The ORCHARDIST®

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Contents

OCTOBER 2020

Celebrating industry success even with Covid

As part of our yearly activities, normally after our Annual General Meeting we end the day with a celebration dinner recognising people in the industry who have worked hard in their respective fields on behalf of the wider horticulture industry.

By Barry O'Neil
President : Horticulture New Zealand

Unfortunately this year with Covid restrictions and frustrations we will not be awarding trophies to people who have been recognised as the worthy recipients.

Rather than completely miss out this year, I want to use this article to recognise those in the industry who do a tremendous job, but may not always get acknowledged individually for their contributions.

We normally recognise outstanding contributions with the Bledisloe Cup, the President's Trophy, the Environmental Award, Industry Awards, and Long Service awards.

The **horticulture Bledisloe Cup** is the premium industry award in the New Zealand horticulture industry. There are only three Bledisloe Cups that exist, one we all know about from the All Blacks and Wallabies rugby games, a new one that has just been made for the exciting new horticulture Ahuwhenua awards, and our cup which is on loan from the New Zealand Fruitgrowers Charitable Trust. We award it to a person or persons who have made an outstanding and meritorious contribution to the New Zealand horticulture industry.

A huge thank you and my admiration for those in the sector who stand up for and work on behalf of their fellow growers for the industry's greater good, you are my recipients of the Bledisloe Cup. I would especially like to acknowledge the Chairs and the executive members of district associations and smaller fruit and vegetable product groups, who work without reward to provide for a regional grower and product group voice. We have a mixture of very successful and active district associations, such as the Pukekohe Vegetable Growers Association and Hawke's Bay Fruitgrowers Association, and then others that have been struggling somewhat recently such as the Te Puke Fruitgrowers Association. These groups and our smaller product groups don't always have the resources to pay the people involved, including administration support, so it's done by a small number of people who have agreed to stand up for their fellow growers. Whether big or small, successful or struggling, the people involved and their passion for growing in New Zealand doesn't change, so my thanks and acknowledgement to all involved, and you all get my award for the Bledisloe Cup.

The next award is **HortNZ's President's Trophy** which is awarded to persons showing promise in horticulture industry business and/or leadership.

I am delighted that we have a very active Women in Horticulture group and take my hat off to the women who have worked hard both on their executive and governance group, and also in the wider industry to highlight the real need for and importance of diversity in our organisations and businesses. And I'm also pleased that HortNZ has been able to support the initiative to enable it to grow and succeed. All the people involved in this initiative get my President's Trophy for the work you do, which often goes unrecognised and was previously not always understood, but it's a really important initiative for our industry and for our successful future.

The **Environmental Award** is next, which recognises people or organisations that have developed and implemented a sustainable environmental project, with identifiable benefits. There are two categories of winners this year. The first relates to specific Resource Management Act issues that arise in our regions due to proposed changes to council policy resulting in resource management hearings. I very much recognise the efforts and commitment from all those growers who are prepared to front up and present on behalf of growers in those regions, very much supporting the efforts of HortNZ. To all of you involved I would like to recognise you with the Environmental Award.

The second category are those growers and researchers who are showing us all how we can do better in growing more sustainably. Whether that be using less fertiliser, better soil tillage and management methods, moving away from chemical calendar spraying, or other moves towards greater sustainability. Without you doing this work we will struggle to be able to retain our social license or consumer desire for our products, so with the Environmental Award I recognise all these growers and researchers.

The **Industry Service Award** is given to persons who have provided long-standing and significant service to the New Zealand horticulture industry. The award is focused on people in industry related support or supplier roles who have worked beyond the call of duty for the betterment of the horticulture industry.

To me it is a no-brainer that this must be awarded to our Recognised Seasonal Employer (RSE) scheme and backpacker workers who every year do such an amazing job for horticulture, doing hard physical work and not always in the best weather, but not complaining and just getting on and doing a really great job! We very much appreciate the work you do and we realise that without you we have a huge problem, which with Covid-19 challenges has become a current priority issue. The Industry Service Award this year goes to all the RSE and backpacker workers who work tirelessly for our industry.

The **Life Membership of HortNZ** is awarded to persons who have provided distinguished and honourable services to HortNZ. I would like to recognise the people who time and time again willingly respond to emails or telephone calls to give their time, counsel, and talents to support the work of HortNZ. Whether that is in a governance or leadership capacity, being part of the various committees that enable us to function, or being part of specific collaboration groups to enable the best outcomes for the wider horticulture sector and growers. My thanks to those who support us with your efforts and talents, you are all worthy of Life Membership of HortNZ.

My final award is a new one – the **Grower Shout Out Award** for all those people who have showed amazing kindness towards their fellow growers, the community and individuals within the community. It is really awesome to see the numerous support efforts happening all over the country from growers for such worthy initiatives such as foodbanks, work programmes to support Pacific Island RSE communities, community groups such as hospices, St John, Lifesavers, and many others. You all know who you are and I would like on behalf of the HortNZ to pass on our thanks and admiration for the wonderful work you have done and are doing.

I look forward to next year being able to presenting in person our horticulture awards to the many worthy recipients in our growing community!

Kia kaha.

Reporting on performance

How do you know if an organisation is performing and meeting its targets and goals?

By Mike Chapman
Chief Executive : Horticulture New Zealand

Each year, as organisations produce their annual reports and prepare for their annual general meetings, their boards and management grapple with how to show members and stakeholders that their organisations are performing. HortNZ is no different.

We have a strategic plan that is put into action by our management plan. We measure how we are achieving the priorities of the strategic plan by a series of warrant of fitness key performance indicators. We also survey our grower members for their views, and finally we back this up with comments and explanations in the annual report.

Horticulture New Zealand Annual Report : 2019/20

It then all comes together at the AGM, which in HortNZ's case has just been held. This year's AGM had to be held by Zoom due to Covid-19, so the more detailed explanations that occur at an annual meeting were truncated. In this column I am going to go into detail about HortNZ's performance.

I think HortNZ's first key role is to positively influence government and councils, as they make decisions that affect anything to do with growing fruit, berries and vegetables. Our second key role is to get information about government and council proposals out to growers, and involve growers in the decision making so that their views are represented.

Covid-19 has changed our lives and made this a difficult year. One of the goals we set ourselves was to make sure accurate and timely information got to growers and the growing community. In our recent survey, 90% of those who completed the survey *agreed* or *strongly agreed* that this had been done well. There were three other questions in the survey that are important measures of HortNZ's performance: Whether HortNZ is creating an environment where growers can thrive; maintaining strong relationships with government; and adding value to growers' businesses. These survey questions were all answered with a greater than an 80% *agree* or *strongly agree* response.

The way we achieve those outcomes is through our work with government and councils. To measure how effective that is, our warrant of fitness key performance indicators ask how many active partnerships HortNZ has with government, and how many times HortNZ has been invited into developing policy discussions.

This is a direct measure of how much impact HortNZ actually has as decisions are being made. Election years are always a bit different and when you add Covid-19 into the mix, working in with the decision makers is perhaps more difficult than in other years.

Horticulture New Zealand Annual Report : 2019/20 is available online at www.hortnz.co.nz/news-events-and-media/media-releases/2019-2020-hortnz-annual-report/

The ORCHARDIST

Editor:
Andrew Bristol
Ph: 04 470 5665
Email: andrew.bristol@hortnz.co.nz

Advertising Manager:
Jackie Enright
Ph: 04 494 9986, Mobile: 0274 489 913
Email: jackie.enright@hortnz.co.nz

Design:
Scenario – brand new thinking
Ph: 04 385 9766, E: joy@scenario.co.nz

Subscriptions:
Email: info@hortnz.co.nz

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Correction

The *Organic kiwifruit evolves in Oropi* story in The Orchardist: September 2020 (pages 42 and 43) contains some mistakes, for which we apologise.

The 660 acres refers to the total area of the original farm when Doug Voss's grandparents arrived in 1921. They emigrated from Ulster (Northern Ireland not Island) to Pukekohe in the early 1900s and moved south to Oropi in 1921.

The organic plantings on the property total 32.17ha.

Despite this, HortNZ is involved – along with other horticulture groups as we work collectively – in just under a dozen formal and informal partnerships, ranging from environmental issues to labour and the employment of New Zealanders.

Over the past year, HortNZ has received invitations to join the early stages of policy formation on at least 18 occasions. This indicates that horticulture is seen by the decision makers as an important sector to have involved in policy development and decision making.

There are areas where need for improvement has been identified, and that includes attracting people into horticulture, developing career pathways and promoting diversity. This has enabled the Board to address what we are not doing in these areas. Further resource and attention will be allocated here to increase HortNZ's impact and support for horticulture.

From the point of view of management, the survey and the key performance indicator results show that we have got a lot of what we do right. Areas for improvement have been identified and will be worked on. So that at the next AGM, which will hopefully be an in-person AGM, a fuller report can be given and what we have done to lift and improve performance can be assessed.

> **"There are areas where need for improvement has been identified, and that includes attracting people into horticulture, developing career pathways and promoting diversity**

This year's Horticulture New Zealand Annual Report is available at **www.hortnz.co.nz**

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YOUR LEVY AT WORK

INDUSTRY WIDE ISSUES FOR INDUSTRY GOOD

Natural resources and environment

Air

Regulatory Review – Waste Oil

Some glasshouse growers use waste oil for heating glasshouses. The use has environmental advantages because it is a recycled product, but it also has potential negative impacts on air quality. HortNZ is commissioning a review of the regulations that manage the use of waste oil, so growers can better understand the regulatory and environmental risks when considering options for heating glasshouses.

Northland Regional Plan – Agrichemical Mediations

HortNZ continues to participate in mediations in Northland regarding rules to manage potential effects from agrichemical use. HortNZ has been engaging with vegetable and fruit growers and product groups. These groups are assisting HortNZ to provide the Council and other submitters with a better understanding of the risk management processes followed by growers.

HortNZ is hopeful that the mediation will result in provisions that manage risks and are practical for growers. However, if a suitable outcome cannot be reached through mediation, HortNZ is likely to pursue the matter in the Environment Court.

Water

NES Freshwater – Winter Grazing

The New National Environment Standard for Freshwater includes rules for winter grazing. The rules mean that some vegetable growing operations that graze animals within their rotations in winter, will require consents or certified farm plans to manage the potential effects from these activities:

- Applies to annual forage crops. This does not include grazing of pasture.
- Applies to all stock.
- Replanting is required as soon as possible, but no later than 1 October, or 1 November in Otago and Southland.
- There is an area threshold for consenting. It is 50ha or 10% of the farm, whichever is greater.
- The regulations apply from on 1 May 2021, if someone needs a consent (assuming that they are currently operating as a permitted activity so can access existing use rights for six months) then consent must be lodged by 31 October 2021.
- An alternative to a consent is managing this activity with a certified farm plan. The details of the certified farm planning process are not yet determined. The NZGAP Environmental Management System (EMS) add-on provides an independently audited process for assessing Farm Environment Plans. NZGAP (Good Agricultural Practice) intends to develop the NZGAP EMS so it meets the regulatory requirements. Currently NZGAP is developing the winter grazing module with the intention that it will meet the regulatory requirements.

Land

Waikato District Plan Hearing

HortNZ is preparing evidence for the Waikato District Plan Hearings. The evidence outlines the key factors required from the Proposed Waikato District Plan in order for horticulture to be successful and thrive. These include:

- A framework that adequately protects and prioritises the use of versatile productive land for primary production, and that sustainably manages and provides for the range of factors and resources which contribute to the productive versatility of land.
- A framework that recognises that primary production buildings and structures contribute to the character and amenity of the rural environment.
- A framework that appropriately prioritises primary production and ancillary activities over and above urban development and sensitive activities, and is effective in managing reverse sensitivity such that impacts on primary production are avoided or mitigated.
- Provisions that adequately provide for the ongoing operation and development of horticulture, including:
  - controls and status appropriate for rural industry
  - provision for purpose-built seasonal worker accommodation
  - exclusion of artificial crop protection structures from building setbacks and daylight angles
  - amendments to building coverage controls to appropriately provide for necessary buildings and structures
  - provisions to enable rapid response to biosecurity incursions.

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. HortNZ has been engaging with product groups on developing horticulture policy positions on farm planning, reporting, sequestration and emissions pricing.

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. Fertiliser can also result in nitrate leaching to water. There are efficiencies in managing the potential effect from fertiliser on water and climate together through a comprehensive Farm Environment Plan.

The first milestone of He Waka Eke Noa is that guidance will be 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 is currently under development. HortNZ will seek feedback from growers, district associations and product groups over the coming months.

We welcome our two new directors who are joining the HortNZ Board – Kate Trufitt (left) and Murray Denyer (right)

HortNZ Board comings and goings

Two new directors are joining the Horticulture New Zealand (HortNZ) Board.

By Andrew Bristol : Horticulture New Zealand

They are elected director Kate Trufitt and appointed director Murray Denyer. At the same time, Hugh Ritchie and Tony Howey have been voted back onto the Board.

Murray replaced Bruce Wills, while Leon Stallard retired from the Board at the Annual General Meeting on 25 September.

HortNZ President, Barry O'Neil, said he thanks both Leon and Bruce and very much appreciates the contribution that they have each made to HortNZ.

"Leon, an experienced apple grower from Hawke's Bay, has been a strong campaigner and supporter of our young growers, making the Young Grower of the Year competition happen in Hawke's Bay and Gisborne.

"Leon is also a major driving force behind the Hawke's Bay Fruit Growers Association and sits on the NZ Fruitgrowers Charitable Trust, a role in which he will continue with the Trust being important in its support of several HortNZ activities.

"Bruce has brought experience and relationships from the wider primary sector, along with government relations. Bruce has great networks and brought significant experience from his many other governance roles.

"I welcome Hugh and Tony being re-elected back onto the Board. I look forward to having Kate and Murray around the board table too, and the contributions I know they will all make."

Barry is particularly proud of Kate's return to the HortNZ Board. Kate was HortNZ's first Associate/Future Director in 2019. The annual programme is a development opportunity for a future leader to join the HortNZ Board.

We farewell our departing board members – Bruce Wills (left) and Leon Stallard (right)

"The amount of regulation and the number of issues facing growers is mind boggling. It really can be overwhelming for a grower who just wants to grow. I see a role for HortNZ in distilling and simplifying into big themes the various requirements, so that growers can understand and implement what's being asked of them by their customers and regulators, as cost effectively as possible.

"I'd like to think we had something to do with Kate's interest in governance and her decision to return to the Board as an elected director," said Barry. "She was our inaugural future director and it was great over that year to see her confidence grow. Her election to the Board by growers is a real tribute to her work and passion for the industry."

Kate said that having held the inaugural Associate/Future Director role gave her a very good grounding on the Board's activities and an overview of the wider horticultural sector.

"I believe that being in this role definitely played a part in my success in becoming a grower representative on the HortNZ Board.

"I'm thrilled to have got so much support from so many different places from across the industry.

"I am in the process of switching head space and working out what my new position means for me within the industry I have been elected to serve.

"As I'm already chair of the Horticulture Health and Safety Council, I am keen to show further leadership in that space, and look at ways in which the HortNZ Board can provide more clout to an area that is critical but complex.

"The amount of regulation and the number of issues facing growers is mind boggling. It really can be overwhelming for a grower who just wants to grow. I see a role for HortNZ in distilling and simplifying into big themes the various requirements, so that growers can understand and implement what's being asked of them by their customers and regulators, as cost effectively as possible."

Murray said he is very excited to be joining the HortNZ team.

"I am heavily invested in the horticulture industry, literally and figuratively, and the industry is my biggest professional passion. My legal practice is focused on the whole fruit and salad bowl, and I am a founding investor in Rockit apples.

"Horticulture has no shortage of challenges. Two that stand out are labour supply and water. In terms of labour, the situation was bad enough before Covid-19 and now it is a huge challenge, with the crunch point being the next summerfruit, kiwifruit and apple harvests.

"With water, we need to develop a long-term solution to the challenges of water access and supply, with regional regulation increasing and industry growth naturally creating greater demand."

Leon was appointed to the Board in 2014.

"During my time, I have appreciated the opportunity to meet growers from outside the pipfruit industry, and see how sophisticated and successful their operations are.

"This has also shown me that we all face the same challenges, such as cost of capital, compliance complexity, and the availability of labour.

"In addition, it's been great to be involved in encouraging and developing young growers, through initiatives such as the Young Grower of the Year and Ahuwhenua Trophy, which showcase our industry."

Leon said he feels horticulture has really come of age and now commands the respect it deserves.

"For example, Ministers now come and talk to us, which shows they recognise the importance of our industry and how great it is."

