apples you could have written on the back of a postage stamp," Dominic says, but after visiting top growers in Nelson and Hawke's Bay his knowledge quickly grew.

"In 2021 we planted a small trial orchard with about ten different varieties, covering a spectrum of early and mid-season, and planted some more in 2022. We tried to cover a lot of bases and tried everything we could get our hands on really."

The variety that stood out was Rockit™. "In terms of tree health, it started to work its way to the top of the pile and the commercial, marketing side of it is a good story so it made sense to look into that further. Every step along the way it started to make a little bit more sense to go in that direction," says Dominic.

"So in 2023, three weeks before the cyclone, we had the chairman and chief executive of Rockit down here to look at the trial orchard and they were thinking of diversifying into Canterbury, and by late May the decision had gone from planting 10ha of Rockit to 20ha," adds Murray.

As a student Dominic picked apples for Applefields, a Christchurch based venture that later exited the industry in favour of property development, but much has changed in the decades since then.

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Behind their trial block with about 10 pipfruit varieties pictured in the foreground, the Turleys are now planting 20ha of Rockit

"They had massive trees and you had to reposition the ladder four times to get round the tree," he recalls.

But on Turley's Yap Orchard (Yap being the Scottish name for apple), the trees are being grown under a 2D (two-dimensional) system, trellised on wires to allow for greater light penetration and easier picking.

"They will still be handpicked, but we make use of work platforms on which we can put four or six people. We can separate out the top four or five wires, so the top section is picked from the platform and the bottom is picked from the ground."

> **"It's all about adaptability; here we have our own challenges that we have to adapt to**

Dominic says he was surprised how willingly top orchardists shared their knowledge.

"The pipfruit industry is quite open and transparent with a lot of things so we've had a lot of help from various players. Even people that traditionally would be seen as competition have been really willing to share a lot of detail, so it's been quite encouraging for us.

But while he eagerly absorbed that knowledge, it was also necessary to adapt it to local conditions.

"In Hawke's Bay and Nelson they will plant the trees first and then they put the posts in, but we realised on this stoney soil that if we didn't have irrigation on pretty quickly the trees would suffer, whereas they have a higher rainfall and their soils have more margin for error.

"So we put the posts and wires up first and that means we can have the drip tape up soon after planting and give them a drink within a month or six weeks. We've imported a couple of machines from Italy to dig a trench around the posts so we can have that infrastructure and trellis in ahead of time.

"It's all about adaptability; here we have our own challenges that we have to adapt to."

One major advantage they have in South Canterbury is having a green fields site. "It's more or less a square paddock, whereas in Hawke's Bay and Nelson land's very scarce so they'll end up with a block that might be two sides residential or might have a creek and different shapes in it, so they'll end up with none of their rows the same. But here we can have pretty much all our rows the same length, the same number of trees, which makes management a whole lot easier."

For the first couple of years as production ramps up, the apples will likely be sent to Central Otago or Hawke's Bay for packing, but then it's likely a packhouse will be built in Rolleston, just south of Christchurch.

For now, apples are Murray Turley's focus, but chances are he'll soon turn his mind to other land use changes and other crops. "This probably opens up other opportunities," he says.

"If we want to diversify into something else here, we have the land to do it," Margaret adds.

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Sharon Boyce (left) with packhouse workers. Woodlands Farm grows and packs yams, as well as running 400 breeding ewes

YAMS AND **LAMBS**

For as long as he can remember, fifth generation South Canterbury farmer Alistair Boyce says yams grew untended in the family garden, but in 1991 he and his father tried growing a few commercially, a venture that quickly grew into a serious business that is now one of New Zealand's largest producers.

Tony Benny

"They just grew wild," Alistair recalls. "They'd come out at Christmas for a roast and that sort of thing and Dad decided to put a row in the garden and they grew damn well. He took a few up to Turners and Growers in Timaru and they said if you can produce them, we'll take everything you've got."

Alistair reckons the yams on the Waimate farm were probably brought to New Zealand from South America by his seafaring great, great grandfather, a renowned grower and propagator of exotic plants, who bought the farm on 24 December 1883.

More than 140 years later, when Alistair came home to the farm to help his parents, it was yams that provided the diversification they needed.

"There wasn't quite enough turnover to keep me here all the time, so we had to figure out a way to pay for the cost of having me at home. We grew quarter of an acre in the first year and that doubled, and doubled and doubled until 1996 we had seven acres and we were still digging with a fork and bucket.

"I said to Dad, 'There's got to be an easier way than this', so we had our first harvester designed. It wasn't flash but it did the job for four years and then we had another one built, and that's when the packing shed was built. There was getting to be a bigger and bigger demand, and we needed to move on into the next phase."

In the late 1990s the Boyces joined a yam breeding programme run by Crop and Food, as the Crown Research Institute was then known.

"They went round the known yam growers and asked them if they wanted to be involved in field trials for breeding because they had this stuff they'd brought out of South America and they didn't have enough room to grow it all.

Alistair Boyce with his son Ethan in the packhouse during winter, when up to 18 staff join the operation to harvest and pack yams

"I think they had about 20 different varieties here from memory, and we narrowed it down to three pretty quick."

That was the beginning of Alistair's lifelong fascination with breeding better yams and in 2007, from crossing two of those varieties, they gained a plant variety right (PVR) for their Southern Flame variety, with its very distinctive red tuber. It's still the main variety they grow, along with a few of the original Market Red variety that grew for so long in their vege patch.

> **"We started off with 70 varieties and we've narrowed it down to about eight**

Now alongside their Southern Flame, the cherry-red Southern Ember (PVR006) is coming through, but Alistair is still running his breeding programme to find the perfect yam, both sweet and flavoursome as well as long-keeping and commercially viable.

Alistair is fascinated by the genetics of yams. As an octoploid, they have eight separate sets of DNA (genetic material), compared with the one set that human beings have."I don't fully understand what effects that has inside the plant, but it gives them a helluva big breeding potential. From one cross you could have 20 different varieties."

"We started off with 70 varieties and we've narrowed it down to about eight. We try a few rows of each and if they don't pan out, we feed them to the sheep."

As well as learning about the genetics of yams, Alistair has learnt how best to grow them on the family farm near Waimate, on the rolling landscape at the base of Hunter Hills. He and Sharon bought Woodlands Farm from his parents in 2007.

"Our ground is not traditional vegetable growing country, and we have very heavy soil which has challenges in itself," he says.

Southern Flame, with its very distinctive red tuber, is still the main variety they grow, along with a few of the original Market Red and their new cherry-red Southern Ember

He's self-taught, not having been to university, but after 30 years of observation, along with trial and error, he's developed a system that works, based on regenerative farming principles.

> **"The sheep are an important part of his management, speeding up the process of improving the soil**

"There's a lot of biology goes into it and I've hit on a regime of planting mixed pasture after the yams and it's just improving the soil within 12 months. It's how you use those plants, you've got to look after them and it's all about improving the biology of the soil."

As well as growing yams, Alistair runs 400 breeding ewes plus replacements, and he describes the business as "yams and lambs". Although there's not much money in lambs these days, the sheep are an important part of his management, speeding up the process of improving the soil.

"The worms and microbes have to break down the green matter in the soil and that process uses a hell of a lot of nitrogen, whereas if you use animals and it goes through their gut, that's already broken down, they've done the work for you. It doesn't take as much out of the ground, in fact it increases the biology in the soil."

The yams require artificial fertiliser as well – "our special brew" – but Alistair strives to minimise his use of chemicals, only using them when he has to.

One of the main things he's learnt is how to manage Woodlands Farm's difficult soils.

"Timing is everything when you're cultivating our soil, using the right equipment at the right time. If you miss out because it's got too dry or you do it when it's too wet, you're back to square one."

For seven months the of the year Alistair and his family run the farm, cultivating the ground and growing yams as well as looking after the sheep, but in winter up to 18 part-time staff are taken on to harvest and pack yams, an operation that lasts five months.

Most of the crop is sent direct to Turners and Growers depots throughout New Zealand for sale through Foodstuffs and Fresh Choice supermarkets as well as a number of independent sellers. Alistair says he's found the supermarket chain, and especially marketer of 20 years Grant Brian, very supportive.

"Grant started selling our yams in 2004 through Freshmax and could see the potential of what we had, and now 20 years on is still helping us through Turners and Growers," Alistair says, but adds he is concerned that national consumption of yams is falling slightly each year.

"They're seen as an old person's vegetable, traditionally eaten in roasts. A lot of young people don't eat roasts and they have no idea what to do with them, so that's why we put different ideas on our Facebook page. They're beautiful in stir fries, beautiful in a butter chicken curry, or in an air fryer. One of my favourites is butter, yams and swede mashed." ●

NATIONAL FINAL 2024

Young Grower™ of the year

Congratulations to all six finalists who took part in the 2024 Young Grower of the Year national final in the Hawke's Bay this October.

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Karn and Briar Dhaliwal are a young family developing a new cropping and orchard business

PRIORITISING **TIME WELL SPENT**

Karn and Briar Dhaliwal are the young couple who can. Both 31, and with a recent addition to the family, the couple oversees a developing cropping and orchard business at Te Hoe in the northern Waikato.

Geoff Lewis
Photos by Trefor Ward

Both come from rural backgrounds and met at age 19 while completing BAgCom and BAgSci degrees at Massey University.

They both realised that it wasn't easy for young people to own a farming and growing business, as Karn explains.

"We started this journey from scratch. We are passionate about agriculture and saw the opportunity and wanted to get started – so we wrote ourselves a plan. By age 30 we wanted a viable blueberry orchard, kiwifruit orchard and an annual cropping business. It is so hard for young people to progress in this industry. But for us horticulture was the ideal place to start."

So they made a plan and set goals – to build a thriving growing and farming business. The approach included both working as agricultural fertiliser reps. Briar went on to do research work for a pastoral seed company and Karn spent a period in rural banking and finance. Karn took part in the Horticulture New Zealand Leadership Programme and Young Grower of the Year.

"That challenged my ideas around what I wanted to do. I met Antony Heywood, general manager of Vegetables NZ. I kept in touch and the opportunity came up to join the board of Vegetables NZ as an intern director. I thought it would be a great opportunity to better understand how the industry worked."

These activities introduced Karn and Briar to a massive cross-section of agricultural and horticultural enterprises along with many talented, experienced and helpful people.

"It was a real privilege. It takes years to build up that sort of insight. We were able to identify the best business model for size, debt holding and profitability."

> **By age 30 we wanted a viable blueberry orchard, kiwifruit orchard and an annual cropping business**

They were also keen to prove that there are still opportunities for the younger generations. So in 2017 they bought eight hectares comprising peat valley-bottom and some easy slope on clay. They knew it wouldn't be viable with livestock alone so began Ohinewai Harvest Ltd, an annual cropping business. This grew their skill set as they dealt with the practical issues including staff, marketing and production.

In 2020 they planted 8000 Rabbiteye blueberry plants. These start to produce in between 21 and 33 months and reach maturity in six to eight years.

With hail protection and wind structures in place and water supply organised, Ohinewai Harvest is expecting their first RubyRed kiwifruit crop in February 2026

In 2020 the Dhaliwals planted 8000 Rabbiteye blueberry plants

"What drew us to blueberries was the opportunity to send the product offshore, as our season coincides with the period growers in other countries aren't producing. Last year we did 20 tonnes and mature yields should be around 100 tonnes."

Then came RubyRed™ kiwifruit. They bought part of Karn's parents' adjacent dairy property and began drilling for the one essential thing they needed – water.

"It was the summer of 2022, we came up with a dry well, we had everything else ready to go but no water. We were determined we wanted to do kiwifruit – so we got a different well driller and he just said 'If I don't find water you don't have to pay me' – and he found the best water. After that hold-up we went hell-for-leather and purchased ten hectares of RubyRed kiwifruit licence at a time when it was a lot cheaper; that gave us time to learn.

Then another set-back – the two-day deluge of Cyclone Gabrielle in February 2023. Karn has images of their lease block as a lake – they lost about 70 percent of their bread-and-butter annual cropping produce.

"It really changed everything and fast-tracked what we were learning – how could we have avoided the level of impact by asking 'how would this block be impacted by a once-in-40-year climatic event?' We hadn't made that risk assessment for our lease land before.

"We reverted to our business management protocols. Now we have stronger relationships with our marketers and suppliers and a more resilient operation."

With RubyRed kiwifruit planted, hail protection and wind structures in place and water supply organised, Karn and Briar are preparing for their first crop in February 2026.

"Going into red kiwifruit is a good entrance into the industry. We looked at gold but the licence was too expensive. Red has also given us good connections and good support."

As the Dhaliwals built the business, they focused on getting their business priorities right, Karn explains.

Into this came a simple pyramid of priorities he had learned about during his business studies.

"I was taught this in uni and it really stuck with me. At the top are the strategic priorities which are, say, $1000 an hour, under that are the tactical jobs at $500 an hour and at the base are the operation level jobs at $50 an hour. Farmers and growers can get bogged down on the everyday operational jobs because they are critical to run the business, but we also need to allocate time to the strategic and tactical jobs because they have the biggest impact on the overall business and don't generally take too much time.

> **"What drew us to blueberries was the opportunity to send the product offshore**

"We use that pyramid to operate our business. At the strategic $1000-an-hour level we do things like plan our cash-flow for the next 12 to 24 months. Tactical jobs are things like ringing around for the best quotes. The $50-an-hour level operational jobs may include tractor driving during planting. In my experience I've seen the best farmers identifying where their time is best spent depending on their skill set and then delegating other key work out. As business owners we need to ensure that we are working across that pyramid, whether it's us or outsourcing that workload."

Marketing is a key part of the business.

"We assess how big the opportunities are and ask 'Is this a growing market?' That's why we favour produce focused on the export market because there are more bigger opportunities. That's something I had learned from the dairy industry. New Zealand is a small market.

"We don't have a big team but everyone we deal with is exceptional – staff, our key marketing partner, banks, contractors – in mutually beneficial relationships. We have good teams in irrigation, netting, harvest teams, plant suppliers, crate suppliers. They all add value. Dealing with the best people can make a tough business easy."

