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In this issue

8 NZGAP Contractor
Standard

34 Attracting
horticultural talent

44 Automating
the future



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Contents



NOVEMBER 2020

Up Front

- 2 President's Word:
Seasonal labour – what is the solution?
- 4 The Chief Executive:
New government's approach to issues facing horticulture

Your Levy at Work

- 7 Natural resources and environment
- 8 NZGAP Contractor Standard – to be launched in November
- 10 Add-on helps growers get ahead of the game
- 12 Women in Horticulture – Proud to be part of industry creating value for NZ
- 14 Neglected trees can harbour unwanted pests and diseases
- 16 Future hort professionals win global Food Marketing Challenge

Your Industry

- 19 Championing best practice IP management and mentoring
- 22 Industry challenges
- 24 Treasury supports apple industry
- 26 Ahuwhenua Trophy Field Day
- 28 Beneficial insects vital to apple production
- 30 Out of season cherries
- 32 What makes a good workplace assessor?
- 34 Attracting horticultural talent... and holding it
- 36 Pick Tiki
- 37 Advertorial – Agtech by Growers, for Growers
- 38 KGI Chair from next generation of growers
- 40 Tapping into bore head to fight fires

- 42 Work project meeting goals with industry-wide impact
- 44 Automating the future

Technical

- 47 Orchard husbandry priorities
- 52 Platform ready?
- 56 Book review
- 58 La Niña intensifies rapidly

What's New

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

- 60 A simple alternative to cold storage fees
- 61 Tuatara Structures – built forever

Seasonal labour – what is the solution?

The looming, huge shortage of seasonal labour in horticulture is very real – isn't it?

By Barry O'Neil
President : Horticulture New Zealand



Our understanding is that we already have seasonal labour shortages for the spring harvests, including asparagus, strawberries and courgettes. From November, things will start to get really challenging as some of the bigger sectors come online with their labour requirements. For example, the cherry industry will need 7,000 workers, while the apple and kiwifruit industries will need the full complement of 14,400 RSE (Recognised Seasonal Employer) scheme workers, and 20,000 backpackers who usually make themselves available for seasonal work, including harvest and packing.

But when we talk to government officials, they don't accept there is an imminent and critical labour shortage. While we would expect the government to put pressure on our industry to employ New Zealanders rather than use migrant labour, what I don't get is their estimate that we will only be short by somewhere between zero and 4,000 workers. It's very unfortunate that we don't actually have figures from the government as to the numbers of RSE workers and backpackers that are still in New Zealand.

My simple maths suggests that with less than half our normal number of RSE workers and backpackers available, we will be more than 10,000 workers short. However, not all backpackers work in horticulture, and RSE worker numbers are falling as repatriation flights get them home, so it could be worse!

Some officials think we are crying wolf. They say they hear these crisis demands every year from the food and fibre sector. They say that now we have 7% unemployment, there's a new cohort of unemployed that actually want to work, so we are exaggerating the situation.

Unfortunately, it's not clear what the actual shortage is going to be as it's really complex, based on the employment approaches of individual businesses, industry and sector timeframes, regional demographics, turnover rate, and so on! Another unknown factor is how many Kiwis can we attract into these jobs?

On to the good news, I have been really impressed by the efforts and strategies being applied to attract Kiwis into horticulture roles, but unfortunately, I don't see this being able to fill the numbers of seasonal roles that are vacant. HortNZ and the Product Groups have worked proactively and constructively with government agencies, to develop approaches to attract more Kiwis into seasonal horticulture work. While we have had a good response, we are nowhere

near the numbers needed. There are also significant efforts underway from individual horticulture businesses to attract New Zealanders into their operations, but again relatively small numbers have so far taken up this opportunity.

As Seeka recently experienced, people come and go, they don't always stay. The company was forced to recruit more than 900 New Zealanders to fill 240 jobs in the kiwifruit sector during the Covid-19 lockdown, because they kept quitting.

We all recognise that the seasonal nature of the work, spread out regional locations, and it sometimes being hard physical work, mean that not all Kiwis want this type of work or are suited to it. And not all regions can be considered the same. For example, some of our regions don't have large numbers of New Zealanders living nearby that can come and work. There also isn't the accommodation available to house people, and so backpackers in vans have filled some of the needs until now.

I reject arguments that the sector does not pay sufficiently to attract New Zealanders. We have had many experiences of people moving into horticulture from the closed down hospitality or tourism sectors, who were able to make more in these seasonal roles than they were previously. The Prime Minister has told me of people she knows who were made redundant from Hobbiton who made more picking kiwifruit than they were earning there.

So what can we do to get out of this situation, both in the immediate short term and to benefit a longer timeframe?

Most important to me, we must absolutely work collectively to fully understand the situation and explore how we can share

and more efficiently utilise the labour we have available. I had felt previously we were too protective of our seasonal labour. We manage to get it into our sector so we don't want to lose it to others. This behaviour and attitude had to change.

Multiple initiatives are underway to attract New Zealanders into seasonal work. The Work the Seasons website shows the opportunities, but then sectors are doing their own pitch, such as Summerfruit's 'work, play, stay'. HortNZ has also developed some great stories about how RSE workers have enabled Kiwis to get into horticulture.

Our lobbying as a collective sector to allow workers stranded in New Zealand to continue working has been supported by the government. We are now focusing our efforts on getting RSE workers into New Zealand from Covid-free Pacific Islands. We still have an urgent need for these hard-working people, without which we just won't achieve the harvest or packing outcomes needed.

However, looking medium to long term, wherever possible we need to move away from seasonal labour. Employing permanent workers has to be the goal, as not having access to seasonal staff or trying to recruit and then train someone who lasts only a week is a total waste of time. Working collectively to align different industry and sector needs, identifying job sharing opportunities at different times of the year, and between businesses, is one way to achieve this.

We need to rethink, if we haven't already, the harder physical work areas, including more flexible work arrangements, or perhaps more frequent and shorter shifts? And rotating roles rather than doing the same repetitive thing day after day.

Yes, I hear you saying 'but it all costs'. My response to this is, if we can't harvest and pack our fruit and vegetables at the optimal time or worst-case scenario, not at all, then it will cost even more.

The real goal is significantly increasing our efforts into removing the hard physical work of carrying heavy picking bags, climbing ladders, bending over all day, along with the repetitive physical work, wherever possible.

Automation has to be how we address long-term, the ongoing labour uncertainty and the government's lottery of RSE cap numbers every year. We don't have to wait until we have a fully automated robot to do the job. Rather, I think it's a step-by-step process initially supporting the workers. We need to look at today's technology and what we can introduce into our operation to assist with some of the hardest parts of the work – whether that be, for example, platforms or conveyer belts. Then we need to think further about our growing systems, and what we can do differently to enable automation to be introduced.

Automation is here and available now in our packhouses, so our efforts need to focus on growing and harvesting. We are not alone. This is an issue the world is challenged by, but Kiwi ingenuity will go a long way to solving hard practical challenges like this. And yes, it will cost, but this is one of the key investments we need to be making to secure our future. ●

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New government's approach to issues facing horticulture

A new government is taking office and there will be a new approach to many of the regulatory issues that have a direct impact on horticulture.

By Mike Chapman
Chief Executive : Horticulture New Zealand



Before the political parties started their campaigns, we put together an election manifesto listing the key issues our sector needed to have addressed. It was pleasing to note that some if not nearly all of our points were picked up by the key political parties. But that was before the election.

The make-up of the government will determine the direction of travel for the next three years. What was said pre-election may very well not be what is policy post-election. (This column was written before the new government was formed.)

There are, however, some certainties going forward. The most critical for the incoming government is how to turn around the recession that is now gripping New Zealand, with GDP at minus 13.4. Pre-Covid-19 policies are simply not applicable anymore. To pull New Zealand out of recession, the government will need to back winners and enable those winners to succeed. This will be no easy task in the Covid-19 world order. Europe is going into another series of lockdowns as Covid-19 is once again becoming prevalent as winter bites in the northern hemisphere. This is an indicator for New Zealand and brings with it the very real prospect of further lockdowns here.

What we have learnt the hard way with lockdowns is they make economic survival very difficult. If borders are put in place like the one in Pukekohe earlier this year, continued production is significantly hindered. Along with the Product Groups, HortNZ has made submissions to the government about what can be done to lessen the impact of lockdowns on horticulture. In particular, border placement and how borders can be effectively and far more efficiently operated.

The one area where our submissions have not been given effect to is the opening of independent fruit and vegetable retailers. The closure of these retailers, farmers' markets and restaurants not only greatly restricts healthy food

getting to those who need it but also as you well know, takes away outlets and income. Our ability to economically and mentally withstand further lockdowns is greatly reduced. As the head of the World Health Organisation has pointed out, lockdowns directly create poverty.

The only way New Zealand is going to recover is for us to grow our way out of economic decline. That can only be done by our primary sector with horticulture contributing in a very significant way. But to do this, we need to maintain and grow our productivity, and the only way to do that is for water and labour to be available.

The only way NZ is going to recover is for us to
GROW OUR WAY OUT OF ECONOMIC DECLINE

That can only be done by our primary sector with
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WATER & LABOUR TO BE AVAILABLE

It is clear that New Zealand is becoming drier, and in our key growing areas. Water storage needs to be expedited by the new government. Paradoxically, labour remains an issue although there are many more New Zealanders looking for work. The issue that we face is New Zealanders do not want to do field work, but unless our crops are harvested there is no healthy food for New Zealanders and no export income generated. (This issue is extensively covered in the President's column.)

“the focus for the new government must be on enabling horticulture by addressing two of our most urgent concerns: water storage and adequate labour

Therefore, the focus for the new government must be on enabling horticulture by addressing two of our most urgent concerns: water storage and adequate labour from both within New Zealand and Covid-free countries in the Pacific. ●

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YOUR LEVY AT WORK

INDUSTRY WIDE ISSUES FOR INDUSTRY GOOD

Natural resources and environment



Air

Northland Regional Plan – Agrichemical Mediations

HortNZ continues to participate in mediations in Northland regarding rules to manage potential effects from agrichemical application. The main outstanding issue is managing risks to spray-sensitive areas.

The provisions within the proposed plan prevent any spraying within 100m of a spray-sensitive area, when the wind direction is towards that area. Our position is that the wording of the current rule is too blunt and would prevent spraying when in practice the effects can be safely managed using good management practices.

HortNZ in consultation with Product Groups and growers have developed a proposal to try and resolve this issue. The focus of the HortNZ proposal is to enable growers to manage risks through a range of methods.



Water

Northland Regional Plan – Water allocation

HortNZ is participating in an Environment Court Hearing on the water allocation topics. The decision version of the Regional Plan provided (through a consent process) for water allocation at times of low flow to provide for rootstock survival and at high flow to provide for harvesting of stream flow for water storage. These provisions were appealed by a number of parties seeking to constrain these allocations.

HortNZ's evidence demonstrates that a small allocation for root survival water can be provided for with negligible environmental effects. HortNZ's position has been supported by the Department of Conservation in their evidence.

HortNZ supports provision for high flow allocation. Flows can be harvested when streams are above median flows without reducing the frequency of flushing flows. HortNZ is opposing the proposal from the Department of Conservation that seeks to severely constrain the volume of water available for harvesting.



Land

Selwyn District Plan

Selwyn District Council has notified the Proposed Selwyn District Plan for public consultation. HortNZ will review the proposed Plan, undertake consultation with growers and prepare a submission in the best interests of growers. Key matters that are managed by the District Plan include:

- Land zoning and subdivision – managing how land use change can occur and where urban growth is located.
- Reverse sensitivity issues for managing conflict between land uses (including things like noise, light, standards for sensitive activities).
- Provisions for buildings and structures, such as glasshouses, packhouses, worker accommodation and crop protection structures.
- Storage and management of hazardous substances.
- Protection of special features and landscapes.



Climate Change

He Waka Eke Noa – Measuring and Managing Emissions Guidance

HortNZ is participating in the government primary sector climate change partnership. He Waka Eke Noa is focused on reducing emissions using a Farm Environment Planning approach. For growers the main agricultural emission is nitrous oxide from fertiliser. The first milestone of He Waka Eke Noa is that guidance is provided to farmers on how to measure and manage greenhouse gas emissions through farm planning by 1 January 2021. An early draft of this guidance has been shared with Product Groups and a grower reference group for comment. Wider consultation will occur towards the end of this year. ●

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Looking across the Riwaka Estuary at lowtide into the Tasman Bay, where fruit orchards border the sea. Red netting protects apples from birds.



NZGAP Contractor Standard – to be launched in November

By Damien Farrelly : NZGAP and Food Safety Manager

Corporate social responsibility is an increasingly important issue in the global food supply chain, with all players being asked to demonstrate that food is produced in line with internationally agreed labour requirements and relevant national legislation.

As a result, supermarkets in New Zealand and overseas are increasingly seeking Social Practice certification in addition to the core GAP (Good Agricultural Practice) Food Safety certification. Regulators are also promoting certification in horticulture as it is considered a high-risk industry regarding worker welfare. This means that contractors are in the scope of Social Practice certification. International legislation such as the Modern Slavery Acts in Australia and the United Kingdom are having a knock-on effect on supermarket sourcing policies, as they are now required to report on social responsibility all the way to grower and contractor level on the ground in New Zealand.

NZGAP is launching the Contractor Standard in November to certify contractors independently, thus reducing the compliance burden on growers and enabling them to check the status of contractors on the new NZGAP public register for contractors (e.g. registered, approved, suspended, cancelled). The NZGAP Contractor Standard also enables contractors to effectively demonstrate compliance to multiple growers and horticulture operators to whom they supply services in a credible and transparent way. Certification will be available to a range of contractor types including harvest contractors, agrichemical applicators, fertiliser applicators, packhouse handling and services, pruning/thinning, leaf plucking, and beekeeping. While growers can complete a due diligence assessment of contractors for inclusion in the scope of their own certification, it is recommended that contractors are independently audited and certified so that they can demonstrate compliance to all of their customers via one integrated assurance system.