Bruce Wills has been on the HortNZ Board since July 2016.

"It's been a great time to be involved in horticulture and really exciting to see its rise," he said.

"We've seen booms in kiwifruit, apples, avocados and cherries, and the industry has really taken its place in the sun.

> **"...horticulture has really come of age and now commands the respect it deserves**

"At the same time, it has been great to see the rise in profile and importance of HortNZ. This is thanks to strong leadership, good management and the way that HortNZ has responded to industry challenges.

"HortNZ now sits at the primary sector leadership table with the likes of DairyNZ and Beef + Lamb, and meets regularly with the Prime Minister, other Ministers and senior government officials.

"I am confident that horticulture's fortunes will just keep rising and that in a few years' time, the industry will be worth considerably more than $6 billion."

Bruce says his time on the HortNZ Board has had a positive influence on him.

"Four and a half years ago, I was a sheep and cattle farmer, full stop. Now I'm growing grapes and olives, and have further stepped up my tree planting, having planted more than 2,000 native trees this year alone. I am also developing an exciting wetland project in a very dry area of the Hawke's Bay."

Bruce says it's good to see Murray Denyer taking up his position on the HortNZ Board.

"I sit on a bunch of boards and believe it's important to have fresh thinking and new people on them."

There are two appointed director positions on the HortNZ Board. These directors are appointed by the Board based on the recommendations of a Director Selection Group. Directors have full voting rights at all Board meetings and can be appointed for up to three years. ●

Horticulture New Zealand Board Future Director

Horticulture New Zealand is seeking a Future Director to serve and gain experience on its board. The year-long appointment commencing in January 2021 would allow the successful appointee to gain experience in governance, leadership and strategy. This position will suit an applicant who has active involvement in a horticultural enterprise giving an understanding of the issues and challenges that horticulture and growers face. This is a great development opportunity for a future leader with a genuine interest in governance. The Future Director will have the opportunity to be mentored by an industry leader and receive governance training. In making the selection, HortNZ's diversity policy will be taken into account.

The job description can be found at **hortnz.co.nz/about-us/work-for-us**. If you are interested in this role, please send your CV and a cover letter to Kerry Norman at **kerry.norman@hortnz.co.nz**. Applications will close at **5pm, Tuesday 3 November 2020**, with the successful candidate undergoing induction in January 2021 and attending their first board meeting on 17 February 2021.

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Don't plant it!

Spread the word: planting shop-bought food products in home gardens is a no no.

By Anna Rathé : Biosecurity Manager, HortNZ

Know your source and the intended end use

As growers, you likely pay careful attention to the source of your planting material, whether it be seeds, seedlings, tubers, budwood, plants or trees. Sourcing clean and healthy planting material is one of the fundamentals of a successful crop. Planting material for horticultural crops may be produced here in New Zealand or originate from offshore sources.

Imported fresh produce, spices and herbs sold at supermarkets, dairies and fruit and vegetable shops are intended for eating. Do you know people who have planted the supermarket potatoes, garlic or ginger that started to sprout after too long in their pantry? Or decided to try their luck growing some plants from the seeds inside the dried chillies in their spice drawer? Planting these items presents a biosecurity risk that can threaten our industry.

Imported food products (be they fresh, dried or preserved) must comply with strict Import Health Standard regulations. These import conditions are set based on the intended end use of the goods being consumption. When consumed as intended, most if not all of the product is destroyed, reducing the biosecurity risk. If, however consumers choose to plant food items, they may survive and flourish, providing an opportunity for any exotic pests, pathogens and diseases that may be present to establish in New Zealand. For this reason, fresh fruits, vegetables and herbs, as well as seeds from fresh or dried produce (including spices) intended for eating should not be planted.

Imported material that is intended for planting (e.g. budwood or seed for sowing) must also comply with very strict biosecurity measures set out in Import Health Standards. The import conditions for products intended to be grown are set based on the knowledge that they will be planted into an environment where they will thrive. Stringent measures are in place and enforced to ensure that exotic pests, pathogens or diseases are not inadvertently introduced via this pathway. The import conditions are very strict in line with the heightened biosecurity risk posed by the intended end use.

Spread the word

Spread the word to friends and family, whether they are experienced home gardeners or those just starting to experiment with growing. Knowing the end use of plant material is important: is it intended for planting, or eating? If it is intended for eating, ask them to think twice before planting it in the garden. Planting shop-bought food products can pose a biosecurity risk that can threaten our industry – plate it up instead! ●

New app available for easier biosecurity reporting

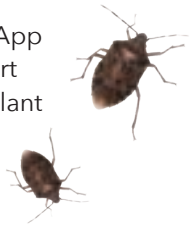
A new app has been launched to protect the primary sector from unwanted biosecurity pests.

The Find-A-Pest app enables people to report potential biosecurity threats quickly with their smart phone by sending a photo and GPS location. The reports are sent to a community of knowledgeable people from primary industries, iNaturalist NZ (a web-based citizen science platform) and science organisations for identification.

Notifications of suspected exotic pests and diseases are then forwarded to the Biosecurity New Zealand exotic pest & disease hotline (0800 80 99 66).

The app was successfully tested in 2019 by scientists, community groups, forestry employees, kiwifruit orchard workers and regional council employees. Trial results proved Find-A-Pest was a robust method to triage observations of potential threats. Almost 500 observations were made during the case studies, and all identifications from Find-A-Pest and iNaturalist NZ were correct except one. The majority of the observations were identified within a day.

The app is now available from the Apple App Store or Google Play store for users to start reporting any suspicious insects, plants, plant diseases, or other pests that they see.



> **The app is now available from the Apple App Store or Google Play store for users to start reporting any suspicious insects, plants, plant diseases, or other pests that they see**

Users can easily submit photos and any additional commentary, straight from their phone. The app will automatically store the date, time, and GPS location of each observation, and you can choose to obscure your location from public view if you wish.

All observations are submitted from the app to the Find-A-Pest database. Low risk threats such as existing pests and weeds are then shared with the iNaturalist NZ community for further identification, while observations of industry sensitive species are kept securely inside Find-A-Pest. Regional councils and primary sector groups have access to the relevant parts of the Find-A-Pest database to inform their biosecurity operations, such as weed control. Potential threats new to New Zealand are shared with Biosecurity New Zealand for investigation.

Development of Find-A-Pest has been supported by New Zealand's Bio-Heritage National Science Challenge and Envirolink Tools, Biosecurity New Zealand (Ministry for Primary Industries), the Forest Owners Association, Kiwifruit Vine Health/Zespri, HortNZ, Tomatoes NZ, Summerfruit NZ, NZ Apples and Pears, NZ Wine Growers, Onions NZ, Vegetables NZ, with additional support from Te Tira Whakamātaki, and iNaturalist NZ. ●

Highlighting women's role in horticulture

Women play vital roles in all spheres of horticulture from growing to industry leadership, but their contributions are not always visible and that needs addressing, believes Helen Barnes, general manager, TomatoesNZ.

By Elaine Fisher

Helen Barnes, general manager, TomatoesNZ

"I don't believe it is intentional, but women and the work they do has tended to be in the background and I would love to see that change," says Helen, who is also a member of Women in Horticulture, an organisation which aims to highlight the female contribution to the industry.

"We don't have any women on the twelve-strong TomatoesNZ board and they are also not well represented on other boards. I think as an industry we need to ask what are the barriers to women taking up leadership roles, but also to recognise what they already do for the industry."

Helen is taking part in this year's Agri-Women's Development Trust Escalator leadership and governance programme for women in primary industries. "In the past most of the participants have been from pastoral industries, but it is open to women from horticulture too and I'd thoroughly recommend it."

> **"In the past most of the participants have been from pastoral industries, but it is open to women from horticulture too and I'd thoroughly recommend it**

Helen grew up on a dairy farm but when she was six years old her parents Carol and Derek moved the family to a lifestyle block on the Kapiti Coast where they opened a garden centre.

"I loved helping in our huge home vegetable garden and in the garden centre, and realised early on that I knew the names of lots of plants and loved working with them."

Paraparaumu High School's passionate horticulture teacher Mrs Arthur, encouraged Helen to take horticultural papers for school certificate and bursary, which led her to completing a Bachelor of Applied Sciences in Horticulture at Massey University. Invited back to complete an honours degree, Helen investigated the impacts of an ethylene inhibitor on apples and also sunburn on the fruit. Her first full-time job was as a horticultural consultant in the Bay of Plenty.

Moving to Wellington, Helen took up a role with the NZ Asparagus Council, part of VegFed, which shared an office with the Fruitgrowers' Federation. The two later merged to form the nucleus of today's HortNZ.

"It was a time of significant labour shortages and the work I did was part of the run-up to today's Recognised Seasonal Employer (RSE) Scheme."

In 2011 Helen was appointed general manager of TomatoesNZ, managing the industry body which represents around 130 growers who collectively produced a farm gate value of $129 million per annum, including $12.2 million of exports to year end March 2020. The principal export markets are Australia and Japan, and product is also exported to many Pacific Rim and Pacific Island countries.

"Most of our members grow tomatoes in greenhouses and TomatoesNZ advocates on their behalf at government level to ensure the industry is understood and supported. We also carry out research, particularly into how to control pests and diseases while reducing the use of sprays, and are active alongside other primary industry bodies and the Ministry for Primary Industries, on biosecurity."

The industry is also investigating automation of many of the more challenging and heavy lifting tasks within greenhouses.

One of the biggest challenges for tomato growers is the cost of energy. "All the glasshouses are heated and energy costs are second only to the cost of labour.

"The industry needs access to affordable, renewable energy. Solar is not an option for many as you can't put solar panels on a glasshouse, and the adjoining land is usually too valuable to cover with panels. Geothermal energy, heat pumps and biomass fuels are among the options under consideration."

> **"The industry needs access to affordable, renewable energy... geothermal energy, heat pumps and biomass fuels are among the options under consideration**

Helen believes growing undercover is the way of the future for secure, environmentally friendly food production, especially in the face of climate change.

The mother of four young children, Helen enjoys being involved in their school and sporting activities, as well as walking the family dog, reading, Pilates and family holidays.

To keep up to date with our news and activities, join our membership database by emailing **info@women-in-hort.nz**. We welcome everyone.

Covid exacerbates industry's labour challenges

The horticulture sector was a star performer during the lockdown earlier this year.

By Alan Pollard : Chief Executive, New Zealand Apples and Pears

Deemed essential services, the sector quickly reengineered itself to accommodate the strict hygiene and social distancing requirements to remain operating, thereby ensuring food security for New Zealand and overseas consumers and keeping people in work. During this time, the industry sought little in the way of government financial support.

Recently released figures show that fruit industry export values were up 10.1% and wine was up 14.8% in July 2020 compared to 2019. So even in the face of Covid-19 hitting our markets we continue to perform exceptionally well.

Our challenge as a sector now is how we can have certainty of labour supply for the coming season in an economy severely disrupted by Covid-19. The chief executives of Summerfruit NZ, NZ Apples & Pears, NZ Kiwifruit Growers, Vegetables NZ, NZ Wine and HortNZ have been working collectively to address this huge challenge. Horticulture generally relies on three sources of seasonal labour – Recognised Seasonal Employer (RSE) scheme workers, backpackers, and New Zealanders.

As our borders closed, our RSE workers became stranded in New Zealand, away from their families and communities. The industry has worked hard to assist with the repatriation of those who want to return home. That will leave only a small proportion of the expected RSE workforce in the country. Visas for those who remain stranded here have been extended, but the industry needs RSE workers to return in time for our periods of peak demand. Coming from countries free from Covid-19, this should not be a concern to government nor a risk to the general community.

Alan Pollard

“Our challenge as a sector now is how we can have certainty of labour supply for the coming season in an economy severely disrupted by Covid-19

There are far fewer Working Holiday Scheme (WHS) visa holders in New Zealand than we would normally expect, with the government determined to send as many home as is possible. Rather than repatriate those people, we have asked that their visas be extended to allow them to work exclusively in the horticulture and wine sectors; this ensures that they won’t displace Kiwis.

In late September, the Government announced that people stranded in New Zealand on Working Holiday Scheme (WHS) visas could obtain Supplementary Seasonal Employment (SSE) visas. This will enable them to take up work in the horticulture and wine industries, where there are not enough New Zealanders available to do this work. The changes are for the 2020/21 season only.

The announcement was welcomed by the horticulture industry as a ‘first step’ towards finding solutions for the coming season’s labour shortages. ●

Central Otago mayor Tim Cadogan said the looming labour shortage would affect 'every single person and business in the region'

Meeting labour challenges around NZ

By Andrew Bristol : Horticulture New Zealand

Central Otago is forecasting a shortage of 5,500 in the region during December and January for cherry harvest.

Summerfruit New Zealand chairman and chief executive of Cromwell-based orchard 45 South, Tim Jones (left) said the looming worker shortage was a huge concern and the industry was leaving no stone unturned.

"We are likely to have a severe shortage of seasonal labour, and we are likely to have issues with logistics in getting our crop, particularly the cherry crop to market because traditionally, it flew to export markets on passenger planes bringing tourists to New Zealand."

Central Otago mayor Tim Cadogan said the looming labour shortage would affect 'every single person and business in the region'.

"Our apples and pears alone are worth $35 million a year to the local economy. Every day, the cherry harvest puts about $3 million into our economy. We could lose phenomenal amounts of money at a time when we can least afford it."

In a severely disrupted labour market, the apple industry may be able to get through thinning under extremely challenging conditions, but unless there is a change in policy settings it will not make it through harvest.

New Zealand Apples and Pears Chief Executive, Alan Pollard said that the industry and the provincial economies that rely on it face potential catastrophic consequences if the labour supply remains constrained.

"Our industry will be doing all that we can possibly do to attract kiwis onto work. that is our first priority and we recognise the obligation that we have to unemployed or displaced New Zealanders.

"But the physical requirements of the harvest work, the location of the work in the provinces away from the main centres where clusters of unemployed reside, and the challenges of relocating unemployed kiwis away from their family and whanau support networks means our ability to access unemployed kiwis is constrained.

"Returning RSE workers are essential to get our crop harvested."

Lee Du Preez

Getting kiwis into work

Pre-Covid, the horticulture industry was already running programmes that are highly successful at getting kiwis from all walks of life into work in the industry.

Many of the larger growers and packhouse operations work with the Ministry of Social Development (MSD) to help solo parents, people who have been in prison and other long-term unemployed New Zealanders into fulltime employment in horticulture.

These growers and packhouses offer help with transport, accommodation and meals, and accommodate working parents' childcare needs through split shifts. They also offer pastoral care, such as addiction counselling and budgeting advice.

Lee Du Preez is the Head of People and Culture at Southern Cross Horticulture in the Bay of Plenty.

Southern Cross Horticulture works collaboratively with local iwi, the Ministry for Social Development and groups like ImpacTauranga and the Opotiki Workforce Development Centre to help New Zealanders, who haven't previously had the opportunity, gain the skills and ability to get into the workforce.

Lee said the key is providing that initial support and going further than just the standard employment relationship.

> **"the key is providing that initial support and going further than just the standard employment relationship**

"We offer things like transport options to and from work, relocation assistance, and in some cases, help with the first month or two's rent. If someone has a young child, we can offer them flexible working hours and job share options. Sometimes, these people also need extra pastoral care, like drug rehabilitation, mentorship and professional counselling services.

"Most of the kiwis we help and train go on to develop a passion for horticulture and a fulfilling career. The experience transforms these people who previously had little chance of gaining meaningful employment. It also has positive spinoffs for the next generation, by giving them hope for their employment and the means to enhance their communities."

From left to right: Richard Pentreath (NTT), Makita Butcher-Harries (T&G), Maurice Windle (T&G), Yvette May (T&G), James Talbot (T&G), Robyn Leake (MSD) and Warren Laugesen (T&G)

Taking a collaborative approach to labour

Hawke's Bay apple and kiwifruit businesses are joining forces to support local workers looking for sustainable long-term employment.

With help from the Ministry of Social Development (MSD), a collaborative partnership has been established between T&G Global (Turners & Growers) and Ngai Tukairangi Trust (NTT) to provide on-going employment during different quiet periods experienced by both horticulture employers.

MSD's Regional Labour Market Advisor, Robyn Leake is passionate about driving local employment opportunities.

"The apple and kiwifruit sectors have seasonal labour peaks and quiet times that could complement each other. We saw an opportunity through working relationships with both sectors, to work on employment options whereby staff could easily transfer from one employer to the other," said Robyn.

Maurice Windle, T&G's Supply and Services Manager in the Hawke's Bay, said he and his team are always exploring ways to get locals into skilled and sustainable work.

