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HORTICULTURE NEW ZEALAND

GROWING YOUNG PEOPLE

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ON THE COVER:

Levin growers back initiative, see page 18.
Photo by Hugh Chesterman.
Pictured is Grace Tabite, Horowhenua College.

WHAT'S NEW

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

WHAT WILL HORTICULTURE BE LIKE WHEN OUR NEXT GENERATION OF YOUNG LEADERS HAVE THE REINS?

Words by Barry O'Neil, President : HortNZ

Over the past few months, I have been attending our Young Grower of the Year regional competitions. These are wonderful events and it is great to see good numbers of young horticulturalists entering, along with industry people getting actively involved by attending the competitions to support and celebrate these young people, some of whom will one day be our future leaders.

And after what has been a difficult year, it's really nice to have something to celebrate!

Since 2007, HortNZ has run the annual Young Grower of the Year competition. Young fruit and vegetable growers from around the country compete in regional heats, testing their horticultural skills and knowledge. This year we have seven regional events with the winners of all the regional competitions then competing in the national final.

So later this year we have the final competition in Wellington where all the regional winners enter to determine who will become the New Zealand Young Grower of the Year for 2021.

With the generous support of our sponsors, there are many prizes for contestants in both the regional finals and the national final, including $12,000 for the winner.

We have some amazing young people in our industry. Being part of these competitions gives me great confidence that we will have some very talented future leaders, so let's make sure we look after them, prepare and support them well, and most of all, retain them!

> "With the generous support of our sponsors, there are many prizes for contestants in both the regional finals and the national final, including $12,000 for the winner

And while there is only one winner from the competitions, every contestant who has put themselves forward has shown they are a winner as they have started their leadership journey, wanting to improve their abilities and skills, to become better growers and better people. So I hope all contestants continue to look for every opportunity in their workplace to continue to learn and develop themselves.

Our future young leaders are likely to be employed by larger businesses, as we see the continued rise of corporate growers. Scale often means the more efficient use of assets and the means to invest in modern growing and packing options. Scale also helps businesses employ permanent staff, so there's less reliance on seasonal demands.

> "We have some amazing young people in our industry. Being part of these competitions gives me great confidence that we will have some very talented future leaders, so let's make sure we look after them, prepare and support them well, and most of all, retain them!

Alternatively, if the business is smaller, it will probably be niche based and producing and delivering to a select set of customers, based on their values.

So with all this in mind, what do I see as some of the leadership skills that our future leaders will need in order to succeed?

WHAT SKILLS WILL OUR FUTURE LEADERS NEED IN ORDER TO SUCCEED?

- More collaborative
- Able to work in larger and more complex, corporate operations
- Good communicators
- Confident in speaking to a wide range of people
- Dynamic
- Kind and empathetic
- Strong community and social consciousness
- Positive and active

Our future leaders will need to be more collaborative, not trying to do everything within one operation but looking at how they can align, partner and build on the opportunities and efficiencies that others can provide to their business. Specialisation is all around us and we as growers won't succeed if we try and do everything, when there are others that are better at doing it. And rather than lose some of our business by collaborating, we can focus on what we do best and as a result, become even more successful

It's pointless competing in New Zealand if we can successfully collaborate to our mutual benefit – whether that be sharing workers, combining packing operations, or even chartering ships to take our produce offshore.

Our future leaders will be managing larger and more complex, often corporate based operations, so the skills they need to succeed must be aligned. They will especially need to be good communicators, confident in speaking to a wide range of people and in leading the larger numbers of staff working in their business. They will lead by influence and example, not by giving instruction, so everyone can move forward together as a team.

Our future leaders will also have to be dynamic, able to move seamlessly between the needs of the crop or orchard and the needs of the office. They will be technology savvy, able to embrace new technology and adjust the business accordingly. But one thing that won't change is the absolute focus on growing the fruit and vegetables that the consumer wants: healthy, nutritious, safe and great-tasting products, produced sustainably.

> "I can see that our future leaders will be great people to work with. They are the future of our industry

Lastly, I hope future leaders will have a kind and empathetic style, not as self-centred as some that have proceeded them. I also hope they will have a strong community and social consciousness, and be positive and active in connecting to their community.

I can see that our future leaders will be great people to work with. They are the future of our industry, and from what I have seen in the Young Grower of the Year regional competitions, there some amazing future leaders coming soon to a place near you! ●

NZGROWER

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Your Levy AT WORK

MPA Associate Member (NZ)

Horticulture™ New Zealand Ahumāra Kai Aotearoa

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SUPPORTING GROWERS TO THRIVE

Words by Nadine Tunley, Chief Executive : HortNZ

As you read this column in early July, it will be a good four weeks since I started in my role as HortNZ chief executive.

Over that time, I have been on several regional visits meeting passionate and enthusiastic people from across the horticulture sector. I have also met quite a few government Ministers and officials over a similar time period.

For those of you that do not know, I have been in horticulture before, predominantly in the apple and pear industry as an exporter, director and chair. I have just spent the past four years in the Mānuka Honey industry and have been fortunate to be involved in several other roles across the food and fibre sector. In all of this, I have enjoyed my grower and farmer interactions above all.

> “ **the horticulture sector will be one of the guiding lights for New Zealand agriculture, as an alternate land use option to assist with economic recovery, post Covid-19 and amidst climate change challenges**

In deciding to apply for, and subsequently accepting this role with HortNZ, the purpose of the organisation – ***Creating an enduring environment where growers thrive*** – was a key influence in my decision process. I know from the growers I have met with over the past few weeks that many of you are struggling to see that purpose materialising at the moment.

In addition, now I have met with HortNZ staff and some of the product groups, and read substantial amounts of material around the considerable number of issues facing the entire primary sector at the moment, it is little wonder that many of you are feeling frustrated, and in some cases, uncertain.

I have always been a strong proponent of everyone playing to their strengths, but in the current environment it often feels like the expectation is that you are to be able to play every position on the field. Not only do you need to be the best growers in the world but you need to be chemists, environmentalists, economists, counsellors, health and safety experts, socialists, innovators and entrepreneurs. ***Creating an enduring environment where growers thrive*** feels anything but.

When I became chair of Pipfruit NZ, we were being referred to as a sunset industry by key politicians. As I take up the role of HortNZ chief executive, we have a government now saying that the horticulture sector will be one of the guiding lights for New Zealand agriculture, as an alternate land use option to assist with economic recovery, post Covid-19 and amidst climate change challenges.

One of my key concerns is to ensure that the horticulture sector is not overburdened with unrealistic expectations. As growers, all of you know and understand that your successes have not been a matter of luck. Rather, they have been the product of a long and often arduous journey, which involved many years of refining your knowledge and expertise – as individuals, as an industry and at times, in cooperation with research institutes. Those investments of both time and money are not just simply replicated.

> “ **I will be doing the best I can to provide an environment in which you can thrive, play to your strengths, and get on with what you set out to be: the best growers of healthy food in the world**

In summary, it will be my job and that of the HortNZ team to ensure we are here to support you, advocate, and ensure you benefit from the skills and expertise the Hort team has amassed. The next 12 to 24 months may at times feel relentless but I will be doing the best I can to provide an environment in which you can thrive, play to your strengths, and get on with what you set out to be: the best growers of healthy food in the world. ●

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YOUR LEVY AT WORK

INDUSTRY WIDE ISSUES FOR INDUSTRY GOOD

NATURAL RESOURCES AND ENVIRONMENT

WATER

Hawke's Bay Regional Council Plan Change 9 – Tūtaekurī, Ahuriri Ngaruroro Karamū (TANK) Catchments

In June, the Horticulture New Zealand team presented expert planning, economic, hydrology, water quality and farm planning evidence in front of a panel of independent experts. The HortNZ team was supported by growers from Hawke's Bay Fruit Growers Association and Hawke's Bay Vegetable Growers Association, who provided the panel with examples of how they manage environmental effects, the crops they grow and the involvement they have within local communities.

HortNZ supports provisions that:

- drive efficient use and provide reliability of supply for existing activities,
- promote well designed water harvesting, storage, augmentation and cease take thresholds to improve freshwater outcomes, support economic well-being and increase climate change resilience,
- enable water transfers with highly productive land to drive efficient water use,
- enable crop rotation to support soil health,
- recognise the importance of domestic food supply of fruit and vegetables,
- recognise the value horticulture has in the transition to a low emissions economy,
- recognise tangata whenua values and Māori agribusiness aspirations.

> "HortNZ's primary concern is that we do not support a Water Conservation Order being applied to the lower river

Hawke's Bay – Ngaruoro Water Conservation Order

In June, the HortNZ team presented expert planning, economic, hydrology, water quality and ecological evidence in front of an Environment Court Judge and Commissioners.

The Environment Court is considering an appeal to the Ngaruroro Water Conservation Order over the Upper Ngaruroro, granted in 2019.

HortNZ did not appeal the 2019 decision but the decision was appealed by a number of parties. The appeal by White Water Rafting NZ and Forest and Bird sought that a Water Conservation Order also apply to the lower river.

HortNZ joined the appeal in support of Hawke's Bay Regional Council. HortNZ's primary concern is that we do not support a Water Conservation Order being applied to the lower river. In the view of experts that supported the HortNZ case, there are tributaries in the upper river that could be used for water storage without affecting the habitat in the lower river. In addition, that the bird population of the lower river is influenced by matters outside of the control of a Water Conservation Order, such as works in the bed of the river for flood protection and pest management.

Horizons Plan Change 2

Horizons Plan Change 2 includes updating outdated Overseer numbers and addressing weaknesses in the drafting of the plan, resulting in no viable consenting pathway for many existing growers and farmers.

Plan Change 2 is an interim plan change, focused on driving the uptake of good management practice. Another plan change would be required to implement the National Policy Statement for Freshwater Management (NPSFM) 2020.

The Plan Change 2 decision has been appealed. HortNZ will join the appeal and work to defend the decision. More importantly, we will continue to work with growers and with Horizons to implement farm plans while looking ahead to a long-term planning solution that provides for vegetable growing within the region.

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ON-FARM BIOSECURITY SERIES: FARM INPUTS

Words by Anna Rathé : HortNZ Biosecurity Manager

Each horticultural operation needs to source a range of inputs for production – these include water, plant material, hives, growing media, fertiliser, containers and many more.

Unfortunately, these inputs have the potential to inadvertently bring unwanted pests, pathogens or weeds with them. Having good biosecurity practices in place for your property will minimise the chance of this happening. Starting with clean inputs that are free from pest, disease and weed contamination provides a great foundation for the rest of your production processes.

It can be useful to think about your property boundaries as you would a fortress. Be sure to consider the biosecurity risk associated with any farm inputs before they come across your boundary, and make sure you take steps to minimise any biosecurity risk to your property and your assets.

> "Seeds, seedlings, budwood or canes for planting can be a risk to your property if they are not clean

Farm inputs should be included in your on-farm biosecurity plan. Contact your industry body to see if they have a crop specific template that you can use. If not, you can use the HortNZ template that is available online. Some of the common farm input risk areas are explored below, along with risk reduction actions for you to consider.

Plant material

Seeds, seedlings, budwood or canes for planting can be a risk to your property if they are not clean. Source material from high rated health schemes or certified suppliers if available. Talk to your supplier about biosecurity, hygiene, testing or screening for pests and diseases, and record keeping. Obtain copies of tests, certificates and declarations when available. Inspect plant material on arrival for signs of pests or disease, and isolate new plants away from your production areas for an appropriate period, to check for symptoms of disease before planting. Record from where plant material was sourced so you can trace it back if needed.

Hives

Bees and bumblebees are important pollinators for crops, but may spread pathogens as they move from plant to plant. Good biosecurity practices include sourcing hives from a reputable supplier, finding out where the hives have been prior to your property, and if you keep your own hives, regularly checking their health.

Growing media and fertiliser

Pests, pathogens and weeds can be brought onto your property through contaminated production inputs such as improperly prepared growing media or fertiliser. When making orders, check your supplier has processes in place to ensure growing media and fertiliser are free from viable pests, pathogens or weed seeds. Inspect inputs on arrival and ensure they are free from contamination. Keep records for growing media and fertiliser, including where they were sourced from and where and when they are used or stored on your property.

Containers

Used, dirty or poorly stored containers can present a biosecurity risk. Be sure to check containers on arrival and ensure they are clean and free from contamination, soil and plant debris. Disinfect all reusable packaging and containers that arrive back on your property. Keep records of the source of containers.

In conclusion

The above is not an exhaustive list. You should think about any additional inputs that you bring onto your property and how to minimise any potential biosecurity risk that they may pose.

Remember, if you see anything unusual associated with your farm inputs, particularly anything imported, do the right thing and report any suspect exotic pests or diseases via the MPI pest and disease hotline on **0800 80 99 66.**

Disclaimer: While every effort has been made to ensure the information in this publication is accurate, HortNZ does not accept any responsibility or liability for error of fact, omission, interpretation or opinion that may be present, nor for the consequences of any decisions or actions based on this information.

2021 HortNZ AGM.
(Notices of Motion)

MOTION 1

That the minutes of the 15th AGM of Horticulture New Zealand (HortNZ), held on 25 September 2020 via Zoom be taken as read and confirmed as a true and correct record of that meeting.

Proposed by the HortNZ Board

EXPLANATORY NOTE

A PDF of the Minutes of the 2020 AGM is available at www.hortnz.co.nz. If you have any questions or would like hard copies, please email board.secretary@hortnz.co.nz

MOTION 2

That the President's and CEO's Reports for the financial year ending 31 March 2021, as published in the Annual Report, be taken as read and adopted.

Proposed by the HortNZ Board

EXPLANATORY NOTE

A PDF of the Annual Report will be available at www.hortnz.co.nz. If you have any questions or would like hard copies, please email board.secretary@hortnz.co.nz

MOTION 3

That the audited financial statements for the year ended 31 March 2021 be adopted.

Proposed by the HortNZ Board

EXPLANATORY NOTE

A PDF of the Annual Report and Financial Statements will be available at www.hortnz.co.nz. If you have any questions or would like hard copies, please email board.secretary@hortnz.co.nz

MOTION 4

That the 2022-year levy rate for the purposes of the Commodity Levies (Vegetables and Fruit) Order 2019 remains the same and be set for domestic sales at 0.14% of the price received at the first point of sale, for export sales remain and be set at 0.14% of the price received after the deduction of all offshore costs and for processed sales remain and be set at 0.14% of the notional process value.

Proposed by the HortNZ Board

EXPLANATORY NOTE

The Commodity Levies (Vegetables and Fruit) Order 2019 allows a maximum rate to be set for vegetables and fruit at 0.15% for domestic sales and processed sales taken at the first point of sale and at 0.15% for export sales at the first point of sale after all offshore costs (including international freight) have been deducted. For processed vegetables and fruit the levy is deducted from the notional process value, which is defined in the Order. At the AGM levy paying growers may set any rate up to the maximum for the next calendar year. The current rate for vegetables and fruit is 0.14%. This levy funds the activities of HortNZ. The Board recommends that the levy rate be set and remain at 0.14% for the 2022 year to meet the commitments identified in HortNZ's Budget.

