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HORTICULTURE NEW ZEALAND

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THE CHANGING OF THE GUARD

Words by Barry O'Neil, President : HortNZ

This month we have the changing of the guard with our very hard-working chief executive, Mike Chapman, stepping down from the role after five and a half years, as he begins his retirement.

I can absolutely say we have been very fortunate to have Mike's leadership. His commitment, intellect, strength and drive for results has enabled HortNZ to punch well above its weight by fully engaging and understanding grower issues, and then advocating in Wellington for the best possible outcome for growers.

Mike began his career as a lawyer in the Royal New Zealand Navy where he reached the rank of Commander. To me, Commander Chapman is absolutely Mike, with his driven and energetic leadership style. Mike then moved to the Commerce Commission as manager of the legal team responsible for the Commission's litigation. He still holds a practicing certificate as a barrister and solicitor, something from which many of us have benefited, using our own in-house legal expert to review many rules, constitutions and contracts.

Mike's career in horticulture began in 2002 when he was appointed as chief executive of Kiwifruit New Zealand, and then chief executive of New Zealand Kiwifruit Growers Incorporated, a position he held for 10 years.

During his time in kiwifruit, Mike held various board roles including being an inaugural director of Kiwifruit Vine Health, deputy chair of Toi Ohomai Institute of Technology in Tauranga, and a council member and now director of the Primary Industry Training Organisation.

I remember Mike and I having a discussion at the Horticulture Conference in Rotorua in 2015 about how HortNZ could best support growers. My challenge to Mike was that if he wanted to see change, then he should apply for the role and make it happen. And he did just that, was appointed to the role and as they say the rest is history.

Some of Mike's well-known leadership sayings include, 'One step at a time. Panic doesn't work'. Mike has had plenty of opportunity to use this advice, including when Psa struck the kiwifruit industry. He used his approach to help guide the industry and its growers through the crisis and onto recovery.

He is also known to say 'it's the nature of a crisis that it never happens when you have time or the resources to cope'. So true!

Another saying of Mike's is, 'Have a written plan – one that's flexible and adaptable and look after everyone including yourself'. I'm unsure if Mike did so well with this last piece of advice, as he's been working very long hours, including commuting from Tauranga. Our thanks must go to his partner Judith who has supported him in the HortNZ role.

Since becoming HortNZ chief executive, Mike has focused his many talents and that never ending energy on some really significant issues for horticulture, including reforms of vocational education, Resource Management Act reforms and plan changes, labour shortages and the Recognised Seasonal Employer scheme, urbanisation and its impact on productive horticultural land and most recently, the significant challenges presented by Covid-19.

Mike's advocacy for the horticultural industry – to government, ministers and publicly – has been untiring, forceful and balanced, always with the aim of achieving the best outcomes for growers, the New Zealand economy and the health of its people through access to nutritious, locally grown food.

Mike's career in horticulture began in 2002 when he was appointed as chief executive of Kiwifruit New Zealand, and then chief executive of New Zealand Kiwifruit Growers Incorporated, a position he held for 10 years

As well as his communications with government and the public, Mike has consistently and clearly communicated with HortNZ growers through weekly newsletters, the *NZGrower* and *The Orchardist* magazines, and at regular grower meetings throughout the country.

> **He is also known to say, it's the nature of a crisis that it never happens when you have time or the resources to cope**

Mike is also very active in social media, publishing a blog on industry issues most weeks, and has more than 15,000 followers.

People, especially growers and their welfare, are at the heart of what Mike does. One of Mike's great legacies will be the number of charities that he has established in horticulture, aimed at supporting growers along with Pasifika people when they need support the most.

> **Another saying of Mike's is, Have a written plan – one that's flexible and adaptable and look after everyone including yourself**

When he steps down from HortNZ later this year, Mike leaves an organisation even stronger and better equipped to face whatever challenges the future brings.

A great effort Mike. We truly thank you for what you have done for both HortNZ and for horticulture and growers in New Zealand during the time you have been our chief executive.

And while you would also want us to acknowledge the efforts and contribution of the wider HortNZ team, which of course we do, this time it's about you, so we also recognise the work you have done in modernising the HortNZ office and supporting what has become a great team culture.

Being the professional Mike is, he has offered to stay on in a part-time role, and we have gladly accepted his offer. Mike will drive specific projects that he is best placed to focus upon, and will help with the transition to new chief executive, Nadine Tunley. We will all have a chance to celebrate Mike's achievements at the Horticulture Conference on 5 and 6 August at Mystery Creek. So make sure you are there to help us do just that!

And onto the new guard, and we warmly welcome Nadine, who will start as our chief executive in June. Nadine comes to us well skilled and experienced in horticulture, having set up her own marketing company that was later sold to Freshmax. Before that she was chair of NZ Apples & Pears for six years, and more recently, chief executive of Oha Honey.

Nadine is a director on the board of Scales, is also on the board of Plant & Food Research, and has previously been in governance roles in Ngai Tahu. Nadine was also a member of the Primary Sector Council.

The Board is confident that with Nadine, we have appointed the right person to lead the organisation and deliver the outcomes that HortNZ and horticulture need going forward, building on the great platform that has been established by Mike.

Ngā mihi nui, Barry.

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Your Levy AT WORK

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Horticulture™ New Zealand Ahumāra Kai Aotearoa

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GOALS ACHIEVED

Words by Mike Chapman, Chief Executive : HortNZ

When I started five and a half years ago at HortNZ, I set myself a number of goals.

The most important one was to enhance HortNZ's work for growers. HortNZ was formed under Peter Silcock's stewardship.

He created an effective and high performing organisation linking together fruit, berries and vegetables into the one organisation. This was no mean achievement. What I wanted to do was to add to what Peter had achieved and take it to the next level.

One of the traps that organisations like HortNZ can fall into is to try and do everything. My goal was to prioritise the organisation's activities, making sure we were doing what achieved the most impact for growers. Next, I wanted to ensure that HortNZ had the best possible people delivering those priorities. Our regular grower survey is and has been over the years very clear about what growers think the top three priorities are: biosecurity, labour and the environment.

To this end, establishing the career progression manager network in conjunction with NZ Apples & Pears, NZ Kiwifruit Growers Inc and NZ Avocado is a major step forward for finding motivated permanent employees. This network is soon to comprise eight career progression managers, one in each of our key growing areas, to attract New Zealanders into horticulture careers.

Key to being successful in HortNZ's top three priorities is a close working relationship with government departments and politicians. HortNZ is ideally placed to achieve that being located in Wellington. Getting involved in policy development early on is the best way to influence government outcomes. The more we work in tandem with government, the better the outcomes for growers.

The problem that governments and industry organisations face is that everyone has lots of good ideas. This can result in a scatter gun approach. What is needed is a clear vision that determines the priorities and activities to support and achieve that vision. We have that at HortNZ, in both our vision and purpose. What we do not have is that shared vision with government. The result is that despite the best intentions, we can waste our and their resources, and duplicate and unwittingly act against each other.

My last goal was to achieve a shared vision between industry and government, and that is becoming a reality with the plant strategy.

There is no point doing all of the above activities without a world class communications programme. At the public level, it is most important to consistently nurture horticulture's social licence to operate. This is no easy task. Every available channel needs to be used, print, TV, radio and social media. This then needs to be backed up by excellent grower communications.

Lifting HortNZ's communications profile was another one of my key aims and I think we have achieved that. My contribution has been my weekly blogs on current topics, which reach more than 15,000 followers through social media. I have now written more than 200 of these blogs, each talking about horticulture and our current issues.

None of this would have been achieved without the enormous support of growers. Many of you have willingly given up your time to be part of what HortNZ's strives to achieve. Your contribution is so important and helps keep us grounded. Over my time, I have worked to create a more cohesive and collaborative working relationship with our product groups. This is work in progress but I think we have taken enormous steps, working much more closely together today than we did five years ago. There has also been a focus on supporting active district associations, as they are a very important part of the work HortNZ does, for example, with councils.

The HortNZ Board has taken a highly productive strategic role and has been very supportive of my and our teams' activities. I acknowledge their strategic view and support, as nothing would have been achieved without it.

The dedication and expertise of HortNZ's staff has delivered this strategy. I am confident I have achieved my goal of building the key HortNZ teams.

Thank you all for your support and help. I would have achieved nothing without it. I can confidently hand over my role to my successor knowing that Nadine is inheriting a high performing and very effective organisation, which is ready to be taken to the next level of achievement. ●

HORTICULTURE CONFERENCE 2021 WILL BE A WINNER: REGISTER NOW

Growers and all those associated with the horticulture industry are sure to benefit from attending the Horticulture Conference 2021: Resilience and Recovery (5–6 August 2021 at Mystery Creek).

"We have put together 2021's programme with everybody in our industry in mind: from growers, packhouse operators, and logistics companies, to wholesalers and retailers, and researchers," says HortNZ chief executive, Mike Chapman.

"Labour shortages, climate adaptation, the weather, freshwater, biosecurity and farm plans are all big-ticket items for horticulture, and have been for some time. Covid-19 has added extra complexity to our industry, however, during the New Zealand-wide lockdown last year, the entire industry – with government – came together to ensure New Zealanders had fresh fruit and vegetables to eat, not just during the lockdown but in the months after it as well. "This shows just how adaptable the horticulture industry is."

Mike says growers are facing uncertainty around labour and increased compliance.

"Also, national, regional and district plan changes mean that growers and the wider industry's ability to plan with confidence is being eroded. This is where industry organisations like HortNZ have a role to play in advocating for growers' continued ability to grow and prosper.

"The conference will encourage the industry to look to the future, while taking practical steps now around health and well-being, and short to medium term planning.

"I am confident that our diverse range of speakers will stimulate discussion, offering insights and perspectives as well as practical advice, from New Zealand and overseas speakers."

Mike says the length of the conference has been reduced, in keeping with current sentiments.

"What we offer you this year is quality over quantity, value for money and your investment of time. We will also be ready to move to an entirely online conference, should domestic conditions change."

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

Please note that discounted, early registration ends on 25 June 2021.

YOUR LEVY AT WORK

INDUSTRY WIDE ISSUES FOR INDUSTRY GOOD

NATURAL RESOURCES AND ENVIRONMENT

AIR

Northland Regional Plan – Environment Court Hearing

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

The HortNZ team presented planning, spatial and agrichemical, and grower evidence at the environment court hearing in April. A decision is expected within three months.

WATER

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

The focus of HortNZ's submission is about designing water policy provisions that provide sufficient flexibility to enable horticulture to continue to thrive on the plains, in a manner that achieves freshwater outcomes.

> **HortNZ will present expert planning, economic, hydrology, water quality, farm planning and grower evidence at the Council hearing in June**

HortNZ's 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 crop rotation to support soil health
- recognise the importance of domestic food supply of fruit and vegetables
- recognise tangata whenua values and Māori agribusiness aspirations.

HortNZ will present expert planning, economic, hydrology, water quality, farm planning and grower evidence at the Council hearing in June.

Otago Regional Plan Change 7 (Water permits) – Environment Court Hearing

Otago Regional Council has proposed a plan change to the Regional Plan for the replacement of deemed permits, and for the replacement of any water permits expiring prior to 2025. The proposed plan change makes it very difficult to obtain consents for increased volumes or areas of irrigation or to obtain a consent duration longer than six years.

HortNZ sought provisions that drive efficient use and provide reliability of supply for existing activities. HortNZ considers that it should be possible for applicants to seek longer duration consents in some circumstances, particularly if longer duration consents lead to investment that drives better environmental outcomes.

The HortNZ team presented planning, hydrology and economic and grower evidence at the Environment Court Hearing in April.

FARMS LARGER THAN 80HA MUST:

KNOW THE AMOUNT OF AGRICULTURAL GREENHOUSE EMISSIONS THEY PRODUCE BY THE **END OF 2022**

HAVE A PLAN TO MANAGE AND MEASURE EMISSIONS BY THE **END OF 2025**

CLIMATE CHANGE

He Waka Eke Noa

He Waka Eke Noa is a partnership between iwi, government and primary sector to manage agricultural emissions. Agricultural greenhouse gas emissions include emissions from animals and emissions from fertiliser.

He Waka Eke Noa milestones require all farms larger than 80ha to know the amount of agricultural greenhouse emissions they produce by the end of 2022, and all farms larger than 80ha to have a plan to manage and measure emissions by the end of 2025.

> **He Waka Eke Noa is a partnership between iwi, government and primary sector to manage agricultural emissions. Agricultural greenhouse gas emissions include emissions from animals and emissions from fertiliser**

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ON-FARM BIOSECURITY SERIES

Words by By Anna Rathé : HortNZ Biosecurity Manager

This article is the first in an on-farm biosecurity series that will feature in upcoming magazine editions.

Why does the horticulture sector need to adopt good on-farm/orchard biosecurity practice?

The New Zealand horticulture industry produces high quality fresh fruit and vegetables for the domestic market and discerning international consumers. We are fortunate to be free of many of the damaging pests, pathogens and weeds that growers overseas have to manage on an ongoing basis. Adoption of good on-farm/orchard biosecurity practices is critical for the continued success of the horticulture industry. These practices can help to:

- prevent new pests, pathogens and weeds from establishing in New Zealand
- reduce the spread of pests, pathogens and weeds to new areas
- prevent pests, pathogens and weeds being introduced to your property
- aid management of pests, pathogens and weeds that are already here.

Why do you need a biosecurity plan?

The best way to protect your property from unwanted pests, pathogens and weeds is to have good biosecurity practices in place. Creating a biosecurity plan for your property is a great way to understand your on-farm biosecurity risks and identify simple but effective everyday biosecurity practices to manage these risks.

The practices you select will be unique to your property, production methods and the surrounding environment. Initially these practices might take up extra time, but they don't have to cost a lot of money and will soon become habit. Good biosecurity practices provide ongoing day-to-day benefits, and will be invaluable if a biosecurity event were to occur. Adopting good on-farm biosecurity practices makes you a biosecurity champion!

Preparing an on-farm biosecurity plan

In order to implement good on-farm biosecurity you need a 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. This template outlines five key steps to preparing and implementing a biosecurity plan for your farm/orchard.

1. REVIEW PROPERTY MAP

It's useful to have a map of your property to help identify key features that can be factored into your biosecurity plan. Mark these features on your property map:

- Entry and exit points.
- Main roadways or parking areas and their proximity to production areas.
- Known pest, disease and weed problem areas (hot spots).
- The best places to locate biosecurity zones – checkpoints, restricted access areas or wash zones.

> "Adoption of good on-farm/orchard biosecurity practices is critical for the continued success of the horticulture industry

2. IDENTIFY BIOSECURITY RISKS AND MITIGATING ACTIONS

This step involves considering these biosecurity risk areas and identifying mitigating actions that are appropriate for your situation:

- Farm outputs
- Farm inputs
- People
- Vehicles and machinery
- Production and harvest practices.

We recommend you go through industry body guidance and identify risks relevant to your operation. Think about the suggested example actions and note how you plan to apply biosecurity actions on your property to best suit you. Mark key locations for mitigating actions on your property map where appropriate. We'll explore some common biosecurity risks in more detail as we continue the on-farm biosecurity series.

3. PRIORITISE

After you have identified the biosecurity practices that are relevant to your property, rank them in order of priority. If you can't implement them all at once, consider which ones are most important (activities with a higher level of risk) and then think about which can be achieved in the short term (within the current constraints of your business) and which are longer term (those requiring more time and/or resource to implement).

4. COMMUNICATE EXPECTATIONS

Once you have noted the risks and biosecurity actions relevant to your operation, it is important that you communicate your expectations to those who work on or visit the property. Every person who visits or works on the farm/orchard has a role in managing biosecurity risk. To ensure uptake, the practices you implement need to be clear and easy for all to follow. Consider what you expect from staff and visitors in terms of:

- their actions
- training
- record keeping
- reporting.

5. IMPLEMENT

Once you have completed your biosecurity plan you can go ahead and implement your selected actions. You will need to review your plan periodically to check how you are tracking and make sure it is still fit for purpose.

> **Creating a biosecurity plan for your property is a great way to understand your on-farm biosecurity risks and identify simple but effective everyday biosecurity practices to manage these risks**

IT'S YOUR ASSET – PROTECT IT!

Disclaimer: While every effort has been made to ensure the information in this publication is accurate, Horticulture New Zealand 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 based on this information.

PHONE AND TALK!

Words by Anne Hardie

Some of the RSE team at Golden Bay Fruit get to meet rugby star Sam Whitelock

Trust your gut instinct if you think someone is struggling, and get in the car and visit them or phone them for a chat.

That's the advice from All Black Sam Whitelock who put on his Farmstrong ambassador hat to talk with Motueka growers who had suffered brutal losses from the Boxing Day hailstorm.

One of the reasons he joined the nationwide well-being programme for the rural community was that he had witnessed challenges faced by his own family. Several years ago his parents lost a lot of their stock during a salmonella outbreak on their dairy farm and struggled with the trauma and stress it caused. He witnessed the pressures of working in an isolated environment with long hours and no time for a work-life balance.

Today he visits groups around the country in between his rugby, and having studied plant science at university, knows a thing or two about horticulture. On his fleeting Tasman visit, he wanted to know about the challenges in the region which had gone through a tough season.

Apple and kiwifruit growers around the table with Sam described a year that began with the Covid-19 lockdown, followed by ongoing government regulations being thrust upon them and the challenges of international markets.

That had all been manageable with a great crop of fruit shaping up in the orchards, until Boxing Day delivered another blow. To have such a good crop demolished by a hailstorm left growers heartbroken, said one of them. Many were reluctant to revisit orchards after the storm because "they were toast." But they had to, because the workload in a bad year is double that of a good year. Following huge losses this year, growers said they still don't know what the crop will look like next year after the damage to trees and vines.

> **"Many were reluctant to revisit orchards after the storm because "they were toast." But they had to, because the workload in a bad year is double that of a good year**

They also described labour as a "massive, massive concern" and feel the government is disinterested in the pressures they face. Growers have to show leadership when the going gets tough, but there is no-one for those leading growers to go to for leadership, with no support from the Ministry for Primary Industries (MPI) or other government sectors.

Sam Whitelock and Golden Bay Fruit managing director Heath Wilkins look at this year's crop in the packhouse

Sam drew on his own experience in rugby, when from being a younger player through to leadership in the sport there has been the pressure from the public to win. Sometimes players have had to find support within their group, and he suggested growers might need to look for similar solutions. If growers in leadership roles can't get support from above, such as from government, they might need to go sideways to find it, he said. That means other growers or someone who had been through those challenges in the past, and as a group, creating their own support network.

> **Growers have to show leadership when the going gets tough, but there is no-one for those leading growers to go to for leadership, with no support from the Ministry for Primary Industries (MPI) or other government sectors**

One of the big things – even in top-level rugby – is making the most of the good times to outweigh those tough days.

"You have to make sure the enjoyable days are more than those that aren't enjoyable," he said. "As a family, making sure the lifestyle is enjoyable, because why are you doing it?"