"If we can join forces with our friends in the kiwifruit industry, to share those skills between sectors, keep people in jobs so they can work all year-round, and provide them with a clear career pathway for the future, then that's a great solution," he said.

T&G Global employees recently visited one of the Ngai Tukairangi Trust kiwifruit orchards and were given an overview of what early season kiwifruit work involves.

Richard Pentreath, Hawke's Bay Regional Manager for Ngai Tukairangi Trust said that effectively managing staff numbers to meet peak demand at key times, whilst providing continuity of work for local people is a challenge faced by all fruit growers in Hawke's Bay.

"By helping staff to move to further opportunities as existing jobs come to an end and narrowing the gap between seasons, apple and kiwifruit growers can both benefit by retaining skilled and work-ready individuals, who in turn, benefit from a smooth transition between employers and more secure income throughout the year."

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BY GALE PACIFIC

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Georgie Johnston, Punchbowl's assistant packhouse manager (far right in the orange blaze beanie), with her team

Georgie is flying into a new career

Georgie Johnston's ambitions of a long career in aviation may have been grounded by Covid-19, but in five short months her employment in the horticultural industry has really taken off.

By Elaine Fisher

Georgie joined the kiwifruit packing team at Punchbowl in March when the worldwide impacts of Covid-19 hit the aviation industry hard. As her skills were recognised by management, 29-year-old Georgie was given increased responsibility within the packhouse, and within three months was appointed as assistant packhouse manager.

"I was super stoked to be appointed to this role, which I decided to apply for because I appreciated the way Punchbowl had already recognised my skills and experience and were open to moving me up through the roles, even though I am new to the industry."

Colin Davies, managing director of Punchbowl in Pukekohe, says the company is delighted to have Georgie join its permanent staff.

"I have to admit that in the past if I had someone from the aviation industry apply for a role here I probably would have been sceptical about whether or not they would be right for the job," he says.

However, watching Georgie work in the packhouse illustrated how transferrable many of her skills were to horticulture. "I'm sure that spending time as cabin crew has helped Georgie develop great people skills, and she has a bubbly personality so gets on well with everyone."

Colin is impressed by Georgie's willingness to learn about horticulture and the post-harvest industry, and was pleasantly surprised to discover she also has engineering knowledge.

Georgie was among several people from the aviation industry who worked for Punchbowl during lockdown, but most have now moved on. While it was tough for those displaced from their normal jobs, Colin says Punchbowl was grateful to have their help during the kiwifruit harvest.

"Being based in South Auckland, we don't have ready access to a pool of horticultural staff as the Bay of Plenty does, and so rely on locals and overseas workers. With three shifts of 60 staff on each to fill, we were worried about how we would get the fruit packed, but were overwhelmed with the people from other industries willing to work for us."

Those who joined the Punchbowl team came from a wide range of professional backgrounds, and Colin says he was impressed by their drive and their approach to their work. "In fact, we received constructive feedback from many on ways we could improve some of our systems, for which we were grateful."

> "Those who joined the Punchbowl team came from a wide range of professional backgrounds, and Colin says he was impressed by their drive and their approach to their work

When it comes to Georgie, says Colin, it is important to ensure she continues to find working at Punchbowl stimulating and can see clear pathways ahead to progress through the industry.

> "...can see clear pathways ahead to progress through the industry

Horticulture was not a career Georgie had ever considered. "My whole family is involved in aviation. I was born in New Zealand but grew up overseas as my dad was an airline pilot. I returned to New Zealand to finish my schooling at Waiuku College and then went to aviation school."

Georgie, who is married to an airline pilot, was a contract flight instructor for the Auckland Aero Club before Covid-19 hit. "My income and hours fluctuated and there was uncertainty around whether or not my husband would keep his job. I decided to look for employment which would give me more guaranteed hours of work."

Georgie found out about Punchbowl's need for packing staff via a Facebook page set up by airline pilots to help each other find work. "I applied for the job and was really happy to get it. Although I had never considered a career in horticulture, I do enjoy gardening and my husband and I keep bees at home."

Long hours packing fruit was initially a challenge. "It's super-fast and you have to keep your wits about you. At first I thought it was harder than flying a plane."

Grateful as she is for the opportunity to work at Punchbowl, Georgie says there is a sense of loss too at the fact she has had to put her aviation aspirations on hold. Along with so many others, she felt stressed and anxious about an uncertain future and the fact that so much in life is now no longer under her control.

"It felt a bit strange coming into an industry I knew nothing about, but as it happened there were also a number of other aviation people on the team so that helped."

Working on the packing team alongside Georgie and Punchbowl's long-time staff were a geologist, an accountant, an architect, an auditor, and others from the aviation industry too. "What was awesome was that we all got on with the job to get the fruit packed."

Georgie says so often people identify themselves by their occupation and tend to move in the same social circles. Being displaced from their normal careers has opened the opportunity to take on new challenges, meet new people and learn new skills.

The skills Punchbowl recognised in Georgie included her talent for relating to and managing people, her strong focus on health and safety, and the added bonus of her engineering know-how. Georgie, who began her aviation career training in avionics, is able to diagnose problems with the grading machine, and in many cases, fix them herself. "I don't mind getting my hands dirty," she says.

What she also likes is the diversity of her role and the products handled by Punchbowl. "In August we were repacking kiwifruit and about to start packing blueberries."

Handling fruit under Covid-19 restrictions, both during the initial nationwide Level 4 lockdown in March and then in Level 3 for Auckland during August, meant that Punchbowl and indeed all packhouses, needed to implement protocols to keep staff safe.

"For me the way we operate now is 'normal', but I know that's not the case for all those who have been in the industry for a long time. It will be interesting for me to see how we pack fruit next year, with hopefully no or very few Covid-19 restrictions."

Georgie is enjoying working in the horticultural industry which she describes as "dynamic, fast-paced and exciting with new technology coming along".

"I recommend anyone who has a can-do attitude and is keen to learn new skills, consider the horticultural industry, which is growing worldwide. I feel a sense of responsibility being part of an industry which, along with agriculture, is helping keep New Zealand's economy up."

> **"I feel a sense of responsibility being part of an industry which, along with agriculture, is helping keep New Zealand's economy up**

NZGAP Social Practice add-on module

By Jacqueline Neave : NZGAP technical and operations coordinator

NZGAP has been working with industry, auditors, retailers and regulators to finalise the NZGAP Social Practice add-on module in preparation for the commencement of audits and certifications in November.

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 globally are increasingly seeking Social Practice certification in addition to the core GAP (Good Agricultural Practice) Food Safety certification. NZGAP has developed the Social Practice add-on module to empower growers to meet these requirements. Certification enables employers to demonstrate that they have good social practices in place for their workers, and enables them to supply product to multiple wholesalers and supermarkets. The Social Practice add-on has also been benchmarked against relevant regulatory requirements and globally recognised social practice standards including GRASP (GLOBALG.A.P. Risk Assessment on Social Practice).

During the initial development it was recognised there were potential privacy issues relating to auditor review of employee records. Privacy issues have now been resolved by requiring employers to develop a privacy policy and make it available to workers. It is also recommended that a privacy clause is inserted into all new Employment Agreements going forward.

NZGAP has developed templates and guidance to support growers' understanding and development of their privacy policies.

Numerous pilot audits have been undertaken to complete final tests of the certification and audit processes, as well as to refine the checklist, guidance and rules. The audits provided an excellent insight into the overall operation on farm and also provided an additional opportunity to hear from growers. We are now working through the feedback to make any final improvements before the full launch in November. The NZGAP Contractor Standard will also be launched in November, providing a holistic Social Practice solution for growers, contractors, employers and workers throughout the horticulture supply chain.

Next steps

Businesses can now register for the NZGAP Social Practice add-on module, and can be audited alongside their next GAP audit, or as a stand-alone to meet a market deadline. Those certified to GLOBALG.A.P. GRASP or SMETA (Sedex Members Ethical Trade Audit) already meet many market and regulatory requirements, but may decide to register for the NZGAP Social Practice add-on (currently at no additional cost) to demonstrate local market or regulatory compliance.

NZGAP will be in contact with all registered businesses once the documents have been finalised, then an audit can be scheduled. For further information about the NZGAP Social Practice add-on, visit the NZGAP website (**www.nzgap.co.nz**) or email jacqueline.neave@hortnz.co.nz

YOUR INDUSTRY

ACROSS THE SECTOR — ACROSS THE COUNTRY

Safe spraying to keep bees healthy and safe

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Bee on avocado
Photo courtesy of Andrew Mandemaker

Coralee Wood

Young people making apple industry careers

By Summer Wynyard : New Zealand Apples and Pears

Coralee Wood, orchard administrator, Mr Apple, Hawke's Bay

For the past three years, Coralee Wood has been working as an orchard administrator at Mr Apple's Close Orchard, a role that assists with health and safety compliance, human resources and recruitment, as well as "anything that orchard management would like done." It's not unusual to find her out on the orchard during the quieter winter months or overseeing pastoral care for the sector's 60 Recognised Seasonal Employer (RSE) scheme workers during peak times.

Coralee says while she had great personal skills when she entered the apple industry, she didn't have any formal qualifications or experience, but it's turned into a "great career."

"The best qualities you can bring to the industry is to be confident, friendly and open to change. You don't need a qualification as there are so many opportunities to develop yourself, which will lead to natural career development and progression."

After two seasons with Mr Apple as trucking and yard administrator, Coralee had saved enough to get to Darwin, where she worked harvesting mangoes. Her experience in post-harvest operations while at Mr Apple transferred easily to the mango packhouse, where she helped with quality control and grading. She returned to Mr Apple in 2017, and has worked in the administrator role ever since.

"An orchard operation is a natural environment for me to be in. There is an admin component, but I am also able to put on my work boots and get out and about with staff. I really like that."

Coralee is studying part-time at EIT (Eastern Institute of Technology) towards an Agri-Business Management Diploma – a qualification she is on track to complete by December 2020. She also has her sights set on further horticulture study at Massey University with the goal of one day becoming a Human Relations or Health and Safety Advisor.

"Mr Apple has people within the company who guide us and give us advice. I've been on IMPAC (Workplace Health and Safety NZ) short courses as well company workshops covering a range of topics. It's an extremely progressive company.

"The beauty of this industry is that I can keep working while I study and I'm bettering myself for my future."

Daniel Tester

Daniel Tester, orchard worker, Taylor Corporation, Hawke's Bay

For Daniel Tester, working at Taylor Corp's Close Orchard combines his love of science and his dream to "feed the world." The 28-year-old balances working full-time with studying towards his Diploma in Horticulture Production at EIT (Eastern Institute of Technology), which he will complete next year.

Daniel began his horticultural career path as an apple picker, a job he found through the Ministry of Social Development (MSD). What began as a temporary seasonal job has turned into a full-time role and during the peak season he takes on more responsibility.

"During harvest I supervise the Recognised Seasonal Employer (RSE) scheme workers and backpackers, operate trucks, tractors and mowers, and spray the orchard. At the moment I'm helping redevelop the orchard and also doing thinning and pruning.

"Apple picking was hard work. In the beginning my arms shook from carrying around a 15kg bag all day and when I got home, I'd close my eyes and all I'd see were apples. But I enjoyed the feeling of being tired from working all day, and the money was good. And doing something productive gave me confidence. I wasn't sitting around doing nothing and because the job is so physical, I lost quite a bit of weight.

"I'm definitely stronger, more confident and learning how to use equipment has been really good for my self-esteem. You'll have to check with my manager, but I think I'm a natural at this kind of work!"

> **"I'm definitely stronger, more confident and learning how to use equipment has been really good for my self-esteem**

Daniel describes his job as also very mentally stimulating. "I've always wanted to be a scientist and have studied Applied Science at EIT a few years ago. I also love the fact that the work we do here on the orchard is helping feed people in other countries. As I'm originally from the United Kingdom, maybe my father or siblings might be eating our apples!"

Recently Daniel was asked to become a Health and Safety Officer for Taylor Corp and will begin that training soon. As for the future, he has set himself a goal of becoming an orchard manager and is on track to achieve it.

For more information on career paths in the apple and pear industry contact Summer Wynyard at **summer@applesandpears.nz** or visit the **NZ Apples and Pears Careers website**. ●

AVO UPDATE

The thick and thin of growing

By Jen Scoular : Chief Executive, NZ Avocado

We have recently undertaken a survey of growers to better understand what motivates them to grow avocados. A wonderful and very common thread through the responses from growers was the passion they have for avocados. Less advantageous was the energy required to get them through the thick and thin of avocado growing.

The thick perhaps is the never ending challenge of growing avocados, the thin the very varied returns from avocados. There are reputedly nearly 1,000 varieties of avocados around the world, most having originated in Central or South America. New Zealand's cooler, windier and wetter climate poses a large initial challenge, mitigated in part through very good site location. Avocados are also very poor at pollination, in that nearly 1,000 flowers might produce just three to six fruit. Compare that to kiwifruit where optimal pollination results in nearly one fruit for every flower. A couple of examples growers face, knowingly, mitigating those challenges with additional bees, flower pruning and farming light availability.

The thin end is what the grower gets at the end of the season for their fruit. Supply and demand work very well for economies, and as a producer of premium food and beverage, New Zealanders are all very aware that without great demand from consumers, just increasing the supply doesn't mean the value received increases.

We very much enjoy the tail wind that is driving increasing consumer demand for the wonderfully healthy avocado, and in fact at times, fail to be able to supply as much as those consumers demand – except for the years we supply twice as much. It might sound like an exaggeration, but avocado yields vary hugely from one season to the next, sometimes without growers or industry experts knowing why. Climate may have played its hand or we might have had changes in orchard management, but it's an inherent attribute of the Hass avocado tree to yield very well one year and very poorly the next.

So the thin end for growers is trying to balance the good years and the not so good years, in terms of the return they receive from the varied annual volumes their orchard produces. Add to that the vagaries of confirmed market prices, exchange rates, the need to air-freight rather than sea-freight, the return from a lower export pack-out, and the thin end gets pointier, or even less consistent.

This season we are seeing a much smaller size profile in New Zealand avocados. New Zealand is well known for growing big avocados, but not this year. Not only will it take more avocados to fit into a 5.5kg tray, but smaller avocados retail for less than large avocados. So another hit to the bottom line. My message here isn't seeking sympathy for the plight of the avocado grower, because we know they mostly love growing avocados. My message is about the expectation of consistency of return or income.

Our growers, and I'm sure growers across many sectors, face uncertainty around their income every single season. Will my income go up or down more than 30%? Probably. Is there a subsidy to help me through the lean times? No. But we hope there are more up years than down years, and we manage that as essential producers of food for New Zealand and the world. ●

NZ Avocado Growers' Association Inc. Commodity Levy Rates and Fees

Commodity Levy rates and fees for the 2021-22 season were approved at the AGM of the NZ Avocado Growers' Association Inc. on 27 August 2020.

Commodity levies:

- For avocados grown and **sold in New Zealand** for consumption as fresh fruit
  - 3% of the selling price at the first point of sale
- For avocados grown in New Zealand and **exported** from New Zealand
  - 35 cents per tray equivalent (5.5kg), of which 20 cents is for promotion

Export systems fee:

- For avocados grown in New Zealand and exported from New Zealand
  - A maximum export systems fee of 30 cents per tray equivalent (5.5kg)

For further information contact New Zealand Avocado on 0800 286 2236 or email **jacquelynn.hammond@nzavocado.co.nz**

Doug Brown, who has stepped down after five years as NZKGI chairman and 13 years with the grower body

NZ best place in world to be a kiwifruit grower

Thanks to the industry's structure, New Zealand is the best place in the world to be a kiwifruit grower, says Doug Brown who has stepped down as New Zealand Kiwifruit Growers Inc (NZKGI) chairman.

By Elaine Fisher

"It is vital growers remain actively involved to ensure their industry retains the framework and commercial mechanisms which make it strong.

"Through attending International Kiwifruit Organisation conferences, I have come to understand what happens in other growing regions and by and large growers there would give their right arm to have what we have. It's always been part of my drive in KGI in all of the roles I have held, to continue to build on the framework the industry has evolved."

Doug is talking in part about the SPE (single point of entry) regulations which mean marketer Zespri is the only company which can sell New Zealand grown kiwifruit to the world, with the exception of the Australian market for sales of Hayward Green.

Safeguarding that status has been Doug's motivation since he first joined KGI in 2007, including during his time as vice-chairman and since 2015, in the chair.

"Our industry structure is not without its challenges, but it is still a whole lot better than anywhere else. It is important that the grower voice is heard in influential places where decisions are made and that has been a big driver for me. This is the growers' industry. They've got by far the most invested, so it is important they are well represented and involved.