There is no change to the directors' remuneration for the 2021/2022 year.

EXPLANATORY NOTE

The Independent Directors Remuneration Committee (the Committee) has met and conducted a review of the Directors remuneration. The Committee has recognised and considered factors currently impacting the Horticulture sector and recommends no change to the Director's remuneration for the 2021/2022 year. The Board supported this position, therefore there is no motion.

MOTION 5

That the Budget for the year ended 31 March 2022 be endorsed.

Proposed by the HortNZ Board

EXPLANATORY NOTE

A copy of the Budget for the year ended 31 March 2022 is available at www.hortnz.co.nz. If you have any questions or would like hard copies, please email board.secretary@hortnz.co.nz

MOTION 6

That BDO, Wellington, be appointed auditors for the year ended 31 March 2022.

Proposed by the HortNZ Board

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These motions will be considered at:
The Horticulture New Zealand Annual General Meeting (AGM) being held at Mystery Creek, Hamilton on **Friday 6 August 2021** at **7.30am**.

HORTICULTURE CONFERENCE 2021: REGISTER NOW

It's now less than a month to the Horticulture Conference 2021: Resilience and Recovery, being held on 5–6 August 2021 at Mystery Creek.

The programme has been put together with the entire industry in mind: from growers, packhouse operators, and logistics companies, to wholesalers and retailers, and researchers.

Major themes include labour, climate change, freshwater, biosecurity and compliance, as well as the ongoing impact of Covid-19 on labour, freight and costs.

Given all that has happened and continues to evolve in horticulture, there is also a focus on well-being and ensuring the health and resilience of all the people that take part in the industry.

Here is a list of some of the highlights:

- Making Integrated Pest Management (IPM) work
- Nitrogen management for sustainable vegetable production
- Supermarkets, including the Commerce Commission's investigation
- How diversity can boost resilience and recovery
- How to improve mental fitness
- Labour and workforce development
- Freshwater
- What really goes on in Parliament
- Unpacking regenerative agriculture.

We are confident that the diverse range of topics and speakers from New Zealand and overseas will stimulate discussion, offer insight as well as practical advice. In keeping with the current environment, the length of the conference has been reduced to two days to offer you value for money as well as for your investment in time.

Go to **https://conferences.co.nz/hortnz2021/** to view the full programme and sign up for the conference.

Two speakers at the Horticulture Conference in early August will give growers their very personal insights into building resilience, a conference theme.

Lance Burdett

The first, Lance Burdett, was a police negotiator for many years, running high risk operations such as the Napier siege in May 2009, and becoming the national adviser for the police crisis negotiation teams. But he found himself having to deal with personal issues much closer to home with his niece's suicide and his own depression caused by burnout.

So, he formed his own company, WARN International, a consultancy and coaching business which specialises in enhanced communication techniques and personal resilience support to reduce workplace stress. He gives presentations and holds workshops dealing with how to overcome the pressure and stress of the modern world, specialising in advanced communication techniques, psychologically-based safety practices and personal resilience tips for everyday use to keep safe and well.

In this role he's spent the last six years working with those in horticulture and farming, showing how challenges can be met through the use of simple and effective tools.

His presentations show how to get to sleep within a few breaths, how to stop waking in the early morning, how to better manage worry as well as how to remain alert through the whole day. In a humorous way he describes how our brains tend to only see negative things and then exaggerate them so we have a feeling of being overwhelmed. Then he's able to introduce a solution enabling people to retrain their brains.

Jimi Hunt

Jimi Hunt, who is also speaking at the conference, sees his job as reducing pain. "The world's mental health is, unfortunately, getting exponentially worse," he says.

"The only way we can combat that is with constant conscious choices and creating an environment that makes those choices possible." His presentations and workshops help increase overall mental health, improve relationships between staff and customers as well as staff efficiency and effectiveness.

Jimi specialises in mental fitness which he says is different to resilience. While resilience is likened to being tough by getting back up after being knocked down, with mental fitness he says it's possible to learn to see the punches coming before they land.

His presentation will centre on some crucial, practical steps to take to gain mental fitness, demonstrating the necessity and benefits of being proactive about looking after mental fitness and health, along with the many benefits that come from that.

He does warn that as with physical fitness, it won't happen overnight, but he can provide some tips and strategies in order to increase mental fitness over time, so the full impact of those inevitable punches in life can be avoided.

FARM PLANS AND MEETING NEW REQUIREMENTS

Words by Ailsa Robertson : HortNZ Sustainability and Extension Manager

The final countdown is on for the government's release of the draft national freshwater farm plan (FW-FP) regulations. A FW-FP is also known as a Farm Environment Plan. In late June, the curtain draws on this anticipated piece of regulation that impacts horticultural land use five hectares and above.

This means a farm (as defined) must have a certified FW-FP if five or more hectares is horticultural land use, and the FW-FP applies to the entire farm. The details of what needs to be in a FW-FP, and when and where it needs to be completed, will be covered in the new draft regulations that will be consulted on around mid-2021, subject to Ministers' decisions.

These new national FW-FP regulations will give effect to the Resource Management Amendment Act 2020, Part 9A Freshwater Farm Plans.[1] As stated in the legislation, "the purpose of this Part [9A] is to better control the adverse effects of farming on freshwater and freshwater ecosystems within specified districts, regions, or parts of New Zealand through the use of certified freshwater farm plans."

> "This means a farm (as defined) must have a certified FW-FP if five or more hectares is horticultural land use, and the FW-FP applies to the entire farm

HortNZ advocates for the use of industry assurance programmes, like GLOBALG.A.P. and NZGAP, to deliver audited and certified FW-FPs. GAP (Good Agricultural Practice) environmental modules, such as NZGAP's Environment Management System (EMS) add-on, help growers build comprehensive and robust Farm Environment Plans that identify environmental risks from their growing operations and implement good management practices to appropriately manage those risks over time.

What is HortNZ doing?

HortNZ will be leading a submission in response to the new regulations, in consultation with growers and affiliated industry groups. The government's consultation period will be short, so please watch the HortNZ newsletter for updates.

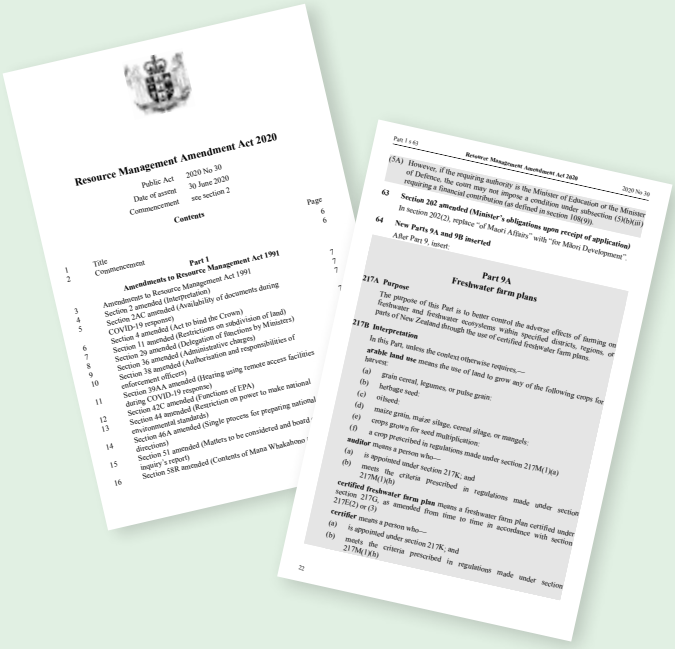
HortNZ is working with Product Groups and District Associations to offer regional Farm Environment Plan (FEP) workshops to step GAP certified growers through the process of developing an audited and certified FEP.

What can growers do?

You can develop your own FEP, or you can seek support from your local adviser(s). Local grower collectives like District Associations can build important momentum around Farm Environment Plans, and HortNZ will support grower collectives who wish to develop farm plans and apply for funding to aid grower FEP development and implementation.

Contact HortNZ or your Product Group now to learn how you can start your FEP.

[1]New Zealand Legislation. Resource Management Amendment Act 2020. Part 9A Freshwater Farm Plans. https://www.legislation.govt.nz/act/public/2020/0030/latest/LMS362301.html?search=sw_096be8ed819b9f2a_part+9a_25_se&p=1&sr=12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Public Act 2020 No 30
Date of assent 30 June 2020
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CAMPAIGN ATTRACTS SCHOOL LEAVERS TO FOOD PRODUCTION INDUSTRIES

Words by Hugh Chesterman

Julian Raine, from Oakland Dairies, explains how his milk vending machine works to Nelson high schoolers

More than 150 high school leavers now have a better understanding of careers in New Zealand's food production industries, thanks to the Feed Your Future campaign.

"We're really stoked with how the Feed Your Future series has gone. We had seven events from Whangarei to Invercargill, where we took high school students to visit successful and innovative primary sector businesses," says GoHort manager, Emma Boase, who is in charge of the national network of Career Progression Managers working to attract people to the horticulture industry.

> "Feed Your Future is a collaborative career promotion series involving GoHort, GoDairy, Lincoln University and Massey University to encourage high school students to pursue careers in the food production industries

Feed Your Future is a collaborative career promotion series involving GoHort, GoDairy, Lincoln University and Massey University to encourage high school students to pursue careers in the food production industries.

"We had more than 40 young professionals share at the events how they got to where they are in the industry," says Emma.

"Having role models to look up to, and being able to see the different pathways to where you can be in five years, is hugely important to school leavers. For those who don't have a background in primary industries, these events have been really eye-opening to the opportunities available.

"We made sure to include students who hadn't had experience or exposure to the primary industries, but were open to a career in the sector. We introduced them to people who had 'been there and done that', and could give them a taste of what it would be like working or studying in the primary industries."

Adam Shears, a Year 13 student at Mount Hutt College, found the event gave him insights into the opportunities in the industry that he otherwise wouldn't have had.

Sarah de Bruin enjoys a new flavoured Juicy at Tasman Bay Foods

The young professionals panel, led by Sarah de Bruin from AgFirst, share their stories about getting into the food industry with Nelson high schoolers

"It was a very cool event. I loved being able to speak with people who are in the sector and get a perspective of their lives through university and all the opportunities they took to become who and where they are today," said Adam.

> **"I loved being able to speak with people who are in the sector and get a perspective of their lives through university and all the opportunities they took to become who and where they are today**

Sarah de Bruin, a Horticultural Consultant at AgFirst who spoke at the Motueka event, wished that this type of event was available when she was at school.

"If this sort of thing had been offered to me at high school, I would have been all over it," said Sarah.

"My personal highlight was the young professional panel. It was very interesting listening to stories and advice from such a diverse set of experiences.

"Overall, the students reacted well to the presentations. I think it opened their minds more to the many roles involved in primary industry supply chains and the different pathways everyone took to get where they are. A few of the students actually changed their minds about what they thought their pathway was, after hearing the different stories."

YOUR INDUSTRY

ACROSS THE SECTOR – ACROSS THE COUNTRY

GROWERS TEAM UP WITH EECA ON GREENHOUSE ENERGY

Words by Andrew Bristol

Tomato and vegetable growers who use greenhouses are working with the Energy Efficiency and Conservation Authority (EECA) to find ways to reduce energy use and their carbon footprint.

"Our industry anticipated the government's direction on climate change mitigation and reducing the use of fossil fuels," says TomatoesNZ general manager, Helen Barnes.

"We've held several workshops around the country to give greenhouse tomato and vegetable growers practical tips on how to reduce energy needs and switch to other sources of energy.

"However, to fundamentally reduce the use of fossil fuels, new technology and growing techniques need to be developed.

"That's where the partnership with EECA really comes in, as the tomato and vegetable growing sector cannot make such a fundamental shift in how it uses energy, and where its energy comes from, alone."

Covered crop decarbonisation project

Over the next few months, the sector will start a covered crop decarbonisation project. This project will identify feasible options for growers to reduce energy use and ultimately, switch to sustainable fuel sources. The next phase of the project will include the evaluation of potential opportunities or new technologies in the field, with the outcomes shared with all growers.

The information, case studies and resources generated by the project will help growers make technically and economically viable decisions and investments, which will support their energy transition to a low carbon future.

Implementation of recommended opportunities will be up to individual growers and will take a number of years. However, the project will arm growers with information and service provider connections to support their transition.

Vegetables New Zealand general manager, Antony Heywood says growers who use greenhouses to grow vegetables like capsicums and cucumbers are keen to reduce their carbon footprint.

"But they require the right technology, the confidence to invest, and time to transition to ensure their businesses are sustainable."

EECA says it is very pleased to be providing practical advice to the horticulture industry.

"It is important to investigate and optimise every part of the process, says EECA sector programme manager, Glenn Wellington.

"It is the combination of process and technology change, energy efficiency and ultimately, fuel switching that will make the transition to low carbon a viable option."

NZ Hothouse Ltd managing director, Simon Watson, says they see the partnership with EECA as a massive opportunity to future proof the commercial vegetable growing industry in New Zealand.

"The decarbonisation initiatives and funding will ensure that growers can sustainably produce fresh, safe, local and healthy vegetables for New Zealanders. Without EECA's support, we risk the loss of thousands of jobs, hundreds of millions of dollars in stranded assets, and the permanent loss of food security for New Zealand."

Problem and solutions can appear complex

Island Horticulture managing director, Rob Lindsay, says the problem is complex and the solutions can appear even more so.

"In attempting to move to carbon neutral energy sources, we all can make a difference. However, for an effective and enduring outcome, we need to carefully consider all available options, and choose the most appropriate to apply.

"In doing this, we recognise the myriad of different factors that influence covered cropping. For example, regional climate, the temperature requirements of the crop grown, and the long-term security of the local energy sources available to growers. I look forward to working with EECA to refine the options to find some sensible solutions for New Zealand growers."

LEVIN GROWERS BACK INITIATIVE TO FIND WORK FOR LOCAL PEOPLE

Words by Hugh Chesterman

Jay Clarke in the chiller showing Year 10 students how vegetables get from paddock to supermarket shelf

Vegetable growers in the Levin area are right behind an initiative to ensure that everyone in Levin has the opportunity to work in the region.

The Horowhenua New Zealand Trust has been set up to improve the social and economic well-being of the community and ensure that the Horowhenua economy provides work opportunities for all local people," says Sarah Ryan of the Trust.

An important plank of the Trust's effort has been the establishment of Get-Go.

"Get-Go has been created to connect people with the work they want, and employers with the people they need," says Shane Gorinski of Get-Go.

"Get-Go is supported with government funding, managed by the Ministry of Business, Innovation and Employment's Kānoa – Regional Economic Development and Investment Unit.

