NZGROWER®

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HORTICULTURE NEW ZEALAND

GROWERS HIT BY TRIO OF RAIN EVENTS

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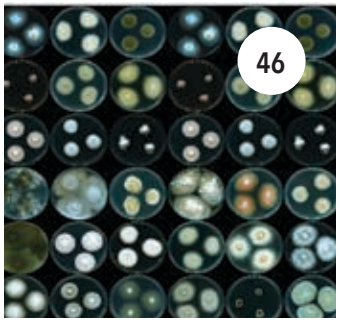

ON THE COVER:

Gisborne growers hit by trio of massive rain events, see page 26. Photo by Kristine Walsh

WHAT'S NEW

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

THE POSITIVES IN CHANGE

Barry O'Neil : HortNZ president

I was reflecting recently on how, within such a short period, there have been huge changes in our country, our business and our lives.

As the saying goes, 'the only thing constant in life is change', and it seems to me we have had more than our fair share over the past couple of years!

And while the primarily Covid-19 driven change has been hard, the impacts of too many disconnected government policy changes have been just as hard. But rather than go into a dark place, I thought I would try and focus on the positives of where we are at.

We just have to look back in time to see that change and disruption create opportunities, such as what happened to Blockbuster, with Netflix going on to become a real winner, at least until the competition caught up!

So with the plethora of difficult challenges that are facing us at the moment, are there actually some opportunities that we could be pursuing?

Firstly let's not lose sight that we have a winner when it comes to what we are growing – amazing fresh fruit and vegetables! We have the most environmentally friendly primary sector growing system, and we are not destroying the planet when we grow our crops. And if we add in the benefits of the natural and healthy produce that goes out of our gates, which people are needing more of in their daily lives, we definitely have a winner.

Surely this alone should be sufficient for future success? Unfortunately that's not so, as all of us have had huge increases in our production costs. As a result, we must continue to grow the value of our produce for our businesses to stay profitable.

The opportunity here is to do more and better in promotion of both the health benefits and the environmentally sustainable way in which we grow. Yes, I realise there are still some growing issues to improve on, which we are all proactively working on. But when I compare where we are at to others in the primary sector, I think we should be proud of what and how we are growing.

> "The opportunity here is to do more and better in promotion of both the health benefits and the environmentally sustainable way in which we grow

Zespri spends significantly on promoting Zespri kiwifruit, both the health aspects and the way in which it is grown. As a result, they have obtained significant premium from consumers. As an industry, we definitely don't want to be stuck in the commodity market in a race to the bottom. Rather, we need to be at the top of the 'food chain' in the healthy, added value space, in the consumer ready-to-eat market.

We are not all Zespris but can't we work together and with government to get greater leverage? 5+ A Day and United Fresh do great work domestically, but we all know we could be doing more.

Focus on health and wellness

In a Covid-19 world, where people have a real focus on their family's health and wellness, we need to be doing everything possible to promote the health components of our products over and over again. We already have some great messages, such as our produce contains antioxidants, vitamins and minerals, and is low in fat and calories. But now, with Covid-19 affecting all aspects of our lives, staying healthy is an even greater focus for nearly all the people of the world.

If free range eggs can command a premium in the market, surely we must be able to drive greater value with our healthy, natural, environmentally friendly products, in a world that is wanting and needing healthiness.

Our plant breeders provide real opportunities for us to not only produce even better vegetable and fruit varieties, but also to develop new categories that we are not currently growing, or that will grow better in a changing climate. Our primary

sector's success has been based on amazing animal and plant breeding, such as the fantastic work in the apple and kiwifruit industries. Horticulture has developed in New Zealand due to plant breeders. Let's make sure we keep supporting them and give them the tools they need to succeed.

> **If free range eggs can command a premium in the market, surely we must be able to drive greater value with our healthy, natural, environmentally friendly products, in a world that is wanting and needing healthiness**

Arguably up to now, we haven't had to face so starkly the fact that people are critical for our success, but we sure do now!

We are putting huge efforts into recruiting and retaining staff, and putting more effort into looking after our staff and their welfare. We have succeeded in employing 10,000 more Kiwis in horticulture and other primary sector roles, which is a fantastic result.

> **We need to stop behaving like they are 'ours' and move to a mindset where sharing limited critical resources in quieter periods with others can achieve better outcomes for all**

> **In these rapidly changing times, try to stay positive and look for those opportunities that exist in your businesses**

Collaboration key

There is more opportunity I believe with our workers to be had from collaboration. We need to stop behaving like they are 'ours' and move to a mindset where sharing limited critical resources in quieter periods with others can achieve better outcomes for all. This is already starting to happen, but we can do a lot more. I have always been of the opinion that while we might be competing in the market place, we don't need to compete with each other when it comes to growing, rather, we should be collaborating.

Another more difficult opportunity, which has reared its ugly head with the Russian invasion of Ukraine, is the impact of sanctions and trade bans that have been implemented overnight. A reflection on this would make smart companies take the opportunity of moving to redress any current over-dependence on a single market or country, as this can come with significant risks in today's world. And while the prize might be so fantastic that it tempts us to send more and more to that market, it's not a smart situation to be in if the door to that market closes shut overnight.

In these rapidly changing times, try to stay positive and look for those opportunities that exist in your businesses. And let's make sure we take the opportunity to look after each other.

Kia Kaha. ●

NZGROWER

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Your Levy AT WORK

MPA Associate Member (NZ)

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PLANNING AND WORKING TOWARDS A BRIGHT AND PROFITABLE FUTURE

Nadine Tunley : HortNZ chief executive

Work has picked up again on the horticulture industry-led, government enabled action plan that is being developed to support our industry to reach the Fit for a Better World target. That is, to improve grower margins and double the farm gate value of production – from $6 billion to $12 billion by 2030.

The work is government funded through the Ministry for Primary Industries (MPI). They have engaged KPMG who will consult with our industry on the opportunities and challenges we need to leverage or overcome to ensure we can meet the improved grower margins and doubling of farm gate value target.

KPMG and MPI have distilled a lot of feedback to reach five focus areas, after working with product groups early on and then more recently, the governance group:

1. Mitigation and adapting to climate change
2. Value-add products, services and markets
3. Māori in horticulture
4. Resilient cultivars and an innovation science system
5. Sector attractiveness and workforce education and training.

Within these areas, a number of topics are captured – water availability and storage, improving land use, access to new high value markets, increasing access to capital, adopting new cultivar development technology, improved labour certainty, and so on.

In the current operating environment, it is tempting to focus on the biggest pain point – labour – and not pay enough attention to the other factors that will make our industry a success. It is also human nature to want to get going on everything at once, even though that is unaffordable as well as unsustainable – sustainable being a word that comes up a lot in conversations about our industry.

Need to get on same page

The aim for this action plan is that it focuses on a few key critical areas which are important to everybody, growers, product groups, research and development agencies, and central and local government. An important message is that the action plan cannot be all things to all people, but I believe that it can facilitate unification through the agreed focus areas and a staged plan that will guide priorities and investment over the next eight years.

Most people know the riddle, 'How do you eat an elephant? One bite at a time.' A lot of what our industry has to contend with at the moment seems like an elephant – just too big to know where to start to make progress. Reflecting on the current season stresses and strains makes me all the more determined to start making more progress in key areas such as labour, climate change, new varieties and better market access, so we have a more prosperous future outlook.

We are some of the best producers of fruit and vegetables in the world, therefore now is not the time to rest on our laurels. Our competitors are hungry for some of the reputation and market share that New Zealand has.

Covid-19 has sharpened the knives and many countries have far more money to spend on research and development than New Zealand does. That is why we must focus and plan, and look at ways to work together so what we have goes further.

In a workshop earlier this month, one of the governance group members suggested that the horticulture sector needs to look at its culture and through leadership and communications, find ways to become a high performing team. Because, if we were to become a high performing team, we would find that we had all the answers.

The diversity of our sector is one of its strengths but it is also one of its weaknesses. In the post-Covid world – whatever that looks like and we do not know what it looks like yet – those high performing teams, sectors and countries will have a distinct advantage.

As a country, our overall productivity is low. Horticulture – already highly productive – can help reverse that trend, but only if we come together and speak as one, so that those that make policy and investment decisions understand us and as a result, make the right decisions for our sector and the country.

Get involved

So get involved! Have your say, so we can agree on our priorities and a logical course of action. For 2030 is not very far away at all.

Look out for opportunities to have your say over the coming weeks. KPMG will be organising a series of Zoom meetings due to uncertainty around Covid-19 and the busy time of the year. ●

To take part, please email Justine Fitzmaurice on **jfitzmaurice@kpmg.co.nz.**


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YOUR LEVY AT WORK

INDUSTRY WIDE ISSUES FOR INDUSTRY GOOD

7 NATURAL RESOURCES

NATURAL RESOURCES AND ENVIRONMENT

Michelle Sands : HortNZ environment manager

Hawke's Bay Outstanding Water Bodies – Mediation

Hawke's Bay Regional Council Plan Change 7: Outstanding Water Bodies proposes to change the Regional Resource Management Plan (RRMP) to include a list of the region's outstanding water bodies, together with a framework that prescribes a high level of protection for these water bodies in future plans.

The water bodies identified in the proposed plan change are the 'best of the best', featuring exceptional cultural, spiritual, recreational, natural character, landscape, geological, or ecological values which are remarkable in Hawke's Bay.

The decision on the plan change was appealed by parties wanting to add more water bodies and more criteria. Horticulture New Zealand has joined the appeal and is participating in the mediation.

HortNZ's involvement in the mediation is to help make the plan provisions clear and easy to understand for future plan users. We want to ensure that the identification of outstanding water bodies and their significant values is related to the purpose of the National Policy Statement for Freshwater, and that only those water bodies that are truly outstanding are captured by the plan change.

HortNZ and its independent planning participated in the mediation in April. Our mediation team has drawn on ecological and recreational experts to assist with developing outstanding criteria.

National Policy Statement for Highly Productive land

The Ministry for the Environment developed a discussion document on a proposed National Policy Statement for Highly Productive Land (NPSHPL) in 2019.

HortNZ and other grower organisations submitted on the discussion document. HortNZ was supportive of the proposed statement as it recognises the importance of highly productive land for domestic food supply and low emissions food production.

We highlighted the tensions between highly productive land and urban development that result in the loss of productive soils and the reduction in the productive capacity of land due to reverse sensitivity.

HortNZ also highlighted tensions between the use of productive soils and freshwater policy. This issue has been further emphasised with the recently proposed National Environmental Standard for Drinking Water. HortNZ has sought national direction that supports decision making where local trade-offs are required to achieve national outcomes, recognising that a resilient domestic food supply and lower emissions food production are nationally important outcomes.

The government's work on the NPSHPL was delayed due to Covid-19. The government intends to adopt a policy for highly productive land this year.

The Ministry for Primary Industries has been undertaking very targeted consultation on the draft NPSHPL. It has spoken to HortNZ and growers, as well as other primary sector organisations, Local Government New Zealand and Te Mana Whakahaere.

National Policy Statement for Freshwater – Regional Value Setting Work

The National Policy Statement for Freshwater requires regional councils to develop Freshwater Plan Changes by 2024 to implement the National Policy Statement for Freshwater (NPSFM). The NPSFM includes a process for communities to have input which requires freshwater vision, values and outcomes to be set along with a planning process that implements freshwater limits to achieve the outcomes over time.

Regional councils are starting conversations with their communities on vision and values for freshwater. HortNZ is having discussions with several regional councils and is in the process of establishing regional grower reference groups to ensure that growers' voices are heard.

One of the issues we are highlighting to regional councils is that the NPSFM vision is about freshwater pressures and future catchment uses. Councils must give effect to Te Mana o Te Wai and apply the hierarchy of obligations when setting a freshwater vision. The vision for freshwater should speak to freshwater outcomes and limits and therefore needs to reflect the hierarchy of values associated with the use of water in particular catchments.

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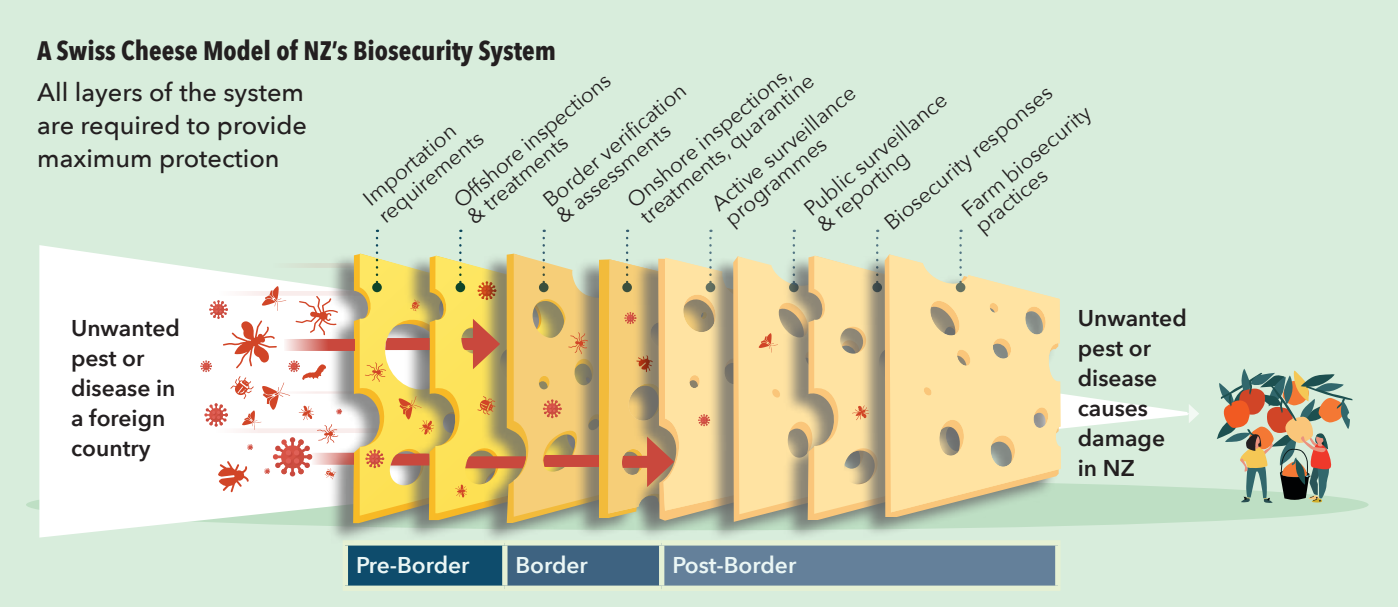
A GUIDE TO NEW ZEALAND'S BIOSECURITY SYSTEM

Eve Pleydell : HortNZ risk policy advisor



Each layer of the system has imperfections or vulnerabilities (holes). If each layer is functioning well, it is harder for multiple holes to line-up
Credits: Original source – James Reason, adapted from Ian Mackay's interpretation

Part 1: All layers of the system are required to provide maximum protection

Key messages

- New Zealand's biosecurity system is made up of many layers
- Multiple people and organisations are required for it to function well
- Primary producers play important roles across the system

During a recent biosecurity presentation, a speaker suggested that the Swiss cheese model could be used to illustrate how the different layers of the biosecurity system work together to provide protection. In this article I'm taking that idea and exploring it further.

The Swiss cheese model was developed in the 1990s by the psychologist James Reason to illustrate how accidents may happen. In this model, each layer of defence against an accident is illustrated as a piece of Swiss cheese with random holes. The slices of cheese are arranged in a line one after another and accidents happen when the holes line up from one end of the line to the other. While this model has been applied and maybe even misapplied to many different situations, it can be used to provide a simplistic, but helpful overview of the biosecurity system.

It is tempting to think of the biosecurity system as being the things that the Ministry for Primary Industries (MPI) does at the border to protect New Zealand from being invaded by unwanted pests and diseases. That is certainly one of the most public facing aspects of the biosecurity system, but equally important things happen offshore (commonly referred to as "pre-border") and onshore here in New Zealand (commonly referred to as "post-border"). In a series of short articles, we'll take a closer look at each of these parts of the system, but for now let's consider some of the holes in the biosecurity cheeses.

In his original model, James Reason described two types of holes, which he termed "active failures" and "latent conditions." Thinking about how this applies to biosecurity, a system failure could be considered an active failure. This could be something arriving in New Zealand that the system as a whole was not expecting and was unprepared for. The importation regulations did not cover it, it was not detected at the border, there was no active surveillance to detect it, normal farming practices did not stop it from spreading, and no one in New Zealand spotted it or reported it before it started to cause damage.

Another type of active failure could be human errors such as treatment failures, inadequate inspections, or people

in New Zealand not reporting something unusual. Illegal activities and non-compliance with biosecurity regulations could also be viewed as an active failure. These can be deliberate actions of people, like attempting to smuggle plants or plant material into New Zealand from other countries. But non-compliance can also be non-deliberate, think of the exhausted parent travelling with a child who at some point in the journey has put a piece of fruit into the child's bag and forgotten that it's still there.

Latent conditions are circumstances and things that put pressure on the system. There are many of these and they are often happening at the same time. Examples are things like increasing volumes of imported goods, a global increase in online shopping, or increasing numbers of passengers as our borders reopen. Circumstances changing in other countries may also alter the risk posed to New Zealand by pests and diseases in that country. A major flooding event in Japan, as an example, may cause parked vehicles waiting to be exported to New Zealand to be moved to a different site where they are unexpectedly exposed to an invasive pest such as brown marmorated stink bug. An outbreak of a pest or disease in another country may also result in contamination of imported goods.

On a longer-term scale, changes in climate enable some pests and diseases to spread to countries that they were not in previously. Changes in the biology of a pest or disease may also mean it becomes capable of avoiding the protection measures in place; consider an insect that has developed resistance to the commonly used pesticide. Domestic issues here in New Zealand can also influence the biosecurity system, economic or other pressures may drive up the rate of non-compliance as people look for opportunities to relieve the pressure they are under. Remember the deliberate smuggling in and release of a lethal rabbit virus in the late 1990s.

> **"We'll take a look at different parts of the system and how they are adapting to meet some of these challenges**

To keep New Zealand protected within this complex web of challenges is a big job that no single organisation can manage on its own. Over this series of articles, we'll take a look at the different parts of the system and how they are adapting to meet some of these challenges. We'll also look at the ways that primary producers can contribute to the overall resilience of the system, from knowing the importation requirements, to demonstrating good biosecurity practice at the border, reporting the unusual, and keeping their own farms bio-secure.

MPI's *Ko Tātou This Is Us* website is also a good resource: Ko Tātou This Is Us | Biosecurity – Keep NZ safe from pests and diseases, **www.thisisus.nz**

ENVIRONMENT CANTERBURY DECISION PROVIDES CONSENTING PATHWAY FOR VEGETABLES

Rachel McClung : HortNZ environmental policy advisor

With ever increasing pressure on land available for horticulture, rotating soils to avoid soil-borne disease becomes harder and harder. In Canterbury, adding to this was an operative region-wide nutrient management framework within the Canterbury Land and Water Regional Plan (CLWRP) with significant limitations for commercial vegetable production.

While other farming activities were securing farming land use consents, vegetable growers found themselves unable to do so. Farming land use consent could only be issued for specified land parcels. However, commercial vegetable production needs flexibility to access fresh land to enable soil rotation. This tends to be achieved through rotation across both owned and leased land, and leasing could be either long or short term.

> "Commercial vegetable production needs flexibility to access fresh land to enable soil rotation

Therefore, part of the problem was that a land use consent is attached to specific land parcels, but also the CLWRP assigns nitrogen loss rates to land, not to the activity. This means that when looking for fresh land there was the associated challenge to find land with a sufficient nitrogen limit to accommodate commercial vegetable production. Both factors were problematic for vegetable growers when rotating and presented significant complications for consenting.

In addition, there were limitations in the ability of OVERSEER® to reliably estimate nitrogen losses from commercial vegetable growing, complexities and costs associated with the preparation of nutrient budgets.

Furthermore, the complex framework of the CLWRP means that no single set of provisions applies to commercial vegetable production due to a range of sub-region-specific rules, as many growers grow vegetables in and across multiple sub-regions.

All this has added to the complexity of obtaining a farming land use consent for commercial vegetable production. For these reasons, Horticulture New Zealand approached Environment Canterbury (ECan) to address the issue in late 2017.

Through discussions with ECan staff, it was determined that a plan change was needed to ensure a consenting pathway for commercial vegetable production. As a first step and to assist ECan in better understanding the issue, a series of grower workshops was held in 2018.