About 20,000 people turned up last year to different Farmstrong events and Sam said people weren't interested in being lectured to, or told how to run their life, but rather in sharing stories and simply getting together to talk things through.

For that reason, he said something as simple as picking up the phone and going for a beer is a good way to get people together to talk, and by doing that, help build resilience.

Farmstrong's website, **www.farmstrong.co.nz**, shares tips from the rural sector that are supported and informed by well-being science, with the aim of helping farmers and growers cope better with the ups and downs of farming.

Golden Bay Fruit managing director Heath Wilkins shows Sam Whitelock how the packhouse runs

LEADERS LOVING FRESH START AFTER HORTNZ BOOST

Words and photo by Jamie Troughton

2020 HortNZ Leadership Programme in front of Parliament

Every Monday, Josh Webster picks his kids up from preschool, cooks them dinner and puts them to bed.

A year ago, this small pleasure would have been out of the question for the harvest manager, who was immersed in long days growing broccoli, lettuce and silverbeet, with the concept of life-balance just a wistful dream.

That dream became a reality though for Josh, who was born and raised in Pukekohe, after taking part in the 2020 HortNZ Leadership Programme.

Combined over three phases – five days at Lincoln, a presentation project based from home and three days in Wellington – the programme features a range of guest speakers and topics. The Leadership Programme develops tangible leadership skills for horticulture such as strategic planning, problem solving, presenting and working with some of those big industry issues such as the labour shortage and water allocation, yet also addresses less tangible aspects around leading other people and also self-leadership. This includes maintaining resilience. The lessons learned have already made a tangible difference, not only in Josh Webster's life but also in that of his wife Janelle and kids Zoe and Patrick.

"I used to over-commit, instead of having faith in the abilities of my staff to rise to the occasion when the pressure came on, plus I also didn't want to burden them with extra load," Josh explains.

"Now I work 10 hours a day on average, I've stood back from the "tools" more and stepped up more as a leader. I needed to recognise and appreciate more what was actually filling my cup and what was drawing from it. Long hours, work pressures and stresses need to be balanced with the things and people that recharge your batteries for your efforts to be sustainable."

Now in its 19th year, the programme – led by Sue Pickering of Develop Ltd and course facilitators Patrick Aldwell, Tony Zwart and Ian Tarbotton, explores leadership styles, learning preferences and how to 'lead yourself'.

This resonated particularly strongly with Jan Buter, who works in the pipfruit team at Turners and Growers in Hawke's Bay. He found the programme has equipped him with a number of new tools.

"For example, the need to train, trust and then delegate to workmates and staff," Jan says. "Holding up the mirror for others and not solving everyone else's problems also gives that individual the opportunity to grow their confidence in their own knowledge. Lastly, involving others in the decision making – this brings buy-in and support for when change needs to occur."

High-powered advice

Guest speakers contributing to the programme have included former Zespri chief executive Lain Jager, social media expert Dorje McKinnon, KPMG strategist Jack Keeys and Minister of Horticulture Damien O'Connor.

Former course graduates such as Scott Rimes and Allen Lim have also given practical, honest insights into how their leadership styles evolved.

For Elliott Lovegrove, the South Island manager for Eurogrow Potatoes Ltd, the well-being lessons from the programme were also hugely influential, while she has also picked up a couple of great tips to make her working life better.

"I've learned to take time to understand other people's perspectives and their morals before entering situations where I need to resolve a conflict," she says. "This helps me to apply a balanced approach. And using the mirror technique also allows me to support the people around me to problem solve independently."

EastPack fruit performance manager Craig Sims, really enjoyed the insights and advice given by others in the industry.

"I wrote down a number of gold one-liners from a series of fantastic guest speakers, including, but not limited to, 'sometimes lazy people come up with great ideas', 'leaders try and make everyone else around them better', 'make your business run on its own', 'check in with yourself first' and 'if you share pressure, you share accountability'. I also loved the words of a guest chief executive, who said 'my job is to lead the management team, their job is to lead the business'."

The overwhelmingly positive feedback from participants however, centred on the new network they had created with like-minded, motivated and interesting new friends.

This broadens understanding of what it means to be a leader in today's rapidly changing environment and expands knowledge of the horticulture industry as a whole, while allowing participants to discover their own personal leadership styles.

How to apply

Applications are now open for 26 places on the 2021 HortNZ Leadership Programme which, in its 19-year-history, has helped nearly 300 graduates excel in their chosen fields.

The programme is open to anyone in the horticultural industry between the ages of 22 to 55, with 20 scholarships available, covering all course fees and accommodation costs.

Applications for the HortNZ Leadership Programme close in June. For the application form go to **http://www.hortnz.co.nz/our-work/people/hortnz-leadership-programme or contact sue.p@developme.nz**.

FIRST WOMAN WINNER AT PUKEKOHE

Words by Glenys Christian. Photos by Matt Silcock

Bernadine Guilleux, Heather Feetham, Barry O'Neil and Nadine Tunley

Heather Feetham rewrote the history books early in May when she became the first woman to win the Pukekohe Young Grower of the Year Competition. But three young male growers who all had their eye on the award and the chance to take out national honours later in the year didn't make it easy.

Heather, 25, said she was very honoured to win on her first attempt.

"I didn't know what to expect and there was fierce competition," she said.

"I've taken a lot away from it, identified my weaknesses which I can work on and also build my strengths."

She thanked her co-workers at T&G Fresh for getting her involved, especially former Young Horticulturalist of the Year, Ben Smith, who she said give up his time willingly to help her out.

Heather grew up in Adelaide and always liked science and the outdoors.

"I wasn't sure how to make it a career," she said.

But attending a school with an agricultural course and an onsite farm was the push she needed.

That led her to study agricultural science at Adelaide University, then she and her partner, Dave, came to New Zealand in 2017. After some time working in hospitality in Queenstown, they were keen to get back to their careers, so moved to Auckland. She found work at Pukekoke kiwifruit grower, Punchbowl, as a lab technician, then made the move to T&G Fresh working at their Favona Road facility. Now she is a covered crop manager at its GER site in Tuakau where she particularly enjoys the variety of the work involved with growing tomatoes.

"You never have a dull day."

Heather also took out the best speech as well as the business award. For their speeches contestants were given the topic: How can we as growers react best to this fast-changing world? Heather urged growers to change their mindset from being reactive to proactive. And she used her experience on the netball court to draw a comparison.

"We don't know when someone is going to pass us the ball," she said.

"We've just got to equip ourselves with the skills to do what we have to when that happens."

Every generation has faced challenges and to adapt and thrive they all needed to be willing to explore all options and trust the young.

Winner, Heather Feetham talking to Nadine Tunley

200 attended the awards dinner at the Pukekohe Indian Association Events Centre

"Every challenge holds the seeds of opportunity for growth."

Blair Wilcox, who was named runner-up and also took out the practical award, said no one knows exactly what the future will look like, but there will be continue to be winners and losers.

"A successful and dynamic vegetable business must act and change," he said.

There needs to be a genuine connection between growers and consumers, and trust must be developed where their interactions cannot be in person so there is a flow of "passion from paddock to plate."

"We must challenge ourselves to be more open."

> **"Heather also took out the best speech as well as the business award**

Third placegetter, Karn Dhaliwal, a rural banker as well as owner-operator of north Waikato's Ohinewai Harvest, said vegetable growing had stood the test of time.

"We know how to hustle, to turn up on the day and deliver the goods even when there's a pandemic," he said.

"We need to collaborate more between ourselves to work more as one. We're already ringfenced as the non-farming community regards us as one. But being ringfenced by legislation is what scares me."

All growers need to speak up rather than appearing to stand cap in hand against market powers.

"If in doubt, collaborate it out."

Brydon Wood, a crop supervisor at A S Wilcox, said growers could lose out because of challenges facing their industry at present.

"But if they hunt out the opportunities they could be like Uber," he said.

That company now has 70% of a market previously dominated by taxi companies, and is providing 14 million rides worldwide every day.

Growers need to be constantly searching for the next best thing, such as vertical farming which will rely on robotics. In the future we might be able to tell from a sensor in the palm of someone's hand what nutrients their body lacks, and food containing the nutrients they need might then be automatically delivered to their door.

Charlotte Connoley, managing director of SPS Seeds, the event's gold sponsor, said it was interesting to see the varying backgrounds contestants came from.

"One event can change your career trajectory," she said.

Master of Ceremonies, Austin Singh Purewal, who was the 2019 winner and went on to take out the Vegetable Grower of the Year title, said he had a flashback to the same event that year.

"I was jobless and needed a mentor," he said.

He went to work for HortiCentre then T & G Global and used his prize money along with help from the Chinese Growers' Association to go to Australia "and look at how the big guns operate on a large scale".

"It all comes down to opportunities," he told fellow young growers.

"You come out the door with them tonight whether you take them up a day, a week or a year later."

GROWING IS IN CATH'S GENES

WOMEN IN HORTICULTURE

Words by Elaine Fisher

Cath Carter

Growing up in a farming family, Cath Carter intended to study Soil Science at Otago but on the advice of her teachers changed to Business Studies at Lincoln. "My teachers were convinced that horticulture would be low paid with few career prospects for women – they were wrong!"

Parents of two young boys, Cath and her husband Matt own and run Hill Road Orchard near Gisborne, and also produce Hill Road orange juice from their own citrus.

Cath's love of growing food on the land was inspired by her dad Murray Redpath, who is among New Zealand's pioneer hazelnut growers and a recognised expert on the crop.

"Growing up in a family passionate about farming teaches you to have respect for the work and dedication it takes to farm.

"One school holidays Dad got me to type up translations of Italian research papers and one topic of a paper stood out in my mind for years," says Cath who is also a member of Women in Horticulture.

WE GROW VALENCIA AND NAVEL ORANGES BUT ALSO A NUMBER OF EXPERIMENTAL CROPS SUCH AS BLUEBERRIES, SAFFRON, TURMERIC AND GINGER

"Later on, when I was researching improving colour and taste in squash it was those technical notes on the importance of potassium in flavour development that was the basis for my work. We were always encouraged as kids to question, look things up and try things. I guess, with my family background, I was genetically meant to be a farmer."

It was while working for the *Gisborne Herald* selling advertising for its farm pages, that Cath saw an advertisement for a fertiliser representative. "I applied, got the job and found the work really interesting. I learnt by doing and was lucky to have supportive growers, including David and Frank Briant who very bravely let me carry out trials on their crops.

> "I guess, with my family background, I was genetically meant to be a farmer

"The people I worked with taught me to question everything, and that just because things had been done in a certain way, didn't mean it always had to be so."

Cath later joined Cedenco Foods growing squash. She also has experience growing grapes and tomatoes. "My favourite crop will always be cucurbits, in particular squash though."

> "The people I worked with taught me to question everything

In 2010, Cath and Matt bought what she describes as a "wild and overgrown" 6.7 hectare citrus orchard. "We are slowly bringing it back to full production, using a variety of techniques, including pruning, improving fertility, and managing the historical issues in the orchard. We grow Valencia and Navel oranges but also a number of experimental crops such as blueberries, saffron, turmeric and ginger, plus whatever else looks interesting and I can squeeze in the garden."

Due to health issues, Cath has had to slow down a little. She is now focusing on setting up the NZGAP group scheme and expanding the Hill Road Juice range of products. "I have had to learn to focus on the time during the day when I am able to function effectively to get the most done in the shortest space of time. We are lucky to have staff at Hill Road who are keen to see us grow and take on extra work as we develop new products.

"I like to get things done and am not scared to put my hand up to do something new. As women we often hold back, but I believe in taking opportunities when they arise.

> **"As women we often hold back, but I believe in taking opportunities when they arise**

"What's happened with my health has thrown me a curve ball, but I have taken it as an opportunity to change my focus and take time to work on smaller projects that had been side-lined. In our industry we push ourselves with long hours and growing can be stressful. I have just taken this as a hint I need to slow down and focus on our own business and family."

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.

YOUR INDUSTRY

ACROSS THE SECTOR – ACROSS THE COUNTRY

JULIE NORTH TO PROMOTE NZ-GROWN VEGETABLES

Julie North, a food and nutrition communications professional with more than 25 years' experience, has joined vegetables.co.nz to promote New Zealand-grown vegetables.

"There's a lot to be positive about in the vegetables industry, and I'm delighted to be taking over the promotion work of vegetables.co.nz," Julie said.

"There is a lot of opportunity to develop and expand the stories and messages of New Zealand grown vegetables through education, experiences, and information.

"I can't remember a time when vegetables have been so under the spotlight. We have the United Nations declaring 2021 the International Year of Fruits and Vegetables, our own government boosting the recommendations for how many vegetables people should eat, and a country of consumers who are showing a greater respect for locally grown or made foods.

"It is clear that vegetables.co.nz is held in high regard among our nutrition and health peers and the education sector. I am very excited to have this opportunity to build on the great work so far. I look forward to meeting growers, sharing stories and building the love for New Zealand grown vegetables."

Julie North

As nutrition manager for Heinz Wattie's for 13 years, Julie was a founding member of the New Zealand Fruit and Vegetable Alliance, working alongside the Ministry of Health, other industry groups and NGOs (non-governmental organisations). Julie has also led the Food Group at Network Communication in Auckland and delved deep into the process of regulatory development as nutrition advisor with Food Standards Australia New Zealand in Wellington.

Now back to her South Island roots, Julie is based in Nelson and runs her own consultancy Foodcom, with a team of nutritionists and dietitians who specialise in food industry and communications.

WE'VE GOT IT COVERED

Words by Anne Hardie

Dom Ferretti in the midst of a cover crop

Green cover crops using an assortment of seeds with different root profiles have replaced the copious amounts of compost Dom Ferretti and Jeanette Ida used to make on their organic market garden near Nelson.

Plants with roots to open up the soil that add nitrogen and other nutrients or produce flowers to attract beneficial insects, are all part of the mix for the regenerative growing methods they have adopted.

The couple operate their business, Ferretti Growers, just under Mount Heslington on the edge of Brightwater where they grow half a hectare of vegetables outdoors, plus 600m2 under plastic, with most packed into weekly boxes for their regular customers. They've been organic growers since 2009 – following Dom's previous career as a climate change scientist – beginning in the Coromandel Peninsula and moving south to Nelson where they are fully certified with OrganicFarmNZ (OFNZ).

> "They've streamlined their business to grow the traditional staples for their customers, but enjoy growing a few specialty lines as well such as jalapeños, tomatillos and globe artichokes

For a long time they sold the bulk of their produce through the Nelson Saturday Market and Farmers' Market, and spent thousands of dollars on compost ingredients to put into the soil. The markets didn't suit all their customers and the compost was expensive to produce, so they sought a different way of doing things. That led them to their OMG – organic market garden – boxes that they deliver once a week to their Nelson and Tasman customers, or that get picked up from the farm. Many are happy with a mystery box of seasonal vegetables, and others who like to plan their meals through the week are more specific with their order. They also offer a 'feed the tribe' box full of seconds which still have all the nutritional value, but at a lesser cost which makes the money go further for large families.

"Growers are changing a bit to suit the needs of their customers and I think there is more of a need for deliveries now.

Since Covid-19 (and the lockdown) people are careful about what they put back into their life."

They've streamlined their business to grow the traditional staples for

Cover crops go into the soil as soon as a vegetable crop is harvested

The mix of seeds that go into the cover crops

their customers, but enjoy growing a few specialty lines as well such as jalapeños, tomatillos and globe artichokes. The globe artichoke is loved by the few customers who know what to do with the giant thistle-like flower, and Dom says it is high in unique antioxidants and other health benefits that are hard to find in other foods.

Changing the way they supplied customers with vegetables was their first innovation; taking the road toward regenerative growing methods followed.

"We used to make a lot of compost, which took a lot of time because we were mixing all these ingredients to a base of sawdust and chicken manure. And then you had to load it and spread it. We got a pretty good result from it, but it was taking too much time and costing too much. Also, any imbalance in the compost was causing an imbalance in the soil. Chicken manure is really high in phosphorus and nitrogen so you have to be really careful about timing because it could leach. It was really hard to cover or soak it up with sawdust."

It got them thinking about alternatives and when they learnt they could get enough nitrogen for their vegetables from cover crops, they decided to try that route. Dom says their first trial with cover crops was a "lightbulb moment" for him that showed they could grow their vegetables with a lot less work and less cost.

Instead of thousands of dollars making and spreading composts each year, they now spend a couple of hundred dollars on a mix of seeds.

"And there's no nitrate leaching. It's a stable form of nitrogen and it's improving the soil health and that's what keeps it all going."

Cover crops – or green manure – are not just about the nitrogen and carbon though. There's the microbial activity they add to the soil and the fungi networks that connect individual plants together and transfer not just nitrogen and carbon but also water, other nutrients, minerals and trace elements.

"We were struggling to maintain soil carbon by added compost because it just got gobbled up, and keeping the soil covered is important to keep the carbon in the soil."

They used to just grow one cover crop such as lupin to fix nitrogen, then added oats and continued to add more species for the range of roots to occupy different zones in the soil. Each supplies different compounds and improves the soil's structure among numerous other things.

"It's incredibly complex and you don't need to understand it all, but it all works and it's cheaper and better."

Among the seed mix is oats, tick beans, peas, barley, ryegrass, mustard, daikon radish for its long root and about six different clovers.

Cover crops go into the soil as soon as a vegetable crop is harvested

They also add plants such as buckwheat, phacelia, alyssum, dill, carrot and yarrow to attract beneficial insects through the summer such as hover flies, lacewings and parasitic wasps.

As soon as a vegetable crop is harvested, they plant a green cover crop so that the soil is not left bare and to stop weeds taking over. It's all done with minimal tillage, which Dom acknowledges is really difficult to achieve in a vegetable growing operation. He says there's always a balance between preparing a good seed bed for a crop such as carrots, and over-cultivating the soil. Planting and harvesting potatoes is especially hard on the soil as he says it breaks up the fungal network and lets air in, causing soil carbon to be lost.

They have been using regenerative growing practices such as green cover crops for the past three years and Dom says they still top up nitrogen with the addition of fish meal. Vegetables are quite intense and hungry, so soil tests are still necessary to show up any mineral deficiencies that need to be topped up.

> **"Dom says their first trial with cover crops was a "lightbulb moment" for him that showed they could grow their vegetables with a lot less work and less cost**

The soil is healthier now and the nitrogen is more stable, which means vegetable plants have a normal growth rate compared with fertiliser-enhanced rapid growth, and Dom says that makes them naturally hardier with a better balance of minerals, nutrients and good flavour.

The soil's smell tells you a lot about its health

Next, they want to work out ways of interplanting rows of vegetables with green cover crops to keep down weeds. Basically a path of living mulch. Crops such as beetroot and carrots will still need hand with weeding for organic produce.

"The goal is to grow cover crops you can cut in situ and plant or sow through that. It doesn't work too well for carrots and onions, but it does for brassicas, pumpkins and zucchinis."