ACVM Approval Code: Belanty (P009798); Sercadis (P008977); Polyram DF (P002062); Delan WG (P003507) ; Regalis Xtra (P008734)

ALWAYS READ AND FOLLOW LABEL DIRECTIONS

Julian Raine: "It will be quite interesting to see how we all adapt. But we have got to adapt."

WE'VE GOT TO **CHANGE THE MODEL**

The horticulture sector is on the cusp of technology that will change the way growers produce their crops and Julian Raine wishes he was two to four decades younger to take up the opportunities that will come with it.

Anne Hardie

He is also frustrated that technology is not progressing fast enough for the horticulture industry which he says is ready and waiting for the robotics and drones to be fine-tuned for the likes of multi-dimensional apple crops, with the legislation and formulation of products to make it work.

The former Horticulture New Zealand president was reflecting on the industry following his recognition at the Primary Industries New Zealand Awards 2024 where he was awarded the Outstanding Contribution to New Zealand's Primary Industries title. It recognised his years of leadership in the horticulture and dairy sectors as well as his commitment to giving back, both nationally and in the Nelson community.

At the grassroots level, Julian is involved in ten apple, berry and kiwifruit orchards spanning 300ha on the Waimea Plains near Richmond, as well as dairy and beef operations in the region. The dairy operation calves three times a year to produce year-round fresh milk that the family sells under its own brand, and opened its Stoke dairy to the public so consumers could better understand how their milk was produced.

He has also held numerous governance roles, earned a reputation as an innovator and entrepreneur, and along the way championed the need to embrace technology.

While he has been through an era of hands-on horticulture, the future looks quite different, and though everyone is talking about technology and there are prototypes in the industry, he says the industry is still waiting.

"I don't think technology has kept up with horticulture. We've been designing robot-ready orchards for a decade now and waiting for the robots to turn up."

Part of that is because the technology needed in horticulture requires deep pockets and a vast customer base to pay for it. And the technology for say harvesting, also has to be designed for an outdoor environment that does not stay constant.

"Light will be changing all the time; clouds coming over, sun coming up, sun going down."

Whereas in a relatively short space of time he expects to see weed control in orchards carried out by robots and tree crops sprayed using drones.

"In the next five to ten years we'll see drone spraying done commercially in apples… and more precisely. But you have got to have the right technology, the right operators and the right rules to operate those drones, and the right formulation of products that can use extremely low water rates.

"My staff will have to become drone operators rather than tractor drivers. It will be quite interesting to see how we all adapt. But we have got to adapt."

It's not just about getting the technology right either; it's also about legislation keeping up with technology. At the moment its one operator, one drone, whereas once the industry can link AI (artificial intelligence) and GPS (global positioning systems) technology, an operator could be monitoring several drones spraying and also filling up the spray tanks. Because it will be precision spraying, different formulations will be needed in those tanks.

"Sometimes, I wish I was 20, 30, 40 years younger because of the opportunities that exist now that didn't exist 20, 30 or 40 years ago."

> "Technology is constantly moving – it's dynamic – and Julian says the future is exciting for a grower

While technology will change how growers manage their crop, the need to respond to climate change is already instigating solutions that may result in new crops grown more economically.

"The downside is obvious, but there will be an upside which people never talk about. There will be opportunities created by climate change."

Another opportunity close to his heart is reintroducing seasonality to consumers to make produce more affordable, deliver better returns to the producer and create a better understanding between consumers and the people who produce their food.

Julian Raine has been recognised for his Outstanding Contribution to New Zealand's Primary Industries

He sees it happening in countries such as France, Italy and Greece where farmers' markets operate every day of the week for the community to buy fresh food from those growing or producing it. In New Zealand, a farmers' market is usually a once-a-week affair and sometimes includes "coconuts, bananas and mangoes" that aren't even grown locally, let alone in season here. So, consumers head to the supermarket where the out-of-season produce is on the shelves beside produce fresh from the grower and both sides pay the price for dealing with a third party.

Julian Raine sharing insights into careers in agriculture with Nelson high schoolers in 2021

"For some reason the middle has got too dominant. The people at the bottom and the top are suffering because of what's happened in the middle. The top being the consumer and the bottom the producer. The middle is getting bloated.

"You have to create a new supply chain that goes more directly between the two."

Supermarkets still have their place, but when it comes to fresh food, he thinks both the consumers and producers could benefit from dealing directly with each other.

"Over time we've got to change the model. Because we can't keep going on where food is unaffordable, and you've got growers who have product rotting in the field. There are some things that are wrong."

> **"We've been designing robot-ready orchards for a decade now and waiting for the robots to turn up**

One of the advantages of his family dairy business is being able to talk to the consumer again, whereas the average dairy farmer never speaks to the consumer. That is a disadvantage of the dairy industry, he says.

"It works both ways; for the consumer to be able to understand some of the barriers that the farmer has, and for the farmer to hear the consumer in terms of what annoys them or frustrates them. Together they can support each other, where there is a good understanding between the producer and the consumer.

"That's been lost, but regained through farmers' markets," he says. "It should be mainstream, reconnecting consumers with where their food comes from."

That leads to an even bigger topic of how New Zealand feeds itself, and Julian says that has been overlooked. One of the reasons is there is a tension between the country feeding itself and maximising its revenue for the people who produce the food and those who are employed and rely on those food producers.

"The people have got to be able to afford it, but people can't go hungry. So that's the tension. But you also have got to be able to create wealth."

The kiwifruit industry is a great example of achieving just that and he would like to see other industries achieve the same success, while still being affordable to the community.

"The worst thing is when your own people can't make ends meet and can't afford the great food you are producing."

New Zealand will not be able to feed itself unless the right soils and the right places are protected to grow the food, he says. That extends to ensuring the soils and environment are well maintained and healthy.

That is an example where he says good, clear communication is needed with fellow growers and the policy makers. ●

FRUIT GROWING

EXTRA SECTION FOR YOUR SECTOR

Contents

NZGROWER & The ORCHARDIST

Trees waking up in September as the busy spring season kicks into gear. Photo by Tony Benny

SCIENCE KEY TO CONFIDENCE IN CHEMICAL SAFETY

NZ Kiwifruit Growers Inc (NZKGI) has published a new factsheet summarising some of the evidence that the Environmental Protection Authority (EPA) recognised in its recent hearing into the use of hydrogen cyanamide in chemical budbreak enhancers – commonly marketed as Hi-Cane®.

NZGrower & Orchardist staff

In May the EPA approved hydrogen cyanamide's continued use, subject to some new controls. While the arduous 4.5-year reassessment process was both mentally and financially taxing on the industry, NZKGI chief executive Colin Bond says one positive result is that the review shone some light on the facts about the agrichemical.

"The scientific evidence that we gathered throughout the reassessment has enabled us to say, with even more confidence, that Hi-Cane can be used safely when applied in accordance with controls."

> **"An independent economic report conservatively estimated that not using hydrogen cyanamide in New Zealand would cost the economy $1.56bn over 30 years**

The review highlights the costly and concerning impact on growers caused by poor understanding of agrichemical use and its impact on the environment and human health.

The reassessment began after the European Commission removed hydrogen cyanamide from its list of approved agrichemicals based on limited evidence of carcinogenic properties. The decision resulted in the EPA's reassessment and proposed phase-out of the chemical. However, during its reassessment, the EPA accepted scientific evidence that there is no carcinogenic mechanism for cyanamide and it is not genotoxic.

Despite these findings, the EPA continued with its reassessment and proposed a phase out of the chemical, albeit over a longer period than initially recommended, due to concerns that hydrogen cyanamide could harm birds and some soil organisms. This resulted in NZKGI commissioning Manaaki Whenua – Landcare Research to survey soil organisms before and after Hi-Cane application on an orchard in Te Puke, and further expert evidence in relation to the risks to birds. This additional work confirmed that the risks to soil organisms and birds had been overstated; a finding that was backed up by growers, some of whom have been spraying Hi-Cane for more than 30 years. We now know that the ecotoxicology models used by the EPA to assess risk from hazardous substances were aging, no longer used by comparable regulators overseas and were likely to result in increasingly conservative outputs.

The EPA's decision was a huge relief for kiwifruit growers. An independent economic report conservatively estimated that not using hydrogen cyanamide in New Zealand would cost the economy $1.56 billion over 30 years.

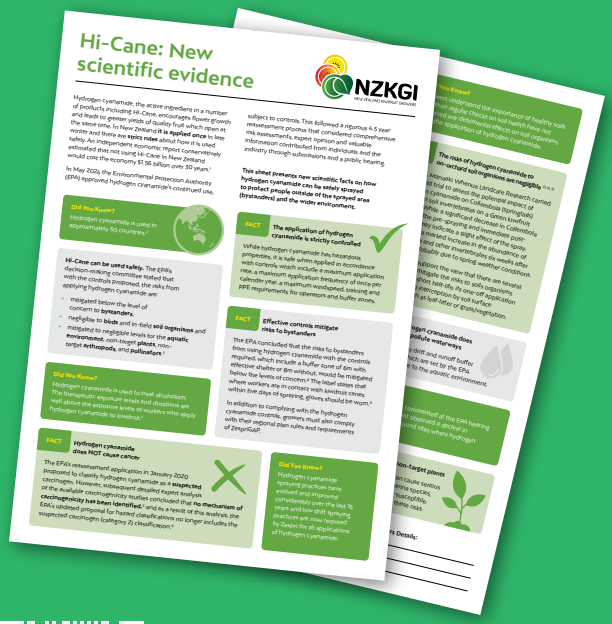
However, fighting to defend growers' businesses during the marathon review process nearly exhausted NZKGI's financial reserves.

"In our view," Colin continues, "while the hydrogen cyanamide reassessment process eventually arrived at the right decision, the current reassessment pathway for existing products is arduous, complex and creates uncertainty for growers, impacting on orchard prices as well as a reduction of investment into growers' businesses."

HI-CANE FACTS

Hi-Cane® is a plant growth regulator that leads to greater yields of quality kiwifruit by promoting uniform budbreak and flowering, which results in uniform ripening of the fruit, making it easier to harvest. It is especially important in regions with mild winters and insufficient winter chill. It is also applied to a lesser extent to some apple, cherry, apricot and kiwiberry crops.

- Hydrogen cyanamide is the active ingredient in a number of products including Hi-Cane® and Dormex®, which is used in global table grape production.
- While hydrogen cyanamide has hazardous properties, it is safe to use when applied in accordance with strict controls.
- Hydrogen cyanamide does NOT cause cancer.
- When used in accordance with the controls set by the Environmental Protection Authority (EPA):
  - Hydrogen cyanamide is NOT dangerous for birds.
  - Hydrogen cyanamide does NOT pollute waterways.
  - The risks of hydrogen cyanamide to on-orchard soil organisms are negligible.
- In New Zealand hydrogen cyanamide can only be applied once in late winter.
- Hydrogen cyanamide is toxic to bees so the spray must not contact plants in flower.
- Hydrogen cyanamide rapidly degrades and has no accumulative potential in people, animals or the environment.
- Cyanamide should not be associated with the deadly poison cyanide.



Learn more about hydrogen cyanamide by downloading NZKGI's factsheet including sources and references.

NZKGI encourages growers to take a look at the factsheet, a helpful tool in communicating why safe use of this agrichemical is so important to our industry.

> **"The EPA accepted scientific evidence that there is no carcinogenic mechanism for cyanamide**

"The industry has adopted a coordinated approach to maintain safe spraying practice over many years mandating low-drift technologies for Hi-Cane application which is above and beyond the required regulatory standards.

"In addition, we have engaged with the communities in which we live and work, including an education programme, so that people who have remaining concerns can get a better understanding of the chemical." ●

NZKGI has a spray hotline for people with concerns – **0800 232 505**.

REVIEW CRITICAL TO KEEP NEW ZEALAND APPLES' WORLD-LEADING STATUS

Karen Morrish : NZ Apples and Pears chief executive

Aotearoa's apple and pear industry is a global leader with sustainable practices that have secured a market premium and an international reputation for safe, clean apples.

However, this critical advantage is being eroded as we lose options to control pests and diseases quicker than we can get access to new tools.

Agrichemical use by apple and pear growers is a crucial component of crop protection to control pests and diseases. The programme is carefully managed to ensure pipfruit meets market requirements for maximum residue limits (MRLs) and phytosanitary tolerances.

However, despite its importance, there has been a distinct lack of new and alternative pest and disease control solutions, and this has quickly become our biggest barrier to trade. This must be considered as the Ministry for Regulation reviews the approval path for agricultural and horticultural products.

While our sector invests significantly in research and development to find new tools and alternative solutions to address chemistry being lost to resistance and the deregistration of agrichemicals in export markets, these new tools hit a bottleneck at the Environmental Protection Authority (EPA) and progress stalls.

NZ Apples and Pears wants to see the EPA reprioritise their systems to focus less on reassessing substances that are no longer being used and instead concentrate on new substances, tools and products that can provide industry options to replace old chemistry.

Only a fraction of agrichemicals registered with EPA and authorised by the Ministry for Primary Industries (MPI) under the Agricultural Compounds and Veterinary Medicines (ACVM) Act are still used by our sector today.

Many of the broad-spectrum products still registered in Aotearoa are not permitted for use on export crops where other countries already have stricter MRLs or simply do not allow them because they are considered harmful.

In many cases these broad-spectrum products have not been used by our industry for many years in any case. As a sector we favour softer and safer products.

We are proud guardians of the whenua. Our land and the environment are central not just to growers' businesses, but the communities within which we all live, work and play. The sector supports regional economies, employs thousands of people across New Zealand and the Pacific, and wishes to do so for generations to come. We know that the only way we can do this is by caring for our land.

What's more, internationally we are seeing biosecurity pests and diseases developing resistance to available agrichemicals, limiting choice of effective products for preparedness.

> **Our land and the environment are central not just to growers' businesses, but the communities within which we all live, work and play**

Focus must be on growing tools in the toolbox that can be used for biosecurity preparedness, resistance management and as options when international market requirements change. As a sector, we also want to continue our focus on sustainable and safe practices that maintain our global reputation and return premiums to the regional economies that we exist within.