"Despite Covid-19 we are going through good times (in terms of returns) at present. This is the time to take stock and prepare, as good times do not last forever.

"I have been in the industry since the '80s and have seen more than a few ups and downs. People entering the industry now

don't understand how quickly things can change. There's no guarantees. This is a primary industry and things happen."

Doug's family owns Riverlock Packhouse in Opotiki and a network of kiwifruit orchards from Te Puke through to Gisborne. "Our business has grown from humble beginnings, originally Hayward, now diversified to an extent to SunGold."

He remains passionate about ensuring that all growers, irrespective of the size of their orchards, have a voice and are represented at industry forums. "I know what it is like to be one of the small guys. I have always unapologetically stood up for the small guy."

Securing the right for green kiwifruit growers to be included in gold licence releases post Psa-V is something else Doug is proud of. "I strongly advocated for green growers to be able to participate in the licence allocation for gold and I look back with some pride that it brought equal opportunity to all growers."

> "Time to take stock and prepare, as good times do not last forever

Working through the Kiwifruit Industry Strategy Project, (KISP) to secure grower ownership and control was a highlight, as was helping negotiate the enduring funding mechanism, locking in the 25 cent loyalty payment from Zespri to growers. One "mild disappointment" for Doug is that not all growers took up the option to become Zespri shareholders.

Doug says the NZKGI grower body has evolved and grown in 25 years to become a fit for purpose, effective organisation growers can be justifiably proud of. "When I stood for chair one thing I wanted was to build an organisation which was more proactive than reactive."

The industry has had its challenges to manage in recent times. Through them all NZKGI has played a vital role. "During the worst of Psa-V times KGI did an enormous amount of work, including developing a grower welfare programme led by Ian Greaves which a lot of other primary industries have taken a blueprint from.

"We have seen this year with Covid-19 how instrumental KGI is in helping growers and the wider industry cope with protocols and finding staff. Increasingly KGI is delivering high quality information in a timely manner.

"KGI has been instrumental in providing advice and support around labour shortages and government water policy. We always maintain a high profile as regards grower related onshore performance measures. I think that summarises my tenure in KGI, which has been around building the team to be fit for purpose. Today KGI has a more professional approach, delivering information to growers, and is now a genuinely fit for purpose partner within the industry that other partners of that triangle can rely on."

> "He remains passionate about ensuring that all growers, irrespective of the size of their orchards, have a voice and are represented at industry forums

Doug pays tribute to the NZKGI leaders before him and the positive impact they have had in helping to shape the future: "it has been a journey and today's organisation is a reflection of the way the grower body has evolved.

"In the last five years we have made big changes. We have a bigger staff. Interestingly, the better we do our job the more work falls in our lap. We are doing a whole lot more than we ever used to, at a much higher level."

Representation that supports diversity is an area that Doug is passionate about. "We need to be able to empower people, and to have a forum which is more representative of the industry. We have Māori representation, but also Māori representation on the forum as well. My vision is to also have Indian growers represented in the future as they are an important part of the industry and that needs to be recognised.

"It has been an honour and a privilege to represent growers and be part of the change which has evolved KGI to where it is today. KGI is a principle-based, professional body that growers can justifiably be proud to be part of."

He is upbeat about the future of NZKGI and the Industry as a whole. "Latest forecast results released from Zespri for the current season signal strong returns for growers."

Now he is looking forward to more time with his wife Tracy and family and focusing on the family business. "I hope to get a bit more work/life balance. I think I have probably driven the distance to the moon and back attending meetings, so it will be nice to have time for family and myself.

"I want to pay tribute to Tracy who has been really supportive of me over this time. It's a role which does take a toll on your personal life and I take my hat off to her for the support she has given.

"With more free time going forward, the expectations around a supply of freshly caught fish to the home kitchen have lifted," says Doug.

NZKGI's new chairman is Mark Mayston of Tauranga.

Unauthorised planting for G3 in China is "gutting" says Te Puke Fruitgrowers Association president and SunGold grower Simon Cook

Unlicensed planting of kiwifruit rock star "gut wrenching"

New Zealand kiwifruit orchardists are angry that 4,000ha of their "rock star" gold variety G3 is being grown without authorisation in China, and worried about the impacts that will have on their incomes.

By Elaine Fisher

Zespri chief executive Dan Mathieson told the company's Annual General Meeting in August that there could be as many as 4,000 hectares of Zespri's SunGold brand kiwifruit planted in China by growers who do not hold licences for the Plant Variety Right protected vines. New Zealand has 7,500ha of SunGold planted.

The fruit (also referred to as G3) is Zespri's biggest seller, helping to lift global revenue by 7% to $3.14 billion last financial year.

"Our focus remains on halting the growth of these plantings and mitigating the impact on our brand and business, and we'll continue to adopt a multi-faceted legal and political approach to protect our retail channels," Dan told shareholders.

Eradicating the plantings is not possible, but Zespri is about to start legal action against a nursery in China, using the PVR (Plant Variety Right) law to slow plantings down.

David Courtney, Zespri chief grower and alliances officer says the plantings were the number one topic at the Zespri and New Zealand Kiwifruit Growers Inc. (NZKGI) roadshows in August.

"Growers are concerned about the impacts on their orchard gate returns and angry at what they see as blatant stealing of their IP. No one is happy about it."

Option to commercialise SunGold in China

"One potential option we've been advised to explore is whether there is an opportunity in commercialising SunGold in China that generates returns for our industry and also mitigates the spread of unauthorised SunGold," Dan Mathieson said.

"Let's make it clear, no decision on this has been made and before any decision is taken, we would come back to growers and also talk to the regulator Kiwifruit New Zealand."

Te Puke Fruitgrowers Association president and SunGold grower Simon Cook is not in favour of that idea. "If we licenced growers who have stolen our IP that would be sending the wrong message."

He also has concerns for the integrity of the Zespri brand and its reputation for quality and food safety. "Could we guarantee the same standards for Chinese fruit, especially that they were free from residues? Many Chinese consumers distrust homegrown foods and if Chinese grown kiwifruit carries the Zespri brand that could impact its reputation and sales.

Richard Pentreath, gold kiwifruit grower and vice-president of the Hawke's Bay Fruitgrowers Association, says he is torn over the idea of potentially commercialising Chinese SunGold. "It is gut wrenching to think about after they have exploited the variety which New Zealand growers have invested so much in. On the other hand, if Zespri's research shows it could return more value to New Zealand growers than pulling out vines or fighting it in the courts, then we have to consider it as an option."

At the Zespri road shows Dave Courtney, Zespri chief grower and alliances officer, says growers felt the idea of commercialising SunGold in China was a bit hard to swallow. "Many wanted more details about how it could help mitigate the risk to their brand and more information on how such a partnership could work and mitigate the ongoing spread of G3 in China before they draw conclusions."

Getting the Chinese growers on board could be a win/win model. "There could be a certain degree of prestige for Chinese growers to work with a foreign brand and a degree of certainty working through a branded company rather than middlemen or selling on the spot market. What Zespri offers is attractive and is a reason why growers around the world want to work with us." However, working in China creates another layer of complexity.

> **"If we licenced growers who have stolen our IP that would be sending the wrong message**

Due diligence would be vital and Dave Courtney says plans are to do a trial next season, running fruit through a supply chain to see if it meets Zespri's commercial and food safety standards.

"Zespri does well in China where it is a trusted brand. We would have to do consumer insight work to establish the level of comfort consumers would have around Chinese grown fruit carrying the Zespri brand. The answer to that question would be critical to help understand what the impact might be."

Chinese orchardists are quickly learning New Zealand methods of successfully growing G3 fruit

David Courtney, Zespri chief grower and alliances officer – no one is happy about G3 plantings in China

Richard Pentreath, gold kiwifruit grower and vice-president of the Hawke's Bay Fruitgrowers Association believes G3 planting in China will inevitably have a negative impact on returns for New Zealand growers

Impact on NZ growers

Richard Pentreath believes it is inevitable that the plantings in China will eventually have a negative impact on returns for New Zealand growers.

"I hope Zespri can mitigate the damage and the extent that it erodes our value," says Richard who has a family orchard with Gold3 and manages an additional 60ha for a trust.

G3 has become something of a "rock star" in the kiwifruit market and it would be tough for Zespri to compete against its own variety. However, Dave Courtney says northern hemisphere Chinese fruit is counter-season to New Zealand G3. "It would impact the tail end; the last third of our season."

The China market accounts for only about one-quarter of Zespri SunGold sales and Simon Cook believes there is still room in the market for that to increase, despite competition from locally grown fruit. In the short term, Simon says he is more concerned about the ability of the New Zealand industry to find enough people to pick and harvest next season's SunGold fruit, and the impact of Covid-19 and a recession on prices next season.

Impact on Zespri licences

With Zespri in the middle of its five-year review, the plantings in China will be taken into consideration, along with world demand, when deciding on the release of new G3 licences in New Zealand.

Nikki Johnson, chief executive of New Zealand Kiwifruit Growers Inc (NZKGI) says growers have expressed concern about the impact of plantings in China on future licence releases.

"Growers have indicated that Zespri needs to be open and transparent about the scale of the issue and potential impacts before the next licence release process commences. Growers also expect Zespri to take into account possible impacts when considering the scale of continued licence release. Regardless, NZKGI encourages growers to take risks into consideration when bidding in the tender process."

"It has been forecast that 35% of New Zealand grown kiwifruit could compete on shelves with Chinese grown G3 SunGold, which is of significant concern."

> **"Thirty-five percent of New Zealand grown kiwifruit could compete on shelves with Chinese grown G3 SunGold**

Nikki says there is insufficient information at this stage to form a view on commercialising SunGold in China. "NZKGI will be seeking further input from growers on their views and any requests for information so that this can be discussed with Zespri. This feedback will be part of regular discussions with the NZKGI Forum over coming meetings and the issue will also be discussed at meetings such as the Industry Supply Group (ISG) and the Industry Advisory Council (IAC).

"NZKGI will remain focussed on ensuring relevant and timely information is shared with growers as the situation unfolds. We welcome questions and feedback from growers at any point." ●

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Colourful Character in Te Puke

1 *Wildflowers with green cloth backdrop*
2 *Ramsay is hands on with his orchard*
3 *Red bud embedded in wax with deer cage surround*

Colour is a big part of orchardist Ramsay Muir's life – and he is certainly one colourful character – so it is no surprise that growing red kiwifruit is the next step for his Te Puke based orchard. Ramsay is one of the growers of the new varietal of the Zespri Red. The new red kiwifruit is being released for tender by Zespri to cover a combined orchard area of around 150ha of canopy growth.

By Claire Ashton

Ramsay lights up when he talks about the particularly notable feature of the New Zealand red kiwifruit varietal, which is its colour array, with the circle of colour inside the fruit not just being pure red in the centre, but ranging from a creamy colour through to pinks and reds, so the aesthetics are all part of the appeal – and endow it with a hint of luxury. The redness is the real attraction through association with the red of grapes and berries, along with their specific health benefits.

Ramsay's orchards are known for their vivid and colourful array of wildflowers which he started planting 38 years ago and he is very proud and protective of them. The Psa spray streptomycin could have been used on his wildflowers during property inspections, which were a regular occurrence during the Psa outbreak, but he emphatically convinced the inspectors that the wildflowers weren't a risk – and so they stayed. The orchard is in a family trust and his son Chris is an observant and solid worker who is not easily distracted from his tasks. In their latest audit they were perhaps showing 'a bit under' from the GPS (global positioning system) data and what their licence allows – but Chris with his experience states matter of factly that any current lack will be made up for by the peripheral edges and overhanging vines.

In conjunction with Seeka, Ramsay has 27ha, around 24ha of green, 2.5 to 3ha gold and around 3.5ha of red kiwifruit, and he has recently reclaimed 6.5 acres of avocado too, planted in the old cow paddock. The orchard is on rolling contours with the plateaus planted with kiwifruit and avocado, and on the solid shelter belts groves of Casuarina and Japanese cedar. Ramsay plants with the future in mind and the seasonal colour palette the trees will paint with their foliage.

The land is surrounded by deep bushy gorges on the outskirts of the orchards, and there is even an old air strip in amongst it all. While some neighbouring orchards go for extensive cloth cover Ramsay considers it cost prohibitive and uses cloth cover sparingly, although he admits not having it can entail some risk, and he is intending to order bespoke red cloth cover to complement the new shade of kiwifruit being grown. Temperature wise, as the gorges surrounding the orchards are up to 500 ft deep, the cold air sinks down into the gorges at night, so they usually have frost free edges in the orchards.

> **"...the vines will be open to the elements for the first few years and particularly vulnerable to wind rub**

Recently, Ramsay attended a morning tea with other red kiwifruit growers at Zespri's invitation, and says it was very interesting from a science, research, and sales perspective. Zespri has had test blocks of three to five vines of Zespri Red for a few years, however the newly released licence for growers will be the biggest test of the red. At the morning tea the knowledge transfer was reportedly evident, and there was a buzz in the room. Ramsay is up for the challenge, and realises that growing the red kiwifruit will definitely be a learning curve. The trial and error could involve dealing with such things as how the fruit is structured on the vines, their high floral nature, and with the plethora of fruit on the vines, knowing how much fruit to take off or leave on.

The other thing is the vines will be open to the elements for the first few years and particularly vulnerable to wind rub, as like the gold they have no hairs. At first the growth on the red vine will only be half a metre off the ground so slugs are also a potential threat. The season for red will possibly be a bit shorter and cloth does help to fast track growth – but the shorter season could mean earlier bud burst so they will be more vulnerable to frost, possums, birds, rabbits and deer. Yes, deer. As the orchard is

amongst the bush, deer are a pest contender and the green corflute cages around the stems are there to protect the buds. Recently the cages were slipping down due to wind and the ineffectiveness of the tape. Ramsay quickly suggested to the workers that perhaps using a staple gun would be a good fix. No problems, only solutions.

Ramsay has planted the new seedlings in between the old rows which he left ungrafted for five years in preparation for growing the Zespri Red. He like other growers, has been eagerly anticipating the release of the licence and has done his groundwork. Ramsay leases his land to Seeka and is on the committee which oversees the capital work. It looks like nothing much gets past him.

The Zespri Red is the most expensive fruit to procure and grow, and will be the priciest on the market. Customer surveys indicate that it will attract new customers who have never tried kiwifruit at all, so the red is opening doors to new consumers. Asia will be its primary overseas market and the red is not a mainstay product, it will be sold in the luxury section. The good news is that Zespri Red is headed for our shelves and New Zealanders will get to taste the fruits of this new varietal.

Mixed bag of a season but Gisborne citrus still sweet

Water shortages resulting skin conditions in fruit, and to top it all off a pandemic, should have had a big impact on the citrus industry. But one Gisborne grower says that despite all those challenges, he's had his best season in seven years.

By Kristine Walsh

Bruce Sutton occupies a unique space in the industry in that, as well as being a grower himself, he is also citrus procurement manager for Gisborne grower and marketer Zeafruit, with about 70 growers under his wing.

Although hopes for the season were high with terrific fruit growth and quality, he and many of the other growers suffered a shortage of rain from the end of last year, leading to some skin conditions like breakdown in albedo.

"If we'd known the rain wasn't going to come we could have thinned a lot more, but on the plus side, the fruit showed very high brix so though some of it was not so pretty, it was tasting fantastic," he says.

"Also on the plus side, because we could see there were going to be some issues with skin condition we were able to plan to get the fruit harvested as soon as it was ready, and then take it straight to market." And he says, that market was ready and waiting.

"I had signalled to the packhouse very early that this was not going to be the year for export and focusing on the domestic market really paid off. Perhaps because of the pandemic, everybody really wanted citrus, which was going out the doors in bags rather than as loose fruit.

"Having the domestic market almost to ourselves meant we had possibly the biggest year in lemons and satsumas that we've ever had, but we acknowledge that is not likely to continue. "That's not where our competition is. Just the fact that I'm driving to work in a Japanese truck shows how much we are part of a global market, and that's not going to change."

New Zealand is home to over 300 citrus growers and with about two-thirds of them located in Gisborne, they represent a large part of the market.

Also wearing two hats – as managing director for marketer and exporter First Fresh and as Citrus New Zealand's

executive member responsible for export, post-harvest and compliance – Ian Albers too, believed getting the export versus import balance right was important for growers.

"Citrus is considered a staple 'must have' by supermarkets and they want fruit on the shelves 12 months of the year, but given seasonality, there are periods of the year when New Zealand domestic citrus cannot meet demand," he says.