One key outcome from the workshops was the clear understanding that a land use consent was not going to work for commercial vegetable growing, as any consent needed to allow a degree of flexibility for location. It was established that a discharge permit would be more enabling for commercial vegetable production across Canterbury.

In July 2019, ECan notified Plan Change 7 (PC7) to the CLWRP. Part A of PC7 proposed a new consenting framework for commercial vegetable production.

HortNZ lodged a submission in general support but seeking amendments to ensure the new rules would be workable for our industry into the future. The process was then delayed due to Covid-19, however HortNZ then presented at the hearing in December 2020. Five growers attended with the HortNZ team to present case studies to the hearing panel to demonstrate key points. These included Scottfresh, Hewson Farms (NZ) Ltd, Lovett Family Farms Ltd, Pye Produce Ltd and Peelview Orchard.

The decision was released by ECan in November 2021. Overall, we are pleased with the decision, as the Canterbury Land and Water Plan will now recognise the importance of commercial vegetable production (CVP) and provide a workable consent pathway.

The following are areas of the decision that have moved from the notified version of the plan change in response to the HortNZ submissions and hearing attendance:

- Recognition within the policy of the importance of CVP for domestic food supply.

- Three consenting pathways open to CVP – irrigation scheme permit, farming land use consent or CVP permit.
- Exclusion of a nutrient budget in the body of the rule (thereby not triggering a non-complying activity status if not provided).
- A move in the permitted activity status threshold from 0.5ha to 5ha.
- Existing CVP provided for as a restricted discretionary activity and movement not limited to a sub-catchment or nutrient allocation zone. Existing CVP can move across the region.
- New or expanded CVP provided for as a discretionary activity, subject to having a Farm Environment Plan (FEP) and meeting lawful nitrogen loss rate.
- Any CVP that does not meet the discretionary activity is a non-complying activity. The notified PC7 provisions sought a prohibited activity status, rather than non-complying. A resource consent cannot be sought for a prohibited activity. A Council legally cannot receive an application for a prohibited activity. This would have been a significant deterrent to growing in Canterbury and potentially set a precedent for Land and Water Plans across the rest of New Zealand.

No appeals were received on the provisions relating to commercial vegetable growing and they are now operative.

HortNZ will work with ECan consent planners in the early stages of implementing the new provisions to better understand the information requirements for an application and help ensure the new provisions are administered as best intended.

HortNZ encourages Canterbury growers to now obtain permits from ECan.

There are approximately 386 horticultural operations in the Canterbury Region.

They grow a wide variety of vegetable and fruit crops including yams, carrots, courgettes, leeks, cabbage, pumpkin, squash, sweetcorn, potatoes, lettuce, broccoli, cauliflower, silverbeet, spring onions, celery, leafy greens, salad greens, herbs, beans, onions, peas, brussels sprouts, tomatoes, capsicum, asparagus, cucumber, apples, pears, nectarines, peaches, apricots, plums, feijoas, blackcurrants, raspberries, strawberries and cherries.

Growing vegetables on a large scale all year round, like growers do in Canterbury, can be challenging. The produce is delicate and susceptible to weather events. Despite this, fruit and vegetables are grown in all ten Canterbury Water Zones.

FRESHWATER FARM PLANS FOR GROWERS ON THE WAIMEA PLAINS

Ailsa Robertson : HortNZ team lead environmental policy

Growers with five or more hectares will need a Freshwater Farm Plan (FWFP) over the next few years. National regulation being drafted will give more detail, including where and when plans are required across the country, the minimum content, and who can audit and certify them.

The government has indicated the regulation will be finalised at the end of the year. Horticulture New Zealand is advocating for the regulation to recognise GAP (Good Agricultural Practice) assurance programmes to deliver audited and certified FWFPs for our industry.

> "A credible way for growers to show they are implementing sustainable practices to manage soils, nutrients and irrigation

FWFPs will play a role in how Councils manage freshwater resources in their regions. Regional councils must initiate a plan change by the end of 2024 to implement the National Policy Statement for Freshwater (NPSFM) 2020, to set long-term visions for freshwater, new policies and rules, identify limits on resource use, prepare an action plan to achieve the limits within a certain timeframe, and may include conditions on resource consents. Limits on resource use may apply to any activity or land use in that catchment.

Tasman District Council is reviewing their existing Tasman Resource Management Plan and will be creating a new 'Tasman Environment Plan' which will include giving effect to the requirements of the NPSFM 2020 for freshwater management – it is expected to be notified in 2024. On Tasman's Waimea Plains, HortNZ's catchment project brings together science, policy and implementation around FWFPs.

> "As an industry, we can tell a powerful story of growers on a journey of continuous improvement

Case studies

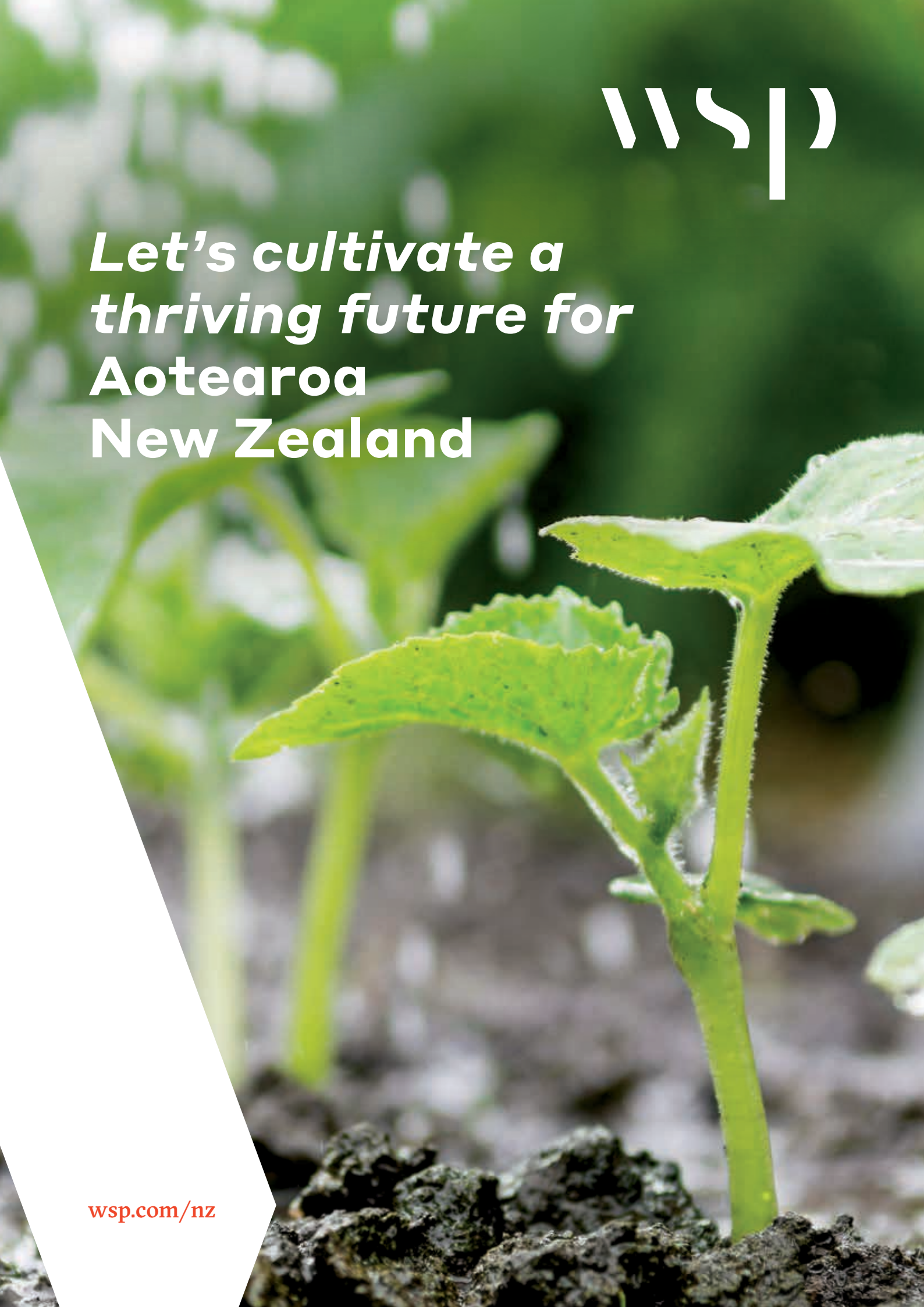
Two grower case studies – of vegetables and apples – are being developed to show how the Environment Management System (EMS) add-on to GAP can deliver credible and robust FWFPs for growers. All growers with five or more hectares on the plains are being supported to develop their first FWFP using the GAP EMS in 2022. HortNZ is also collaborating with Council through a Memorandum of Understanding to agree on the freshwater science and the modelling of horticulture systems on the plains. Through this project, HortNZ intends to build robust evidence on sustainable growing practices to support enabling policies for growers in the new regional plan.

The Waimea project also involves testing a new component of FWFPs called the 'catchment context'. This means a growing business will need to consider environmental risks at two scales in their FWFP – property and catchment. As an example, if the priority for a catchment is the management of elevated nitrates in groundwater, growers and farmers will need to show how they are prioritising nitrogen management in their FWFP to best practice standards.

Additional regional council requirements will also need to be reflected in FWFPs. For example, an irrigation management plan or an erosion and sediment control plan. NZGAP has created several regional guides, such as the Tasman Regional Guide, to show how growers meet Council requirements using the GAP EMS add-on.

FWFPs are a regulatory tool, but they are also a credible way for growers to show they are implementing sustainable practices to manage soils, nutrients and irrigation. A nitrogen budget can show how a grower is accounting for inputs and outputs for each crop and yield, and a nutrient management plan shows a grower's decision around fertiliser applications at the right rate, right time and right place for each crop. As an industry, we can tell a powerful story of growers on a journey of continuous improvement, through aggregated and audited FWFP data.

To find out more about starting your FWFP now using the GAP EMS add-on, visit NZGAP's website **https://www.nzgap.co.nz/.**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YOUR INDUSTRY

ACROSS THE SECTOR – ACROSS THE COUNTRY

SUSTAINABILITY IN TRIAL AND PRACTICE

Glenys Christian

Onion breeder Martyn Callaghan isn't going to be one of those people with nothing to do in retirement. For not only does he have trial work underway aimed at producing vegetables more sustainably, he is putting that into practice in his own small-scale growing operation.

Martyn grew up in Wellington and attended Lincoln University, completing a Bachelor of Horticultural Science degree. He then spent eight years in Australia working in Sydney, Melbourne and Toowoomba. A job which he thought was going to last six months in seed sales for Yates Australia in1987 has instead resulted in 35 years of continuous service, as that company bought Yates New Zealand, then Enza Zaden bought the part he worked for.

> "There are highly variable margins and many small and medium-sized growershave dropped out

Martyn worked with Richard Wood on reducing white rot and bacterial soft rots, but later on moved into breeding open pollinated onions then hybridonions.

"It's a very tough industry," he says.

"There are highly variable margins and many small and medium-sized growershave dropped out."

While most growers have stuck with Pukekohe Long Keeper and Early Long Keeper varieties because of their consistent reliability, Martyn has his eyes fixed on Chinese export opportunities for pink and red onions. He believes it's the perfect slot for New Zealand as the crop could be exported in the autumn off-season, China having few cool storage facilities. Onions are usually eaten raw there, but only "tiny" crops are grown in coastal areas, Martyn says. So he has bred what he believes are two very suitable varieties for Gansu in northwest China.

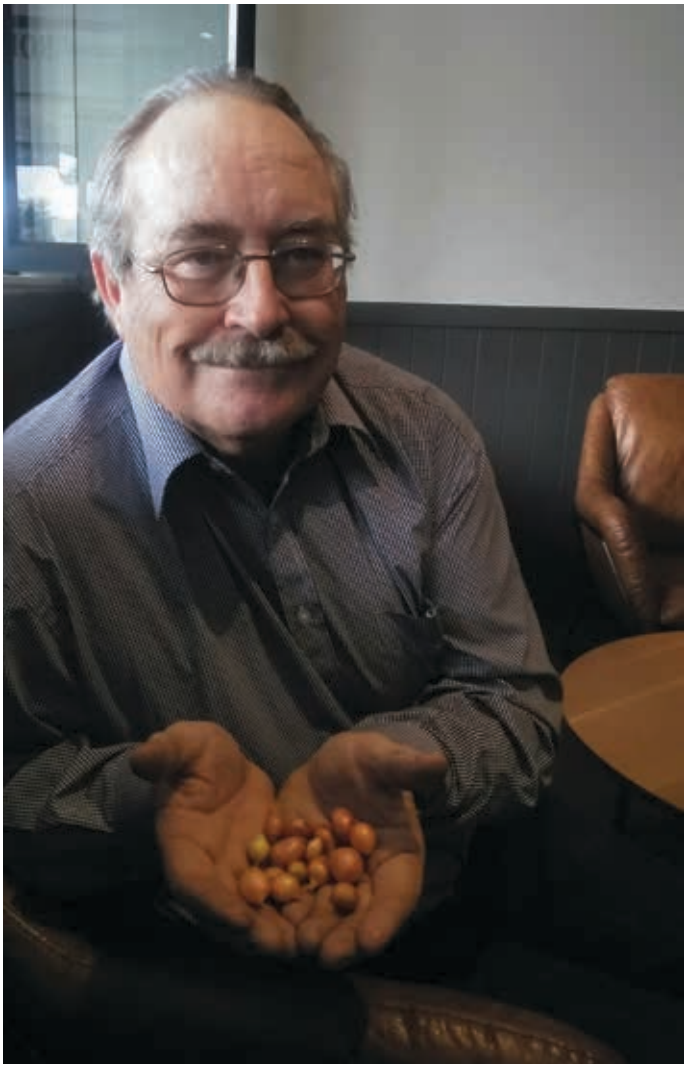
"The bulbs weigh between 200 and 300 grams or more. They have a mild flavour and are able to be picked up with chopsticks when sliced," he says.

One, which is dark red, Barbera, grows well here and can yield up to 80–90 tonnes a hectare, compared with Pukekohe Long Keeper's average yield of 50 tonnes.

Another project Martyn has been involved in for the past four years is growing onions from sets rather than seed, which he says is a more sustainable practice.

Small onions weighing three to ten grams are planted in October or November. They are harvested in January in the North Island or early February in the South Island. By comparison, onions grown from seed are usually planted in June and the crop dug later in January in the Pukekohe and Waikato regions. That means for sets a 90-day growing period compared with the usual 220-day average in Pukekohe.

"You avoid winter completely, which is when erosion and leaching of nitrates usually occurs, and very little fertiliser is required," Martyn says.



Martyn Callaghan with small onions used to grow the crop from sets

The technique could be a big benefit in the South Island where extreme weather could be possibly avoided at maturity.

> **Traditional methods have worked well for New Zealand onion growers, but now we need to show greater sustainability**

"You don't need a seed bed so the ground where you're sowing can be relatively rough. And early season weed control is greatly simplified."

That can mean up to three sprays for white rot aren't required, and thrip problems can be partially avoided because of the earlier harvest.

280,000
TONNES OF ONIONS PRODUCED FROM SETS EACH YEAR IN EUROPE

The practice of set to bulb onion production is well established overseas with around 280,000 tonnes of onions produced from sets each year in Europe.

"Traditional methods have worked well for New Zealand onion growers, but now we need to show greater sustainability," Martyn says.

He has run scientific trials with retired scientist, Mike Nichols, for the past year in Pukekohe and Hawke's Bay. While those at the first site were not irrigated, those at the second site were, and yield differences show irrigation is probably required. Last year's trial was sponsored by Onions NZ, which was looking for a proof of concept which Martyn believes has been provided. It fits with Onions NZ's vision of moving the industry up the value chain in the same way as the pipfruit industry has done by using integrated pest management (IPM).

> **Mike and I are both very enthusiastic about the set to bulb technique – now it's just a case of fine-tuning. It's not a replacement for what we're doing but it slots in nicely with moving upmarket**

"And it's relatively simple and easy."

Growers may need to use a modified three-bed garlic planter which can travel at up to five kilometres an hour.

"Mike and I are both very enthusiastic about the set to bulb technique – now it's just a case of fine-tuning. It's not a replacement for what we're doing but it slots in nicely with moving upmarket."

They would like to drop fertiliser requirements from 120 kg of nitrogen a hectare to 80kg and increase yields. It has been possible to achieve up to 92t/ha dried or 80t/ha of marketable onions using the set to bulb technique.

"There needs to be a change," Martyn says.

"Industry leaders need to be leading by being more involved in sustainable agriculture."

Horticulture™
New Zealand
Ahumāra Kai Aotearoa

Send us your nominations for the

2022 Horticulture Industry Awards

HortNZ is calling for nominations for its 2022 Awards.
HortNZ will present trophies in each of the following categories.

BLEDISLOE CUP
Awarded for an outstanding and meritorious contribution to the New Zealand horticulture industry.

PRESIDENT'S TROPHY
To celebrate and develop inspiring leadership within the horticulture industry.

ENVIRONMENTAL AWARD
To recognise a person, or organisation, that has developed and implemented a sustainable environmental project, with identifiable benefits.

Full criteria for the above awards are available on the Horticulture New Zealand website or can be requested from the Board Secretary.

Who can make nominations?
- Any grower member of HortNZ, an affiliated Product Group or an affiliated Grower Association can make nominations.

How do I nominate someone?
- Complete a nomination form. These are available on our website **www.hortnz.co.nz** or by contacting HortNZ by calling 04 494 9983 or emailing Board Secretary, Kerry Norman (**Kerry.Norman@hortnz.co.nz**)

When do nominations close?
- Nominations must be sent to the HortNZ Board Secretary, Kerry Norman (**Kerry.Norman@hortnz.co.nz**) or PO Box 10232, The Terrace, Wellington 6140 and must be received by **5.00pm on Tuesday, 7 June 2022.**

Send us your nominations now!

FLEXIBLE WORKING CONDITIONS ENHANCE INDUSTRY'S APPEAL

Elaine Fisher

Apples have been a part of Shayna Ward's career since she left school

More flexible working conditions implemented by many in the horticultural industry during the Covid-19 pandemic are helping make the sector even more attractive to women, says Shayna Ward, compliance and quality manager Te Mata Exports.

"Because of labour shortages, many employers are looking at different ways staff can work and that's not always starting and finishing at set times. The focus is how to get the job done. Many post-harvest operators are now offering school working hours for parents, which wasn't the case when my children were young," says Shayna who is a member of the executive of Women in Horticulture.

"Today women have more opportunities to find the right job and right team to fit their values and the needs of their families.

"I think horticulture as a career has been underrated, but it is exciting to see more women in leadership roles in every part of the industry. Often, they are the main cog in a much larger wheel."

Shayna is also pleased to see more young women, and young people in general coming into the industry. "The industry offers a broad variety of opportunities for everyone from all different academic levels. You don't need a degree to succeed in horticulture and there are so many opportunities from research to nursery to orchard and post-harvest, to marketing and logistics. It's a really exciting industry to be part of."

Born in England, Shayna moved to the Hawke's Bay as a four-year-old, attending local schools. Her first job was as a trainee science technician with the Department of Scientific and Industrial Research as part of its fruit physiology and post-harvest team research programme in the Hawke's Bay.

Much of the research was for the New Zealand Apple and Pear Board (which became ENZA) and Shayna's next role was with the board, including time in its London office.

On her return to New Zealand Shayna managed a packhouse for a year before rejoining ENZA as a field rep. "That was a very diverse and enjoyable role as I was looking after growers and packhouses."

After 12 years with ENZA, during which time her three children were born, Shayna returned to Plant and Food

Research in the Hawke's Bay, initially working on pipfruit physiology and rootstock trials. "This was the time when work was beginning on the dwarfing gene for rootstock."

Shayna switched roles to summerfruit research, still with Plant and Food Research. "I worked with an amazing scientist on the low chill breeding programme for peaches, nectarines, apricots and plums, as well as working on apple rootstock breeding. I loved the role and 80 percent of my work was outside."

It was a 30 hour a week role, which suited Shayna's family life, but keen for wider industry involvement, she took an additional role as executive officer of the New Zealand Pink Lady Growers Association.

For the past five years Shayna has been with Te Mata Exports and it's a job she also loves.