As the voice for New Zealand's apple and pear growers we want to see an environment where:

- We can readily adopt new tools and alternatives with EPA processes, modelling and risk adapting to new technology and innovations.
- Timelines and costs are clear and competitive to attract investment from global agrichemical companies, as well as from our own world leading scientists.
- We benchmark and use recognised international processes.
- There is a risk triage system with assessments balanced and reprioritised appropriate to risk and need.
- EPA funding is proportionate to industry investment for developing new solutions that must meet the regulatory system.

Export apples and pears account for 95 percent of total orchard revenue, and the sector contributes $1.1 billion in revenue to our nation's economy.

Our sector has growth ambitions that align with government targets of doubling export growth in ten years, however, we need the right processes in place to do so.

Doing the mahi for a post-settlement entity gives Haumako general manager Robin Kaa "a bigger reason to come to work each and every day"

HAUMAKO PROGRESS HARNESSES POWER OF THE PEOPLE

Iwi entity Tātau Tātau o Te Wairoa's Haumako venture has more than doubled its orchard area and has plans to create infrastructure to build the region's horticulture industry from the ground up.

Kristine Walsh

Ramped up activity at a Wairoa horticulture venture is an investment in the town, in its people, and in the region that is their home.

The horticulture arm of post-settlement entity Tātau Tātau o Te Wairoa (TTOTW), Haumako this year took its first commercial harvest from its Tara Orchard, where it planted 18 hectares of Envy™ and Jugala apples in 2021.

That was a joint venture with the local Ohuia Incorporation but the following year Haumako took things even further when TTOTW's commercial arm, E Tipu, purchased the 109-hectare Whakapau Farm, just a few minutes from the township.

In 2023 the team planted another ten hectares of apples, this time at Whakapau. And just last month they had a big push at the new orchard, planting another 20 hectares of the two-year-old Envy trees they had waiting in the wings.

"It took a few 15-hour days but was worth it to get the trees in the ground just at the start of spring," says Haumako general manager Robin Kaa. "The last tree went in at 7.40pm on the Sunday night so it was a big job, completed with a fantastic effort from our team."

For Robin, it's been a bit of a trial by fire. After more than a decade in horticulture she took on her new role in 2023, just weeks before the devastation of Cyclone Gabrielle.

Workforce manager Dwayne Russell (right) oversees the team of cadets. Until recently that team included 19-year-old George Cox (left) who, having graduated, is now foreman at the Tara Orchard he helped plant back in 2021

While the cyclone and subsequent weather events had a huge impact on the community, the existing Tara Orchard came through well, though over 300 trees were eventually lost due to waterlogging.

"At that point the trees were just a couple of years old so we had not planned a commercial harvest," Robin says. "But with our community in crisis we could not in all conscience allow fruit to go to waste, so we gathered what we could to gift to whānau. It was not a time to chuck good kai on the ground."

> **"Until now, Wairoa has not had an established horticulture industry at any great scale**

What the cyclone did do, however, was cut off road access to the orchard, meaning team Haumako could not get in to do their regular spraying programme.

"Combined with wet weather over two consecutive winters that meant the 14 hectares of Envy suffered a cosmetic defect, so though it didn't do well in the export market, it was appreciated by domestic buyers" says Robin.

"But the Jugala (four hectares) came through better, with a commercial crop that packed out really well at over 85 percent, and we're optimistic both varieties will deliver in 2025."

Now the trees are of producing age, the job for October is to cover the trees to protect future crops.

That does cost a lot, says Robin – "but we do a lot of mahi around getting good quality in a cost-effective manner" and it's just the start of ongoing investment in both orchards.

Through E Tipu, Haumako has applied for support funding from the government's Regional Infrastructure Fund to expand and accelerate its horticulture operations with projects both modest and more substantial.

Whakapau Orchard block lead Donald Carroll has been charged with overseeing the development of the 50-megalitre water storage dam, with Haumako business support manager Rowena Christie as project manager

NEW WHAKAPAU DAM NEARS COMPLETION

Haumako's Tara and Whakapau Orchards sit against the Hangaroa and Wairoa rivers respectively, but apart from a bit of silt, both came through recent weather events with minimal damage.

Even better, both have consents to draw water from the rivers for irrigation, and the operator is capitalising on that by building a 50-megalitre dam at Whakapau that is scheduled for filling by mid-December.

"The challenge with the river is that it is tidal, so at times when the water is running low, the salinity is too high for irrigation purposes," says Haumako general manager Robin Kaa.

The team has salinity probes in the river to help them accurately assess when the most likely windows of freshwater availability will be.

And just as important as the quality of the water is their commitment to protecting the long-term health of the awa.

"We can already see that in the months from November to the end of January, there will not be many windows of opportunity to draw that freshwater from off the top," she says. "So the dam is a significant project in that it allows us to stock up at the beginning of summer, when water levels are high, to get us through those drier months."

Seventeen-year-old Wharekauri Kaimoana (right) helped plant the newest stage of Whakapau Orchard alongside his first-year colleague, 21-year-old Jessie Taylor (left)

Rome Robinson-Kawana is a new graduate with Haumako, and at just 18 years of age, is a foreman at Whakapau Orchard. Rome says he was stoked to have a career option in his hometown

And Robin Kaa is confident the team can pull off their strategic plan.

"When I was first invited to look at the operation the strategy seemed a bit too ambitious, so we reworked it to something we could be confident in delivering," she says.

That 'reworking' resulted in the original seven-year plan to have 300 hectares of apples and 200 hectares of other crops in the ground rescaled to the development of 50 hectares of apples and 70 hectares of other crops, within the same timescale.

"The reality is that, until now, Wairoa has not had an established horticulture industry at any great scale, so we are having to build from the ground up," Robin says.

"That also requires the establishment of critical infrastructure to support our operations – and our people – into the future, and that is an integral part of the plan."

> **"Our cadet programme is not just offering education and nurturing team members, it is creating leaders**

Three key areas of development are diversity (including both citrus and annual crops), the 50-megalitre water storage dam and a coolstore which, like the dam, will be located at the Whakapau Orchard.

Last year Haumako added $800,000 to the local economy and are proud of their locals-first procurement strategy

"In these early stages our fruit is packed, marketed and shipped from Napier, but if the cyclones taught us anything it is how vulnerable we are in terms of road connections," Robin says.

"But we already knew that, which is why this plan was already in place. Being able to store our product on site will be a gamechanger in terms of achieving the optimum shelf-life and the premium fruit quality we need."

> **"I care deeply about the land and about the people, so working with Haumako gives me a bigger reason to come to work each and every day**

That's all good for Haumako and will help add to the $800,000 it last year poured into the local economy.

It also aligns the organisation with the Aotearoa Horticulture Action Plan – released in 2023 – which stated the aim of Māori becoming strong in horticulture as one of its five key pillars.

For Robin Kaa, it's about supporting her people, and helping grow the post-Treaty settlement TTOTW manages on behalf of its 9000 beneficiaries.

Though she lives an hour away in Gisborne, Robin affiliates to Mahia iwi Rongomaiwahine and travels to work in Wairoa on a daily basis.

"It's a big job, but having worked in a number of roles in horticulture over the years, I was looking for a bit more purpose … seeking to identify the 'why' behind the mahi I do," she says.

"I care deeply about the land and about the people, so working with Haumako gives me a bigger reason to come to work each and every day."

When Sirius Tamati-Smith was named as Best Apple Grower at the 2024 Gisborne Young Grower of the Year event it was cause for celebration for him, and also the post-settlement entity he works for.

> **"It is about harnessing the power of our people and offering whānau the opportunity to be the best they can be**

Sirius was just 19 years old when he joined the first intake of cadets nurtured by Haumako, the horticulture arm of Tātau Tātau o Te Wairoa.

He and four colleagues this year emerged as graduates, having worked with Haumako while completing their Level 3 Horticulture certification through the Eastern Institute of Technology (EIT).

He is now a foreman at the organisation's developing Whakapau Orchard … and he's not the only one.

"The success of our cadet programme is that it is not just offering education and nurturing team members, it is creating leaders," says Haumako general manager Robin Kaa.

"Sirius is one of five cadets to have graduated, and one of three to have moved on to more responsible roles. We could not be more proud of them all."

In addition to the around 15 casual staff Haumako employs on a regular basis, it has a full-time staff of 17 – including cadets – and has plans to more than double that team.

"It is not just about building our labour force, though that is critical for any horticultural operation," Robin says. "It is about harnessing the power of our people and offering whānau the opportunity to be the best they can be." ●

Tree fruit orchards often have a wide diversity of canopy sizes that require different approaches to spray output to optimise deposition

OPTIMISING SPRAY FOR **EFFECTIVE CROP PROTECTION**

Last summer, I was enjoying the sun at Waimarama Beach and quickly lathered myself up with suncream. I was too busy making sure my kids were set and rushed down to the water without making sure I had my entire back coated. Although I had put plenty of suncream on, I later discovered there were some significant gaps in my coverage. I ended up with cow-hide like patches of lobster-red across my back where I was left unprotected. Just like sunscreen, crop protection sprays must cover all areas of the plant you're wanting to protect for them to be effective.

Sean Gresham, Ph. D. : Horticultural consultant, AgFirst Hawkes Bay

Now that spring is upon us, the low-pitched scream of sprayers can often be heard throughout the orcharding regions of New Zealand.

Pests and diseases thrive in spring: insects are waking up, meeting up with their mates then laying their eggs so their young can feast on the leaves and fruit; pathogen spores released by spring rains can easily penetrate the soft green tissues and infect the trees and vines. Protecting crops from pests and diseases is critical for best fruit quality and yield. This is true for export crops especially – we must keep them free of actionable pests and diseases to access all markets.

Best practice pest and disease control should use all tools available sparingly to get the best result with the lowest intervention. There are a multitude of tools available but one vital option is application of plant protection products (insecticides or fungicides). Relatively new synthetic products have allowed for reduced use of highly toxic and hazardous products and practices. Prior to synthetic plant protection products (PPPs), growers relied on things like arsenic and cyanide to control insect pests, toxic heavy metals for disease control.

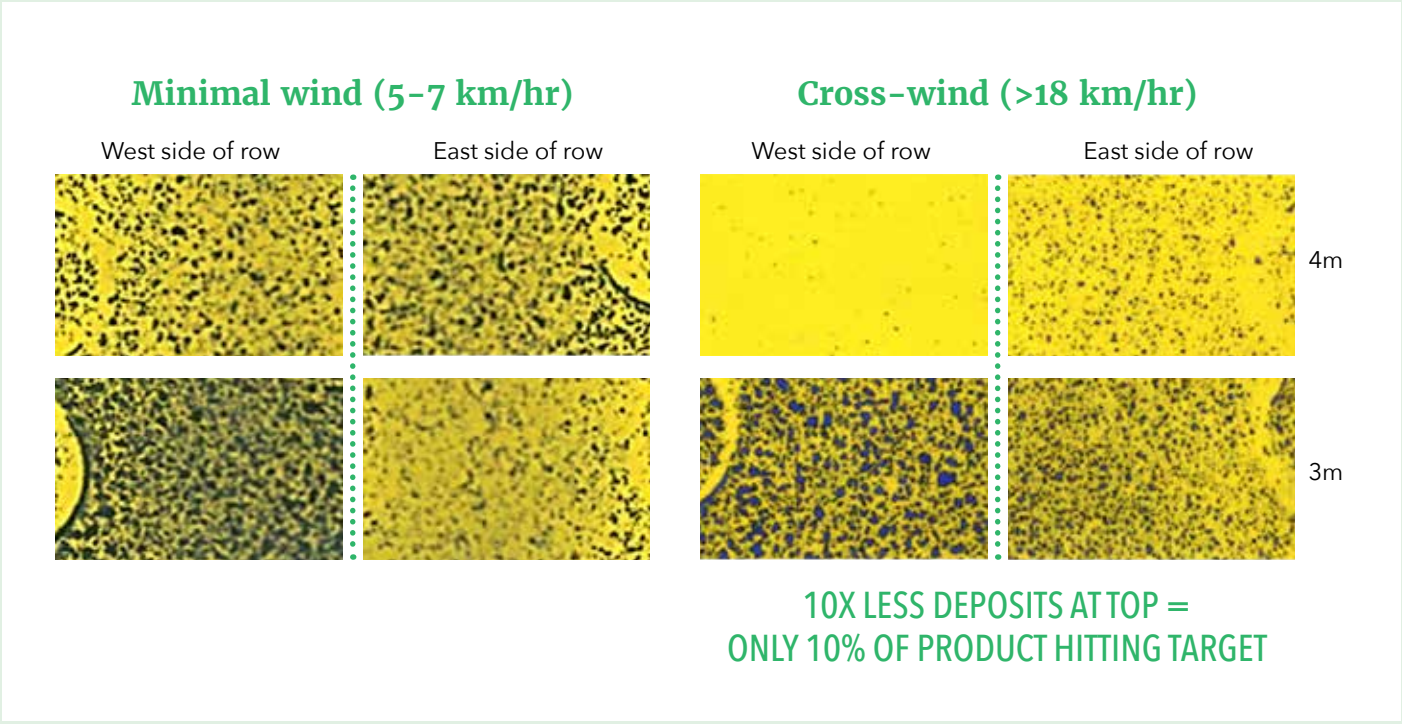


***Figure 1**: Water sensitive paper (turns blue when wet) showing the spray coverage impact of wind at the top of trees*

Modern agrichemicals have certainly had some unintended negative impacts but overall, responsible use of targeted PPPs has benefited us all by preventing millions of tonnes of losses to pests and diseases.

The most effective and safe plant protection product is one that is highly specific to the target. Selective PPPs are capable of controlling target pests and diseases without harming the crop. The most effective way to achieve this is by disrupting a metabolic process that is unique to the target organism. Products that work this way are known as "single-site" as they target one particular metabolic pathway.