"So while some market vagaries do occur, New Zealand retailers work closely with domestic suppliers and importers to try to ensure overlaps don't happen."

Ian Albers also noted a positive season, but with some mixed fortunes. The season got off to an early start with Meyer lemons and limes starting in April, with grapefruit and Yen Ben lemons close behind, but a lot of rain from late June into July put it back quite a bit.

Luckily, by that time most of the Gisborne satsuma mandarins had been harvested, good size and flavour putting them in high demand on the domestic market after a bit of a glut during lockdown had put some pressure on prices.

As the harvest of navel oranges continues, Ian Albers says the return of workers who had left the region to harvest kiwifruit and apples elsewhere was ensuring a steady supply of labour. In fact, both he and Bruce Sutton said their growers had coped well in terms of their labour forces during Covid-19 related restrictions, mostly using a combination of existing contractors and the backpackers who had stayed in Gisborne around the lockdown period.

However, one area where they weren't in too much demand was lemons – particularly Meyer – where, even after an 'off' year in 2019, volumes were significantly lower than had been forecast.

"Our own growers produced only about 10% less than predicted, but we've heard reports of some harvesting up to half what they had expected," he says.

"That meant that exports too were down, though that was only in volumes, as we focused on markets like Japan and the United States which offer better returns."

The difficulty now, he said, is in making sure that a heavier crop of lemons in 2021 will have a market to go to. "If the volume bounces back next year we will need a place for that fruit to go and that just solidifies our view that we need to have a diversified export market, rather than just one big one," he says.

"Having strong export activity is good for all citrus suppliers as it shores up the strength of the domestic market.

"So finding solutions in terms of achieving that diversity is not just an issue for one portion of the sector, it is something we have to look at as a collective."

Makauri Aquifer – which supplies nearly one-third of water for use on 3,000ha of land on the Poverty Bay Flats

Crunch time coming for Makauri Aquifer trial

With just three months to go, the end of the second stage of Gisborne's Makauri Aquifer Recharge project is fast approaching, with plans to review both data and cultural considerations before any future moves are made.

By Kristine Walsh

Jointly funded by the Provincial Growth Fund ($542,000) and Trust Tairawhiti ($448,500), the trial was started in 2017 to determine if the aquifer – which supplies nearly one-third of water for use on 3,000ha of land on the Poverty Bay Flats – can be replenished to counter the decline noted since the horticultural boom of the 1980s.

The project has been led by Gisborne District Council, and with water identified as a key issue for the region, the results of stage two are keenly awaited.

For growers, those results are important because while Gisborne District Council has renewed existing consents to take water from the aquifer, it cut 75% of the allocation from existing users (which was largely not being used). It has no plans to grant consent for any new users, and at each five-yearly review of the consents, it will impose a 10% cut in water use until the aquifer is stabilised.

Gisborne District Council this month reported that the injection trial of water into the aquifer from the nearby Waipaoa River had recommenced in May with 62,000 cubic metres pumped in by the end of August, and 74,000 by 12 days later.

And while that is significantly lower than the 365,000 cubic metres consented for, project manager Graeme Card says there's a good reason for that.

"When I first came on board in early 2019 I did a bit of mathematics that showed that the 22 litres per second allowed for in the original consent did not take into account things like the weather, and vagaries of the river flow.

"The way I like to explain it is that it's like going to the pub for a beer. You can't drink as fast as the barman can serve you, and neither should you. It's the same with the aquifer."

However, the aquifer is going to have to get a lot thirstier if it is going to be able to absorb the 660,000 cubic metres of water per year required to stabilise it.

"So our next move will be to present to Sustainable Tairawhiti's October meeting a paper outlining how we think achieving that 660,000 cubes is doable," Graeme says.

"Then we will focus on reviewing our data, getting it peer reviewed by scientists in Australia and California, and fully exploring any issues for iwi so we can decide scientifically and culturally whether recharging the aquifer is the good and right thing to do.

"Then we will focus on reviewing our data, getting it peer reviewed by scientists in Australia and California, and fully exploring any issues for iwi so we can decide scientifically and culturally whether recharging the aquifer is the good and right thing to do

"That paper will also explore the nuts and bolts stuff… whether council wants to be part of any possible future scheme for example, what the governance model could look like and how it could be run."

To help work those issues through, Gisborne District Council has invited iwi, growers who hold current aquifer consents (or are on the waiting list) and Trust Tairawhiti to help form a subcommittee to act as an advisory group to the council's own Operations Committee. The first meeting is planned for 1 October.

The council report tabled this month says that both the injection season to the end of October 2019 and the one currently in progress have resulted in no adverse effects within the aquifer. ●

Riverslea Orchard manager Dennise Raroa's team have been hands-on helping erect the new tunnel houses that will also serve as a water catchment system. However, the hard yards were done by a pair of specialist workers brought in to bend the roof trusses, which were shipped straight for ease of storage.

Tunnel house project makes best of coastal orchard

Better water quality and a smoother supply system will allow a Nuhaka orchard to operate in a more sustainable manner and develop its property without having to apply for more water consents.

By Kristine Walsh

For its Riverslea Orchard, Nuhaka Kiwifruit Holdings (operated by Pine Valley Orchard) was awarded a $200,000 Provincial Growth Fund loan for the installation of tunnel houses with a built-in catchment system that will feed rainwater into a 14,000-cubic metre pond.

Being able to work inside the tunnel houses during bad weather will result in a smoother workflow for employees, spreading their employment over longer periods.

And the more sustainable water supply will allow orchard owners Michael Montgomery and Grant Eynon to increase productivity of the 28ha property, resulting in the creation of up to a dozen new jobs.

Mike Montgomery says Nuhaka – located on the State Highway 2 junction between Mahia and Wairoa – can get a lot of rainfall, but it also gets very hot and dry, making water management tricky.

To date, Riverslea has managed irrigation with consents allowing it to draw from the Nuhaka River that flows from coastal hill country down into the sea.

Under those conditions, however, if the property was to be further developed he would need to apply for an expanded consent, a move he does not see as ideal for sustainable growing.

"And there are costs associated with drawing water from the river. The silt content means it can be very hard on our equipment, and if you are having to replace expensive motors and pump systems, that's going to have an impact on your operation."

Further development of the orchard is important to the owners who, though they've owned Riverslea for nearly 20 years, took a hit when the Psa virus destroyed the original vines – 23ha of the old variety of gold died before their eyes.

They've since rebuilt with plantings of 10 hectares of apples, seven of gold kiwifruit and four of kiwiberries.

And Mike says they're already well on their way to adding to that, with plans to roll out more Zespri plantings, including the new Red variety Riverslea is already trialling.

While the orchard is putting in five-metre-high tunnel houses to cover just 1.4 hectares of kiwiberries, the houses – of which six spans will be used for water catchment – are not cheap and their installation has not been without its challenges.

Designed by British company Haygrove, components for the polytunnels were sourced from all over the world, but during the Covid-era chaos a container went missing "out there in the big wide world."

However, by the beginning of September all parts had made landfall and local labour was well advanced in getting the tunnels erected.

Mike Montgomery is based in the land-strapped district of the Bay of Plenty and says many of his contemporaries

Hooks built into the tunnel house structure will support the catchment to funnel water into the nearby reservoir

are spending big bucks buying quality property in other regions to expand their operations.

But he sees the Nuhaka project as being a way of being smart about using technology to make the best of his existing property.

"And we know it will be worth it," he says. "Kiwiberries in particular can be very labour intensive for winter pruning and harvest, and can be susceptible to loss at harvest in wet weather, so this is a way of protecting both our investment and our workforce.

"All of our employees at Riverslea are locals from Nuhaka and Wairoa and the use of the tunnel houses means we are better able to offer continuity of work, while at the same time enhancing the quality of the product.

"It is all about utilising assets and infrastructure to create more employment and sustainable profitability."

Pastoral care officer Tarmra Heal with Tongan RSE workers in Tasman

RSEs well-looked after

Some of the Nelson Recognised Seasonal Employer (RSE) scheme workers who couldn't fly home because of Covid-19 have been learning building skills and getting involved in community planting projects while they wait to either go home or start the new season.

By Anne Hardie

Vakameasina Nelson teamed up with Menzshed and Mitre 10 to teach about 20 RSE workers building skills when their seasonal work finished. The programme is designed to teach a range of skills to workers from the Pacific during their stints in New Zealand, and Nelson coordinator Lara Topping says it became "suddenly very busy" when workers couldn't get home.

For 10 weeks, the RSE workers from Vanuatu trained part-time with Menzshed members on building projects so they could use their time without work to gain new skills they could eventually take home.

Lara says it has been a good distraction for workers who are missing home, with some unable to be there for the birth of babies or the passing of family members.

Others have taken up non-contact boxing for fitness after free instruction was offered to those who couldn't get home.

"Our community has been amazing; they jump at the chance to help out."

At Freshco in Nelson, 40 RSE workers from Tonga haven't been able to get back there and there has only been enough work to keep some of them employed. The rest have had occasional days working voluntarily in the community, including a few days labouring on a Habitat for Humanity project, and also spreading mulch in a newly-developed Nelson City Council garden.

General manager Peter O'sullivan says it gets the RSE workers out and about rather than twiddling their thumbs

when they are missing home with not much to do. Some were expecting to go on a repatriation flight home in August but it was cancelled when the new Covid-19 cases appeared in New Zealand and that was particularly hard on those people, he says.

"We're trying to protect them from false expectations of getting home," he says. "We're actively looking for work for them and have about half wanting to stay through to next season and the other half desperately wanting to get home. And we don't know if they would get back."

> **"We're actively looking for work for them and have about half wanting to stay through to next season and the other half desperately wanting to get home. And we don't know if they would get back**

On Wairepo Orchard near Nelson, a repatriation flight in July was able to get two RSE workers home to Tonga, but the others are expecting to stay in New Zealand now through to May next year or August, which are the months they usually return home.

After seasonal work came to an end, the orchard was able to arrange grape-pruning work for some of those workers in Marlborough, and has also arranged a couple of weeks' work ahead on a blueberry garden. That will help get them through to the start of apple thinning when there will be full-time work on the orchard again.

Those with little or no income are receiving government funding administered by the Red Cross which pays for much of their living costs here in New Zealand. However, without full-time work they have little money to send home.

Most of the RSE workers, like Keinge Laulotu, had jobs lined up back in Tonga to cover living costs when they are not working in New Zealand. At this time of year he is usually working as a security guard back in Tonga where he has a wife and five children aged between three and nine years.

Though their RSE work enables them to earn good money while they are working through the horticulture season in New Zealand, he says that money is often dedicated to a home or new car and doesn't cover living expenses for the entire year.

Like most of his fellow RSE workers, he would be back in Tonga planting his land now with crops such as taro, yams and tapioca.

Pastoral care officer Tarmra Heal says it has been particularly hard for the RSE workers not knowing when they will get home, especially as cases of Covid-19 in New Zealand keep the Tongan border closed.

"We try to keep them informed, but there's not much to tell them because no-one knows."

At nearby Amberland Orchards, 10 RSE workers haven't been able to go back to Tonga, but owner Pippa Hansen says they have been able to employ them three days a week or more through winter with pruning or in the packhouse. As work ran out, there would be a six-week period where those workers would be relying on the Red Cross vouchers until apple thinning provided more work.

Despite the challenges, Pippa says the men have been managing well and have plenty of social interaction with other Tongan RSE workers in the region. ●

Bee on kiwifruit. Photo courtesy of Kiwifruit Vine Health

Safe spraying to keep bees healthy and safe

Apiculture NZ is working with our primary sector partners this month to promote awareness of safe spray practices to help protect our bees.

By Charlotte Lee-Smith : Apiculture NZ Inc

Bees on the frames. Photo courtesy of New Zealand Story

Bees are essential for the pollination of thousands of plant species – including key horticultural crops such as kiwifruit, avocados and blueberries. As plant flowering and bee activity increases through the spring and summer months, the risk to bees from spray application also rises.

Pesticides and herbicides can have a big impact on bees and their honey, this can severely impact pollination and put our valuable honey export crop at risk. Recently, for example, small amounts of glyphosate residues were found in some New Zealand honeys, and while close to 80% of those tested had no residue detections and there are no food safety issues linked with those that did, we are concerned to see this occur.

There are things that growers can do to protect honey bees when spraying any pesticide, but key is keeping open communication between landowners and beekeepers, so everyone knows when spraying is planned.

To keep bees safe, follow these steps

Consider whether spraying is necessary:

- Is there evidence to support the spraying of this crop at this time?
- Consider pest pressure, weed size and disease symptoms. Survey your crop to determine if pests have reached thresholds where control with pesticides is necessary.
- Implement an integrated pest management (IPM) plan to apply pesticides only when necessary.

Read the label carefully:

- Read the instructions carefully – use only the recommended quantities and follow all warnings on the label.
- Only use bee-safe products if risks to honey bees are likely.
- Take care in securing chemical tanks and dispose of used containers carefully. Bees have been known to gather water from such sources.
- Similarly, avoid potential contamination of troughs or any other natural water source (particularly water sources that are still).
- Do not mix two or more sprays as this may change the toxicity of the spray and negate the product label claims.

Don't spray chemicals near budding or flowering plants where bees are likely to forage:

- Bees forage flowers to gather nectar and pollen, their major food sources. During this foraging action, bees successfully pollinate the crop, increasing its value to the farmer.
- Mow flowering weeds under fruit tree crops before spraying.
- Avoid spraying gorse and broom (winter flowering) when in flower. The herbicide may be safe to bees, but the surfactants (normally penetrants) are not. Many beekeepers experience severe hive losses caused by spraying flowering weeds during the day.

No spraying near hives and avoid spraying when it is windy to prevent drift.

Spray after sunset, in dry conditions, or very early in the morning. Bees forage during daylight hours when temperatures are warm, so avoid spraying at this time.

- If you have to spray a flowering crop likely to be visited by bees, we recommend spraying very early in the morning (daybreak) or at dusk (sunset), or even spraying in the dark. Bees are normally in their hives at these times. Also keep in mind that in warmer temperatures bees may be foraging earlier than usual, and in unusually low temperatures some pesticide residues may remain toxic for longer.

Coordinate with local beekeepers before spraying so nearby hives can be moved or otherwise protected.

- Work with your beekeeper to keep them informed of your intention to spray – good communication and cooperation is essential.
- Remind all of your staff and contractors of the risks to bees when spraying and make bee survival a priority this spray season.

Other considerations:

- Different formulations of the same pesticide can change toxicity for bees. Granular products are less dangerous, whereas dusts and wettable powders are more likely to stick to the body hairs of the bees and be returned to the hive.
- A pesticide which degrades within a few hours of application can be applied with minimal risk when bees are **not** foraging. Products with extended residual activity of longer than eight hours need extra precautions.
- The distance of your crop from nearby bee colonies needs to be taken into consideration. Bees generally forage within 3km of the hive, but in times of pollen or nectar shortages they can travel up to 8km.

By doing a few simple things, growers can ensure that these important pollinators remain healthy and an important contributor to the horticultural sector.

For more information on how to manage risks to bees visit:

- https://apinz.org.nz/pesticides-2/
- https://www.epa.govt.nz/everyday-environment/animals-and-insects/bees/
- https://apinz.org.nz/wp-content/uploads/2019/08/Agcarm-Bee-Responsible-Poster-2017-Low-Res.pdf

Frank Brenmuhl in his West Melton walnut orchard

Walnuts: the battlers of horticulture

Frank and Margaret Brenmuhl at Aylesbury Walnuts in Canterbury's Selwyn district just outside Christchurch have been growing their tasty walnuts for over 20 years, and it's been a hard slog.

By Heather Woods

They're part of the Walnuts NZ co-operative of around fifty growers, and general manager Shane McKenzie says they're pioneering a relatively new industry for New Zealand. They have little choice but to learn from how international markets work, and despite having a far superior product, they're battling for exposure against that same market who export to New Zealand. So why are they doing it?

One tree to rule them all

Before any kind of official industry existed, most backyards had walnut trees. And it wasn't until Lincoln University completed research to determine the best walnut for growing in New Zealand conditions that commercial growers could really make headway. They evaluated walnuts from around the country to determine the best option for propagation. But it was a backyard in Christchurch that became the source for between 80 and 90% of new plantings. Almost all commercial walnut trees are now grafted to maintain quality – better taste, better shape, better growth in the Canterbury climate. It's lucky that New Zealand doesn't have the same diseases that overseas markets struggle with, and biosecurity for importing new varieties is incredibly tough and restricted, as you would expect.