"Maximising returns to growers is what underpins everything that Te Mata Exports does, which is why I consciously chose to work for this company. It is the right fit for my values."

Still based in the Hawke's Bay, Shayna has a grower liaison role, specialising in apples and with a focus on quality compliance. The company has sole export rights in New Zealand for the SnapDragon variety of apples, developed in New York State in the United States, and for the Hawke's Bay bred Bay Queen apple.

A foundation member of the Hawke's Bay Women in Horticulture, Shayna stood for election to the national executive to ensure women in her region had a voice at that level. "And to give back to an industry which has given so much to me."

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

"The industry offers a broad variety of opportunities for everyone from all different academic levels. You don't need a degree to succeed in horticulture and there are so many opportunities from research to nursery to orchard and post-harvest, to marketing and logistics. It's a really exciting industry to be part of

GREATER IRRIGATION ACCURACY

Glenys Christian

Bharat Bhana with an Adroit sensor in one of their potato paddocks close to Pukekohe. The yellow stick in the background marks where another sensor remains in the soil

While vegetable growers have relied on knowing how much water their crops require by the length of their irrigation round, now they need to be much more accurate, believes Pukekohe grower and Potatoes NZ director, Bharat Bhana.

He and his three brothers are directors of Hira Bhana which for more than 60 years has been growing over 600 hectares of crops around Pukekohe and Onewhero, of which around 120ha is leased. Potatoes make up a consistent 30 percent of their crops followed by onions, carrots, lettuce, brassicas, pumpkin and a small amount of watermelon.

Around 95 percent of their crops are irrigated with a combination of pivot and hard-hose irrigators, but only about one-third of their potatoes.

"With the potato crops which are planted at the end of May, we don't have to irrigate them unless the ground is very dry when we want to dig them in November," he says.

Water can also go on at a late growth stage to stop pest problems.

In the past, timing of irrigation and the amount of water supplied to the crops was often determined by knowledge they had built up over many years.

"We've been at this game a long time," he says.

Irrigation would be started when the leaves of the potatoes started to droop, with timing depending on how long it would take to get around a particular block. But that could mean too much water was applied which could have been better used elsewhere.

But after being approached by Auckland-based company Adroit, they now have 10 Dragino sensors placed in their fields. They give a read-out every half an hour of soil moisture, temperature and electrical conductivity, which is sent to them in real time via an app loaded on to their mobile phones.

The sensors are placed in a plastic tube, which can be dug into the soil at any depth required and can be moved easily from paddock to paddock depending on different crop requirements.

"You can make a lot better decisions on how much water to put on," Bharat says.

"Whereas you might have been putting on 50 millimetres every ten days, you may only need to apply 35mm to top soil moisture up."

And that means the extra irrigation which is saved can be made available for other crops which really need it.

The sensors were first used in August and September last year after discussions with Adroit, which specialises in environmental Internet of Things (IoT) technology in partnership with Spark IoT and Amazon Web Services (AWS).

"The beauty is that you can use them under any crops and make up your own mind about when and where you transfer them," Bharat says.

The sensors can also be placed deeper into the ground as crops grow larger so the information they're collecting and transmitting is always from the root zone.

"They're pretty accurate," he says.

"And they did exactly what Adroit said they would."

The Bhanas had been using a service for several years where soil probes were placed on their land which would be checked every week. Then they would be supplied with a spreadsheet showing soil moisture results the day after the visit.

"Then we could make decisions and adjust what we were doing," he says.

They were happy with the results and retained one of those probes in order to monitor the accuracy of the Adroit system. They also used one of the new probes in a potato paddock similar to another which doesn't have one.

"In August we will have absolute proof," Bharat says.

"If the tonnages are the same, we will know we were wasting water."

Of perhaps greater interest to the Bhanas is Adroit's development work on a similar probe which it believes will soon be able to record nitrogen leaching.

"What's coming down the tube with councils and government is that we've got to be a lot more accurate," Bharat says.

"They can be telling us we're doing it wrong but they've never been in the field or grown anything."

Growers know that if they don't use a certain amount of nitrogen on their crops at certain times of year, they won't be able to stay in business and keep providing vegetables for New Zealanders. But there is a fine line between putting on enough and too much. So they need to have at hand information on inputs, as well as nutrients being leached out of their soils.

"We've got to get more scientifically based evidence on what we're doing," he says.

"Every grower is doing their own experiments because we're all in the same boat."

HORTICULTURE FOCUS IN 2022 AGRICULTURAL CENSUS

Supplied by Statistics New Zealand

The largest nationwide survey of horticulture and agriculture will take place in July this year. Facts and figures from orchards, fields and farms will be collected in the upcoming Agricultural Production Census to provide essential statistics on production and land use across New Zealand.

Held every five years by New Zealand's official data agency Statistics NZ in partnership with the Ministry for Primary Industries (MPI), the Agricultural Production Census is an important industry survey that requires involvement from every commercial grower and farmer.

Information packs on the Agricultural Production Census will be sent out to around 7,000 horticulture properties in late June to gather data for the year ending 30 June 2022.

Obtaining a detailed picture of New Zealand's horticulture operations is essential for the industry's growth and for improved decision-making, says Ana Krpo, Statistics NZ's manager of Agricultural Production Statistics.

"The Agricultural Production Census is the main source of reliable information on production, land use and changes for the industry, government and service providers. Quality data from the field means decision-makers have the best up-to-date information for shaping the future of agriculture, including horticulture. The census findings influence rural infrastructure, services, policies and programmes. That's why participation by growers is crucial to ensure the statistics accurately reflect the reality of what is happening across the horticulture sector."

JULY 2022

7,000
HORTICULTURE PROPERTIES WILL BE SENT INFORMATION PACKS ON THE AGRICULTURAL PRODUCTION CENSUS

Growers have the choice of completing the census online or requesting a printed version.

Data provided by growers is combined with others across New Zealand to give a complete picture of the state of horticulture. "The more complete surveys that are returned, the more confident we can be about the state of the industry and the better we can provide accurate, reliable information for growers and the horticulture sector," says Ana.

> **"The Agricultural Production Census is the main source of reliable information on production, land use and changes for the industry, government and service providers**

"For the 2022 census, Statistics NZ is working collaboratively with producers and the horticulture industry to ensure greater participation so that the Agricultural Production Census benefits everyone. We want to provide data that improves lives today and for future generations."

PRODUCTION MEETS POST-HARVEST

AN OPPORTUNITY TO GAIN A QUALIFICATION IN POST-HARVEST IN THE HORTICULTURE SECTOR

Do you want to know more about managing the post-harvest performance of the fruit or vegetables you grow? Are you keen to understand how to better manage the produce you are responsible for in the post-harvest sector? Do you want to gain 20 credits at Level 6? Do you want to complete a paper towards the Fruition Diploma in Horticulture Production?

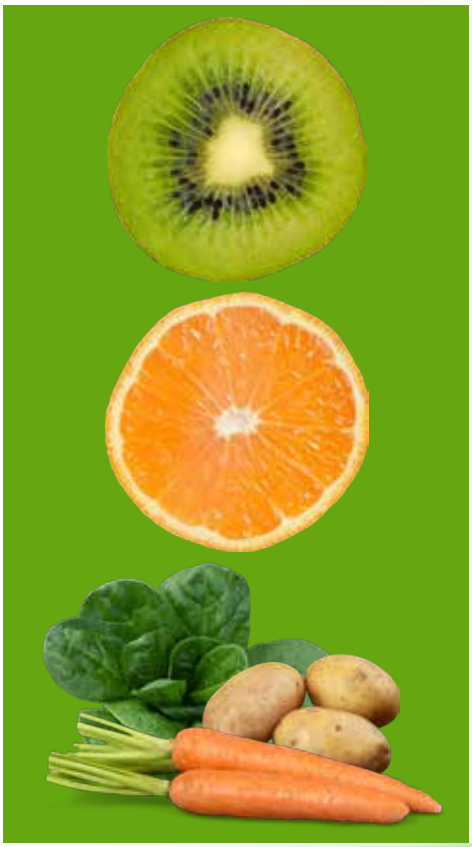
Fruition Horticulture has partnered with a specialist post-harvest research organisation Start AFresh to deliver a course on post harvest technology as a part of their Level 6 Fruition Diploma in Horticulture Production. The paper is an opportunity for people within the post harvest sector, or in the field, to gain in-depth knowledge on the post harvest management of fruit and vegetables. Furthermore, learners will gain an understanding of horticultural production systems and their impact on post harvest performance. Laboratory work, undertaking in the learners home or workplace, will provide real examples of postharvest treatments of fruit and vegetables. Learners will analyse data that they collect from these laboratory trials to understand decisions they make in the workplace.

"The paper is an opportunity for people in the postharvest sector, or in the field, to gain indepth knowledge on postharvest management of fruit and vegetables and also understand horticultural production systems and their impact on postharvest performance," says David Tanner, a principal of Start Afresh.

We are delighted to offer this opportunity to all those working in the industry. Currently the course is completely free to participants. All you need to spend is quality time engaging in class for 12 weeks and preparing your assessments. Fruition has developed this New Zealand Qualifications Authority approved programme to be available for anyone around the country, with opportunities to engage on-line or attend physical classes at their Tauranga base.

This paper is one of six papers being offered in the Fruition Diploma of Horticulture Production Level 6. The paper can be undertaken as a one off or those keen can continue studying to obtain their Diploma by completing in a further five papers over the next few years. Those currently enrolled in the programme have very positive feedback on their experience. "The course has changed me a lot, I think completely differently now. It's really good to see the bigger picture" states Ryan Fong, a fouth generation vegetable grower from Pukekohe. Another student, Kyra Fielden, working in the avocado industry, loves the ability to either attend class or join on line. The flexibility suits their work demands.

For more information on any of the training services offered by Fruition go to their website www.fruition.ac.nz.



FRUITION
DIPLOMA
IN HORTICULTURE PRODUCTION

PRODUCTION MEETS POST-HARVEST

- Understand how actions in the orchard or paddock impact on produce storage.
- Understand how to maximise the post-harvest potential of your produce.
- Access learning through industry experts.

Level 6 NZQA Qualification
Fees Free and TTAF Government Funded
Face-to-face and online classes available
Classes start 1 June 2022

www.fruition.ac.nz

CAMPAIGNS AND SCHEMES INCREASE APPEAL OF WORK IN HORTICULTURE

Elaine Fisher

The Opportunity Grows Here workforce attraction campaign has helped increase the appeal of jobs in the primary sector

The Opportunity Grows Here (OGH) workforce attraction campaign has helped more than 10,000 people find jobs in the food and fibre sector.

"The campaign was established by the Ministry for Primary Industries (MPI) in July 2020 in response to Covid-19. It was developed in close collaboration with other government agencies and with sector groups hard-hit by Covid and border closures," says Cheyne Gillooly, MPI's director investment skills and performance.

"While not physically placing people in jobs, OGH has increased the visibility and desirability of working in our food and fibre sector, helping New Zealanders to find work in areas they might not have otherwise considered."

To help fill immediate and seasonal job vacancies, OGH provides support by directing potential employees to the most relevant job website. "For example, this season, we have worked across the horticulture and viticulture sectors to help drive traffic to the newly established PickNZ job website," says Cheyne.

PickNZ.co.nz was launched in September 2021. Since then, horticulture and viticulture advertising via OGH ads has delivered more than 40,000 clicks to the site. The Summerfruit NZ campaign led people directly to the PickNZ website as opposed to the OGH website.

Cheyne says the highly social aspect of many horticulture roles gives people the opportunity to build new friendships, support networks and deepen their connections into communities.

"Our primary industries have long been recognised as the backbone of New Zealand's economy. In fact, one in seven jobs in the country is currently based in our food and fibre sector."

MPI's Situation and Outlook for Primary Industries report in December 2021 forecast export revenue for the Primary sector would exceed $50 billion for the first time, hitting a record $50.8 billion in the year to 30 June 2022.

"Continued growth in key sectors such as horticulture are key to achieving this goal," says Cheyne.

"Despite growers and exporters having to adjust their operations because of seasonal labour supply shortages, horticultural export revenue is forecast to rise nearly five percent to $6.9 billion for the year to 30 June 2022."

Research conducted in August 2021 showed the OGH campaign had made a marked improvement in building the visibility of food and fibre sector jobs and increasing the appeal of working in the sector.

Magazine advertising was among the ways summerfruit jobs were promoted through MPI's Opportunity Grows Here campaign

"Twenty-six percent of the non-primary industry workforce had definitely seen or heard the campaign. Of those who saw the messages, 90 percent had 'thought' or 'done something different' as a result of seeing the advertising.

"People found the campaign appealing to look at, quoting words like 'encouraging, motivating, informative, and thought provoking'," says Cheyne.

Seasonal Work Scheme helps attract and retain staff

The New Zealand Seasonal Work Scheme (NZSWS) has helped approximately 1,250 people into seasonal work since its re-launch in 2020.

"The scheme's main focus is to provide additional support to enable more New Zealanders to take up seasonal work opportunities, and a person doesn't need to be receiving a benefit to qualify," says Hugh Miller, group general manager employment with the Ministry of Social Development (MSD).

Summerfruit growers whose staff took up the support offered, say its financial incentives contributed to improved staff retention with more people staying until the end of the season.

"People who need to relocate can get help with transport costs and accommodation costs – where they still have accommodation costs back home," says Hugh. "Support is also available – including for local workers – for daily transport costs, work gear, clothing and training."

If the work lasts longer than six weeks, the participant is also eligible for an incentive payment of $1,000.

The majority of people taking up the scheme (35 percent in 2020–2021 and 34 percent in 2021–2022) were between the ages of 16 and 24. Those aged between 25 and 34 made up 28 percent and 26 percent in the past two seasons respectively.

> **"Summerfruit growers whose staff took up the support offered, say its financial incentives contributed to improved staff retention with more people staying until the end of the season**

Hugh says MSD works proactively with the horticulture and viticulture sectors and encourages employers to liaise with them around employment opportunities.

"It is important that employers let us know about seasonal work opportunities as soon as they can. Employers are also encouraged to list vacancies on the PickNZ website." ●

GISBORNE GROWERS HIT BY TRIO OF MASSIVE RAIN EVENTS

Kristine Walsh

Judco nursery/harvest manager Matt Sowerby in the tomato field he describes as a "salvage operation" after March's catastrophic rainfall. Picture by Kristine Walsh

It rained, it rained again, and then it rained some more. Gisborne growers are counting the cost of one weather bomb after another.

Gisborne's famous fertile plains turned into flood plains with March rains that in places exceeded century-old records.

But growers say the downpour can't be seen in isolation: beforehand, they had setbacks due to heavy rain in November 2021, and afterwards – just before Easter – ex-tropical Cyclone Fili dumped a further 200mm on East Cape in the north, 100mm in Wairoa to the south, and 70mm on Gisborne city.

While most of the greatest damage of all three events was seen on the East Coast, north of Gisborne city, much of that land is devoted to forestry and sheep and beef farming.

So while coastal farmers were hit hard, the biggest impact on produce was seen on the western and southern sides of the city, where the highest volume of horticulture is concentrated.

Back in November, Gisborne District Council chief scientist Murry Cave described the rainfall as a "one-in-50-years event", which led to the declaration of a State of Emergency.

But while that was short-lived the impact on growers had a longer reach, with the season set back when replanting was required for many hectares, particularly of sweetcorn, maize and squash.

And some were not replanted at all, meaning a potential loss of production for processors like Cedenco.

In March, it was even worse … from late Tuesday 22 March to late the following night, Gisborne was hit by 250–300ml of rain – around three months' worth.

A State of Emergency was declared and remained in place until 31 March; people were evacuated from their homes, hills slipped, rivers rose, and all roads in and out of Gisborne were closed.

Two days later Minister of Rural Communities, Damien O'Connor, classified the storm as a medium-scale adverse event, unlocking $150,000 of immediate government support for farmers and growers, adding to the $175,000

announced a couple of days before by Emergency Management Minister, Kiritapu Allan.

There was still more to come. MetService reported rainfall of up to (and in some places exceeding) 400mm between 21 and 23 March, and it continued to rain for another week.

And growers had only a short window to harvest what they could before 13 April and the arrival of ex-tropical Cyclone Fili.

One of those racing before that window closed was Matt Sowerby, nursery/harvest manager for Gisborne grower Judco.

The vista from the tomato field at Brown's Beach, just south of Gisborne, is generally a spectacular view of light bouncing off Te Kurī-a-Pāoa, the headland known as Young Nick's Head.

In April though, things weren't looking so pretty. After the catastrophic rain in March, the vines had collapsed and much of the fruit across the ten hectares was rotting on the ground.

"It won't be a harvest now, it will be a salvage operation," says Matt. "The machines can't harvest if there is no height to the vine, so basically we just have to rescue what we can."

> **"You can see the hits to crops visible around the region and in our case, we probably lost up to half of what we had in the ground**

As one of the country's biggest tomato growers, Judco produces an estimated 15,000 tonnes from around 183 hectares.

Back in November 2021, Judco had squash, sweetcorn and tomato seedlings on the Brown's Beach block when major rain meant they had to spend three days pumping off surface water.

Despite that setback however, by February hopes were high for a strong harvest from its good-looking crop of mainly Siren tomatoes … albeit with slightly lower yields.

But after the March rain the water reached well above plant level, so the vines dropped and rotted.

"For us the timing was pretty bad in that we were at peak harvest, and still had nearly 70 hectares to work through,"

1-IN-50

IN NOVEMBER, THE RAINFALL WAS DESCRIBED AS A "ONE-IN-50-YEARS EVENT", WHICH LED TO THE DECLARATION OF A STATE OF EMERGENCY

says Matt. "We're likely to lose around a dozen hectares of tomatoes and that's not the result we were hoping for."

Most of Judco's crop goes for processing to local company Cedenco, which Matt says will feel the downstream effects.

"It's definitely going to impact there as well … they can't process what they don't have," he says.

"No one is over the moon about it, but in this business you just have to work with the weather you get."

Gisborne Produce Growers Association chair Calvin Gedye grows across 100 hectares supplying both domestic consumers (though his Tasty Vege Co.) and major processors (like Cedenco).

He says about 40 percent of his crop has been affected, first in the November rains, then during the March downpours.

"Because of the setback in spring we were already behind the eight ball with our tomatoes, then the March rain caused quite a bit of deterioration in the fields," he says.

The same went for his sweetcorn, the quality of which Calvin says was affected by having not enough heat units to reach optimum flavour.

And it was even worse for his multi-vegetable operation that supplies Tasty Vege Co.

"You can see the hits to crops visible around the region and in our case, we probably lost up to half of what we had in the ground," Calvin says.

Longer term, such a deluge has an impact on the structure of soil, which growers like Calvin have invested a lot into improving.

Despite those challenges, Calvin was heartened to see good results from growers abiding by the Farm Environment Plans that became compulsory for Gisborne annual croppers from May 2021.

"A lot of work went into that, and this is when it comes into play," he says. "The required setbacks meant the drains were running well without all that wash into them, and that's great for the long-term protection of our highly productive land."

He had his own share of losses, but Gisborne Produce Growers Association chair Calvin Gedye says he was heartened to see good results from growers abiding by the Farm Environment Plans that became compulsory for Gisborne annual croppers from May 2021. Picture by Kristine Walsh

But that may be little consolation to consumers who will face increasing costs for their already pricey fresh vegetables.

"We're pretty much all in the same boat in that planting is well behind, which will have impacts through winter and into spring, and will inevitably be reflected in shortages and price pressures for consumers.

"That's not what we want, but we just have to deal with issues as they arise."

Coxco managing director Omi Badsar says the company's squash plantings were also on the back foot after the November rains.

Back then, the company had to replant 40 to 50 hectares of squash and grain, having lost both the plants and the ground work, like application of fertiliser.

So getting more than twice the November volumes during the heavy rains in March was, to say the least, very unwelcome.

"Because the November setback interrupted our planting season we were late starting harvest, and that meant the March event had a much bigger impact than it usually would," he says.

"About 40 percent of our plantings had been impacted, and that's what we had left to harvest by the time the rain started.

"We definitely had some damage and had to bypass blocks that were under water, but we did manage to get at least partial harvest to keep our overall losses down to about 20 percent.

"That's still a lot. As well as our own squash we represent five other growers, and our losses alone amounted to nearly 70 hectares.