Dom says a lack of awareness is holding growers and farmers back from making the step toward regenerative growing and farming practices. More funding is needed for research and education, plus more working examples are needed to show how regenerative farming works. For organic farming, he says it's a shift in mindset from being spray free, to looking after the soil.

As a former scientist working for NIWA (National Institute of Water & Atmospheric Research), Dom has long understood the soil's ability to store carbon and he says there's more awareness now about the importance of covering the soil with plants and using them to put more carbon into the soil to counter climate change.

"Regenerative agriculture is about keeping the soil covered with living plants and growing high-carbon crops which is incorporated back into the soil, so the soil builds up carbon.

"We all need to be aware of the important role plants and soil have in affecting climate change. We can capture carbon in the soil and keep it there. The soil can literally save us. This is our chance to stop major climate change. If that isn't enough reason to adopt these practices, then taste, biodiversity, nutrition, soil health, gut health and human health are. However you look at it, it's a win-win."

SEEDS FEATURE

NEW INTRODUCTIONS

There can be a lot of truth in old sayings. For a starter "big things often come in small packages". Very true when talking and referring to seeds – particularly vegetable seeds. Small they may be, but they are capable of powerful multiplier effects rewarding any grower handsomely who choses their crop seed varieties wisely and can grow proficiently – with yield and income.

But how can one be sure they have mastered the art and science of the easy transition to prosperity outlined above. Surely every company has rigorously tested their varieties and so any seed choice should be suitable?

Experience coupled with knowledge is power, and with vegetable seed this is always the case. Most hands-on growers will have a comprehensive understanding as to how their present varieties perform, both good and poor attributes. Astute growers also know 'one season does not a variety make' and as seasons vary, so do varieties performance and handling of the various weather situations, pest and disease pressures, etc. which ultimately results in crop yield and saleability.

But what does a grower know about the new varieties being offered?

Seed companies survive on selling genetics in the form of seeds and so rely heavily on their seed breeders to continually introduce improvements into the varieties they offer. Following on, marketable yield is the survival key for any grower, this being a combination of many facets within the variety such as plant vigour, disease and pest tolerances, plant shape, colour, texture, taste, health benefits, harvest and post- harvest handling ability and so on. An astute plant breeder has a great range of options for continuing incremental improvements within many plant parameters which technically creates a new variety and so hence the regular succession of new and improved varieties on offer.

"Nothing ventured, nothing gained". As a grower you are encouraged to study the following pages highlighting the best new variety introductions from our seed suppliers. To effectively do this, the key is to use your own experience to discuss with the seed technical staff their new varieties being offered, focusing on any new variety features which attract you. If from this discussion the expected benefits appear promising, the next step is to arrange for a trial planting to prove it. This allows you in your unique situation to benchmark the new against your existing standard – so you can decide at the end, "if the proof was in the pudding".

NEW VARIETIES BY: BAYER SEMINIS

EIFFEL – BROCCOLI

Eiffel is a spring and early summer harvest broccoli that is part of the High-Rise™ portfolio. This extremely uniform variety with visible crowns requires less trimming and fewer harvest passes allowing for reduced labour costs.

TITANIUM – BROCCOLI

Titanium is a High-Rise™ variety with a firm head with fine beads that minimises damage from water soaking and head rot. The long, clean stem variety is quick to cut, reducing overall labour costs. As a highly uniform broccoli, Titanium reduces the number of passes required at harvest. It is best suited for a July to mid-October harvest in Pukekohe.

RANGITOTO (SV5892VB) – SPINACH

Rangitoto will be your pick for the shoulder season. With excellent uniformity, oval shaped semi-savoy leaves offering an attractive glossy dark green colour. Rangitoto offers good adaptability thanks to its wide harvest window.

Resistance: HR Pe(ex.Pfs):1–16.

MOTUTAPU – SPINACH

Motutapu (SV5873VB) has shiny, attractive dark green, round to oval in-shaped leaves. It offers a high yield potential with great adaptability. Motutapu produces smooth to semi-savoy leaves with excellent uniformity for a winter harvest.

Resistance: HR Pe(ex.Pfs):1–16.

SV1446SD – YELLOW SWEETCORN

Offering growers high yield potential and a leading resistance package, SV1446SD is a dual purpose 109-day (processing) or 91-day (fresh market) hybrid. It has an average cob size of 20.7cm x 52mm, making it ideally suited for high factory recoveries.

Resistance: HR RpG59 IR MDMV/SCMV/Pst/Bm:0/Et:1.

ACCELERATION – YELLOW SWEETCORN

Acceleration is a dual-purpose, 108-day (processing) or 91-day (fresh market) hybrid. It has an average cob size of 19.9cm x 51mm. The tip-fill is excellent, and the eating quality is outstanding.

Resistance: HR RpG5 IR MDMV/SCMV/Pst/Bm:0/Et:1.

NEW VARIETIES BY: PREMIER SEEDS

ONION RED SENSATION

RM 150 days from a June sowing (Pukekohe). A fast maturing, sweet (low pungency) onion for early December harvest. The erect green, healthy foliage and vigorous root system of this onion allow for production on older ground. Bulbs are uniformly globe-shaped with a high percentage of single centres. Exceptional quality in an early variety. Bulbs have a vibrant red external colour, with well-developed internal colour at maturity for immediate sale. Holds well in storage for a fresh market type.

Resistances IR: Foc /Pt.

CARROT NATUNA F1

RM 150 days from a late spring sowing (Ohakune). Produces uniform cylindrical, well stumped, smooth roots of 16–18cm length that are well coloured through to the core. Exceptionally strong against breakage. Healthy, erect foliage and rounded shoulders provide protection against 'greening'. Maintains quality through winter top harvest, field-holding well.

ASPARAGUS MAGNUS F1

Semi-early variety. 100% male sterile. A very high yielding asparagus, producing large spears in the range of 16–21mm with dark, tight tips. Exceptional taste quality and superior shelf-life over existing market varieties. Tall, upright, highly branched fern with an open structure. Strongly resistant to *Puccinia Asparagi (asparagus rust), Botrytis and Stemphylium.*

CHINESE CABBAGE EMIKO

RM 9 weeks from transplant for spring, summer and autumn production. Shows good vigour with attractive compact head. Emiko is clubroot resistant and strong against tip-burn, which makes it an ideal summer variety.

Resistances HR**:** Foc /Pb:0,1,3.

CUCUMBER CAOBADO (TRIALED AS FHOL 180)

Vigorous plant with a strong root system and open plant habit. Dark green leaves with short internodes for ease of crop work, with partial resistance to Powdery Mildew. Fruits are of 31–34cm length, minimal neck, capable of high yields of high quality dark green fruit. Recommended for autumn, winter and spring production.

Resistances HR**:** Cca; Ccu IR: Px; CVYV; CYSDV.

CUCUMBER CARRANZA (TRIALED AS FHOL 125)

Suitable for autumn, winter and spring plantings. Vigorous plant, open habit with medium length fruit. Good in cold conditions. Strong root system enables high yield of 32–35cm dark green fruit. High quality fruit with minimal neck.

Resistances HR**:** Cca, Ccu R: CVYV; CUSDV.

NEW VARIETIES BY: SOUTH PACIFIC SEEDS

WATERMELON FIREBALL

A hybrid Sugar Baby type, Fireball produces high yields of consistently uniform fruit. A vigorous plant with a good canopy, it can be grown for early or main season production. The fruit have a deep red flesh which contrasts well with the dark green rind. The flesh is firm and very sweet with excellent eating qualities, and Fireball has shown good tolerance to hollowing, important for marketers who wish to display cut fruit. Fruit set is excellent and will typically mature in around 12 weeks from transplanting.

SPINACH ECLIPSE

Eclipse is a dark green, extremely vigorous spinach suitable for both babyleaf and bunching production in cool and cold seasons. It has an overall flatter leaf but will develop a slight savoy when grown in cold conditions. Eclipse will appeal to growers who have traditionally enjoyed the flexibility and reliability of Black Glove but brings the advantage of a wider and thicker leaf. It is best suited for winter and spring harvest.

LETTUCE NEMO

Nemo is a three-quarter sized cos suitable for whole head harvest and processing. It has narrow, slightly cupped leaves which are thick and lightly blistered. Nemo has a medium sized frame which is easy to strip back. The lighter colour makes it an excellent variety for shredding or chopping and a U-shaped butt means it is an excellent option for sleeving. In cooler conditions Nemo will gain size with no twisting and produces a heavier head due to high leaf numbers.

LETTUCE CHICO

Chico is a dark green mini cos suited to warm and hot season harvest. It has thick, lightly blistered leaves and a yellow internal. Chico is very upright in habit and has a V-shaped butt making it an ideal option for sleeving or twin packs.

LETTUCE ESPADA

Espada is a versatile transition variety suited to variable weather conditions typical of the autumn and spring periods. It shows good tolerance to bolting in mid to late spring, and likewise doesn't become puffy in the warmer conditions at the front end of its harvest window in autumn. Espada shows excellent field tolerance to mildew and Lettuce Big Vein.

SWEETCORN SOVEREIGN

Sweetcorn Sovereign is a bi-colour, super-sweet variety well suited for main season production. Producing sturdy plants, Sovereign is high yielding with attractive ears that present well at retail. With excellent eating quality the cobs are highly uniform with good tip fill and tender kernels.

NEW VARIETIES BY: HM CLAUSE

(distributed by Seed and Field Services Ltd)

SUPERCUT

Is a medium green multi-leaf lettuce with heavily incised, spiky leaf type. SuperCut produces a high number of uniform thick leaflets and although in the spiky type it is soft textured with great leaf curl and small cut point making it ideal for whole head or salad mixes. It performs best for shoulder season and main season production. With a full mildew package Bl:16-36 and Nr:0 it gives growers peace of mind knowing that they have the very best crop protection genetics.

FIRECUT

New release for the warm season. FireCut is a multi-leaf triple red incised, spiky leaf type. Similar to SuperCut in that it produces a high number of thick, soft textured leaflets. A versatile variety which has great leaf curl and depth with small cut point, making it suitable for whole head or for cut leaf to enhance any salad mix. Also similar to SuperCut in that it has an all-round mildew package Bl: 16-36 and Nr:0 for peace of mind.

OBIWAN F1

New release for the warm and hot season cauliflower in the Littoral slot. Great strong erect frame with improved curd wrap. Early maturing, strong against summer curd hairiness and leaf disease. Curds are smooth, with improved curd density, deep and well tucked.

LAILAH F1

New release zucchini from HM.CLAUSE for the shoulder season and main season slot. It is a medium vigorous plant with an open frame habit which allows for ease of harvest. A long peduncle attachment will improve presentation and drive labour efficiency. It has mid-maturity but has the ability to pick over an extended cycle, which means it has high yield potential. Fruit is smooth and dark with high gloss and a small blossom scar. Comes with a great disease package too – IR: Px / ZYMV /WMV / PRSV.

NEW VARIETIES BY: LEFROY VALLEY

LOVELOCK

An exciting new cauliflower suited to harvest early January to early April dependent on location. A strong plant with a good jacket and stunning wrap. The curd is semi-domed, white, dense with excellent tuck.

SUGARRUSH

A vigorous growing vine with good fruit cover and excellent setting ability. The fruit weigh 3–4 kg. The flesh is dense and crisp with a nice crimson red colour and excellent flavour. It has a black rind. SugarRush has a Brix level of 12.5. It has fewer seeds of micro pips, and great internals. The shape of the fruit is blocky and round with great uniformity. The fruit ripens uniformly and tonnage is good. Maturity is 3–5 days later than CandyStore.

NATYSSA

An indeterminate gourmet tomato: Vigorous plant and early fruit setting. It has even size 140–160 gram round fruit with glossy red colour and outstanding shelf life. High yield from regular production. For medium tech non-heated and heated crops.

HR: ToMV, Va/Vd, Fol:0,1, Ff:1-5, TSWV:0 IR: Ma/Mi/Mj, TLYCV.

LAUNCH SWEETCORN

Bicolour sweetcorn: Lovely 19cm cob of uniform length and good tipfill; 80–85 days to maturity. Great disease package with a good flag and husk colour. Excellent presentation and a nice easy snap makes Launch the perfect fresh market variety.

HR: Ps, Rp1-d,g,f,j, IR: Et, MDMV.

TAUPO

For harvest early December to early April dependent on location. A very versatile summer lettuce with good external and internal green colour. Flat round in shape with excellent wrapper leaf and clean butt.

HR: Bl 1-33, Nr.

AUROUS

A sutured medium ropey oval melon with ESL (extended shelf life). A strong vine with easy fruit set. The fruit are a good size at 1.8kg, with a small cavity.

Px, Fom:0,1,2.

NEW VARIETIES BY: ENZA ZADEN

Enza Zaden breeders have been busy producing new varieties with increased disease resistance and production flexibility.

JARLSBERG

A sweet crispy mini cos lettuce. It is flexible and holds well in the field, has an excellent sweet and juicy flavour, great shelf life, very uniform size and shape, with year-round production. An excellent choice for food service due to the cupped leaves from the outer to the heart. Commercial introduction seed is available now.

This lettuce has a full mildew resistance package and Nas.

NOLAF

An iceberg lettuce for autumn and spring. It has excellent flexibility for a range of growing types, has dark green colour, a high recovery rate, a uniform size with a good frame size that suits many growers. It is easy to harvest, and suits both the fresh and processing market. It is a very adaptable variety. Commercial introduction seed is available now.

Nolaf has a full mildew package including Bl37 and Nas.

CROSSTREK

A dark green baby leaf to teen leaf spinach. The best transition period for this lettuce is in autumn and spring. It has a semi-savoy leaf style with small leaf lobes and high yield. Commercial seed is available.

CrossTrek has a full mildew 1-19 Pfs package with excellent mildew resistance uniformity.

E61D.10128

A brown mid-intermediate onion. Maturity pre PLK, 50% top fall on 7 January. Harvest on 25 January. Has a high level of uniformity and firmness, with medium to large sized bulbs, uniform-coloured skins, and high globe-shape bulbs. Trial seed is available now.

E61D.10441

A red mid–intermediate onion. Maturity pre PLK, 50% top fall on 17 January. Harvest on 25 January. Has early internal colour penetration to the centre of the bulb. Medium to large sized bulbs, uniform-coloured skins, and globe-shape bulbs. Commercial introduction seed is available now.

TWISTIQUE

This is a winter to early spring harvest cauliflower. It has excellent, vigorous curd wrap for a very white coloured head. Has balanced growth of the head and frame for the cool period, good disease tolerance It is especially strong against Mycosphaerella. Twistique follows Altair in harvest. Commercial introduction seed is available now.

NEW VARIETIES BY: TERRANOVA

Spinach Gecko RZ

Sweetcorn Kalamazoo

Tomato Santiana RZ

Terranova Seeds New Introductions in 2021 includes many new varieties from Rijk Zwaan.

Larsson RZ is a hybrid broccoli best suited to late summer, autumn and early winter harvest. The plant is dark green, vigorous with a strong root system. The heads are dark green, heavy, with regular bead size, excellent uniformity and long shelf life.

As always there are a number of new lettuce varieties. **Lalique RZ** is a crystal type with heavy, compact heads, well suited to year-round hydroponic production. It produces high quality leaves with good sweetness and crunch which are well suited as burger and sandwich leaves. It is very slow bolting with no tip-burn. The leaf works particularly well with hot ingredients in food service.

We have new Salanova Crispy types. **Tralex RZ** is a Telex type with additional disease resistances and slightly better vigour. The plant habit is a bit more upright and yield is higher. **Vindicate RZ** is a Vilar type with the 'Knox' trait giving delayed pinking and better shelf-life. The leaf is a darker, mid-green colour with the 3D leaf shape giving more volume in the bag. **Zac RZ** is a triple-red oak-leaf type with 'Knox.' The leaf is flexible enough to be used to soften the mix while still robust enough to handle processing. It is a high yielding variety, which is suitable for year-round harvest. **Behn RZ** is a new dark green Salanova oak to compliment Humboldt. The head is more compact than Humboldt. It has similar bolting resistance to Humboldt, so is best suited to autumn and winter harvest.

Our new hybrid baby leaf Spinach varieties include **Cugoe RZ** for mid-summer. The leaves are dark green in colour, semi-savoyed and firm, processing well. It is strong against *cladosporium* and *fusarium*. **Gecko RZ** is a smooth-leaf type best suited to summer harvest. The variety has small dark green leaves with good uniformity.

Sculpin RZ is a robust, semi-savoy type best suited to summer harvest. The growth speed of this variety is between Cabezon and Cugoe.

For greenhouse growers we have **Santiana RZ** which is a highly productive large truss tomato variety that is easy to grow and faster to pick than many on the market. Fruit size (140 – 150 g) is easily maintained until the end of the crop. Powdery mildew resistance is a feature. This variety is a proven performer in New Zealand conditions from summer plantings, and has been successful globally in winter planted crops.

Avital RZ is a new hybrid chilli variety which will replace Erebus RZ. It is very productive and easy to grow in New Zealand greenhouses. The plant has good vigour with a high percentage of straight fruit which can be harvested red or green. The reliably pungent fruit are approximately 12–15cm in length.

We have added **Kalamazoo** from IFSI to our sweetcorn range. In trial as TSC18041, Kalamazoo is an extra-sweet and tender bi-colour chosen for an excellent eating experience. Mid-season maturity, which is similar to Springfield Plus. It is also rust resistant. The cob is 19–20 cm in length with a 16 to 18 row count. Growers should avoid planting this variety in cool soil, so it is best suited to main season planting.

Broccoli Larsson RZ

Lettuce Lalique RZ

NEW BLUEBERRIES NOW AVAILABLE FOR NEW ZEALAND GROWERS

Supplied

Blueberry growers will now have access to new varieties with large, tasty fruit, ideal for export overseas.

Plant & Food Research is excited to make eleven new blueberry varieties available to New Zealand-based growers – three from the organisation's own breeding programme and eight licensed from Fall Creek Farm & Nursery in the United States.

NEW ZEALAND CURRENTLY PRODUCES 3,000 TONNES OF BLUEBERRIES FROM 640 HECTARES OF LAND, EARNING $39 MILLION IN EXPORTS

Of the new varieties, three are Southern Highbush, seven are Northern Highbush and one is Rabbiteye. The varieties produce large fruit with good flavour, with a range of seasonality across the collection. All show good adaptability to New Zealand conditions in trials to date.

"These new varieties offer a significant opportunity for New Zealand growers to improve their blueberry production and offer new, tasty blueberries to consumers at home and overseas," says Dr Gavin Ross, group general manager marketing & innovation. "The new varieties produce tasty berries with high consumer appeal, and grow well in New Zealand conditions. We hope the addition of these new varieties to the suite of plants available to growers will help expand the blueberry sector and increase export opportunities over the next decade."

Growers are invited to apply for a non-exclusive licence to cultivate and grow the varieties for fruit production in New Zealand and for the marketing and sale of fruit worldwide. Growers who sign up to a licence agreement will be enabled to purchase plants from authorised nurseries.