Single site products are at risk of pathogen or pest populations evolving resistance to the product. [Read more about resistance management strategies in this issue of *NZGrower & Orchardist*]. One important aspect of resistance management is ensuring effective coverage to achieve control. Therefore, optimising spray deposition is critical for effective pest and disease control, environmental stewardship, and resistance management.

Optimising spray deposition can be very complex when you account for all the different factors that can affect how much of the product actually sticks to the target crop part. Spray droplet size and pattern, air output, wind, travel speed, humidity, spray application volume, and tank mix rate all influence how much of the valuable product ends up on the crops you are trying to protect. However, there are some very basic principles that must be right to ensure you get the job done. Optimising spray deposition means that the effective amount of product (dose) hits the target parts of the crop at the right time.

Right amount in the right place at the right time

Too much product can result in crop damage, especially on russet-sensitive fruit, or potentially unwanted chemical residues at harvest. Overuse of PPPs is also undesirable as there are inherent environmental risks with spraying that we want to minimise. Underdosing can also occur even when the same amount of product is applied per hectare – if the spray coverage is not even, then the parts of the crop that spray is missing can be severely underdosed.

One good example of this is shown below on water-sensitive paper (Figure 1) where the same sprayer was used on the same canopy two days apart – one day had suitable spraying conditions with little wind, and the other day wind was excessive for effective spraying. When conditions are windy, the spray droplets were not getting onto the tops of the trees. Based on the estimate of spray droplets on the water sensitive paper, we estimated that only 10 percent of product would be reaching the tops of trees on the windy day compared with favourable conditions.

Concentrate spraying

The amount of PPP that is effective is almost always expressed on the label as a rate per 100L to be applied as a dilute application to the point of run-off. The rate is determined by countless field trials under different conditions and pest/pathogen pressure (usually very high in research orchards) to find the optimum rate that achieves control without unwanted over-application. The amount of product that hits the target crop is self-limiting with dilute applications because if more spray is applied than the crop can handle, excess spray just drips off to the ground.

Concentrate spraying is when a lower volume of spray is applied to the trees or vines than what is needed to completely wet the plants to the point of drip. The amount of product per 100L (or per full tank) is increased accordingly.

Most fungicide covers are applied as 3X concentrate sprays – the spray volume is 3 times lower than what is required to achieve the point of run-off and the product rate per 100L is tripled.

Concentrate spraying is far more efficient than dilute over large areas because a lot of time is eaten up with each sprayer re-fill. A 3X concentrate application requires one third of the number of full tanks to cover a given area compared with a dilute application. The challenge is that it is possible to apply too much product onto the tree or vine when spraying concentrate because there is not the inherent safety valve compared with dilute spraying (where excess runs off). Therefore, it is necessary to know the dilute spray volume for the canopy (as L per Ha) then divide by the concentration factor (e.g. 3X) – see Figure 2.

In the olden days before computers and smart phone apps made calculations simple, we worked off a rule-of-thumb of 2000L/Ha as a dilute rate for all apple canopies. With today's diverse canopies, the dilute volume may vary but typically they sit in the range of 1000-1500L/Ha for young narrow canopies and 1800-2500L/Ha for larger mature trees.

The added risk is that concentrate spraying with modern sprayers is typically more efficient at getting product onto the crop and therefore there may be a higher risk of overdosing rather than underdosing. However, recall that if the spray isn't getting to the crop because of insufficient air output, or excessive air or wind blowing the spray past the target – underdosing can occur to some parts.

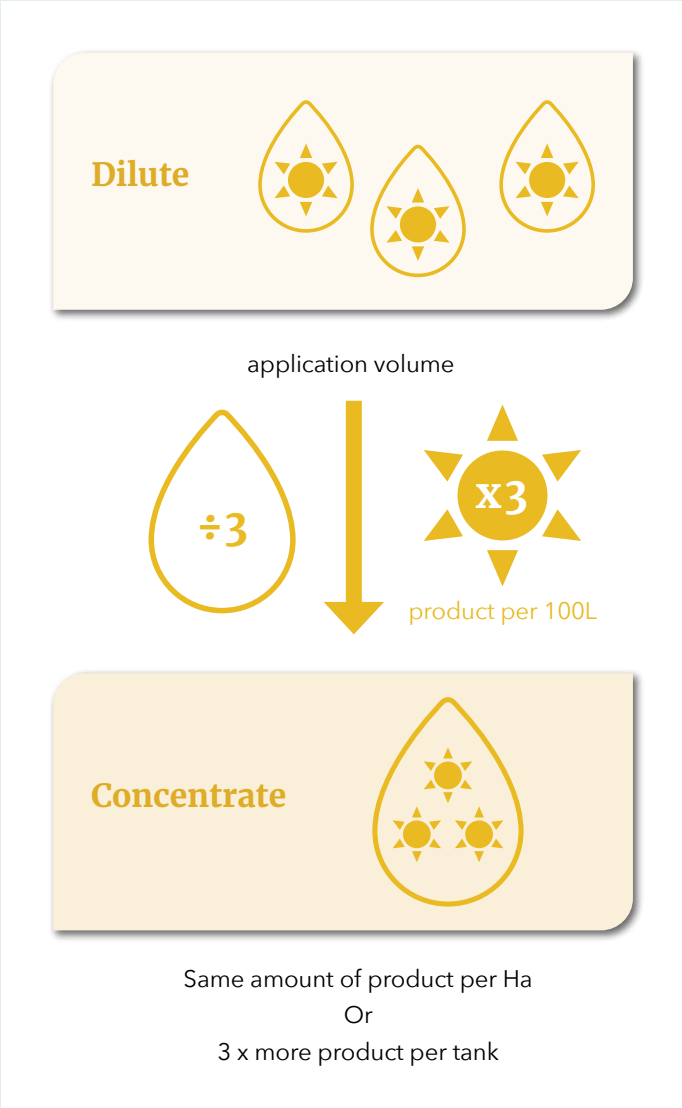


***Figure 2**: Example of how much product to use when concentrate spraying. 3X concentrate is most common in top fruit for fungicide covers*

Placement

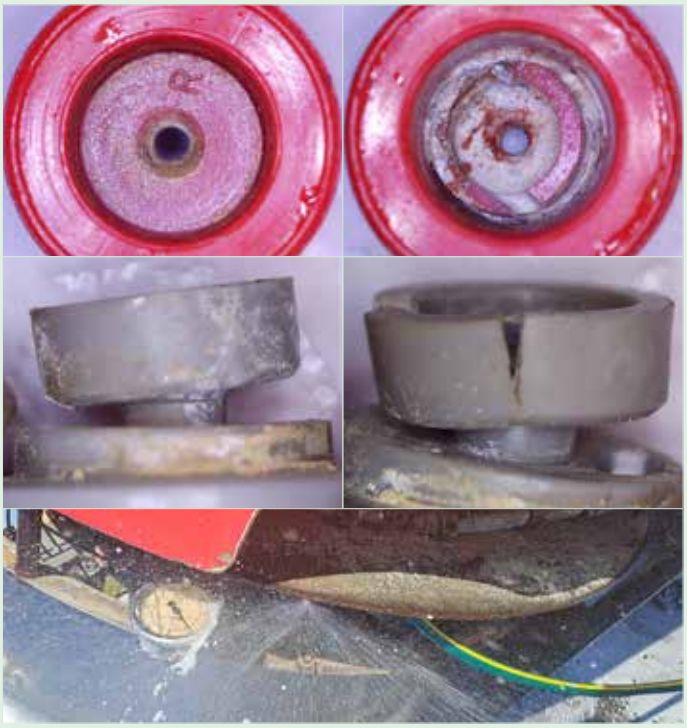
In tree fruit crops, it is common to see large vertical variation in spray coverage. On tall trees, the tops are at risk of drift losses (especially when windy) and the lower parts of the tree can be underdosed due to excessive air from the sprayer blowing the spray droplets past the canopy. These challenges are further complicated by the fact that most orchards have a diversity of tree sizes and row spacings, making it very challenging to have a single sprayer set up that performs consistently across all canopy types. The amount of product on each leaf, fruit, or branch is most important from the perspective of most pests and disease pathogens. The amount of PPP the pest or disease comes into contact with is a critical determinant of product efficacy. Just like the UV rays hitting the unprotected parts of my back last summer didn't care how much total sunscreen I put on, it only mattered which parts had none. Underdosing can result in control failure and can drive resistance development.

Timing

The best pest and disease control is achieved when the control tactics are deployed just before the pest or disease infects the crop. Rain, sun and growth dilution decreases the effective dose of the PPP on the crop so the best control will be achieved when spray is freshly applied. For pests we can utilise phenology models, trap catches, and orchard monitoring to best timing. For diseases, monitoring is more difficult for timing as disease symptoms often lag behind infection by days or weeks. Therefore, predictive infection models are most useful. These models integrate crop phenology, inoculum load, and weather information (both past weather and forecast) to predict infections. The challenge in New Zealand is that weather forecasts in spring sometimes seem to be only a fraction better than random guessing. However, forecasts still offer a better guide than pure guesswork and are constantly improving as more weather stations input high quality data and computing power exponentially increases.

Equipment failures

There are always new technological developments that improve how we do things and spray application is no exception. However, it doesn't matter how fancy the technology is – it has to be in good working order for it to work. The best optical sensors and image processing computers sit on top of our necks. David Manktelow, who has decades of experience in spray technology, says "the best way to know if a sprayer is performing how it should is to watch it operating, ideally when the sun is in front of the sprayer". Regular maintenance and inspections of the sprayer components is also vital for effective spray application and the evidence suggests that these checks are often neglected. Blocked or damaged filters severely alter the flow and output and worn, blocked, or damaged nozzles can impact actual output volume and spray quality.



Defects found with nozzles during annual sprayer calibration. Damaged or defective nozzles negatively impact spray output quality and amount

Controller units adjust output volume based on the flow and are only effective if all nozzles are working as they should and all input sensors are accurate. Wheel slip, tire size, and tire pressure can influence actual ground speed and the speed sensors are based on wheel rotation speed – therefore controllers can be out by 20 percent.

Spray technology and products have evolved significantly, but even the best tools are only as effective as their application.

> **Regular maintenance, monitoring spray coverage, and timing your applications accurately are key steps to maximising efficacy**

With the season upon us, all spraying equipment should be in good working order and well-calibrated. Regular maintenance, monitoring spray coverage, and timing your applications accurately are key steps to maximising efficacy while minimising risks.

Now is the time to make sure your sprayer is in top condition and that your spraying practices are calibrated for success. By paying attention to detail and staying proactive, you can protect your crop, improve your yields, and help ensure a sustainable future for your orchard. ●

GOOD PRACTICE WITH **GROWSAFE**

With spray season about to start in earnest, Growsafe have published a set of new videos demonstrating good practice with agrichemical use. Now is also a good time to be checking your filters.

Jane Lamb : General manager NZ Agrichemical Education Trust

Respirators

Filter cartridges in respirators should be replaced at least every six months. And remember the filters are of little use if the respirator doesn't fit you or the seals are worn. If you use a respirator, then you need to have a formal fit test done each year. And you should check the seals every time you wear it.

Check out the new video on our website showing how to do a fit check on your respirator.

Visit the NZ Occupational Hygiene Society website for a list of people who can do a fit test for you: **www.nzohs.org.nz/commit2fit**

If you use a respirator, then you need to have a formal fit test done each year

Tractor cabs

Like the filters on your respirator, the air filters on your cab must be regularly replaced. The beginning of the spray season is a great time to do this.

Spray equipment

Blocked filters are a common cause of spray application issues and are easily fixed. Your sprayer will have filters on it at different points – perhaps:

- a strainer at the tank-filling hole
- a suction filter at the pump
- pressure filters in the lines to the boom
- individual filters on each nozzle.

Check your instruction manuals to identify the filters on your equipment and make checking them a regular maintenance task.

Have you ever thought deeply about your PPE clean-up process?

We have recently created ten videos across a range of topics to provide guidance to agrichemical users on safe, responsible and effective use.

One of these covers the process of cleaning and removing PPE (personal protective equipment) after spraying. Putting together the videos was an interesting experience with numerous details to consider. Our video producer asked us at what point we were going to rinse the tap that we had touched with dirty gloves to turn it on at the start of the washdown. A great question! It made us think about who was going to be the next person to touch that tap.

The specifics of the clean-up process depicted in the Growsafe video might not be suitable for your particular situation, but hopefully it will encourage some conversations at your workplace about how well you are doing and what improvements you could make.

There are also two videos looking at respirators – one on how to clean them properly and another on checking the seal each time you use them.

Another video looks at how to clean up a minor spill.

Five of the videos focus on knapsack spraying (mixing, checking equipment, managing drift etc) and we plan to develop similar videos this year for motorised spray application equipment. There is also one on calibrating measuring equipment such as jugs and checking the volume of a knapsack tank.

All ten videos are now available on **www.growsafe.co.nz** or follow the QR code.

The 2024 Horticulture and RSE Conferences were a platform to share stories, ideas and inspiration aligned with the Aotearoa Horticulture Action Plan

FOCUS ON ACTION AT CONFERENCES

More than 700 growers, industry groups, sector leaders and supply chain partners gathered together at Mercury Baypark in Mount Maunganui on 28–30 August for the annual Horticulture and Recognised Seasonal Employer (RSE) Conferences. The conferences are hosted by Horticulture New Zealand.

NZGrower & Orchardist staff
Photos by Stori Films

This year's conferences focussed on providing a platform for the industry to share stories, ideas and inspiration that are aligned with the Aotearoa Horticulture Action Plan.