The difference between locally grown and imported walnuts

A whopping 90% of the walnut market in New Zealand is made up of imports from places like California. And most imported nuts are processed from start to finish, all in one hit. So in the space of three months they're washed, dried, sorted – and cracked. Before they leave for New Zealand they're bagged and stored, so it could be up to 18 months before they hit the shelves here. It's time that plays the important role because once cracked, it's a race against the clock to retain flavour and the benefits of eating walnuts because every day after walnuts are cracked the

Shane McKenzie (left) and Frank Brenmuhl with the innovative Bio Vision sorter

rich Omega-3 and Omega-6 they contain breaks down further. Last year, they took their locally grown walnuts on the road under their new consumer brand 'Tricketts Grove' to a food show where customers were offered a taste of their freshly cracked walnuts. Frank said you could see it in their eyes; the taste was remarkably different. But while the New Zealand product is better quality and they have no problems selling it, the price is driven down by the imported commodity product they're competing against.

The potential of walnuts

Did you know that 54% of people admitted to hospital in New Zealand for a heart attack have high cholesterol? It's been shown the eating just seven or eight walnuts (or 30 grams) each day can reduce cholesterol by up to 60% in just six weeks – that's huge. They're a super plant providing all your healthy fats, fibre and vitamins, and they're rich in antioxidants.

But health benefits aside, they're a tasty treat to snack on, mix into your salads, roast (but keep an eye on them, they burn quickly!), crush for a fish or chicken rub, bake into bread and scones, or simply throw into your favourite stir-fry. As far as running a sustainable, low waste business, even the cracked shells can be put to use in products like exfoliators for the cosmetics industry.

Factory finesse

Walnuts NZ produce walnut pieces, whole walnuts, walnut oil, dukkah and flour for Tricketts Grove, and they have a tight control process to ensure that the walnuts are graded properly, split shells don't sneak through, and only the highest quality make the cut. They do this by making use of technology and world class machinery, like their Bio Vision sorter. With nothing but opportunity ahead of them, even during a pandemic, you can imagine their eyes are firmly on the future. Careful re-branding plans will soon come to fruition and with some solid elbow grease they'll hopefully see a shift in market share. In the meantime, they're concentrating on producing high quality, fresh walnuts.

Growing for the future

It has taken 20 years to turn what was 32 acres of sheep country into an operational walnut orchard, along with considerable capital investment, to be positioned for good growing seasons. Some years are better producing than others (the annual total for 2020 falling around 200 tonnes, and future harvests estimated to be triple that), the variance caused by changing weather conditions (spring-like is best, with not too much moisture), natural and irrigated water levels, and copper spraying to avoid blight (to which some varieties are more susceptible). Even root rot and spiders (which take up residence in the sprinklers) can wreak havoc.

In a nutshell, there's lots to be done to ensure New Zealand grown walnuts take a bigger piece of the pie. They would benefit from more support by the grocery sector and the opportunity to show off the many things you can do with them, and the many other benefits of the simple walnut.

Steve Saunders, CEO and founder of Robotics Plus

NZ company among world robotics best

Set among kiwifruit orchards in rural Bay of Plenty is a company ranked among the world's top 50 hi-tech agri-businesses. In June, Robotics Plus was named on the 2020 RBR50, Robotics Business Review's prestigious global list recognising the 50 most innovative and transformative robotics companies of the year.

By Elaine Fisher

Robotics Plus is also one of only five international companies named in the robotics and automation category of the 2020 THRIVE Top 50 list.

The list is compiled by SVG Ventures-THRIVE, a global agri-food innovation and investment platform based in Silicon Valley. To make the Top 50, companies must have exemplary leadership teams, technology and traction. They are selected following months of rigorous research by the SVG-THRIVE team in collaboration with corporate partners including leading agriculture and technology corporations such as Corteva, Driscoll's, Kubota, Trimble, Taylor Farms, Valmont, Yamaha and Forbes.

Robotics Plus co-founder and chief technology officer Dr Alistair Scarfe says it's a huge honour to receive a coveted spot on THRIVE's Top 50 global list. "We're thrilled to be showcased in such a prestigious list alongside exceptional ag-tech companies from around the world who are pushing the boundaries of technology and innovation. It's a fantastic acknowledgement for our diverse team who are developing world-leading innovation incorporating automation, vision, robotics and artificial intelligence."

Steve Saunders, chief executive officer and co-founder of Robotics Plus, says: "It's a fantastic validation for our talented team to be featured in the THRIVE Top 50 – they've put in an enormous amount of work over the past few years to develop world-first platform technologies that help solve some really important food and fibre challenges in agriculture. We'd also like to recognise our fantastic partners and collaborators in the commercial, research and government sectors, who have played a vital role in our technology and company development."

The Robotics Plus team has developed a prototype robot to help pick some of the more than 3 billion kiwifruit harvested in New Zealand each year

Founded in 2013 by Steve Saunders and Dr Alistair Scarfe, the first two commercial innovations of Robotics Plus are the Āporo apple packer and an automatic log scaler. It has a number of new products in the pipeline which it intends to launch soon.

Despite its international recognition, Steve says the company, which now employs 67 staff, has no plans to move its headquarters and research centre away from the rural backwater.

"There is no reason Robotics Plus can't stay in Te Puna. We are right in the middle of the agricultural heartland of New Zealand and in the orchards around us have the ideal "playground" in which to test our robots."

> **"We are receiving more and more interest from Silicon Valley and Europe**

The Bay of Plenty is also a great place to live and work and that helps the company attract top scientists and engineers. "We are receiving more and more interest from Silicon Valley and Europe from people keen to escape some of the craziness of the world. We can't match salaries commanded in Silicon Valley, but the cost of living is nowhere near as high in New Zealand and the lifestyle is a real draw.

Top: Dr Alistair Scarfe, CTO and co-founder (left) and Steve Saunders, CEO and co-founder (right) with a Robotics Plus UGV

Bottom: Robotics Plus UGV (Unmanned Ground Vehicle)

Robotics Plus robotic Āporo apple packers

"However, it is a challenge to find the people we need. New Zealand produces fantastic engineering graduates, but we have a problem finding people with five to 10 years' experience and with the highly specific skills we now require. In the company's beginning we had a number of generalists, people who could straddle all areas, but now have to find specialists in particular areas."

Bringing new products to market is challenging, says Steve, especially when they are machines which will largely replace humans. Clients expect these robots to work 24/7 so they must be not only hi-tech and efficient, but also robust and reliable.

"It's all very well to have a bright idea and build a prototype, but it's very different bringing it to market.

As well as ruggedness, there's how to manufacture and distribute the robots, how to sell and market them and how to service them."

The company began with the aim of developing the autonomous kiwifruit picker Dr Alistair Scarfe was working on, but that machine has not yet been commercialised.

"The kiwifruit picker is a fanatic concept machine which we would love to commercialise. We are in the middle of kiwifruit country and see the issues with finding workers for harvesting, which is only likely to get worse.

> **"Ideal 'playground' in which to test our robots**

"Commercialising the picker is a matter of capital investment and finding a partner willing to invest. Everything we do is in collaboration. The log scaler was developed in collaboration with ISO Limited and the Āporo apple packers were assisted by US$10M Series A investment into the company by Yamaha completed in 2018. We have other top-secret projects underway, all of which have commercial partners." These projects include unmanned ground vehicles (UGVs).

Another advantage to its rural location is that Robotics Plus leases a former kiwifruit packhouse in which it has manufactured up to 20 Āporo apple packers. However, Steve says the company is looking for manufacturing partners who can scale

Both images: Robotics Plus robotic Āporo apple packers recently installed in a US packhouse

up quickly, built to its specification and quality standards. "It's a good challenge to have because it means we are actually being successful and meeting the aims of Robotics Plus founders to create an iconic international company, based in New Zealand."

Robotics Plus launched its award winning robotic Āporo apple packers commercially in 2018. The technology, which identifies and safely places up to 120 apples per minute in display trays, is being marketed by Global Pac Technologies, a Jenkins Group (NZ/Australia) and Van Doren Sales (US) joint venture. The patented robotic apple packer is the world's first fully automated packing solution that orients and colour packs apples into trays for export, and is already operating in packhouses in New Zealand, the United States and Europe.

In 2019 Robotics Plus launched its industry-changing Robotic Scaling Machine (RSM) which automates the accurate volumetric measurement of logs on trucks and trailers, with Mount Maunganui-based ISO Limited commissioning the world's first automated logging truck scalers. ISO now have several robots installed across New Zealand. Approximately 35% of New Zealand's log exports are currently measured through this technology.

5+ A Day Winter Fruit Promotion

During the winter months this year, the 5+ A Day Charitable Trust set out to encourage Kiwis to add winter fruit to their breakfast. The focus was on fresh, in season, locally grown produce, including kiwifruit, tamarillos and New Zealand citrus.

By Paula Dudley : General Manager, United Fresh NZ Inc

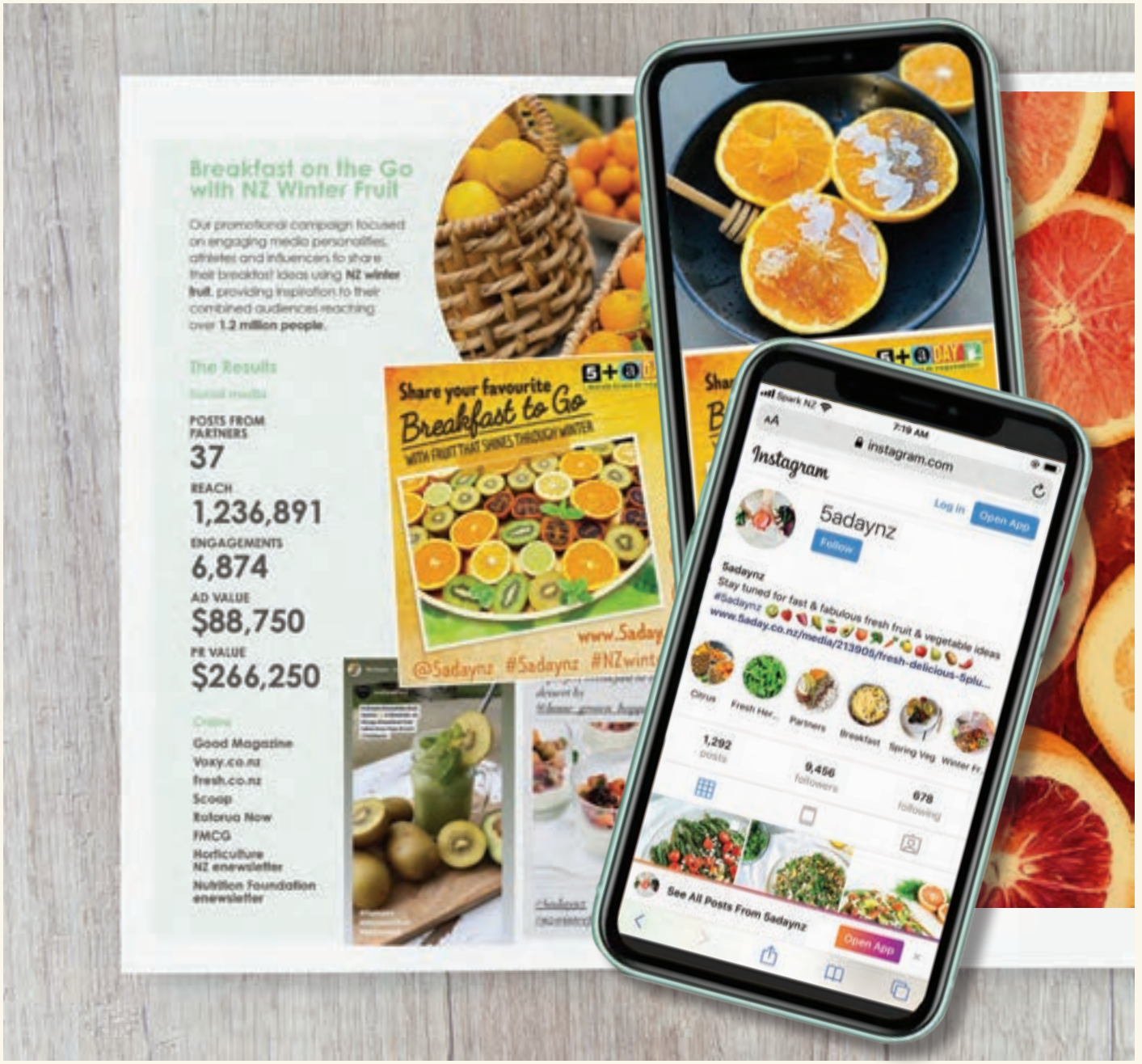
Research in late 2019 highlighted that breakfast provides a real opportunity for people to incorporate more fruit into their day. With this in mind, the campaign focused on providing fresh, quick and convenient inspiration for fruit-filled breakfasts.

We promoted new recipes, serving suggestions, giveaways and nutritional information on our popular @5adaynz social media platforms, where we reached over 300,000 Kiwis. We developed a media release for the launch of winter fruit and advertised on television.

The social media promotion engaged media personalities, athletes and influencers to share their ideas using winter fruit for breakfast with their audiences, reaching over 1.2 million views, calculated at an estimated $265,000 worth of promotional value.

Through our strategic sponsorships New Zealand winter fruit also featured on *What Now*, the iconic children's television show on TV2, and in our new 5+ A Day television commercial that achieved millions of views over an 8-week period.

The 5+ A Day Charitable Trust was formed in 2007 by United Fresh New Zealand Incorporated. The Trust was set up for the benefit of all Kiwis, especially children, and is committed to increasing the consumption of fresh fruit and vegetables for the better health of all New Zealanders.



We encourage Kiwis to eat five or more servings of colourful, fresh fruit and vegetables every day for good health.

Our vision is to have all Kiwis understanding and enjoying the benefits of eating a daily diet rich in New Zealand grown fresh fruit and vegetables.

To find out more about 5+ A Day visit **www.5aday.co.nz** and follow us on social media @5adaynz. For more about United Fresh join us on LinkedIn – United Fresh New Zealand Incorporated – and visit our website **www.unitedfresh.co.nz.**

Valuable molecules base for new industry

A Memorandum of Understanding signed in August could set the scene for the development of a valuable bioactives export market. Foundation partners Bay of Plenty–based Te Whai Ao Ltd and nano–tech company Ligar LP are keen to attract further industry partners.

By Geoff Lewis

Eirlys Bond, engineer, with reactor

The initiative aims to identify, extract and commercialise high-value bioactive molecules from plant-based foods and horticultural waste and capitalise on global consumer interest in immunity-boosting supplements, ingredients and plant-based foods.

Te Whai Ao Ltd is a subsidiary of Te Awanui Huka Pak, and Te Awanui Huka Pak is a Māori-owned trust with about a 9% stake in integrated orchard to market service Seeka, and the largest Māori grower collective in its industry, comprising both kiwifruit and avocado growers.

Te Awanui Huka Pak chief executive Te Horipo Karaitiana says the idea of establishing a venture with Ligar and building a refinery came from the Federation of Māori Authorities Solutions Lab concept intended to provide connection, innovation and technology to Māori collectives.

"The Federation is the peak body for Māori collectives that covers about one million hectares of land in Aotearoa New Zealand, most of it in primary industry. What we are looking at is how to leverage what we have and start talking about innovation. For Te Awanui Huka Pak, we want to know what we can do with the biomass from our orchards in kiwifruit and avocados.

"The initial project focus is bioactive molecules present in biomass on Māori land. A detailed review of the bioactive content of waste streams from avocado and kiwifruit production has already begun, with other sectors to follow."

Central to the initiative is the creation of a Solutions Lab and bioactives refinery, probably on land in the Tauranga area and possibly part of an 'innovation park' with other science-based organisations. Te Awanui Huka Pak has land and hopes to have a site for the project selected by the end of the year. No costing of the project has yet been undertaken and would depend on the requirements of Ligar and any other enterprise interested in taking part, Te Horipo Karaitiana says.

"A key to the commercial success of the project will be the ability to extract molecules at scale, so we need to invest in a purpose-built facility. We're also seeking industry partners to take the initial high-potential bioactives to market. We're already in discussions with several parties in the nutraceutical and functional food markets, and we're keen to talk with other potential partners who have an interest in other areas such native natural flora, fauna and fungi."

Aiden Tapping, managing director of Ligar, which is based in Hamilton, says the company's world leading commercial scale polymer-based purification systems can extract high-value molecules or contaminants that may only be present at the parts-per-billion level.