> "The new varieties produce tasty berries with high consumer appeal, and grow well in New Zealand conditions. We hope the addition of these new varieties to the suite of plants

New Zealand currently produces 3,000 tonnes of blueberries from 640 hectares of land, earning $39 million in exports. Plant & Food Research will gain royalty payments from the licensing arrangement, which will be used to further research that benefits New Zealand's agri-food industries. ●

More information about the varieties and how to license them can be found on the Plant & Food Research website **www.plantandfood.co.nz**.

GROWING PATHWAYS

Words by Helena O'Neill

Hamlin Road Organic Farm team coach Sarah Hewitt

Tucked away in South Auckland is a special type of organic farm that helps people grow while they tend the land.

Hamlin Road Organic Farm is run by Pathways, a community-based mental health, addiction, and well-being service which offers people employment and education.

In 2002 Pathways acquired the land and funding to start Hamlin Road Organic Farm. They brought together Pathways staff, people who used their services, whānau, business people and community members to share their ideas on how Pathways should use the land.

The farm started as an organic, free-range operation selling eggs alongside a small amount of watercress. In 2013 and 2014 the operation moved to solely horticulture.

Farm team coach Sarah Hewitt says the shift to a sole horticulture operation was not without its challenges.

"We've got clay soil here at Ardmore along with a high water table."

With good drainage and raised garden beds, between three and four acres of the five-acre site is now planted out. The orchard has 60 citrus trees along with avocado, apple, peach, pear, fig, plum, and feijoa trees.

One 50-metre and six 25-metre shade houses also offer more variation in what the farm can produce alongside its orchard and outside gardens, she says.

Two propagation houses offer plenty of opportunities for trialling different plants and growing methods.

"I love doing different trials. We're always exploring if we have the best seeds or if our practices are the best way. We will do trial beds next to each other. For example with coriander we would soak the seed in hot water, we would soak the seed in cold water, we wouldn't soak the seeds."

"We've got some covered crops and we've just started doing some mustard seeds. We've also closed down some beds and are trying to get some approved plastic that we can use."

The farm sells its produce to Auckland wholesalers Ceres Organics and Fresh Direct, as well as at the farm gate during work hours and through its website. They are also long-standing stallholders at the weekly Clevedon Village Farmers' Market.

"The online webstore is an ever-growing business for us. It's been awesome.

"When Covid-19 hit we had an absolute influx of demand. We rebranded and created a webstore – it had been a dream of mine for years to have a webstore."

The farm has seven permanent staff who work alongside the current 18 trainees.

"We provide a transition to employment skills. It's about getting people back to thinking about work, getting work ready, all the things that come with that. An employer-employee relationship with heaps of support."

Trainees start off on a six-month contract and can stay up to 12 months. To be eligible to become a trainee, you need to live in Counties Manukau, be between the ages of 18 and 65, and have "lived experience" of mental health or addiction challenges.

"Some people just need us for a little while, a stepping stone, and then they're away."

While trainees are working on the farm, they can also study towards NZQA horticulture standards, through a partnership with Primary ITO.

Some trainees have stayed in the horticulture industry, securing local horticulture jobs, while others have moved on to very different industries, Sarah says.

"A lot of our staff members have moved up from being trainees."

For the past seven years, the farm has also run a lawn mowing business within Papakura, Papatoetoe, and Manukau, using two staff and one trainee on the mowing run.

Sally Pitts-Brown, chief executive of Pathways, says the farm is a living example of the organisation's dream to transform mental health and addictions through fostering strong, compassionate, self-supporting communities.

"Every purchase of our organic produce goes towards helping people in the local community with mental health challenges to gain valuable paid work experience, learn skills, gain qualifications and build confidence while they prepare for permanent employment elsewhere.

"We are also keen to talk to like-minded people who might want to invest in the important work that we do and help us grow new opportunities and support even more people."

You can order Hamlin Road Organic Farm's fresh produce from their website **www.hamlinroadfarm.co.nz,** stop by their roadside stall, or visit them at the Clevedon Village Farmers' Market.

NZGAP CONTRACTOR STANDARD RAISING THE BAR FOR WORKER WELFARE

Words by Hugh Chesterman : HortNZ

Tongan RSE workers planting 'Rockit' apples in Hawke's Bay

The NZGAP (Good Agricultural Practice) Contractor Standard is rolling out, with Thornhill being the first contractor to gain audited accreditation. Richard Bibby, manager of Thornhill contracting, says that it has already been really positive since becoming certified with the new standard.

"Our clients have been really happy with the new standard," said Richard. "It gives them an extra level of confidence that we're an ethical employer and meet labour compliance standards.

"The Contractor Standard is an extra layer of safety for our clients. It enhances our relationships with the growers that we work with because they know that all workers on their site are being treated fairly and well.

"It's not just talk; we're actually making positive changes for our staff and improving things. You can step onto an orchard, vegetable paddock or vineyard and talk to the workers and see that we're making genuine improvements to their welfare.

> **"We're getting more requests from proactive growers who want to be able to tell their customers with certainty that, from paddock to plate, all their staff are treated fairly, and they meet international welfare standards**

The NZGAP Contractor Standard enables contractors to demonstrate compliance and supply services to both NZGAP and GLOBALG.A.P. certified growers. By choosing to use a certified contractor, there is less due diligence burden on growers because the contractor is vetted and regularly audited to New Zealand and international worker welfare standards. NZGAP Contractor Standard certification gives growers assurance that their contractor is fully compliant.

Thornhill's Thai workers harvesting squash for Brownrigg in Hawke's Bay

"The Contractor Standard gives a lot of clarity between GLOBALG.A.P. and GRASP," said Richard. (GRASP is GLOBALG.A.P. Risk Assessment on Social Practice.) "With the Contractor Standard, we're covering all of the required labour compliance – plus more with things like financial wage records – which is a big part of being a compliant contractor.

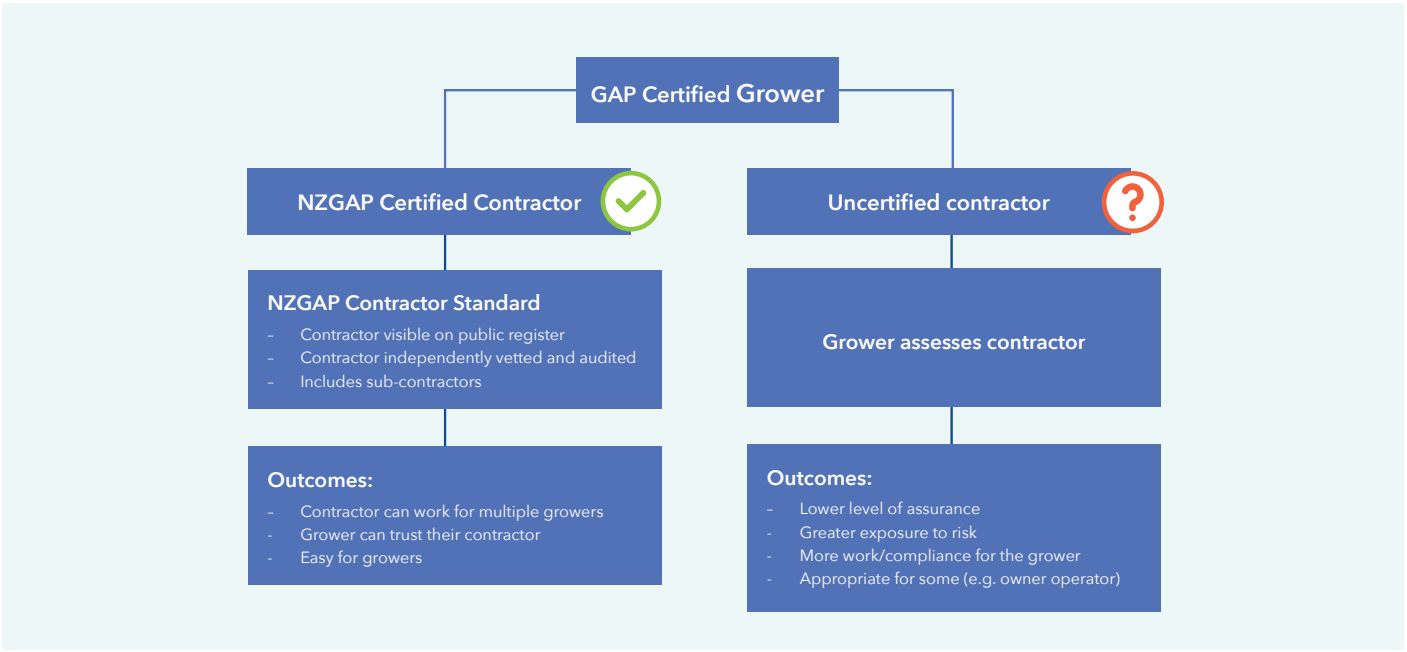
"There has been a lot of nervousness with using contractors because of people getting caught out with bad contractors. The standard gives comfort that a contractor meets welfare standards, which is backed up by a rigorous audit."

From the regulatory side of worker welfare, the Labour Inspectorate is also very supportive of the standard. Kevin Finnegan, a Labour Inspectorate regional manager with the Ministry of Business, Innovation and Employment (MBIE), says that the standard will raise the bar for contractors in the industry.

"It's really positive that industry is taking ownership of worker welfare," Kevin says.

"Industry initiatives like this show consumers that they can trust that no one's being exploited in the production of that produce. It helps to give all growers more awareness of how important employment standards are to the whole supply chain.

"The Contractor Standard will help growers know that they only have compliant contractors on their property.



How the standard works

This helps provide security by knowing that your supply chains aren't being corrupted.

"We're seeing consumers, particularly younger people, starting to demand sustainability and social responsibility with how they spend. MBIE has done consumer studies through Consumer NZ which shows that these values are top of mind when making purchasing decisions.

"The Contractor Standard will definitely raise the bar. It's another move in the right direction for the sector to show the consumer that they are an industry that cares about its people."

Damien Farrelly, manager of the NZGAP scheme, is delighted to see that the Contractor Standard is finally being rolled out after over a year of development with stakeholders.

"Contractors play an important role in supplying labour within the horticulture industry, so increasing trust in contractors is critical. We developed the NZGAP Contractor Standard alongside regulators and pilot contractors who helped develop this highly credible programme.

"The NZGAP Contractor Standard has very robust assurance processes around it. Contractors go through an independent vetting step to assess their suitability, to prove they have a good track record, before acceptance to the programme. Once in the programme, they progress to the independent audit stage where they are assessed against food safety and social practice requirements.

"Growers can check the certification status of contractors on the NZGAP public register, greatly reducing the compliance burden on growers. This significantly simplifies the due diligence process and enables growers to get on with growing.

"The programme can apply to all contractors, but is primarily aimed at labour-hire contractors involved in harvest, packhouse and produce handling, agrichemical application, and fertiliser application. Growers may decide, however, that the basic due diligence process, or grower assessment, is sufficient for some contractors, especially if they are owner-operators.

"Those certified to the NZGAP Contractor Standard can demonstrate in a credible and transparent way that they are an ethical employer and meet recognised social practice standards and employment laws. In other words, that these contractors are looking after their most important resource – their people." ●

Key points:

- ✓ Gives confidence to NZGAP and GLOBALG.A.P. certified growers
- ✓ Builds trust with consumers, markets and regulators
- ✓ Protects workers in horticulture
- ✓ Promotes continuous improvement
- ✓ Meets requirements for:
  - GRASP (GLOBALG.A.P. Risk Assessment on Social Practice)
  - GLOBALG.A.P.
  - NZGAP GLOBALG.A.P. Equivalent
  - NZGAP Social Practice
  - NZGAP Standard

TOMTIT MARKET GARDEN
HUMMING IN MATANGI

Words by Claire Ashton

Brittany Morison in her stall

Brittany Morison says she is really 'just gardening' in her new market garden venture in Matangi, Tomtit.

Brittany was studying Nutrition at the University of Otago, fully immersed in the academic side of things. After her degree, she moved to Auckland and began working in the research field, but felt she also wanted to connect people with food and was missing out on experiencing that connection.

Brittany is now a registered nutritionist (NSNZ) with a passion for academic research, but she is putting her years of study to use at a grassroots level by getting families interested in locally grown biodiverse produce you wouldn't otherwise see on the supermarket shelves.

She became very focused on growing food and began to take a particular interest in market gardeners, realising how much beautiful land there is out there. She even went out and worked on some market gardens as a wwoofer (Willing Workers on Organic Farms). She got involved with Auckland community gardens Kelmarna in Herne Bay and OMG (Organic Market Garden) in Eden Terrace, just down the road from where she was living, which was practising regenerative agriculture in a working farm model. She also became aware of Kaitake Farm in Taranaki, sustainable growers who have a market garden she admires.

Brittany's parents relocated from a farm to Matangi in the Waikato, onto land which boasts good soil quality and also had a spare paddock which was "just growing grass." Eyeing this up she quit her full-time Auckland job, took on a part-time research job at Waikato University, and put her efforts into starting a market garden in the paddock. A bit like its namesake, Tomtit, the garden started small then grew as she had more time to put into it, so that by September 2020, she had it up and running at around 1,000 square metres.

> **"She is putting her years of study to use at a grassroots level by getting families interested in locally grown biodiverse produce you wouldn't otherwise see on the supermarket shelves**

Brittany's partner James has a law and commerce degree and works in rural finance. James built everything for the market garden and has picked up practical skills such as regenerative techniques, irrigation and tunnel house construction. He loves coming out to the garden after work

and seeing all their mahi pay off in the produce. They both aspire to own land and fully sustainable garden in the future.

Brittany wants to grow sustainable food and connect people with food following the principles of regenerative agriculture, which focuses on building up really good soil and looking after it using a no-till principle to create and feed a good network of microbes, bacteria, fungi, and the build-up of organic matter. "There is always new research coming out and people are changing the way they farm – it really is an exciting time to be growing," she says.

Brittany feels that just being in the garden every day teaches her so much. When she plants, cultivates and harvests, each time she builds up her knowledge, and she considers herself still in the trial process of growing and learning. "I can envision how humming the garden can be," she says. As she applies that knowledge, plants grow healthier and become noticeably more pest resilient. She uses local compost from Environmental Fertilisers based in Paeroa who create microbial brews for her with materials ranging from bio char, to fish and vermicast. One of her main aims is to keep it local, and she prefers to do business with locals who have a good business ethos.

> **“ Brittany wants to grow sustainable food and connect people with food following the principles of regenerative agriculture**

When she first started out, she did till the soil and the result was a whole lot of weeds that constantly needed removing, but now that she doesn't till, she gets about a tenth of the weeds. She practices crop rotation and there is a large compost heap to purposefully sequester carbon. She had just taken delivery of a huge amount of paper from someone who had shredded their whole life's office work, and dropped it off to become part of the compost.

> **“ One of her main aims is to keep it local, and she prefers to do business with locals who have a good business ethos**

Brittany uses a Quick Green Harvester for swift salad harvests and a Paper Pot Transplanter and can plant 200 seedlings in a row by simply pulling it along. Tomtit grows everything from seed, using Kings seeds as well as Egmont and Koanga Gardens seeds. She aims for a biodiverse garden and admits she may have gone a bit overboard with her range of tomatoes, with the number of varieties in the greenhouse pushing 40 and including green tomatoes, yellow pear cherries, indigo fireball, and some heirloom varieties. She also collects and stores the seeds from her own plants, and has a handy shipping container on the property to work out of.

THE NUMBER OF VARIETIES IN THE GREENHOUSE ARE PUSHING 40 AND INCLUDING GREEN TOMATOES, YELLOW PEAR CHERRIES, INDIGO FIREBALL, AND SOME HEIRLOOM VARIETIES

James at work

Brittany and James

Tomtit offers a veggie box subscription and is part of Community Supported Agriculture (CSA) whereby customers pay for a share of a season, which lasts 13 to 14 weeks. The money is paid up front, and customers in return receive a share of vegetables.

This way consumers are making an investment, and Brittany invests the money back into the business to buy items such as tools. She has come to understand the customers and their needs and while vegetable supplies can fluctuate, mostly it all balances out. At the moment autumn is transitioning into winter with brassicas such as cabbages and cauliflower being shared out. Tomtit also delivers a weekly Tomtits Harvest box and custom website orders, and they supply a few produce businesses around the Waikato, Wholeheart in Hamilton, Expleo in Te Awamutu and Direct from the Market, who deliver a Tomtit Organic Mystery Box to their customers.

> **She likes to work with people who have a similar ethos about the products they use, where they source them from, and how the business operates**

Since starting Tomtit, Brittany continues to watch out for different styles of market gardens and network in with them, especially those practising regenerative agriculture. She also follows other organisations such as the Urban Farm Alliance and For the Love of Bees. Being based in the Waikato, Brittany is aligned with the Waikato Food Network, instigated by Vicki Ravlich-Horan from *Nourish*, a food-based magazine. Through them she partnered up with Good Bugs, the Waikato's only producers of sauerkraut and kimchi, and supplies spinach, basil, and kale for New Zealand's only fermented pesto. She likes to work with people who have a similar ethos about the products they use, where they source them from, and how the business operates.

> **Tomtit uses bioforce practices, the biological control of plants pests. For instance, she ships in ladybugs who eat the aphids, and uses no spray as she does not want to kill beneficial predators**

Down the road from Tomtit in Matangi is a local container shop and café, Front Paddock, who have built an outdoor Tomtit Stall stocked with fresh organic vegetables. Everything is self-serve with the My Honesty Box app. You can place your order and pay for what you take using the QR code scanner. Tomtit also makes a regular appearance at the busy Tamahere Markets just out of Cambridge, which is good advertising for her brand too.

Tomtit uses bioforce practices, the biological control of plants pests. For instance, she ships in ladybugs who eat the aphids, and uses no spray as she does not want to kill beneficial predators. Brittany has noticed that the white butterfly which was so prevalent in other gardens, this year virtually left her plants alone, and believes that healthy soil creates good Brix levels which means the plants are strong and resilient. She feels that if plants do get 'sad and weak' the pests gravitate towards them. She is also pleased that recently a hawk has taken to hovering overhead, keeping the rabbits at bay.

PEANUT POTENTIAL IN NORTHLAND

Words by Wendy Laurenson. Photos by Plant & Food Research Ltd

Allister McCahon Farmer, Declan Graham Plant & Food Research, Paul Sorensen Farmlands Keri Keri, Josh van der Weyden Plant & Food Research, Matt Punter Kaipara Kai (now Tech Manager Farmlands Keri Keri)

A peanut trial carried out this summer near Dargaville was small but the results could be significant. The project was initiated by Pic's Peanut Butter, backed by the Ministry for Primary Industries through their Sustainable Food and Fibre Futures Fund, with research input from Plant & Food Research. Early results show peanuts may have potential as a new crop for the Northland region

Declan Graham, business manager – science at Plant & Food Research, managed the project which set up trial plots in three locations around Kaipara. "We chose Northland because peanuts need soil temperatures above 18 degrees Celsius from planting in October through to harvest in April. They also need friable fertile soil, so we had one trial on a kumara farm in Ruawai, one further north near Kai Iwi Lakes, and one near Te Kopuru, but only the Te Kopuru trial came to fruition. Seeds we planted on mounds in Ruawai were washed out by heavy rain and what remained was overtaken by alligator weed. The Kai Iwi Lakes plot had more friable sandy soils but an electric fence there failed so cattle got in and destroyed the crop. However, we harvested the crop from the Te Kopuru site, and the yield, health and size of the peanuts look really good."