"We're really fortunate that we've had great support from local growers. Woodhaven Gardens has come on board, and is providing high school students with the hands-on opportunity to see what commercial vegetable growing is like and what careers are available to them."

As part of the partnership with Get-Go, Woodhaven Gardens has set up a trial block for Horowhenua College horticulture students.

"We've given the class two acres to run as commercial vegetable growing," says Woodhaven Gardens director, Jay Clarke.

"The students have to choose what they want to put in the ground. To start, we've given them a soil sample. They have to decide how they want to test it, and then analyse the result and decide what to plant.

"They're not just learning how to grow a crop. They're also learning about the economics of growing. Once they've chosen their crop, they'll do a budget and we'll track against that budget. Hopefully they get a bit of life experience out of it and learn more about the industry that's right on their doorstep.

> "They're not just learning how to grow a crop. They're also learning about the economics of growing

"We need to be getting these kids to understand what's involved in this industry. There's a lot of good jobs out there. For example, the industry can't find agronomists, which is a six-figure job right there."

Principal of Horowhenua College, Grant Congdon, said that the support from Woodhaven Gardens has been phenomenal.

"The partnership with Woodhaven came about because of Get-Go. It's going to be an awesome opportunity for our students."

Woodhaven is phenomenal. They genuinely want to engage and connect with students, as they realise that they are their potential workforce.

"What our students don't realise is the career options available to them right here on their doorstep. That's what the events with Get-Go are helping to change."

As well as working with horticulture students, Get-Go ran its second annual Careers Futures Day in early May. Busloads of local Year 10 students spent the day at local businesses like Thermosash and Genoese, as well as Woodhaven Gardens.

"If some students get inspired to join the horticulture industry from the day, that's fantastic, but for us, it's more about giving back to the community," said Jay.

"I think the most important thing for these kids to learn is where food comes from. The vast majority of them have no idea what's involved in growing the produce that they see in the vegetable aisle every day."

Event organiser, Liam McLeavey, said that the feedback from students was highly positive, with many saying that it's made a significant impact on their career aspirations.

"We've seen that the programme has already made a difference to these students' learning and outlook. The students now know about far more of the opportunities they have available in Levin.

"By seeing how workplaces work, they can connect their learning to the real skills needed in the workplace. It makes their learning far more meaningful when they know that it is applicable outside of the classroom.

"Our local employers are amazing. By participating in the initiative, they're connecting to their future workforce. This is about connecting students, as soon as possible, to the world of work and showing them that in the future, they could have a career here in Levin. We have a range of students that are going into work as a result of the activities that we're doing."

For more information about Get-Go, visit **Get-Go.nz**

ORGANIC MARKET GARDEN EVOLVED FROM QUEST TO IMPROVE ENGLISH SKILLS

Words by Elaine Fisher

Silvio Maffra, who came to New Zealand from Brazil to improve his English language skills, now owns the organic market gardening business Abundant Backyard

Thirteen years ago, Silvio Maffra came to New Zealand from Brazil to improve his English language skills. He did that and more; so much more in fact that he now owns an organic market gardening business in the Bay of Plenty.

Abundant Backyard is based on 0.40ha (one acre) of land at Whakamarama, south of Tauranga, where 50 different varieties of organic vegetables are grown in 125 beds. These include some in a covered shade house, others under two open-ended tunnel houses and the majority in open beds on the north-facing sheltered, gently sloping site.

The land belongs to Catherine and Neville Dunton-McLeod who in 2014 founded Plenty Permaculture, teaching permaculture techniques. It was while serving as an intern with Catherine and Neville towards the end of a Level 3 organic course, that Silvio discovered the opportunity to begin his own business on the land.

Catherine and Neville had other commitments and were happy to form a partnership with Silvio, investing in the start-up business Abundant Backyard to develop the land as an organic market garden.

After one year Silvio bought out the couple's share of the business and now leases the land. Farmers' markets were initially the main outlet for his vegetables but now Abundant Backyard is also supplying cafés, restaurants, organic food shops and has a home-delivery service.

Every Saturday Silvio goes to the Tauranga Farmers' Market and on Sunday a staff member manages the Abundant Backyard stall at the ReDefined Farmers' Market at Papamoa.

"I think it is important for me to be at the markets to talk to customers, and anyone who works there with me is also experienced in growing the vegetables. Customers want to ask questions and we must be able to tell them about our vegetables, and how to use them."

It took three years for Silvio to gain organic registration through Organic Farm New Zealand. Certification is conditional on on-going audits of all inputs and of soil and water tests.

"The soil here was reasonably good. We did apply lots of compost at the start, but now we are trying to be more targeted in our application, using liquid seaweed fertiliser from AgriSea NZ Seaweed in Paeroa, fish fertiliser from United Fisheries in Christchurch and worm tea from our worm farm.

"We have enough nutrients in the soil now so want to focus on the microbiology in the soil which is working for us. Our aim is always to disturb the soil structure as little as possible so we only till the top few centimetres."

White butterfly caterpillars are controlled by applications of the organically approved product commonly known as Bt, containing *Bacillus thuringiensis*, a species of bacteria that lives in soil which makes proteins toxic to some insects when eaten.

> **"Our aim is always to disturb the soil structure as little as possible so we only till the top few centimetres**

Aphids are another pest and Silvio either uses water to spray them off or introduces biological control agents – insects which prey on aphids, from Bioforce in Karaka. "If infestations get too bad, we will take out the crop from that bed in order to reduce the pest problem."

Silvio takes organic, environmentally friendly gardening to a higher level, using hand tools rather than tractors or petrol driven implements. Most of the tools are imported, apart from Crafty Forksta fork from The Crafty Gardener of Papamoa, and a simple weeding implement on a long handle with a hoop of spring steel on the end.

Imported tools include those for planting seeds directly into beds, and for harvesting leafy greens. Probably Silvio's favourite device is the Paperpot Transplanter.

As Silvio grows all vegetables from seed, transplanting them into beds by hand is time-consuming and back-breaking work. "It can take me up to an hour to plant a bed by hand, but with the Paperpot Transplanter, I can do the same in 10 minutes."

Silvio first learnt of the system when he attended a workshop hosted by Pakaraka Permaculture in Thames and that experience helped convince him that it was not only possible to work smarter, not harder, but also to make a living from organic market gardening.

"As part of my organic course I had to raise a crop from scratch. I chose potatoes but by the time the crop was ready to harvest, there was very little money in it. I began to question how I could make a living that way."

The two Canadian presenters at the Thames workshop not only introduced Silvio to the Paperpot Transplanter system, but they also presented spreadsheets with detailed analysis of inputs, including labour and possible returns. "I began to see how I could make a successful business."

In a small shade house Silvio raises seedlings with the Paperpot system which involves planting seeds into paper honeycomb cells, using a Perspex "jig" or template with holes for a range of seed sizes, to deliver one seed per cell.

Once the seedlings are ready for transplanting the paper cells are placed on the transplanting machine, which is pulled backwards along a row, automatically placing the young plants into the ground at the correct spacing.

Abundant Backyard produces seasonal vegetables; in winter those include cabbage, cauliflower, broccolini, beetroot, lettuce, radish, kale, spinach, rainbow chard, onions, leeks and carrots. In spring and summer the range is even more extensive, including tomatoes, capsicum, cucumber, courgettes,

Every Saturday morning Silvio Maffra sets up his Abundant Backyard stall at the Tauranga Farmers' Market

Silvio makes home deliveries of veggie boxes from online orders once a week

rocket, eggplants and scallopinis. Microgreens are grown year-round and the garden's salad mix, along with its sweet tasting carrots, are among the biggest sellers.

At the request of customers Silvio has experimented with less well-known vegetables, including radicchio, the bitter vegetable used in Italian cooking, and napa cabbage used in making kimchi, a staple in Korean cuisine. Through educating other clients on how to use them these have become favourites too.

Leafy greens such as lettuce, spinach, chard and kale yield up to four harvests each season. All vegetables are harvested two to three times per week for different customers.

> "I began to see how I could make a successful business

Once harvested, produce is taken to the prep room and washed in two large tubs using a "bubbler" made from a frame of PVC piping with holes in it. From there the vegetables are placed in a netting bag suspended over a plastic rubbish bin. The bag is then spun gently in a domestic washing machine.

Next, it's on to a mesh-covered bench where two overhead fans blow away any remaining moisture. "Drying the vegetables this way gives us an extra two to three days of shelf life." Produce is stored in a chiller, or in the company's chiller truck, ready for delivery to customers or farmers' markets.

Market gardening is not the future Silvio had mapped out when he came to New Zealand in 2008 to improve his English skills, a year after graduating with a bachelor degree in animal science from Catholic University of Brasília. Despite the cold of Queenstown, his first home in New Zealand, he fell in love with this country and decided to gain residency.

> "Customers want to ask questions and we must be able to tell them about our vegetables, and how to use them

"When I arrived, the temperature was about 18 degrees. At home in Brazil the coldest is 16 to 18 degrees." However, Silvio survived Queenstown's much colder winter temperatures, taking a job at Subway as a first step towards gaining a visa. "It was also excellent for my English and within three months I could hold a conversation." His employment prospects also improved, and Silvio went on to manage two Subway stores. "I enjoyed the work but missed being outdoors."

Moving to the Bay of Plenty with plans to work as a tourism adventure guide, Silvio instead found employment in the kiwifruit industry. After 18 months, disillusioned by the amount of chemicals used in conventional growing, Silvio enrolled in an organic horticultural course. On completing Level 3, he spent eight months travelling through Central America from Mexico to Panama, working as a volunteer on farms to "see the world and get some technical farming experience."

Now with a business of his own and a two-year-old son, Silvio is committed to organic market gardening, and looking forward to a time when he can employ more staff, reducing his 70-hour week and allowing more time for his family and to enjoy the outdoors, including surfing and mountain biking.

POTASSIUM NITRATE BENEFITS ON TOP DRESSING APPLICATION IN ONION

Prilled potassium nitrate (12% N - 38.2% K) is a potassium source that provides rapidly absorbed nitrate-nitrogen, a plant's preferred nitrogen source, with 2-4 mm prill size.

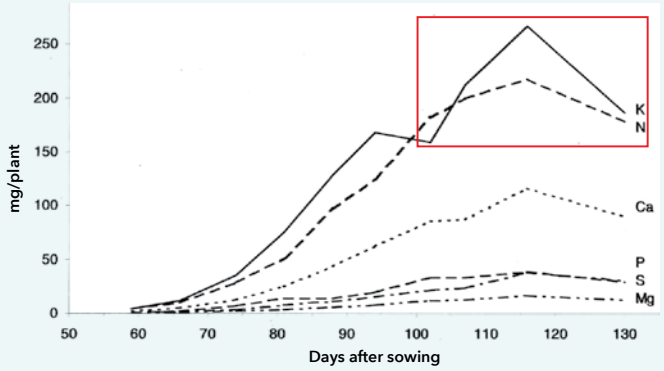
Prilled potassium nitrate (12% N - 38.2% K)

Potassium nitrate provides the ideal N:K ratio during bulb development stage

K and N demand reaches a peak during bulb development stage, when the application of prilled KNO_3 will:

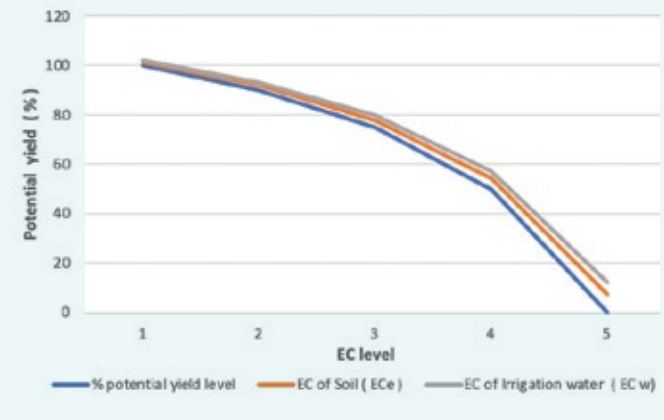
- increase bulb size and weight
- lower the impact on soil salinity (vs SOP or MOP), which affects yield and post-harvest weight losses

Nutrient uptake in onions: high K & N uptake during bulb development stage



Source: Vidigal et al. 2002.

Yield potential at different soil and irrigation water EC (= salinity) levels



Source: Water quality for Agriculture. R.S. Ayers and D.S. Wescot. 1994

Prilled potassium nitrate contains exclusively nitrate nitrogen.

- Fast acting and readily soluble source of nitrogen, directly available for uptake by the roots, independent of the activity of nitrifying bacteria, resulting in faster uptake and greater efficiency for the plant.
- Due its synergistic effect, promotes the uptake of cations: potassium (K), calcium (Ca), magnesium (Mg), copper (Cu), iron (Fe), manganese (Mn) and zinc (Zn).

Prilled potassium nitrate is virtually chloride free.

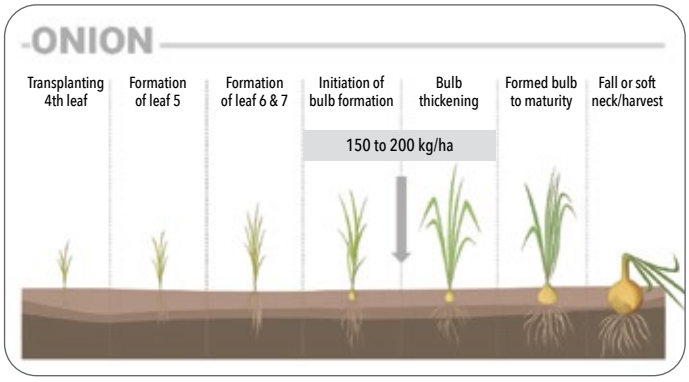
- Yield and quality are negatively affected by chloride. The presence of nitrate nitrogen in potassium nitrate (NO_3^-), acts antagonistically to chloride (Cl^-) uptake if present in soil or water.
- No contribution to soil salinity: both elements, K & N, can be fully taken up by the plant.

Proven benefits of prilled potassium nitrate in onions:

- Increased yield, due to greater weight of bulbs.
- Decreased weight loss during storage and increased shelf life.
- Greater tolerance to diseases such as basal rot and white rot.
- Improved resistance to drought and cold injuries.

Recommendation of use:

Apply prilled potassium nitrate at **150-200 kg / ha**, as **top dressing**, at the beginning or during bulb development stage:



Prilled potassium nitrate is sold by Yara Fertilizers (New Zealand) Ltd under the brand UNIKA® PLUS. For additional information, please visit: **www.sqmnutrition.com**

BECOMING CYBER SMART

Words by Anne Hardie

FMG Manager Advice Services Stephen Cantwell

CERT NZ Incident Response Manager Nadia Yousef

Imagine a full packhouse in the middle of the season and the system has locked you out.