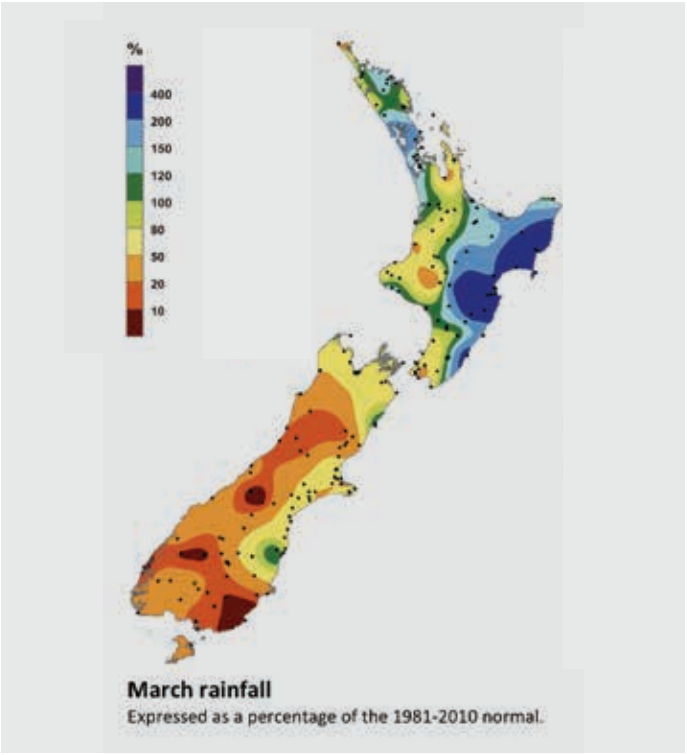
"And we're still seeing downstream effects like the amount of time the ground takes to dry out before we can put it into grass, which affects our lamb fattening programme."

Coxco was already facing a challenging season due to transport issues, and the number of staff sick or isolating due to Covid-19 caused a two-week shutdown of the packhouse, which the company dealt with by joining forces with another local packhouse to get the work done.

"So with Mother Nature testing us on top of all that, it's going to be an extremely challenging year," says Omi.

"We're just finding the best under the circumstances so we can get through … that's what farmers do."

After the March event, LeaderBrand chief executive Richard Burke says his Gisborne team had done a great job of monitoring the storm and harvesting as much as possible ahead of the severe rain.



Feeling blue … NIWA's weather map shows just how much March rainfall was experienced in the east of the North Island. Picture supplied

"However, more than 300mls of water did impact what buttercup squash we had left on the ground and this was not marketable," he said.

Spinach and broccoli were also affected by the rain, which had hit at a critical time when LeaderBrand was trying to finish their summer harvesting and start planting winter produce.

For Richard Burke, however, the major issue was road closures in and out of Gisborne, which had also occurred after the November rains.

"This time, we were able to process but couldn't distribute from the salad house, which was problematic. Even so, our logistics team at Weatherell's did a great job of being able to find a way through the closures and while we missed a few deliveries, we were able to get most of our orders out the next day," Richard says.

"We have a level of frustration about the infrastructure in the region (which has been an) ongoing problem for the last four years, and we can't understand why something can't be done about it."

Gisborne is a major agricultural area that is helping to feed the rest of the country with fresh produce, and LeaderBrand has invested by building a state-of-the-art salad house, a distribution centre, and is currently building the largest undercover greenhouse in the country.

"It is a great region to grow and we've learned to build great drainage on the flats to negate flooding. It's incredibly frustrating when we are all working hard producing good food for it to be dumped because the main road out of town is closed due to another deluge.

"This type of weather is not going to change (and) is something we have to continue to deal with in the future. We really need both local and central government to review the region's arterial roads."

LeaderBrand had been trying to get some attention on the Waikare Gorge – between Gisborne and Napier – because it has 29 high-risk areas that can potentially close the road, Richard says.

To that end, Waka Kotahi/NZ Transport Agency says it is currently undertaking detailed design for the preferred route for the SH2 Waikare Gorge safety realignment, part of the multi-project Connecting Tairāwhiti initiative.

> **"It's incredibly frustrating when we are all working hard producing good food for it to be dumped because the main road out of town is closed**

"We understand the importance of a safe, resilient and connected state highway network to the Tairāwhiti region and remain committed to the Connecting Tairāwhiti programme of construction projects," said the agency's director of regional relationships, Linda Stewart.

However, she added that as the impacts of the March severe weather event on the Tairāwhiti state highway network were the most significant seen since Cyclone Bola in 1988, and that will have an impact on the Connecting Tairāwhiti programme.

For its part, Gisborne District Council says it would cost millions – and take up to two years – to address damage to bridges, roads, and properties and it is lobbying the government and Waka Kotahi for 100 percent funding for repairs.

But for Richard Burke, any support for infrastructure could not come soon enough.

"The main problem is that the criteria for improvements are made on the basis of the number of cars travelling on the roads, (so) the Gisborne region does not qualify," he says.

"If we want the rural regions to continue to be part of the national economy on a daily basis, then we need the government to support us by reviewing the roads so that we don't get closed off from the rest of the country every time we have a weather event."

HEAT ON GREENHOUSE GROWERS

Geoff Lewis

Photo by Trefor Ward

Southern Belle owner Frans de Jong with the dehumidifier that he has had installed

Large commercial greenhouse growers – reliant on heat and carbon dioxide – are searching for viable alternatives to gas and coal, as prices soar and growers seek to reduce their carbon emissions.

Southern Paprika has 26 hectares under glass producing 7,000 tonnes of capsicum a year for domestic and export markets. The heat is provided by natural gas and carbon dioxide taken from the heating process, which achieves a 15 percent increase in production.

General manager Blair Morris says their Warkworth operation consumes 275,000 gigajoules of energy annually.

"Some of the big gas producers have stopped investing. Natural gas is our second biggest cost after labour, and our gas price has gone up two to three times. We had one gas supplier for 20 years who told us after 1 April 2022 that they couldn't supply us.

"We are concerned about energy supply and cost. The key problem is New Zealand doesn't have enough renewables for electricity generation. If we get into a loss-making situation, it would be better to close down, repurpose the land and move to an import model."

Morris says Southern Paprika is working with EECA on a transition plan and a number of energy alternatives, all of which are expensive. Biomass from forestry waste is possible but there are uncertainties including the cost of transport and it would not be a 100 percent replacement for gas; maybe 50 percent.

> "We are concerned about energy supply and cost. The key problem is New Zealand doesn't have enough renewables for electricity generation. If we get into a loss-making situation, it would be better to close down, repurpose the land and move to an import model

"We are also looking at the capital required. We're big on reducing New Zealand's carbon footprint and the government is doing some good things to support industry, like the GIDI (Government Investment in Decarbonising Industry) fund to help transition to non-carbon alternatives.

"But there is a big concern that the economics of it might kill the industry in the meantime. Once the cost of energy gets beyond a certain point, our business model is gone."

New Zealand Gourmet production director for protected crops Roelf Schreuder says gas is a big concern and expensive.

"On one of our sites, we went back to coal for the time being as, when combined with transport costs and line fees, it's cheaper than gas. For the future, we are looking at a hybrid model of gas and solar energy. The plan is to set up a solar farm for power supply and make a combination of immersive heat, heat pumps and evacuated pipes.

"The issue will be having no carbon dioxide available for the crop when excluding gas. Liquid carbon dioxide is being imported now Marsden Point has closed, and has become very expensive."

> **"All of the extra electricity required will have to come from coal. Where else will it come from? No gas. No more hydro. Coal will have to be it, which has nearly twice the carbon dioxide output of natural gas**

Electrical heat pumps are among the options to allow glasshouse operators to move away from carbon fuels. However, Neville Stocker, technical director for PGO Horticulture, which specialises in hydroponics for covered crops, says fitting electrical heat pumps to replace gas, coal or diesel fuelled boilers is not only relatively uncommon but likely to be expensive.

"There would be a high cost to change the system, and many properties will not have a power feed of sufficient size to carry the current needed. Greenhouses are often close together, and so whole areas may not have the required infrastructure to power these operations.

"All of the extra electricity required will have to come from coal. Where else will it come from? No gas. No more hydro. Coal will have to be it, which has nearly twice the carbon dioxide output of natural gas."

Meanwhile, Firstgas, a natural gas reticulator with around 7,000km of gas pipeline in the North Island, is predicting a move to a 20 percent hydrogen and natural gas blend by 2030, and a complete move to hydrogen by 2050.

Hydrogen has nearly three times the calorific (heat) value per quantity (kg) compared with natural gas. However, making hydrogen requires splitting water in a process called electrolysis, and this requires electricity.

Simon Watson, director, NZ Hothouse Ltd, and deputy chair of industry organisation TomatoesNZ, said they had been assured 20 years ago, that if they built there would be gas.

> **“The government is hell-bent on decarbonising the country. This creates huge pressure in the (gas) market. Large greenhouse operations will end up with stranded assets. The government is legislating us out of business and it’s ideologically driven**

“Now we seem to be running out of gas. We are very, very concerned that we’re going to be left in a position where gas is too expensive to use.

“We have the perfect storm. The government is hell-bent on decarbonising the country. This creates huge pressure in the (gas) market. Large greenhouse operations will end up with stranded assets. The government is legislating us out of business and it’s ideologically driven.

“At the moment, we have a (gas) contract we can live with. The question is what happens when we come off that. Options like electricity cost too much. Our whole operation is built around gas so what do we do? Walk away from tens of millions in assets, 300 jobs and 25 percent of the New Zealand tomato industry, or potentially import product from Australia or China, which would be crazy.

“This will be a very big issue over the next couple of years. The idea to decarbonise is good, but they (the government) haven’t thought it out.” ●

The Energy Efficiency and Conservation Authority (EECA) has assisted a variety of businesses to reduce their carbon emissions.

According to Nicki Sutherland, EECA group manager, investment and engagement, businesses account for about 40 percent of New Zealand’s energy-related greenhouse gas emissions.

“EECA has a range of programmes and resources to help businesses accelerate decarbonisation. We work directly with the highest energy users, supporting them with ETAs (Energy Transition Accelerators) and sometimes co-investing in decarbonisation projects. We also publish useful guidance for individual businesses making the same journey on a smaller scale.”

As part of a broader sector decarbonisation programme, EECA works with TomatoesNZ and Vegetables NZ to help the sector create decarbonisation pathways that individual businesses can then implement.

“We take an energy efficiency first approach – that is, helping businesses understand how to use their existing equipment and processes as efficiently as possible to reduce overall energy use. This reduces growers’ energy use and costs, with a flow on to their emissions, and makes fuel switching possible and cheaper later.”

EECA also provides a technology demonstration fund to support energy efficiency and decarbonisation technologies that are commercially proven, and can be more widely adopted in New Zealand, including heat pumps to control glasshouse atmospheres. The fund is open to any business regardless of size.

EECA support in action

Southern Belle is a family-run business producing around 90,000kgs of capsicum and chillies a year.

In 2019 the business received help from the EECA’s Technology Demonstration fund to install dehumidifying units.

Owner Frans de Jong says typically growers open vents in the roof of their greenhouse to release moisture. This is intended to reduce the build-up of humidity which can create an environment suited to fungal infections.

Southern Belle eliminated this energy wasting cycle by installing dehumidifiers capable of extracting 45 litres of water an hour using 10kW of electricity.

De Jong says while the units have increased electricity use, he is seeing increased production and saving more than one-third of expected yearly fuel-oil consumption.

“As well as the cost savings to the business, it’s great to be able to operate more sustainably. It’s really important to me personally to lower our impact on the environment. It seems like a no-brainer to move towards becoming more energy efficient, in terms of cost savings and lowering carbon emissions.”

> **“As well as the cost savings to the business, it’s great to be able to operate more sustainably**

GROWING PRESSURE ON COVERED CROP OPERATIONS

Leanne Roberts : owner – Thymebank; Director of Vegetables New Zealand Inc – Covered Crops

Decarbonisation takes time and it is not on our side

Life in the times of decarbonisation is fraught with pressure, short timeframes and big decisions for covered crop growers. The government's aspiration for decarbonisation is causing significant increases to the Emissions Trading Scheme (ETS) and uncertainty of supply of fuels such as gas. This creates a perfect storm of high costs, risk and uncertainty for covered crop operations.

Support to transition the covered crop industry through decarbonisation plans has been happening through a staggered approach with assistance from groups such as the Energy Efficiency and Conservation Authority (EECA). The focus has initially been to assist large-scale operations, in some cases funding newer or alternative fuels that were previously considered experimental in New Zealand.

While some larger operators have been able to make a start on decarbonisation planning and implementation, the industry as a whole is at the beginning of this journey.

> "This creates a perfect storm of high costs, risk and uncertainty for covered crop operations

Many covered crop operations, irrespective of size, are still reliant on using coal and gas until their decarbonisation plans, infrastructure and technologies are in place. Unfortunately, there is a lag between the alternative technologies and decarbonisation of operations being in place and the affordability and availability of maintaining current fuels and technologies.

The result is uncertainty of fuel and operational viability in the interim. This will have consequences on the year-round production of fresh vegetables as covered cropping operations are largely responsible for maintaining supply of fresh vegetables throughout the off-seasons. This will have a direct impact on the affordability of fresh vegetables produced in New Zealand.

> **Many feel let down by the lack of assistance and support, given the unrealistic timeframes and costs associated with the government's decarbonisation goals**

There is further concern that a rush to adopt electricity-based technologies will cause problems for both the electricity infrastructure network as well as decarbonisation. At present, the network is not equipped to cope with the extra power operations will require to run heat pumps and other electricity-based technology. Aside from the significant upgrades to infrastructure required to meet the demand, it is likely coal would need to be burned to create the electricity required to run covered cropping operations. This is counter to the government's zero carbon goal and begs the question of the point of large-scale transition to electricity-based technologies.

Cost of transition is a major consideration for covered crop businesses. With smaller operators looking at eye-watering quotes to convert current technologies, many are scratching their heads about how to make the change to alternative technologies and fuels at a cost which is viable for business and within the government's aspirational timeframes. While there has been some government assistance made available through funds such as Government Investment in Decarbonising Industry (GIDI) and EECA, there is significant concern among growers that the overall economics of transition will undermine financial viability and kill the industry.

WITH SMALLER OPERATORS LOOKING AT EYE-WATERING QUOTES TO CONVERT CURRENT TECHNOLOGIES, MANY ARE SCRATCHING THEIR HEADS ABOUT HOW TO MAKE THE CHANGE TO ALTERNATIVE TECHNOLOGIES AND FUELS AT A COST WHICH IS VIABLE FOR BUSINESS AND WITHIN THE GOVERNMENT'S ASPIRATIONAL TIMEFRAMES

Many alternatives that have been advocated may work in theory, but in practice are not economically viable. Other alternatives that may be more practical and viable require a longer timeframe to build and have up and running. Meanwhile, the clock is ticking on the government's decarbonisation countdown.

Significant investment required

There is significant investment required to build a covered crop operation. In the scoping phase, many growers have researched the main risks to their operations and made investment decisions based on factors such as appropriate fuels and fuel availability. For many it feels as if they have been let down by the lack of assistance and support, given the unrealistic timeframes and costs associated with the government's decarbonisation goals.

Larger covered cropping operations have been able to progress their decarbonisation journey but are not in the position to have their current fuels and technologies made unavailable. There is concern that not all operators are being given the help needed to make realistic decarbonisation plans. Smaller and medium operators are struggling to understand what is required and where they can go for impartial help. Many are only just now able to access practical assistance to identify options, however there is a lot of confusion about what help is available, and how to access that help.

Meanwhile, the industry is keenly aware we are heading into the winter period when there is the greatest need for reliable and consistent heating. Winter is not the time of year many growers would be looking at trialling or implementing new and untested technologies onsite without the safety net of having their existing technologies remaining available to use. This year ETS is tipped to be at its highest – over $50 per tonne. This has a massive impact on the ability of covered crop operations to produce fresh vegetables throughout the off-season. Coupled with huge increases to other growing inputs such as mediums, seeds and fertilisers, many growers are reconsidering the viability of year-round production in the current climate.

> **This year ETS is tipped to be at its highest – over $50 per tonne**

Covered crop growers of all sizes need more clarity about what they need to do to decarbonise, lenience with timeframes, and help to get this achieved. In many cases the will and desire to make the change is there, but the ability to get the changes in place within the government's timeframes feels like an impossible task.

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PLANTS CAN HELP REDUCE EMISSIONS AND CHEMICAL USE

Elaine Fisher

Kings Seeds owners Barbara and Gerard Martin and their new general manager Charlotte Connoley in the company's Katikati warehouse

Seeds for flowers to feed beneficial insects, for plants which help regenerate the soil, and for green manure are among those in the thousands of sacks, bags and packets which fill the Katikati warehouse of Kings Seeds.

Better known for its online business supplying seeds to home gardeners, the company also specialises in supplying smaller commercial growers, farmers, and horticulturalists with specific varieties to meet their needs.

> "If growers know aphids are likely to be a problem at a particular time of year, they can plant seeds, especially of Phacelia, three months early, to be sure to have a food source for the insects which will help control the aphids

Charlotte Connoley, Kings Seeds general manager, says the regenerative agriculture movement is strong right now. "A lot of people see the benefits of using green manure to enhance soils, and plants to help reduce chemical inputs and lower emissions. These are in line with the government's aim for a more sustainable primary economy, as set out in its *Fit for a Better World* plan."

And there is a science to back up the use of plants to help improve the environment, including from research by Lincoln University, says Gerard Martin who, with his wife Barbara, owns Kings Seeds.

"Flowering plants can help with integrated pest management programmes on orchards and vineyards by providing nectar and pollen for beneficial insects," says Gerard.

"Integrated pest management means growers monitor pests and use target sprays for specific pests when required. By understanding the lifecycle of pests and beneficial insects they can use nature to encourage the good guys to fight for them.

"Providing a food source for the beneficial insects is imperative. For instance, if growers know aphids are likely to be a problem at a particular time of year, they can plant seeds, especially of Phacelia, three months early, to be sure to have a food source for the insects which will help control the aphids."

Knowing the feeding habits of beneficial insects is also vital. "Some, like parasitic wasps, have very short 'noses' and can't access nectar from many flowers, which is why alyssum, with its clusters of tiny flowers is an ideal food source. Alyssum is

Thousands upon thousands of seeds in distinct green and white Kings Seeds packets are catalogued and stacked on shelves within the company's Katikati warehouse

often grown in orchards and vineyards, where it may be driven over by tractors and still recover."

Charlotte, who for 20 years worked for South Pacific Seeds where she was managing director, joined Kings Seeds three months ago. "After 20 years managing Kings Seeds, it is time for Barbara and I to step back and bring in new ideas. With her extensive experience and knowledge of the seed industry, Charlotte was the obvious choice to keep the business going forward," Gerard says.

While many businesses have struggled in the past two years, Kings Seeds has been busier than ever. The Covid-19 pandemic and lockdowns has brought a resurgence of interest in gardening and since lockdowns eased, prompted increased demand from small and large commercial growers, leading the 44-year-old company to employ more staff, including Charlotte who has plans for its further growth.

"The first thing was to focus on people. Getting the right people in place is vital and we have an outstanding team of 15 locals."

Technology will play an increasingly important role in the company's future. Charlotte says it is a point of difference for Kings Seeds that measuring, weighing and filling seed packets is done by hand. However, to meet increased demand, efficiencies are needed.

"We need to become more streamlined, including with our product range to be sure it is attractive for growers. We are looking at our marketing and talking to our customers to find out what is working and what they want, including the 20-to-40-year age group of home gardeners who are quite new to growing."

Gerard says the company has found a niche for itself in supplying home gardeners and smaller commercial growers. There are around ten big seed companies in New Zealand supplying commercial growers. We concentrate on growers who supply farmers' markets with vegetables or seedlings or grow gourmet vegetables for restaurants and cafes, who require smaller volumes of seeds than big growers.

Camilla Persson preparing seeds ordered online for dispatch to clients

There is an increasing interest in different cuisines from around the world too. All this is suited to where we are at within the industry because of the range of seeds we offer."

Charlotte says provenance and food safety is increasingly important for consumers, which is why many people like to buy food from farmers' markets where they can talk directly to the growers.

For growers, the fact that Kings Seeds has many heirloom varieties and grows and harvests seeds in New Zealand also appeals.

Part of the reason for growing seeds locally is to ensure they will do well in New Zealand conditions, says Gerard. "We try to ensure things are easier to grow rather than hard to grow, so people can enjoy success instead of being stumped at the first stage by seeds which are hard to germinate, or frost tender or not suitable for their region."