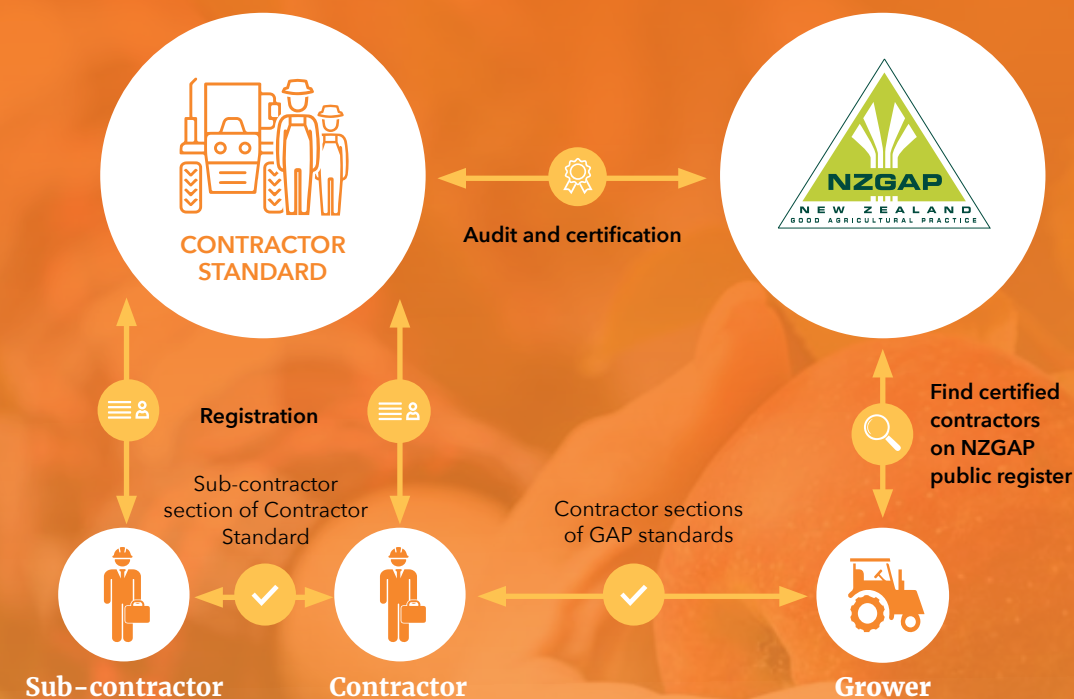
The NZGAP Contractor Standard has been benchmarked to NZGAP, NZGAP GLOBALG.A.P. Equivalent, NZGAP Social Practice add-on, GLOBALG.A.P., and GRASP (GLOBALG.A.P. Risk Assessment for Social Practice), meaning certified contractors will be able to provide services to any NZGAP or GLOBALG.A.P. certified grower or supply chain operator. NZGAP is also collaborating with Master Contractors and Zespri on implementation of the Contractor Standard to ensure alignment and coordination of an effective assurance system for contractors.

“

Using NZGAP certified contractors is a means for growers and other supply chain operators to demonstrate the contractors they engage have met the requirements of these standards at both a production and social practice level

Growers are ultimately responsible for the business practices of contractors they use on their properties, including how workers are treated. The common practice of using contractors, especially for seasonal tasks, means that certification is an effective pathway for contractors to demonstrate compliance to growers, and for growers to engage the services of contractors with confidence. Those certified to the NZGAP Contractor Standard will be able to demonstrate that they meet recognised social practice standards such as employment law and ethical standards. In other words, that they are looking after their most important resource – their people. ●

Contractor Certification



Note: If contractors or sub-contractors are not audited and certified to a recognised standard, growers must assess contractor compliance directly (e.g. due diligence). This adds extra burden to growers and provides a low level of assurance, therefore it is recommended they use certified contractors.

Use of certified contractor is accepted by auditors as evidence for meeting:

- NZGAP Social Practice add-on
- GLOBALG.A.P. GRASP add-on
- NZGAP
- NZGAP GLOBALG.A.P. Equivalent
- GLOBALG.A.P. Option 1 or 2

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Add-on helps growers get ahead of the game

An environmental 'add-on' can help growers get a jump on future demands for Farm Environment Plans (FEPs), and give their businesses a big boost in the process.

By Kristine Walsh

Supporting its grower group of around 80 orchardists, Gisborne marketer First Fresh is helping them achieve Environment Management System (EMS) standards as an add-on to their existing New Zealand Good Agricultural Practice (NZGAP) certification.

And with future local council and central government recognition of the EMS as a stand-in for FEPs, those growers will be ahead of the game as FEPs become mandatory around the country.

"None of our growers can operate without NZGAP certification so what we're saying is why wouldn't you also get the EMS add-on? It's good for the environment and it's really, really good for your business," says First Fresh compliance co-ordinator Mathew Bannister.

"The special advantage orchardists have is that, they don't have to redo their EMS from scratch every year. They can focus on making any adjustments highlighted by the information in their plan and that makes for better practice, and much better business."

First Fresh has to date worked on helping its growers get NZGAP's Social Practice add-on - which addresses labour force issues in the industry - and now that's done, the EMS will be the 'first cab off the rank.'

And to get the ball rolling Mathew has already done trials with a couple of growers to see just how easy it is, and what sorts of benefits can be achieved.

In the case of one trial involving a grower producing citrus, persimmons and kiwifruit, the operator did not have an online map ... a requirement for the EMS add-on.

"So, we jumped on Google Maps, spent an hour drawing it up, and now it's done," Mathew says.

“

The 'Joining the Dots' approach illustrates how information flows within the Farm Environment Plan system to support grower decision making, while also providing a pathway for growers to report on progress towards environmental objectives. NZGAP manager Damien Farrelly

"The bonus is he now has this fantastic new tool. For example, he now knows he has 2.5 kilometres of shelter belt so when he books the trimmer, he can be precise with information and that saves time and money."

"It's the same with information about things like waterways and nutrient budgets. Once you have that in hand you have the right background to inform decision-making going into the future."

During the other trial, the grower needed to record carbon emissions which meant measuring their fuel consumption, and that led to some interesting conclusions.

"Linking his fuel use to his income meant he could see where he had been using heaps of diesel even when there wasn't a lot of money coming in," Mathew says.

"...WE JUMPED ON GOOGLE MAPS, SPENT AN HOUR DRAWING IT UP, & NOW IT'S DONE"



“

Many growers are already taking environmental action on their properties. A Farm Environment Plan provides a framework to document their actions, and make a plan to address any residual environmental risks using a range of research-based tools and practices.

HortNZ Sustainability and Extension Manager, Ailsa Robertson

"Through that he realised he was harvesting and trucking low-grade fruit that wasn't bringing him a return, so he could plan better for next season to avoid that wastage. So not only did he fulfil his reporting requirements, he improved his operation as well."

In both of the trial cases, setting up the EMS allowed the growers to see any gaps between what they were already doing and what the EMS required, and according to Mathew Bannister, "the difference was negligible".

"Because our growers are already doing such a lot of good work, meeting EMS expectations is not a big challenge and that's what's given us the confidence to get behind it."

"Just a few years ago some were a bit resistant to the requirement to get NZGAP certification but now it's just a normal part of doing business. That's how we see the whole EMS/FEP process."

While some growers see the need for FEP or EMS structures as a regulatory niggle, Mathew Bannister says there are huge advantages for orchardists in particular.

"Permanent plantings aren't something you can switch out every year, they are there for a generation, which is why we describe growers as being incurable optimists," he says.

"In the face of all sorts of challenges they stick with it and just work towards doing better every year, and plans like these give them the evidence to ensure the decisions they make are the right ones."



SOME FEP FACTS

- Farm Environment Plans (FEPs) are not compulsory in many areas of the country but under the newly-minted Resource Management Amendment Act, they will eventually be "mandatory and enforceable".
- Environment Management System (EMS) standards as an add-on to existing NZ Good Agricultural Practice (NZGAP) certification can legally serve the purpose of an FEP.
- Around the country, HortNZ has been rolling out trials, tools and workshops to support both orchardists and annual croppers in creating FEPs and, along with other industry organisations, plans to keep up that momentum.
- Whether a grower opts for an EMS or an FEP, there a wealth of support, templates and tools available to help even the smallest indie producers get on board.
- You can do a plan yourself or call in the consultants, but it will need to be audited and signed off. ●

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Women in Horticulture member Mel Auld is a former Zespri Global Marketing Manager, and now Global Marketing Manager for BerryCo.



Mel Auld visiting a consumer's home in Vietnam for blueberry research

Proud to be part of industry creating value for NZ

The pride a Bay of Plenty orchardist showed when, in a Japanese supermarket, he invited a mother and daughter to sample kiwifruit he had grown reinforced for Mel Auld the reason she is part of New Zealand's horticultural industry.

By Elaine Fisher

"I had accompanied a group of growers of the sweet green kiwifruit to Japan where we watched sampling in a large supermarket. The growers were checking Kpins on the trays to find their fruit when I saw Ross Bawden of Pukehina, with tears in his eyes, proudly holding a tray of his fruit," recalls Mel.

Ross shared some of the fruit with a mother and daughter, telling them, through an interpreter, that he had grown it. They in turn thanked him and said the fruit was delicious.

"It was a heart-warming moment which enabled growers to connect with their customers and illustrated the passion growers have for what they do and how proud they are to grow fruit which is healthy, delicious and of such high quality.

"That's why I'm in the horticultural industry. It is creating value for New Zealand and is full of great people who are down to

earth, deeply caring and have the grit to get through tough times like Psu-V, the attack on Zespri's single desk status, and Covid-19," says Mel, a former Zespri global marketing manager, and now global marketing manager for BerryCo.

Also a member of Women in Horticulture, Mel describes herself as a passionate environmentalist and is inspired by some of the changes happening in the primary sector. "I'm looking forward to a greater focus on human practices (including farming) that are regeneratively aligned with the ecological systems they're a part of. In addition, I'm a big supporter of improved representation of women, youth and different ethnicities on leadership and governance teams that will bring fresh perspectives to enliven discussions and outcomes."

Her working life began in the hospitality sector. Mel grew up immersed in nature at Lake Okareka near Rotorua and attended Rotorua Lakes High before completing a course in hotel reception at the Waiariki Polytechnic. She then worked at THC Waitomo Caves Hotel and the Royal Lakeside Novotel Rotorua as part of the opening team.

That was followed by working in London, and then with four great mates, travelling Europe in an orange Kombi Van called 'Tumeke'. One of those mates was Bran Auld from Dunedin. "We fell in love in Rome in 1999 and have been together ever since." The couple, who now live in Tauranga, have two sons.

When Mel returned from her OE she joined Carter Holt Harvey's communications team in Auckland. That was where Mel experienced first-hand how influential a mentor can be. "My manager, Dellwyn Stuart, was a staunch leader who encouraged and supported my continued education, giving me the opportunity to complete a graduate diploma in communications and public relations, for which I am forever grateful."

Later Mel worked for SkyCity as part of its investor relations communications management team. It was while she was there that Mel was offered the role of communications manager with Zespri in Mount Maunganui and the prospect appealed. "It felt closer to heartland NZ and people working the land. It was the complete opposite to SkyCity."

Turners & Growers' legal challenges to dismantle the Zespri single desk status (under which only Zespri can market New Zealand grown kiwifruit to the world (except for Hayward green to Australia) was among the big comms projects Mel headed.

"The overwhelming support growers showed for the single desk through surveys we did, reinforced the commitment

to stand firm in the long campaign to defend it. The positive to come out of the challenge was the unity it created among growers.

The strength of that unity was again demonstrated when the vine disease Psu-V was discovered on a Te Puke orchard in late 2010. "I was communications manager at the time, and I remember the longest of the long days the team worked was 22 hours."

Mel is proud of how the industry came through the crisis, how growers were supported, and despite the incredible stress they were under, there were no suicides. A new gold G3, with tolerance to Psu-V, had just been released enabling the industry to quickly recover.

In 2018 Mel left Zespri to focus on family and her transformational coaching and consulting business. By early 2019 Mel was asked to join BerryCo. The company licences New Zealander growers to grow blueberries sourced from Mountain Blue Orchards in Australia. "These berries are large, crunchy and exceptionally delicious, unlike any blueberry I've ever seen in New Zealand."

To date, 80ha of the licenced varieties are growing in New Zealand for local market and for export to Asia, with major markets including Vietnam, Taiwan and Singapore. Mel has visited the markets and says there are plans for a new brand launch next year which will differentiate BerryCo. blueberries from the competition, strongly resonating with consumers and bringing more value back to growers.



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Neglected trees can harbour unwanted pests and diseases

By Anna Rathé : Horticulture New Zealand Biosecurity Manager

Did you know that fruit trees, vines and vegetable plants on your property or in your neighbourhood can pose a biosecurity risk if they are unmanaged?

Neglected plants can become a reservoir for damaging pests and pathogens to flourish, multiply and potentially spread to infect other plants nearby. If you are carefully managing your crop to keep pest loads low it would be very disappointing to have regular infestations of insect pests or pathogens originating from unmanaged plants in the surrounding environment.

Unmanaged plants can occur at a range of scales, including:

- Individual backyard fruit trees
- Wild plants in riparian areas
- Abandoned commercial orchards.

Knowing where unmanaged trees are located can also be important if there is a new incursion. Host mapping is often a critical step in a biosecurity response to enable surveillance and control activities to be targeted, and make sure that no potential host plants in the detection area are missed.

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It is best for growers who are exiting the industry to destroy trees if the orchard is going to be abandoned



Untended fruit trees, vines or vegetable plants on your own property, especially those from the same family as your commercial crop, should be managed or removed

Untended fruit trees, vines or vegetable plants on your own property, especially those from the same family as your commercial crop, should be managed or removed. It is best for growers who are exiting the industry to destroy trees if the orchard is going to be abandoned.

Untended plants on your neighbour's property or council or crown land is trickier. If appropriate, have a conversation with your neighbour to let them know that you have concerns about the pest load on their backyard trees and the impact that this may have on your growing operation if the pests or pathogens spread to your property. Don't take action to manage neglected trees on neighbouring properties unless you have the owner's permission.

Another good option is to check your regional pest management plan (RPMP) and contact your local council - some Regional Councils are starting to include Good Neighbour Rules in their RPMP for certain pests, pathogens or weeds. Good Neighbour Rules are intended to help manage pests spilling across boundaries. The rules require land occupiers, both private owners and the crown, to prevent certain pests from affecting environmental or agricultural values on adjacent properties.

If you see wild kiwifruit which can sometimes find its way into gullies and riparian areas, contact Kiwifruit Vine Health to report it. They work to remove wild vines in partnership with Regional Councils and landowners, preventing them from becoming a Psa source, and in doing so protect nearby commercial orchards from infection. ●

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Lincoln Roper (left) played a grower calling in to the fresh produce distributor, Grace Mainwaring (right). "It's hard work, but the celery's nice."

Future hort professionals win global Food Marketing Challenge

As part of the ongoing commitment to increase the skills, industry knowledge and networks of young students interested in the horticulture industry, HortNZ and NZ Apples and Pears Inc. supported university students from Massey and Lincoln to enter the International Food Marketing Challenge, run by the Food Distribution Research Society.

By Emma Boase : People Capability Manager, Horticulture New Zealand

Teams from around the world competed in the virtual competition, developing a strategy and implementation plan for a Florida-based fresh produce distributor that has been affected by ongoing Covid-19 lockdowns. The teams worked on managing the requirements of the distributors' growers, as well as the ripple effects from the consumer market.

The initiative is a first for the New Zealand horticulture industry, and was organised by the then capability research



and engagement coordinator, Emma Boase. Emma worked with each team during two separate weekend workshop sessions.

"I was incredibly impressed with the commitment, creativity, and skills of all of the students during the challenge and the passion they are developing for the horticulture industry." This commitment was rewarded when the results of the challenge were announced, and Lincoln and Massey were placed first and second respectively.