Or a crop you can't irrigate because you no longer control it. Someone, probably on the far side of the world, has found a weak spot in your system and taken over. It can be as simple as clicking on a suspicious email and before you know it, a hacker has access to your business computer system and can shut you out for a ransom.

FMG manager advice services Stephen Cantwell says the better technology gets, the more dependent we become on it and the greater the impact when hackers attack. That was highlighted by the recent ransomware attacks on the Waikato District Health Board and Australia's largest meatworks, JBS, with the latter paying out more than $14 million to its attacker. It has happened in the dairy industry where a farmer was unable to milk the cows after hackers shut them out of their own system.

It happens, and Cantwell says there are probably more successful cyber attacks than just the reported cases because those who get hacked or scammed are often too embarrassed to admit it. They shouldn't be, he says, because it can happen to anyone, especially as hackers become increasingly sophisticated.

Nearly 8,000 cyber security incidents were reported in New Zealand during 2020 – up 65% on the previous year – and $16.9 million was lost to attackers. Since 2017, losses totalling $56 million have been reported to the government's cyber security agency, CERT NZ.

"It's so easy when you get so many emails to click on something before even realising what it is," Cantwell says.

Many rural businesses have computer systems that are for personal use as well, and he says that increases the number of emails and the type of emails for hackers to target.

Phishing emails and credential harvesting (which is obtaining username and password combinations) made up 46% of the cyber security incidents reported to CERT NZ for the first quarter of this year. Emails usually encourage you to take action such as clicking on a link or opening an attachment, leading to a virus or a hacker potentially taking control, stealing your data or holding you to ransom.

Cantwell says it is essential for businesses to have backups of their data and ensure those backups work by checking them regularly. There have been cases when people thought they had backups, but when they needed them, they weren't working.

Paying a ransom is not a wise option, says CERT NZ incident response manager Nadia Yousef. There's a high chance you still won't get the data back after paying the ransom and the system may get reinfected.

Hackers are constantly scanning the internet for vulnerable systems and computers and grab any opportunity, she says. For that reason, it's vital to keep software and devices up to date. It may be annoying every time an update pops up on the computer requesting a response, but it is the most important thing you can do to protect your system from cyber attacks. Those updates are designed to fix problems and she says it's important to click yes.

Ensuring you have backups to your information via say, a portable USB device or in the cloud, is the next essential factor to avoid the repercussions from an attack. Yousef says financial data, critical documents – everything you need to keep the business running if you get ransomware in your system, should be backed up.

"If you don't have those backups, the choices you are left with is you have to start again or pay the ransom, which we don't advise."

> **"Nearly 8,000 cyber security incidents were reported in New Zealand during 2020 – up 65% on the previous year – and $16.9 million was lost to attackers**

When it comes to passwords, they need to be unique and strong enough to deter hackers getting into your computer system or phone. Yousef says most of the incidents reported to CERT NZ could have been avoided with better passwords. People often use the same password across multiple accounts and she says that makes them vulnerable to cyber security attacks. An attacker only needs that one password to access all their private and financial information. It's paramount to use different passwords for different sites and she suggests using a passphrase with three or four random words, plus added numbers and special characters. Rather than worrying about remembering several passwords, she advises password managers (which is software that keeps all your passwords). It's basically like a digital safe. The software for password management is built using strong encryption methods and security practices, then regularly reviewed by independent security researchers. It goes without saying that you then need a really good, strong password for the password manager. The password manager can be stored on your local drive or computer, in the cloud, or with your browser.

"Make you and your organisation as less of a target as possible," she advises. "They want to go for the easiest.

"The more we live online, the more cyber security is going to be an issue."

An expensive issue. In the first quarter of 2021, six of the 339 incidents that CERT NZ responded to involved more than $100,000. Two of those were about unauthorised access, two were about invoice scams, one was about website compromise and one was about an investment scam.

Invoice scams are getting increasingly sophisticated and Cantwell says rural businesses often have invoices with large sums and they deal with a number of different suppliers. Invoices may look legitimate, but the account number has been changed. Once the account has been paid, the hacker moves it on quickly which makes traceability difficult.

"Have processes in place. If you get an invoice from someone you pay regularly and you notice the account number is different, it pays to pick up the phone and check. The first time you are paying any large account, check the account number over the phone."

The same applies to requests from banks or New Zealand Post or similar – get on the phone and check it out if in doubt, he says.

The world is a very small place when it comes to criminal cyber activity, with attackers only an email away. In both horticulture and agriculture, businesses are increasingly dependent on technology and when it is taken out of the equation by an attacker, potentially on the far side of the globe, Cantwell says life becomes very difficult.

CERT NZ's top 11 tips for cyber security for your business

1. Install software updates
2. Implement two-factor authentication (2FA)
3. Back up your data
4. Set up logs
5. Create a plan for when things go wrong
6. Update your default credentials
7. Choose the right cloud services for your business
8. Only collect the data you really need
9. Secure your devices
10. Secure your network
11. Manually check financial details

Find out more about these tips at **https://www.cert.govt.nz/business/guides/top-11-cyber-security-tips-for-your-business/.**

STATE OF EMERGENCY: CANTERBURY FLOODS

Words by Heather Woods

In the days leading up to 30 and 31 May 2021, MetService had issued a red alert weather warning for much of Canterbury.

As growers and farmers did what they could to prepare crops, livestock and property, it was unclear just how extreme, dangerous and business-breaking the event would be. Then it started raining. The rivers rose rapidly, and what followed was an onslaught of water the like of which many had never seen. As banks burst and fields became lakes, local councils and Civil Defence Emergency Management worked under a 'State of Emergency' response helping communities cut off by flooded roads, and restoring key supply routes that had been closed off by broken bridges. Looking back on what was a wet-and-wild few days, we spoke to growers from around the region who were on the front line.

> "Wind was the other factor, with vegetables like spring onions – which now have a nice bend to them – looking different from usual when they hit the supermarket shelf

Expecting more than a few drowned potatoes

In Southbridge, about 60km south of Christchurch central, Oakley's Premium Fresh Vegetables was fortunate to only see around 70mm of rain fall on their main growing area. The ground coped well with the extra water. Their other two growing locations saw 130mm and 160mm respectively, so they're expecting to find more than a few drowned potatoes in the crops still in the ground. Robin Oakley, founder and managing director of Oakley's, said there will be a knock-on effect in the form of nutrient leaching and the effects of waterlogged soil in the crops still growing for winter and spring harvest. He would also expect a lot worse from another high-rainfall event in the short term. Robin considers them lucky that it wasn't worse, and that those located by rivers that breached their banks likely experienced worse flooding across their properties.

> "The biggest impact was the effect on nutrients and fertiliser levels lost to the flood water that would have otherwise nourished the plants

Leaching is just as important as the water damage.

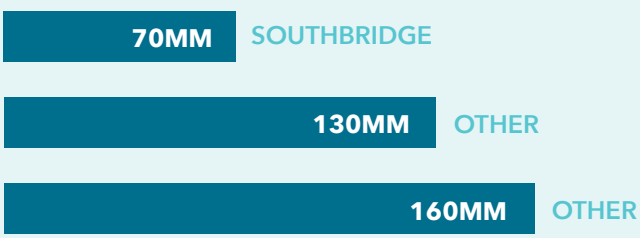
In the Lincoln area of Selwyn, Allen Lim at Jade Garden says they estimate that somewhere between 160mm and 200 millimetres of rain fell. With the soil pretty dry, that was a lot of water to deal with in such a short timeframe. Luckily, they didn't see any infrastructure damage, but it certainly made the paddocks super muddy and difficult to get machinery into. But they were lucky in that there's no river close by; they mostly saw ponding. For Jade Garden, though, this is the main growing season, so everything is currently in the ground. And while the volume of water was one issue to deal with, Allen is more concerned with leaching and their cap.

RAINFALL AT ALLEN LIM AT JADE GARDEN

160mm – 200mm

IN THE LINCOLN AREA OF SELWYN

RAINFALL AT OAKLEY'S PREMIUM FRESH VEGETABLES, 3 GROWING LOCATIONS



The Maronan Bridge over the Hinds River. STACY SQUIRES / STUFF

The floods likely took nitrogen from the soil and he's just hoping they won't be held to their quotas, because they had zero control over the event and the fact that now they'll need to reapply fertilisers if crops are to mature as normal. Otherwise, they (and other growers) will face the serious issue of no vegetables through winter. Wind was the other factor, with vegetables like spring onions – which now have a nice bend to them – looking different from usual when they hit the supermarket shelf. The problem is that consumers expect perfect looking vegetables down to colour and texture—despite them tasting exactly the same. Growers understand the issue well, but consumers rarely grasp this problem which is just as important as flood water damage itself.

Down at Hewson Farms, Ross Hewson says the dry ground is most definitely waterlogged now. But the free-draining ground they're on certainly helped the situation with surface water quickly draining away. For those closer to the rivers that wasn't the case, and things are a bit of a mess. It was an incredible amount of water – around 145mm in the foothills, and the rivers just aren't capable of dealing with that. The biggest impact was the effect on nutrients and fertiliser levels lost to the flood water that would have otherwise nourished the plants.

Ross says simply, "We never need that much rain." The good news, for Hewson Farms at least, is that they haven't planted a lot of their vegetable crops yet.

> **"It's the largest rainfall Ross can ever remember, and he believes MetService was right to 'red alert' it; it was all they predicted, and possibly more**

The flood came when most had either just harvested or not quite planted for the next year. So as much as this was an 'out there' weather event, it could have been a lot worse for them if crops had just gone in the ground. In fact, if it had happened any other time in the last six months it would have been devastating. It's the largest rainfall Ross can ever remember, and he believes MetService was right to 'red alert' it; it was all they predicted, and possibly more. ●

ELITE CYCLIST JOINS NZ AVOCADO'S CORPORATE TEAM

WOMEN IN HORTICULTURE

Words by Elaine Fisher

Genevieve Whitson combined a role at Scotland's Rural University College with competing at the elite level in cycling

Genevieve Whitson's rural roots and university education are among the factors which enabled her to be an elite athlete, competing internationally, while also having a career in the rural sector.

Now corporate services associate with NZ Avocado, Genevieve has competed professionally in cycling for 15 years, achieving three Scottish National Road Cycling titles, and in 2018 her name was added to the Scottish Cycling Roll of Honour.

For a couple of years Genevieve did ride professionally based in France and Upstate New York in the United States, but when she worked for seven years at Scotland's Rural University College (SRUC), Genevieve continued to ride at the elite level, thanks to her employer's support. "The college had a great attitude to work/life balance, and I was able to take quite long periods of time out for cycling – up to four months," says Genevieve who is also a member of Women in Horticulture.

"I had some great career progression at SRUC starting off as an executive assistant and moving into an international engagement alumni role, networking with other agricultural colleges around the globe and supporting marketing campaigns to raise awareness of the benefits of choosing an agricultural career path and staying connected as an alumni.

"I am glad I had completed my bachelor of arts degree from Otago University before taking up my racing career. The majority of women riding professionally don't receive huge pay-packets, although that is improving with the introduction of a minimum wage in 2020, but a lot still work part-time. "However, some women I competed against who had come through national federation riding academies, had not been encouraged to also do studies in order to have a career after cycling."

> "I am glad I had completed my bachelor of arts degree from Otago University before taking up my racing career

Because of her family's heritage, Genevieve had always wanted to visit Scotland. "I had a desire to connect with family roots in Scotland. Even though the Scottish weather is pretty terrible, the landscape reminded me of rural Manawatu where I grew up, and when I got to Scotland I fell in love with it. It felt like home. Now I have two homes, one is New Zealand, the other is Scotland."

In 2012 Genevieve Whitson represented New Zealand at the cycling world cup in Belgium

Scotland also offered Genevieve opportunities in cycling which were not available in New Zealand. She has competed in mountain biking, road cycling and Cyclo-cross and has ridden for New Zealand at four world championships. "In 15 years of competing, the worst accident I had resulted in a broken finger."

> **"You could come into horticulture from many different backgrounds and have a successful career**

In 2017–2018 Genevieve was under consideration for inclusion in the Scottish team for the Commonwealth Games. "When I was not selected and that final frontier had not worked out, together with the realisation that I was getting older, I lost the love for competing at that level."

Today she enjoys cycling for pleasure and is coaching a talented young road cyclist with aspirations to compete on the world stage.

Nine months ago, Genevieve joined NZ Avocado in Tauranga as corporate services associate working closely with chief executive Jen Scoular and the wider team to support a variety of projects. These include board meetings and governance, managing annual planning timelines and undertaking activities to progress delivery.

"No day is the same and there is some travel involved. I am also a bit of a chatterbox and I get to network and engage with a lot of people across the horticulture sector, which is really valuable for me to understand the world of avocados better.

"A highlight so far was our growers' forum in Whangarei. I've been away from New Zealand for a long time, and it's been really exciting to reconnect with parts of Aotearoa I am less familiar with, and meet some of the growers and stakeholders I deal with over the phone or via email."

Genevieve is a strong advocate for women to consider careers in horticulture. "The opportunities are not limited in the ways people might think. You could come into horticulture from many different backgrounds and have a successful career.

"I would like to see more boards with even numbers for males and females and more pathways to the top in place for women in this sector, which is why the Women in Horticulture is such a great initiative helping to bridge this gap."

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

NZGAP HELPS GROWERS

Words by Helena O'Neill

Michael Hill

The NZGAP (Good Agricultural Practice) system is a great way for J&P Turner's growers to keep on top of the increasing compliance requirements necessary to meet the Food Act standards.

J&P Turner supplier and export compliance manager Michael Hill says the system allows the company to help its growers.

"We use a NZGAP checklist and help the growers. I carry what I call my doctor's bag, my little black bag with all the bits of paper, so if a grower doesn't have it then we can help them. We also help them prepare their manuals … I think NZGAP likes the concept of a grower group."

While the Food Act registration runs for two years, J&P Turner staff visit their growers annually to check compliance.

"With NZGAP once you're in the system you only have an audit every three years. We're visiting them annually, we're updating the information annually, checking that everything is still right. That the spray diary is kept up to date, that the fertiliser diary is up to date, that the spill kit or the chemical storage is still adequate, these sorts of things."

Michael says that grower groups also help those who have English as a second language and who might be overwhelmed by technical language or compliance paperwork.

"Sometimes you have to go out and interpret a spray diary … translate it from the grower's own language."

The amount of paperwork required in the industry is phenomenal, he says. J&P Turner staff from Tauranga and Central Otago help with grower inspections when needed to spread the load.

"Having been an orchardist, I can see 90% of what I need driving up the drive or through the orchard, or walking through the packhouse.

"In the early days, I used to help individual growers with their NZGAP applications. One of my strengths has been the ability to work with the growers. The growers are our customers, and likewise, the buyers are our customers as well."

There's also a growing interest in Food Act registration outside of the usual markets, he says.