Several locals have been keenly involved in the trial project. "We're working with local farmers plus staff from Farmlands and Kaipara Kai to see if peanuts could become another cropping option for Northland farmers and growers," Declan says. "They're an arable crop so development would need land flat enough for machine access, and sufficient infrastructure to support a processing-based business. Infrastructure is already in place here for the kumara and maize industries, and further north for vegetable growing."

> "We chose Northland because peanuts need soil temperatures above 18 degrees Celsius from planting in October through to harvest in April

The possibility of growing peanuts commercially in Northland was explored in the 1970s, but Declan says there is much higher motivation now for investment. "A big

Josh van der Weyden from Plant & Food Research harvesting peanuts

Some of the trial peanut block harvest

gap back then was someone to buy the crop, but now we have Pic's, a keen customer, initiating this project, so there is possibly more willingness for investment in equipment and systems. With the increasing pressure on Auckland's productive land, we're also forced to broaden our vision of what's possible to grow where."

While the peanuts in this small trial area of just 0.1 hectare were hand harvested, commercial cropping requires mechanical land preparation and cultivation, seed sowing, and then an inverter for harvesting. "This is like a plough that upends the plants so the peanuts dry out on the soil surface so they're then ready for threshing, removing the pods, drying and de-shelling before going to the end user," Declan explains.

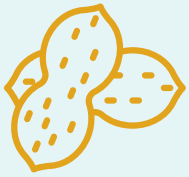
> **"Peanuts could therefore act as a restorative crop within a crop rotation, helping to reduce nitrogen fertiliser inputs and losses, and they could be highly complementary to kumara production**

Two significant considerations for peanut crop management are weeds and pests. "Weeds could be handled in a similar way as for pea crops, however tenacious weeds like alligator weed would be difficult to control. Pests to watch out for are army worm and black beetle, neither of which was an issue with our trial, but we did get two spotted mites damaging some of the foliage which can affect the plant's vigour and subsequent peanut production."

Testing of the trial crop is now underway to assess the oil content, flavour and yield of the peanuts. Four different cultivars of high oleic Spanish peanuts were selected for the trial as being best suited to Northland conditions. "As the name suggests, these cultivars are high in oleic oil which is essential for both peanut butter processing and for quality snacking peanuts, so we'll soon have the data to see how they rate for commercial use. Pic's Peanut Butter currently imports 2,500 tonnes of peanuts a year, so there's potential to redirect that money into Northland's economy, plus to reduce that import carbon footprint."

Declan says grower returns for peanuts could be significantly more than that of maize, with the addition of some downstream environmental and social advantages. "As a legume, peanuts add nitrogen to the soil and results show the trial plants successfully produced their own rhizobia, a bacteria required to ensure the plant can do this well. Peanuts could therefore act as a restorative crop within a crop rotation, helping to reduce nitrogen fertiliser inputs and losses, and they could be highly complementary to kumara production. With water restrictions now on dairy farming, peanuts may also offer another land use option."

If the crop quality meets industry standards, the next step is to scale up production this coming season, then to explore infrastructure requirements and options the following year. These initial steps may be the foundation of a new industry for New Zealand that could boost Northland's economy and create new job opportunities. ●



PIC'S PEANUT BUTTER CURRENTLY IMPORTS

2,500 TONNES

OF PEANUTS A YEAR

PIP'S SUCCESSES

Words by Glenys Christian

Finalists and judges at the 2020 Kiwi Kids Can Cook Competition

Pip Duncan, who retired as education and marketing manager at vegetables.co.nz at the end of May, has been praised by chairman Andre de Bruin.

"Pip's fantastic work in driving the Cooking Curriculum Project will have lasting benefits for the nation's health and for vegetable growers," he says.

"What she has been able to achieve along with our project partners The Heart Foundation, the Home Economics and Technical Teachers Association (HETTANZ), the NZ Association of Intermediate and Middle Schools (NZAIMS) and the Ministry of Health will ensure a new generation of consumers for vegetables."

The registered dietician's move to work for *vegetables.co.nz* came when she was asked to edit *Fresh Inspiration,* the *vegetables.co.nz* tabloid for culinary professionals. She then became the education and marketing manager, running evidence-based, peer-reviewed campaigns for all sectors from early childhood education through to aged care.

Pip has had a lead role in the *vegetables.co.nz* partnership with The Heart Foundation for the Curriculum Project.

This work followed from the Massey University Curriculum research with Year 7 and 8 teachers in 2016, which identified that only 13% of students were able to plan and prepare a complete meal as a key learning objective. Teachers asked for relevant teaching tools and resources in order to equip their students with fundamental life skills to be able to cook a healthy meal within their own budget, cultural and time constraints.

This led to the 2018 launch of Year 7 and 8 Unit plans and resources, based on the technology process, developed with teachers for teachers.

"We're definitely moving in the right direction," she says. "Kids are learning to love vegetables."

Pip has attended many health conferences as well as conferences for teachers and cooking professionals to promote vegetables, as well as being involved in organising and judging two nationwide competitions sponsored by *vegetables.co.nz.* The Kiwi Kids Can Cook (KKCC) final will be held in November, and the prestigious National Secondary School Culinary competition in September. In 2020, both these competitions held four weeks of online promotions with kids presenting their vegetables dishes in short videos. Fortunately, eight regional finals of KKCC were held between lockdowns, and a grand final was held in November in Auckland with kids from the Far North to South Canterbury competing.

Pip has been involved with producing the Easy Meals with Vegetables recipe cards with colleagues from The Heart Foundation and the Health Promotion Agency. She has particularly enjoyed developing the Meet the Grower videos over the last seven years, in which individual growers explain the process from planting to harvest of a specific vegetable. These videos are extremely popular with teachers and several are now embedded into the Ministry of Education's programmes across different school levels. Over 69,000 people viewed the videos on *vegetables.co.nz* YouTube last year.

In total the *vegetables.co.nz* website now has 1.1 million users, an increase of 42% through 2020 with growth continuing this year.

Another big success has been the Forum-on-wheels initiative which takes key influencers to visit growers to see first-hand how vegetables are grown, harvested and packed.

"Food writers, chefs and teachers are extremely interested in where their vegetables come from and the stories behind them," Pip says.

And what does retirement hold for her?

"I'm really looking forward to more home renovations, more trips to Hawke's Bay, more bridge, and more travel eventually."

Pip Duncan

And she would like to thank the growers, especially those who have been on the vegetables.co.nz committee, with special thanks to Keith Vallabh, Andre de Bruin and business manager, the late John Seymour, for their encouragement and support over the years.

SUPIE SPRINGS TO LIFE

Words by Glenys Christian

Supie founder, Sarah Balle, wants to cut food wastage by reducing the number of steps from producer to consumer

Sarah Balle grew up on a Pukekohe vegetable farm and saw for herself the increasing wastage involved in getting produce to consumers.

So two years ago she decided to focus full-time on setting up Supie, an online supermarket aiming to cut waste by linking producers and consumers more closely. It was launched in Auckland in May, with plans to roll it out progressively to the rest of the country as demand grows.

"I've been around the industry my entire life, so quality healthy and affordable food has always been a passion of mine," she says.

While Sarah trained and worked as an accountant, she's had exposure to the family business Balle Brothers, throughout her life, as her father, Kevin, is one of the seven brothers. Her siblings have now all ventured out into their own vegetable growing enterprises.

"Predictably I spent school holidays as I was growing up in the paddocks, clipping and bagging onions, of which I still have fond memories."

She was determined to make buying and selling food in New Zealand fair and transparent by reducing the middlemen, giving consumers a better way to shop for food online. And her solution she believes will help reduce food waste and the impact it has on the environment along with helping to tackle food poverty.

The idea of Supie came from a growing frustration at seeing first-hand how much food was wasted as a large amount of growers' produce didn't reach the exacting standards of supermarkets, as well as seeing the small margins growers achieved.

"Year after year nothing was being done," she says.

There's an estimated 14 million kilograms of food waste in New Zealand annually, and with half of that coming from fruit and vegetables that means $1 billion worth is being thrown away. The carbon emissions created from dumping it in landfill would take an estimated 150,000 cars being removed from our roads to offset. And it is believed 170,000 New Zealand children are currently living in food poverty.

Sarah says that to truly make an impact and change for good, Supie wanted to flip the traditional supermarket model on its head.

"To do this, from day one our focus is entirely on our partners and customers."

She has worked hard to build trusted relationships directly with local growers, farmers and food producers, spending the past 18 months travelling the country talking to them while sourcing products from over 100 of them for her online store.

"They care a lot about quality, transparency, and hold sustainable values at heart," she says.

"They are people who are dedicated to bringing you the highest quality and freshest food you can get – and New Zealand vegetable growers understand this more than anyone."

That support means Supie can offer some of the best vegetables grown in the country to those who join as members. And she believes the website could break down the traditional barriers around how conventional supermarkets treat smaller New Zealand producers and brands.

"We welcome and allow smaller brands and artisans to sell their products without jumping through lengthy hoops, and with 100% transparency on the margin," she says.

"Not only does this help local businesses reach new consumers, it gives Kiwis access to locally made products that they typically can't get at the larger traditional supermarkets."

She doesn't believe Supie will be in competition with their food delivery services or those of meal kit delivery companies such as Hello Fresh and My Food Bag.

"We don't look at what traditional supermarkets or food delivery companies are doing in the space," she says.

"The similarity is simply that we're based online and we deliver food to our customers' doors."

Supie's warehouse has been set up in South Auckland where personal shoppers will pack customers' orders as they come in for the over 2,500 items stocked at present. As well as fruit and vegetables there will be a range of grocery staples available such as milk, cereal, spreads, pet food and toilet paper. In keeping with Supie's aims, sustainable delivery systems will be used, along with reusable packaging.

'Supie+' early access membership is being offered at $14 a month through its website with free delivery on orders over $70 and free product samples. A standard membership is also available where customers pay as they order. And from 2% to 10% cashbacks are offered on all products purchased, which customers can use later or donate.

Sarah says being member-based means Supie is able to grow sustainably as a company from regional through to national coverage.

"We have big plans and have mapped out how this may look over the next five to 10 years, although they're still under wraps."

REDUCING DEMAND FIRST STEP IN ANY ENERGY STRATEGY

Words by Andrew Bristol

EECA Business Products Manager, Glenn Wellington discusses energy with Rob Lindsay

Understanding energy use and reducing demand should be the first step in any energy strategy, was the advice to covered crop growers at TomatoesNZ and Vegetables NZ's covered crop energy workshops in May.

"Start by saving energy by determining a temperature regime that is economically optimal," said Elly Nederhoff, the greenhouse specialist who has been contributing to the *NZGrower* since late last year (see page 60 of this *NZGrower* for Elly's latest article).

Elly addressed the workshops along with several growers and representatives of TomatoesNZ and Vegetables NZ.

"In the past year, we have reduced our fuel consumption by 10% just by making small changes, while at the same time we have increased our yield and fruit quality," said Rob Lindsay of Island Horticulture, who grows two hectares of cucumbers under cover near Kaiapoi (see also NZGrower February 2021, pages 20–21)

"We have eight different growing structures – both glass and twin skin greenhouses, ranging in age from five years up to 35 years old. We have two boilers, one that's been converted to run on re-refined oil and a new boiler that's used re-refined oil from the outset.

We wanted to make efficiency gains through small investments, to make sure we are making the best use of fuel and are minimising energy loss."

Rob focused on three areas:

1. Better use of screens.
2. Reducing boiler water temperatures in response to solar radiation.
3. Use of a ratio of temperature to radiation strategy.

"We have single screens in our glasshouses," Rob explained. "The screens we use reduce energy loss by 47% and can also be used for 15% shading during periods of high solar radiation. We grow cucumbers all year round so we need the ability to save energy during the winter so we can continue production."

Multiple triggers

Rob said they use multiple triggers for their screens.

"We use PRIVA as our climate control software. It gives us the ability to have up to eight time-based periods over 24 hours. For each of those periods, we have a number of triggers that prompt the screens to close: outside temperature, radiation, and inside/outside differential.

Elly Nederhoff presenting at the workshops

"For example, on a dull day there's no need to keep the screens open if the radiation level is not high enough to generate much photosynthesis. We are better to conserve energy and maintain a slightly lower plant temperature."

Rob said they have looked at modifying boiler temperatures in response to outside temperatures.

"Why heat water when the outside temperature is high? That really doesn't make sense. We added a radiation sensor to one of the inputs on the boiler controller. Now, as the outside temperature increases, the boiler setpoint temperature automatically reduces on a sliding scale from 95 degrees down to 60 degrees Celsius.

> **"Covered crop growers employ approximately 2,500 people. Tomato and capsicum growers make up 85% of covered crop growers**

"We don't want condensation and corrosion on our pipes so we keep the minimum to 60 degrees. This change is giving us some pretty good results. We still have the ability to heat our greenhouses with all the heat necessary but we're not keeping water hot on a sunny day, when our greenhouses are capturing enough energy from radiation."

Lastly, Rob has been giving a ratio of temperature to radiation strategy a go.

"You want to balance the energy being used by the plants to the radiation energy entering the greenhouse. Plants use energy to grow shoot tips, root tips, expand leaves, and set and grow fruit.

"If energy out is higher than energy in, then the plant sacrifices non-essential growth, for example fruit, in order to remain alive. We align the 24-hour average temperature to incoming radiation by linking heating and venting temperatures with the sum of solar radiation received through the day."

Rob said his learning curve has been steep.

"I've only been in the business for two and a half years but by applying the 80/20 rule, 80% of the result comes from 20% of the effort, we've made some big gains for some quite small investments, by getting some of the basics right so we are not wasting energy."

One of the other growers who spoke had praise for the Energy Efficiency and Conservation Authority (EECA).

"We engaged with EECA back in 2016. The good thing about them is that they are not trying to sell their services to you. They have skilled business managers that can partner up with you as well as challenge you, 'have you thought about this?'"

This grower also shared his tips for increasing energy efficiency:

1. Engage a consultant and surround yourself with the right people – people that get your business. But don't be afraid to challenge them.
2. Look at ways to reduce your energy demand and seek minor changes.
3. Then develop your roadmap. Don't fly into it blind. Once your roadmap is produced, break it down into parts you can achieve.

Hard to keep up

In opening the workshops, TomatoesNZ chair, Barry O'Neil, said it is hard for growers to keep up with all the changes on the table.

"The government believes it has a clear mandate in areas such as labour, climate change and freshwater. We are working with the government to get the best outcomes for growers that we can. This includes support for the transition so growers can be economically successful, so they can survive."

TomatoesNZ general manager, Helen Barnes, thanked growers for providing information on energy use via TomatoesNZ and Vegetables NZ's covered crop survey, which targeted tomato and vegetable greenhouse growers.

"We now have a better energy picture and more of an idea about the best way forward. We are using this information to inform our submissions to the government.

"We are also working with EECA on a plan to support the industry through the change that is needed."

EXECUTIVE SUMMARY

*This 'Executive Summary' is an excerpt from a report titled **New Zealand Horticulture – Barriers to Our Export Trade 2020**, which is commissioned every two years by the NZ Horticulture Export Authority (HEA). This report was released to industry stakeholders in December 2020. Refer HEA website www.hea.co.nz for further information.*

New Zealand's horticultural exports were worth $4.521 billion in 2020 increasing $903 million (25%) from 2018.

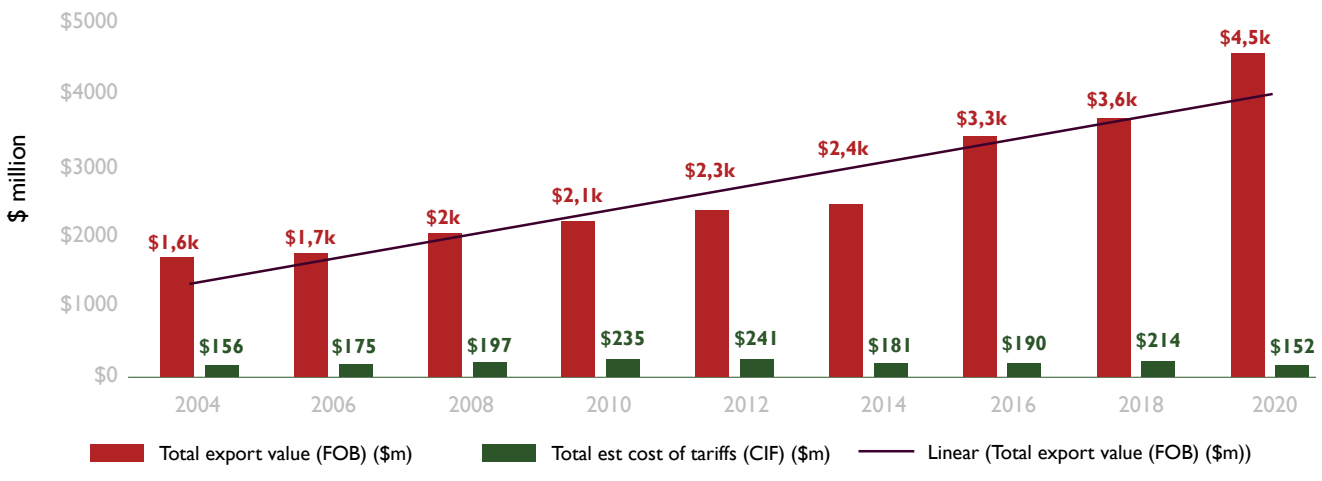
The continuing growth trajectory in horticultural exports is shown in Figure 2.1. Kiwifruit and apples are the dominant horticultural crops accounting for 75% of the total export value in 2020. Kiwifruit accounts for over $2.5 billion (56%) of the value of horticultural exports. Based on 2020 values, onions, potatoes, and avocados are ranked third, fourth and fifth respectively, as the most valuable horticultural exports. Onions increased 59% between 2018 and 2020, surpassing potatoes and avocados. Potato exports decreased 11%, while avocados increased 14.6% in 2020.

The total **cost of tariffs** on horticultural exports decreased 29% to $152 million in 2020 from $214 million in 2018, based on approximate CIF (cost, insurance, and freight) value (refer to Table 3.1). This is despite a 25% increase in the total value of trade over this period. The drop in tariff costs is primarily because bilateral or regional free trade agreements have removed tariffs in many of New Zealand's key markets such as China, Japan, Malaysia, South Korea, Taiwan and Vietnam. Tariffs now account for an average of 3.4% of the value of horticultural trade, which is down from 5.9% in 2018.