Congratulations to Emma Ritchie, Grace Moscrip, Lincoln Roper, and Grace Mainwaring from Lincoln and Alexandra Tomkins, Kazi Talaska, William Robertson, and Euphemia Tan from Massey.

"It's an awesome result for New Zealand, for our students, and for horticulture. To come out number one and two in the world reaffirms that we are doing something right and the future for our industry is bright," said Emma.

“

It's an awesome result for New Zealand, for our students, and for horticulture. To come out number one and two in the world reaffirms that we are doing something right and the future for our industry is bright

The experience has been valuable for the students' professional development, and even enticed some to consider a permanent career in horticulture.

Emma Ritchie, a Bachelor of Agribusiness and Food Marketing student at Lincoln said, "I found it really interesting researching about the horticulture industry, [and] was surprised at the scale of the industry. It is definitely an industry I would now be very keen to work in the future."

Grace Moscrip a Bachelor of AgriScience student at Lincoln agreed. "The networking with industry professionals and creating contacts within the horticulture sector has been invaluable. The public speaking, presentation skills development I learnt from the challenge will be sure to help me in future years."

This programme would not have been possible without funding from AGMARDT (Agricultural & Marketing Research & Development Trust), HortNZ, and NZ Apples and Pears Inc. Emma has future plans for nationalising the challenge model.

"I'd love to see this type of programme available to all university, polytechnic, and high school students in New Zealand. I think it's a great way to empower young people to solve real growers' problems in the industry while building networks and skills." ●

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Out of season
cherries

Page 30



Sue Muggleston, Plant & Food Research Intellectual Property Manager

Championing best practice IP management and mentoring

“There is nothing more useful or practical than food, so horticultural research is a good place to be,” says Sue Muggleston, Plant & Food Research Intellectual Property Manager.

By Elaine Fisher

Attracted to science with a practical use, Sue embarked on a career in horticultural research after completing a Bachelor of Science in Cell Biology from Auckland University. However, she quickly discovered she liked telling people about science more than actually doing science, so Sue's career took a diagonal pathway.

It is for her work in championing commercialisation of technology through best practice intellectual property (IP) management and mentoring, that Sue was a finalist in the MinterEllisonRuddWatts Commercialisation Professional category of the eighth annual KiwiNet Research Commercialisation Awards.

Sue began her science career as an entomology technician working on sex pheromones of New Zealand leafroller moths, and then developed and managed a unit making and supplying pheromone traps for growers.

She completed business and management studies part-time and when Department of Scientific and Industrial Research (DSIR) Plant Protection was formed, became assistant to the group leader for Horticulture, focused on technology transfer activities.

From the practical, hands on technology transfer Sue moved into intellectual property. “While in many instances technology such as how to prune a tree can be transferred

directly to growers, if a bio-control agent needs to be produced by another party for growers to use then IP protection is needed to ensure something is valuable enough for someone to invest in creating a business around it.

"When I moved into IP and the business side, I quickly realised we had a lot of issues around compromised IP." The tradition had been for scientists to publish their research, but once published the IP could not be protected.

"We needed better management of IP and knowledge of commercialisation to make sure research aligned with market needs and we had the people with the right commercial skills. That required a culture change within the organisation, and I started doing that via a mentoring approach and discovered, quite to my surprise, that another passion of mine is developing others."

As well as training in IP, Sue initiated an in-house, one-year core business skills programme. "That was designed for junior businesspeople to give them skills to become business managers. It has run for eight years and we now have more science people taking part, not because they want to move to business, but because they want to understand more about commercialisation so they can do science better. It's been a fascinating shift and now we have a wide range of people who are champions for culture change."

Twelve years ago, Sue began working with the University of Auckland's Master of BioScience Enterprise programme aimed to provide science graduates a business Master's degree. "It includes a six-month internship, and since it started, I have supervised interns and employed them for a couple of days a week while they are studying. These are top students and where possible I have managed to bring them into Plant & Food Research where they have moved seamlessly into the organisation."

More recently Sue has been involved in another University of Auckland programme, the Masters of Commercialisation and Entrepreneurship. "This is for mid-career people who want to make the change to commercialisation." Sue has been a project sponsor since the programme started and there have been some great outcomes. "One of my favourites is a company called Wine Grenade that started as a project in the programme. After the course finished, the project team formed a start-up company and Sue negotiated a licence with them to take the Plant & Food Research technology forward to develop commercially."

The technology had been developed for ripening fruit, but the project members found a new opportunity to use it for micro-oxygenation in maturation of wine. Sue worked with them through the stages of sourcing funding to pre-commercial trials and commercialisation. "It has gone on to achieve sales all round the world and is an example of a New Zealand start-up company which came straight out of the university programme. I'm excited to have been part of that from the beginning."

Two other success stories from Plant & Food Research are Calocurb, a 100% plant-based appetite management supplement made from hop extract, and 2before™ blackcurrant powder which is a breakthrough natural sports performance supplement.

Protecting intellectual property is complex and sometimes fraught, as G3 kiwifruit (developed by Plant & Food and Zespri) now being grown without licence in China shows.

"Rules around IP differ in every country and while there are efforts to harmonise legislation internationally that does not always work. The answers may be to come up with more commercial solutions rather than rely on strict legal protection."

“Rules around IP differ in every country and while there are efforts to harmonise legislation internationally that does not always work. The answers may be to come up with more commercial solutions rather than rely on strict legal protection.”

Sue's expertise in IP extends beyond Plant & Food Research and New Zealand. She is a member of the Licensing Executives Society Australia & New Zealand (LESANZ) and has been on its Board of Trustees for seven years.

As Trustee for Education she led the development of two new licensing programmes that have been delivered to hundreds of people in Australia and New Zealand for businesses as diverse as mining companies and artificial intelligence designers wanting to commercialise their IP. Sue partnered with KiwiNet to deliver these to the research commercialisation community in New Zealand. ●



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AVO UPDATE

Industry challenges

By Jen Scoular : Chief Executive, NZ Avocado

Having New Zealand return back to lockdown Level 1 has allowed us to reinstate our programme of on-orchard field days recently in the Bay of Plenty and Northland. We focused over lockdown on improving the information available to growers on our website, and created some new videos for growers preferring to watch how a tree is pruned rather than read about it. But being in front of growers in an orchard is a far superior place to share information. Growers too seemed to really enjoy the meet and greet part of a field day, the quiet “Hi”, the strong handshakes and the familiar and very warm hugs.

Our avocado industry is challenged by irregular bearing, and in the past we have seen volumes halve from one season to the next. Growers are working hard on some of the tools to mitigate that irregularity, and flower pruning is one of those. Phillip West, our NZ Avocado research manager, demonstrated flower pruning at the field days. On the first orchard flowering was good but for the most part not excessive, and at the second orchard most trees had an abundance, if not an excessive abundance of flowers. Hass avocado trees flower very strongly, but only three to five flowers per thousand successfully pollinate to become avocado fruit. That's a very low conversion rate versus kiwifruit for example, where growers try to convert one flower to one fruit.



Our research has shown that flower pruning avocado trees in October or November does not significantly reduce the yield in the coming year, and then reduces the dip in yield the following year, providing a better balance of yield from one season to the next. Many growers watched and contributed their own thoughts, experiences and opinions as Phillip demonstrated in front of the grower host, who seemed very happy to see the difference it made to their trees.

Exporters are still forecasting values slightly ahead of last year, with export volumes at just over 4 million trays. The impact of last summer's drought is a much smaller size-profile across the avocado crop, making it more challenging to meet customer orders for the larger sized avocados that New Zealand normally produces. Exporters have successfully created a pre-pack channel direct into retail in Australia for our smaller fruit this season, but growers are being asked to be more specific with their first pick, and leave more on the tree to size up for later in the season. We are doing a fruit size trial to measure fruit growth over time, which is showing that fruit growth continues at least to flowering, and perhaps will continue after that.

There is always debate about the impact of the size profile. Market returns are lower for smaller sizes, plus growers need 30 avocados to fill one 5.5kg tray of size 30s, but only 20 avocados to fill a 5.5kg tray of 20s, resulting in less overall trays from the harvest. So if there is a 20-30% improvement in return for the 20s than the 30s at a per fruit level, growers are certainly better to do what they can to improve size. That includes tree nutrition, the right balance of water and good canopy management.

All things considered, in this Covid-19 disrupted environment the season is going well, with challenges we never thought of being mitigated as well as they can be, and the avocado industry working well together to make the best out of the current situation. ●



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Treasury supports apple industry

Covid-19 seeped into New Zealand just as the local apple industry was hitting the peak of its harvest.

The apples could still be picked, packed and shipped, the buyers were still willing, but insurers were suddenly very wary of carrying the risk of those overseas buyers not paying up.

One of the New Zealand apple industry's biggest players, Mr Apple, was able to forge forward with its export season without the stress of carrying all the payment risk, thanks to trade credit insurance from the Treasury's New Zealand Export Credit (NZEC).

Mr Apple's chief financial officer, Peter Drury, says security of payment is important to any business, especially exporters.

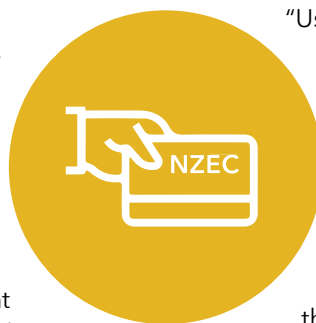
"It is fundamental to manage risk, and overseas customers always carry some payment risk. We have our own internal process where we make our own assessment of our customers' ability to pay. You've got to do your due diligence and be very sure who you're dealing with. On top of that, our Board always requires that we get as much security as we possibly can."

Mr Apple enjoys a strong, loyal, decade-long relationship with trade credit insurer Atradius. But with the pandemic in full swing, insurers everywhere were adjusting their own risk appetites.

Many of Mr Apple's trade partners struggled to provide the depth of information Atradius now required. Some didn't have adequate trade history for Atradius' new requirements, others didn't show enough equity, and some just didn't have time or capacity – in the face of Covid-19 – to quickly overhaul their financial documents to fit a format Atradius would accept.

NZEC senior business originator Michael Hoare says it was clear that, in the upheaval around Covid-19, insurers were pulling back on cover – yet exporters needed cover more than ever.

"We could see what the market needed and moved quickly to adapt our processes to support Kiwi exporters who required a top-up on their levels of insurance cover," he says.



"Usually we require a very thorough credit check of both the exporter and their trade partner. But under a new streamlined underwriting process, we can offer top-up cover, matching dollar-for-dollar with their insurer, without requiring the trade partner's financials. Mr Apple's and Atradius' own due diligence was so thorough that it generated a lot of confidence, and we were able to offer them cover within a few days of receiving the application."

“This support added peace of mind, which was exactly what we needed in such challenging and changeable times

Atradius' New Zealand country manager, Farook Mohammed, says he was delighted a workable solution could be found to support Mr Apple.

"We wanted to continue to support Mr Apple as we have for more than a decade, however the global situation had changed our information requirements," Mohammed says. "It was great to be able to continue our partnership with NZEC to share the risk and for Mr Apple to quickly obtain additional coverage to those customers above the primary limits we had in place."

Mr Apple's NZEC trade credit insurance is in place for a year, and Peter Drury says it has already been used to cover payments from 22 customers.

"This support added peace of mind, which was exactly what we needed in such challenging and changeable times," he says.

"We employ more than 2,000 people at the height of the season, which this year coincided with New Zealand going into lockdown. We needed to know whether we could sell our product to willing offshore buyers without loading the business up with payment risk. NZEC gave us additional certainty, for which we were very grateful." ●

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Ahuwhenua Trophy Field Day

Historic day for Māori Horticulturalists at the Ahuwhenua Trophy Field Day.

By Peter Burke

More than 150 people turned out to attend the field day at Ngai Tukairangi Trust's kiwifruit orchard at Matapihi in early November. The Trust is one of three finalists in the Ahuwhenua Trophy competition for the top Māori horticulturalist of the year.

This is the first time in its 87-year history that horticulture has been included in the competition. In the past the competition has been for dairy and sheep and beef, held in alternate years, but this year the competition was widened to include horticulture.

The field day attracted a wide range of people from the kiwifruit industry as well as the larger agri-business sector. The day commenced with a pōwhiri at the Hungahungatoroa Marae and was followed by a series of presentations from Trustees and staff about its history, governance, strategy and business planning. Those attending the field day were also taken on a tour of the property.

One of the special guests at the field day was the then Minister for Māori Development, Hon Nanaia Mahuta. She said the competition helps raise the bar for Māori in terms of horticulture and enables landowners to demonstrate the importance of legacy, partnerships and relationships, and holding on to their whenua. She says that post-Covid-19, Māori producers are going to make a significant contribution to the future of New Zealand.

Ratahi Cross, Ngai Tukairangi Trust chairman, says he was delighted with the field day. The Ahuwhenua Trophy competitions are a legacy handed down from Lord Bledisloe and Sir Apirana Ngata and this brings huge mana to the event. He says being related to Sir Apirana makes it very special for him being a part of the competition and to show-case the responsibility of Māori growers to this magic history.

Ahuwhenua Trophy management committee chairman Kingi Smiler says it was a special and historic day for Māori to have their efforts in the horticultural sector recognised.



The then Minister for Māori Development, Hon Nanaia Mahuta

He says Māori are major contributors to the wealth generated by the sector. It is estimated that Māori own more than 10% of the kiwifruit plantings in New Zealand and this is increasing.

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Māori producers are going to make a significant contribution to the future of New Zealand

Kingi Smiler praised Ngai Tukairangi for its organisation of the field day and says they have set a benchmark for others who enter this competition in the future. He says field days are a great way of demonstrating the achievements of growers and farmers, and people can see at first-hand how an operation works.

There were two other finalists in the competition:

- **Hineora Orchard** (Te Kaha 15B Ahu Whenua Trust), a Māori freehold land block located in the Eastern Bay of Plenty township of Te Kaha, 65km east of Ōpōtiki on which the Trust run a kiwifruit joint venture operation.
- **Otama Marere** (Paengaroa North A5) a land block in Paengaroa, near the Bay of Plenty town of Te Puke. They grow a mixture of Green, SunGold and organic kiwifruit as well as avocados.

Kingi Smiler says all three finalists are exemplars of excellence and they do the competition proud.



The winner of the Ahuwhenua Trophy for Horticulture will be announced at a function in Rotorua on **Friday 20 November.** ●

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Dr Jim Walker of Plant & Food Research Hawke's Bay

Beneficial insects vital to apple production

New Zealand apple growers use at least 90% less insecticide per hectare than they did in the 1990s, and for some pests control now relies 100% on beneficial insects. That's thanks to the industry's world-leading Integrated Fruit Production (IFP) system.

By Elaine Fisher

"Today when new products are introduced, the first question most growers ask is 'what will it do to my beneficials?' which is a remarkable change in attitude in little over 20 years," says Dr Jim Walker of Plant & Food Research Hawke's Bay.