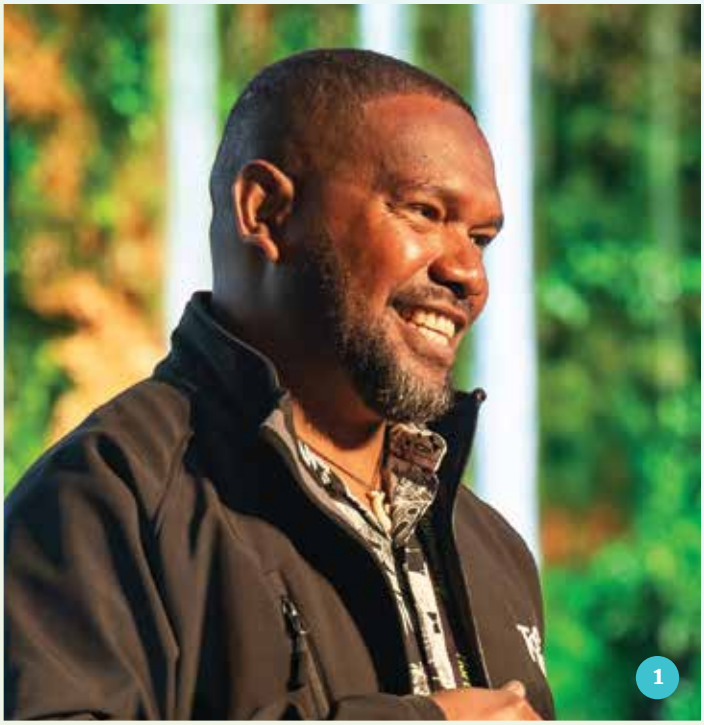
Launched in 2023, the Aotearoa Horticulture Action Plan was developed collectively, with input from industry, government, Māori and research providers. The plan focuses on action and associated investment for the next decade.

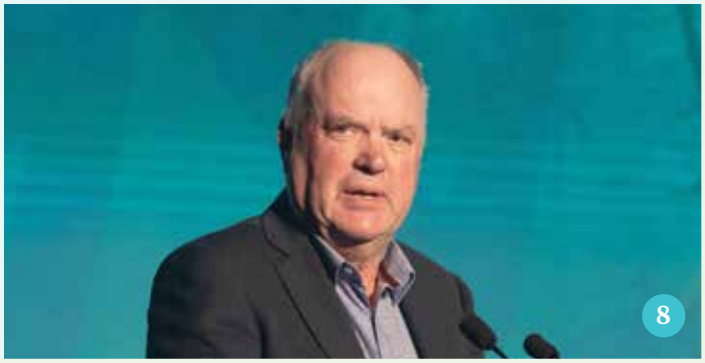
The two conference programmes – the RSE Conference and Horticulture Conference – were merged into one to bring together three days of presentations, speakers and content. Thank you to all our conference sponsors for making the event a success, including platinum sponsor Woolworths, gold sponsors Horticentre Charitable Trust, Orbit Protect and Health and Travel Insurance Brokers, and silver sponsor T&G.

The Horticulture Conference put the horticultural sector on a national stage – generating widespread attention as well as media coverage on important issues facing horticulture. The programme had a strong speaker line-up that covered the implications of innovation and regulatory changes on the future of growing in New Zealand.

WHO'S WHO

1. T&G Global team leader Bruno Lee
2. Tuatagaloa Joe Annandale, Poutasi Development Trust; Joshua Gear, Ngāi Tukairangi Trust; Tammy Annandale, Poutasi Development Trust; Richard Bedford, University of Waikato
3. Chief executive Rob Blake holds the Manaaki award for the Nelson Tasman Pasifika Community Trust
4. Robin Oakley and Simon Wilcox
5. Catherine Wedd, MP for Tukituki
6. Kris Robb, general manager of Clyde Orchards, received the HortNZ President's Trophy
7. Incoming HortNZ chief executive Kate Scott
8. John Dine was presented with the Industry Service Award
9. The 2024 RSE Conference opened with a mihi whakatau and kava ceremony
10. Aotearoa Tongan Health Workers Association's Manaaki award with chief executive Makahokovalu Pailate (left) and secretary of the board Manase Lua

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Horticentre Charitable Trust trustee Tony Ivicevich (centre) and the Horticentre Group team with the Undergraduate and Postgraduate scholars for 2024

Thought-provoking panel sessions dived into topics such as gene technology, domestic and international food systems, water and nutrition. The conference succeeded in bringing differing perspectives together into one forum where all voices could be heard.

Beyond the programme, the conference also hosted a wide cross section of horticulture attendees who were busy with networking and building relationships. It once again proved an ideal opportunity to stimulate connections and collaboration enabling the horticulture sector to grow together.

> **“ The conference succeeded in bringing differing perspectives together into one forum where all voices could be heard**

Nicola Grigg, the Associate Minister of Agriculture with responsibility for Horticulture, joined via a live link to discuss the government's workstream to support and free up the horticulture sector. She stressed that the government is committed to backing the sector's success and stands ready to do its part to enable horticulture to grow.

The event also included a series of workshops and field trips, including to the Ngāi Tukairangi Trust orchard, a Seeka packhouse and the vital Port of Tauranga hub for horticulture operations and logistics.

The RSE Conference once again highlighted the importance of the RSE scheme to our industry. With representatives from the Pacific as well as the New Zealand government, the conference came on the back of the government's recent policy changes to the RSE scheme, including lifting the pause on accommodation cost increases and allowing a capped increase to be applied, allowing employers to average out RSE workers' minimum 30 hours per week over four weeks and adjusting the application of the ten percent above the minimum wage requirement.

Catherine Wedd, MP for Tukituki, spoke on behalf of Immigration Minister Erica Stanford at the conference. She highlighted the support the government is providing to increase the number of RSE workers. She says that the changes to future-proof the RSE scheme will strengthen our economy and create more permanent jobs for New Zealanders, supporting both the growing horticulture industry and our Pacific neighbours.

In an insightful session, T&G Global team leader Bruno Lee recounted his journey from the Solomon Islands to the orchards of New Zealand. He has been coming to Hawke's Bay every season for 16 years.

He reflected on bridging cultural divides and embracing the spirit of whanaungatanga (kinship). A candid discussion followed with his employer, head of orchard operations at T&G Global Maurice Windle, giving the audience first-hand accounts of navigating the complexities of recruitment, management and support in the RSE scheme. ●

BIO-STIMULANTS

A GENUINE BREAKTHROUGH AS AN AGROECOLOGICAL SOLUTION FOR THE FUTURE, PROVIDING NEW ECO-FRIENDLY OPTIONS TO TRADITIONAL AGROCHEMICALS.

These natural powerhouses have gained ground globally in agriculture, with their profound impact on plant growth, providing enhanced yield, increasing nutrient uptake, the strengthening of the plants natural defences, particularly in overcoming extreme climatic growing conditions, whilst maintaining consistent yields and reducing the need for the use of agrochemicals.

ECO Nurture an SE Formula Product – NATURALLY!

Presenting itself as the most crucial and essential part of a growers crop protection tool box is **THE NEW 100% PLANT BASED BIO-STIMULANT**

ECO-Nurture has all the positive attributes of a plant **BIO-Stimulant** coupled with natural antibacterial and fungal protections, **100% PLANT BASED AND ECO-FRIENDLY.**

Zespri has approved **ECO-Nurture** to be included on their 2024/5 Allowed Other Compounds Schedule.

Horticentre Group

ECO-Nurture is available from all Horticentre outlets.

www.ECO-Nurture.com.au
or phone ECO-Nurture NZ on 0274425408

skin elements
enhancing health + wellness naturally

THE OUTLOOK **FOR SUMMER**

Georgina Griffiths : MetService meteorologist

MetService long-range forecasters take a variety of model data – with a focus on the ECMWF (European Centre for Medium-Range Weather Forecasts) ensemble climate model – and pair this with experience and expertise, to produce a seasonal prediction. During 2024, long-range climate models have been performing poorly over New Zealand, so human expertise becomes more important than blindly following raw model data.

Here is the latest MetService commentary for summer (December to February as a whole).

Climate drivers

The El Niño Southern Oscillation (ENSO) climate system is currently in its neutral state. This means that the Southern Ocean and Tasman Sea weather systems will remain as key drivers of our weather maps in the short term (i.e. during spring).

La Niña is favoured to emerge towards the end of spring and continue through summer (December to February). **What is not yet clear is how strong (or weak) any La Niña will be**.

From a weather map point of view, here is what the New Zealand grower should expect this summer (overall):

- Blocking Highs to intermittently set up near the Chatham Islands (east of New Zealand).
- Higher pressures often extending across the South Island too.
- Lows likely to intermittently form over the Coral Sea and north Tasman Sea (some of which may form into Tropical Cyclones).
- More frequent east to northeasterly winds across the North Island.

Temperature predictions

The combination of La Niña northeasterly winds and intermittent High pressure elsewhere, all align to produce a warmer than normal summer. Climate models and forecasters agree that the summer of 2024–2025 should result in:

- Well above normal summer temperatures right across the country.

Rainfall predictions

At the time of writing, **forecaster confidence** in summer rainfall predictions is **very low**.

This reduced confidence is based on many things – poor climate model performance so far in 2024, reduced skill in summer rainfall prediction compared to other times of the year, and an arm-wrestle between our blocking High to the east, versus incoming Lows from the north…

If our blocking High to the east is strong enough, it will fend off incoming rainmakers most of the time (resulting in a drier summer for many regions).

If the Coral Sea and Tasman Sea Lows dominate, then a very different summer is possible for the North Island and possibly the top of the South Island, with a wetter summer overall. In this scenario, don't expect non-stop rain – rather, rainfall is likely to be 'boom or bust' in nature. That is, expect heavy or deluge rain events with each incoming Low, followed by a more typical summer dry run. Notably, the bulk of the South Island should remain drier than normal through much of summer, even under this 'active tropics' regime.

Historically, La Niña summer rainfall has been very unreliable – if you look back at the historical record at any individual rain gauge, you can see almost a 50:50 split on drier to wetter summers for most regions of the country. In other words, it isn't a given that La Niña summers are wetter in the north and drier in the south (a common expectation).

Table 1: *Raw ECMWF forecast monthly rainfall anomaly (% deviation from 1993–2016 normal). Forecast anomalies within 10% of the monthly normal are considered 'near normal'. Predicted monthly rainfall anomalies +/- 10–20% are considered 'above/ below normal', while forecast monthly rainfall anomalies exceeding 20% are considered significant (well above or well below normal).*

Rainfall (% above/ below normal)	Dec-24	Jan-25	Feb-25
Whangārei	-3%	19%	9%
Auckland Airport	-3%	20%	8%
Hamilton	0%	12%	-2%
Tauranga	4%	17%	1%
Gisborne	-13%	15%	-1%
Napier	-2%	28%	-2%
Masterton	-10%	2%	1%
Kelburn	-7%	0%	2%
Paraparaumu	-11%	-8%	2%
Palmerston North	-8%	-1%	3%
Whanganui	-8%	-1%	6%
New Plymouth	-3%	0%	7%
Taihape	-5%	8%	2%
Raetihi	-7%	0%	1%
Taupo Airport	-5%	5%	-7%
Taumarunui	-11%	-1%	1%
Te Kuiti	-4%	5%	0%
Nelson Airport	-8%	12%	27%
Blenheim	-7%	9%	14%
Kaikōura	-6%	-1%	0%

Rainfall (% above/ below normal)	Dec-24	Jan-25	Feb-25
Culverden	-8%	-8%	1%
Darfield	-8%	-17%	-1%
Christchurch Airport	-13%	-16%	1%
Ashburton	-11%	-13%	1%
Geraldine	-7%	-12%	-1%
Timaru	-10%	-17%	1%
Tekapo	6%	-16%	2%
Omarama	4%	-12%	4%
Dunedin Airport	-6%	-12%	-2%
Ōamaru	-9%	-12%	5%
Balclutha	-10%	-14%	-4%
Cromwell	0%	-14%	2%
Wānaka	4%	-16%	5%
Queenstown	3%	-17%	4%
Alexandra	-1%	-13%	1%
Gore	-6%	-11%	-4%
Invercargill	-4%	-10%	0%
Westport	-5%	-13%	4%
Hokitika	-1%	-9%	4%
Milford Sound	4%	-3%	4%

As always, you should keep up to date with the MetService long-range forecast at **http://metservice.com/rural/monthly-outlook**, or ask us questions on the MetService Facebook or Twitter feeds.

TIMELY ACCESS TO **CRITICAL CROP PROTECTION TOOLS**

On behalf of growers, Horticulture New Zealand has submitted information for the Ministry for Regulation's review of agricultural and horticultural product regulations. The government has already signalled its intent to make changes, with the responsible Minister David Seymour stating that there are too many delays, and the process is too complex.

NZGrower & Orchardist staff

HortNZ acting chief executive Michelle Sands says the horticulture's top priority for the review is ensuring growers have timely access to critical tools.

"We would go as far as to say that, as it is currently operating, the regulatory system for registering crop protection tools in New Zealand is contributing to one of the biggest risks to the future of commercial horticulture in this country."

Without crop protection products, horticulture would lose 75 percent of the value of its crops. Vegetable growers would incur losses of about 88 percent – 80 percent of vegetables in New Zealand are grown for domestic supply.

Currently, manufacturers that apply for product approval must invest significant time in navigating a complex system. The time it takes for approvals to be granted has steadily increased over the past decade with the number of lodged applications consistently outpacing the number being processed. As a result, there is now a significant backlog of applications stuck in the regulatory approval process.

As of 30 June 2024, the Environmental Protection Authority's (EPA) application queue had grown to 121 cases, with 97 requiring actions by the agency. Meanwhile there are large reassessments of the safety of older products taking place internationally and in New Zealand.

In recent years, industry has found it necessary to fund reviews of regulatory risk assessment and risk management proposals. As an example, the kiwifruit industry had to expend significant dollars to prepare substantial bodies of scientific and economic evidence to challenge the EPA's reasoning behind their proposal to ban hydrogen cyanamide. HortNZ funded an expert review of the risk modelling that had been used as part of the reassessment process for synthetic pyrethroids – a review that highlighted multiple issues with the modelling work. It is not viable for industry, particularly smaller horticulture sectors, to routinely fund the review of regulatory work and develop large bodies of evidence to counteract unjustified proposals.

"We welcome the Ministry for Regulation's review of regulations as a necessary step to understanding the root problems and assessing suitable solutions," Michelle says. "New Zealand horticulture needs the approvals processes to modernise and support us."