Tariffs estimated on horticultural exports to the EU cost the New Zealand industry at least $61 million (FOB) (or an estimated $97m CIF) in 2020. For context, this is almost 59% of the total cost of tariffs ($96 million based on FOB, which converts to $152 million based on CIF) for all horticulture exports to all markets. India ($22.8 million) and Japan ($5.2 million) accounted for 29% of the $96 million estimated cost of tariffs.

On a localised basis, the estimated loss of income for the 5,000 commercial growers averages $30,400, down from $42,800 in 2018.

FIGURE 2.1 New Zealand horticulture export values and tariffs paid, 2004 to 2020.



**Simon Hegarty, Chief Executive,
New Zealand Horticulture Export Authority (HEA)
and Market Access Solutionz (MAS)**

The EU remains New Zealand's most valuable export market ahead of Japan and China. Export earnings between 2018 and 2020 rose 13.6%. With the exception of 2012, the EU has been the top ranked market destination each year since the first report in 2004.

In 2019 and 2020 Japan was the second largest market, moving above China in third place. Australia and Taiwan are placed fourth and fifth, respectively. The USA and South Korea retain sixth and seventh positions. Vietnam has moved from tenth to eighth, showing steady growth, with export value doubling between 2018 and 2020. The Vietnamese market is now valued at $124 million and ranks above Hong Kong and Thailand.

Over the longer 10-year timeframe, China and Vietnam have been the big upward movers, while exports to Japan and Taiwan have doubled. The EU market has increased by more than 50% however, Australia has only shown modest growth.

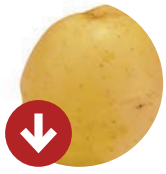
Asian economies continue to grow in importance. ASEAN member countries, especially Indonesia, Malaysia, the Philippines, Thailand, Singapore, and Vietnam were collectively worth $425 million in 2020, an increase of $150 million from 2018.

CHANGES IN THE EXPORT PROFILE OF SOME EXPORT PRODUCTS, COMPARED WITH 2018:

Kiwifruit exports exceeded $2.5 billion in 2020, representing a 36% increase in value from 2018. Kiwifruit continues to achieve increased returns of $3,989 per tonne in 2020. Much of the growth is a 69% increase in export value to $670 million to Japan. Japan has replaced the EU as the number one export market.

Apple exports were $881 million in 2020, this is a $147 million (20%) increase. Most of the growth has been to China which increased 104% to $155 million, and to Vietnam which increased 117% to $89 million.

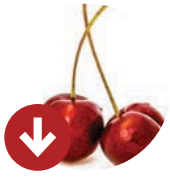
Onion exports increased nearly 60% to be worth $147 million in 2020 and has positioned onions as the third most valuable horticultural export behind kiwifruit and apples, and as the most valuable exported vegetable crop. The EU remains the most important market for New Zealand export onions which increased 68% to $66 million.



Potato exports totalled $118 million in 2020, a $15 million (11%) decrease from 2018. Frozen potatoes accounted for 83% of export value. Australia remains the largest export market for frozen potato products, accounting for 60% of exports by value.

Avocado exports increased nearly 15% in value to be worth $112.5 million in 2020.

Buttercup squash exports decreased to $51 million in 2020 after remaining steady at $56 to $60 million between 2016 and 2019. This decrease may reflect the use of industry data to determine 2020 export figures.



Cherry exports declined by 39% to $51.3 million in 2020 due to weather related production declines. Up to 2018, there has been steady growth in cherry exports.

New Zealand Horticulture Export Authority

EXECUTIVE SUMMARY

The stages and process for a market access request through MPI. This can often be long and may take many years.

STEP 1 — MARKET ACCESS REQUEST TO MPI

Information supplied by industry to support request includes economic viability

STEP 2 — MARKET PRIORISTATION PROCESS

Annually MPI prioristise which market access will be pursued (not all successful).

STEP 3 — REQUEST PRIORITISED

Technical information to support market access researched by industry and provided to MPI.

STEP 4 — MPI REQUEST MARKET ACCESS

MPI request markest access, and provide technical info to importing country.

STEP 5 — IMPORTING COUNTRY RESPONSE

Importing country will undertake own risk assessment and propose import conditions to MPI.

STEP 6 — MPI RESPONSE

MPI (in conjunction with industry) either accept proposed import conditions or negotiate changes.

STEP 7 — NEW ACCESS ACHIEVED

New market access

The process for achieving new market access is a significant hurdle for many horticultural product groups. The steps involved in making a new market access request are summarised in Section 5.5. There are a wide range of criteria assessed and this can often be complicated and take many years. The level of detailed technical information required to be provided by product groups to support market access requests is a considerable burden, and beyond the capability of many of New Zealand's smaller horticultural product groups. Such applications require substantial financial investment and technical expertise. In most instances this is funded by the specific industry. The demands for new market access are large and also places a greater pressure on limited MPI resources, and as a consequence MPI has limited ability to progress market access applications. Industry must also pay MPI-associated costs which are charged under a 'cost recovery' mechanism of $125 per hour. Aside from the technical aspects, a new market access request may also encounter non-technical opposition within the importing country which can impact on progress.

The application process for achieving new market access requires substantial financial investment and technical expertise.

Changing state of the horticultural sector

The profile of the horticultural sector continues to evolve. Many horticultural industries have experienced a degree of consolidation from the mid-2000s with several industries now having fewer growers but larger operations. This is evidenced by many horticultural product groups reporting smaller numbers of growers with a similar production area, and in some cases production area has increased.

This consolidation has been driven by a range of factors, primarily economic, whereby compliance (worker safety, food safety, and environmental compliance), and production (labour, utilities, transport and machinery) costs are increasing. Larger scale operations tend to be more insulated from these costs due to economies of scale compared with individual smaller grower operations. This has the collective effect of forcing small growers out of business, or selling their operations to larger grower businesses.

Exports of horticultural products continue to grow and tariff barriers continue to reduce through the successful negotiation and implementation of FTAs. However, the rise of other non-tariff measures remains a significant concern to the industry and a drag on progress. A further concern to arise over the last five years has been the geo-political environment with an obvious swing to more nationalistic and isolationist policies. History suggests that protectionist trade policies will likely become more prominent in the international trading environment faced by New Zealand's horticulture exporters.

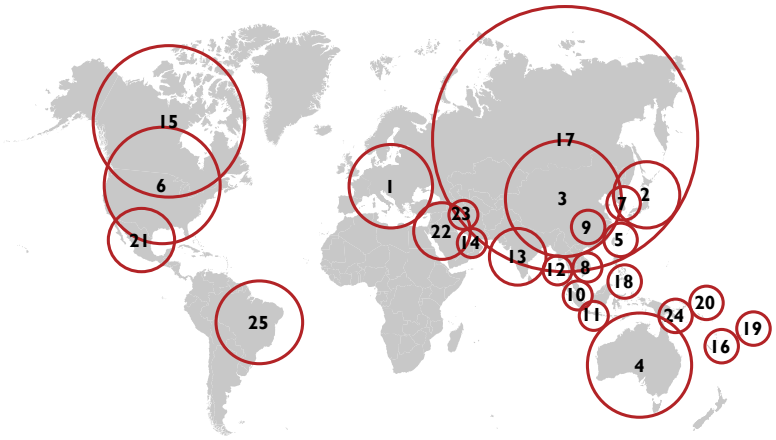
Retail shopping during Covid-19 pandemic.

The global Covid-19 pandemic has impacted trade from early 2020 on a scale not previously encountered. In the timeframe of this report the actual horticultural trade figures for the year ended 30 June 2020 were up year on year by 7%. This could have been significantly higher had there not been trade disruption from March 2020. While Covid-19 has resulted in no formal restrictions on market access for the majority of exported and imported goods, it is placing significant pressure on global supply chains, disrupting trade flows, consumption patterns, investment and market development initiatives and in some cases leading to in-market policy shifts that will have long-term consequences for trading nations.

Tariff barriers are reducing through successful negotiation and implementation of FTAs.

New Zealand Horticulture Export Authority

TOP 25 MARKETS ACCOUNTING FOR 98% OF EXPORT EARNINGS



1. EUROPEAN UNION
2. JAPAN
3. CHINA AND HONG KONG
4. AUSTRALIA
5. TAIWAN
6. UNITED STATES OF AMERICA
7. SOUTH KOREA
8. VIETNAM
9. THAILAND
10. SINGAPORE
11. INDONESIA
12. MALAYSIA
13. INDIA
14. UNITED ARAB EMIRATES
15. CANADA
16. FIJI
17. RUSSIA
18. PHILIPPINES
19. FRENCH POLYNESIA
20. NEW CALEDONIA
21. MEXICO
22. SAUDI ARABIA
23. KUWAIT
24. PAPUA NEW GUINEA
25. BRAZIL

Free trade agreement progress

At the time of writing, New Zealand has 12 FTAs in operation. Since the 2018 report, the CPTPP entered into force on 30 December 2018. Under the CPTPP, New Zealand exporters gained preferential access into Japan for the first time. It is also New Zealand's first FTA with Canada, Mexico and Peru. Under CPTPP an estimated 80% of tariffs to Japan have been eliminated. Tariffs on products entering Japan in 2020 are estimated to have cost approximately $5.2 million, which is significantly down from $36 million in 2018. Apples and some other products are still subject to tariffs, though the tariff on apples will phase out to zero by 2028. The 25 markets highlighted in this report account for 98% of export earnings, of these, 13 have increased in FOB value while actual or percentage of tariffs have decreased or are nil (refer Table 7.1.1, Section 7.1).

Standout high tariff markets

Tariffs into India are exceptionally high, averaging 43% on horticultural exports and costing $22.8 million in 2020. As a percentage of export value this is the highest tariff burden of any market and partially explains the narrow range of products exported to India. Tariffs of 30 to 50% remain in place for most commodities, which presents a significant barrier to trade. These high tariff rates highlight the value to horticulture of progressing the New Zealand-India Free Trade Agreement, in tandem with the RCEP agreement, and the potential for India to become a top horticulture export destination if tariffs can be reduced.

The EU is New Zealand's largest trading partner for which there is not currently a FTA. New Zealand and the EU have been formally negotiating a FTA since June 2018 with the ambition of completing negotiations within two years. Brexit negotiations and the global pandemic have pushed out these timeframes.

Rising non-tariff measures

Previous reports have drawn attention to the range of non-tariff measures (NTM's) that include sanitary and phytosanitary (SPS) barriers. While it is acknowledged that under the various international agreements and treaties (viz. the WTO Agreement on the Application of Sanitary and Phytosanitary Measures – SPS Agreement, and the FAO International Plant Protection Convention – IPPC) countries have a right to apply the level of plant health protection it deems appropriate, any measures required should as far as possible be based on the analysis and assessment of objective scientific data. Such measures should not be misused for protectionist purposes that could result in unnecessary barriers to international trade.

In Chapter 7, NTMs are listed for each of the countries discussed in this report. A notably lengthening list of NTMs outlined in Section 7.3 is gaining prominence across a range of countries such as delays in assessing access requests, import quotas, additional import licensing requirements, extensive carton/product labelling requirements, pre-shipment inspections, and a lack of recognition of existing verification certification.

Country policies of processing only one or two access requests at a time is a particularly limiting and frustrating mechanism. In some cases, the economics of complying with phytosanitary requirements can make trade unviable, and extensive delays in obtaining phytosanitary inspection due to countries requiring on-arrival inspection of consignments are rising. Where specific products have access to a market, the cost of maintaining that access is rising and likely to require additional resourcing.

2020 TARIFFS TO JAPAN COSTS (APPROX)

$30.8m

from $36m in 2018 to just $5.2m in 2020

NZ EXPORTS TO EU ATTRACTED

$13m to $61m

in tariffs in 2020

Lack of registered agrichemical label claims for minor crops.

Trading partners' food safety concerns relating to agricultural chemical residues remain a significant barrier to expanding New Zealand's horticulture exports. Even when food safety concerns do not exist, when an overseas regulator prohibits use of a product for environmental, worker, or other concerns, the associated MRLs (maximum residue limits) are often revoked. To enable continued and expanded market access, growers need to be able to access new agrichemicals that are favoured by trading partners.

Access to new agricultural chemical active ingredients is an issue especially for minor crops in New Zealand. Older chemicals (such as organophosphate and carbamates) have or are being phased out with a lack of new chemicals being registered in New Zealand as replacement products. The few new chemicals that are registered have usually taken a very long time to proceed through the regulatory process, and sometimes have very conservative controls set for their use limiting the situations in which they can be effective. This presents pest and disease, and weed management issues as a barrier to export growth as growers do not have access to the latest sustainable pest management options. In other countries, horticultural sectors are large enough to justify investment by industry or crop protection companies, or there are ongoing government-funded programmes to assist minor crop sectors. New Zealand does not yet have a minor crop programme in place to deal with these issues. This leads to lost market opportunities due to a lack of MRLs set for minor crops in export markets.

The use of products that do not have an MRL or import tolerance set in the importing country presents residue issues that are usually managed by either avoiding the use of these control options for produce destined for certain markets, or by implementing long withholding periods to ensure residues are not detectable. This impedes the ability to sustainably manage pests and disease issues, and can affect yield and quality.

Less reliance on older chemicals, more MRLs in importing countries, and increased and more timely access to pest management options would enable growers to maximise their food safety value proposition, providing an opportunity for export growth in all sectors.

New Zealand Horticulture Export Authority

GROWING NOW FIRMLY SECOND NATURE

Words by Helena O'Neill

Dave Wilson with his produce

A long-loved pillar of Southland's community, loyalty and hard work has helped Wilson's Veges weather the pandemic and other unsettling events over the years.

Dave and Kathy Wilson are the force behind the Lochiel-based market gardens. The bulk of their produce is sold at their roadside shop on the Winton-Invercargill Highway, and the family regularly attends the Southern Farmers Market in Invercargill.

The business has come a long way from its early days when Dave brought home swedes and sold them at a roadside stall outside the family farm. That eventually developed into growing and selling his own vegetables from that roadside stall before building the shop in 1993.

The shop now sells a wide range of fresh vegetables grown on the farm as well as fruit sourced in Invercargill and essentials like milk and eggs.

"We have spinach, fennel, kohlrabi (German turnip), we do a lot of stuff that supermarkets don't actually have. It just gives us a full variation," Dave says.

"I decided that I would have a go at growing everything that I can. It keeps me out of the wholesale system and it means that I only have to go to town to buy the bananas and apples and things that I can't grow.

Then we have everything ourselves as fresh."

Supplying their own produce to local people is hugely rewarding for Dave and Kathy.

"We've stayed seasonal – Southland actually has a winter. We can't grow broccoli all year round, it's just not possible, but we tend to grow the varieties we can until late April. Once you get into May then we start getting frosts."

To help with the cooler climate, three 20-metre-long tunnel houses are used for propagating brassicas and pumpkins.

"Because our summer is so short, I start them off in there before planting them out."

The business did not escape the effects of last year's nationwide lockdown.

"We got shut down, we opened up three days later for orders. We already had a website … we actually got swamped with orders after about three days. We were starting to pick 10 days ahead of ourselves with the panic buying."

"Once we got into the box orders we were away again."

Many locals were keen to avoid going into town during the lockdown so demand remained for box orders while restrictions around trading were in place.

"We were well-supported afterwards as well. We did a lot of box orders, and with some couriers shut down or doing limited routes so we clocked up quite a few kilometres. We were delivering orders everywhere."

> **"We have spinach, fennel, kohlrabi (German turnip), we do a lot of stuff that supermarkets don't actually have. It just gives us a full variation**

Dave says a lot of leftover produce was donated to the wider Southland community through charities.

"We probably gave away over 1,500 boxes of veges. We also did two or three loads to Queenstown. I didn't want to see anything go to waste."

Both the roadside shop and website are closed from October to January, which gives Dave a break from 5.30am starts and weekday buying trips to Invercargill to pick up fruit and other supplies not grown on the farm.

"We run a dairy farm as well. We basically plough the veges in and the residue is eaten by the cows. Then we just start again with a fresh crop, there's no carryover with bugs or anything like that. It's all back into doing it all over again."

> **"We probably gave away over 1,500 boxes of veges. We also did two or three loads to Queenstown. I didn't want to see anything go to waste**

The dairy farm is run by a manager and a small number of employees, although Dave likes to help out when he can, whether it's to move irrigation or fix fences.

"It's quite nice being out on a tractor."

The whole farm is across 250 hectares but only 10 hectares is used to grow vegetables, with paddock rotations.

"We try to stay away from a paddock for 10 to 12 years."

The cooler climate means fewer sprays are needed to control pests and diseases, he says.

"We don't have any fungals – and the bugs seem to die off. So there are some advantages to being in a colder region."

Swedes have dipped in popularity over the years, while carrots and parsnips remain firm favourites.

"People who bottle vegetables love the long beetroot, we also get all sorts of orders for yellow or candy-striped beetroot. We grow the savoy cabbage and the red, we even grow the kohlrabi."

"When we go to the farmer's market, we have 43 (product) lines of vegetables."

For Dave, growing vegetables in Southland has been a labour of love for more than 30 years and he has no plans to stop anytime soon.

"I've been doing it for so long that it's second nature. I probably need a bit more practice," Dave laughs.

WSP: HELPING NAVIGATE THE STORM

Severe weather events generated by climate change are not the only storms on the horizon for the horticulture sector. We are facing a convergence of fast-moving fronts that will rock our boats: growing consumer demands, changes and challenges in the labour market, water availability and infrastructure needs – and increasingly stringent environmental regulations.

In this context, sustainability is synonymous with survival.

But what does sustainability mean to New Zealand growers and an expanding sector? Perceptions of sustainability are increasingly driven by consumers and the market, and enforced by regulation and market standards. Growing with sustainability at front of mind is now expected and required. Opting out is no longer an option.

The decisions that we make must not only consider how we look after our land, water and atmosphere, but also how we treat our staff and communities, how we handle and package our products, and what we do with our waste streams.

In parallel to these challenges, local regulators are caught up in their own storm, navigating their way through a series of waves from central government that will also hit at different times.

In most cases best practice standards to look after our environment and people are now well recognised across the industry. But implementing regulations to drive positive change is challenging in such a diverse sector.

Heavy enforcement of blanket regulations can cause perverse incentives, limiting innovation or causing damage to growers trying to do the right thing.

So many different shapes and sizes of growers, so many crops, so many different levels of formal organisation and recording! There is just no easy one size fits all solution.

So how can we drive ourselves as a sector to grow more sustainably and turn a profit, while also facing these multiple waves of challenges?

Change provides an opportunity to adapt and re-think what, where, who, and why we grow. Diversification and innovation can help us become more resilient.

There is increasingly opportunity to shift focus from high yield, to high quality, value-added products with a sustainable story to tell.

To take advantage of these opportunities, growers, industry bodies and regulators will need to work together and communicate openly with each other. Regulators need to understand what is important to growers – and growers can help provide solutions that work to regulators.

WSP offers a range of expertise to help meet the challenges facing both regulators and growers. We have practical understanding and experience with growing, and knowledge of tools such as Overseer and council processes as well as facilitation and relationship management skills. We are ready to help the horticulture sector weather these storms, and flourish in the fertile ground they will bring in their wake.