Before IFP was introduced in the mid-1990s, New Zealand apple growers, like their counterparts around the world, were reliant on regular spraying with chemicals, mostly broad spectrum and highly toxic organophosphate insecticides.

Jim says not only has insecticide toxicity and use decreased dramatically, but there has also been a significant reduction in consignment rejection rates in overseas markets.

"It's a credit to the New Zealand industry that (as reported in the publication *Good Fruit Grower* 2012) the 'United States Environmental Protection Agency found that compared to

other producers New Zealand apples had very few residues and posed only a slightly higher risk than organic apples."

New Zealand apples had very few residues and posed only a slightly higher risk than organic apples

"This is important as it is always better when an independent foreign agency make an assessment of what New Zealand does and what residues and food safety risk profiles are associated with New Zealand apples. This shows that what the New Zealand apple industry has achieved has put it in a unique position internationally."

However, when the concept of applying insecticides only when monitoring showed pest levels required them, and using beneficial insects to aid control, was first put to growers in the mid-1990s, not all were convinced it would work. Regular spraying with insecticides until the 1990s had given them certainty insects wouldn't damage their crops and livelihoods.

In fact, they had little choice but to change. By the 1960s mealybugs and leafrollers were showing resistance to organochlorine insecticides, and by the 1980s organo-phosphate insecticides were also losing their effectiveness against them, and against other insects such as leafhoppers.

The European and United Kingdom markets had increased scrutiny of chemical residues on imported fruit following food safety and pesticide scares in the 1990s. So the industry needed to find smarter and environmentally friendly ways to produce export quality fruit.

“

Smarter and environmentally friendly ways to produce export quality fruit

"By and large Europe's primary concern is around residues and pesticides, as food safety is of paramount importance. Europe is less concerned about the pests we have in New Zealand. In other global markets such as Asia the primary focus is on pests.

"In a sense our single production system must simultaneously meet the phytosanitary quarantine regulations of all global markets.

"This presents a conundrum, because from the same production system growers have to meet requirements for low or zero residue in Europe and also the paramount need to be pest free for Asian markets."

Even though export volume production to Europe has declined to about 30 to 35% of the national crop, Europe remains an important part of the business, but exports to Asia have increased to 50%.

"Meeting those markets' requirements means making smarter decisions about what products to use and when. Growers have to minimise chemical use and maximise the use of non-insecticide methods, including mating disruption and biological control."

Reduction in the use of chemicals has reached a plateau in terms of how much lower the industry can go and still maintain access to over 70 international markets, Jim says. "We have also pretty well maxed out on biological control, and some parts of the control programme are 100% reliant on biologicals, including for the woolly apple aphid. There are no aphicides approved within the programme so the whole industry is reliant on a parasite for total control."

The New Zealand apple industry Integrated Pest Management (IPM) programme is world-leading and unique, but part of its success is down to the fact that New Zealand does not have as many pests as other countries. "In this we are at an advantage. North America and Europe struggle with the Brown Marmorated Stink Bug (BMSB) which has destroyed their Integrated Pest Management programmes. We also don't have fruit fly."

The establishment of BMSB and/or fruit fly would threaten the current IFP programme and undo more than two decades of work by the apple industry, which has collaborated to turn the threat of losing the European market in the 1990s into an opportunity.

"There are always challenges out there and the job is never done. We continue to lose products, including some pesticides which are very important to the programme. Not every pesticide is a negative in the system and growers try to make really smart choices of the use of products, taking into account the safety of people and the environment."

The continued success of the apple industry's IFP programme relies on keeping unwanted pests out of this country. "Control once a new pest arrives will never be as good as keeping it out. Trying to restore any balance on orchards would be extremely difficult and would take some time. It would result in the use of more pesticides, more residues, and the disruption of the whole approach to pest management established here in New Zealand." ●

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Out of season cherries

By Mike Nichols

Cherries are probably the nicest of the stonefruit because you can eat just as many or as few cherries as you wish to consume at one time. A cherry is essentially a single mouthful whereas a single peach, plum or nectarine has to be consumed at one sitting.



New Zealand has the potential to provide cherries to the northern hemisphere as a niche market, when prices are very high

New Zealand will never be a huge cherry production country simply because we do not have sufficient land or population to supply the enormous demand that exists for out of season cherries in the northern hemisphere. However, New Zealand has the potential to provide cherries to the northern hemisphere as a niche market, when prices are very high. This is because it is possible to produce cherries when other countries in the southern hemisphere have finished their harvest. South Africa, Chile, Argentina and Tasmania are all potential competitors, but most of their production occurs ahead of New Zealand and we are able to produce the crop later. Several years ago I discussed with Alan Bissett the possibility of using high tunnel houses for the production of cherries in the Wairarapa, thus overcoming the risk of split fruit during the harvesting season due to unseasonable rain and also to provide a support for netting to prevent our feathered friends having a very expensive breakfast.

The purpose of this exercise was also to reduce the environmental risk particularly in relation to the possibility of climate change due to global warming. This risk of course also applies for those growers in Central Otago, Marlborough or Hawke's Bay who grow outside without any protective cropping.

At that time I did not consider the possibility of producing very early, or very late fruit, but more recently the premium that out of season fruit gets may make this a very attractive option.

It is possible that in spite of global warming, there may be adequate winter chilling to permit cherries to be grown under high tunnels in Northland, and if not then by using dwarfing rootstocks (such as Gisella), cherry trees grown in containers can be overwintered in a coolstore, and transferred into the tunnel house at the appropriate time. The technology of growing in pots and transferring into a greenhouse for fruiting is not new. Paul Kinzett of Blenheim used it many years ago to provide the Japanese market with high quality cherries, however the possibility of using coolstores to ensure adequate winter chilling, with the use

of dwarfing rootstocks and growing two dimensional trees is a relatively new concept.

There is no way that Scotland could be described as ideal cherry growing country, but at least one producer, Matthew McIntyre in Blairgowrie, planted cherries in 2013. Using late maturing varieties such as Centennial and Sweetheart, he planted in polytunnels at a high altitude for Scotland. They are now producing acceptable crops and fitting into a niche market when there are no other cherries available in the northern hemisphere.

New Zealand has the potential of undertaking a similar strategy to produce the latest cherries in the southern hemisphere, and therefore establishing a niche market of high-priced cherries at a similar cost to producing normal cherries.

This is perhaps a strategy that New Zealand growers might consider in order to provide cherries over a longer period into the Asian market where there is a real demand for New Zealand produced cherries.

Of course Chinese New Year is the key market window, but this is a moving feast (from 21 January to 22 February, depending on the moon), and this is further complicated by the effect of the weather on the maturing of the crop.

There is little doubt that a market for late cherries (protected from any weather problems), would sell successfully in Asia. The real question is where to grow them. Perhaps this is the time for the Maniototo or Mackenzie Country to come into their own?

Labour for harvesting and for grading and packing is likely to become less important in the future, as there is a huge increase in developing robotic harvesting methods using artificial intelligence to harvest many crops such as strawberries for instance, and it is only a question of time before this becomes available for cherries. Colour and weight grading equipment for cherries already exists, so it is really only a question of developing the necessary growing techniques for producing high quality cherries over an extended season. ●



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What makes a good workplace assessor?

The workplace assessor is an important part of the training cycle.

By Eve Williams : Sector Lead – Marketing, Primary ITO

They oversee the formal marking process and provide mentoring, either within their own workplace or independently. They are a vital part of maintaining the quality of Primary ITO (Industry Training Organisation) qualifications and programmes.

A workplace assessor is a person such as an experienced supervisor or manager, who works in an organisation that has trainees. They are registered with Primary ITO as a workplace assessor to assess employees in their workplace. The workplace assessment task is performed in addition to their normal duties.

Because the assessor plays such an important role in the learner experience, there are some processes in place to ensure that learners, employers and assessors are getting a consistent quality of experience.

In addition to being registered as workplace assessors with the Primary ITO, our workplace assessors are expected to have a minimum level of professional assessor training (Unit Standard 4098 for workplace

and affiliate assessors, and Unit Standard 30421 for ITO training advisers). The Primary ITO Quality team also regularly reviews the workplace assessors' professional practice, and assessors are expected to participate in ongoing professional development workshops offered by the ITO.

Workplace assessors have a lot of responsibility – they're required to make the final decision regarding a learner's competency, and they have the authority to register the assessment results with Primary ITO, who report those to the NZQA (New Zealand Qualification Authority). After registering results, all workplace assessors have to hold the evidence of their judgement for a minimum period of two years.

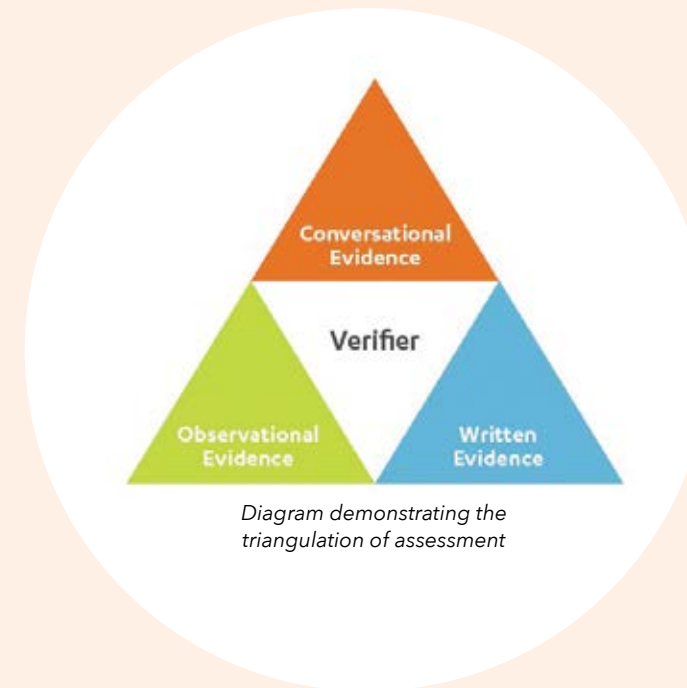
Assessment and learning are linked

When assessment happens during learning, it is usually informal and known as formative assessment. Formative assessment happens when a supervisor gives a trainee feedback on how they are getting on with a particular aspect of their work.

Summative assessment, on the other hand, is what happens when the supervisor considers that the apprentice is ready to demonstrate knowledge of the different elements of particular tasks – this happens at the end of a particular learning process, and is when a judgement is made that the standards have been met. Summative assessment results tell us whether or not the person has met the standard. Formative assessment helps the learner to reach that standard.

Assessment is an on-going process not a one-off event

When well designed and implemented, assessment provides opportunities for trainees to demonstrate the knowledge and skills required to meet competency standards set out by the ITO. It is therefore not just a 'one-off' event that happens between assessors and trainees. Assessment is the evidence-gathering process carried out by trainees, verifiers, and assessors that supports trainees to achieve what is required for gaining qualifications.



Validity and reliability are strengthened when there are several sources of evidence

Workplace learning frequently involves dividing the roles of teacher or trainer, assessor, and evidence collector between different people. This makes workplace learning different from other institutional educational settings. It can be an assessment strength to have different people in different roles because they can contribute to broader and potentially more valid judgments of achievement than relying on the judgment of one individual.

Assessors need to be committed to learning and have other important attributes

We require assessors who are committed to the industry and to supporting learners and employers. Workplace-based assessors are often nominated by others for the role and on the basis of their technical expertise. It is important to also consider other attributes such as good communication skills, literacy and numeracy skills, thoroughness, and trustworthiness, because these are essential to being a good assessor. The ability to assess across a range of unit standards requires assessors to have a deep understanding of what they are assessing, as well as the important 'soft skills'.

There are massive benefits for a workplace having its own assessors. It means that:

- The trainee can be assessed without having to stop working or travel somewhere.
- The assessor intimately understands the workplace and often know the trainee.
- The assessment costs are often reduced for the organisation.
- It's easier to adjust assessment practices to suit the workplace situation and the trainee.

SO GIVEN HOW IMPORTANT THE ROLE OF A WORKPLACE ASSESSOR IS, WHAT MAKES A GOOD WORKPLACE ASSESSOR?

- **Integrity**
A successful assessor takes pride in their work and is honest and assesses to the principles.
- **Definiteness of decision**
As an assessor, definiteness of decision is important. Assessors must be strong in their decision making, as the alternative of being uncertain undermines authority and erodes your student's confidence and trust in you.
- **The ability to manage one's time effectively**
An assessor needs to plan the process and timing to ensure they have the ability to gather the evidence that may be needed.
- **A professional demeanour**
Understanding the learner's perspective, but maintain the integrity of the assessment methodology, and maintaining trainee confidentiality.
- **Empathy**
A great assessor can step outside themselves and take the time to understand their learners' situations.
- **Attention to detail**
Ensuring the completeness of assessment and that the evidence can be triangulated.
- **Willingness to assume full responsibility**
An assessor must set a good example for their students. Sometimes this involves admitting when they are wrong and being responsible for their decisions and the results.
- **The ability to be cooperative**
Cooperation is essential when it comes to the successful relationship between a student and their assessor.

So you want to be a workplace assessor?

The general rule of thumb is that workplace assessors are people with Primary ITO trainees working in their businesses, and who have at least eight years' industry experience, or hold a New Zealand recognised relevant Horticulture qualification. If you have a potential trainee looking to upskill, and you feel you have the attributes to be a good workplace assessor, get in contact with Primary ITO.

<https://www.primaryito.ac.nz/contact-us/> ●



Kamarpal Singh explains how to put up a kiwifruit structure as part of a workplace assessment



Punchbowl Simon Craig (left) and Keegan Neate

Attracting horticultural talent... and holding it

A Pukekohe kiwifruit operation has found it hard to attract young people into the business despite its proximity to Auckland city. So Punchbowl has started finding young local high school students who have an interest in horticulture as a career, offering scholarships to two Pukekohe High School students to take them through their studies.

By Glenys Christian

General manager, Simon Craig, says horticulture suffers from a bad image with young people wrongly thinking its only about hard, boring manual labour.

"There's a misconception of what the industry's all about," he says.

"There's a huge variation of careers in the industry from agronomists through to accountants."

Being close to a major city means Pukekohe's horticultural businesses have to compete against other options which might be more immediately appealing to young people such as IT and retail.

"It's been hard to find people that are suitable that have experience for managerial positions," he says.

"So now we grab them early and hold on to them."

About five years ago Pukekohe local, Chris Lowe, contacted him through a friend of a friend and after working at Punchbowl gained a scholarship from the company to complete his studies at Massey University. And next year it will be the turn of Keegan Neate.

He took part in a Pukekohe High School Horticulture Pathways programme last year organised by its head of agriculture and horticulture, Dave Matthews, under

which a number of pupils spent three days each on work experience at three local businesses, Punchbowl, A S Wilcox and T & G Global then a follow up day at each.

"We were showing them different facets of the business so they got a proper introduction to horticulture," Simon said.