MAJOR REFRESH AT EPA BOARD

In September Environment Minister Penny Simmonds announced four new board members of the Environmental Protection Authority (EPA), bringing a wealth of horticultural and agricultural experience.

The new board members are Barry O'Neil (currently chair of Horticulture New Zealand, TomatoesNZ and the Diversity of Kiwifruit breeding programme), Jen Scoular (former chief executive of NZ Avocado), Alison Stewart (FAR chief executive) and Nancy Tuaine (chief executive of Ngā Tāngata Tiaki o Whanganui).

Horticulture is actively investing in the transition from the historical reliance on chemical pesticides to an agroecological crop protection and Integrated Pest Management (IPM) approach. Driven in part by market and societal expectations, these modern growing practices reserve the use of more sustainable and targeted chemical controls for those situations where all other control methods have failed.

> **Without crop protection products, horticulture would lose 75 percent of the value of its crops**

However, this transition requires a greater number of crop protection products to be available to growers, not fewer. On average, it takes 5-6 newer softer products, including biological pesticides, to replace 1 of the older broad-spectrum chemical pesticides. The current low number of approvals being granted per year is not supporting horticulture to make this change.

HortNZ believes registration of new crop protection products and new modes of action (including softer chemistry) is key to providing growers with the ability and confidence to invest in and succeed in the sector. Therefore, the backlog of applications for new products should be prioritised over reassessments of old products and manufacturers should be encouraged to invest in the New Zealand market.

"Growers are now facing a shrinking toolkit as older, broad-spectrum chemical products are deregistered and removed from the market. Unfortunately, the introduction of modern, more targeted, and environmentally softer crop protection products on to the New Zealand market is lagging far behind the rate of withdrawal, especially when compared to overseas markets such as Australia, USA, or Canada."

> **The introduction of modern, more targeted, and environmentally softer crop protection products on to the New Zealand market is lagging far behind**

As international regulators and large retailers implement increasingly stringent standards around pesticide use, they can prohibit the use of certain chemicals on produce destined for their markets. Additionally, international crop protection manufacturers are showing a reluctance to invest in the New Zealand market due to a combination of regulatory and market challenges.

OFF-LABEL USE AT RISK

The increasingly restrictive application of controls by the Environmental Protection Authority (EPA) is posing risks for smaller horticulture sectors. Preventing off-label use of products leaves some growers with extremely limited crop protection options.

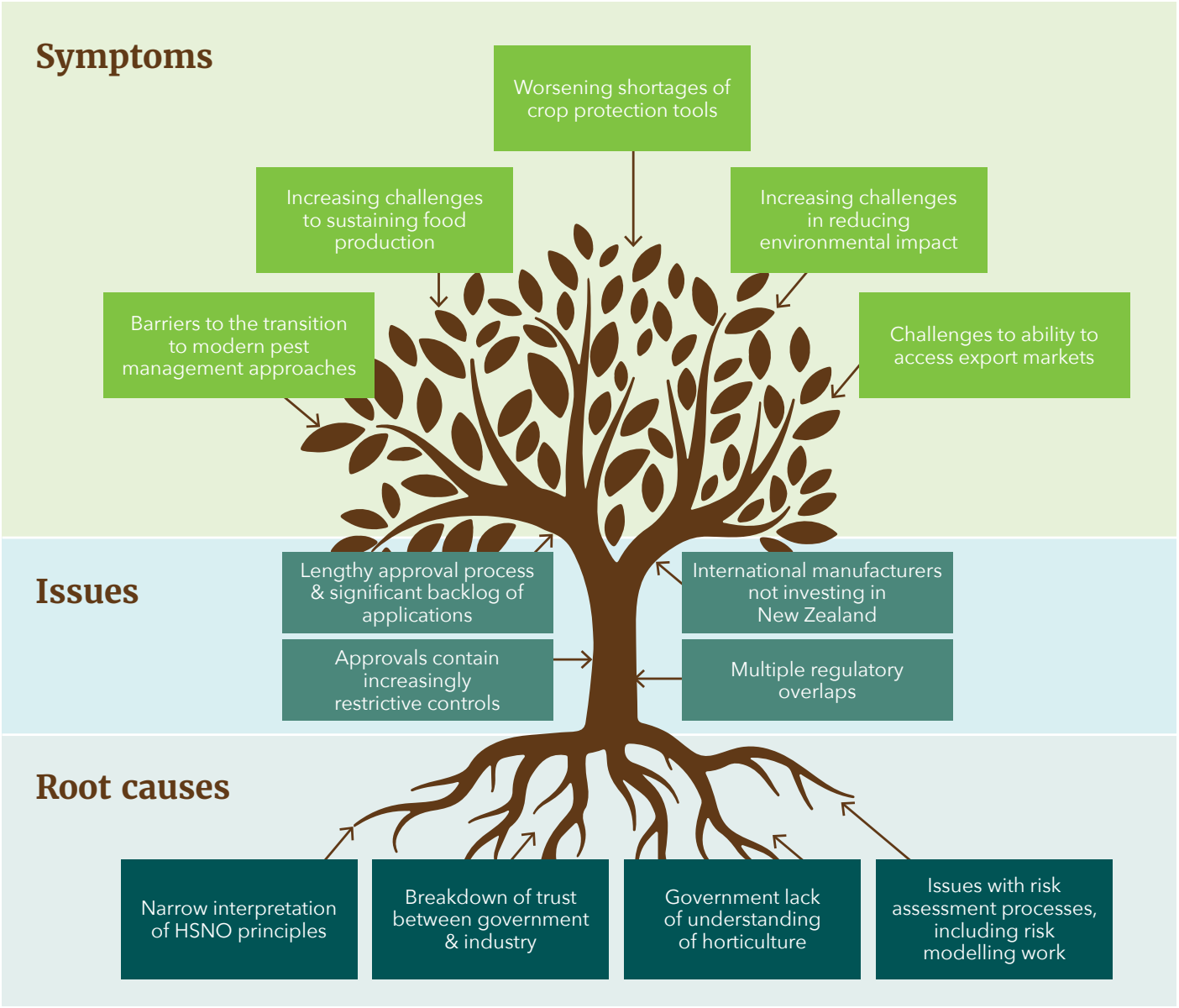
Historically, off-label use – applying products in ways that deviate from their registered usage in New Zealand – has been essential for meeting the unique crop protection needs of minor crops in New Zealand, which often lack their own registered solutions.

Industry manages the risks associated with off-label use under the Good Agricultural Practice (GAP) assurance schemes that they invest in. NZGAP, for example, publish guidelines for growers to use products off-label without exceeding the Maximum Residue Limits (MRLs), including default MRLs if a specific one is not set. The Ministry for Primary Industries' Food Residues Survey Programme (FRSP) is also part of the monitoring system that ensures off-label use is not causing undue harm.

"Off-label use is a biproduct of the current crop protection approval process. However, when managed properly, it can be done safely without compromising food safety or exceeding residue limits. However, if the EPA continue to restrict their approvals to precisely what the applicants request, then it will become increasingly difficult for growers to use products off-label and our smaller horticulture industries will struggle to remain viable."

"If New Zealand growers are unable to access the newer, more internationally compliant products that their counterparts in other countries are using, this will start limiting the ability of our horticulture sector to export to those markets."

HortNZ's submission to the Ministry for Regulation's review did not shy away from clearly stating the issues and risks facing horticulture due to the current regulatory system and processes. This included highlighting that the trust between government and industry has broken down and this is itself a risk that needs to be addressed.



A tree diagram summarising issues facing horticulture due to New Zealand's current crop protection approval system

As other industry sectors are also impacted by the current approvals processes, industry bodies have come together to think about the framework of a regulatory system that would be better able to ensure safety in an effective and efficient way, now and in the future from an industry perspective. These suggestions have also been submitted to the review team.

HortNZ understands that this is an important but complex area to regulate. It greatly values New Zealand's unique natural environments and acknowledges that there are unique cultural aspects to New Zealand society that do need to be carefully considered by the regulators, including the Hazardous Substances and New Organisms (HSNO) Act obligations under the Treaty of Waitangi.

"While recognising the importance of safeguarding New Zealand's natural environment, we also note that the legislation requires regulators to consider the wellbeing of people and communities – which surely includes the secure supply of healthy fruit and vegetables as well as a healthy economy."

HortNZ expects the outcomes of the review to include recommendations for change that will ensure the system works well to not only protect the environment, in its full definition under the HSNO Act, and manage the risks under the Agricultural Compounds and Veterinary Medicines Act, but also supports growers to grow sustainably. ●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Peter Wright and Rob Beresford. Photo courtesy of Plant & Food Research

INCREASING ALARM ABOUT FUNGICIDE RESISTANCE

Fungicide resistance management priorities, as well as those for herbicides and insecticides, are due to be discussed at a meeting of growing sector representatives and chemical companies later in the year.

Glenys Christian

Increasingly growers will need to rely on careful use of fungicides which are still effective, combined with crop management techniques to reduce disease risk and crop disease forecasting. Further down the line improvements in biocontrol performance will be achieved and new resistant cultivars may be able to be developed through gene technology.

For the moment growers' best defence is greater awareness of the problem and making sure they stick to recommended resistance management guidelines, says Plant & Food Research principal scientist, Dr Rob Beresford, who has recently reviewed updated fungicide resistance strategies for A Lighter Touch (ALT).

He believes growers' first call should be to the relevant product group if they suspect a problem. It is likely there is a lot of undiscovered resistance that may only come to light in high-risk disease conditions, giving even more reason for growers to do the right thing at the right time.

"And spraying more fungicide to contain a disease outbreak is the worst thing to do as it increases resistance."

Modern synthetic fungicides with modes of action (MOA) that target specific biochemical pathways in fungal pathogens, called single-site inhibitors, are the most effective fungicides we have, but are at risk from resistance. Older multi-site inhibitors generally aren't.

Fungicide resistance has been recognised as a potentially important problem in New Zealand since the 1970s with some fungal pathogens developing resistance to several single-site inhibitor groups, reducing control efficacy.

Showing up in crops with a high reliance on fungicide spray programmes, the number of resistant pathogens is increasing steadily and at a faster rate than new fungicide chemistry is being developed. Particularly problematic pathogens for resistance development are *Botrytis cinerea*, affecting grapes, berryfruit, cherries and apples; apple black spot; grapevine powdery mildew; *Stemphylium vesicarium* in onions; and *Alternaria solani*, potato early blight.

"Up until the 1990s we were looking pretty good," Rob says. "But now we've caught up with overseas countries."

Until around 2005 in New Zealand, resistance development was slowed by strict management of how a particular group was used through limiting the number of applications per season, mixing at-risk fungicides with those not at risk and alternating at-risk fungicides with those in different MOA groups.

More recently resistance has led to more active ingredients not working well enough to control disease. Using well-calibrated spraying equipment to ensure uniform coverage and disease forecasting models to optimise spray timing are among tools available to growers. But using fungicides which are mixtures of two at-risk single-site-inhibitors from different MOA groups means resistance to one may develop unnoticed, accelerating resistance development to the other. This can also mean the early loss of efficacy in both groups, as has already happened in some instances.

While multi-site inhibitors are less prone to resistance, they must be applied at high rates and can be more damaging to the environment, particularly to aquatic life. For this and other reasons some are being phased out. Rob makes the point that crop management programmes are becoming more and more complex with growers needing to comply with lower residue limits and longer withholding periods.

> **"More recently resistance has led to more active ingredients not working well enough to control disease**

"It's massively complicated," Rob continues. "This is the bind that we're getting into – running out of fungicides. What do we do when we hit the next brick wall? And climate change is just one of the factors which is adding more complexity."

"Where fungicides are sure to fall over is where the tragedy is," Plant & Food Research scientist, Peter Wright says. "The situation with Stemphylium is dire. Fungicide resistance isn't apocalyptic but it's one of the main threats to fruit and vegetable production overseas and here."

ALT's recent updating of strategies includes lists of available fungicides and work on development of new crop strategies. Reliance on fungicides can be reduced through new research to transition cropping systems away from agrichemical dependence and towards use of disease resistant cultivars and cultural disease management.

Crop hygiene can help prevent pathogen carry-over and crop canopy management can make the environment less suitable for diseases.

> **"Crop management programmes are becoming more and more complex**

Bio controls could have a role to play but generally their efficacy is still too low to be useful as mixing or alternation partners for single-site-inhibitors. Daniel Sutton, Vegetables NZ's research, development and extension manager, says bio controls have proven to be successful in controlling disease on lettuce, broccoli and pumpkin crops grown at its Pukekohe demonstration farm.

"But they're not yet a key component in fungicide resistance management programmes as we are still gaining an understanding of their effectiveness."

RESISTANCE MANAGEMENT PRIORITIES FOCUS OF SECTOR WORKSHOP

Ensuring resistance management strategies continue to be updated, and identifying priority areas for new strategies is the focus of an upcoming meeting of growing sector representatives and chemical companies.

The meeting is a continuation of pesticide resistance management work by A Lighter Touch, which funded and oversaw the updating of resistance management strategies, some of which were up to 10 years out of date. The updated strategies can be found on the New Zealand Plant Protection Society website.

ALT transition technical lead Paul Munro is planning to run the workshop later this year, gathering chemical manufacturers and growing industry representatives together to identify gaps in herbicide, fungicide and insecticide resistance management, and determine which of these should have priority for future work.

The workshop will also discuss how to ensure the strategies continue to be regularly updated, as this is a vital component of product stewardship, and prolonging the life of existing chemistry.

Resistance management strategies for fungicides are available on the New Zealand Plant Protection Society (NZPPS) website: **nzpps.org**

Peter points out that because fungicides can adversely affect bio control agents (BCAs), it can be difficult to integrate BCAs into disease control programmes, particularly under high disease pressure situations.

Resistance monitoring is an important tool to determine how widespread resistant strains are and to develop management strategies, but New Zealand doesn't have the surveying and testing capacity required over the next 10 years.