"Our technology can turn horticultural waste streams into higher value products. This is in line with the Primary Sector Council and government's *Fit For a Better World* vision to accelerate the productivity, sustainability and inclusiveness of the primary sector, to deliver more value

Te Horipo Karaitiana, Te Awanui Huka Pak

Nigel Slaughter (left) and Aiden Tapping (right) at Ruakura

for all New Zealanders. This project will contribute to the goal of helping to lift export earnings by $10 billion per annum by 2030," he says.

Ligar's proprietary Molecularly Imprinted Polymers (MIPs) are 'smart' materials that have the ability to selectively capture and remove specific molecules or groups of molecules from fluids. Ligar makes MIPs in large volumes so that they can be used efficiently at a commercial scale.

"We are bio-prospecting. There is plenty of stuff out there that is not unique but has value. Our aim is to find something valuable."

Nigel Slaughter, refinery development leader, Ligar's chief exploration officer and its foundation chief executive, says Ligar had been introduced to Te Awanui Huka Pak through mutual contacts.

"They were looking for innovative ways to increase the value of their products, build on high-value science and bring the world of western science into the Māori world to help give future generations new skills.

> **"...increase the value of the products, build on high-value science and bring the world of western science into the Māori world to help give future generations new skills**

"There is a worldwide search for flavours and aromas, for instance the molecule that creates the vanilla flavour is quite common. We're looking for that 'sweet spot' molecule we can isolate out."

"We are looking at the nutritional end and adding to high-value foods. There is an 'eat yourself healthy' trend in bioactives and the 'origin story' is critical. Anything we find has to be sustainable, that will be the back story, and it flows into the value of the product."

The Bioactives Refinery Strategy was developed with co-investment from the Ministry of Business, Innovation and Employment Māori Commercial Advisers and Vision Mātauranga funds. ●

Harold Woolford

95-year-old orchardist still plays key role

Harold Woolford, 95, is still actively involved in the McMiken Orchard in Newstead.

By Claire Ashton

"I still get out on the tractor to do a bit of mowing and grafting. I also use my mobile scooter to inspect the orchard rows planted in apple, pear, nectarine, and plum trees," he says.

The McMiken orchard is unusual in that it lies east of Hamilton, an area not traditionally associated with stonefruit.

William Jeffrey McMiken – Harold's father-in-law – established the orchard, which saw the family through tough times. The orchard was one of the first in the Waikato to have a coolstore and to engage in Saturday trading. It flourished until the land was annexed by Waikato University in 1963, when the orchard shifted to Newstead.

Harold moved from Auckland to the Waikato when he married Peggy McMiken, who was one of the four girls in the family. Harold was diverted from a carpentry career and was taught to be an orchardist by Jeffrey. This led to a life full of the family business, which is year-round.

"There is no down time on an orchard and the only holiday was at Christmas time, but even that was spent working on the family bach," Harold recalls.

"I have overseen quite a few changes over the years. People used to drive up the long driveway to buy fruit, primarily apples and pears but also peaches, as they used to bottle them. That trend waned in the 1980s when supermarkets started to stock fruit and vegetables, and customers got used to getting everything at a 'one stop shop'."

From the challenges of the days when they graded produce for export, to managing rogue frosts and losing whole crops,

the seasons always bring something unexpected. Jeffrey taught the family to always put something aside to cover the unpredictability of the weather and how it may affect crops.

"We once lost a whole stonefruit crop to heavy frost while hail decimated the Granny Smiths one year. But at least the heavy Hamilton fogs have lessened over the years."

After the Verroa mite hit, the family noticed that the wild bees disappeared, but after planting up the gully behind the orchard in native trees and bushes, there's been a big increase in the bee population.

"Native birds have returned too, which I think is due to the gully restoration projects around Hamilton," Harold says.

The orchard has closed its gates for the year but will reopen in mid-December.

TECHNICAL

THE LATEST INNOVATIONS AND IMPROVEMENTS

Figure 1: (above) Light hail in the early season can become very ugly by harvest. With warming climate it is likely that hail incidence will increase because higher temperatures mean more energy in the weather systems that drive storms. Hail nets will minimise this injury.

Climate Change Is Upon Us – Time to Future Proof Your Orchard

Over the last few years I have noticed a distinct shift in our climate towards a longer growing season, with warmer and drier summers.

By John Wilton : Deciduous Fruit Specialist, AgFirst

A few years back we usually experienced a significant frost event in the more sheltered parts of the Heretaunga Plains sometime in the first half of April. These days such frosts do not tend to turn up until into May.

Spring frosts, however, are not so kind to us in that damaging frosts continue to occur after bud break, so good frost protection is still necessary.

Hailstorms are also a continuing hazard to developing fruit crops, and most years there are damaging hailstorms somewhere across our fruitgrowing districts.

Warming climate means more energy driving the weather, so it is likely that adverse weather events may become more ferocious in the future.

In my younger days I recollect eastern areas of the North Island to be pretty windy, particularly over the spring and early summer period.

In the last few years there has been a lot less wind, particularly over the winter and summer. For instance, the prevailing south-westerlies that used to blow for many weeks on end in late winter and spring are no longer getting as far north as the Heretaunga Plains.

Figure 2: An example of a hail net support structure designed into the tree support structure. Additional costs of the hail net in this situation are estimated to be around $15,000/ha, and the whole tree support structure with its 4.2m posts plus hail net around $55,000/ha.

The lower eastern side of the North Island receives most of its rainfall out of the east and south-east. In the past a good easterly weather system would give three or four days of rain and such events could deliver 100mm of rain or more.

These days we still have the odd easterly weather system, but often we only get a few showers out of them rather than a consistent rain event.

Anecdotal evidence indicates the climate is sure changing.

Future Hazards

As far as I can see we face two main problems going into the future:

More droughts with higher summer temperatures

Rising sea levels

Figure 3: Beginnings of sunburn injury to Scilate apple without net protection. Note paling of the upper sky facing apple skin.

While these are the main problems, there will be numerous side effects resulting from them.

Other effects we can expect to see include:

- Marginal winter chilling to satisfy dormancy breaking requirements.
- Increasing levels of sunburn and heat injury to sensitive fruit crops.
- Reduced photosynthesis as a result of higher summer temperatures and water stress shutting the stomatas, preventing gas exchange. This will lead to smaller fruit size at given crop loads.
- Microclimate effects will alter and there will be a general shift in production to higher altitudes and further south for temperate crops.
- New higher value sub-tropical 'niche' crops are likely to extend southwards onto the more sheltered, milder parts of the Heretaunga Plains. E.g. Avocados and kiwifruit.

> **New higher value sub-tropical 'niche' crops are likely to extend southwards onto the more sheltered, milder parts of the Heretaunga Plains**

Tackling the drought problems

Water storage

Winter water storage for summer release into our main river systems is the key to managing summer water supply problems.

This water storage needs to be located in the terrace and hill country between the Heretaunga Plains and the mountains where most of our rainfall occurs.

Water storage needs to be focussed on relatively non-productive land. The economics of building dams for water storage is very dependent on the topography of sites chosen. The most economic are narrow dam sites with a huge area for potential water storage behind them. We have many summer dry gullies in the terrace and hill country behind our high quality cropping and orchard land which are around 30m wide, perhaps 15 to 20m deep, and in the terrace country often stretch back a kilometre or more without gaining much in the way of elevation. Great sites for water storage.

Building water storage on valuable land in comparison to this approach is very expensive and will take up more productive land, in comparison to the area that would become productive with the benefit of summer irrigation supply on land that is left to use. Furthermore, storing water on high value sites is likely to bring with it other problems such as altering water tables and Occupational Safety and Health (OSH) issues.

Figure 4: This Scilate apple is in a similar position to the unprotected apple in figure 3, but is in the netted part of the block. Note the absence of any evidence of sunburn injury. Net trials have been shown.

Drainage

Experiences and lessons learned in the 2020 summer drought showed that on the better soils where trees were well established with deep root systems, many orchard blocks came through the dry well with little need for irrigation.

Our soil moisture monitoring indicated that while the top 50cm to 70cm of soil profile was dry, and had moisture levels below irrigation trigger points, there was still ample deep water for the roots to tap into, consequently these blocks showed little indication of stress.

There are also benefits for fruit quality in forcing trees to tap deep water. Nitrogen levels down there are low, so summer nitrogen uptake is less, leading to much better fruit colour development.

To maximise the ability of the soil to supply moisture during the summer, drainage systems need to be as deep as practicable, preferably 1.2m or more. Often drainage depth is limited by outflow. As sea levels rise this will become a greater problem. The answer to this problem will be to install sump pumps rather than drain directly into an open drain or stream outlet.

In recent years low voltage pumps that do not need an expensive 230-volt power supply have become available so there is no need for expensive mains supply.

Irrigation Management

Newly planted trees with confined root systems need relatively frequent watering because of their limited rooting zone, but once established, beginning in the second growing season irrigation frequency needs to be pulled back and length of run increased to encourage deeper water penetration and therefore deeper rooting. On good soils, even in the second growing season it may not be necessary to commence irrigation until well into summer.

> **On good soils, even in the second growing season it may not be necessary to commence irrigation until well into summer**

Even dwarfing rootstocks such as M9, which individually is quite drought tolerant, can be encouraged to develop deep and resilient root systems.

Light shallow soils, or sandy soils with restricted drainage tend to give the most water stress and drainage problems. Unless there is a good long-term guaranteed irrigation water supply, these soils are best avoided for fruit crops because they do not have the ability to supply adequate soil moisture to prevent water stress during prolonged dry periods.

Heat Stress and Sunburn

Incidence of these problems will increase as climate change progresses.

Areas near the coast in the sea breeze zone will be less affected than inland locations.

Hail net is the most effective tool for managing heat stress and sunburn as well as giving hailstorm cover.

Provided hail net has been considered prior to planting the orchard, the additional cost for hail net is not that great if the tree support structure has been designed to support the net as well.

Hail net will alter the orchard environment, so crop husbandry practices need to take into account the net effect on tree growth behaviour.

Netting has been found to change tree behaviour in the following ways:

- Tree vigour increases.
- Pollination can be more difficult.
- Harvest maturity is delayed a few days.
- Irrigation water requirement is about 30% lower.
- Chemical thinning sprays are more effective.
- Slower drying may lift disease pressure.

Husbandry practices need to be adjusted to counter these effects on tree behaviour, otherwise the impact of the net may be negative rather than positive.

Because tree vigour is increased, wider tree spacing may become necessary to accommodate this. Incidentally, this would be a good way of paying for the net without increasing the total cost of the orchard development.

Increased tree vigour can increase pit and blotch incidence.

'In row' pollinators are necessary to ensure uniform fruit set.

Netting is a useful way of spreading harvest.

Irrigation requirement is lowered so there is less pressure on limited summer water supplies.

Wind run under nets is 30 to 50% lower than an open orchard. This means less wind blemish to fruit, and enables more spraying time for netted orchards.

A well-managed orchard under net should show a positive return on the additional capital outlay without hail, due to the impact of the net on sunburn, other blemish and fruit quality issues.

For those growers operating in 'niche' market areas, continuity of supply to their customers is an important consideration, so a severe hailstorm can cause serious injury to their supply base.

Rising Sea Levels

This problem appears inevitable and unless well managed mitigation measures are developed and implemented, will likely rob us of our best soils.

There are solutions to the problem, as the Netherlands and other coastal European nations have shown us.

Fifty years ago I was in orchards six to seven metres below sea level in the new Polders in the Northern Netherlands. It can be done but will need very good long-term planning, lots of capital and the defeat of a few sacred cows in conservation land. ●

La Niña declared

By Georgina Griffiths : Meteorologist, MetService

La Niña conditions are now present (observed) in the tropical Pacific Ocean. During the last few weeks, sea surface temperatures (SSTs) along the equator have continued to cool (Figure 1). The monthly NINO3.4 SST anomaly (measured between longitudes 120°W and 170°W) was -0.6°C in August, exceeding La Niña thresholds.

Global climate agencies also noted a coupling in the ocean-atmosphere system, consistent with La Niña conditions, declaring that La Niña is now in place.

Short term factors

In the short term (through until October), the resurgence of the spring westerlies, interspersed by intense Highs over New Zealand, will matter more than La Niña.

In addition, at the time of writing, drier than normal conditions for many parts of the lower North Island, as well as notable dryness in the north and east of the South Island, are becoming a concern as we move further through spring (see Figure 2). At the time of writing, year-to-date rainfall accumulations at Pukekohe are sitting at 73% of normal, with Taupo sitting at 69%, and New Plymouth at 83% year-to-date normal.

Blenheim year-to-date rainfall accumulation is currently sitting at only at 60% of normal, with Ashburton at 68% of normal.

La Niña – what does it mean longer term?

La Niña conditions are expected to continue through spring and into summer. At this early stage, forecasters favour a 'borderline' moderate strength event.

La Niña becomes an important driver for New Zealand over longer durations (for example, across two to six months), when moderate or strong La Niña events are in force.

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

During a typical La Niña late spring and summer, more Highs than normal lie over the South Island, as well as east of the country. This usually leads to below normal rainfall across much of the South Island.

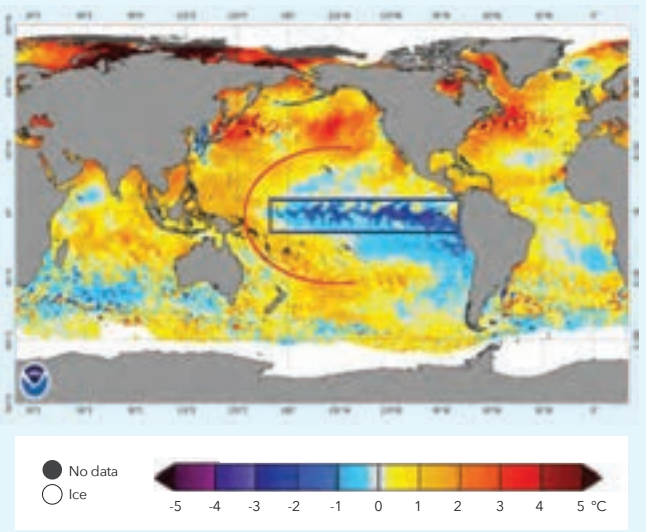


Figure 1: A snapshot of sea surface temperature anomalies (deviation from normal), as at 13 September 2020. Blue colours indicate cooler than usual seas; red colours indicate warmer than usual waters. Data are presented at 5km resolution. Image is courtesy of NOAA (US National Oceanic and Atmospheric Administration). This image shows the characteristic La Niña 'cold tongue' (blue box, centred along the equator), surrounded by the typical La Niña 'warm horseshoe' (red curve).

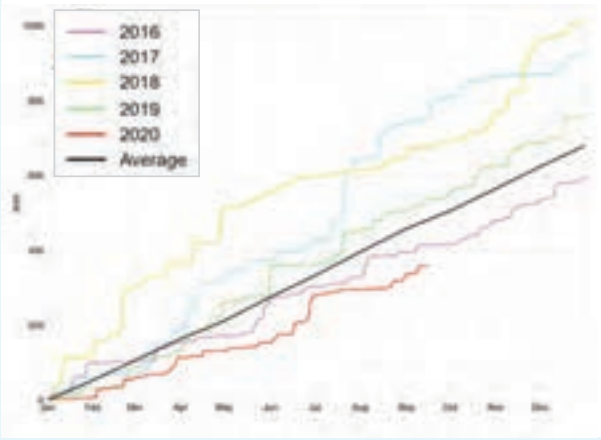
Easterly winds are more common than usual across the upper North Island during La Niña, with fewer westerly regimes across the lower North Island. Often, but not always, above normal summer and autumn rainfall is observed over the far north of New Zealand (Northland, sometimes Auckland, Coromandel, parts 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**.

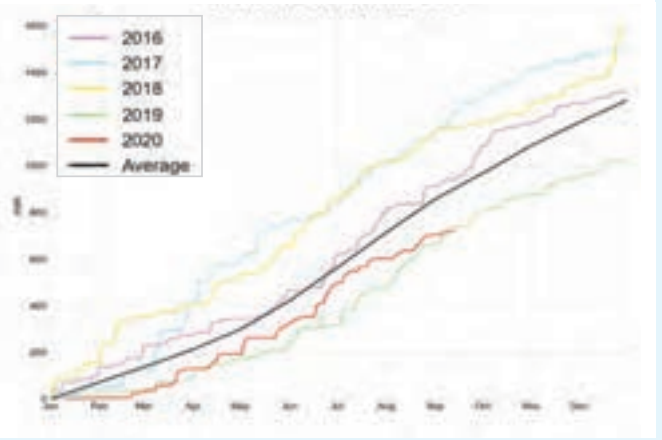
Rainfall accumulation

Figure 2: Annual rainfall accumulations (mm) for the following areas in the last five years (2016 to 2020). The annual average rainfall accumulation is shown in black.