That took a bit of work for the companies involved with monthly meetings to organise the schedule, but the rewards were clear to him when he saw that three or four of the students really engaged with the industry's opportunities. The plan is to add in another three or four horticultural businesses to the programme and repeat the exercise next year.

"We were showing them different facets of the business so they got a proper introduction to horticulture"

Keegan appreciated the structure which Punchbowl used to show the breadth of what a career in horticulture could offer. "It was very informative and the people were friendly," he says.

"We were shown how much there is to looking after plants."

He so impressed Simon that he was offered work over the summer, then returned to do afternoon shifts through the packing season.

"He's been hugely valuable and did everything we offered to him," he says.

So, he'll be heading off to Massey University next year to start on the three-year Bachelor of Horticulture Science with the help of a Punchbowl scholarship. Simon jokes that Keegan's choice of university is much to his disgust as he, his father Rob, brother Shane and sister Nikki, who all work at Punchbowl, went to Lincoln. But he understands that the small number of horticulture majors there now make Massey a more attractive option.

After he graduated, he managed the kiwifruit orchards for OPAC (Opotiki Packing and Coolstorage) for eight years before returning home to the family business which now owns, leases or manages 186ha of kiwifruit from Whangarei to Pukekawa. It employs 80 full-time staff and around 300 seasonal workers over harvest. It also grows blueberries at its Glenbrook Road base outside Pukekohe, with expansion plans including on-site backpacker accommodation. A packaging business is also run from here that supplies the horticultural industry, and has won two World Star Packaging Awards for its compostable blueberry punnets.

Both Simon and Keegan agree that students ideally should be attracted into horticultural careers when they're around 14.

"Students ideally should be attracted into horticultural careers when they're around 14"

"That's the right timing because there's more freedom in your subject options," Keegan said.

He's grown his own vegetable plants from a young age, and has now taken over his parents' garden as well as getting stuck in on his grandparents' lifestyle block. While he hasn't said too much to school friends about his scholarship, his parents' approval was immediate.

"They're stoked," he said.

"They're pretty level-headed people."

He took part in a recent horticultural careers expo where Punchbowl was one of nine different growers or servicing industries which had stands. Simon says it was a good way of opening students' minds to the huge horticulture industry presence close to Auckland, which many were unaware of.

"It's a good diverse industry," he says.

"You're not stuck in front of a computer all day and if you like to be outside it's ideal."

He believes schools are key when it comes to correcting some of the "bad rap" that horticulture gets when it comes to common perceptions about the use of chemical sprays and pay rates.

Punchbowl, like other horticultural businesses around Pukekohe, didn't slow down at all over the Covid-19 lockdowns, which he hopes will bring about a shift in awareness as to their importance.

"It's really shown what the key industries are in the world, as people have to eat." ●

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Pick Tiki

New service encouraging Students to 'Pick Tiki' launched in response to horticulture industry labour shortage.

A new pilot online service has been launched by industry bodies HortNZ and NZ Apples and Pears Inc that will promote summer orchard work to students. The goal is to help orchardists and growers attract and retain students to work over the summer. This is one of many avenues being explored to address the severe labour shortage facing the horticulture sector this season.

'Pick Tiki' is an online student job hub and marketing programme just for the horticulture industry. Employers can post vacancies across a range of roles. NZ Apples and Pears Student Liaison, Summer Wynyard, says the service was developed to directly reach students who are looking for work, and is a valuable tool in dispelling myths around fruit picking and other orchard jobs.

“

'Pick Tiki' is an online student job hub and marketing programme just for the horticulture industry. Employers can post vacancies across a range of roles.

Seasonal jobs posted on the site will also appear as alerts on the Pick Tiki Facebook page and Instagram. These jobs will be 'boosted' to reach a targeted audience of students looking for work. For students targeted outside of the area they normally live, the alerts will include transport and accommodation options.

"We've designed it to be as easy as possible for students and to maximise the reach each individual employer gets with their job ad," Summer says.

"Many young people don't read the news media and are moving more and more to platforms like Instagram and TikTok to get their updates. We want to keep up with this by marketing directly to the channels students use, in a language that they understand. In these targeted job ads is information that aims to minimise students' pain points around accommodation, transport, as well as uncertain pay, hours, and length of work."



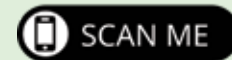
Many young people don't read the news media and are moving more to platforms like Instagram and TikTok to get their updates. We want to keep up with this by marketing directly to the channels students use.

The service is free for growers who are NZGAP (Good Agricultural Practice) or GlobalG.A.P registered. Employers can register their vacancies by filling out a two-minute survey either by scanning the QR (Quick Response) code with their phone camera or going to www.picktiki.nz/employers/

"For employers, we think Pick Tiki is a different, targeted mechanism to attract labour," says Summer. "We would love to have these students walk away from their summer jobs with an appreciation for the industry, a willingness to come back next year, and an interest in a permanent career."



To register a job or to find out more information please visit www.picktiki.nz or email info@picktiki.nz



Agtech by Growers, for Growers

While there are many agtech solutions that work to make agriculture more efficient and environmentally friendly, for fruit growers the current tools are often too expensive, too complicated or too old.

As a result, farms continue to revert to pen and paper solutions for managing daily operations. While this has traditionally been the least expensive option, it doesn't improve the farm's productivity or build a data set for future decision making. Least of all, it certainly doesn't prepare the farm to take advantage of innovation in the future.

Farmable aims to change that. Tired of out-of-touch agtech solutions and the lack of digitization in their daily farming operations, a team of Norwegian farmers decided to build an agtech solution suited for fruit and tree crop growers. Farmable offers a simple, easy-to-use, and free app designed with inputs from **over 150 growers** around the world. Launched in April 2019, the Farmable app already has **over 1,300 users**, spanning from the UK to Australia, and now New Zealand.

Using the app today, growers can draw their fields; plan, calculate and delegate jobs; automate log keeping; track job execution; track harvest; take notes; all from a mobile app, giving growers the much-desired mobility.

Since 2019, the start-up has been working with Australian orchards to learn about their specific needs. This year, the team is kicking off work with orchard growers in New Zealand. "It is important that we confirm the value for new markets in the same way we have done for farmers here in Norway," explains Farmable CEO and co-founder Lars Blikom.

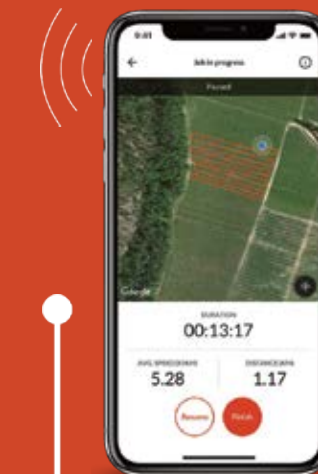


For more information contact Vidhi Kumar, Chief Marketing Officer E: vk@farmable.tech or www.farmable.tech

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KGI Chair from next generation of growers

As the kiwifruit industry continues to grow it becomes increasingly important that New Zealand Kiwifruit Growers Inc (NZKGI) has a strong base of orchardists who represent the interests of all its members, says new Chairman Mark Mayston.

By Elaine Fisher

“One of the things that brings a smile to my face is the calibre and diversity of the people we have on the Forum and their real willingness to participate and support growers. This lays a good foundation for the future of NZKGI and the industry,” says Mark, who was elected chairman at the September Forum meeting.

A second-generation kiwifruit grower, Mark (43) is among an increasing number of younger people stepping up to leadership roles in the industry.

“We are absolutely seeing a change in age groups, but that’s not without saying we forget who our growers are. The average age of growers is 62 or 63. We need to remember that and learn from them where we have come from, the mistakes not to make and steps to take in order to understand where we are heading.”

Mentoring and succession planning is a big focus for Mark and NZKGI. “We put time, effort and money into people and their governance skills, so when it is time for me to pass on my role we know exactly who the baton is passed to and are not leaving things to chance.

“

We do need New Zealanders to support us, to come out to work for us

“Bringing people up through the Forum and executive senior roles is so important for the stability of the organisation.”

Mark’s focus in his chairman’s role will include accountability of Forum members to ensure they understand their grower



New NZKGI Chairman Mark Mayston

base, what growers are thinking, doing and needing. “Forum members need to build good relationships with growers based on regular conversations about the issues they face so they have a good view of what is really important to growers.

“The make-up of our industry means different regions are affected differently and growers need representatives on the Forum who regularly canvass their views. I want to see Forum members take more leadership roles of their portfolios.”

Those portfolios include performance and supply, external relations, labour and education, communications, industry stability and organisational management. NZKGI’s staff need support and feedback from the Forum to ensure the work they are doing is relevant for growers.

“Succession planning within the business is really important for me. With Zespri’s plans to release more gold licences the industry will get bigger, so NZKGI must grow too. We must ensure NZKGI is continually fit for business by growing the capability of our people and continuing to build strong relationships with local and central government.

“Staff at Zespri and NZKGI will come and go as in any business, but we growers are always here so it is important growers have strong relationships with local and central government, and such relations take time to build.”

NZKGI is continually evolving and has grown dramatically in recent years. “The more we do and do well, the more we are given to do, and managing the workload is becoming difficult. We can’t do everything as we have only a limited pot of money from the grower levy, so we have to prioritise

the workload to achieve the best result for growers, and at the moment that’s labour, compliance and sustainability.”

Biosecurity is a constant concern. “The risk never goes away. It’s how we prepare ourselves and understand what the risks are that’s important, as opposed to waiting until something turns up.

“We can prepare for the things we know are out there, but we don’t know how or why they will arrive on our doorstep. However, we can see around the world the consequences of many pests and diseases and start to put measures in place to give growers a good understanding of what the risks are, be it a root disease in kiwifruit, a bug or a human disease like Covid-19, so we can be prepared and have a plan.”

Covid-19 and border restrictions dramatically highlighted how vulnerable the industry is to labour shortages and the importance of the labour and education strategies NZKGI has implemented, with the support of government funding.

“This has shown good results in the past few years since it was rolled out. It’s an expensive piece of work but it is even more important as we get closer to the next harvest with the likelihood of border restrictions meaning we won’t see the level of working holiday or RSE (Recognised Seasonal Employer scheme) workers we have had in the past. We do need New Zealanders to support us, to come out to work for us.”

“

Addressing certainty of work, worker welfare and pay rates is critical

NZKGI recently recorded more than 1,500 vacancies for summer work in the Bay of Plenty alone, and before the season had started. “That means there are lots of options out there for people to get casual or more permanent work, but it also means the industry is struggling to attract staff.”

Growers are also striving to find ways to offer permanent employment for staff, which is not always easy in a seasonal industry, but the introduction of new varieties is stretching the season out and providing opportunities for more full-time work. “The kiwifruit industry is competing for workers and so making the work attractive by addressing certainty of work, worker welfare and pay rates is critical.”

Mark says promoting the kiwifruit industry with its diverse and exciting career opportunities to school leavers is also important. “The work of the Innovative Horticulture Trust to build a dedicated horticultural training facility at Katikati College is marvellous.”

Mark knows the kiwifruit industry from the ground up. His parents Peter and Jenny have been involved since the mid-1970s when they bought their first orchard, later building their own packhouse. The couple were founders of Apata packhouse and coolstore, along with Brian Earp and Mike Muller.

Educated at King’s College, Mark finished horticultural studies, tried his hand at working in other industries and worked for Zespri on different projects. “Ultimately I got drawn back to family and the land as when you grow up on the land it’s hard to break that connection, and kiwifruit is a fantastic industry (despite its ups and downs) to be involved in.” ●

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Volunteers from the Mayor View Volunteer Fire Brigade at Waihi Beach tested the system installed on the privately owned Ongare Point bore head

Tapping into bore head to fight fires

When Stephen Kenna watched five trucks and crews waiting for tankers to supply water from a council fire hydrant to fight a shelter belt fire near his Katikati orchard in August he thought “there has to be a better option.”

By Elaine Fisher

“And then I realised there was, and it was right in front of me - the bore which services our orchard and our neighbour’s orchard.”

The 270-metre deep bore with a flow of 900 litres per minute is close to a public road and the bore and head works are jointly owned by Stephen Kenna and Phillipa Wright of KW Kiwi Ltd and adjoining neighbours, avocado growers Chris and Marianne Graveson.

The two families had already discussed the possibility of installing an adaptor which was compatible for use by emergency services. The shelter belt fire spurred them into action. Now they want to encourage other growers and farmers with bores to consider doing the same.



The equipment is relatively inexpensive. It was around \$700 for the standard, off the shelf irrigation fire adaptor Stephen and Chris bought from PSL Fire and Safety NZ. It is compatible with the equipment used by emergency services and is easy to fit.

Stephen says the Bay of Plenty Regional Council supports this initiative and will not count any volume used in training or fire fighting against consented water allocations.

Chris says the decision to make the adaption was an absolute no-brainer. “The questions for us and other farmers and growers with bores is not - why would you do it - but why wouldn’t you do it?”

“You could potentially help save your neighbour’s property, but it could just as easily be yours which is threatened by fire, especially given how far fires can spread if it’s windy. People have traditionally thought of swimming pools as a water source but overlooked the potential of bores.”

“contact your local fire brigade now so they can GPS reference the bores and update information on water supply locations so that they are prepared to use them when a fire breaks out

Paul Tucker of Fire and Emergency NZ and fire chief for Mayor View Volunteer Fire Brigade at Waihi Beach was consulted about the project and with wife Deryn, also of the brigade, tested the system by simply plugging in and turning on a switch to quickly fill a tanker.

“It works really well, and we plan to have a training session with the Katikati brigade to familiarise everyone with its operation.”

Paul endorses the concept and would like to see the idea taken up throughout the country. Key to its success will be bore owners working with their local brigades and providing GPS (Global Positioning System) co-ordinates for the location of their bores.

“That way when fire brigades receive a call-out, our control centre can direct crews to the nearest available water source.”

Stephen says the single council water main in Ongare Point Road where his orchard is, does not have the ability to refill as fast as needed for a major event, and in some cases there is a long distance to the next available take off.

It is not only house fires and the potential for loss of life and property that worries Stephen, but also shelter belt fires.

“The high fuel loading of shelter trees hundreds of meters long, often in remote, difficult to access areas, is also a high fire risk factor. Their loss results in physical wind damage to crops and internal temperature drops on orchards, should large areas be affected.

“As we saw with ignition sources, the start points in the recent Lake Ohau fire and last year the Nelson fires, a simple spark can expand given the right conditions. Lightning strikes, as well as vehicle fires, can start a blaze even in wet weather.”

The advice from Stephen, Chris and Paul is: “contact your local fire brigade now so they can GPS reference the bores and update information on water supply locations so that they are prepared to use them when a fire breaks out.” ●



The adaptor fitted to the bore servicing two Ongare Point orchards is compatible with the equipment used by emergency services

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Providing training, pastoral care and full-time employment for their workforce is good for the entire industry, say Four Seasons Managing Director Elliot Callender (left) and Operations Manager Marc Ferris

Work project meeting goals with industry-wide impact

Though they started with an admittedly modest team of six full-time staff, a Gisborne company is stoked to achieve its aim of increasing that five-fold in just one year, and is excited about building on that even further.