However, Plant & Food Research has recently initiated a $300,000 project to increase the efficiency of pathogen resistance screening and population analysis that can be done, meaning growth inhibition and gene detection methods will be able to be streamlined and greatly expanded. Rob says while different industries can feel "a bit overwhelmed" this programme running over the next 18 months will develop methods to find and identify resistance more rapidly, based on what has already occurred overseas.

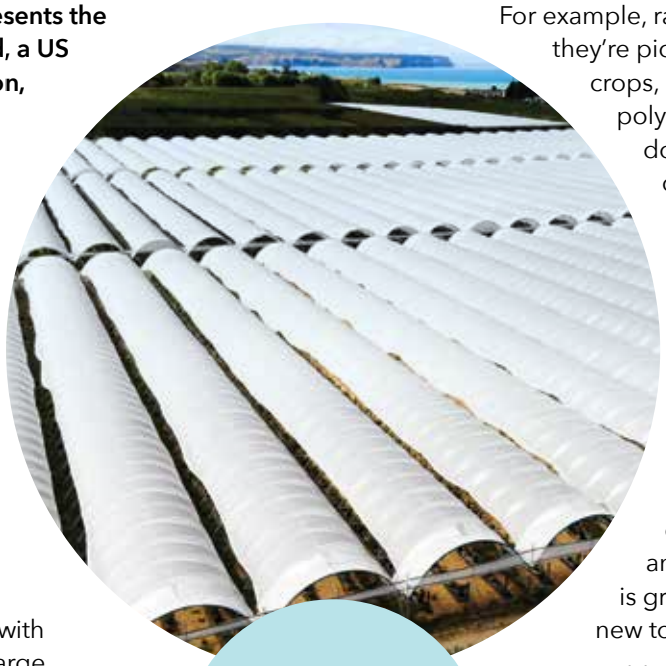
"The methods exist but we're not up to date with them in New Zealand."

DATA CRUNCHING TO OPTIMISE PLANNING

The Fresh Berry Company director Dean Astill says the protected cropping berry growing industry is relatively young in New Zealand, but is set to grow, not necessarily only through the planting of more acreage but through more streamlined operations. The company is investing in precision production as well as precision planning to supply its customers.

Bonnie Flaws

The Fresh Berry Company represents the Driscoll's brand in New Zealand, a US brand with global representation, and is responsible for the sales and marketing of New Zealand grown Driscoll's berries. A key part of The Fresh Berry Company's offer includes providing full support to growers, which includes a focus on technology transfer, high quality plant material and agronomy support.



In the protected cropping system at Berry Farms NZ in Bay View, Hawke's Bay, berries are grown in substrate in grow bags and pots

"All our blackberries and raspberries are currently for the domestic market, as are 95 percent of our strawberries. Blueberries are more balanced with domestic market supply and a large export component but with a real desire to supply better quality berries across the four main berry types to the New Zealand domestic market," Dean says.

Dean says berries are grown using precision horticultural methods. The plants are not grown in soil in the protected cropping system, but in substrate in grow bags and pots and usually in tunnels.

This means that inputs for the plant are fed into the substrate as required at the right time and in the right volumes, depending on what the plants require and when. In practice, this removes many of the natural variables growers face in orchards or market gardens. It makes the whole production timeline run much more smoothly.

For example, rain doesn't affect them when they're picking as it would for outdoor crops, because they are using polytunnels. This means less labour down time and more consistency of supply and quality. Damage to fruit from weather is also significantly reduced.

The Fresh Berry Company first did a small-scale test site using these methods in 2016, and its first commercial investment into this new production system was in 2017. "The results are more consistent. It's gaining traction and our confidence in the systems is growing fast, but it's still relatively new to New Zealand for sure."

Now, added to their growing system is new forecasting technology specifically designed for The Fresh Berry Company's growers and marketing team as a planning resource.

Dean says the tool bases its projections on growing degree hours, allowing for more precision than the growing degree days measure used by many others in the industry.

The hope is that with the help of this new technology, Kiwis will see more quality blackberries, raspberries, strawberries and blueberries on the shelf in the coming months and years, with more of a match-up between supply and demand.

TOOL COULD IMPROVE CROP PLANNING IN OTHER INDUSTRIES

The Fresh Berry Company's new harvest planning technology was designed by New Zealand agricultural technology firm HortPlus. Rather than tracking heat accumulation in berries using growing degree days, the tool uses growing degree hours to provide a more precise estimate of the ideal time to plant a crop for a desired harvest period.

HortPlus Director Mike Barley explains how the same principle could be adapted for other crop types to track and graph variables such as chill units.

"As part of the process of creating the Berry Harvest Planning Tool I realised that some of the tech we utilise here might work really well with chill units, which are critical when it comes to dormancy breaking and flowering for other crop types.

"Avocados, kiwifruit, summerfruit, apples – growers in all these industries use chill unit accumulation to help determine when to take actions on their orchards by making comparisons between seasons and how cool the winter has been."

Mike says there is potential for tools to be created that allow growers of other crops to accurately track data that matters to them and gain insights that guide decision-making on their orchards, based on real-time weather data and past seasonal averages in their local area. Those insights might then guide actions such as when to plant to achieve a desired harvest time or if and when to apply dormancy breakers for best results.

"The approach we have taken with The Fresh Berry Company could be a game-changer for harvest planning and crop productivity in all kinds of industries. The advantage of a dynamic tool that draws on data from our New Zealand regional weather stations is that its projections are always updated based on the latest actual data, unlike a static excel planning spreadsheet. That makes adapting plans easier and allows planners to run multiple scenarios quickly."

What makes this technology so exciting is that the tool is specific to the berries and the varieties within each berry type, Dean says.

> **"The hope is that with the help of this new technology, Kiwis will see more quality blackberries, raspberries, strawberries and blueberries**

"So for example we can model raspberries, but also two different varieties of raspberries. It enables us to see when our peak production is going to be and when our production is predicted to start as well as when it's going to end. That in turns enables us to forecast when that fruit is going to be ready for market and empowers the sales team to make the right decision around maximising value for growers as well as giving retail customers and eventually the consumer, the confidence that the fruit is going to turn up in these volumes in these weeks.

"As an example, every retailer in the country wants to know how many raspberries they can have in the week of Christmas. With this tool, we can more accurately forecast the production curve throughout the year."

The planning tool allows the growers to run multiple scenarios and produces graphs close to real-time that illustrate optimal times for planting and harvesting, or when more labour might be required.

"It's a great tool for our sales team and it gives our agronomists and growers the data they need to stagger planting to achieve harvest at optimum times for consumer demand, including at times of year when some berries are traditionally difficult to find in stores."

Even better, the tool can achieve in a matter of hours what agronomists might take days to achieve. It provides dynamic data that responds to weather patterns and other factors, rather than a static spreadsheet.

> **"Every retailer in the country wants to know how many raspberries they can have in the week of Christmas. With this tool, we can more accurately forecast the production**

Metrics like the average weight of purchase, or how many times people purchase a product and the average kilo per capita are used by The Fresh Berry Company to try to benchmark production levels and compare them to Australian metrics. By doing so Dean says they can improve the levels of consumption by putting better quality fruit on the shelf and with support from key customers at the right price, and thereby grow the category.

Depending on the time of year, demand can be larger than the supply, so there is definitely still an opportunity to improve that offer to the consumer, he says.

"We think the opportunity is huge and if we are not the best in the market, then we aim to be. For example, currently we are approximately 20 percent of the strawberry volume and maybe we get to 25 percent or 30 percent+ eventually. But if our current 20 percent can be the best 20 percent in the market, our share will absolutely grow."

The goal is to improve the offer to consumers, having happy sustainably stable growers that can re-invest in the category part of which is to be more efficient growers, and the new tech is a big step forward in that regard. More berries, with less resources, and a growing footprint that is maximised and focused on positive outcomes for the whole supply chain. Price is still a negotiation with customers, but when you have something, the consumer really wants and is demanding, that makes those discussions a lot more relevant, he says.

The Fresh Berry Company director Dean Astill

"We want to offer the consumer an experience of delight consistently, so that it creates demand for us and for our retail customers."

And unlike the UK and Australia, where berries can be found on the shelves all year round, New Zealand consumers are still very much beholden to seasonal availability. But with the help of this new technology as well as world leading genetics and good grower support, The Fresh Berry Company is hoping to bring more volume online and eventually close the gap to year round supply.

The Turners Growers & Fows market became Turners' Tauranga in 1965

AUCTION DAYS GONE BY

After a lifelong career in produce sales, Tauranga's Robin Neal reflects on five decades of changes in the industry.

Carly Gibbs

Robin Neal is a more discerning supermarket shopper than most.

He admits he lingers in the fruit and vegetable aisles longer than your average shopper, judging size, shape, colour, ripeness and display.

The Tauranga 'fruitologist', as dubbed by his three kids, turned 68 last month and has just retired after a 52-year career in produce sales.

Before moving to Vision Fresh Produce Marketing Ltd, he worked for Turners Tauranga, which later became T&G Fresh.

His career has spanned various roles, from teenage storeman to truck driver, client rep, auctioneer, store manager, shop owner and supermarket salesman, earning him the nickname 'Fair Deal Neal.'

Robin has kept as a souvenir the giant handbell used to start auctions

Over the years, growers have become friends. He's racked up travel miles, visiting orchards and commercial gardens as far south as Central Otago, to the North Island carrot capital of Ohakune, the stonefruit orchards of Hawke's Bay, and potato patches of Pukekohe.

He was born into a third-generation horticultural family, one of six children of market gardeners Terry and Val Neal in Auckland. His parents then moved to Hamilton, followed by Hastings, where they bought a stonefruit and pipfruit orchard.

He left school at age 16 in 1972 to work in the orchard. When the family moved to Matua in Tauranga at the end of 1974, he got a job at Turners Tauranga.

His parents had supplied fruit from Hastings to Tauranga, and shortly after moving, Robin and his dad visited Turners. His dad mentioned that Robin, 18, needed a job.

"I was a big kid, and you used to wheelbarrow things in those days – no forklifts," he recalls. "We were just walking out, and (the manager) said, 'You can have a job on Monday starting at four o'clock', and I thought he meant 4pm."

Of course, when he found out it was 4am, he wanted out, but his dad told him he'd haul him out of bed.

> **His career has spanned various roles, earning him the nickname 'Fair Deal Neal'**

Thankfully, it was a job he grew to love. He unloaded produce trucks before becoming storeman, head storeman, and then a commercial produce sales rep, including for kiwifruit, when there were eight exporters, unlike the situation today with Zespri the sole exporter. At the same time (1979), he became one of four produce auctioneers in Tauranga, before becoming head auctioneer and then market manager.

On the day of an auction, the market whirred to life with controlled chaos. Most commercial growers arrived the night before during a two-hour window to grapple for the best spots to showcase samples before retail bidding began the next day at the sound of a giant handbell.

There was little cool storage, so everything had to be sold on the day. Buyers were issued handwritten dockets before computerisation.

> **On the day of an auction, the market whirred to life with controlled chaos**

'Fair Deal Neal' working at the Turners' Tauranga auction in the late 1970s

At the time, there was only one market in Tauranga (initially on Cameron Road before moving to Maleme Street in Greerton in the early 2000s). Now, there are four.

Growers' supply was often ferried to the market in their own trucks, and Turners sold it on their behalf, taking a commission.

Retailers now buy fruit and vegetables at a fixed price, supplied by packhouses, and price fluctuates depending on supply, demand and the season. Robin says supermarkets want consistency in large volumes in every shop. A city supermarket might take a pallet (20 crates) of carrots daily.

However, it's still a robust and viable industry and one he's enjoyed.

After leaving Turners in the early 2000s, he took over Pumpkin Planet, renaming it Greerton Produce and Florist, which he owned for ten years. His whole family worked there, including his wife Sue and their children Janita, Hayley and Cameron, who were school-aged then. He then decided to return to sales and joined Tauranga's Vision Fresh, where he finished up in August.

As he enters retirement, the keen golfer, former hockey and cricket player, is recovering from his second knee operation and looking forward to a quieter pace of life.

He and Sue live in the same house his parents built in 1980. His dad had a stall at the end of their driveway selling radishes, spring onions and the like. Despite his career, Robin says he isn't a gardener, but with a line of fruit trees in his backyard, he says friends have suggested that he also set up a stall – something he'll consider. ●

From left: Ada Liu, Robert Joe, Lisa Miller from Viscount FCC, and Trevor Cho. Photo by Helena O'Neill

CHINESE GROWERS' CONTRIBUTION CELEBRATED

The Dominion Federation of New Zealand Chinese Commercial Growers recently held its 82nd annual conference dinner in Auckland. HELENA O'NEILL went along to learn a little more about our growers with Chinese heritage.

Bobby Lowe works for the family market garden business at Runciman, south of Auckland but also serves as secretary of the Dominion Federation of New Zealand Chinese Commercial Growers. He says the passion for growing remains strong in the Federation's membership, whether or not they are still full-time growers.

"We have a lot of old growers who we call associate members, they still grow vegetables in one form or another at home whether that's on a lifestyle block or something a little smaller."

Bobby says the Federation is more than an Annual General Meeting (AGM) and dinner once a year.

The New Zealand Chinese Growers' Association (later known as the Dominion Federation of New Zealand Chinese Commercial Growers) was formed in the 1940s.

It was created as a central body to coordinate a cooperative and liaise with officials to supply vegetables for allied troops in the Pacific as part of the war effort. Its history is told in the books *Sons of Soil* by Lily Lee and Ruth Lam, and *Success through Adversity* by historian Nigel Murphy.

The Dominion Federation of New Zealand Chinese Commercial Growers' membership in 2024 is now around 50 families across the country.

"One of the challenges moving forward is to redefine what the Dominion Federation is. We're trying to put the system to engage growers back out there. It starts from a basic website and email address and goes from there."

The Federation is looking into other ways to support and give back to growers, he says.

Edward Young and Stan Sue. Photo by Helena O'Neill

Leanne Roberts, Horticulture New Zealand senior advisor environmental policy speaking alongside Vegetables NZ vice-chair Warwick Simpson. Photo by Hidden Joys Studio

Bobby recently held the position of future director for Vegetables NZ and is one of the participants in the Horticulture New Zealand Leadership Programme this year. The Leadership Programme is designed for potential and current leaders in the fruit and vegetable industry, with 19 scholarships awarded this year after taking a hiatus in 2023.