"I think more and more of the farmers' markets are asking for a Food Act registration … and there are people who want to go to farmers' markets.

> "Having been an orchardist, I can see 90% of what I need driving up the drive or through the orchard, or walking through the packhouse

"The growers are getting concerned with the amount of compliance work that they have to do. The challenges will be as we have social practice and farm environment plans as add-ons – social practice will be essential."

The Social Practice module is designed to enable growers to demonstrate they meet both locally and globally recognised social practice standards for markets and regulators.

The Environment Management System (EMS) add-on is for growers who wish to manage their regional council's

environmental requirements alongside their usual NZGAP audit. Environmental issues of concern to the council include nutrient management, soil management, irrigation management, and water body management.

J&P Turner has more than 100 growers in their NZGAP grower group and nearly 100 for their GLOBALG.A.P. growers.

"When we first started our grower group it was with avocado and cherry growers, then with a lot of vegetable growers.

"Through Damien (Farrelly) and NZGAP, they're registering the GLOBALG.A.P. growers for the Food Act as well. Those growers with GLOBALG.A.P. can at times have local market fruit so they need Food Act registration as well."

Export growers might notice a stronger local market or have a smaller crop better suited for the domestic market but need to meet Food Act requirements, he says.

"We have a strong team of supply managers or field reps who may well have a grower who is GLOBALG.A.P. export last year, particularly something like avocados that tend to be biennial bearing, who the next year might be down to only two or three bins, so it's not worth doing the export and just get it packed for the local market."

J&P Turner Limited was formed in the 1990s by brothers Jeffery and Peter Turner and today is the parent company for the group's various marketing initiatives in fruit, vegetables and flowers, both within New Zealand and internationally.

> "The growers are our customers, and likewise, the buyers are our customers as well

Jeffery and Peter's great-grandfather Edward Turner set up Turners Mart (later to become T&G Global) in the 1890s, after he emigrated from England to New Zealand. Some of the family established J&P Turner in 1995 after the control and direction of the old family firm was taken over by offshore investors.

The group retains its strong family background and strong relationships with growers, Michael says.

J&P Turner operates Fresh Direct, Fresh Direct Floral, Purefresh Organic, Turners Global Marketing, Fresh Retail Solutions and JP Exports. ●

APPRENTICESHIPS GROW CAREERS AND BUSINESSES

Words by Adam Fleck : Primary ITO Sector Manager, Horticulture

Apprenticeships grow careers and businesses – and there has never been a better time to start an apprenticeship than now.

That is because the government is covering the portion of fees that can be attributed to training that occurs between 1 July 2020 and 31 December 2022. This is known as Free Trades Training.

Further, government is providing direct funding to employers to help cover the additional costs associated with training an apprentice on the job. This equates to $1,000 a month for the first year, and $500 a month for second year apprentices up until August 2022. This is called the Apprenticeship Boost and is available by application to the Ministry of Social Development.

The good news is that our industry has several apprenticeships to choose from. From pipfruit and kiwifruit to citrus and avocados in our **Fruit Production** apprenticeship. Tomatoes to cucumbers to lettuce and asparagus in our **Indoor Crop Production** apprenticeship. Broccoli, to yams and zucchini in our **Outdoor Crop Production** apprenticeship. Or packer, grader, dispatcher, coolstore operations supervisor in our **Postharvest** apprenticeship.

Our apprenticeship programmes will provide the standards for the skills and expertise requirements to be trade qualified in the horticulture sector, and for our industry people to be valued and rewarded wherever they choose to be.

What is an Apprenticeship?

The term apprenticeship means that the learning meets a range of requirements set by the New Zealand Qualifications Authority (NZQA), and the Tertiary Education Commission. For example, our apprenticeships contain competency standards requiring that a learner must be able perform the task to obtain the standard.

Adam Fleck on the Hydralada at National Horticulture Field Days

Unlike other forms of assessment where learners may just have to understand 50% of the topic in order to get a pass, with the apprenticeship the learner must be able to show they are competent. Apprenticeships should not be confused with 'cadetships' which could be literally anything as determined by the creator.

There are three parties in an apprenticeship: the apprentice, the employer and the Primary ITO training adviser. Each has unique responsibilities. For the apprentice, these are to work and learn. For the employer, these are to train and support the apprentice. For Primary ITO training advisers, it's about facilitating the training and supporting both the apprentice and the employer throughout the apprenticeship. We have over 1,000 learners in the horticulture production sectors.

New vehicle micro-credentials

Additional financial support from government has not been limited to apprenticeships. All of our programmes that have been created by employers for employers have either no fees or reduced fees. The latest new programmes to benefit from this funding are micro-credentials in vehicle training for tractors, light utility vehicles (LUVs), motorcycles and quad bikes. Micro-credentials are bite-sized pieces of learning that have been created by Primary ITO so that specific, specialised skills can be acquired.

Employers will have a short window to able to obtain these micro-credentials for their employees with no course fee. The cost in most cases is a day off-job for the employee and another part day for assessment – a relatively low cost for peace of mind.

> "We have over 1,000 learners in the horticulture production sectors

National Horticulture Field Days

Machinery displays are often a drawcard on show at Field Days – as demonstrated at the recent show at Tomoana Horticultural Field Day in June. A good selection was on display including the Hydralada, popular with pruners, pickers and orchard workers. The Hydralada and tractor competitions made for good viewing.

It was great to see an increased focus on careers and workforce, and a huge programme tailored for schools to interact with exhibitors on the first day. Our staff enjoyed engaging with the young people who are keen on careers in the primary industries, and the opportunity to connect with employers and industry stakeholders. It was also good to see the focus on innovation and technology.

COMBINING VEGETABLE GROWING WITH DAIRYING, *ORGANICALLY*

Words by Andrew Bristol

Sam Hogg in the field

Mingiroa Farm, near Halcombe, is showing how to combine certified organic vegetable growing with dairying, for environmental as well as financial benefits.

"If you get your system right, you could net up to ten times the profit in vegetables compared to dairy per hectare," says Sam Hogg.

"But you need a system that's straightforward and has a bit of fat in it, so anyone on the farm can pick it up and manage it, rather than make things more complex.

"We grew three hectares of organic vegetables last season: potatoes, pumpkin, squash, red and green cabbages, cauliflower and some broccoli. If we just grew say three hectares of organic broccoli, there would not be a market for it as there are no exports and the domestic market is only so big. We sell mainly through Ceres, who distribute our produce including through Foodstuffs.

"With our zero input potatoes, we yielded 35 tonnes to the hectare, and that was single row, low density planting as well. (Also see *NZGrower* April 2021, "Potatoes as part of a regenerative farm system," page 68.)

"I do not think that vegetable growing needs to be that hard if you build the right foundations. I think it just gets hard when we remove ourselves too far from natural processes, and you have to apply Band-Aid after Band-Aid.'

Sam says there's a huge opportunity with dairying in New Zealand to take a few paddocks out and put them in low input vegetables.

"With dairying, there's an excess of nutrients. That excess can be used for vegetables. The dairy farmer could do the growing or lease the land out, probably making more money from the lease than they would per hectare of dairying.

"This would be a great way to profitably reduce the national dairy herd rather than just being told to do it."

Completely organic

Today, Mingiroa Farm is certified organic, milks 300 cows on 240 hectares, with about 100 hectares being cropable. They employ three full-time-equivalent people, and casual labour when required.

More than 20 years ago, Sam's father Richard Hogg grew process vegetables for Wattie's, until they started to source from overseas. The farm has been in the Hogg family since 1852 and is run as a family business.

"This farm's not for sale, whereas with a lot of farms, the succession plan is that the neighbour buys it." says Richard. "Our goal has always been to keep the farm through

diversification and intensification – doing more with less, which you have to do nowadays because land is getting more and more expensive.

"The transition to organic has been challenging. It's been like setting up a whole new business.

"Back in the day, farming was much more of a lifestyle. There was more breathing space to do things a bit slower and not push as much production as possible. It's all speeded up and we've lost the whole community side of things.

"There are people out there who do not mind working on the land. This year, with the labour shortage, we wondered how we were going to get through. But by everybody doing a little bit, we got through. And our full-time dairy workers enjoyed helping out with the harvesting of the vegetables."

> **"Today, Mingiroa Farm is certified organic, milks 300 cows on 240 hectares, with about 100 hectares being cropable**

Weird where farming's got to

Sam says it's weird where farming's got to, in terms of land prices and profit off the land.

"Most farmers would be better off having their money in a bank rather than on a farm. The return on investment is very small compared to other investments.

"As a younger person, looking at the returns, I had to question why farmers are farming the way they are. There must be other ways to do things that are better financially as well as environmentally.

"We were running a system that could be profitable if the dairy pay-out was up, but if it wasn't, it could be hugely unprofitable. Either we could cross our fingers and hope that the pay-out was going to be big or take some control, control our costs and power on into the future.

"That's where we have come to now. Things are looking really good and we have a more stable system. But it is just getting to that point."

Sam has law and commerce qualifications. During his study and time away from the farm he realised that he had a real passion for the environment. "The penny dropped," he says. "Being on the farm and helping to move away from high input conventional farming to low input organic farming was the biggest positive impact I could make on the environment.

"We have a very small understanding of the biological world. We know more about the cosmos than our soil. As soon as you start seeing the soil as a living ecosystem rather than an inert brown medium that you add stuff too and take stuff away from, you realise there's so much more to soil than simple chemistry equations."

Richard says they've found that with artificial fertiliser, the roots of the vegetables didn't go down very far.

"This season we had very good rooting with our potatoes, and the plants found the nutrients and water they needed further down. We did not even think about applying fertiliser or the tops would have got too big."

Sam says their farming and growing system is working really well, two years into growing vegetables and several years into farming organically.

"The paddocks across the whole farm are only getting better as we get the biology more active. The plant diversity we are creating means that we can now farm and grow with far fewer inputs." ●

RON GALL: HE DID HIS BIT

Words by Glenys Christian

Ron Gall

Ron Gall, the former business manager of Potatoes New Zealand, has been remembered as putting the industry on the world stage during his 21-year contribution. He passed away in May.

Former work colleagues and growers paid tribute to him as a champion of the potato industry who played an important role in their debates of current issues as well as organising and running a large number of highly successful conferences.

Ronald Hutcheson Gall, 77, was born in Aberdeen in 1944, where his first job was with Inland Revenue. After transferring to Glasgow he came to New Zealand as an assisted migrant in 1966 with £15 (about $30NZ) in his pocket. He worked for the Inland Revenue Department (IRD) in Wellington and married Gail in 1971.

He joined Vegfed as an executive officer in 1990, coming from Parliament where he was private secretary to a number of senior ministers. "Along with the 'commander' Ken Robertson and I we made a great team," said former Vegfed then HortNZ chief executive, Peter Silcock.

Ken Robertson was a former executive officer for the Fresh Tomato and Potato sectors, as well as manager for the Process Vegetable Product Group and the Fresh Vegetable Product Group. Peter Silcock went on to work with Ron for 20 years and was a speaker at his funeral in Wellington in late May.

"Ron initially looked after Fresh Vegetables and then the Potato sector which later became Potatoes NZ, where he remained for 18 years. He also used his fantastic event management skills to manage Vegfed's Conference for many years.

"Ron had an enormous capacity for work. He was passionate and enthusiastic, he was a thinker and loved to challenge the status quo," he said.

"He loved the vegetable industry and got to meet and talk with most growers around the country. I feel privileged to have worked with Ron and benefited from his knowledge, support and friendship. He was a unique person, a true champion and loyal friend."

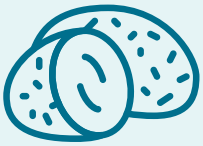
In 2009 Ron was awarded the Potatoes New Zealand Chairman's Award for his energy, passion and enthusiasm for the industry. He retired in 2012 saying he believed the new structure and focus of Potatoes New Zealand Inc was the correct way forward.

> "Ron had an enormous capacity for work. He was passionate and enthusiastic, he was a thinker and loved to challenge the status quo

Stuart Wright, chair of Potatoes New Zealand, acknowledged both his contribution and commitment to the industry as well as celebrating his industry foresight at that time. "His call for change was key to the potato industry's continued success," he said. He had left Potatoes New Zealand a better place.

Terry Olsen, former chair of Potatoes New Zealand, who worked with Ron closely over seven years, and also spoke at his funeral, said he believed Ron's presence was integral in determining the potato industry's economic future.

RON INITIALLY LOOKED AFTER FRESH VEGETABLES AND THEN THE POTATO SECTOR WHICH LATER BECAME POTATOES NZ, WHERE HE REMAINED FOR 18 YEARS



IN 2009 RON WAS AWARDED THE POTATOES NEW ZEALAND CHAIRMAN'S AWARD FOR HIS ENERGY, PASSION AND ENTHUSIASM FOR THE INDUSTRY

Not only did he understand the industry, he'd built up tremendous networks over the years.

This came into play very much on the world stage with Ron becoming a director and international advisor of the World Potato Congress (WPC). "Ron was dedicated to the potato industry and in helping to make the WPC the world-renowned organisation that it is today," president Romain Cools said. He showed commitment and loyalty over his 13 years of involvement, which would be long remembered with his years of experience in the potato sector being a great asset to the WPC board.

"He was instrumental in putting on a fantastic congress in Christchurch, New Zealand, in 2014 and assisted WPC in maintaining its reputation as a world class networking organisation."

Pukekohe potato growers were unstinting in their praise of Ron and his long involvement serving their industry. "Ron stood as a kauri tree in the potato world," said Kevin Balle from Balle Brothers."His passion for the industry and the humble potato was equal to, or greater than that of many growers."

> **"He loved the vegetable industry and got to meet and talk with most growers around the country. I feel privileged to have worked with Ron and benefited from his knowledge, support and friendship**

And Kevin Wilcox from A S Wilcox, who attended his funeral, remembered him as "a real champion for the vegetable industry, our people and our products", who served the potato industry with great passion and a positive growth mindset. "The world needs more Ron Galls," he said.

"Even when a bit naughty he was well intentioned and always wanted the best for the people he served."

Ron had wide-ranging interests outside of work as well, becoming secretary of the Taxes Cricket Club and playing rugby for them. He also coached Taxes men's and women's basketball teams, despite having never played the game, and managed the Wellington Women's representative basketball team for a time.

He was chairman of the Onslow Cricket Club, a member of the Wellington Cricket Association Management Committee, then vice-president.

> **"He showed commitment and loyalty over his 13 years of involvement, which would be long remembered with his years of experience in the potato sector being a great asset to the WPC board**

On the Riversdale Beach Golf Club he served as a committee member, handicapper, club captain and vice-president before being made a life member in 2016. He was invited to join the Eagles Golfing Society in 2007, was on its Wellington executive before serving as captain and president and was made a life member last year.

He also volunteered for 12 years as a cruise controller, helping cruise ship passengers find their way around Wellington.