By Kristine Walsh

Adding to its core business of packing and exporting squash and citrus, Four Seasons last year established Four Seasons Services with the aim of attracting and retaining staff for both itself and associated growers.

And in October 2019 that ambition received a massive boost courtesy of the Te Ara Mahi arm of the Provincial Growth Fund (PGF), which approved a grant of just over \$940,000.

With that grant came line-in-the-sand commitments to establish training and pastoral care, and to up their full-time staff to 31 by November of this year, and to 50 by the time the project finishes at the end of 2021.

"We are well on the way to achieving that but I admit to having been a bit naïve about what that would



actually mean," says Four Seasons managing director Elliot Callender.

"The original intent was really just to secure our own workforce, but the shift seen when we move someone from seasonal contracts onto permanent, full-time work is incredible. Acknowledging that they are good workers, that they are part of a team, has led to a leap in engagement and commitment that has been really eye-opening, and there's certainly been a few hugs going on around here."

Having staff move between the packhouse and the field as required means Four Seasons has been able to smooth out the workload, creating those full-time positions in what was previously an extremely seasonal environment.

But without the PGF grant, that could have taken up to a decade to put in place, Elliot says.

"The training and pastoral care does cost, but by the end of the project in November 2021 we anticipate that this model of employment will be sustainable for us. It will enable us to train and retain a sizeable full-time workforce where there are clear employment paths. That is good for us, it is good for the workers, and it is good for the industry as a whole."

The pastoral care enables Four Seasons to nip any issues in the bud, removing barriers to employment and enabling workers to function at their best.

"Of course we have to protect our culture by having the usual employment structures in place, but having a specialised pastoral care person means we can follow up on any issues with a staff member, find out what is going on and how we can help.

"It is expensive but we are passionate about it, how it can help us address those issues of staff retention while supporting people into secure, full-time employment."

And the training element of the project has been key to having not just better workers, but workers who are more engaged.

To achieve that, Four Seasons creates a skills matrix for each individual, who can then see new pathways open up in front of them. "So as well as in-house training in things like permanent crop maintenance, we work with the Eastern Institute of Technology to help people get horticulture qualifications up to Level 2, to get forklift and wheels, tracks and rollers licences," Elliot says.

"It's not just about learning new skills. The training shows workers that we value them, we care about them, and hopefully that will encourage them to stick with us."

“

It's not just about learning new skills. The training shows workers that we value them, we care about them, and hopefully that will encourage them to stick with us.

"If that means we've created an environment where they'll want to stay, that's great. But even if they choose to move out into the wider industry, that is good for regional development which is something we're also really passionate about."

For Four Seasons, meeting its aims in the midst of the Covid-19 pandemic did not come without challenges, but Elliot says timely and targeted support meant they were able to get the job done.

"Because we operate a lot in export we did see a downturn in work, but being an essential business helped us keep going, and access to the wage subsidy gave us confidence to continue putting people into full-time work.

"That, combined with the PGF grant, has been a huge lifeline for us, so it's been amazing to see that level of support for our industry."

Elliot Callender is an engineer by profession, but has since 2006 been general manager of Four Seasons, as well as being a director and shareholder.

"What's most enjoyable for me is how tight our team is, and how we have worked together to achieve some pretty ambitious aims," he says.

"Our pastoral care staff, our administration team and our Four Seasons Services operations manager Marc Ferris have all played a huge part in progressing the training and employment project.

"We believe the goals we are meeting in terms of providing employment opportunities are not just good for us, but also for the region and the industry, and we're really proud of that." ●

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1 Robotics Plus UGV, 2 Robotics Plus Āporo Apple Packer, 3 Apple Sorter, 4 GreenTech WeedSpider

Automating the future

Accessible horticulture automation is set to solve local challenges by going global.

Supplied by Callaghan Innovation

What is stopping New Zealand from becoming a world leader in horticultural automation technology?

Answering that question, then building the strategy, connections and services to overcome them is behind a new industry-wide initiative that is bringing growers, researchers and commercialising companies together. The Horticultural Automation Initiative is led by the government's innovation agency Callaghan Innovation.

Now in its early discovery phase, the initiative aims to facilitate better collaboration between New Zealand's researchers, inventors, and commercial operators in horticultural automation and robotics. The goal is to build a strong horticultural automation industry that will become a key economic contributor to New Zealand's Covid-19 recovery by benefiting local growers while addressing global challenges.

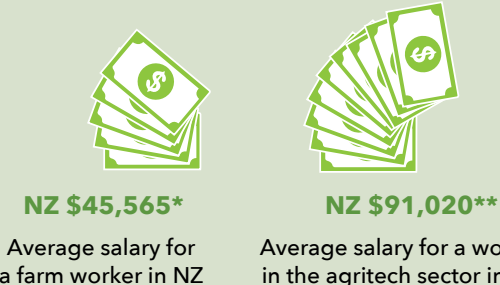
In the Agritech Industry Transformation Plan, released in July this year, horticultural automation was identified as one of several key projects with the opportunity to make a significant impact on the industry in a short period of time.

Simon Yarrow, group manager agritech for Callaghan Innovation, says New Zealand already has many of the building blocks in place to build world-leading horticultural automation technology.

"This country already has a strong reputation for the quality of our high-value food products. What is less known internationally is some of the technology that sits behind those products, from breeding, genetics and growing systems to automated systems that support fast, efficient harvesting, sorting, packing, monitoring and transportation.

"This country already has a strong reputation for the quality of our high-value food products. What is less known internationally is some of the technology that sits behind those products..."

Table 1: Opportunity for this initiative to create more high-value jobs in the horticulture sector



Source:

* https://www.payscale.com/research/NZ/Job=Farm_Worker/Salary

** TIN Report - NZ Agritech Insights report 2020

"The role of the Horticulture Automation Initiative is to work with and support those who already have the expertise and technical capability, and turn it into an industry that benefits local growers and opens up new international markets by solving global problems," Simon explains.

While sustainability and yield security present challenges for growers, the largest problem they face worldwide is a labour shortage - only compounded by the closure of international borders in 2020. This is where increased automation can make a huge impact on growers' efficiency and their bottom line.

There are a number of key players from New Zealand which already have strong global successes in this area. Waikato-based BBC Technologies exports automated packing and sorting machines for small soft fruits such as berries, and is about to build a new R&D centre. Robotics Plus builds automated apple packers and is developing several unmanned ground vehicles for horticultural use. It is also working with Waikato University on an automated asparagus harvester, recently tested by growers in the United States. Manawatu's GreenTech supplies US growers with seeding and harvesting technologies and is developing a weeding machine.

Simon says the Horticulture Automation Initiative wants to work with the key players such as these, to spread the capability and build a fully functioning agritech automation ecosystem. Some of the local benefits of that would include higher-value jobs (see Table 1, above) and increased export revenue. For New Zealand growers the benefits of greater collaboration should mean better accessibility to technology that is currently often too expensive to be viable.

"Growers are the users, investors, testers and enablers in tech, but often don't want to be - or don't have capacity to be - the commercial owners." On the other hand, he says, researchers need to work with growers and the technology companies to understand the problems they're trying to solve, and how to commercialise the solutions.

"Technology is evolving fast and automation is expensive to develop. There is an opportunity to get a better bang for our local R&D dollars if growers, researchers and commercial hi-tech companies come together. That will be a key function of the Horticulture Automation Initiative."



Simon Yarrow

Growers are represented in the Initiative by members of HortNZ, Zespri, and T & G Global. Wider industry workshops and other forms of engagement are being planned.

The Initiative is still in its early formative stage, with a business case being developed by a core group of growers, researchers and commercialising companies with Callaghan Innovation, but optimism about the initiative's potential impact is high.

"If we can grow and scale capability in agritech then we also fuel greater productivity, solve challenging labour issues, strengthen hi-tech exports whilst giving New Zealand's primary industry a hi-tech productivity boost," Simon Yarrow says. ●



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TECHNICAL

THE LATEST INNOVATIONS AND IMPROVEMENTS

Critical
husbandry tasks

Page 47



Above and left: To avoid lower tree shading, leaders need good support to maintain them in a vertical position

Orchard husbandry priorities

Labour requirements on the orchard will be ramping up, so with the likelihood of skilled labour shortages it will be necessary to set priorities for which husbandry tasks are critical to bringing home a successful crop at harvest and give a low priority to the 'nice to do' ones.

By John Wilton : Deciduous Fruit Specialist, AgFirst

By now fruit set levels will be becoming obvious. Incidentally, if the chemical thinning programmes were successful the crop should have appeared very sparse during the three to five weeks after full bloom. Once the remaining fruit begin to size, they will start emerging with the favourable leaf to fruit ratios and fruit sizing is likely to be rapid.

The ideal crop

The ideal crop will be spaced singles, with the odd double on good sites such as terminal buds.

Fruit and cluster counts are well worth doing to get a picture of fruit set numbers, and their distribution by clusters.

Where chemical thinners have been successful, ones and twos should account for around 80% of the remaining crop.

At this crop level there is unlikely to be any natural late fruit drop apart from the 15% to 20% that disappear between thinning and harvest.

For low value varieties a crop which has come down to 70% plus in singles and doubles, hand thinning is probably unnecessary unless the trees have a stress problem, in which case they should not be there anymore.

Focus your hand thinning on those varieties where there is sufficient value to justify the expense. These include Fuji, Dazzle®, Scilate and short-stemmed cultivars such as Scifresh where it is necessary to break up bunches before they close.

Varieties prone to biennial bearing need early hand thinning within about six weeks of full bloom to ensure



Heavy fruit set often occurs near the ends of annual shoots. It is expensive and time consuming to remove this fruit. The quick fix is to head these shoots back after fruit set. This will also stiffen the leader as well, so it is a good way of minimising hand thinning and reducing the need for tree training labour.

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adequate return bloom. With our modern chemical thinners and return bloom enhancing tools such as ethephon and summer NAA (naphthaleneacetic acid) programmes, biennial bearing is no longer the problem it used to be. There is a little bit around this year largely due to the frost we had two years ago, however most orchard blocks I have seen appear to be showing a full 'on' crop, so we will have to be on the ball in regard to securing a satisfactory crop again next year.

Summer pruning and vigour control

The heavy bloom this year should have done a fairly good job in restricting tree vigour.

Mid-November through to early December is the optimum time for topping leaders which have become too tall. It is also a cheap way to thin off the bunchy fruit which sets near terminal buds on leaders, and has the added advantage of stiffening the leader.

In narrow canopies with machinery access problems, late November to early December is the best time to head fruiting wood likely to be damaged by machinery back into fruit. Shortening shoots at this time in their growth cycle results in little vigour response, while retaining adequate crop levels to pitch fruit size into the required range.



Shortening vigorous annual shoots in December is a good way to build up compact fruiting wood, avoid vigour problems and bare wood

There is still the odd old semi-intensive block about. Check the lower and mid-tree branches in these blocks for unwanted water shoot growth. Where there is excessive lower branch water shoot growth pluck it out now while it is easy to pull. Pulling it out minimises regrowth and will make any hand thinning required much more efficient because it is easy to see the fruit bunches.

As orchard plantings have moved out onto more variable soils, significant variations in tree vigour are emerging within blocks. Tree vigour is the main determinate of cropping efficiency irrespective of rootstock. Once full canopy is approaching, annual extension growth needs to be around 20cm in individual shoot length with each of these shoots terminating in a fruit bud.

Trees with excess vigour need to be identified early before the strong growth becomes a problem, and brought under control.

“

**Trees with excess vigour
need to be identified early
before the strong growth
becomes a problem, and
brought under control**

At this time of the year selective trunk or leader girdling is the best option. It should be carried out once the chemical thinning fruit drop is underway so that there is a good fruit drop before the girdling kicks in.

The optimum timing is usually around mid-November.

Girdling is skilled job which requires careful supervision to ensure the girdling is effective. I have seen instances of girdling failure over the years, mainly due to poor technique or lack of careful supervision.

For trees and leaders up to about 50cm diameter a single blade cut with 5mm separation and 5mm to 10mm overlap usually does a fairly good job provided the cambium layer is severed. A knife or a pruning saw can be used for this technique.

For larger trees the best option is the double 'C' in which a strip of bark is removed to expose the wood below the bark. Specifications for the double 'C' is removal of a bark strip 2mm to 6mm wide. Spacing and effective overlap are critical for success. Many years ago, we standardised on specifications for separation distance and overlap based on a series of trials.

The specifications decided on were 50mm separation between the cuts, and 50mm effective overlap. This is a good starting point. If tree vigour is excessive the gap between the cuts can be narrowed up. Where a milder effect is required the gap between the cuts can be widened a little.



Continual use of Glyphosate and Glufosinate has led to selection of hard to kill tolerant weed populations including mallow, which has been dominant in many orchards. Mallow this large is very hard to control. These difficult weeds need to be taken out at the seedling stage.

The effect on vigour reduction from the mid-November treatment is around 40%. This rapidly diminishes as shoot termination approaches.

“

The effect on vigour reduction from the mid-November treatment is around 40%

As well as vigour control, girdling will improve fruit colour, and may advance fruit maturity by about a week. Because trees with excess vigour tend to colour and mature fruit later, selective girdling of vigorous trees in a block will bring their harvest more in line with the weaker growing balanced trees around them.

Growth regulators

Targeted application of Regalis®, which should have been applied before now, or application of low rates of ethephon will hasten terminal bud formation, as well as increase return bloom. We have also seen improved fruit colour development where summer ethephon sprays have been applied for shoot vigour control.

With this year's generally heavy flowering and favourable conditions for fruit set the risk of running into an 'off' crop next year will be higher than normal, so summer NAA programmes will be very important to stimulate return flower for next year. The general recommendation for these sprays is a programme of three added to the cover sprays at 5ppm commencing late November.

Weed control

Where effective pre-emergence weed control programmes have not been applied, late November into December is the time to apply herbicides for control of summer weed species such as fat hen, amaranthus and particularly mallow species which have become serious weed problems when left uncontrolled. Should significant rain occur in December these weeds grow rapidly to shade out lower branches, and provide pathways for quarantine pests to climb up into the tree.

In the past glyphosate and glufosinate have been extensively used for summer knock-down herbicides leading to populations of tolerant weed species, so it may be necessary to widen the herbicide choice targeting effective products for the weed population present. Small weeds are easily killed whereas established weeds are often very difficult, so the key to good summer weed control is applying herbicides to seedling stages, rather than established plants.

We see a lot of herbicide failure due to inadequate spray coverage, and low rates. Make sure that enough active ingredient is being applied for the weed species and stage of development.

Where persistent grass weeds are a problem do not overlook the grass specific herbicides such as Gallant Ultra® and Haloxyfop.

Occasionally very difficult to control weeds establish such as members of the convolvulus family. Spot spray these with whatever it takes to control them before they establish as serious weed problems.