> **"There is an increasing interest in different cuisines from around the world too. All this is suited to where we are at within the industry because of the range of seeds we offer**

As well as vegetable seeds, the company has an extensive range of flower seeds popular with home gardeners and small commercial growers. "Flowers, especially wildflowers, are very much on trend and many of our customers grow them for farmers' markets or roadside stalls," says Charlotte.

There's also been increased demand from another sector. "There has been a proliferation of interest in community gardens, gardens at marae, in schools and in early childhood centres which is excellent, because it's helping to teach people about growing their own food, which in today's environment with rising food prices is very important."

While the Covid-19 pandemic has brought growth in demand for its seeds, it has also thrown up issues for the company, exacerbated by the impacts of the war in Ukraine.

"The supply chain is tight and globally there is a lot of demand for seeds of all varieties. Where once we could expect to receive seeds in two to six weeks, it may now take six months. The costs of freight have increased as have fuel costs," says Charlotte.

Like the seeds it specialises in, the company hasn't stopped growing since it was founded in 1978 by Ross and Glenys King, who sold through their first catalogue, 65 herbs and flowers, eight gourmet vegetables and 170 herb plants.

Barbara and Gerard bought the business in 1999, relocating it from Auckland to Katikati. The company now sells around 1000 different varieties of seeds, including many described as 'weird and wonderful' in line with the King's founding philosophy to keep things interesting.

Every day boxes and boxes of seeds are posted to clients throughout New Zealand

Thinking vegetable seeds? Think **Terranova.**

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RISING COSTS CONCERN THE COUNTRY'S VEGETABLE GROWERS

Glenys Christian

Input price increases are top of the list when it comes to vegetable growers' concerns, closely followed by labour shortages and compliance issues.

"There's a sense of nervousness I've never seen before," says Jay Clarke, a director of the Horowhenua's Woodhaven Gardens.

"There's lots of clouds on the horizon."

He points to a 300 percent increase in freight costs in recent years, crate costs going up and labour rates rising.

"And we're very concerned about ongoing consumer support. If a lettuce is $4 or $5, will people continue to pay that?"

Jay Clarke from Woodhaven Gardens

> **"The cost of complex compliance requirements is a real hurdle, especially for smaller growers**

If not, Jay says there's the risk of market contraction, growers exiting their businesses and New Zealand losing its food production capacity.

"And that will be hard to get back."

While consumers will happily pay $5 or $6 for a flat white every day, Jay says they won't spend that on a head of green cabbage, which will feed a family for several days.

$5-6
FOR ONE FLAT WHITE COFFEE

$5-6
A HEAD OF CABBAGE THAT FEEDS A FAMILY FOR DAYS

"That represents really good value."

Jay believes the government needs to look at alternative ways of supporting those in lower socio-economic groups.

"No one has seen costs move like this before. It's unprecedented."

Nelson grower, Ben Conning, says the cost of labour has "gone through the roof", due to high general demand. He also estimates fertiliser costs have gone up by 50 percent with freight rates increasing as well.

"The scary thing is that we're flying blind because our costs have increased so much."

Ben's answer six to eight months ago was to start selecting crops he would leave in the ground rather than harvest.

"We're not cutting spinach because the biggest cost is harvesting it and we're price-takers," he says.

"Leeks are another crop where labour costs are high, and the lettuce price has been in the gutter for the whole season."

Compliance costs are also inching up. While Ben says larger growers can wear these, there's no incentive for younger growers to get into the industry, particularly in an area where good growing land can cost between $200,000 and 250,000 a hectare.

Pukekohe Vegetable Growers Association (PVGA) president, Kylie Faulkner, says Pukekohe growers are tired of the government throwing environmental regulations at them which seem unworkable.

"We are also facing labour issues and cost increases, but we're no different to growers in other parts of the country."

Waikato growers say they are finding the number of local government submissions they're required to make and the compliance issues they're facing a struggle, at a

busy time of year. The pressure is being increased by the shortage of labour due to Covid-19.

Fertiliser prices have increased sharply, with one branded product doubling in price within 14 months. Polythene prices for cloches have lifted by up to $200 a roll and agrichemical inputs have shot up as well. But growers remain resilient and are 'getting on with it'.

Robin Oakley from Canterbury company Oakleys' Premium Fresh Vegetables, says Covid-19 is still his biggest concern. It is a very busy time of year with pumpkins and potatoes being harvested, with more than 50 staff employed full-time along with some part-time seasonal workers.

"We're okay for staff at the moment – but it's only just enough," he says.

There have been shortages and while it is said that the worst of Covid-19 is over, it could still take a lot of his workforce out.

Increased costs are another concern. Wages have steadily gone up in the past few years and with the increase in the minimum wage, inflation and the lack of people wanting work, it is costing more to get less work done as the quality of workers being hired has dropped.

> **"No one has seen costs move like this before. It's unprecedented**

Fuel and fertiliser costs are also up and growers are needing to keep up with what is happening with environmental regulations.

Robin says consumers need to be paying 10 to 15 percent more for vegetables because of growers' increased costs.

"But everything else is going up too."

While he has received higher prices for broccoli, that is as a result of the supply and demand situation.

Kumara growers in Northland are in the middle of their harvest, and labour shortages have been an issue.

"Orange kumara swells up quickly with any rain. With not enough labour available, some growers haven't been able to harvest it at its prime," says Doug Nilsson, the chairman of the Northern Wairoa Growers' Association.

Labour costs have gone up along with fuel, and returns aren't looking any better than the disappointing levels growers received last year.

The cost of complex compliance requirements is a real hurdle, especially for smaller growers who cannot employ someone to handle these details for them.

"We feel attacked from different directions," Doug said.

"Some are saying they could drive a truck for $100,000 a year and not have all the hassle."

5+ A DAY CHARITABLE TRUST

Bringing star power to the fruit and vegetable aisle

2022 is set to be one of the busiest years yet for the 5+ A Day Charitable Trust, with a schedule of action-packed promotional work and celebrity partnerships designed to encourage all New Zealanders to eat five or more servings of colourful, fresh vegetables and two servings of fruit every day.

The Trust recently shared the exciting announcement that they have partnered with Olympian, World Champion and Halberg Sportswomen of the Decade, Dame Lisa Carrington, to share the health benefits of a diet high in fresh produce.

5+ A Day Project Manager, Carmel Ireland says Dame Lisa's star power will put a spotlight on seasonal, locally grown produce from amongst the 30+ different fruit and vegetables that the Charitable Trust promotes.

"Dame Lisa is an absolute icon of New Zealand sport. Her passion for healthy living shines through all her work and with her help, we'll be able to share the amazing nutritional benefits of fruit and vegetables with an even larger audience."

The Trust shares its health messages through schools, providing free curriculum-linked resources that promote the importance of eating 5+ A Day. Teachers can access a huge array of these classroom resources via the Trust's education website **5adayeducation.org.nz**, while Kiwi families can find plenty of useful information and great recipes at **www.5aday.co.nz**.

Ireland says that this year, many classrooms will experience the added excitement of a hands-on initiative from the Trust.

"5+ A Day have teamed up with the Life Education Trust to bring Harold the Giraffe and social media stars, the Two Raw Sisters, to schools around the country. They'll be hosting cooking workshops for tamariki to prepare fruit and vegetables, learn how they grow and why they are such an important part of a healthy diet," she says.

The Trust also uses social media channels to promote the health benefits of fresh fruit and vegetables. Dame Lisa will be a regular feature throughout 2022 on the @5adaynz page on Facebook, Instagram, Pinterest and Twitter.

"During the year, our 65,000 social media followers will be treated to over 50 beautiful recipes, created, styled, and photographed to highlight New Zealand's freshest seasonal fruit and vegetables," says Ireland.

"We also encourage everyone to support Kiwi growers by shopping locally and buying what's in season, and we share a range of sustainability tips to reduce waste and make the most of your fresh produce."

The Trust's social channels also feature regular content from other well-known foodies and celebrities such as Mike McRoberts and Niki Bezzant, whose recipe videos reach an even wider audience.

The recipes and meal ideas shared by 5+ A Day are specifically tailored to be easy and fuss-free.

"It's important to demonstrate that getting your 5+ A Day is achievable. Simple changes such as adding a serving of fruit at breakfast then continuing to include fresh fruit and vegetables in every snack and meal throughout the day make a huge contribution to your health and wellbeing," says Ireland.

The activities of the 5+ A Day Charitable Trust also extend to initiatives and partnerships designed to foster a lifelong love for fresh fruit and vegetables.

"Fruit and Vegetables in Schools (FIS) is an important initiative that 5+ A Day supports. FIS sees around 27 million servings of fresh produce delivered to schools each year and we were able to use our networks around the country to divert deliveries to other charities during COVID-19 lockdowns."

For more information visit www.5aday.co.nz, teachers and educators can access free resources on www.5adayeducation.org.nz

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FOUR VIEWS FROM WOULD-BE AUCKLAND MAYORS ON PUKEKOHE

Glenys Christian

Wayne Brown – supporter of elite soils

Viv Beck – land needs to be used appropriately

Wayne Brown has a very personal perspective when it comes to protecting the growing of vegetables around Pukekohe

"Growers won't have a more favourable mayor than me," he says.

That's because along with involvement in a number of other businesses, Wayne grew a range of crops near Kerikeri in Northland, such as export pumpkins, tamarillos, watermelon and kiwifruit.

"That was quite a long time ago but it doesn't leave you," he says.

"I'm a great believer in supporting our elite soils."

And if elected as Auckland mayor, Wayne says one of his first moves will be to sit down with council planners and look at what zoning changes can be made so these soils can be protected so growers can continue their businesses. He also wants to highlight and raise awareness of food security.

He knows the Pukekohe area well, owning commercial buildings in the town. And when he has subdivided and developed property elsewhere in the past, he says he's chosen to do it on poorer soils.

"I know what's involved in getting a resource consent. And I know what powers councils have and what they don't."

Wayne's main platform was to stop Auckland Council wasting money by finishing projects before they start new ones.

"Growers need to be interested in these cost over-runs," he says. "The city is not doing as well as it should."

Viv Beck says while it is early days in her policy development, she has watched the issue of food security being highlighted during the Covid-19 lockdowns in Auckland.

"It's important to use land appropriately," she says.

"And it concerns me that growers might be stopping production or having to move because of costs going up. It's an unfavourable outcome."

She plans to visit Pukekohe early in her campaign and find out more about why housing developments are happening on prime growing land.

Viv has been chief executive of Heart of the City, promoting Auckland businesses, since 2015. Before that, she was the communications director at the Ministry of Foreign Affairs & Trade (MFAT) in Wellington. She wants to remove the Auckland fuel tax and look at the possibility of congestion charges in the central city.

"It really concerns me that fruit and vegetable prices are going up," Viv says.

"It's important that people have access to them."

In principle she believes removing GST from such purchases could be a good idea.

Leo Molloy – don't tear up Auckland's garden

Efeso Collins – intensification is a much better approach to sprawl

Leo Molloy asks "Why would you tear the garden of the city apart?" when he is questioned about protecting Pukekohe's elite soils.

He points out that subdivision and development can occur on nearby Karaka's silt loam soils. Leo says if elected mayor, while only having one vote, he would look to direct strategy and infrastructure development so growers could remain on their fertile soils.

"Providing rates are paid there's no downside in leaving things the way they are," he says.

He's strongly in favour of fruit and vegetables continuing to be produced in New Zealand to avoid any dependency on other countries, likening the situation to importing 'dirty' Indonesian coal when the country has reserves of its own.

The Auckland restauranteur and businessman doesn't agree with removing GST on fruit and vegetables calling it a "very left-wing idea." But he believes help can be given to those on low incomes by trialing free public transport in southwest Auckland for a year.

"It's all about uptake of opportunity," he says. "Some people want cheap public transport but for someone else, not them."

Efeso Collins says Auckland needs development but to achieve good, compact urban form, growth is best served in brownfields rather than greenfields development. He was elected to Auckland Council six years ago and was one of the first to declare his intention of running for mayor.

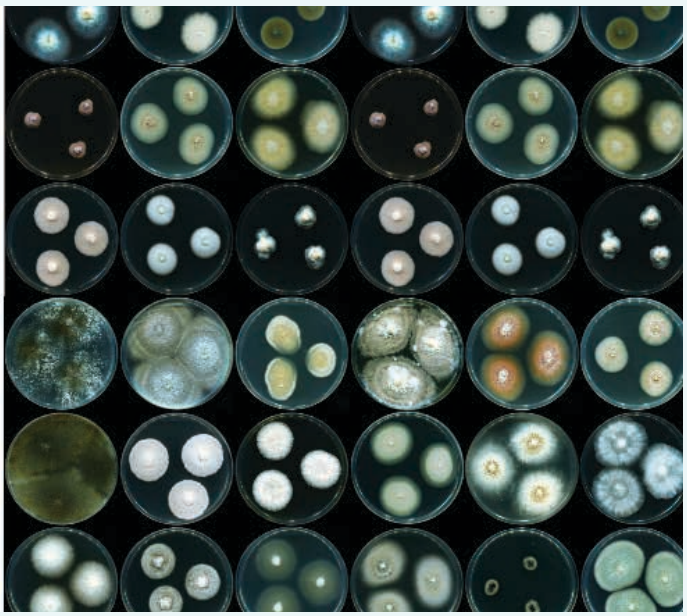
"Climate change, transport and infrastructure needs suggest that intensification is a much better approach to sprawl, especially when that costs us some of our most productive food growing soils," he says.

But Pukekohe was an attractive place to live and people who had grown up there or were looking for the lifestyle it offered needed houses.

"They won't take too kindly to being told to move into city suburbs far away," he says. "So their desires need to be balanced against the reality of climate change and the need to protect elite soils. There is also likely to be more pressure on rural areas generally as people embraced flexible working arrangements."

NEW SCHOLARSHIP RECIPIENT TAKES ON ENDOPHYTES

Kazi Talaska : Onions New Zealand



Endophytic fungi

Otago University PhD student Pauline Cervantes is the recent recipient of an Onions NZ and Vegetables NZ joint scholarship working to study the endophytic fungi in New Zealand vegetable crops.

In her Honour's year, Pauline had isolated a species of endophytic fungi that demonstrated great potential in inhibiting the growth of *Botrytis*, a common fungal pathogen for vegetable crops in New Zealand. "My interest in vegetable research essentially started through endophytes. In the summer of 2018–2019 I was doing this summer scholarship at Lincoln University with the Bio-Protection Research Centre and that was when I first learnt about endophytes," says Pauline.

Her current PhD project is around isolating these endophytic and microbial communities and how they can provide crop protection and beneficial ecological interactions. "It just fascinated me how broad their current applications are, and new possibilities for their applications are still being discovered, and I really want to be a part of that."

Although there have been challenges with the project, including starting fieldwork and facing delays for procurement of samples due to Covid-19, Pauline has strong support from her supervisors and continues a close relationship with Onions NZ to address issues going forward.

Agrichemical use has been an ongoing issue for the vegetable sector. The shift in consumer preference, domestic and international compliance is putting pressure on growing systems to move to low residue and increasingly sustainable growing practices.

"Her current PhD project is around isolating these endophytic and microbial communities and how they can provide crop protection and beneficial ecological interactions

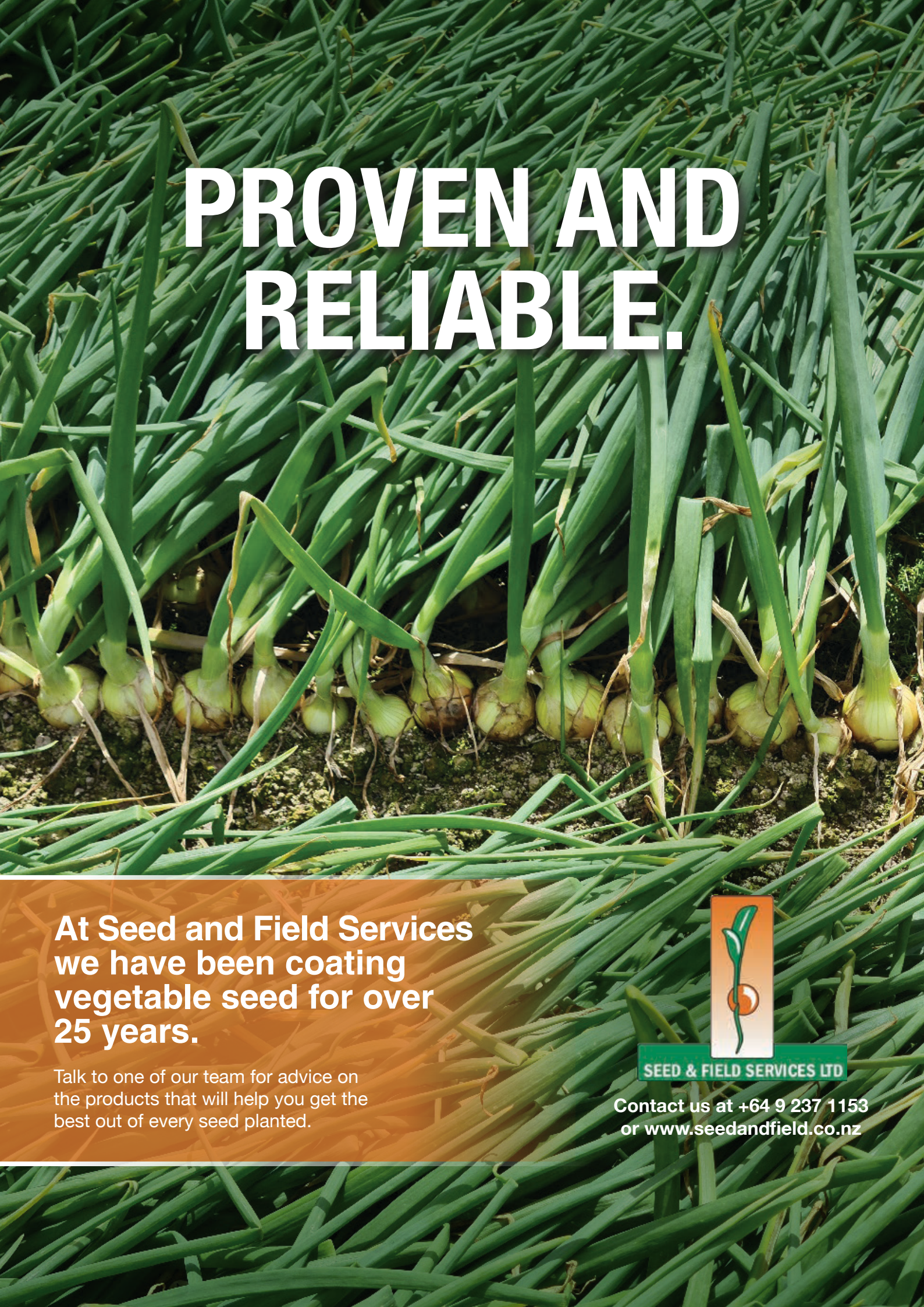
The use of agrichemicals is also a challenge for water quality, biodiversity, and limiting the increasing costs of production. "The cost of production and compliance is rising; this is becoming an increasing challenge for our growers" says chief executive of Onions New Zealand, James Kuperus.

It is essential to ensure the vegetable sector remains competitive, sustains market access, and grows in value. Leading sustainability by example on the global platform is vital to achieve that. Supporting research into biological control agents is a step in that direction.

"My love for studying these natural interactions in our indigenous systems just naturally overflowed into trying to find ways in which they can be applied to our horticultural systems to help solve contemporary problems relating to pests and diseases in a manner that is sustainable."

She hopes that her research will highlight the biotechnological potential of endophytes and how this can be translated into the resilience of growing systems. "The dream would be to be able to apply the endophytes that I discover in my project as biological control agents for important diseases and pests that threaten the industry."