He said that if he was to write his own epitaph it would be, "He did his bit".

He is survived by his wife, Gail, son and daughter-in-law Hamish and Rita (Portugal), daughter and son-in-law Andrea and Elliott (Wellington) and his grandchildren Lucas, Emily, Cameron and Mac. ●

A FAR NORTH WORKFORCE INITIATIVE

Words by Wendy Laurenson

The horticultural industry needs more sustainable labour options, Far North horticulture is in a growth phase, and local whānau need employment. So three iwi of Te Hiku o te Ika (the Far North) – Te Rarawa, Te Aupōuri, Ngāi Takoto – and their partners, have initiated a Group Employment Programme, Tupu, to pull these strands together.

"Increasing iwi investment in horticulture production, and Covid-19 served to highlight the need for this programme, designed specifically for Te Hiku, which launched in April this year," explains Bridget Dawson, project lead, Te Hiku Iwi Development Trust. "These times are providing a rare window for a change in mind-set for all partners, and Tupu is an iwi led, industry based, community driven initiative. The casual nature of horticultural work hasn't provided meaningful or sustainable employment for local whānau. Since Covid, employers can no longer access a consistent non-local workforce supply so this has provided an opportunity to meet local iwi, employee and employer needs."

Tupu (which translates as seedling or growth) was a year in the planning, longer in incubation and includes a broad range of key relationships. Bridget says, "The horticulture industry needs a reliable skilled seasonal workforce in the short-term, and a pipeline of suitable full-time employees longer-term. Te Hiku whānau need opportunities to upskill and find sustainable employment to achieve long-term prosperity here. The government wants a pathway for job seekers to find meaningful employment. And our community needs training that is learner, industry and Te Ao Māori led. We've woven these needs together and offer an opportunity to transform current inefficiencies in the horticulture sector, while at the same time providing security and financial independence for employees."

Integrating all these aspects, Tupu partners include Te Rūnanga o Te Rarawa (as Group Employer), Te Rūnanga Nui o Te Aupōuri, Te Rūnanga o Ngāi Takoto, industry employers (Bells Produce and Mapua Avocados), NZ Sports Turf Institute as training provider, Ministry of Social Development, Tertiary Education Committee, Ministry of Business Innovation and Employment, and Te Hiku Iwi Development Trust.

"All partners meet fortnightly and have a commitment to the programme for an initial two-year period, with 20 participants per year," Bridget says.

Tupu now has 20 kaimahi (workers) hired on a one-year full-time contract to work 80% of the time with host employers, and 20% of their time in industry specific training. Bridget explains, "The aim is for them to gain necessary skills and experience to transition into permanent roles in the horticulture industry, including in management and self-employment in the future. The programme is available to whānau on the MSD Jobseeker list living in Te Hiku, provided that they are interested in horticulture, are fit enough to do the work, and that their social needs can be met to fully participate in the programme."

> **"These times are providing a rare window for a change in mind-set for all partners, and Tupu is an iwi led, industry based, community driven initiative. The casual nature of horticultural work hasn't provided meaningful or sustainable employment for local whānau**

Bridget points out that the focus on cultural well-being, pastoral care, and an individual career and learning plan makes Tupu different from other work training programmes. "We've designed this from an economic, social and cultural perspective specific to Te Hiku. It is a holistic programme where we find out what interests, qualifications, ambitions and challenges the students bring with them, then we provide wrap around support and flexible training so they can succeed in learning and career pathways. We have navigators who walk alongside the kaimahi out in the field to help them understand what's required or to be an ear for anything that may be impacting their ability to participate. The kaimahi have already been picking and sorting mandarins on Te Rarawa owned Bells Produce near Kaitaia and are due to start soon at Mapua Avocados' orchards."

Naomi Austen Reid, Tupu operations manager based in the Kaitaia training premises, says that the Tupu programme has also built in flexibility to suit the industry. "We're able to wrap our training content around the local industry's seasonal calendar and meet growers' specific project needs rather than be limited to core curriculum activities. The mandarin crop at Te Rarawa Bells Produce, for example, was ready to pick earlier than expected so we were able to shuffle things to have our crew trained and available. It pulled up some increased challenges that we can learn from, but we've built monitoring and evaluation systems into the Tupu model to ensure we remain in this long-term."

> **"Tupu now has 20 kaimahi (workers) hired on a one-year full-time contract to work 80% of the time with host employers, and 20% of their time in industry specific training**

Naomi adds, "This is a challenging and exciting programme and already we have some rewarding outcomes. One of our kaimahi wanted a career in horticulture but had been laid off from a horticulture job because he was colour blind. After some research, we found him glasses that overcome colour blindness, so he is now able to follow his dream in horticulture. Another young guy who is mechanically minded could be a candidate for an apprenticeship so we're finding out what can be done within Tupu to set him up for that in local horticulture."

> **"The aim is for them to gain necessary skills and experience to transition into permanent roles in the horticulture industry, including in management and self-employment in the future**

GoHort's Northland Careers Progression Manager, Maria Fathollahi, has been watching Tupu evolve. "Te Hiku is really taking ownership of this integrated initiative and they're the main contractor and employer so they're backing themselves and building local capability. They're also getting fantastic minds involved. Our role has simply been to facilitate planning and help put partners in place. If the Tupu programme is successful, it has the potential to be applied to other iwi, regions and primary industries and could become a foundational model for horticulture's future." ●

CALL FOR COLLABORATION

Words by Glenys Christian

Kylie Faulkner, Mike Chapman and Nadine Tunley at the PVGA annual meeting in May

Incoming HortNZ chief executive, Nadine Tunley, has attended her first Pukekohe Vegetable Growers' Association (PVGA) annual meeting.

She outlined her previous roles in horticulture coming from an accounting background, working first with a large Nelson orchardist looking at getting involved in exporting.

"I never looked back," she said of the appeal of the sector.

Then she spent four years with the Manuka Honey Company, next becoming a director then chair of Pipfruit NZ.

"That was a big learning curve," she said.

"Everyone has the same problems with being busy and increasing government regulations, so it's important to have a voice and be heard.

She then became a director of Scales and Plant & Food Research, and the HortNZ board has asked her to retain the latter role to improve growers' traction in this area.

"I'm willing to learn as I go and I hope to do half the justice Mike (Chapman) has," she said.

HortNZ was a very different beast when he took over as chief executive. And while progress might seem slow, it is important to keep chipping away in order to make change.

An important part of that is collaboration across all the groups which make up the horticulture industry.

"If we can pitch a good story to government we're more likely to get funding."

She urged growers not to hesitate to reach out to her.

Kylie Faulkner, who was re-elected unopposed as the PVGA's president, said open dialogue is key.

"You won't find us backwards in coming forward," she said.

And she paid a personal tribute to outgoing chief executive Mike Chapman, who will stay on for a year as the PVGA's honorary solicitor.

"He has really been a vegetable hero and I want to record my personal thanks to him."

> **"Everyone has the same problems with being busy and increasing government regulations, so it's important to have a voice and be heard**

TECHNICAL

THE LATEST INNOVATIONS AND IMPROVEMENTS

DEALING WITH SOIL POLLUTANTS

opinion

By Robin Boom : CPAg, Member of the Institute of Professional Soil Scientists

Soil pollution can be defined as the build up in soils of toxic compounds, chemicals, salts, radioactive materials or disease causing agents which have an adverse effect on plant growth, animal and human health.

Pollutant materials are those which are not naturally there, but which have been deposited or have accumulated through human activity. Some soils contain naturally high amounts of certain elements which can be toxic to plants and animals, but these are not regarded as pollutants per se.

> “If the land was to be used for housing only, and no food plants or crops would be grown on the land, then the zinc level found would be in the acceptable range

Recently I was asked to take four soil samples on a 14-acre block of land next to an urban area for a client who is in the process of subdividing it for residential development. He needed to ascertain the heavy metal status to ensure that these were not excessive for land which future residents might use for growing their own produce. The elements tested for were arsenic, chromium, lead, nickel, mercury, copper, zinc and cadmium. Three of these samples were taken from grazed pasture paddocks which had relatively low heavy metal levels, but one sample we deliberately took from around an old shed where for decades, wooden fencing materials, concrete posts and old corrugated roofing iron sheets had been stored and run-off from the shed roof had fallen. On this sample the arsenic, lead and zinc levels were above BioGro limits acceptable for organic farming and growing standards. The high arsenic in this sample would be from the treated fence posts and wooden gates which lay on the ground over the years, and the high lead and zinc from the roofing iron.

It may be necessary for my client to scrape away the topsoil around the old shed and dump this if the levels are deemed too high by the local council.

In New Zealand the only set of standards for heavy metals appears to be the BioGro limits, where the bar is set a lot higher than most other countries. In Britain for instance, for this sample the level for arsenic and lead would be acceptable for residential land where food plants are grown, and only the zinc level would be excessive. If the land was to be used for housing only, and no food plants or crops would be grown on the land, then the zinc level found would be in the acceptable range. For heavy metals, having a good soil pH (acidity/alkalinity), high organic matter levels and good overall fertility, the availability of these for plant uptake is lowered. In the case of dairy farming land in the upper North Island where zinc has been given to cows at high rates over the summer and autumn to prevent facial eczema, zinc levels are commonly several times the natural background levels and on effluent areas up to ten times the natural levels. In the case of copper which has been extensively used on orchards as a fungicidal spray for many decades, and in recent years on kiwifruit orchards to prevent Psa, copper levels can be up to thirty times the natural background levels. While doing some work in Britain just over 20 years ago I sampled former hop growing land which had copper levels higher than anything I had ever seen before or since. Continued spraying of fungicides is not good for the soil biology and even the plants themselves, as high zinc and copper levels can impede the uptake of other elements, such as phosphorus.

> “In the case of dairy farming land in the upper North Island...zinc levels are commonly several times the natural background levels and on effluent areas up to ten times the natural levels

Other soil contaminants of a chemical nature can be found in places where chemicals have been stored or mixed, old petrol or diesel or oil tank storage sites, sheep dip areas, and also where agricultural chemicals which have a known longevity in the soil such as DDT and Atrazine have been applied.

Excess fertiliser elements can also be regarded as soil pollutants, and vegetable growers in particular are often guilty of saturating the soil with levels of nitrogen, phosphorus and potassium that are well in excess of the crop nutrient requirements. Nitrogen readily leaches through the soil profile into ground water or nearby waterways and phosphorus builds up in the soil and gets lost in particulate run-off which again pollutes waterways resulting in toxic cyano-bacterial and oxygen depleting algal blooms in creeks, streams, lakes and rivers which affects fish life and aquatic invertebrates.

One solution to mopping up these excessive nutrients is to plant catch crops or cover crops which are normally fast growing and can provide a number of environmental benefits. Catch crops such as oats, barley, ryecorn or Italian ryegrass can be harvested before seed has set and made into silage for livestock or fed as green feed direct to animals, thus exporting this excess accumulation of nutrients. Alternatively these can be mulched into the soil providing a source of organic matter, although there is still the unresolved issue of excessive nutrient being returned to the soil. Other catch or cover crops can be plants such as radish, mustard and lupins which again will be worked into the soil. Another environmental benefit of catch or cover crops is that the soil is not left bare, and the crop can continue to harvest CO_2 from the atmosphere and put it into plant material and roots, thereby reducing greenhouse gas losses.

> **Catch crops and cover crops should be considered a win-win for lessening overall environmental degradation and retaining or improving the long-term sustainability of productive land**

Catch or cover crops can also provide an important habitat for beneficial insects and soil microbial life, increasing biodiversity, instead of monoculture cropping. The productive capacity of the soil will benefit from improved soil structure from the expansion of plant roots and increased organic matter from root exudates which feed beneficial fungi, bacteria, actinomycetes, nematodes and protozoa. Also any remaining above ground stem and leaf material that gets worked into the soil will become part of the below ground carbon pool which increases moisture retention long term, and is a food source for earthworms and soil microbes, which improves the tilth and workability of the soil. Catch crops and cover crops should be considered a win-win for lessening overall environmental degradation and retaining or improving the long-term sustainability of productive land.

FANS IN INNOVATIVE CLIMATE CONTROL

Words by Elly Nederhoff : Crophouse Ltd

Screen fan from Hinova

Corridor from Enerdes

Fans are becoming an important tool for energy efficiency in greenhouses. This article outlines the wide range of fan technology, from air fans to advanced Air Treatment Corridors. Fans offer several advantages:

Humidity control

Fans help to reduce the air humidity. It takes far less energy to warm up dry air than to warm up humid air, so drier air is cheaper to heat. The use of fans can reduce the need for venting and heating, thus saving energy. Recycling the air in greenhouses with fans preserves heat and CO_2.

Fans drive moisture away from the plants and up against the cold greenhouse roof, where it condenses. Air movement improves the uniformity of the greenhouse climate: it eliminates cold spots where plants get damp, and where moulds and fungal diseases would flourish. The best remedy would be to address the cause of the uneven temperature, for instance to adjust the heating layout. But if that is too difficult, the use of fans is a good alternative.

Air movement also stimulates transpiration and improves the nutritional condition of the plants and is essential for plant health. The greenhouse atmosphere can be very dull and humid on mild overcast days, and even more so under a closed screen combined with lukewarm heating pipes. Such conditions restrict the transpiration and nutrient uptake, which can be remedied by increasing air circulation.

Heating and venting

Traditional methods of generating air movement include the reduction of pipe temperature to a minimum, opening ventilation only slightly, and gapping the energy screen. These actions all involve concurrent heating and venting, which does not help the energy efficiency or the carbon footprint of covered crops. It is recommended that overall cooler conditions are more beneficial than alternate heating and venting to achieve climate control.

Calculations prove that using fans is more energy efficient than combined heating and venting. And the use of fans fits in the trend of 'electrification' of greenhouse climate control. Using fans, especially if they have a built-in electric heating element, is a step towards electrification. With the move away from fossil fuels due to climate change, towards low-carbon sources of sustainable power, electrification is a good option. It is also in alignment with New Zealand's plan to 'decarbonise.'

ATU from Enerdes

Sleeves from VerbakelBomKas

Fan functionality

Fans are important tools in 'The new way of growing', which is an innovative method of climate control and plant management in Europe. (See previous article in this series.) It aims to improve energy efficiency, production and quality. This involves the use of fans of various shapes and sizes, with different functionalities, for instance:

1. to circulate the greenhouse air
2. to draw in outside air
3. to create vertical air movement
4. to move air through screens
5. to mix two air flows
6. as part of an Air Treatment Unit (ATU) or an Air Treatment Corridor

> **Air movement improves the uniformity of the greenhouse climate: it eliminates cold spots where plants get damp, and where moulds and fungal diseases would flourish**

Fan outlet

The fan outlet can be either an open pipe that blows the |air directly into the greenhouse space, or a large perforated sleeve (tube) that spreads the air over a much larger area. The sleeves are used especially under a hanging gully (see photo).