Pest and disease

Late November early December is a critical time for control of many insect pests, mites and diseases including summer rots.

New orchard plantings need particular attention because if common diseases such as black spot and powdery mildew are allowed to establish the effect on tree performance is devastating, and very large amounts of inoculum can build up which often take several seasons of intensive spraying to bring under control in the early cropping years.

Powdery mildew sprays need to be maintained until at least two weeks after terminal shoot growth ceases in the autumn.

Tree support

Do not overlook the importance of good tree and in particular leader support. In maturing intensive blocks we are finding significant lower tree shading problems where leaders have been allowed to stray from the vertical. Once they get a lean on it is very difficult to rectify the problem. Wind is often responsible for trees leaning over, so check and rectify any problems caused by windy periods. Tackled early these problems will prevent much bigger problems later. Making sure the leaders are kept vertical in young trees is much more important than branch training, so if resources are limited focus on making sure upper tree support will keep the leaders upright.

“

Tackled early these problems will prevent much bigger problems later

When disaster happens

Most seasons will experience some hail. For lower margin varieties trying to salvage a fresh market crop out of the hailed blocks with limited resources is probably not the best use of labour. Carefully analyse the level of damage to determine the best way forward.

It may be worth trying to recover some class 1 fruit from high value varieties because of their higher profit margin.

It is still necessary to maintain good pest control in hail damaged crops, particularly for quarantine pests such as codling moth.

If the hail damaged block is old and of marginal value varieties, the path to follow may be to pull the trees out rather than go to the trouble of trying to farm them through for very little return.

Pulling trees out in full leaf means that the transpiring leaves will dry the wood out quickly, leading to an easy burn when it is possible to light fires.

Irrigation

On the better soils, established trees will not need much in the way of irrigation until late December to early January.

Once trees are more than two or three years old irrigation schedules need to be delayed to force deep rooting. Where there is soil moisture monitoring it is not necessary to irrigate until the deep soil layers begin to go beyond trigger points. Experience shows we are achieving much better fruit colour where soil moisture is being drawn up from deep in the soil profile.

Shallow, drought prone soils will need much more frequent irrigation commencing earlier in the growing season. Incidentally mulching particularly shallow soil areas will improve their moisture retention and bring their water requirement more in line with the remainder of the block. ●





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Fruitgrowing is becoming more capital intensive both in terms of growing systems and the gear to grow and handle the crop. This path looks set to continue as labour gets scarcer and more expensive. Platforms look likely to become more popular.

Platform ready?

Media stories tend to give the impression to the ‘man in the street’ that the apple crop can be or soon will be picked by robots.

By Jack Hughes : Fruition Horticulture

The reality is that robots have yet to be commercially deployed and ‘robot ready’ fruiting canopies are yet to be perfected. What about the more readily achievable option of ‘platform ready’? In this article we take a big picture look at platforms rather than getting into the detail of equipment design, features or brands. Equally, nothing in the health and safety space will be covered.

Ergonomically speaking

Let’s start by considering how suited platforms are to the **pipfruit and summerfruit** orchard canopies that are currently out there. It’s a row width and canopy depth thing.

If the human arm has a comfortable reach of about 500mm, we’re limited to total canopy width of 1.0 metre given access from both sides. It follows that the range of accessible row widths is governed by the width of the machine at the narrow end of its spectrum through to the outer range that the worker platforms can be extended outwards for wider rows. There also needs to be an access and safety margin to avoid damage to people, trees and crop.

For example, a machine may be 1.8m wide and the worker cages may extend out to a maximum of 3.0m. If our total canopy depth is 1.0m, the range of usable row widths is 2.8m to 4.0m excluding any ‘breathing space’. Canopy uniformity is our friend here as the more uniform the canopy profile, the narrower the safety margin gap between platform and canopy can be.

A 200mm gap either side of the platform cage takes our maximum row width out to 4.4m. This range of row widths would include virtually all blocks planted in the last decade, but probably a minority of older semi-intensive blocks.

The next question is how ‘platform ready’ are blocks with row widths of 4m or less? Most young plantings and those on trellised systems like 2D and twin stem will be, while most 3D plantings at row widths over 3.0m are likely to need adjustment. Their canopy width, especially at the bottom, will probably exceed 1.0m.

Tree height

Tree heights have been reducing over time. Skyscraper blocks over 5 metres high are now a rarity and the majority of producing apple blocks are probably in the 4.0 to 4.5m height range. This exceeds the comfortable maximum reachable height from a platform of 3.5m. Yes, machine modifications can tweak that range up, but stability will eventually be compromised.

Burning questions

A key question is whether canopies should be retro-fitted to make them more ‘platform suitable’. The concern being that removing the sides and tops of existing canopies might be removing the most productive bits. A temporary yield reduction might be okay, but what if this was permanent?

We don’t have a lot of experience in New Zealand yet, but there are positive signs and some overseas evidence to draw from. The introduction of cab tractors in New Zealand required the slimming down of upper canopies and this didn’t usually reduce yield, in fact it sometimes led to increases in quality crop.

“

We don’t have a lot of experience in New Zealand yet, but there are positive signs and some overseas evidence to draw from

Studies in upstate New York showed that 3D canopies could be successfully transitioned to platform compatible fruiting walls provided the retro-fitting was staged gradually over three or four years (Sazo, 2018). In these experiments, mechanical hedging was used to ‘set the box’. Later season timings were better because vegetative regrowth was less.

Canopy geometry

Let’s explore a few numbers on canopy geometry. If canopy dimensions are set at 1m for top to bottom width, and tree height is capped at 3.6m, we have a fixed rectangular ‘row end profile’. As orchard row width increases, canopy volume per hectare decreases because there’s more ‘fresh air’ in the row. Over a 2.8 to 5.0m row width range, canopy volume of a platform suitable canopy decreases from slightly over 10,000 m³ to a mere 6,000 cubes (Figure 1).

The opposite trend in canopy volume occurs with traditional 3D canopies because tree dimensions typically increase as wider rows allow more space for bigger trees. Figure 1 shows how change in canopy volume differs with increasing row width depending on which canopy management approach is taken. This data suggests that platform ready canopies will have to be more efficient than their 3D counterparts to hold their own in the yield

department. At this early stage, we could expect that at row widths beyond 3.5m, there will be a ‘yield’ price for a platform compatible canopy.

Counter intuitive

The counter intuitive factor is that larger canopy volume doesn’t necessarily translate into higher yield. The killer examples may be planar cordon (Future Orchard Planting Systems) or 2D where canopy volumes are surprisingly small and reported yields are surprisingly high.

The planar cordon canopies designed by Plant & Food Research are super slim (500–600mm total width) with very narrow rows (1.5–2.0m) to achieve efficient light interception and accumulate enough canopy per unit of area. Their published yield data which is north of 150 t/ha for these 9–10,000 m³ canopies says that canopy efficiency is more important than canopy volume. Recent new planar cordon plantings have been planted on 2.2m row widths. The goal is finding a sweet spot between enough space for conventional machinery without undue yield reduction from increased row width. By the way, I’m told that looking behind you is not a good idea when driving down these narrow rows.

Figure 1 : Effect of row width on canopy volume of ‘platform ready’ and typical 3D canopies

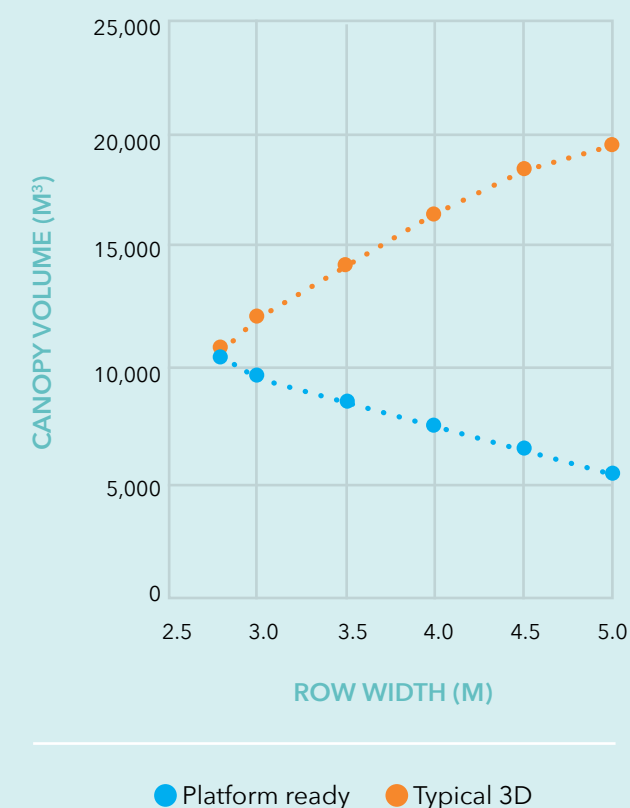


Figure 2: Platform economics 101

Costs	Purchase, say	150,000		
	% of year worked, say	50%		
	Annual running hours	1,000		
	Annual costs	Funding	say 7.5% of whole purchase cost	11,250
		Fuel	@1 L/hr	1,000
		Maintenance	\$400 service every 250 hours	1,600
		Insurance		2,500
Use		Depreciation	say straight line over 15 years	10,000
		Total		26,350
	Number of people on platform	6		
	Annual labour bill at \$20/hr	120,000		
	Productivity saving for breakeven	22%		26,400

The business case

What about the numbers then? Can the purchase of a \$150,000 platform be justified? Note that this ballpark price estimate includes platform, bin trailer, conveyers and a compressor. There are many differing estimates and opinions of the productivity gains on offer. Let's take the approach of estimating the cost of ownership and operation and then calculating the productivity gains required to cover them (Figure 2). In this example, the big-ticket items of ownership are funding the purchase and allowing for depreciation. Running and overhead costs are relatively 'small beer'.

Let's assume that a platform operates for half the year (pruning, thinning, picking and some block development work), so it is assisting six people for 1,000 hours. In this example, we require a 22% lift in worker productivity to cover the platform cost. Is this easily achieved? You be the judge.

There are, of course, other factors that are harder to quantify but no less important. Platforms enable a wider range of people to actually participate and this could make the difference between getting the crop picked - on time or even at all in these Covid-19 disrupted times. Also, if the use of platforms increases packout by reducing handling damage and improving picker accuracy, the numbers are even more compelling. Think of a platform operating as a mini picking gang. Over a 10-week season at 50 bins a day, a small increase in the export recovery of 2,500 bins of fruit adds up. Something like \$7,500 for every percentage point rise in packout.



OVER A 10-WEEK SEASON AT
50 BINS A DAY,
A SMALL INCREASE IN THE EXPORT
RECOVERY OF 2,500 BINS
OF FRUIT ADDS UP.
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Conclusion

Fruitgrowing is becoming more capital intensive both in terms of growing systems and the gear to grow and handle the crop. This path looks set to continue as labour gets scarcer and more expensive. Platforms look likely to become more popular.

Reference: Mario Miranda Sazo (2018) "New Advances to Narrower Canopy Systems: Transitioning from 3D to 2D Canopies or Fruiting Walls - Part 3". NY Fruit Quarterly Vol 26. No 1. ●



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It is a simultaneously entertaining, educational and insightful narrative of how the New Zealand apple industry moved from classical pest control reliant on chemical inputs to a sustainable pest management system over a period of 60 years



Book review

Gaining inspiration from past horticultural successes.

By Ruth Falshaw : Editor, New Zealand Plant Protection Society

In a recent blog, HortNZ chief executive Mike Chapman commended the New Zealand horticulture industry for having a reputation for innovation. We are living in extraordinary times and the impacts of Covid-19 will have profound and long-lasting effects on the New Zealand economy. It is said that history repeats itself, so now is an ideal time to look back on past achievements in the New Zealand horticulture industry and apply those successful approaches to the current challenges facing the sector.

One of the most successful transformations of a national horticultural industry in the modern era is set out in a new, beautifully illustrated book entitled *Farewell Silent Spring* that has been published by the New Zealand Plant Protection Society. The author, Howard Wearing, is a distinguished entomologist, a Fellow of the Royal Society of New Zealand, the New Zealand Institute of Agricultural and Horticultural Science, and since his retirement, an Honorary Fellow of the Plant & Food Research Institute of New Zealand.

This is not some dry history of discrete events along a simple timeline. Instead it is a simultaneously entertaining, educational and insightful narrative of how the New Zealand apple industry moved from classical pest control reliant on chemical inputs to a sustainable pest management system over a period of 60 years.

It is a compelling read that intertwines the development of Integrated Fruit Production (IFP) for the pipfruit industry in New Zealand with Howard's personal memoir of a lifetime's research. The book chronicles the ecological concepts of integrated pest management (IPM) from early beginnings in the apple industry in New Zealand to the present day realisation of IFP and Apple Futures.

Rachel Carson's book *Silent Spring* published in 1962 had highlighted concern about the risks from pesticides in agriculture. The **first three chapters** of this book provide an essential introduction into the necessity to reduce the use of toxic broad-spectrum pesticides in pipfruit orchards in New Zealand from the situation prior to 1960,

through the initial limited options available within research programmes, and finally the ecological research programme set up as the result of the author's arrival in New Zealand and his appointment to the programme in 1967.

Chapter 4 provides details of the ecological research programme on codling moth, light brown apple moth, San José scale, and phytophagous mites during the initial period in Nelson, followed by the disruption in 1973 due to the relocation of the Entomology Division of the Department of Scientific and Industrial Research (DSIR) headquarters to Auckland, and the dispersal of entomologists to other regions of New Zealand.

In **Chapter 5** there is a description of how European red mite and two-spotted spider mite became the target of a new pest management programme based on using organophosphate (OP) resistant predators, and was implemented commercially in pipfruit production in New Zealand.

Although growers continued to use OP insecticides, in **Chapter 6** details are provided for a reduction in their use by the identification of insect pheromones for use in trap monitoring and phenology modeling, allowing sprays to be applied only when necessary for codling moth and leafroller control. At this time (1974–1995) the increase in OP resistance resulted in the need for research to provide safeguards for grower spray programmes until more sustainable IPM was developed. From the research, the concept of pesticide resistance management was developed.

Chapter 7 describes how, during the period 1973–1995, biologically based IPM was developed for New Zealand pipfruit production. Codling moth and leafrollers were the primary targets, and sex pheromones were used initially as monitoring tools. Later, technology was developed for mating disruption. This chapter also contains a brief overview of research progress, and outlines the frustrations caused by changes in the government funding model to competitive funding, which caused increased difficulties in collaboration between research organisations.

Chapter 8 entitled a 'A dream fulfilled – Integrated fruit production 1994 to 2000 and beyond' is in three parts – Part 1: Integrated Fruit Production; Part 2: 'Apple Futures': and Part 3: A tribute to R&D staff and their co-workers who have been essential for the success of IFP and 'Apple Futures'.