"I'm really grateful for this opportunity, and the support from Onions NZ and Vegetables NZ has allowed me to be able to extend the application of my project."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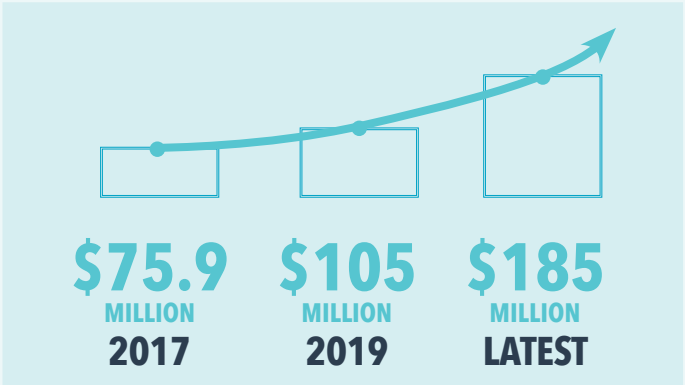
WAIMEA COMMUNITY DAM UPDATE

Anne Hardie

Waimea Community Dam

The Waimea Community Dam has been plagued by continual cost blowouts, but the chairman of Waimea Irrigators Ltd (WIL) says it is an intergenerational project that will enable horticulture to develop on the Waimea Plains.

Murray King says the proponents of the dam in the Lee Valley have been working on the project for 20 years and though the increasing cost of the dam is disappointing, the benefits will still be significant.



When the project was first put to the public in 2017, it had a price tag of $75.9 million. By the time it was commissioned in 2019 it was $105 million, and since then the project has been besieged with problems, with everything from geological issues to Covid-19. The latest increase takes the project to $185 million and there is a risk it will go higher as the remaining 30 percent of the build is completed.

The biggest hurdle for the dam construction work and the cause of increased costs was the discovery of highly fractured rock on the site, with multiple large shear zones (areas of ground rock and clay) bisecting the top of the spillway, plus weak rock under the plunge pool. Added to the geological problems has been high inflation adding to the cost of materials and global supply chain disruptions, materials being in short supply and the ongoing impact of Covid-19 on staff and productivity. The mechanical and electrical works alone are now expected to cost $19 million more than the original 2018 budget.

The irrigators who bought shares in Waimea Irrigators own 49 percent of the dam, with some of the larger irrigators paying hundreds of thousands of dollars each to secure water for the future, and buying surplus shares to get the dam over the starting line. Tasman District Council owns 51 percent and will fund that percentage of the operating costs, with just over half of those costs attributed to insurance, rates and consent compliance. The remaining costs cover ongoing dam operations, maintenance, engineering, staff and company costs. The council needs the dam to service its existing communities and future residential and commercial growth.

Waimea Water which is the council-controlled organisation responsible for managing the construction, operation and maintenance of the dam, expects it to be completed by early spring, which means it could begin filling and be commissioned by early 2023.

> **If the government's Three Waters Reform goes ahead, the council's interests and debt in the dam project are tipped to transfer to a proposed new entity**

Initially, irrigators were looking at paying annual operating costs of about $500 per hectare or just over, but that could double and Murray admits it is an unknown at this stage until extra funding is sorted out and costs shared. Council has stated it proposes to use income from its enterprise activities to cover interest related to the irrigators' share for 2022–23 as other funding options are investigated. A targeted rate on irrigators will not come into effect until the 2023–24 year.

If the government's Three Waters Reform goes ahead, the council's interests and debt in the dam project are tipped to transfer to a proposed new entity. For irrigators, Murray says there are concerns under Three Waters' management.

"We've got a partner and don't know what it is and what the terms and conditions are going to be and how it will operate."

ABOUT 3,000HA OF THE WAIMEA PLAINS ARE SUBSCRIBED TO BE IRRIGATED BY THE DAM, AND UP TO 5,000HA OF LAND HAS THE CONTOUR TO BE POTENTIALLY IRRIGATED ONCE THERE IS AVAILABLE WATER

Despite the costs of the project and concerns about Three Waters, he says the dam is still the best long-term solution for the region's urban and irrigator needs. About 3,000ha of the Waimea Plains are subscribed to be irrigated by the dam, and up to 5,000ha of land has the contour to be potentially irrigated once there is available water.

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The best thing is that you do not need to apply for this funding. If you're enrolled in an eligible programme, the fund will automatically cover your fees costs for training that occurs between 1 July 2020 and 31 December 2022.

For employers who enrol apprentices, the government's Apprenticeship Boost offers financial support through until 4 August 2022.

Adam Fleck, sector advisor horticulture, says "For a long time, our industries have been crying out for skilled people. This is a once in a lifetime opportunity to bring in those people and train them with the most up-to-the-minute skills, with subsidised fees. At a time when we all want to see people transitioning from other industries to primary sector careers, this should be an enormous incentive."

How Free Trades Training works is that when you or your staff are enrolled in one of our programmes, the government will pay any training and assessment fees that you would previously have had to pay Primary ITO, up until December 2022.

If you're an employer, we are strongly encouraging you to take advantage of Free Trades Training and look into how you can access support through the Apprenticeship Boost. Unlike the Free Trades Training, employers do need to register to receive this support. You can do so through Work and Income New Zealand so please contact them directly. Adam is encouraging employers to take a closer look at this sooner rather than later.

"From what we understand from employers who have registered for the Apprenticeship Boost, it has been a relatively easy process to gain the support, however, time is running out as the fund finishes this August."

To learn more, get in touch with the team at Primary ITO. Call us on 0800 20 80 20 or email **info@primaryito.ac.nz** or check out **www.primaryito.ac.nz**.

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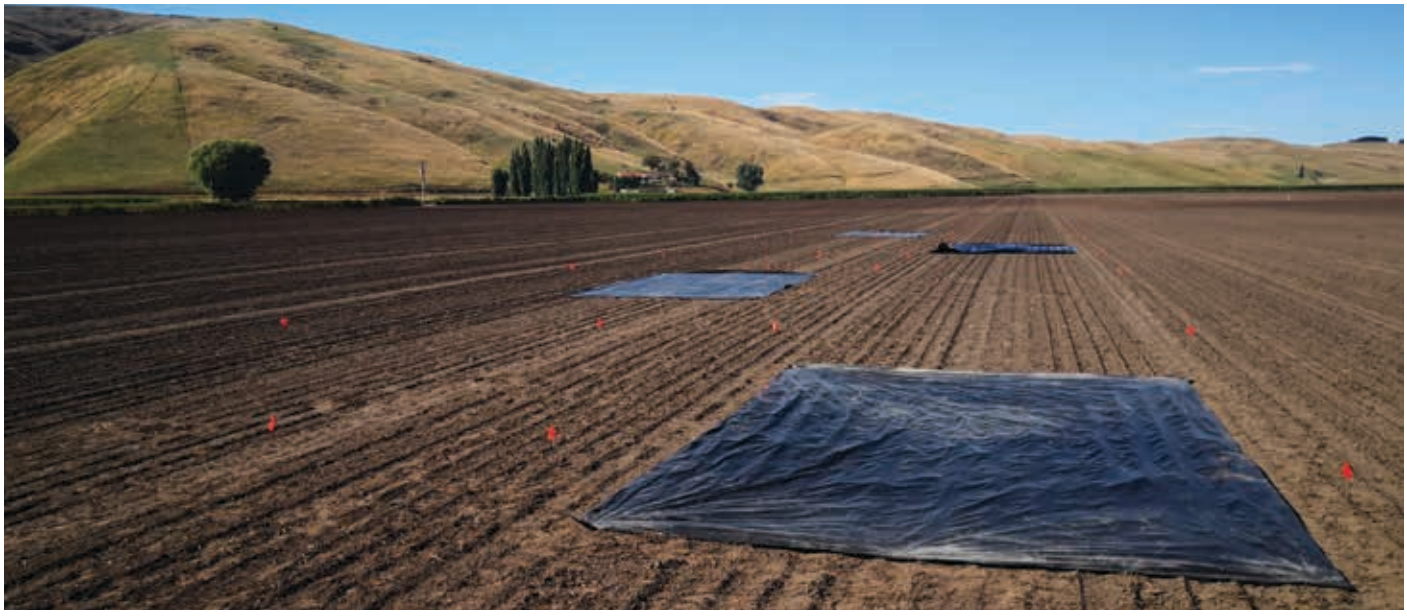
TECHNICAL

THE LATEST INNOVATIONS AND IMPROVEMENTS

BEST PRACTICE FOR NITROGEN IN PROCESS CROPS

LandWISE

Dan Bloomer



Each paddock has four pairs of plots, replicating alternative fertiliser rates

Understanding the nitrogen balance is an important aspect of crop and environmental management, and the focus of research under the Sustainable Vegetable Systems (SVS) project (see Searle, Fraser and Sharp, *NZ Grower*, April 2022, p40).

The nutrient balance considers nitrogen in different 'pools' – the soil, plant material and fertilisers, and in exported crop and any losses. It is important work, seeking to provide more understanding, better estimates and management recommendations.

LandWISE has been working with growers to better manage nitrogen through the *Future Proofing Vegetable Production project and now through Best Management*

Nitrogen fertilisers are an expensive input – how can we use just the right amount?

Practices for Process Crop Nitrogen Management under the Ministry for Primary Industries (MPI), Sustainable Food and Fibre Futures (SFFF). These projects take the same nutrient balance approach as the SVS, but are more directly grower focused, looking at currently available resources to help growers make the best fertiliser decisions, to check application rates are correct and even, and that irrigation management minimises leaching risk.

The first step is prescribing the appropriate fertiliser rate, which means completing a nutrient budget. In essence, this is asking, "How much nitrogen will my crop require, how much have I got in the root zone, and what is the difference I need to make up?" When we began working with fresh vegetable growers, we found few were completing nutrient budgets because there was no template for them and little guidance on where to get the necessary data.

We took a nitrogen pools approach and developed the LandWISE Nitrogen Nutrient Budget tool. (See www.landwise.org.nz/resources/tools/landwise-nutrient-budgeting-template/.) The budget combines soil test data, expected yield, and the fertiliser recommendations in Horticulture New Zealand's *Nutrient Management for Vegetable Crops in New Zealand* to determine a nitrogen need, and balances it against planned fertiliser use. At the end of the season, actual fertiliser applied, actual yield, a soil test, and an estimate of nitrogen in residues, allows calculation of changes in the pools and the scale of any losses from the system. Completed budgets can provide evidence for quality assurance schemes.

After introducing the LandWISE Nitrogen Budgeting Template, we received queries about the recommendations in the *Nutrient Management for Vegetable Crops in New Zealand* book. Some growers felt recommendations for certain crops were 'a bit light' but in other cases some thought lower fertiliser rates could be used. Our sweetcorn trials in recent years certainly found there can be a lot more nitrogen in a deep root zone than the current guidelines seem to assume. Indeed, in one set of trials we got no yield differences from different fertiliser rates or methods because there was more than enough there before we started. It was just sitting a bit deeper in the soil profile. On the other hand, we didn't detect a statistically significant yield difference in some tomato trials, but at the recommended fertiliser nitrogen rate the canopy went very yellow and there was almost no nitrate left in the soil. Was that cutting it a bit fine?

> **"We are monitoring nitrogen before planting, before side dressing and at harvest, using tools available to growers, and completing nitrogen budgets using the LandWISE template**

With support from McCain Foods, Heinz Wattie's and Hawke's Bay Regional Council, our MPI SFFF project *Best Management Practices for Process Crop Nitrogen Management* is having another look. Over two years we are looking at four crops each of sweetcorn, green beans, tomatoes and beetroot. Our trials are comparing the 'book' nitrogen rate with either the usual grower practice or

some other alternative. We are monitoring nitrogen before planting, before side dressing and at harvest, using tools available to growers, and completing nitrogen budgets using the LandWISE template.

As well as lab tests for soil nitrate, we look at *mineralisable nitrogen* to estimate how much is likely to become available to the crop from decomposing organic matter. That, combined with the book tables gives us the justified fertiliser rate for the anticipated yield. Usually much is applied as a side dressing, but growers do apply some starter fertiliser at planting. This is rarely sufficient to feed the entire anticipated crop but ensures good availability to developing seedlings. We soil test again using the Nitrate Quick test before side dressing, to assess available nitrate in the crop root zone. This calculation determines the bulk of fertiliser input, in time for the fastest and greatest uptake during the crop's development.

There are several of benefits of pre-side dress testing. Firstly, it accounts for actual organic matter mineralisation that happens between pre-plant soil testing and side dressing, which can be significant but is highly variable. Secondly, it checks the results of added fertiliser. And thirdly, it minimises the risk of leaching, because the bulk of fertiliser is held back when the plant root systems are very small, uptake rates are low, and the chance of large rain events flushing nitrate from the soil is often higher.

> **"Our numbers are directly relevant to our actual crop, in our actual soil, in the actual season, with the actual inputs and actual outputs. And they give a strong indication of how well crop management has balanced inputs of an expensive nutrient with outputs of the sold crop**

The Nitrate Quick Test is a very powerful tool, cheap and easy to use. The biggest cost is getting out and taking the samples! Check out the Foundation for Arable Research website for details and for a very handy calculator that converts the raw test results (ppm concentration the soil) to nitrate as an amount (kg-N/ha). But note, you must take a 'representative' sample. You must account for any different areas in the paddock or crop, differences in application of nutrients, the depth of the crop root zone, and any other variables, and sample in a way that truly represents what is available for your crop.

At the end of the season, we calculate the nitrogen exported in the harvested crop, the amount sitting in the above ground crop residues, and the amount of soil nitrate using the Nitrate Quick Test. We look at the amount of nitrogen that was added to grow the crop, and add everything up to see how much can be accounted for. If there is a discrepancy, we want to understand why. If we calculate we have more nitrogen than expected, maybe there was more mineralisation than we anticipated. If we don't find enough, maybe we have had losses – perhaps from volatilisation after fertiliser application, or from leaching after heavy rain.

Our numbers are not perfect – there is always variation and error in measurements. But our numbers are directly relevant to our actual crop, in our actual soil, in the actual season, with the actual inputs and actual outputs. And they give a strong indication of how well crop management has balanced inputs of an expensive nutrient with outputs of the sold crop.

We are only just getting our 2022 crop harvests completed and await most lab results. What we can say is that we have had some very large rain events this season, and any 'spare' soil nitrate was highly likely to leach. This demonstrates the benefits of multiple applications to reduce risk rather than an all-up-front approach.

Some interim results will be available shortly, with a full report after the 2023 harvests. To stay in touch, check the free LandWISE newsletter or email **info@landwise.org.nz.**

YEAR-ROUND STRAWBERRY PRODUCTION

final word

Mike Nichols

The strawberry research house (photographed mid-May 2018). ***Front:*** *April 2018 planting;* ***Middle:*** *May 2018 planting;* ***Rear:*** *June 2017 planting*

Strawberry runner plants generally become available for planting for outdoor production in May. This is because runners are usually only produced during the long days of summer, and they require time to develop a good root system before being dug for transplanting.

However, there is an increasing interest in the production of strawberries in greenhouses, using hydroponics and tabletop systems to produce ripe fruit over a longer season.

> “No sprays were applied to the crop, and virtually no fruit rots were noted (due to the greenhouse cover). Pests (such as aphids, mites and thrips) were controlled biologically by predators supplied by Bioforce

This article looks at a study undertaken in a greenhouse (heated below 18°C and ventilated above 25°C) at the Plant Growth Unit at Massey University, Palmerston North. Damian Duggan-Jones and I undertook the study in two seasons 2017–2018 and 2018–2019 with three planting dates in each season (early April, early May and early June), with four-day neutral strawberry varieties (Albion, Aromas, Monterey, and San Andreas), grown hydroponically in one-metre-long coir modules at three plant densities (three, five and seven plants per module).

The strawberry plants were not propagated in the field, but grown from tip runners, rooted under mist (Nichols, 2003), to ensure freedom from root pathogens.

No sprays were applied to the crop, and virtually no fruit rots were noted (due to the greenhouse cover). Pests (such as aphids, mites and thrips) were controlled biologically by predators supplied by Bioforce.

Good yields were obtained without the use of chemical pesticides and this is considered highly desirable as any withholding period could have caused problems with over-ripe fruit, as harvesting was required at least three times a week.

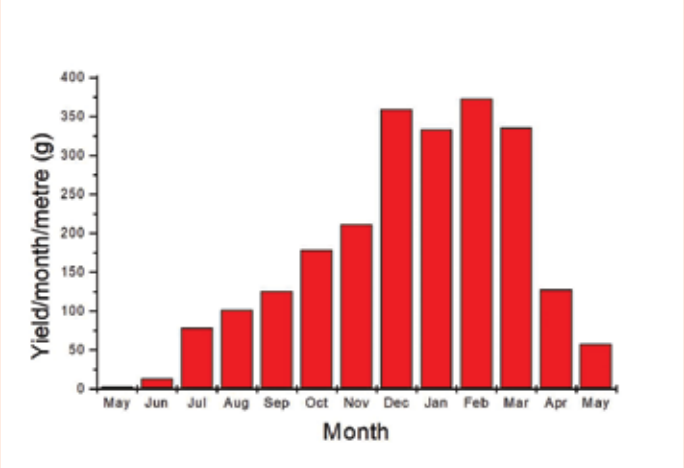


Figure 1: *Monthly yield of strawberries. Mean of four varieties, three densities, two seasons and three planting dates*

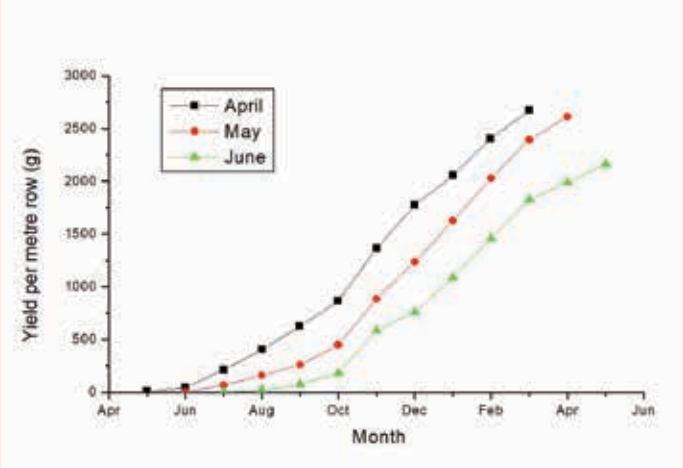


Figure 2: *Accumulated yield of strawberries at three planting dates. Mean of four densities, four varieties and two seasons*

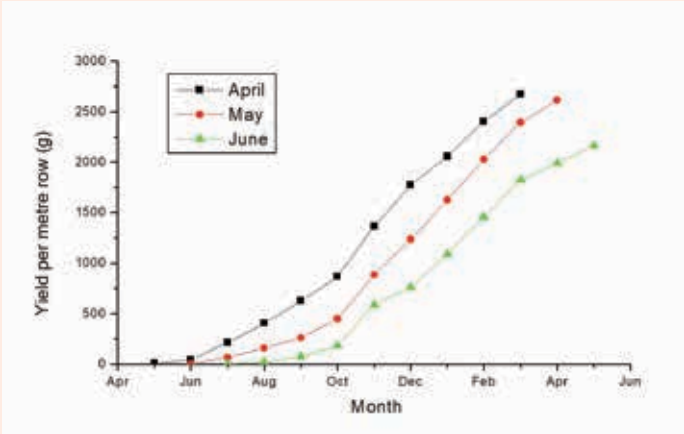


Figure 3: *Accumulated yield of four strawberry varieties. Mean of two seasons, four varieties and three densities*

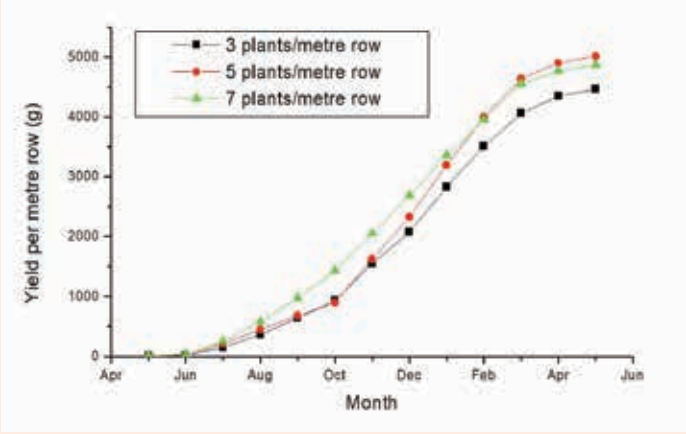


Figure 4: *Accumulated yield of strawberries at 3 densities. Mean of 2 seasons, 3 planting dates and 4 varieties*

Results

This study demonstrated (Fig 1) that fruit yields for each month were not greatly influenced by the planting date, but that productivity even in a heated greenhouse was very dependent on climate, with (as one might anticipate) the highest yields being obtained in the long days and high insolation months of summer. There was a suspicion that the last planting (early June) was not quite as productive as the two earlier plantings (Fig 2).