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W: **wsp.com/nz/ruralservices**

TECHNICAL

THE LATEST INNOVATIONS AND IMPROVEMENTS

OUTLOOK FOR WINTER

Words by Georgina Griffiths : MetService Meteorologist

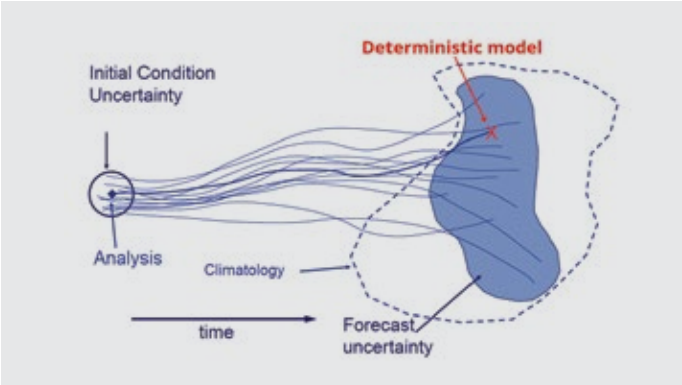

Figure 1: *The concept of ensemble forecasting to assess uncertainty*

The basics about long-range forecasting

Every grower worth their salt knows you can look at as many weather models as you like (any model, of any variety and of any resolution), and you *still* cannot get a totally accurate weather forecast beyond day five or six in New Zealand.

Things start to diverge, either in timing or in detail, or both, beyond about day five. For example, the active front moving up country is predicted to stall in the Hawke's Bay region on Saturday – but wait, hang on, some models push it into Gisborne. But wait, other models show the front moves slower than this – maybe we're looking at Sunday for that front? Which is hardly useful if you're in Gisborne and wanting to plan for a dry-weather activity on Sunday…

You can't run a single (deterministic) weather model out in time indefinitely (Figure 1). The model errors at initialisation (capturing what is happening now) grow and grow in the weather forecast model … until the forecast becomes very uncertain (effectively useless) at some point in time.

MetService handles this uncertainty at initialisation in a very clever way. We use an ensemble (group) of models, all initialising slightly differently. The general idea is to 'shake up the initial conditions' of a group of models, and see what happens. This gives an idea of forecast uncertainty. Importantly, the *ensemble mean* (average) shows predictive skill well beyond the five to six-day window – week 2 and week 3 information can be used effectively, as long as there is an experienced meteorologist in the driving seat who is assessing what weather drivers are in play, and knows when the model output looks robust and reliable.

The same concept applies to seasonal (three-month) forecasts, noting that the ensemble models are tuned more towards the underlying (slower) climate drivers.

Our usual weather drivers for New Zealand over timescales of weeks to months are:

- ENSO (El Nino Southern Oscillation)
- the Southern Ocean
- the Tasman Sea
- blocking Highs.

So what are the ensembles hinting at for winter?

After a stormy and unsettled April, the first 10 days of May saw a blocking High produce a run of very dry weather across New Zealand. However, around the middle of May volatile weather returned, with mobile weather systems and frequent fronts affecting the country between 10–18 May (as well as some low snow).

Looking ahead to winter (June to August as a whole), neutral ENSO conditions are expected in the tropical Pacific Ocean (meaning neither La Niña nor El Niño in place). The primary drivers that will impact New Zealand are expected to be the **Tasman Sea**, and the **Southern Ocean**.

For winter (June to August as a whole), lower than normal pressures are signalled over Tasmania and extending into both the Tasman Sea, and the Southern Ocean near New Zealand.

That means that both areas are forecast to run 'active' (stormy), meaning that we should expect to see a *higher than usual* number of fronts and lows in both the Tasman Sea and Southern Ocean this winter.

In short, we're in for a wild winter, folks – for the first time in several years.

For all regions, a relatively mild winter is forecast though temperature wise (Table 1). Note that this 'warmer and wetter' signal does NOT rule out heavy snowfall events, and of course any time we see a winter High staying put for a couple of days, expect the usual frosty conditions. For many areas, a wetter than usual winter is forecast – but there are some exceptions (Table 2).

You can contact MetService long-range forecasters at **consult@metservice.com** if you would like to purchase a long-range prediction for your area.

Table 1: Predicted monthly temperature anomaly for June-August, for selected locations

Monthly temperature anomaly (C)	Jun-21	Jul-21	Aug-21
Kerikeri	0.5	0.3	0.3
Dargaville	0.6	0.3	0.4
Whangarei	0.5	0.3	0.3
Wellsford	0.6	0.3	0.4
Auckland	0.6	0.4	0.4
Whitianga	0.5	0.4	0.3
Waihi	0.5	0.4	0.4
Morrinsville	0.6	0.4	0.4
Matamata	0.6	0.4	0.4
Te Awamutu	0.6	0.4	0.4
Tokoroa	0.6	0.4	0.4
Tauranga	0.6	0.4	0.4
Rotorua	0.6	0.4	0.4
Taupo	0.7	0.4	0.4
Taumarunui	0.7	0.4	0.4
National Park	0.7	0.4	0.4
Ohakune	0.7	0.4	0.4
Waiouru	0.7	0.5	0.4
New Plymouth	0.7	0.4	0.4
Stratford	0.7	0.4	0.4
Hawera	0.7	0.4	0.4
Palmerston North	0.7	0.4	0.4
Dannevirke	0.7	0.4	0.4
Carterton	0.7	0.4	0.5
Nelson	0.7	0.5	0.5
Blenheim	0.8	0.5	0.5
St Arnaud	0.9	0.8	0.7
Murchison	0.8	0.8	0.7
Westport	0.8	0.7	0.6
Hokitika	0.8	0.7	0.6
Reefton	0.8	0.7	0.6
Hanmer Springs	0.9	0.9	0.9
Tekapo	1.0	1.0	1.0
Pukaki	1.0	1.0	0.9
Omarama	1.0	1.0	1.0
Cromwell	1.2	1.1	0.9
Alexandra	1.1	1.3	1.1
Ranfurly	1.1	1.3	1.1
Roxburgh	1.0	1.2	1.0
Wanaka	0.8	1.0	0.9
Queenstown	1.1	0.9	0.8
Culverden	0.9	0.8	0.8
Christchurch	0.8	0.8	0.8
Ashburton	0.8	0.8	0.8
Dunedin	0.7	0.8	0.7
Lumsden	1.0	0.9	0.8
Gore	0.6	0.8	0.7
Invercargill	0.6	0.7	0.6

Table 2: Predicted monthly rainfall anomaly for June-August, for selected locations

Monthly rainfall anomaly (% above/below normal)	Jun-21	Jul-21	Aug-21
Kerikeri	15%	6%	14%
Dargaville	11%	4%	9%
Whangarei	3%	1%	11%
Wellsford	3%	0%	9%
Auckland	6%	0%	17%
Whitianga	8%	1%	8%
Waihi	9%	2%	7%
Morrinsville	8%	0%	7%
Matamata	8%	2%	7%
Te Awamutu	5%	1%	5%
Tokoroa	10%	1%	5%
Tauranga	11%	0%	6%
Rotorua	10%	3%	7%
Taupo	10%	-1%	4%
Taumarunui	20%	-4%	6%
National Park	2%	-5%	-2%
Ohakune	3%	-7%	-6%
Waiouru	-1%	-11%	-6%
Waiouru	6%	0%	-3%
Stratford	5%	0%	-2%
Hawera	7%	0%	-4%
Palmerston North	0%	-6%	-11%
Dannevirke	5%	-3%	-6%
Carterton	17%	3%	-3%
Nelson	26%	20%	15%
Blenheim	15%	15%	9%
St Arnaud	5%	1%	3%
Murchison	10%	-4%	1%
Westport	11%	4%	12%
Hokitika	20%	4%	9%
Reefton	15%	-2%	9%
Hanmer Springs	1%	-1%	-3%
Tekapo	20%	28%	-2%
Pukaki	13%	19%	-1%
Omarama	10%	24%	0%
Cromwell	5%	12%	-4%
Alexandra	4%	15%	-2%
Ranfurly	5%	20%	2%
Roxburgh	-1%	6%	-1%
Wanaka	-1%	5%	2%
Queenstown	4%	-4%	-7%
Culverden	7%	4%	0%
Christchurch	22%	22%	8%
Ashburton	16%	17%	6%
Dunedin	3%	15%	11%
Lumsden	0%	3%	-4%
Gore	-5%	-1%	-4%
Invercargill	1%	2%	0%

GREENHOUSE TEMPERATURE DAY AND NIGHT

Words by Elly Nederhoff : Crophouse Ltd

A warm climate wears the plants out

Improving energy efficiency in a greenhouse is partly a matter of 'hardware' such as thermal screens, but also of smart control strategy. After all, every degree higher temperature or percent lower humidity costs energy.

Our aim is reducing the energy input while achieving the best possible production and quality. This is a fine art, which in recent years has brought us new innovative approaches such as 'the new way of growing', 'plant empowerment' and control of semi-closed greenhouses.

We continue the discussion about temperature control. In the April issue, we described the many influences of the average 24-hour temperature. In May, we presented the RTR graph as a tool to balance the average temperature with the average light level. This article is about the effects of day and night temperature.

Day temperature

Day temperature has a strong effect on cell division and stretching. Plant stems stretch most in the morning, and this is stimulated by high temperature. In an experiment, tomatoes were grown at 26°C day with 16°C night temperature, and another lot was grown at reversed temperature of 16°C day with 26°C night. Young tomato plants at 26/16 day/night grew much faster, became more than twice as tall and had 18% larger leaf area than those at 16/26 day/night temperature, due to increased cell division and stretching.

Photosynthesis is a key process that happens only during the day of course, and then there is respiration at day and night (see earlier articles). We are interested in nett photosynthesis (= sugar production minus breakdown), as that determines how much sugars are available for growth. Normally, higher day-time temperature has a weak positive effect on nett photosynthesis. Only if the CO_2 concentration is 800 ppm or more, a higher day temperature has a strong positive effect of nett photosynthesis. In that situation, the day temperature can best be set somewhat higher.

Day is part of 24 hours

Remember that the day temperature makes up a large chunk part of the 24-hour temperature, and as such it influences the development rate and other processes. In the experiment described above, the number of leaves was the same in both treatments, because both had the same 24-hour temperature and thus same development rate. Also, higher day and higher average temperature have a generative effect. Also higher temperature causes faster wear and tear of the leaves.

Day temperature control

On overcast days, heating is often needed to maintain the required temperature (also to reduce the humidity, but that is separate). In sunny weather, the art is to utilise the free energy from the sun. If it gets too warm, one option is to get rid of it by venting, but new innovative greenhouse control applies active cooling and ideally puts the heat in storage. Alternatively, a somewhat higher day temperature can be accepted and compensated by a lower night temperature, to maintain the required average temperature. The use of a screen, either transparent or non-transparent, will add a new dimension to temperature control. This will come later.

Night temperature

Respiration (burning of sugars) continues day and night. Lower temperature at night is good, as it reduces the respiration and thus leaves more sugars available for growth. In contrast, higher temperature in the pre-night is good for transport and processing of assimilates that were formed during the day. Especially after a sunny day, a lot of sugars are waiting for processing, and a (moderately)

A cooler climate keeps the plants shorter and fresher

Plants stretching occurs mostly in the morning, and is stimulated by higher temperature

Temperature strongly affects the shape of young seedlings

high temperature in the pre-night will speed that up. These two requirements seem conflicting, but it sorts itself out, because after a sunny day there is plenty of sugar, so losing a bit through respiration does not matter. The RTR graph (Radiation-Temperature Ratio, see previous article) shows that the average 24-hour temperature must be higher when the radiation sum is higher. So that naturally works out well.

Too high night temperature will burn assimilates unnecessarily. Too low night temperature creates starch accumulation, making the leaves less efficient the next day. With a suitable night temperature, the plants gain a lot of useable biomass after a sunny day and look fresh the next morning. The plant heads will indicate whether the generative/vegetative balance is adequate. Again, the use of a screen adds options to temperature control at night.

> **“Young tomato plants at 26/16 day/night grew much faster, became more than twice as tall and had 18% larger leaf area than those at 16/26 day/night temperature**

Dif

Dif is the difference between day and night temperature, e.g. a day of 22 °C with a night of 17 °C gives a dif of 5 °C. Not everybody uses dif, but it can be handy. Dif should vary between the seasons and even between days. Higher dif makes plants more generative. It also stimulates stretching. For some ornamental plants, dif is chosen negative, meaning that the day temperature is lower than the night temperature. This keeps those plants short and compact.

Young seedlings

Young seedlings must grow fast to occupy the ground and catch the available light. Important processes are developing new leaves, which depend on average temperature, and stretching, which depends on day temperature. In an experiment, tomato seedlings were grown at either 18 or 21°C average 24-hour temperature. Plants at 21°C clearly got much more leaves, due to a higher rate of leaf appearance, but the leaves stayed smaller. Net photosynthesis was similar, but the available sugars were shared over more leaves. The total leaf area in both temperature regimes was practically the same. Temperature strongly affects the shape of young seedlings.

Production phase

The experiment with 18 and 21°C average 24-hour temperature continued into the productive stage. At higher temperature, the tomato plants pumped more energy into their trusses and thus became more generative. This is because higher temperature has a positive effect on:

1. rate of appearance of new trusses,
2. sugar transport to fruit and
3. fruit growth and ripening. It took 56 days from fruit set to harvest at 18°C, and only 46 days at 21°C.

The higher temperature resulted in more fruit, but smaller fruit, as they shared the available sugars. Fruit weight can be increased by lowering the average temperature or apply fruit thinning.

In addition, higher average temperature wears the plants out faster. In the experiment, leaf picking was needed earlier at 21°C than at 18°C. Hence the leaf area got 25% smaller, so 25% less sugars were available for fruit growth. In this situation, the production was considerably lower at higher 24-hour temperature.

RIGHT SOIL – RIGHT PLANT – RIGHT PLACE

opinion

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

In rural New Zealand there has been an emphatic cry for planting the right trees in the right places when seeking solutions for our nation's response to the 2016 Paris Accord Agreement regarding Climate Change.

On page 12 of the recent Climate Change Commission's Draft Report it stated "*Forests have a role to play but we can't plant our way out of Climate Change,*" a statement I completely concur with. Farming communities are rightly concerned when good agricultural farmland is being sold to carbon farming interests which are planting radiata pine trees on good productive country, which once planted will be left untended to quickly absorb CO_2 out of the atmosphere for 30 years, during which time the owners will reap carbon credit rewards. Once the pine trees have reached their carbon sequestering potential, the owners can just walk away, as to cut them down will mean all of the carbon credits will need to be paid back. I know of one 3,000-acre farm not far from the Waitomo tourist village, half of which was good Class 2, 3 and 4 soils, with four houses and extensive cattle and sheep handling facilities, which has been planted in trees in the past year to be carbon farmed. This land will likely now forever lose its food producing ability, and future generations of Kiwis will not be able to earn income or produce food from it. If pine trees are to be planted to offset carbon emissions, this should be restricted to poorer Class 6, 7 and 8 soils in my opinion.

A similar threat is happening to elite Class 1 and 2 soils around the country suitable for intensive horticulture, but for these, pine trees are not the threat. Instead it is urbanisation, as our towns and major cities keep expanding out with human population growth. Many of our regional towns and even some major cities are built around highly productive soils, as both Māori and early European settlers recognised their ability for producing food crops to feed the masses. Class 1 soils are highly versatile soils which are either flat or easy rolling with no limitation in terms of climate (not too wet, too dry, too cold or liable to be covered with snow), drainage, flooding, erodibility, topsoil depth, and its arability for cropping or pastoral farming. Class 2 soils are also either flat or easy rolling but with slight limitations in terms of their climate, drainage, susceptibility to flooding, erodibility, topsoil depth and arability for cropping or pastoral farming. Class 1 and 2 soils make up approximately 10% of New Zealand's land mass, but only a small fraction of this is suitable for intensive vegetable production. It is estimated that 15% of our Class 1 soils and 10% of our Class 2 soils have now been lost to urbanisation. However, in the Auckland region 40% of its Class 1 soils and 44% of its Class 2 soils have now been lost to urbanisation; land that will never return to food production.

Land use changes have always been happening, largely driven by commercial returns as well as the interests of the landowners. Over the past thirty years, the amount of land in dairying has increased 70%, whereas sheep farming land has dropped 53%, and beef farming dropped 19%, largely due to conversions to dairy farming. Irrigated land has increased threefold, which has enabled conversion to dairy farming in Canterbury and Otago in particular, and also 515,000ha has gone into forestry over this time. There has also been significant intensification from horticulture, particularly from kiwifruit, avocado and vineyard expansions, and further development of specialist horticultural crops is likely to continue into the future. Vegetable growers have also had to spread their wings into areas such as the dairying heartland of the Waikato as land around Auckland has become increasingly expensive to purchase or is swallowed up in housing, roading and other city infrastructure developments.

"I know of one 3,000-acre farm not far from the Waitomo tourist village, half of which was good Class 2, 3 and 4 soils, with four houses and extensive cattle and sheep handling facilities, which has been planted in trees in the past year to be carbon farmed

> **Class 1 and 2 soils make up approximately 10% of New Zealand's land mass, but only a small fraction of this is suitable for intensive vegetable production**

With renewed focus on environmental sustainability in terms of greenhouse gas emissions, soil losses, and pollution of our streams, rivers, lakes and the ocean, further intensification of land use is becoming more difficult. It is now very difficult to convert from sheep farming to dairy farming anywhere around the country as councils require proof that the conversion will not increase environmental degradation, a feat which is almost impossible to achieve. Technically it is now difficult for growers to convert pastoral farmland into vegetable production as the environmental footprint from vegetable production is usually a lot larger than for livestock. However, government and many Councils recognise the importance of intensive horticulture for food production, so new developments are not encumbered with having to come below the current thresholds to which pastoral farming enterprises have been restricted.

Over the past thirty years, the amount of land in dairying has increased 70%, whereas sheep farming land has dropped 53%, and beef farming dropped 19%

A scientific article appearing in the 25 March issue of Nature journal entitled *"A trade-off between plant and soil carbon under elevated CO_2"* compared carbon sequestration under grassland to that under trees and forests. What the researchers discovered was that soil organic carbon levels grew more under grasslands than under trees, and they attributed much of this to the different microbial communities. The symbiotic associations between differing plant and mycorrhizal fungal species as well as nutrient availability plays significant roles in the development of Mineral Associated Organic Matter (MAOM) which is the desirable non-degradable carbon often referred to as humus, which fungi have broken plant materials down into. Arbuscular mycorrhizae which associate more with grassland species enhance MAOM production much better than ectomycorrhizae which associate with most tree species. According to this study, with increasing atmospheric CO_2 levels, trees grew a lot more above ground biomass, but this did not result in the long-term build-up of soil organic carbon, whereas under grassland the above ground biomass was less, but soil carbon levels increased.