> **"It's about challenging your current mindset, thinking about things differently, and having access to different tools and resources**

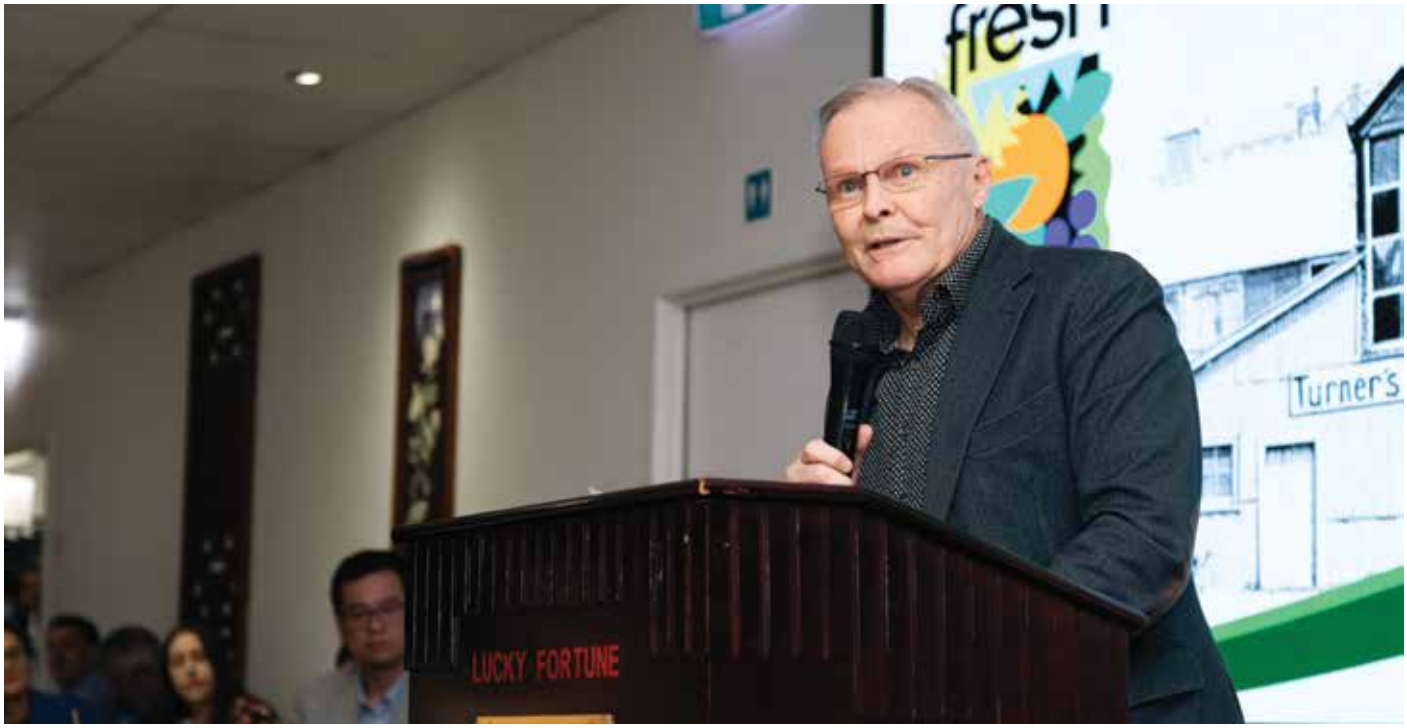
"Those programmes opened my eyes that we could be doing a lot more for our growers. If I hadn't taken part in those programmes I wouldn't know as much as I know about the industry and what I can take back to our growers.

"It's about challenging your current mindset, thinking about things differently, and having access to different tools and resources. Joining Vegetables NZ as a future director really was a catalyst for what we're trying to do here with the Dominion Federation."

As chairman of the Dominion Federation of New Zealand Chinese Commercial Growers, Dennis Fong advocates for best growing practices, is involved in networking, and encourages growers to work together to secure better prices for services and supplies.

With two sons now working for the family market garden, Dennis spends more time working for the Federation to represent Chinese growers.

As part of that representation, Mt Roskill MP Carlos Cheung was invited to speak to members at the AGM and again at the dinner that evening.



Jeffery Turner, chairman of Fresh Direct Ltd / J&P Turner Group. Photo by Hidden Joys Studio

Carlos says the event was a good opportunity to learn more about the challenges facing not only Chinese growers but the industry as a whole.

He wants to look at how government and industry can better work together to address the challenges, including profitability and attracting new growers to secure the future of the industry.

Attendees at the dinner were a mix of Federation members, associate members, business reps from across the industry, and community leaders.

> **Members of the Federation played a very important role in developing vegetable growing in New Zealand, setting high standards in quality, honesty, and reliability**

Speaking at the dinner, Jeffery Turner, chairman of Fresh Direct Ltd / J&P Turner Group, says that for over a century, members of the Federation played a very important role in developing vegetable growing in New Zealand, setting high standards in quality, honesty, and reliability.

"Although sadly, the number of active Chinese growers today is a small fraction of what it was 50, or even 30 years ago, the input you have had, and the legacy you have provided, continues to impact the horticulture sector nationwide."

"Your forebears, and many of you, had challenging years of hard physical work, few if any holidays or weekends off, tough economic times, and regrettably worst of all, your community was disgracefully discriminated against. However, you showed no malice or retribution, instead you forged very close support within your own community and focused on some important core values."

Jeffery says the vegetable growing sector and the country as a whole owes a great debt, "not just for your role as producers of top-quality produce, particularly during an important period of at least seven decades when you produced around 80 percent of New Zealand's total green vegetable supply, but more importantly for those priceless values which contributed immensely to the country's make-up."

He acknowledged the shrinking number of young Chinese growers and thanked those who have the passion and vision to maintain their heritage.

"Despite modern machinery and improved technology, being a grower today is in many ways more challenging, and with more risk than it ever has been. Your forebears used to have large families providing a stable and reliable workforce, but today there is more reliance on outside labour," he says.

"Increases in the cost of land, machinery, funding and inputs have outstripped returns on investment, but you have adopted improved efficiencies, risen to the demands of ever-increasing food safety compliance, and proved over and over the value of retaining those core principles – thank you for that." ●

GROWsafe

WHICH GROWSAFE COURSE SHOULD YOUR STAFF ATTEND?

In 2018 we replaced the Growsafe Introductory certificate with two new certificates: ***Growsafe Standard*** *and* ***Growsafe Basic*** *so that we could better target the learning to the different roles of people using agrichemicals.*

Jane Lamb : General manager NZ Agrichemical Education Trust

The Growsafe Standard course is designed for people making decisions about spray application, whereas the Growsafe Basic is for operators working under supervision. At the end of the Standard course, we expect an individual to be capable of managing a small-scale spray operation themselves, or at least knowing where to start to do so.

As a starting point for deciding on an appropriate course for your team member, ask yourself whether they:

- Complete the spray diaries
- Assess the risks and make decisions on whether spraying should go ahead
- Undertake the measuring and mixing of agrichemicals
- Decide on the sprayer set-up for the planned spray job
- Take responsibility for signage and notification of neighbours
- Assist with the annual spray planning and task planning
- Manage the agrichemical store

If you answered 'no' to all or most of these questions, it is likely that Growsafe Standard is not the right certificate for them. The Basic course will give them exposure to all of these topics but won't require them to demonstrate they are capable of managing all of them.

> **Effective learning occurs when someone is able to relate the new knowledge to something they already know**

If you have a staff member, who has some of these responsibilities, then the Growsafe Standard course might be a good way to develop their skills. Of course there should be at least one person at each workplace who holds a Growsafe Standard certificate.

We often see spray operators being sent on the Growsafe Standard course and struggling with the content of the course and sometimes being overwhelmed by the discussions relating to the product controls and regulatory framework. It is not a great learning experience for them. Effective learning occurs when someone is able to relate the new knowledge to something they already know. If everything is completely new, there's nothing to attach the new knowledge to, and it tends not to stick.

NEW TRAINING MANAGER SANDRA COHEN

I'm thrilled to be joining the Growsafe team and to build on the great work being done around the country. I have over ten years' experience working across the secondary and tertiary sectors covering a range of roles in student support, teaching, resource development, programme development, moderation, tutor development and a few more – primarily in science and applied science areas. I have also done quite a bit of work in the online and blending teaching spaces, so I will be drawing on all that experience in my roles with the New Zealand Agrichemical Education Trust (NZAET) as Growsafe training manager and e-learning lead.

INTRODUCING FIBREGRO®
AZWOOD'S NEW ZEALAND MADE GROWING MEDIUM

Azwood, a Nelson-based company, is at the forefront of environmentally sustainable innovation in New Zealand. By repurposing wood residues from sustainably managed forests, Azwood is dedicated to transforming natural wood waste into valuable resources.

The need for a locally sourced potting medium

For years, New Zealand nurseries have depended heavily on imported coir and peat for potting mixes. However, this reliance has presented significant challenges. Coir, once a favoured organic material, is now plagued by freight issues and rising costs. Moreover, the environmental concerns surrounding peat extraction are leading to a re-evaluation of traditional horticultural practices. Europe is already reducing peat extraction due to sustainability issues, and New Zealand is expected to follow suit. The unsustainable nature of harvesting centuries-old peat bogs has become increasingly apparent, making the industry's dependence on these materials a growing liability.

Recognising these challenges, Azwood saw the need for a locally sourced, sustainable potting medium that could offer consistency in supply and cost stability. This led to the development of FibreGro®.

The sustainable alternative to coir and peat

FibreGro is a New Zealand produced growing medium made from renewable forestry and wood residues. FibreGro is a complete and sustainable alternative to imported coir and peat, eliminating biosecurity risks and the environmental costs associated with international freight.

A premium growing medium

FibreGro also offers exceptional horticultural advantages. Engineered to be a premium growing medium, FibreGro boasts impressive specifications, including high air-filled porosity (AFP), high water-holding capacity (WHC), consistent pH levels, optimal moisture retention and low bulk density. The unique sterilisation and neutralisation processes used in its production ensure that the medium is inert and weed-free, creating a healthy and uncontaminated environment for plant growth.

Extensive field trials have demonstrated that FibreGro optimises root development, promoting even root distribution throughout the mix. This results in healthier plants with higher yields. Initial feedback highlights several operational benefits, including excellent root structure that maximises nutrient availability, along with its lightweight nature and superior drainage properties.

FibreGro's lighter weight and uniform texture makes it particularly well-suited for advanced paper pot systems, such as Ellepot technology. It is an ideal substrate for commercial growers cultivating seedlings, vegetables, or a variety of potted and tubbed plants. Available as a stand-alone potting medium, FibreGro can also be customised into a mix tailored to meet specific growing requirements.

The future of sustainable horticulture

FibreGro represents the future of growing media, offering New Zealand nurseries a sustainable, high-performance alternative to traditional imported potting ingredients like coir and peat. As the industry continues to evolve, the adoption of sustainable practices like those championed by Azwood will be crucial. With FibreGro, nurseries can enhance their operational efficiency while contributing to a more sustainable future.

Azwood's dedication to sustainability and quality has made them a trusted partner for a wide range of commercial customers, known for their reliability, quality products, and excellent customer service.

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POWDERY MILDEW CONTROL HERE TO GIVE GROWERS A HAND

For an industry that hasn't had a lot of new chemistry to tackle powdery mildew, Property® fungicide has been a much-needed boost.

Ryan Pierce, UPL NZ Ltd regional sales manager Lower North Island, says Property, which was introduced last season, has a formidable active ingredient (pyriofenone, from FRAC Group 50) to which there is no known resistance. "That's got to be a big tick."

Ryan says the withholding period is 65 days, ensuring that the key powdery mildew infection period is thoroughly covered.

"Property's performance is well proven, and it has excellent preventative activity."

Property works through translaminar action, moving through the leaves and resulting in distribution within the leaf surface and transferring effectively from one side of the leaf to the other.

> **"Property's performance is well proven, and it has excellent preventative activity**

Ryan says Property's vapour activity also gets the active to areas most at risk from powdery mildew, giving coverage of all leaf and fruit surfaces.

Powdery mildew (*Podosphaera leucotricha*) is a serious and widespread apple disease both in New Zealand and around the world. Ryan says it can hit orchard productivity hard.

Overwintering from the previous season, powdery mildew can spread quickly affecting shoot growth, leaves and newly forming flower buds.

Powdery mildew presents as a dense white fungus (mycelium), which compromises tree health and production by impacting photosynthesis and leaf vigour. In extreme cases, the pathogen can even cause stunted tree growth and russeting of apples. Heavily infected trees can also be vulnerable to secondary pathogens, which is another cost in yield, time and resources.

Apple varieties, including Gala and Pink Lady, can be especially susceptible.

Ryan recommends applying Property as part of a protectant programme at ten to 14-day intervals when conditions favour development of the disease. "Orchardists know what to keep an eye out for over winter and the beginning of the growing season. The shorter spray interval should be used when conditions are conducive to powdery mildew infection and/or you've got rapid tree growth." Property can only be applied twice per season.

Property has excellent rainfastness and is compatible with the insecticides and fungicides used most often in orchard spray programmes.

Because coverage is essential to Property's efficacy, Ryan recommends the addition of Du-Wett® Super-Spreader in low to medium water volumes. A non-ionic organosilicone surfactant blend, Du-Wett was developed specifically to enhance the spreading and foliage deposition. "It gets the best results, and it pays for itself. Anything orchardists can do to reduce waste, reduce fuel use and labour, and see improved efficacy is going to help their bottom line."

Pruning for optimum light penetration and air circulation will also help with managing powdery mildew. "Good orchard hygiene is absolutely essential."

For more advice on how to combat powdery mildew with Property, ask your local technical specialist or contact UPL NZ: **www.upl-ltd.com/nz**

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