Horizontal and vertical fans

Horizontal fans have been used for decades in New Zealand for keeping plants dry and creating an even temperature and humidity. The configuration of the fans is important, but not discussed here. Horizontal fans may also be used for spreading plant protection products using the LVM (Low Volume Mist) method.

Vertical fans create air movement from the top to the bottom in the plant, to even out temperature differences between the plant head and lower leaves. Vertical fans are quite commonly used overseas, especially in greenhouses with lighting.

Screen fans

Screen fan systems are a special form of vertical fan, designed to draw air from above a closed screen. This is beneficial because the air in the upper greenhouse compartment is drier than the air in the lower part (because it is much colder there). The exact temperature and humidity depend on the type of screen, how well it closes, and whether the roof vents are fully closed or very slightly open. Screen fans create an overpressure under the screen, which requires that some pressure release valves are installed in the greenhouse wall.

Screen fan systems

Some special screen fan systems allow the mixing of two air streams: cold dry air from above the screen and warm humid air from below the screen. One example is the Hinova VentilationJet System (see photo). The vertical air inlet pokes up between two screens, and because it is so thin, it does not create a gap. A connected fan in this system spreads the air nearly vertically into the greenhouse under the screen.

Airmix screen fans from Vanderendegroep

Another example is the AirMix (see photo) which pushes the air out horizontally. It has a controllable valve for mixing two air flows. In principle air is taken from both below and above the screen and mixed together. But it is possible to take in greenhouse air only, and use the fan as a simple horizontal fan.

Fans drawing in outside air

Using fans to draw in fresh air from outside is an important element of humidity control in semi-closed and other modern greenhouses. Cold outside air has a very low absolute humidity. (The relative humidity can be high, but that is irrelevant). Drawing in a considerable flow of dry outside air makes the greenhouse immediately much drier. This fresh air must then be warmed to the required temperature.

Air Treatment Units and Corridors

Air Treatment Units (ATUs) contain a strong fan in addition to other technology. ATUs are the core of semi-closed greenhouses that have been built worldwide in a range of climate zones. Different suppliers have developed different designs, and often offer custom-made systems. Some examples can be seen in the photos. The results are impressive, especially in harsh climates.

> **“Using fans to draw in fresh air from outside is an important element of humidity control in semi-closed and other modern greenhouse**

ATUs from ITB

Some greenhouses have a series of ATUs installed outside against the greenhouse wall. Alternatively, a series of ATUs is installed in an enclosed two-meter-wide corridor over the length of an entire wall of the greenhouse. Here the greenhouse air is mixed with fresh air in the required ratio. The mixed air can be treated (heated, dried, cooled, etc) depending on what is needed in a particular climate. The treated air is then blown into the greenhouse, sometimes via an open pipe but mostly via perforated sleeves that can be over 100 metres long.

ATUs seem to be the technology of the future, with new innovative versions being developed all the time.

ATUs Greenvent from ITB

PRECISION ONION PRODUCTION TOWARDS 200T/HA

final word

By Mike Nichols

Onions are one of New Zealand's more important exported vegetables, and yet yields are considerably lower than could be achieved. One major reason is because we do not achieve the optimum plant density, and a second reason is because we do not produce an even sized crop. Every onion which is oversized or undersized is a waste of resources.

The problem starts at sowing time. The optimum date for sowing onions (Pukekohe Long Keeper and similar types) is May to July, which (by coincidence) is the most difficult time to prepare a fine seedbed, and the worst time for obtaining good and even seed germination. Heavy rain at this critical time can also result in fertiliser being leached through the soil and herbicides making contact with the sensitive germinating onion seeds. If these onion types are sown earlier, they will tend to go to seed, while if they are sown later then because bulbing is dependent on day length and temperature, they will bulb when small and yields will be low.

Of course, with experience (and some luck) it is possible to get extremely even crops of onions (see photo), but this tends to be the exception rather than the rule.

Note however, the gaps in the rows, and the fact that an additional row could be sown between each existing row.

> “Heavy rain at this critical time can also result in fertiliser being leached through the soil and herbicides making contact with the sensitive germinating onion seed

The first research on onions I undertook when I arrived at Massey University in 1965 was a plant spacing study in which I looked at the effect of plant density on the yield of onions using a fan systematic spacing design in which the plant arrangement stays constant, but the plant density changes systematically (from 60 to 400 plants/m^2). This design allowed one to consider a very large number of plant densities in a small area, and therefore allowed each fan design to be a part of a larger fertiliser experiment. Without going into too much detail, the results suggested that potentially yields of bulb onions in New Zealand were capable of exceeding 200t/ha, and might even be as much as 250t/ha (Nichols, 1967). The downside was that this was achieved at high plant density (400 plants/m^2), and that the bulbs were then extremely small.

An excellent direct seeded crop of onions. The exception rather than the rule?

On the other hand, the onions were not transplanted as seedlings until October, and the only 'selective' herbicide available for onions in 1965 was sulphuric acid, which was very aggressive even on the waxy onions leaves. Essentially, they had a tough life. I continued on with my onion studies for a few years, looking at varieties, plant densities and sowing dates, but there was little interest from industry, which was very much Pukekohe based and was interested primarily in research undertaken in the region.

> **"the results suggested that potentially yields of bulb onions in New Zealand were capable of exceeding 200t/ha, and might even be as much as 250t/ha**

I had undertaken a study with onion sets in the United Kingdom, but did not consider it relevant for New Zealand's milder winter climate, however the recent work of Martyn Callaghan (Callaghan, 2019), and my recent studies, suggest that this technology may provide an opportunity to take onion production in New Zealand to the next level. Marketable yields of 200t/ha may well be achievable.

Onion sets are the solution. If we use onion sets to establish the ware onion crop we are virtually assured that wherever we plant a set we will produce an onion plant.

The spacing can be accurate, and by size (weight) grading the sets we overcome any variation in plant size due to uneven germination or variations in seed size. This will significantly reduce variation in bulb size, particularly if we use an F1 hybrid variety.

Increasing plant density results in a decrease in individual plant size due to competition for light, water and nutrients. However, onions are very different from many other vegetables because they have very upright leaves, and competition for light is less important than for other flatter leafed vegetables such as cabbage.

> **"Onion sets are the solution. If we use onion sets to establish the ware onion crop we are virtually assured that wherever we plant a set we will produce an onion plant**

The earlier onions are sown, the larger the bulb, provided they do not go to seed, because bulbing is caused by long summer days and high temperatures and will occur for any variety at about the same time, irrespective of sowing date. Thus if we plant larger sets than normal we might anticipate larger bulbs, except that there will be a tendency for the larger sets to go to seed. Unlike growing from seed however, we can treat the larger sets to reduce or eliminate the risk of going to seed by a heat treatment of the sets while they are in winter storage. Control of ware bulb size will therefore be a question of adjusting the planting date with the set size and the plant density. I plan to investigate this in the coming season, and intentionally produced sets of a range of sizes this past summer.

Of course, from an environmental viewpoint producing higher yields per hectare has major environmental implications in terms of improved fertiliser use efficiency (less leaching), less pesticides, and less water for irrigation. A win/win/win situation.

Pie in the sky? We now consider 800t/ha/year as an excellent (but not exceptional) greenhouse tomato yield and yet 60 years ago I can remember when 200t/ha/year was considered outstanding.

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PRODUCT GROUPS

ALL THE LATEST NEWS FROM YOUR PRODUCT GROUPS

ROBUST MODELS MEAN THE BEST FARMER-FACING TOOLS

By Gemma Carroll : Communication & Engagement Officer, Potatoes NZ Inc.

Sustainable Vegetable Systems (SVS) monthly update: improving the modelling via Workstream 3 and extension activities in Workstream 4

Sustainable Vegetable Systems is a four-year, $7.5 million project focused on reducing the environmental impact of intensive growing of potatoes, onions, brassicas and leafy greens.

It involves research work to quantify and model nitrogen leaching, and engages vegetable growers from around New Zealand with tools to identify and implement techniques they can use.

> *Sustainable Vegetable Systems* is a four-year, $7.5 million project focused on reducing the environmental impact of intensive growing of potatoes, onions, brassicas and leafy greens

In Workstream 3 of the SVS project the modelling team alongside agronomists and growers are focused on improving crop modelling. Whatever nutrient tool is used on your farm, the accuracy of the results depends on the accuracy of the inputs and/or crop model behind the tool.

Our collaborative approach in SVS aims to provide the data that underpins the crop nutrient models. In turn better crop understanding and modelling will improve Overseer, and any other nutrient management tool. For consistency and confidence across all stakeholders, existing and new tools need to be underpinned by robust data and crop modelling.

> SVS aims for the same crop model to underpin all grower facing tools, for consistent results and to inform best management

The calculation of nitrogen leaching does not have to be done in Overseer unless your Regional Council rules require it. Some Regional Councils require the use of Overseer to estimate nutrient leaching from an individual farm. SVS is aiming to improve the ability of models like Overseer, to represent vegetable rotations and associated nitrogen leaching so that growers can have confidence that the modelled results reflect their growing system and management practices.

SVS aims for the same crop model to underpin all grower facing tools, for consistent results and to inform best management. Data gaps are being addressed through trials in Lincoln and Hawke's Bay, alongside monitoring using nine regional sites.

The challenges in the current modelling so far identified by agronomists and growers include:

- Current modelling uses the same formula for all crops, and only a handful of crop types are included.
- The model is based on one paddock using one-month time steps, and therefore can only model one crop per year on that block.
- Water data and modelling was developed for arable crop irrigation and needs to be refined for vegetable crops. Overseer uses a fixed and quite limited long-term climatic data, using average annual climate data – which is not accurate enough for the sub-annual, rotational nature and relatively fine scale of some vegetable production systems.

Modelling workshop

- Model assumptions about crop residue (plant material left in or on the ground after harvest) contributing to nitrogen leaching as the crop breaks down, may also lead to incorrect results, and needs refinement.
- The current modelling is based on counting the number of plants harvested as marketable yield rather than the total number grown (including what is left in the field after harvest). This affects the results when fertiliser decisions are made on potential rather than marketable yields. If the modelling is based on marketable yield rather than how much crop biomass is grown, then a weather event, pest and disease, or market changes will affect grower compliance.
- Misunderstanding about what models are trying to achieve when using long-term climate averages, rather than daily actuals.

Where and how does SVS meet these challenges?

- By working on testing and incorporating improved crop characteristics with adjustments to co-efficients (the numbers sitting inside the model) into Overseer for specific vegetable crops and rotations. This same work will be tested in an APSIM (Agricultural Production Systems Simulator) model and any other tools which are deemed good practice by our advisory groups.
- SVS is measuring and taking into account nitrogen in the harvested product, stover and root.
- There is also a separate concurrent Plant & Food Research/Overseer project looking at improving arable crops, many of which vegetable growers use as cover crops.
- Ultimately SVS project outcomes aim to make nitrogen application more precise, thereby meeting compliance, farm management efficiency and saving the grower money.

Improving the modelling

Workshops have been underway from May 2021 with agronomists, modellers, growers and sector group representatives.

The first one-day workshop, held in May, was agronomy focused and explored crop modelling parameters (crop growth curves, rooting depths, yields, etc.) The outputs from that workshop will be reviewed by the SVS Technical Panel through a series of video conference calls.

The next step is to bring a group of modellers together in a one-day workshop in July, to explore the modelling issues and set up a process for drafting a Practice Note or Protocols for data input into OverseerFM and any other modelling tools.

2021 POTATO INDUSTRY FORUMS – BROUGHT TO YOU BY POTATOES NZ INC. AND OUR PLATINUM SPONSOR FRUITFED SUPPLIES.

In place of the biennial Potatoes New Zealand Conference, we are holding two Potato Industry Forums this year. These events promise a day of short briefings as well as panel discussions and Q&A sessions for the delegates.

The programme follows the themes from our Strategy and Business Plan: Markets, Industry Good, R&D& Environment and Quality.

Topics covered include: Economic Outlook, Industry Values, Supermarkets, Exporting, Health & Safety, Blockchain and Data, Future Projects, Sustainable Vegetable Systems, Carbon Calculator & Pricing, FEPs, Spray Resistance, Seed Scheme, Powdery Scab, Psyllid & Liberibacter, Potato Tuber Moth and Integrated Pest Management.

You can register online **http://potatoesnz2021.nz/**

The third workshop will be held over two days and will include modellers, agronomists, and growers.

Independently some of this modelling group will work with industry on council submissions, with greater knowledge and alignment to recognised crop modelling guidance.

The workshop groups build the foundation and support the work being done by the Community of Practice (CoP) which is being run through Workstream 4 (SVS extension).

The SVS Community of Practice (CoP) is comprised of approximately 12 people with the prerequisite of having completed the Massey University Sustainable Nutrient Management course. This group becomes one of the vehicles for improving the industry's understanding of nutrient modelling.

In turn this will be reflected in nutrient management plans included in Farm Environment Plans (FEPs) and leaching figures submitted to councils where required.

The CoP will participate in workshops over the next three years. The objective being to increase industry knowledge through conducting and presenting case studies based on the SVS regional monitor sites.

If you would like to stay up to date with SVS work or contribute your ideas or experiences of nitrogen management challenges or successes, please contact the Programme Leader **andrew@agrilink.co.nz**

The SVS project team would like to acknowledge all the researchers and growers who contribute to this ongoing industry transformation work, as well as funders The Ministry for Primary Industries, Potatoes New Zealand, Vegetable Innovation & Research and HortNZ.

Process Vegetables NZ

BIOSECURITY, AN INITIAL FOCUS

Words by Richard Palmer : General Manager, Process Vegetables New Zealand

It is my great honour to have stepped into the role of General Manager Process Vegetables New Zealand (PVNZ), taking over from Leanne Stewart on her departure to Chief Executive of Kiwifruit Vine Health. I'd like to acknowledge the excellent work that Leanne did for the process vegetable sector, and wish her well in her new role.

I've had a couple of weeks to get into the role with most of that time focussed on biosecurity matters, unfortunately, some of that on responses to incursions. Whilst I am based in Canberra, I will be in New Zealand frequently, including for conference and the AGM so I look forward to meeting many of you there. But do feel free to get in touch with me by email too: Richard.Palmer@hortnz.co.nz.

Pea SFFF

PVNZ has research funding through the MPI Sustainable Food and Fibres Future (SFFF), and is contributing directly to, a project with Plant and Food Research (PFR) to investigate possible causes of, and mitigation for, dispersed and mixed flowering within pea crops leading to reduced productivity. I was fortunate to talk through this project with Bruce Searle and Miriam Hall at PFR recently, quite a fascinating issue and project! Already some possible mitigation options are becoming apparent that could minimise flowering dispersal and production losses. Bruce Searle is putting together his final report for this past year based on trial work in glasshouses and also some work being done at Massey University using hyper-spectral seed analysis looking at response relative to flowering timing and duration. This work has an added element, in that the efficient and effective production of legumes for fixing nitrogen makes an important contribution to.