> **It is estimated that 15% of our Class 1 soils and 10% of our Class 2 soils have now been lost to urbanisation. However, in the Auckland region 40% of its Class 1 soils and 44% of its Class 2 soils have now been lost to urbanisation; land that will never return to food production**

The study analysed more than 100 experiments worldwide in which soils, plants and trees were exposed to higher CO_2 levels than in today's atmosphere. Cesar Terrer who led the research from Stanford University, when discussing the implication for planting trees as a solution for climate change stated *"What I found very concerning in that debate is that people were suggesting planting trees in natural grasslands, savannah, and tundra. I think that would be a terrible mistake because, as our results imply, there is a very large potential to increase soil carbon storage in grasslands."* The amount of organic carbon stored worldwide in soils is about three times that in living plants and double that in the atmosphere. Soils can also store this carbon for centuries, whereas plants and trees rot quickly after they die.

There are of course other ecosystem benefits that planting trees, both natives and exotics, can provide, such as improved soil stability on vulnerable hill country, less faecal bacteria and lower amounts of nitrogen and phosphorus run-off into waterways, and in some cases increased biodiversity. However, the economic and social impacts on rural communities need to be considered in the debate of planting good pastoral land into trees. The same can be said for intensive vegetable production on grassland where overall food production and employment is far greater than what farming livestock can provide, even though the environmental cost may be greater. The challenge for vegetable and arable crop growers in the future will be to retain the soil organic matter which has built up over the previous decades and centuries on these limited Class 1 and 2 soils upon which much of our nation's food production depends.

PRODUCT GROUPS

ALL THE LATEST NEWS FROM YOUR PRODUCT GROUPS

HYGIENE MEASURES FOR GREENHOUSES

By Helen Barnes : General Manager, TomatoesNZ Inc.

We have designed a poster on general greenhouse hygiene measures for staff, so you can display this prominently at your site. This poster provides common sense measures that are recommended for staff and visitors to prevent an infection in your greenhouse and minimise spread. The posters will be made available to all TomatoesNZ members. If you want further copies or more information on this please contact us.

Grower energy workshops

We hosted two workshops (in Christchurch and Pukekohe) in May focusing on energy for greenhouse growers, with over 100 people attending across the two events. Speakers covered several topics including:

- Energy efficiency measures for greenhouse growers.
- Low carbon greenhouse heating technologies.
- Using sustainable heating from biomass and crop waste.
- Learnings from growers undertaking energy efficiency changes and transition measures, along with tips for growers to consider.
- The development of a greenhouse industry decarbonisation plan with the Energy Efficiency & Conservation Authority (EECA).

There is an article on the Christchurch workshop on page 46. Presentations and other resources are available on the TomatoesNZ website **https://www.tomatoesnz.co.nz/hot-topics/energy.**

Consultation on coil boiler ban

Last month we worked with HortNZ to submit on the Ministry for the Environment (MfE) proposal for phasing out fossil fuels on process heat.

Our key points were on:

- The thresholds for "low-greenhouse-gas (GHG) emitting" sites, ensuring there is provision for fossil fuel boilers as back-up for security of energy supply and dealing with peak loads; and the definition of small versus large users.
- Provision for industry level guidance on best practice and also on the process for responding to councils on what is economically and technically feasible for a greenhouse business and for the region. This included examples of where growers have looked at non-fossil fuels options and determined these are not economically and/or technically feasible and why.
- Feedback on the timeframes for phase out of fuel types (coal and other fossil fuels). We emphasised the need for a clear transition plan which includes allowing for a regular review of the alternate energy options available by region and requirement. These are difficult to predict right now and it is important flexibility is built in to any policy to allow businesses the ability to operate and transition sensibly. This needs a collaborative practical approach over time to support efficient and effective transition and to avoid assets being stranded by policy moving too fast.
- Emphasising the importance of local fresh and healthy fruit and vegetable supply, noting the opportunity cost of importing with the loss of food supply on a national and regional level, and lack of food security for New Zealand.
- Noting the use of CO_2 produced by gas and the need for best practices to manage situations where it may not be feasible to transition away from gas

MfE have advised they will be using submission feedback to guide their draft which will be published later this year, and there will be an opportunity to provide further feedback on this before it goes to the Parliamentary Counsel Office. They have indicated this will be in August or September 2021. In addition, the Ministry of Business, Innovation and Employment (MBIE) are drafting an emissions reduction plan in August–September and will be seeking industry feedback on this.

> **We emphasised the need for a clear transition plan which includes allowing for a regular review of the alternate energy options available by region and requirement**

Update on FTEK tomato automation project

In mid-May, Auckland members of the TomatoesNZ board had an update with FTEK on the development of a labour-saving robot for tomato growers. Following the initial design and digital stages, FTEK are on track for development of a physical prototype in June. We look forward to learning more on this exciting and innovative automation for the industry as it develops over the next two years.

Topics for Covered crops growers at the Horticulture Conference, 5 August 2021

At the Horticulture Conference on Thursday 5 August, we are planning a series of short sessions for covered crop growers. Topics will include:

- Greenhouse hygiene practices – practical steps for growers.
- How to make the best use of biocontrols in your greenhouse, crop scouting, and an update on the latest biocontrol research.
- Energy plans for the greenhouse industry.

The TomatoesNZ Inc Annual General Meeting will be held at the Horticulture Conference at Mystery Creek at 4.15pm on Thursday 5 August 2021. The conference runs over two days and this year the theme is *"Resilience and Recovery."*

> **Emphasising the importance of local fresh and healthy fruit and vegetable supply, noting the opportunity cost of importing with the loss of food supply on a national and regional level, and lack of food security for New Zealand**

TomatoesNZ will again be offering funding support for members who wish to attend our AGM and the conference. Please contact us to confirm arrangements for this prior to registering which can be done at: https://conferences.co.nz/hortnz2021/

As we have limited numbers available we suggest registering early so you don't miss out on a place.

Board nominations

Current board members Callum Grant from Kakanui, and Albert Shih from Canterbury, retire by rotation this year and both have confirmed they will make themselves available for re-election. In addition, there is currently also one vacancy for an elected board member.

If you are a tomato grower interested in joining the board, please get in touch with me to find out more.

Helen Barnes, TomatoesNZ, **helen.barnes@hortnz.co.nz**.

SUSTAINABLE VEGETABLE SYSTEMS PROJECT PROGRESSING DESPITE A YEAR OF PANDEMIC DISRUPTION

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

SVS team

Sustainable Vegetable Systems Project progressing despite a year of pandemic disruption

Problem Recognition

The government has identified New Zealand Freshwater as needing better management and stewardship.

One of the contributors to freshwater quality issues is nitrate leaching.

Vegetable Production & Opportunity

Nitrogen is a crucially important component for all life. It is needed to make chlorophyll in plants, which is used in photosynthesis. Vegetable growers use nitrogen in the form of fertilisers to produce food.

Microbial processes in the soil are important for making nitrogen available to plants, but can also produce nitrous oxide.

Nitrogen in excess of plant demand can leach from soils into waterways, causing algal growth and resulting in oxygen depletion for other water species. An additional problem can occur during nitrification and denitrification. When the chemical process is not completed, nitrous oxide (N_2O) can be formed. This is of further concern as N_2O is a potent greenhouse gas contributing to global warming.

Although the Sustainable Vegetable Systems (SVS) project is focussed on outcomes for grower nitrate management which will indirectly improve freshwater, there may be beneficial outcomes also enabling industry to meet government emission targets in the not-too-distant future.

Broccoli SVS trial plot

(*He Waka Eke Noa* the partnership between government, Māori and the Primary Sector is addressing the goals for reducing greenhouse gases. All Primary Sector industries will need a programme to provide information and tools to reduce on-farm greenhouse gas emissions).

The solution

SVS aims to improve vegetable crop modelling tools to get accurate information on nitrogen leaching. Both existing modelling tools like Overseer and APSIM (Agricultural Production Systems Simulator) and more management focused tools are being used and developed in the SVS research project.

Controlled field trials and intensive on-farm monitoring of soil and plant nitrogen will generate data that can be used to better inform the modelling tools. Additionally, SVS will develop grower facing tools, empowering growers to better manage nitrogen leaching.

These grower facing tools will be developed with grower collaboration and may include digital tools, benchmarking, fact sheets, best practice guidance for nitrogen, individualised nitrogen reports, predictive tools, training for growers and/or agronomists, or workshops.

The Desired Outcome

SVS aims to secure New Zealand growers' social and regulatory licence to grow vegetables for domestic and export markets.

Sustainable Vegetable Systems (SVS) Report May 2021

We are part way through the first year of SVS with milestones achieved and promising outcomes for New Zealand vegetable growers from the field trials and research.

The SVS Governance Group and invited observers attended a Carbon, Nitrogen & Mitigations workshop in mid-May, followed by a Governance Group meeting.

The day ended with a site visit to Plant & Food Research (PFR) Lincoln's vegetable plots where rotations of potatoes, winter wheat and broccoli will be followed later by onions. The Hawke's Bay PFR trial plots are also underway.

A team of 25 at PFR have contributed to the SVS project so far, and at Lincoln they have appreciated the expert grower advice from Allen Lim and his team in field, with their time and equipment assisting in drilling as well as hand-cut harvesting of broccoli to come. Allen has worked with PFR to implement Good Management Practice (GMP) in some trial plots to ensure that management of the crop accurately reflects 'typical' grower practice.

This has gone so far as selecting what to harvest and what to leave behind in order to measure nitrogen being contributed by the crop residues. GMP is influenced by the latest research, agronomists' advice and is tailored to the site.

In the photos you can see markers for where different nitrogen treatments and various irrigation regimes have been applied to create different treatments. There are oats planted as buffer zones between the vegetable crops to avoid fallow ground.

Soil moisture is also monitored on the top surface as well as at 1.5 metre depth with probes.

Progress

Workstream 1 – Controlled experimentation to quantify nitrate leaching

The PFR Literature Review has been completed and showed a scarcity of data on nitrate leaching in vegetable crops in New Zealand. The review found that much of the available data was out of date and often based on estimations of leaching rather than empirical data.

SVS Governance Group visit PFR Lincoln trials

At PFR Lincoln, Rotation 1 has completed the potato and wheat part of the rotation, and the subsequent crop of broccoli has been planted. The Rotation 2 pak choi has just finished, and data compilation is being completed. The subsequent cover crop of oats has been sown.

The initial analysis of the potato and wheat crop of Rotation 1 indicates that there was no effect of previous potato crop nitrogen (N) treatment on yield of the subsequent wheat crop. However, the uptake of nitrogen by wheat was higher in the N4 treatment, due to higher soil nitrogen at the time of sowing wheat. Soil nitrogen decreased during the growth of wheat crop, and at final harvest averaged 20 kg N/ha for treatments N1, N2 and N3, but 49 kg N/ha for treatment N4 to a depth of 90cm. **Thus, it appears that wheat used the available soil nitrogen well, but leaching data is still to be completed before a final conclusion can be made.**

In Hawke's Bay, the pak choi crop of Rotation 2 has been sown, and measurements are underway. Preparations are being made for sowing onions in Rotation 1 in early spring 2021.

Workstream 2 – Regional on-farm monitoring

Monitoring continues on the nine regional farm sites. All sites have completed or are just about to complete their first crop, and are now in fallow or have recently had their second crop planted. Workstream 2 (WS2) will provide individualised benchmarking reports to monitoring site growers for their feedback.

SVS continues for all 4 workstreams

WS1 trials in Hawke's Bay Rotation 2 will commence with onions.

WS1 trials in Lincoln include the planting of broccoli following wheat, and a cover crop of oats following pak choi. These are very intensive plantings in order to get the most from the time available, and therefore require careful planning to ensure compatibility of the following crops.

WS2 will complete the first round of monitor site surveys and collate the monitoring data into the database. This will be tested to ensure it meets the requirements of PFR and the subsequent modelling group's use of data from these sites.

Workstream 3 – Modelling

An agronomy and modelling workshop was held in mid-May. This is to ensure the crop physiology is being captured correctly. The SVS team appreciated input from vegetable grower Jay Clarke at this workshop.

A crop modellers' workshop is being held in June. While the first modelling workshop was focussed on Overseer, the second will look at wider benefits in terms of modelling crops and nitrogen leaching.

Workstream 4 – Dissemination

A baseline survey of growers is to be conducted in June by research contractors Folkl, to understand vegetable grower knowledge of nitrogen leaching and problem recognition.

PFR will then follow up with the social science aspect of WS4 with grower focus groups and interviews. The gathered information will help the SVS team create the best implementation and engagement for growers.

It is imperative that we are guided by growers to improve the tools they have to manage nitrogen in their farm systems.

We encourage all vegetable growers who are contacted and asked to participate in the SVS survey, focus groups or interviews to please do so, knowing you are helping secure a sustainable future for your industry.

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 Research & Innovation and HortNZ.

GOVERNMENT LEADING RATHER THAN JUST TAXING

Words by Antony Heywood : General Manager, Vegetables New Zealand Inc.

Current heating for greenhouses

Here is an idea – let's get the government to lead climate change initiatives rather than imposing tax on climate change inputs.

They could start by getting their own business to offset their emissions. Only the Energy Efficiency and Conservation Authority (EECA) can stand up a take a bow – it has a carbon neutral policy and is actively driving this policy. What about other government departments?

Climate change will have an effect on all New Zealanders. Moves to ensure the survival of our piece of the planet will increase the price of resources. When adapting to climate change, the biggest impact will be in agriculture. While not as significant as agriculture, horticulture will also be affected by climate change. The price of fertiliser will go up, so will the price of energy and fuel as well as the cost of compliance. Growers are currently absorbing this cost, but it is now at a tipping point. The price of food needs to go up to cover production cost increases.

A 2019 New Zealand Institute of Economic Research (NZIER) report showed that in real terms, the price of produce has not changed in eight years. The price of food has gone up, but the farmer has not received any of the increase. With the costs associated with climate change, this situation needs to be addressed. If we do not have a diverse base of growers located in all regions of New Zealand, the price of food is likely to increase anyway. Fewer and larger growers will change the supply/demand balance, moving New Zealand away from a supply centric model. Moreover, what of food security? Covid-19 has shown us that it is important to have food grown in all regions of our country so that we can feed our people.

“Climate change will have an effect on all New Zealanders. Moves to ensure the survival of our piece of the planet will increase the price of resources. When adapting to climate change, the biggest impact will be in agriculture. While not as significant as agriculture, horticulture will also be affected by climate change

When it comes to being carbon neutral, it is easy to offset the carbon emission on air travel. Air New Zealand has carbon offsets – just click a button and pay some money. This offset is usually given to an organisation to plant and grow trees. A highly commendable practice. The other offset that is used is a carbon credit, like a certificate, which is traded on an international exchange – a certificate that allows some other country to grow trees or build a renewable solar energy farm.

Here is a thought – what if New Zealanders could invest, by way of carbon offset, in New Zealand renewable energy projects? These projects need not be wind farms. They could be a coal boiler conversion in a glasshouse or a school, building New Zealand resources for the betterment of New Zealand people. Here is an even crazier idea – what if the government set the example and started this offset project? Maybe the carbon offset for the Ministry for Primary Industries could be commercial heat pumps in all South Island glasshouses.

Now is the time for us to think outside the box to deliver good outcomes to protect our food security system. New Zealand needs our growers to be in the regions supplying food and places of work. Fresh and nutritious food is vital for New Zealand to remain healthy. Now is the time for New Zealand to look after New Zealand.

> **There are some growers who use process heat in glasshouses to grow leafy greens who do not get access to ETS credits. That means those growers have being paying an additional tax compared to other glasshouse growers to grow their crops**

The Emissions Trading Scheme (ETS) credit system is not an equitable tax system for carbon. There are some growers who use process heat in glasshouses to grow leafy greens who do not get access to ETS credits. That means those growers have being paying an additional tax compared to other glasshouse growers to grow their crops. Is this fair? Should they now not be able to use that tax to gain some benefit – pay it forward for a new commercial heat pump?

VNZI BOARD ELECTIONS – 2021

Director nominations open: 17 June

Director nominations close: 5pm, 8 July

There are two vacancies available for an elected Board member.

Current Board member, John Murphy, retires by rotation this year and has confirmed is available for re-election.

Current Chair, Andre de Bruin, retires from the VNZI Board and Chair position on 5 August 2021.

Any vegetable grower interested in joining the VNZI Board should contact VNZI General Manager, Antony Heywood on **021 998 038.**

GETTING READY FOR A NEW PEST – FALL ARMYWORM

Words by Leanne Stewart : General Manager, Process Vegetables New Zealand

Fall armyworm larvae and damage to a corn ear, Image source: University of Georgia, Bugwood.org. Creative Commons 3.0

At the April board meeting Process Vegetables NZ (PVNZ) participated in a biosecurity simulation to prepare for a potential future incursion of Fall armyworm (Spodoptera frugiperda).

The reason PVNZ focused on Fall armyworm in the simulation is because it is known to be a significant pest of vegetable and arable crops worldwide, causing extensive damage when incursions of the pest go unmanaged. Of concern, Fall armyworm was detected in Australia in February 2020 and has since spread across states, including to Tasmania. It has also recently been detected in New Caledonia and Norfolk Island, indicating it is progressively getting closer to New Zealand.

PVNZ was joined by representatives from processing companies, Biosecurity New Zealand, Vegetables New Zealand, the Foundation for Arable Research and HortNZ, who facilitated the simulation.

The focus of the simulation was a mock response located on a sweetcorn farm in Gisborne belonging to a commercial process vegetable grower. In the simulation the Fall armyworm was detected by a crop advisor walking the field who noticed unusually severe damage to sweetcorn plants. The crop advisor did the right thing and phoned the Ministry for Primary Industries (MPI) Pest and Disease hotline (0800 80 99 66) and was told to collect the caterpillar and take photos of the damage to the infested plants. Based on the photos and sample taken, MPI identified the caterpillar to be Fall armyworm, which is not established in New Zealand and is considered to be an unwanted organism.

Given PVNZ is a member of the Government Industry Agreement for biosecurity this then triggered a response, and it was agreed by industry and government decision makers to formally stand up a response. In this simulation groups were formed and each team member was given a response role to practice how they would each contribute in a genuine response; these included a response controller, intelligence, planning, operations, logistics, public information and welfare.

Each group went through the response information available and discussed what they would do in their first three days of responding. It was good to see that all groups focused on important considerations such as tracing any movement of sweetcorn or plant material, management of the organism, supporting the impacted grower, communication with industry and any market access implications.

Simulations are a great way to understand how biosecurity responses work. They develop biosecurity response capability so that when a response occurs the board and others who participated in the simulation know what to do and contribute their skills if necessary.

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PLUTONUS: Standard PLK variety with very long storage. High yield potential for long storing crops. Very attractive skin colour, attractive globe shape, vigorous tops.

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CABERNET: Dark red, globe shape bulbs with good early internal colouration. High yielding even from later sowing. Medium term storage.