There was no clear influence of variety on productivity, although there was a slight falling off in productivity in San Andreas at the end of the season (Fig 3).

The number of plants per module (plant density) seemed to have a significant effect, with the highest plant density (seven plants/module) producing the highest earlier yields, however, the intermediate density (five plants/module) had produced similar yields by the end of the season. The lowest plant density (three plants/module) yielded lowest for the whole season (Fig 4).

As many greenhouse plantings are at nine plants/module this brings into question any value in high density plantings when runners cost at least $0.30 each.

> **“ Productivity even in a heated greenhouse was very dependent on climate**

This project has inspired a longer-term study in which the same four varieties were planted at monthly intervals for two years. The results (scheduled to have been presented at an international strawberry conference in Italy) have yet to see the light of day due to Covid-19 travel restrictions. They are likely to have some relevance if New Zealand moves towards self-sufficiency to reduce the biosecurity risk from out of season imports. In any case this past season has amply demonstrated the risk due to global warming of extreme weather conditions and the importance of protected cropping for such rain sensitive crops as strawberries.

Reference. Nichols, M A (2002) “Strawberry tip runners” Practical hydroponics and greenhouses, 64, 34–5.

PRODUCT GROUPS

ALL THE LATEST NEWS FROM YOUR PRODUCT GROUPS

REFLECTIONS AS THE PROCESS VEGETABLES HARVEST ENDS

Richard Palmer : Process Vegetables New Zealand general manager

The last Process Vegetables New Zealand (PVNZ) Board meeting reviewed the harvest that is ending, with reflections on what has been a hugely varied season driven by a wide range of events. Clearly weather events have been one big factor with a series of tropical weather systems affecting crops in Gisborne and Hawke's Bay, and rain also disrupting the pea harvest in Canterbury before Christmas.

Overall, the process pea crop is expected to be down at least 15 percent, whilst final tallies may show a more significant drop. Likewise, corn and tomato harvests in Gisborne are mixed, after a fantastic early start with sweetcorn yields well up in early crops but later crops badly affected by weather.

Covid-19 has also had an effect on processing capacity and logistics constraints, limiting both the export and domestic movement of finished products. So, another season of mixed fortunes but processors report consistent demand and the rise in fresh produce prices, coupled with family budgeting advice from domestic experts about vegetable options, is likely to drive increased demand for processed vegetables, both in New Zealand and in export markets.

Given the current season's challenges what might the following season look like? With input prices rising as inflation grips the country and the globe, clearly price and productivity increases are necessary for the sector's ongoing success. Competition in arable regions as grain prices reach record levels is also likely to be a driver for increased grower returns. Global wheat prices are at a 25-year high, and other staple agricultural commodities (corn, beef, soybeans) are all at similar long-term highs, reflecting the uncertainty of food supply.

This situation is in part driven by the food shortage concerns over Ukrainian agricultural output but also must reflect the increased input costs, especially labour, energy and fertiliser. Those increased input costs will have to translate to increased grower returns, not just to cover those costs, but also to reflect the increased financial risks. The necessity of increased margins to cover both the financial and production risks are not factors well understood by those not involved in primary production. Despite the evident business risk lessons from Covid-19, the irony is that perhaps this has inured our consumers to the challenges of farming. It is clearly an issue that we need to keep educating customers and bureaucracies about, as well as being progressive in climate adaptation to play our part in minimising the weather risks.

In the meantime, PVNZ continues to invest in research to support and maintain production. Two key aspects are the varied research approaches to improve pea production, both seed consistency and also using Rhizobia to improve cooler early season growth. The pea seed research being undertaken by Bruce Searle at Plant & Food Research is demonstrating the ongoing challenge season-to-season, not just for that season's production but the seasonal environmental effect on seed from mother to daughter crops. What is apparent is that the weather effects in one season can be ongoing with the possibility for varied flowering and therefore reduced yield in the subsequent crop.

PVNZ also continues to work with the government to identify other constraints and the Board gave increased impetus to our engagement with Agcarm, given the supply risks for agrichemicals for the coming season. For growers the need to place early orders for agrichemicals is critical to ensuring sufficient supply for next season.

The PVNZ Board looks forward to seeing growers at the Christchurch roadshow and Annual General Meeting on 4 August where we are running a series of presentations together with Vegetables New Zealand before the AGM at the end of the day.

REMINDER TO PAY YOUR TOMATO AND BIOSECURITY LEVY

Dinah Cohen : TomatoesNZ Inc. business manager

Do you sell tomatoes directly? If the answer is yes, you must pay the compulsory levy directly to TomatoesNZ. This is in addition to and separate from the Horticulture New Zealand levy. It appears that a changeover in accounting systems has meant that reminders for direct levy payments for the last two financial years may have been missed being paid by some growers. Tomatoes NZ is in the process of sending out reminders, but if you know that you are yet to pay yours, please make contact by emailing Dinah.cohen@hortnz.co.nz

Ebook – *Greenhouse Energy Efficiency* by Elly Nederhoff published for all to access

You will remember that Elly Nederhoff, specialist in decarbonisation for the covered crop industry, published 15 articles in this magazine during 2020–2021 on various aspects of greenhouse energy efficiency. These articles have been reworked and updated and are now free to download for all as a handy e-book. *Greenhouse Energy Efficiency:* Growing more and better with less fuel in commercial greenhouses is a comprehensive work based on studies and learnings from the covered crop industry in the Netherlands. There are many changes that growers can make to conserve energy and boost production, and not all of them are necessarily expensive to implement. It doesn't matter if you're already fully versed in decarbonisation in greenhouses or just tentatively starting this journey, the language used to describe concepts can be easily grasped by all. This project was jointly funded by TomatoesNZ and Vegetables NZ.

Download your free copy today: **https://dl.bookfunnel.com/bb6l8oi4bg** Or email me for a printable version **Dinah.cohen@hortnz.co.nz**

TNZ and VNZI invite you to a workshop for the covered crop industry

Growers' Workshop

Date: 18th May 2022
Time: 9.30am – 2.30pm
Pukekohe – join online or in-person
Complete this form to RSVP by 2nd May

Topics covered:

- Virus Management
- Mitigating Pests & Disease in Seeds
- DIY Tools for reducing Energy use
- National Party's policy regarding energy & help for the Hort industry
- Improving Pest Control
- FTEK demo of their 'Robotic Labour Assist Platform' (in–person only)

TomatoesNZ

Vegetables NEW ZEALAND Inc

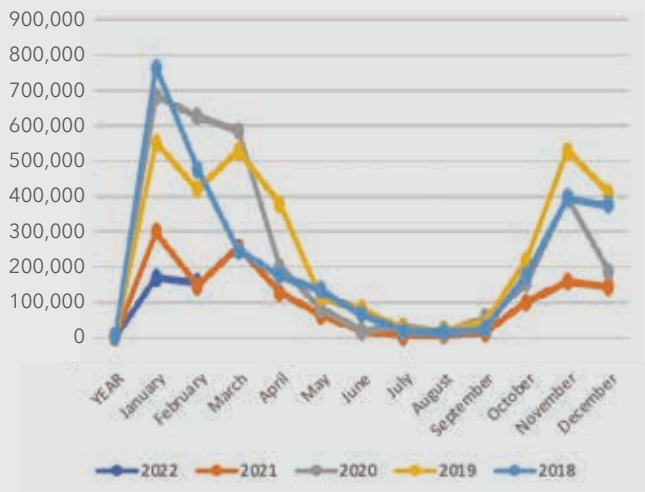
Please RSVP by 2 May by filling in this short form **https://forms.office.com/r/Q9f9pBHKdb**

This workshop is free for all undercover crop growers and interested parties to attend, but RSVPs are essential for catering purposes. Once finalised, the full agenda will be circulated in the HortNZ weekly newsletter and to all those that have put in an RSVP. This event is being jointly funded by TomatoesNZ and VegetablesNZ.

Export figures

Figures for fresh tomato exports were significantly down in 2021, which is no surprise given the ongoing issues with freight, a total of 1.3 million kilograms in 2021, versus just over 3 million kilograms in 2020.

Tomato Exports in Kilos 2018–2022



Online AGM & Board Nominations

The TomatoesNZ Inc Annual General Meeting will be held online via Zoom this year. We will be confirming the date and guest speaker later this month. In the meantime, if you are a tomato grower, please consider putting yourself forward to join the board. This is your opportunity to have a say in how levies are spent. Meetings are held four times a year, plus the AGM and grower workshop. Please get in touch with me to find out more **Dinah.cohen@hortnz.co.nz**

Current board members Simon Watson and Mayank (Mike) Saklani retire by rotation this year. 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, please consider putting yourself forward to join the board. This is your opportunity to have a say**

SVS – UNDERSTANDING GROWER AND AGRONOMIST PERSPECTIVES

Gemma Carroll : Potatoes NZ Inc. communications & engagement officer
Based on a report prepared by Waka Paul, social scientist, Plant & Food Research Institute.

Understanding the nutrient management needs and goals of growers and agronomists is a key focus of the Sustainable Vegetable Systems (SVS) programme in order to enable improvements for better environmental, and in turn, economic outcomes.

Tools and practices	Examples					
Testing period	Soil testing once a year in summer	Soil testing every 3 years	Soil testing new ground		Before planting and after harvest	Soil testing every paddock
N tests and tools	Nitrate Quick Test	Potentially mineralisable nitrogen (PMN)	Petiole test		Crop removal models	Hot water extractable organic nitrogen (HWEON)
Monitoring	Soil and moisture probes	Nitrate sensors	Weather stations		Historical database + maps	
Management	Software, e.g. Hawkeye, Trimble, Cool Farm Tool	Nutrient budget tools / calculators	Fert Rep. recommendations		Environment plans	
Growing practices	Irrigation, slurry applicators	Cover crops, Base dressing	Fertigation	Crop rotation	Precision Machinery	Wet (liquid) / dry (solid) fertiliser

The findings from grower interviews and focus groups help inform SVS team thinking and output design.

Growers and agronomists use a variety of tools and practices to gain a better understanding of what is happening in the soil and the volume of nutrients required for their crops. Crops, tools and practices are affected by factors such as location and geology. Growers gave decision-making factors that included: soil type and profile, e.g. having clayish soils, having a high level of naturally present phosphate and land susceptible to wet weather conditions. Participating growers and agronomists identified several strategies that they are currently using for assessing nitrogen (N) and other nutrients in their growing system.

> **"We're working with some pretty heavy clay around the farm. Leaving samples just to set by gravity didn't work for us so we bought a centrifuge and I definitely recommend it if using the quick N test**

Growers indicated that they are seeking quick results to fit the pace of their own production system decisions, and that tools that require a lot of effort can be difficult to work with and off-putting. *"No grower wants to wait two weeks to get a soil test result back for nitrogen." "A six-week wait is too long."*

There are some uncertainties around depth and size for soil tests, which you can read more about in the full report. Regarding size, *"growers are sceptical about how a teaspoon of soil can give you a representative sample of your whole paddock."* Growers do not want to miss out on information available at deeper levels that they feel could improve their nutrient management practices. For that reason, Nitrate Quick Tests were considered an important solution. *"Cropping guys want something easy and that is why we're really pushing this quick N test as a solution … For any deep-rooting crops we go down to 30cm, and any winter or shallow-rooting crops we go down to 15cm."*

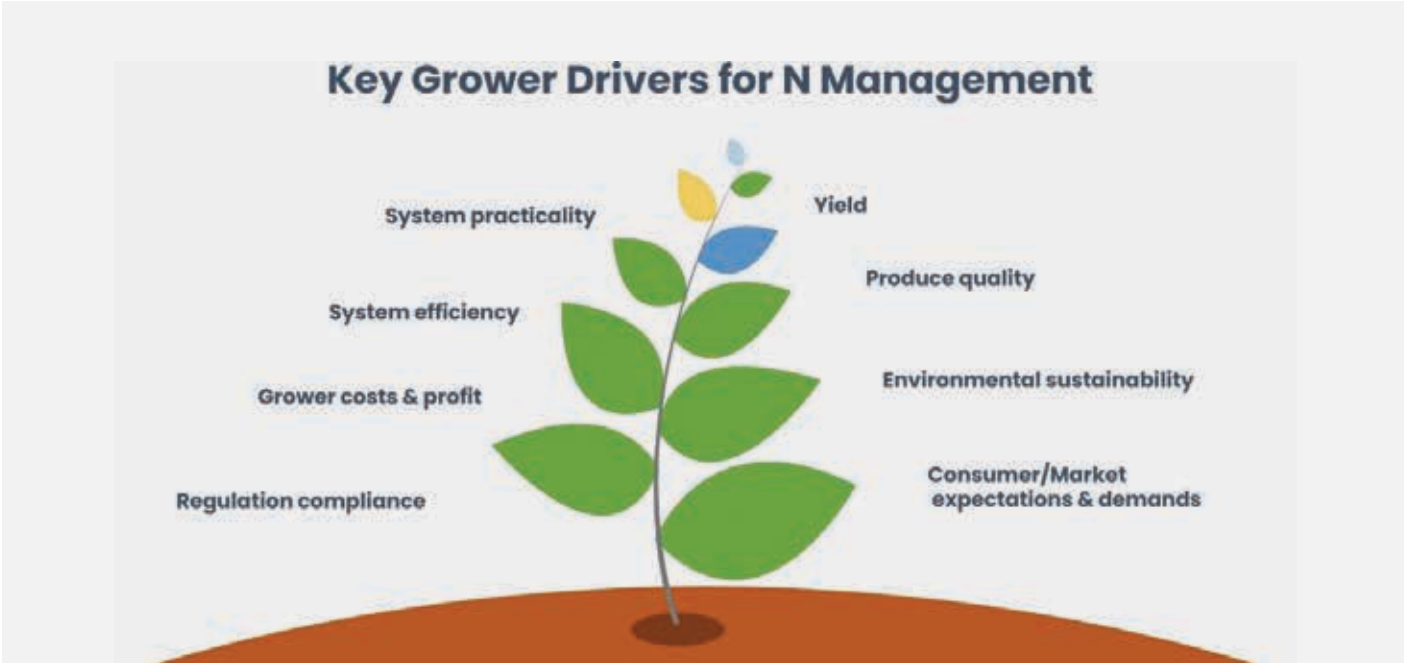
Opinions on the effectiveness of the Nitrate Quick Test varied from growers and agronomists depending on soil profile and region. *"We're working with some pretty heavy clay around the farm. Leaving samples just to set by gravity didn't work for us so we bought a centrifuge and I definitely recommend it if using the quick N test."*

Physical exertion of the test process is also a factor, which has led to some growers using alternatives such as petiole testing to get a better understanding of nitrate levels. In some regions a synergy is adopted between different methods. For example, both the Nitrate Quick Test and a centrifuge. **For adoption of any new tool or practice it will be important consider whether it is a stand-alone tool or practice, or if it comes packaged with other tools or practices to optimise effectiveness.**

The cost of testing and specifically targeting nitrogen were also issues raised. A grower in the Canterbury region felt that it was better to test for phosphates and to some degree magnesium in his region, as nitrogen testing results can be inconsistent. A similar sentiment was expressed in the Pukekohe region: *"…every paddock we have soil tested, but not for nitrogen because we have found it unreliable and hard to interpret."*

"You can't soil test every five minutes and foliar test every five minutes; it is too expensive."

"We do tests once every three years. We don't have enough resources to sample everything once a year."



One resource growers have plenty of, is the knowledge they have gained through years of working with the environment. Every grower and agronomist interviewed has been in the horticulture industry for at least five years, with many having been involved in vegetable growing in some form for ten or 20 years.

This reliance on historical data when it comes to decision making was a common message throughout the discussions and reflects the earlier SVS baseline survey, which found that 58 percent of growers surveyed rely on their own historical knowledge to inform nutrient and fertiliser decision making (FOLKL 2021, p. 10). As one agronomist noted, *"We do a nutrient budget but I'm finding that most of the applications are occurring based on historical preferences as opposed to what we say they require, particularly nitrogen."*

Crops, tools, and practices have continued to transform as more knowledge becomes available on topics such as plant needs, sustainability and fertiliser application rates, and as the quality of the fertiliser, tools and practices used also undergo improvement.

"When it affects your business and affects your profit, you learn in a hurry that this is not what you do."

Gross margin and bottom line were common drivers among all participants when it came to nitrogen use and general nutrient management. Many expressed a concern with the overuse of nitrogen due to its effect on quality, yield and the ability to meet consumer demand.

"There are no shortcuts when it comes to nitrogen use. A lesson that has been learned the hard way for several growers. […] We can't afford to put on more than we need because it is costing us money." No matter how much tonnage is achieved at harvest, *"if the quality is not there, it costs more to sort out the good produce from the bad produce."* Whether it be the effect it has on crop quality or the effect it has on profit, many of the growers interviewed commented on the dangers of the misuse of nitrogen.

> **"What exactly is efficiency? People are defining it in different ways yet we do understand [that] as growers we need to look after the environment**

Being compliant with environmental regulations and satisfying the market by proving to be more sustainable in practice are also key drivers in grower decision making. A message expressed across all five regions. Just as the crops and technologies have changed, so too have attitudes towards growing practices and environmental sustainability. *"Things have certainly changed in terms of nutrient management from 15 or 16 years ago. Whether it is growers or service industries or whoever, they are much more aware of environmental concerns and strategies for mitigation are right up there."* There is however, concern with how sustainability is measured, and that perhaps not everyone has the same understanding of sustainability. *"What exactly is efficiency? People are defining it in different ways" yet "we do understand [that] as growers we need to look after the environment."*

The development of any new tool or practice in nitrogen management will need to bring not only growers on the journey of change, but also industry, policy and even markets to gain the consistency of messaging and communication to support grower confidence to engage and adopt.

Both growers and agronomists signalled a keenness to use new tools and/or practices if they helped in the better use of nitrogen, and were able to identify the best practices that would help achieve environmental sustainability. These tools and/or practices must first be proven and need to be able to help growers strike a balance between understanding the volume of nitrogen in the soil and meeting consumer demand. A capability that requires a lot of trust.

The findings from the interviews and focus groups go on to reveal the challenges of trust-building and confidence in the tool(s), new practices, the science behind them and the new regulations. There is an eagerness to try and solve this dilemma, but convincing growers that more is not always the best decision has been a challenge for agronomists: *"The quicker I can give someone an answer backed by data, the better I'll be able to convince them to reconsider applying more fertiliser because the data suggests otherwise."*

"The most complex thing about growing nowadays is not the growing. It's having to deal with all the rules and regulations."

The biggest question marks for those interviewed were around understanding nitrogen mineralisation, nitrogen availability, cover crops and organic matter, and how to accurately measure what is left in the soil. Calculating the level of nutrients available after a harvest was a key issue for growers in the Canterbury region. *"Estimated average for what is left behind is quite difficult because we have quite a wide harvest window for many of the crops […] Say you bypass a patch of green vegetables because it just doesn't look good enough for the consumer. By the time you finish, you just have no idea what is left in the paddock."* This is where the concurrent work in the N-Mineralisation project (PNZ-85) will be of benefit to SVS.

There is also interest in better understanding the impact temperature, aeration and moisture levels have on growth in the wake of cultivation activities. *"If you cultivate a paddock and the temperature is right, you're going to get a flush of growth after that cultivation, and whether that's due to increasing soil temperature or aerating of the soil, or reducing soil moisture content, I don't know."* (Hawke's Bay agronomist).

SVS research is making the invisible visible, and developing a tool that is easy to use, integrate into existing systems and enables timely decision making is pertinent.

Now that growers and agronomists have started this conversation around better nutrient management, it is important that they continue to be involved in the process. SVS is working with Folkl researchers on upcoming deep-dive focus groups.