- In Part 1 – 'Integrated Fruit Production' (IFP) – the author describes the origins and guidelines for IFP, and the influence of supermarkets overseas on apple production for export. This is followed by an outline of the research carried out for IFP and its implementation in New Zealand resulting in New Zealand Integrated Fruit Production – Pipfruit (NZIFP).
- In Part 2 – 'Apple Futures' describes the continuous improvement of NZIFP that arose from the pipfruit industry's response to market signals, together with consumer demand for zero pesticide residues.

The important innovations required from research and development necessary for the success of Apple Futures are detailed for mating disruption, and biological control using insect pathogens, and existing and introduced natural enemies for mealybugs, leafrollers codling moth, woolly apple aphid, and scale insects. Finally, the author suggests that after 40 to 50 years of research by a dedicated team of scientists, New Zealand's pipfruit practices have resulted in orchards that are no longer silent in spring.

- Part 3 is a fitting tribute to the research and development staff, both in New Zealand and internationally, who have collaborated over many years in the success of the development of the Apple Futures system for pipfruit production in New Zealand.

In the **final chapter**, the author discusses the research that will be necessary for further improvements to protect the ongoing effectiveness of IPP (Integrated Plant Protection) for the pipfruit industry. There is also a brief discussion on the question of 'IFP or organic production?' as the industry develops into the future.

If you want to know how innovative, world leading applied research has been in New Zealand and why it needs to be supported then **read this book**. It is an acknowledgment and record of the work of dedicated researchers and scientists to find, develop and transfer to growers a better way.



This book is available for purchase online from Nationwide Books at: <https://www.nationwidebooks.co.nz/product/farewell-silent-spring-the-new-zealand-apple-story-9780473487300> ●

Thanks to Chris Hale (ONZM, Fellow NZIAHS), George Follas (product development & regulatory lead Australasia, UPL Ltd), Anna Eriksson (science communicator, Fondazione Edmund Mach, Italy) and Art Agnello (Professor of Entomology, Cornell University, USA) for reviewing this book and for providing the text for this article.



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La Niña intensifies rapidly

By Georgina Griffiths : Meteorologist, MetService

La Niña conditions have recently intensified in the tropical Pacific Ocean, with a better-than-even chance that this event becomes a strong (major) La Niña event between now and Christmas.

Forecast models were initially reasonably cautious with respect to the intensity of this event, originally favouring a 'moderate' intensity scenario, but at the current time of writing (19 October), half of all climate models now predict an event that exceeds the 'strong' threshold by the end of 2020. In part, this shift in the predictions reflects the rapid intensification in La Niña conditions seen in the first six weeks of spring.

Recent factors for New Zealand

As expected, the first half of spring 2020 (the period from 1 September – 15 October) was characterised by two things:

- **Intense highs**, most often centred over the Tasman Sea and extending a ridge of high pressure onto the North Island, produced drier than normal early spring conditions in most North Island areas, with westerlies frequent across the South Island (Figure 1).
- **Unusual temperature volatility**, including some unusually late in the season low snowfalls, and some abnormally late frosts.

The early spring dryness can be observed in Figure 2.

At the time of writing, year-to-date rainfall accumulation at Gisborne was sitting at 85% of normal, with Napier sitting at an extremely low 59% of year-to-date normal. Palmerston North had clocked up around 82% of normal year-to-date rainfall, while Nelson was sitting at 66% year-to-date normal.

La Niña – what does it mean longer term for us?

La Niña conditions are forecast to peak in intensity around Christmas time, and then persist through into early autumn 2021.

La Niña becomes an important driver for New Zealand over longer durations (for example, across two to six months), especially when the event is a strong one.

Although every La Niña event is different, you can plan for certain types of weather patterns to play out more frequently than usual.

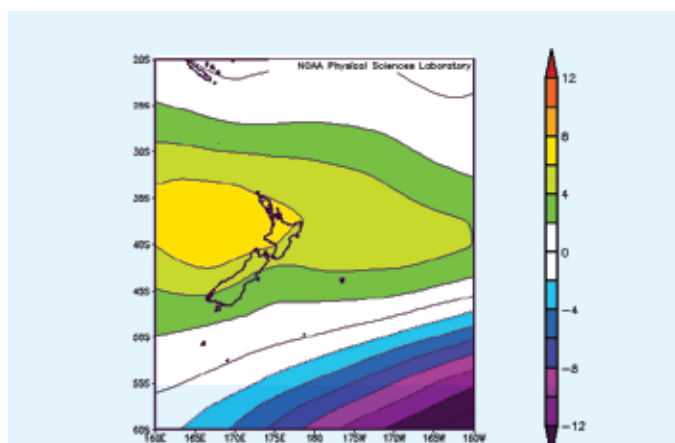


Figure 1: Mean sea level pressure anomaly (deviation from normal) for the first half of spring 2020 (i.e. for the period 1 September to 15 October 2020). Yellow colours indicate higher than usual pressures; purple and blue colours show lower than usual pressures.

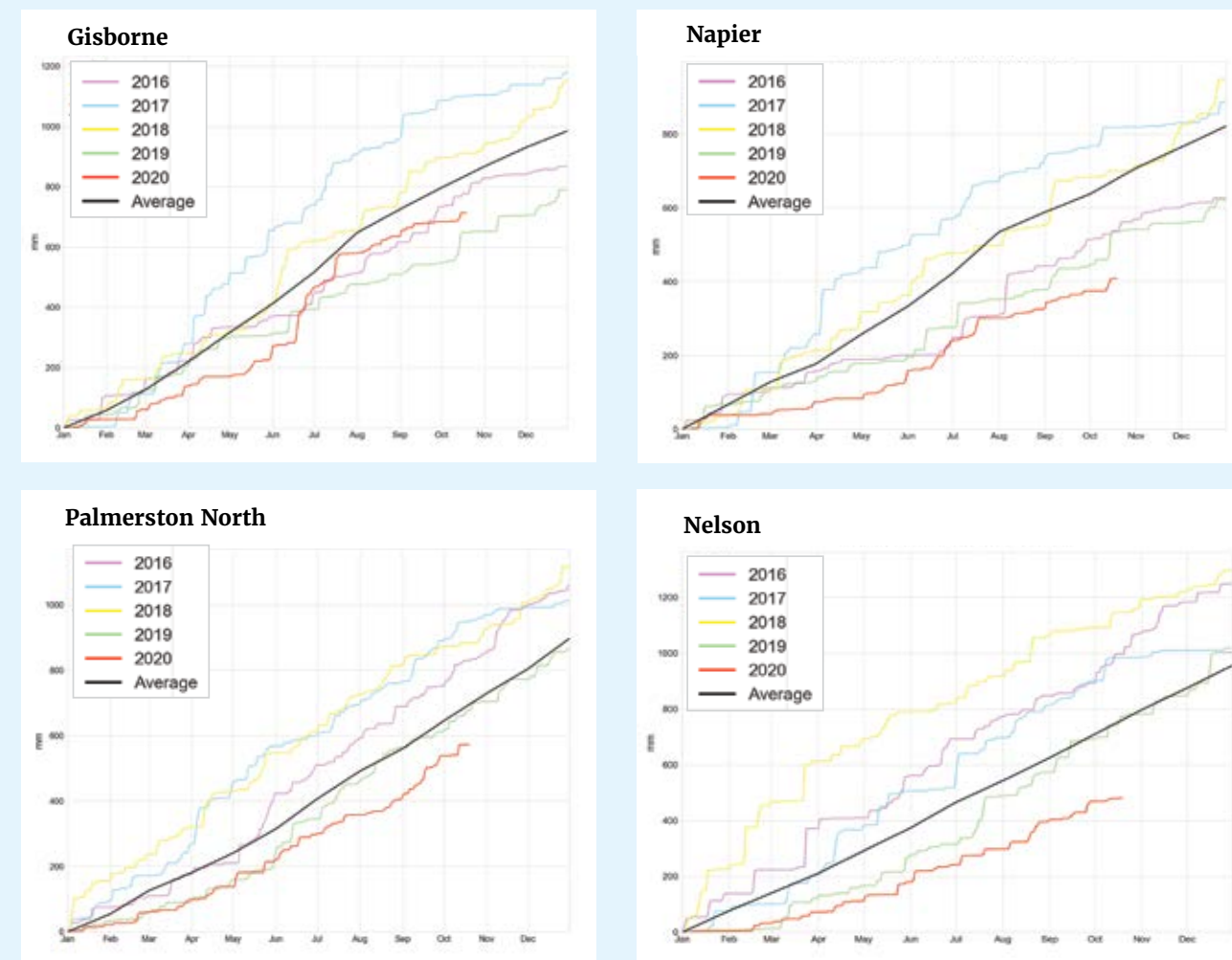
In this image, higher than usual pressures (yellow colour) are observed over the Tasman Sea, with a ridge of high pressure extending onto the North Island. Similar to a weather map, the black lines can be viewed as anomalous 'isobars', indicating more westerlies than normal observed across the South Island. Map produced courtesy of National Oceanic and Atmospheric Administration (NOAA)/Earth System Research Laboratories (ESRL) Physical Sciences Division.

The independent long-range European Centre for Medium-Range Weather Forecasts (ECMWF) multi-month pressure, rainfall and temperature predictions that MetService operate over the three-month to six-month window all indicate a fairly typical La Niña summer (December to February) weather pattern overall.*

*Of course, day to day, and week to week, Mother Nature will throw the usual wide variety of weather maps at New Zealand – you will still have to watch the weather map and the MetService weather forecast. However, when you 'zoom out' at the end of a season, there is every expectation that the weather maps that have shown up most will be La Niña-like.

Figure 2: Rainfall accumulation

Annual rainfall accumulations (mm) for the following areas for the last five years. The annual average rainfall accumulation is shown in black.



From a planning point of view, one should work on the principal of more frequent Highs than usual across the South Island, with a clear signal for drier-than-normal conditions in western and inland regions of the South Island.

Similarly, an 'active tropics' to the north of New Zealand is indicated, with frequent easterly winds across the upper North Island, and an increased risk of a wetter than normal summer over the far north of New Zealand (Northland, potentially Auckland, Coromandel, parts of the Bay of Plenty, Gisborne, and sometimes Hawke's Bay).

As always, keep up to date at with our latest thinking via the MetService long-range commentary at <http://metservice.com/rural/monthly-outlook>. ●

Rain or shine, stay informed on the MetService Rural Weather App.






MetService

A simple alternative to cold storage fees

In times like these, we're all thinking about ways to make our business more secure and looking for ways to cut costs.

Creating a coolstore on your property might be simpler than you thought. NZ Foam has managed new coolstore builds for growers, and also created coolstores from existing buildings.

"Instead of a costly off-site storage facility, you pay the capital costs once and then that building can be useful all year round," says NZ Foam's Chris Haughey.

Chris has a building background and so he understands exactly what it takes to turn a shed into a coolstore – or build one from scratch.

"The key is to do it well, or it doesn't add up. If your coolstore isn't protected from the rapidly fluctuating temperatures that we have in a lot of the country, then you'll spend too much on cooling costs."

This is where spray foam comes in. NZ Foam uses closed cell spray foam insulation to deliver the best thermal performance on the market. Spray foam fills the gaps of older buildings to create an air seal that keeps cold in.



It doesn't absorb moisture so it's the perfect choice to keep your produce dry and fresh all year.

Spray foam will actually increase the structural stability of your old shed or farm building – and it performs for the life of the building.

NZ Foam can get involved from the initial design and can organise any building requirements as well as the refrigeration contractors.

"Every property is unique. We work together to understand what you want the end result to be, and then we make it happen," Chris says.

NZ Foam converted a chicken shed into a red onion store that holds up to 12,000kg for Roper & Sons Ltd, who provide the market with 800 tonnes of red onions each year.

NZ Foam sprayed the interior concrete walls and the tin roof with 80mm of permanent, inert, airtight rigid closed cell polyurethane spray foam. Air conditioning provided the cooling system and created two spaces, with separate digital-controlled temperature, for storing other produce like pumpkins that need a warmer environment.

NZ Foam is a Kiwi owned company that's proud to be the leading provider of New Zealand's best insulation product. Spray foam insulation is safe, environmentally friendly and dust and fibre free.

Most importantly for coolstore conversions, it's thermally superior – so you can trust your lovingly grown produce will stay fresh on site until it heads off to the market and the tables of families everywhere. ●

To learn more, head to convertmysshed.co.nz

Tuatara Structures – built forever

Tuatara Structures may be a relatively young construction company; however, they make up for that with a team that has amassed over 150 years of combined construction industry experience, and who are dedicated to providing clients with innovative solutions to their building needs.



Their turnkey design and build construction solutions are ideal for cool stores, packhouses, food processing, and storage facilities.

Tuatara Structures understands the time constraints of production based businesses. Their experience meeting seasonal deadlines in past projects means they know that your business operations cannot be affected by construction delays.

The unique swing-leg roof lift technique utilised by Tuatara means their buildings are not only faster, but safer, and more cost-effective to construct than the industry standard. Because, while meeting build deadlines is a priority, meeting budgets is just as crucial to Tuatara.

As part of their commitment to client satisfaction, the Tuatara Structures team offer clients a complimentary, obligation-free feasibility study, with detailed drawings. This process involves meeting to discuss the project needs, budget, unique operations and product flow, and potential location options.

Following this consultation, Tuatara presents the client with concept drawings and a fixed-price investment proposal for consideration. Their plans and investment proposals are often delivered to the client faster than other building companies can even get on-site for an initial meeting.

Proposals encompass all components of the build process – from consenting, site works, and the build itself, through to office fit-outs, racking, refrigeration, and other specialist trades. They can also undertake all civil works, drainage, wastewater, landscaping, and fencing if required.

Their detailed concept plans and fixed-price investment proposals are essential elements in the Tuatara process.

The contracts provide clients with absolute budget certainty and can help to secure lending approval and board-level sign off when required.

Tuatara is genuinely disrupting the old-school ways of the whole design-build process, and do it with vigour and passion. Their strategy and determination to provide clients with a streamlined build process have produced some impressive results in their five years since entering the market.

They have worked with a wide range of agri-business industry clients, including Turners & Growers, Thomas Brothers Orchards, Ohapi Fresh, Stonewall Farms, Atlas Agriculture, and Landpower amongst others.

Industry projects range from a combined cool store, canopy, and packhouse measuring almost 6000m², to a 360m² onion drying facility, and the earthquake strengthening and refurbishment of a large retail showroom and offices with a 500m² workshop addition.

Clients Bill and Fred Thomas of Thomas Brothers Orchards had the following to say regarding their experience with Tuatara, 'We were continually impressed with how easy Tuatara Structures made the building process. None of the challenges we threw at them was a problem, and we were always met with a clever solution, delivered in record time.' ●

If you have a build project that you'd like to discuss with Tuatara Structures, don't hesitate to get in touch with their dedicated team. Either give them a call on **0800 600 750** or send an email to **enquiries@tuatarastructures.com**. Alternatively, check out their website, **www.tuatarastructures.com**, to learn more about how they can rise to your construction challenge.



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