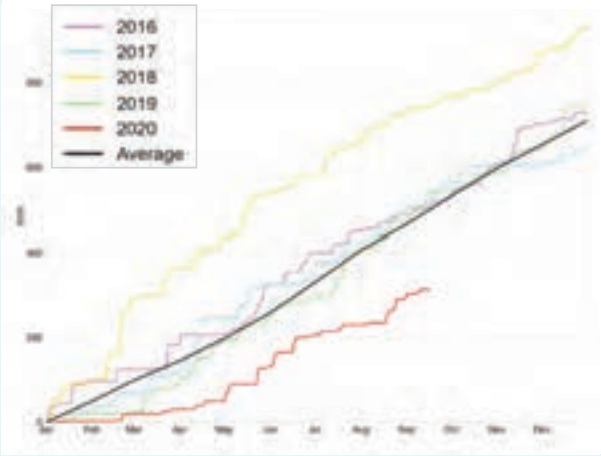
Ashburton



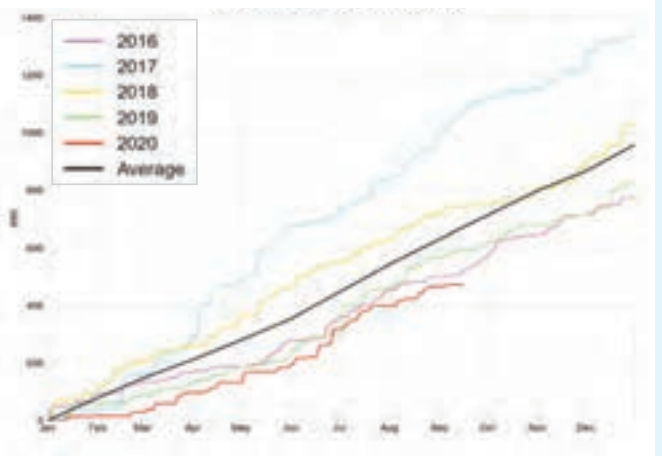
Pukekohe



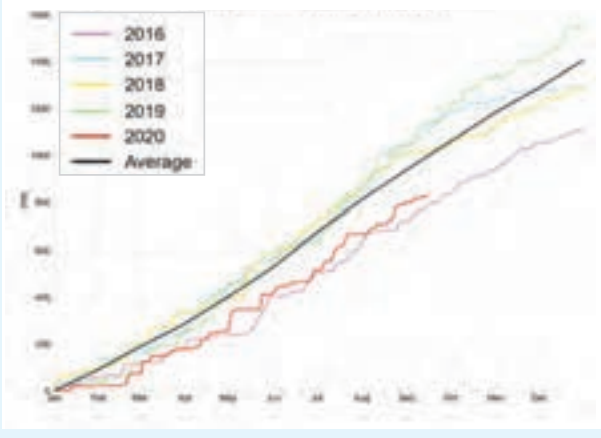
Blenheim



Taupo



New Plymouth



Sprayer Calibration – the first step in your pest control management programme

By John-Paul Praat and Jane Lamb : New Zealand Agrichemical Education Trust

Don't take it for granted that last season's sprayer set up will do for the coming season, or that your sprayer will just keep doing what it has always done. An annual sprayer calibration is like an oil change for your tractor, it keeps it running smoothly and avoids costly breakdowns or other mishaps during the season. At the very least, the system should be checked for leaks, potential leaks, filters should be checked and cleaned, and pressure gauges and flow monitors checked to ensure they are working correctly. It is also vital to check the quality and quantity of output from each nozzle.

Overall volume application rate, which may either be litres per hectare (L/ha) or perhaps litres per metre row length, should be within 5% of your target rate. Product labels and industry guidelines will help you set the appropriate target volume application rate for your crop and stage of growth. Calibration will pay you dividends during the season by helping to achieve your targets.

Why Calibrate?

The purpose of agrichemical application is to apply the correct amount of active ingredient on the target plant, insect, fungus or soil. If you don't calibrate your equipment correctly, you may be applying too little or too much agrichemical, which can lead to problems.

Why calibration is important

If you use too little agrichemical:

- spraying may be ineffective i.e. pests or weeds may not be controlled
- there is a risk of developing resistance to the agrichemicals you are using
- there will be increased risks and costs from control failure and you may have to reapply.

If you use too much agrichemical:

- it is a waste of the product
- there is increased cost
- the risk to you and the environment increases through run-off or drift
- there is increased risk of excess chemical residues in crops.

Sprayer calibration provides you with confidence that the correct amount of spray mix (both product and carrier) is being applied. This information can help ensure you are applying the amount of solution (dose) required by the product label. While operating a calibrated sprayer offers practical benefits by saving time and money and avoiding waste, it also plays a key role in crop management, agrichemical resistance management and maintaining access to markets.

It will pay dividends during the season by helping to achieve your targets

Agrichemicals are an important crop management tool for controlling insect pests, disease and weeds. When there is a control failure, one of the first questions the product supplier will ask is 'was the sprayer calibrated and what are those details?' The supplier needs to ascertain whether the label application recommendations were followed. Documented calibration procedures showing what measurements were carried out will be required. Desktop or theoretical calibrations will not suffice as they may not reflect actual sprayer performance. These do not provide proof of performance. In some cases where the theoretical calibration has been relied upon and no checks have taken place, it is not until control has failed and it is too late that actual calibration performance is measured and found to be incorrect.

Why a theoretical calibration may not be accurate

Practical issues such as:

- inaccurate tractor speed charts
- tyre inflation different
- surface conditions (wheel slip)
- imprecise flow charts, especially for disc and core nozzles
- pressure measured at the nozzle may not be the same as that measured at the regulator.

Note: Flow meters require calibration even when new and are subject to wear and tear.

Detailed calibration of an orchard sprayer

Photo courtesy of Andy Mawley, Fruition Horticulture

Calibration is a key strategy in avoiding development of resistance to agrichemicals. The New Zealand Pesticide Resistance Management Committee states that "the right product must be used at the right dose rate at the right time and applied to the right place to avoid development of pest or weed resistance to agrichemicals". Spray coverage is key to resistance management, and calibration is vital to achieving good coverage.

> **"the right product must be used at the right dose rate at the right time and applied to the right place to avoid development of pest or weed resistance to agrichemicals**

Sprayer calibration is also a prerequisite for access to some markets. NZGAP and GlobalGAP (Good Agricultural Practice) require evidence that the sprayer has been calibrated. Generally, a qualified calibrator must be used i.e. someone holding a Growsafe Registered Calibrator certificate or the Growsafe Advanced certificate if calibrating their own equipment.

When to calibrate?

Calibration should be carried out at least annually or after significant changes such as a new tractor, new tyres or a change in crop type or architecture. Calibration will also be required when implementing new techniques such as using low volume application rates or new nozzle technology.

Simple things can catch operators out. For example, concentration is determined by how much product you add to the tank. However, tank sizes can be inaccurate. Before you use a sprayer, you should check the accuracy of the volume marks on the side of the tank. Some tanks can be out by 10%. For example, a 1,000-litre tank may actually hold 1,100 litres, which will mean the spray mix is less concentrated than you have planned. The best way to check volume is by weight. As you fill the tank with water, compare the markings on the side of the tank with the weight added. Livestock scales or a weigh bridge can be used for this. Alternatively, a calibrated flow meter could be used. This type of check is advisable irrespective of tank size, and even knapsacks have been known to have misleading volume markings.

Key factors

The key elements determining the amount of agrichemical applied are:

- **Flow rate** – This is affected by the type and size of the nozzle and by the pressure. Higher pressure increases flow rate and more spray mixture is applied. Different sized nozzles allow different amounts of spray mixture through; and a worn nozzle will allow more spray mixture through.
- **Speed** – If the flow rate stays the same, going faster will apply less spray to each target plant. Higher speeds may be used early in the season when canopies have few leaves and lower volume application rate can be used. However, care must be taken not to go too fast and compromise coverage. If a rate controller is being used the target flow rate must also be adjusted. This is usually done by reducing the number of nozzles and/or the sprayer pressure.
- **Row width (distance between rows)** – The wider the row width, the more area the spray mixture is being spread across.

STEPS IN CALIBRATION

STEP 1 — PLANNING

Calibration planning requires knowledge of the agrichemicals, machinery and targets. Whether you undertake your own calibration or use a registered calibrator, you will need to make decisions on what product rates are required, what volume of water should be used and how much coverage is required. Consider the range of set-ups you may need for different plantings within your orchard.

STEP 2 — PREPARATION FOR CALIBRATION

Carrying out some simple tasks before calibrating a sprayer will save time and money when using a registered calibrator. Clean down the sprayer and clean individual nozzles by taking them off (in order) and soaking them. Check tyre pressures of the sprayer and the tractor. Also check that the tachometer is working.

STEP 3 – CALIBRATION

Choices need to be made on the nozzle type and size, droplet size, nozzle arrangement, travel speed, use of air, air speed and profile. It also involves some calculations. Templates for calibration calculations are available from industry guidelines and production manuals, NZS8409 (New Zealand Standard: Management of Agrichemicals), Growsafe courses, nozzle catalogues, applications on smart devices from suppliers and the Growsafe website. Calibration training is available through industry programmes. Growsafe's Advanced programme is suitable for those calibrating their own spray equipment, although use of a Growsafe Registered Calibrator is still recommended for complex spraying operations.

STEP 4 – CHECKING

In most spraying operations the spray nozzles are already fitted and travel speeds, output volumes and chemical rates have been established. During spraying, the operator needs to ensure that the target is adequately covered, to watch for leaks and blocked or damaged nozzles, and to confirm that application volumes match those expected. Where the area or row length to be covered is known, it is possible to estimate how much can be treated per tank and how many tanks will be required to treat the area. Operators need to check these expected figures against the actual volume used. For example, if you should be able to spray five rows with a single tank, then you should check your equipment if you run out significantly before or after you have sprayed five rows. Sprayer operators and their managers should keep running totals for each application of area or row length of crop covered and the volume of spray mix used. In this way checks are continuous, comparing target with actual volume application rate to identify any discrepancies. Actual application should be within 5% of the expected or targeted rate and any differences of more than 10% should be investigated and resolved.

There is calibration and then there is calibration

The simplest approach uses a standard dilution e.g. 100ml litre product per 10 litres of water and wet or spray the target to the point of 'wet but no run-off'. Spot spraying with a knapsack is an example of this and calibration requirements are limited to calibration of measuring jugs and the knapsack's tank.

Area-based or boom spraying requires application of an even amount of agrichemical across a target on a known area of land e.g. spraying a paddock of onions. Modern GPS (global positioning system) based controlled systems have improved the accuracy of this process by matching adjacent spray runs, shutting off boom sections or nozzles to avoid overlaps and adjusting nozzle output along the spray boom during turning.

Canopy-based spraying has the most complex requirements as application rates must be adjusted to match the size and density of different target canopies e.g. increasing rates as trees develop from bare branches to full leaf. Given most orchards have a range of varieties, plant age, row spacings and tree architecture this can be challenging to manage.

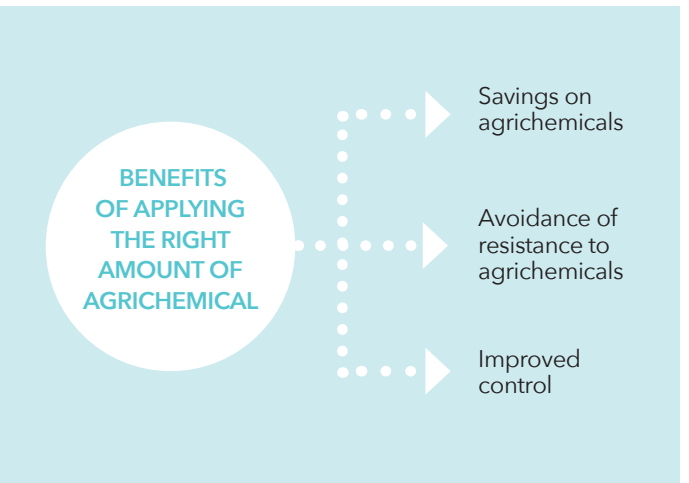
These adjustments can be automated by canopy sensing and nozzle control systems, but these are not common. Rather, these adjustments require more elaborate calibration in terms of the range of nozzles, pressure and speeds used. Recommendations for applying a rate per metre row length with adjustments for canopy density and height are becoming more common in the industry.

> **Canopy-based spraying has the most complex requirements as application rates must be adjusted to match the size and density of different target canopies**

Coverage

In all cases, spray coverage is key. Coverage should be checked, especially for canopy-based spraying. Artificial targets and spray tracers are simple and effective tools for this. Water sensitive papers are the most common and easiest artificial target to use and are available from equipment suppliers. These can be attached to any part of the target or other holder in the canopy and spray is applied as normal. Assess the coverage in harder to spray areas or at specific targets like the underside of leaves in relation to the pest and product being used. Tank products can also be used for visual assessment, including a dye which glows in the dark under ultraviolet (UV) light and kaolin clay which leaves the white clay on target surfaces. The clay washes off in the rain and is harmless, as is the UV dye, but these techniques should not be used in the lead up to harvest.

Conclusion



Savings on agrichemicals, avoidance of resistance to agrichemicals and improved control are all benefits from applying the right amount of agrichemical as a result of calibration. When was the last time your sprayer got a complete review? ●

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- **TCT Ag Trencher** is ideal for installing agricultural and horticultural drainage systems which are essential to save money and protect the environment. Implementing an efficient drainage system will help prevent damage to crops or grazing land. With quality drainage systems, excess surface water is quickly drained away, which is beneficial to crop and soil management.

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Keeping tabs on production as simple and easy as ABC Software

Central Otago packhouse CAJ van der Voort reckons that using ABCpacker is pretty straightforward and having it tweaked to exactly what they need is even easier.

The top of line packhouse in Ettrick pushes through over 800,000 tray carton equivalents in a season and boasts some of the latest in New Zealand and Dutch pipfruit sorting and packing technology to achieve best efficiencies and productivity.

Two seasons ago Jackie van der Voort, packhouse post-harvest manager, called on ABC Software to provide an integration solution for its Dutch 14-lane Greefa Geosort system, which can produce about 2,500 cartons an hour.

ABCpacker now captures all aspects of the packhouse operation and links into the same system at the T&G Ettrick coolstore.

Jackie says this unique integration works brilliantly. "CAJ has integrated the ABC software with our packhouse and the T&G coolstore, which allows the operators a real time view of inventory at both sites. This allows the packhouse to streamline its packing plan.

"Having two businesses working together with one piece of software is efficient and creates real synergies."

Rodger Brown, T&G Ettrick site manager – pipfruit, says the "sheer ease of the software is fantastic." He says it makes the whole process completely visible with clear traceability on dispatch. The integration with his charging system is another bonus.

Rodger believes productivity is improved due to connectivity. "It's easy for the operators, they can do everything from their seat anywhere in the coolstore. There's no delays like in the past. We can locate what's needed straight away. I'd say things have improved 10-fold."

The simplicity of 'point and click' made it easy for his team to learn. "And the ABC support crew is always only a phone call away."

ABC Software provided an integration solution for CAJ van der Voort packhouse's Dutch 14-lane Greefa Geosort system, which can produce about 2,500 cartons an hour.

Photo courtesy of CAJ van der Voort packhouse.

A third aspect of the ABC connectivity is with the orchards sending into T&G. Remarkables Orchard is a case in point. Manager Mark Sim utilises ABCgrower, which integrates seamlessly into ABCpacker.

He uses the software on his 70ha mixed orchard to check on picker and thinner performance, identifying those that need training or supervision to lift their output. It also allows him to check daily reports to see the financial implications of each day's activities and adjust as needed. Everything is easily recorded and traceable, Mark says.

All three parties are enthusiastic about the flexibility and willingness the team at ABC Software has to adapt, amend and enhance their software to meet specific individual needs.

Leandro Massariolo, dispatch coordinator at the CAJ packhouse is responsible for ensuring the software performs as required. He says the system worked well in the first season, but ABC Software was keen to make it better. The second season was even more efficient, he says. "They came here and listened and were pretty much onboard with anything we wanted to do, and they made it happen."

Jackie van der Voort agrees. "Whether it's a tweak or a design enhancement, they're ready and able to create something different. If we want to look at something differently or report in a different format, those opportunities are there. We're not stuck with a product that's come off the shelf that's inflexible, it is absolutely fit for purpose." ●

For a fuller version of this article or further information about ABC Software visit **www.abcsoftware.co.nz**

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