If you would like to be involved, please contact **Gemma.Carroll@potatoesnz.co.nz**

SVS project reports can be found here **https://potatoesnz.co.nz/rd-project/emissions-project/**

SVS updates and bulletins are found here **https://potatoesnz.co.nz/research-and-development/research-updates/**

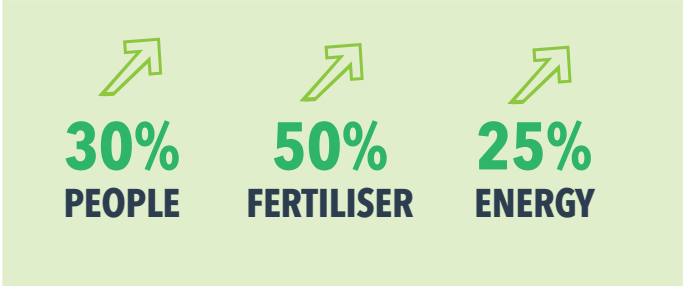
A CANDID LOOK AT GROWER WELLBEING

Antony Heywood : Vegetables New Zealand Inc. general manager

Kirit Makan understands the pressures facing all growers

In a candid interview, I asked Kirit Makan about growing and how to deal with the additional stress that comes with Covid-19 and limited access to labour.

"The cost of labour is not new but this year, with the scarcity of people, costs have jumped up by more than 30 percent," says Kirit. "As growers we cannot pass that cost on to the public – we have to absorb it. Added to that is the cost of fertiliser, which has gone up by more than 50 percent, and energy by 25 percent.



"You can see where this is going. The grower is under a lot of financial pressure. Not only the grower, but their family and permanent staff, which are like family."

Kirit says it was quite a concern earlier in the year when he had to stop harvesting, due to Covid.

"With a small team that interacts together on a daily cycle, if one goes down with Covid, that's the team out, either with an infection or as a close contact."

Kirit was packing onions when I spoke to him about the season. "You can only do what you can do," he says.

"It could be worse. Although the packhouse is running at 80% efficiency, it is at least running, and I can get my crop to market."

Kirit's operation is small, so he does not have the luxury of middle management. If he goes down, the business suffers immediately. Many New Zealand growing and farming businesses run a similar model. So, I asked Kirit how is juggles the pressure of a multi-functional role, and when he switches off.

"Don't sweat the small stuff is my message about coping with pressure. I give myself one day a week off the farm to get out and see family and friends. I also regularly enjoy social hockey."

While Kirit can cope with the many pressures of growing, he knows not all his peers are faring as well. As an executive member of the Pukekohe Vegetable Growers' Association (PVGA), Kirit is active in making sure growers understand the need to have a break and get some balance into their lives.

PVGA is working with the Rural Support Trust and Farmstrong to stand up mental health and wellbeing events. Growers will be able to come together to unwind and connect with like-minded people.

Kirit's message for maintaining wellbeing is:

1. Don't sweat the small stuff
2. Get off the farm to clear your head, at least one day a week
3. Connect with other growers and talk about the issues
4. You are not alone in this, so reach out if you need help
5. If you see someone in trouble – make the first move.

Link to Farmstrong – **https://farmstrong.co.nz/**

Link to Rural Trust – **https://www.rural-support.org.nz/Help-Support**

Root cause of the issues

While my conversation with Kirit started about grower wellbeing, it soon turned to the root cause of the pressures facing growers. "If growers are making money, many of their problems disappear," says Kirit.

> **"Growers are passionate about growing healthy, nutritious food. Some of commentary, mixed with the government's policy positions, are painting growers as the bad people**

"Like many growers, I am frustrated with the narrative in the media and the government's attitude to growers. Growers are passionate about growing healthy, nutritious food. Some of commentary, mixed with the government's policy positions, are painting growers as the bad people.

"While the price of vegetables is increasing at an alarming rate, farmgate returns have not increased for the past ten years. Growers need to be able to tell their side of the story if the issue is to have some balance."

Kirit thinks this year is a perfect storm of increasing costs. "Fertiliser, diesel and power are critical for farming operations, and they have all increased in price over the past 12 months. But the real concern for vegetable growers is labour!

"Growing vegetables in not sexy. Getting New Zealanders to harvest vegetables is near impossible. That's why vegetable growers need to access Recognised Seasonal Employer (RSE) scheme and working holiday visa labour for harvest."

Vegetables New Zealand is working with other vegetable sector product groups and HortNZ to build a Vegetable Sector Policy Strategy. This strategy will engage the government and the public on policy to ensure vegetables are affordable for all New Zealanders.

Growers would prefer to sell two heads of broccoli at $3.00 rather than one at $6.00. This would be a win: win situation for everyone!

Horticulture™ New Zealand
Ahumāra Kai Aotearoa

Horticulture New Zealand Notice of the 17th Annual General Meeting

Tuesday 2 August 2022 at 10.00am in Wellington and by Zoom

Business

1 Welcome and Apologies
2 Voting and Proxies
3 Obituaries
4 Approve Minutes of the 16th AGM
5 President's and Chief Executive's Report on HortNZ's Activities
6 Approve Audited Financial Statements for year ended 31 March 2022
7 Levy Rate
8 Director Remuneration
9 Approve 2022/23 Budget
10 Approve Auditors for 2022/23
11 Notices of Motion
12 General Business

Call for Notices of Motion

Any Board Member, Affiliated Organisation or Active Grower Member wishing to have a matter considered at the AGM must give notice in writing to the Chief Executive of Horticulture New Zealand of the notice of motion no later than Tuesday, 14 June 2022 at 10.00am. Notices should include the wording of the motion to be voted on and up to one A4 page of explanatory notes. Notices of motions will be listed on HortNZ's website **www.hortnz.co.nz** on 21 June 2022 and will feature in the HortNZ magazines (July issue).

ADVANCEQUIP ADD CASE H SERIES ROUGH TERRAIN FORKLIFTS TO RANGE

Due to significant market demand AdvanceQuip, the country's exclusive supplier of CASE Construction machinery, as well as supplier of Astra, ASV Posi-Track and XCMG, has expanded their range with the addition of the CASE H Series of Rough Terrain Forklift Trucks (RTFL).

With two models available, the 586H and 588H, the H Series boasts a speed and smoothness that few other rough terrain forklifts on the market can match. With fast lifting speeds, roading speeds of up to 38.6k km/h, lifting capacities of up to 3629kgs and a slew of unique features that keep loads level and operators comfortable, these high-performance, Tier 4 Final forklifts truly do raise the bar.

AdvanceQuip already supplies a full range of CASE machines that can handle a diverse range of applications, and the H Series expands machine solutions for new applications and industries including the agriculture, horticulture and off-road materials handling sectors. The H series' array of features ensures that both the 586H and 588H models are well-placed to tackle projects of any size.

With a 45° forward tilt and a 15° rear tilt, the H Series offers the greatest mast tilt in the industry, meaning that operators can ensure their loads are kept level on any terrain or slope. The ability to hydraulically adjust fork position allows you to match whatever pallet or material you are working with. The mast also meets height restrictions, ensuring that transport is hassle-free for just about every trailer out there, without the need to remove any components.

Operator comfort and an unhindered view are two further key elements of the new CASE H Series. The maintenance

CASE H series rough terrain forklifts

free Tier 4 Final engine sits under a low-profile hood, ensuring a clear view behind the machine, whilst a push-button parking brake, eye-level AIC (Advanced Instrument Cluster) and an optional deluxe suspension seat creates a working environment that remains comfortable for even the toughest, day-long jobs.

> **"With two models available, the 586H and 588H, the H Series boasts a speed and smoothness that few other rough terrain forklifts on the market can match**

The H Series' unrivalled level of comfort and compactness is allied with outstanding speed. With lifting speeds of ten metres-per-minute and road speeds of 38.6 kph, users are able to raise, haul, and place quicker than ever before. Four-wheel drive as standard provides even greater grip, meaning that despite the weather and terrain, there'll be no slowing the job down!

Owners will benefit from not only this extensive range of features but also AdvanceQuip's nationwide network of branches and authorised service centres, ensuring access to an unparalleled level of expertise and a parts service that can provide solutions anywhere in the country. For further details please visit **www.advancequip.co.nz** or call 0800 483 739

INDUSTRY FAVOURITE FOR FRESH CUTS LEVELS UP

The new Urschel TranSlicer 2520 Cutter

The original Urschel TranSlicer ® 2510 Cutter revolutionised the commercial, fresh-cut salad industry. A high-capacity shredder and slicer which can process a huge variety of fresh produce, including large items, at high speed and with next level sanitation – it quickly gained attention from food processors. Now the industry favourite has levelled up and is saving customers 25 minutes (on average) during washdown

Meet the new TranSlicer 2520 Cutter

Building on the success of its predecessor, the new TranSlicer® 2520 Cutter processes all the value-added, fresh-cut salads and vegetables that have recently gained significant real estate in retail fresh produce departments. Leafy vegetables, celery, leek, carrots, cucumbers, parsley, honeydew and other fruits are easily reduced by interchangeable slicing wheels which produce the chosen cut with precision.

The TranSlicer 2520 makes all the trending cuts; flat and crinkle slices, julienne or shredded and more.

Use Urschel size reduction equipment to process value-added, fresh-cut salads & vegetables

Many innovative style cuts can be produced and processors are using this equipment to capture the consumer market for pre-prepared salads, chopped vegetables and fresh, cook-at-home meal kits.

Every facet of the equipment's upgrade has been focused on cost and time savings, gained from reduced cleaning and inspection times, and there is even a tech upgrade. Optional HMI (human-machine interface) allows programmable recipes to be set up with different cut sizes, speeds and wheels. Processors can easily switch from one set-up to another and with this option, the machine is still fully operational via push buttons.

A choice between three feed belt configurations is possible; primary and secondary belts, full length primary belts, or a more compact machine version featuring shorter primary belts. The machine operates via a variable frequency drive (VFD) and the feed zone is completely separate from the mechanical zone to promote sanitation.

TransSlicer's new design levels up on sanitation with customers reporting a significant reduction in cleaning time and faster washdown thanks to easily accessible areas and surfaces engineered to promote water drainage. Stand-offs located throughout minimise overlapping joints, improve inspection and decrease cleaning times. High-pressure, high-temperature washdowns are no problem and IP69K rated IEC (International Electrotechnical Commission) electrical components are incorporated throughout.

As the global leader in food cutting technology, Urschel is the number one best-selling supplier of industrial food cutting equipment in the world. They listen actively to customer feedback and as the market evolves, so does their equipment. Urschel is represented exclusively by Heat and Control in New Zealand, Australia and South Africa and test cutting can be scheduled with a local Urschel representative.

For more information about size reduction, slicing and cutting solutions, contact Heat and Control via **info@heatandcontrol.com** or **www.heatandcontrol.com**

DEBUNKING MYTHS AROUND SOIL FUMIGANTS AND THEIR IMPACT ON SOIL HEALTH

Soil treatment for melons

Soil fumigation has been an important tool in New Zealand crop production for decades because it is highly effective at managing soil pests that cause crop disease. However, it is often criticised for being detrimental to soil health. There is a persistent myth that soil fumigants harm the microbiological diversity and abundance of beneficial microbes in the soil, despite extensive evidence to the contrary. In light of a global focus on agricultural sustainability, it is essential to understand the real impacts of soil fumigants on soil health, using science-based criteria and the best technology available. Major advances in automated, genetic sequencing technology combined with commercially available services, such as Biome Makers (www.biomemakers.com), can now provide a detailed and comprehensive analysis of the types and relative abundance of microorganisms in the soil.

Dr John Washington, a plant pathologist and microbiologist, is research and development director in the Trical Group, based in Florida in the United States. "I have enthusiastically embraced these new and powerful tools that allow us to study and characterise the soil microbiology genome in soils treated with our soil fumigant products globally," he says. "It's a kind of genetic barcoding: the technology can identify every organism group and their relative amounts. We can compare treated versus non-treated soils, soil fumigants versus fumigant alternatives, and the dynamics of soil microbiology and how it changes over time following any agricultural input.

These tools are key in allowing the scientific and agricultural community to more fully understand the soil biology component of soil health in an objective and scientific manner, looking for positive or negative effects of our inputs and whether or not we can manipulate the soil biome to enhance crop production. Concurrently it allows us to get past the old myths and gross misinterpretation of soil fumigant impacts, for instance, and focus on specific and real effects."

"For example," John says, "microbiome analysis shows that soil-applied chloropicrin and 1,3-dichloropropene alter the soil biology in important but non-destructive ways. Across different crops and locations including apples and blueberry in Michigan, and ornamental and vegetable crops in Florida, our research is clearly showing that Trichoderma, a well-known group of beneficial fungi, increased 20 to 100-fold following soil fumigation. Population benefits lasted the entire season, and even extended into the next season in some settings, where significantly higher populations of *Trichoderma* persisted over the winter in northern tree crop soils. Additionally, the beneficial root-colonising bacteria *Bacillus* and *Pseudomonas*, which produce plant-active hormones, increased dramatically following soil fumigation. This likely explains why we see major increases in healthy root growth in crops where soils were fumigated prior to planting. And one of the most surprising findings is that no evidence was found that diversity or abundance of soil microorganisms suffered when soil samples collected 30 to 90 days after treatment were analysed."

John Washington is now working with ***Leicesters Soil Solutions*** in New Zealand, coordinating the soil biome research on melons with Moffett Orchards, and on blueberries with Gourmet Blueberries. "We are initiating these studies with these growers in mid-May and this will provide us with specific and comprehensive data on New Zealand crops, something we plan to present locally when the results are complete," John says.

For more information Phone 06 843 5330 or visit **www.leicesters.co.nz**

Leicesters Soil Solutions

WASTE NOT WANT NOT

IKE AIO-600 with drying rack

IKE AIO-2400 dehydrator internal view

Dehydrators manufactured to commercial specifications are now available in a range of sizes to suit processors of artisan foods.

When harvest time arrives, we can end up with a surplus of fresh produce, and with limited shelf life this can lead to substantial waste and missed opportunities for revenue.

Soft fruit and vegetables can be ideal for the dehydration process to create repackaged new and innovative added-value consumer products. Produce suitable for dehydration processing includes but is not limited to apples, pears, peaches, plums, apricots, bananas, kiwifruit, strawberries, blueberries and other berryfruit, carrots, corn, green beans, potatoes and tomatoes.

> **"It is an opportunity to diversify, avoid waste and offer the consumer a solution to incorporate more fruit and vegetables into their diet in a practical way, with products that will store well into the winter months**

Auckland company Netropolitan specialises in the importation of a wide range of artisan food equipment including the IKE range of AIO (All in One) dehydrators.

Gerald Hochwimmer of Netropolitan says, "We can supply dehydrators to suit the customer's specific needs, be this a smaller unit capable of drying 100kg of fresh product, right up to the larger AIO-2400 which has a capacity of up to 2500kg of fresh product, all at very competitive prices based on pre-ordered indents for the larger machines."

Gerald encourages interested growers or processors to reach out and organise a trial to see what can be achieved with your surplus produce.

"It is an opportunity to diversify, avoid waste and offer the consumer a solution to incorporate more fruit and vegetables into their diet in a practical way, with products that will store well into the winter months."

For more information on the AIO chamber series of dehydrators contact Gerald on (021) 358 380 or email **sales@netropolitan.co.nz**

GROWING TALENT IN THE HORTICULTURAL INDUSTRY

With the breadth of fruit and vegetable crops grown in New Zealand, each with its own varieties and technical aspects to growing, horticulture provided the diversity Josh Mitchell was looking for as a career path.

Josh joined Fruitfed Supplies in 2016 as a Customer Service Representative at the Te Puke store. From there, he wanted to further his career and identified PGG Wrightson's Trainee Technical Horticultural Representative (THR) Programme as a logical step. Participants in the programme gain a National Certificate in Rural Servicing through the Primary Industry Training Organisation upon completion.

The trainee programme provided him with a greater understanding of horticulture. "I was given the opportunity to meet customers and visit orchards growing a variety of crops. I got an understanding of how these businesses operated and what decisions were involved in running them daily," Josh says.

> "The trainee programme provided him with a greater understanding of horticulture

Mentoring and input from the Fruitfed Supplies Technical Team provides trainees with a solid foundation from which to begin their careers as a THR. As Milton Munro, PGG Wrightson's Technical Team Manager explains, "our Technical Specialists are involved in the trainee programme providing a level of support and education designed to increase a trainee's technical knowledge. Our trainees also gain practical on orchard experience, working closely with a customer to identify a production issue and develop a solution, communicating to the customer both the associated costs and the production benefits."

Mentoring with an experienced THR is an important aspect of the training too.

Fruitfed Supplies Technical Horticultural Representative, Josh Mitchell

As Josh says, "spending time with THRs throughout the Bay of Plenty visiting customers helped me immensely. I learnt first-hand how we supported and assisted growers of avocados, kiwifruit and berry crops on a daily basis. Each grower has a different philosophy of growing, so I soon understood there are many ways to grow the same crop."

Having completed his THR trainee programme 18 months ago, Josh is now a full-time THR based in the PGG Wrightson/Fruitfed Supplies Whakatane store. He visits his customers who are located from Whakatane to Opotiki.

The Fruitfed Supplies Technical Team continues to be a source of support, conducting field days to show current product trial sites and present the findings at the conclusion of a trial to THRs. As well as providing information on new products released to the market, Josh says the technical team is only a phone call away when he has fielded a question he is unable to answer.

Josh gets a great deal of satisfaction and enjoyment from watching crops grow successfully from planting to harvest, as well as increasing his understanding of the different growing techniques used by growers. From growing fruit and vegetables to winemaking, horticulture has many avenues open to people interested in developing a career in horticulture.

Fruitfed Supplies is a trading division of PGG Wrightson Ltd (PGW). PGW and the writer do not warrant the information's accuracy, quality, outcome or fitness for any purpose.

Classified advert rates

	1	3-5	6-10	11
Quarter Page	$435	$420	$395	$355
Eighth Page	$245	$235	$225	$205
Cameo (W40 x H65mm)	$145	$140	$135	$125

Custom $40 per column cm

To book a classified advertisement in our next issue contact:
Debbie Pascoe (09) 2363633, M: 0274 858562
Email: dpascoe@xtra.co.nz

The power of multi local Enza Zaden Onion breeding... developing great Onion'eers!

Enza Zaden New Zealand has new red onions with superb internal colour with high yields and brown onions from early machine harvestable to late maturity that resist frost. Trials over the past years have given us confidence with new red introduction Barbera (441) for mid to later harvest and excellent internal colour with less sunburn susceptibility. Shape is good with high yields that suit SE Asian markets. We also have a new early pre ELK brown for machine harvest, uniformity and excellent yield, ask for trial seed of E61S.10114. Our brown commercial assortment leads with Shinto, Goblin and Plutonus and backed up with new intro E61D.10128.

After 35 years with Enza Zaden and Yates Vegetable Seeds Martyn Callaghan is retiring from Enza Zaden. Martyn begin in Australian seed sales with Yates and then moved to New Zealand to develop OP onion varieties for both New Zealand and Australia. In later years he helped to develop our hybrid programme as senior onion breeder. Martyn was instrumental in the development of the Enza Zaden New Zealand R&D station and a key figure in developing onions in other parts of the globe. Standing on the shoulders of Martyn's efforts is our new onion breeder Omer Zahavi. Omer is developing varieties suited for New Zealand and the world from Pukekohe. We wish Martyn success for his future and thank him for the generous sharing of his life's work and his vast knowledge over many years.

Call us directly for your seed requirements and availability of any of our varieties.
We have the varieties on the right in stock and available for you in Pukekohe.
Please call us direct on 09 963 0122 to request seed.

Contact Beverley Vahai 021 193 1008 or sales@enzazaden.co.nz for customer support.

For technical advice on open field crops, contact Aneil Hari 021 367 242,
or sales manager Herman van der Gulik, 021 858 939.

ENZA ZADEN

INTRODUCING THE ENZA ZADEN ONION RANGE:

BROWN:

SHINTO: Overwintering early maturing variety for machine harvest and high yield. Globe shaped bulbs with good quality and uniformity for early maturity.

E61D.10142: Firm good quality onion, good bolt tolerance with good skin retention Should have good storage. ELK maturity. Improved trail seed available now.

GOBLIN: High yield. Strong variety that handles tough field and weather conditions Enjoys frugal nitrogen application. Very flexible sowing time due to high vigour. Strong roots. Can sow late in the season. Moderate to long storage.

E61D.10128: Nice quality onion, firmness with good vigour. Bred with Goblin blood, is one week later maturing, has improved vigour and skin quality.

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

RED:

MALBEC: Dark red, flat globe shape with good storage for an early type. Excellent top vigour with good Downy Mildew tolerance.

PINOTAGE: Dark red, globe shape bulbs with good early internal colouration. Vigorous variety maturing early January with medium term storage.

BARBERA (E61D.10441): Dark red, good yield and vigour. Strong tops with good colour and shape. Suited to late July, August sowing because of good vigour. Medium term storage.

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

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