Biosecurity

There is plenty going on in biosecurity, an area I am enjoying being back involved with. The term of the current Fruit Fly Operational Agreement, the first agreement signed under GIA, expires this month. The partners are working through an extension of this agreement to allow time for negotiation of a new one.

Much has changed since this first agreement was signed, including an extensive work programme undertaken in the past five years to improve both readiness and response. The ultimate measure of effectiveness is that despite responses on several occasions to fruit fly incursions, those responses have been effective in eradicating fruit fly and maintaining trading confidence for New Zealand's high value produce exports. For process growers all successful responses enable us to maintain high production without the risk of fruit fly damage and loss.

PVNZ, a signatory to GIA through HortNZ, has been involved with the recent Tomato Brown Rugose Fruit Virus response, among others. That response has been successful and final negotiations with other GIA signatories, including the Crown, are progressing to confirm benefits and cost shares. While not ideal to be completed after the response, the discussions are a useful process to guide us through future responses, to understand the drivers of our partners, and develop frameworks for benefit and cost sharing.

While hoping we don't have to act too often to respond to new threats, the GIA framework is providing the partnership to ensure we have the best chance to act in the interest of process vegetable growers.

PEPINO MOSAIC VIRUS FOUND IN TOMATOES

By Helen Barnes : General Manager, TomatoesNZ Inc.

A virus that affects tomatoes has recently been found in plants at several Auckland glasshouse facilities and it may be in other operations around the country.

The virus is the pepino mosaic virus (PepMV) which can cause disease in tomatoes and some other crops including eggplants and possibly some potatoes.

It has minor effects on the foliage of younger plants, but as the plant ages, can cause mottling of the fruit. We don't know what the longer-term effects will be on production.

PepMV does not present any food safety concern or risk to people. The tomatoes are safe to eat.

Those premises where PepMV has been found are still in business and operating under strengthened hygiene conditions.

There are steps you can take to protect your business and other growers:

Look out for the disease in your crop

- Keep a close eye on your crop.
- **If you think you've found signs of PepMV, immediately contact Biosecurity New Zealand through its freephone: 0800 80 99 66.**
- You will be given advice on what actions to take.
- You can find more on what to look for at: **www.biosecurity.govt.nz/pepmv**
- Affected plants can show stunting of the growing point of the plant or damage resembling hormonal herbicide damage. Leaves around the 'head' of the plant may show dark spots and significant distortion while lower leaves may have brown, necrotic lesions.
- Other leaf symptoms may be yellow spots which later develop into bright yellow patches on the leaf and 'bubbling' on the leaf surface.
- Symptoms observed on infected fruits have been described as 'marbled' and may be more readily seen in large red varieties.

Reducing the spread

- PepMV is spread by seed, stalks and leaves and very easily on contaminated tools, hands, clothing, direct plant-to-plant contact, and propagation. Bumblebees used as pollinators and insects such as whitefly are also known to spread the disease.
- While the virus can be detected in the fruit itself, the risk of transmission of the disease through selling fruit is considered low.
- Good biosecurity cleanliness measures are needed at all stages of crop production.
- Restrict access to glasshouses to essential staff.
- Keep good records of who has been in glasshouses and when.
- If possible, assign workers their own PPE, tools, carts etc and restrict these to single glasshouses or glasshouse sections or compartments.
- Clean and disinfect tools regularly – particularly between use in different glasshouses or compartments.
- Ensure secure disposal of glasshouse waste to landfill. Do not allow plant debris to pile up in or near the glasshouse where it could blow back inside or be carried on feet or tyres.
- Attention to post-harvest glasshouse sanitation and disinfecting between crop cycles to minimise plant infection.

“Symptoms observed on infected fruits have been described as 'marbled' and may be more readily seen in large red varieties

Next steps:

- TomatoesNZ and Biosecurity New Zealand continue to investigate the scale of the situation.
- It is likely there will be heightened surveillance checks to find out how widely the tomato sector is affected.
- Work is underway to determine the most appropriate longer-term measures to manage the situation.

TOMATOESNZ AGM & COVERED CROP SESSIONS FOR GROWERS AT THE HORTICULTURE CONFERENCE, 5 AUGUST 2021, MYSTERY CREEK

From 8.30am to 12pm at the Horticulture Conference on Thursday 5 August we will be running research and technical sessions for greenhouse tomato and vegetable growers as follows:

- Pest management using biocontrol in your greenhouse – a journey from investigation to selection, trials, and practice – presented by Emiliano Veronesi, Chris Thompson, Chris Cowie and Andrew Hutchinson.
- Practical advice on greenhouse hygiene measures.
- Energy options for the greenhouse industry – presented by EECA (Energy Efficiency & Conservation Authority) and DETA Consulting.
- Developing farm environment plans for greenhouse growers – presented by Andrew Barber.

The Horticulture Conference runs over two days and this year the theme is "*Resilience and Recovery.*" You can check out the full programme here: **https://conferences.co.nz/hortnz2021/programme/**

The TomatoesNZ Inc Annual General Meeting will be held at 4.15pm on Thursday 5 August 2021 at the Conference. TomatoesNZ is again offering funding support to members who wish to attend our AGM and the Conference. Places for this are limited and if you would like to attend, please contact us to confirm arrangements prior to registering at: **https://conferences.co.nz/hortnz2021/**

Covered cropping decarbonisation pathway

We are pleased to confirm work has started on mapping out a plan for our sector to improve energy efficiency and transition to low emission fuels. This is being undertaken by DETA Consulting, an engineering firm that specialises in energy management in New Zealand and has experience working with greenhouse growers.

> **"We are pleased to confirm work has started on mapping out a plan for our sector to improve energy efficiency and transition to low emission fuels**

The scope of this work includes reviewing existing research and technology applications and assessing the energy usage in greenhouse operational processes to establish energy and carbon baselines by fuel type. Segmentation will be done to then look at the opportunities by crop, location, etc, for further evaluation. The outputs of the plan will include a sector baseline, transition options, and an implementation plan that may include site decarbonisation assessments, technology demonstrations and optimisation projects. Resources will also be developed to support grower best practice and decision-making tools.

It is expected the plan will be completed for review by late August or early September and we look forward to updating you further on this. This work is being supported with funding from EECA. You can read more about this on pg17.

CAN FOOD SECURITY BE SUSTAINABLE UNDER CLIMATE CHANGE POLICY?

By Antony Heywood, General Manager : Vegetables New Zealand Inc.

Growers at energy workshops in May 2021

There are always lessons to learn from any workshop and the best workshops leave you aware of the opportunities as well as the challenges.

There are plenty of challenges facing growers at the moment, from climate change to freshwater quality. But one key question remains: are growers getting a fair deal, or are they paying what amounts to a tax under the direction of government policy due to their exposure to land? Overlay this tax with what growers are receiving for their produce and you have to question whether growers are getting much of a return on their investment.

How does this relate to energy? Energy requires a large investment of capital. Capital requires profit to enable that investment. This is a vicious cycle, which ultimately depends on growers receiving a fair price for their produce.

Back to energy. The latest climate change policy has as a goal the decarbonising of industrial process heat by 2037. This will affect all heated glasshouses that use carbon (coal and natural gas). In partnership with the EECA (Energy Efficiency & Conservation Authority), the covered crop industry has undertaken a project to consider viable decarbonisation options for process heat, moving the sector to renewable energy.

The project started with an energy survey to build a baseline of industry energy practices and heat resources. At the same time, a review of the technologies available internationally considered the viable options in the global marketplace, both in current practice and in emerging technologies.

The key messages of the project to date indicate a planning cycle for all growers to consider:

1. Have a greenhouse gas energy plan that allows for the transition to renewable energy.
2. You are not alone with the journey to renewable energy. Options for you to consider and steps to implementation will be covered under the project between EECA and industry. Stay connected to your Covered Crop industry partners for the most up-to-date information.
3. The first step is to look at the energy efficiency of your operation. There is no point in considering renewable energy sources until you have identified all the areas you can gain energy efficiency. Ultimately the output energy delivery option should diminish due to energy efficiency. Examples of energy efficiency measures include, but are not limited to:
   a. Screens (multiple if possible)
   b. Climate control / leaf temperature monitoring
   c. Prevention of energy leakage
   d. Vertical fans to eliminate hot and cold areas in the greenhouse.
4. Your energy plan may involve a number of energy generation or co-generation options depending on the low-high energy co-efficient required. This may include your current resources as part of the energy delivery process. Then, depending on your energy efficiency plan, augment other key renewable energy options into your energy delivery matrix. This may include heat pumps, biogas digesters, solar energy or a combination of these.
5. Reporting and monitoring your energy efficiency will be vitally important when gaining consents or extending consents over time. The Resource Management Act (RMA) – or rather the next generation RMA – will be used by central government to administer climate change emissions. Having a clear plan, with supporting evidence of your emissions, will become mandatory for horticulture practice and resilience in a sustainable world.

> **"are growers getting a fair deal, or are they paying what amounts to a tax under the direction of government policy due to their exposure to land**

Covered cropping is a growing method that has huge potential to deliver food quantity and quality to a demanding and hungry world population. Given the land footprint to food volume equation potentially achievable with ping, it is a great way towards a sustainable food outcome.

There can be perverse outcomes to government policy. Please do not make food security one of them.

HARNESSING BIOLOGY FOR BETTER CROPS

Good biology is now understood to be a key to plant health and productivity.

BioStart, a New Zealand biological company, has created a biological range that increases specific beneficial microbes in the soil and foliage which help with plant resilience and crop yield.

BioStart chief executive and scientist Dr Jerome Demmer explains the link between biology and plants: "Plants cannot grow without microbes to help them absorb nutrients from the soil. Naturally occurring microbes living in the root zone and on leaves, are essential to the plant's survival and getting the right mix of microbes improves yield and plant health. Trials on crops including vegetables, grapes, apples and kiwifruit, have shown yield increases and improvements in product quality and nutrient density which lead to better flavours and better storage – and combining soil and foliar biostimulants into programmes is producing even greater benefits."

BioStart's soil biostimulant, Mycorrcin, works by activating specific beneficial soil microbes which speed up the plant's root growth and establishment leading to greater nutrient uptake. Their decomposition enhancer, Digester, activates microbes in the soil to break down old crops faster. Nutrients and organic matter are recycled back into the soil, improving nutrition for the next crop, making seed drilling easier and preventing diseases from overwintering.

Their foliar biostimulant, Foliacin, activates the microbes on plant foliage to lift photosynthesis by helping with green leaf retention leading to greater growth, fewer rejects and higher yields.

"Foliacin and Mycorrcin used together help each other out to create strong, high yielding plants with tastier fruit and vegetables that store well, while Mycorrcin is applied with Biostart N to speed up the establishment of the nitrogen fixing bacteria," Jerome explains.

Biostart N contains nitrogen fixing bacterium which convert atmospheric nitrogen into plant available nitrogen in the soil. Phil Carter, Biostart territory manager, explains why this is a game changer:

"Onion and carrot trials where Mycorrcin and BioStart N were co-applied showed both yield and quality improvements. BioStart N can fix 20–30 kg of nitrogen/ha providing growers with a biological way to reduce nitrogen side dressing applications, which is useful at times where there is a high risk of leaching such as early establishment, late winter and spring."

Trials on broccoli and lettuce show that applications of these biostimulant progammes improved yield by 8 to 11% with better crop uniformity and fewer rejects. In potatoes yields were increased an average of 11% over eight trials, whereas carrot and red onion yields were lifted by 15%.

In addition, Biostart has microbial biocontrols, Triplex for botrytis and Terracin which rebalances the biology in soil to help with more specific problems.

For more information call **0800 116 229** to speak to your local BioStart representative. To learn more check out our BioGuides on the website **www.biostart.co.nz**.

GROWING IN THE FIELD EXPERTISE THROUGH TRAINEE PROGRAMMES

For Hannah Greaves, commencing work with PGG Wrightson three years ago has exposed her to a career pathway into horticulture.

Having completed a Bachelor of Agricultural Science from Lincoln University, Hannah arrived back in her hometown of Hastings to commence a role as a Customer Service Representative (CSR) for Fruitfed Supplies.

"I wanted to work for a company that invested heavily in training and upskilling its staff. When I started at Fruitfed Supplies, I could see myself having access to opportunities within the horticultural sector," says Hannah.

"As a CSR I got a thorough understanding of the store and the products we sold, along with getting to know the growers who regularly visited the store. This experience provided a good foundation for me to move onto further training."

Hannah entered the PGG Wrightson Trainee Horticultural Representative programme spending 18 months working alongside Technical Horticultural Representative (THR) Gary Speers, who acted as her mentor. "The time spent working with Gary was invaluable. I got a greater understanding of the THR role, looking at, for example, the pests and diseases affecting a crop and learning about the more technical aspects of the role including making spray recommendations to growers."

> **"I wanted to work for a company that invested heavily in training and upskilling its staff. When I started at Fruitfed Supplies, I could see myself having access to opportunities within the horticultural sector**

Hannah's desire to be offered a permanent THR role saw her jump at the chance to complete the PGG Wrightson Academy programme last year. This programme is focused on expanding an employee's knowledge base and growing expertise within the business. As a part of this programme, Hannah completed PGG Wrightson's in-house New Zealand Qualifications Authority Accredited, National Certificate in Rural Servicing (Level 4). Her hard work while completing this programme was rewarded by winning the Academy's Dux award.

Fruitfed Supplies Technical Horticultural Representative, Hannah Greaves

Now in 2021, and having accepted a permanent role as a THR, what Hannah loves most about horticulture is growing. By that she means, "being involved in the start of a growing season and seeing the crop grow through to harvesting. It is great to see the results growers achieve."

Hannah is primarily involved in the pipfruit industry and believes it's an exciting time. "There are lots of new varieties of pipfruit being developed along with new growing systems being designed to help maximise land space."

The other aspect of her role that she loves is her interactions with growers. "It's great being able to help growers achieve their goals for their crops and their businesses."

Hannah's advice for young people keen to join the horticultural industry, particularly women, is "to grab the opportunities, as there are plenty out there!"

NEED WATER STORAGE?
THINK VORTEX BLADDERS

When you need water, you need water, and that's where Vortex Water Bladders come in. At critical times water is like gold and our bladders provide a very cost effective and easy solution to storing water for when it is really needed.

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Manufactured in France, Vortex bladders are used extensively around the world in the horticultural industry to store water, and are tried and proven in all climates and locations around the world.

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E61D.10142: Firm good quality onion, good bolt tolerance with good skin retention. Should have good storage. ELK maturity.

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RED EMPEROR: Dark red, vigorous plant habit with good partial resistance to foliar diseases. Very good intense red external colour and internal ring colour development with single centres. Flattened Globe to Grano shape with good handling and medium to long term storage.

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