# NZGROWER®

VOL 77 | NO 05 | JUNE 2022 HORTICULTURE NEW ZEALAND

# DEVELOPING ASSISTED HARVESTING

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**ON THE COVER:**

Assisted harvesting next step in labour-saving
see page 34. Photo by Trefor Ward

## WHAT'S NEW

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

# IT'S TIME WE TALKED ABOUT GST

Barry O'Neil : HortNZ president

**We are all concerned about the incredibly fast increase to the costs of living, particularly food prices.**

Many are calling for the government to take actions to address this – one action that has been suggested is to remove the Goods and Services Tax (GST) from food, as other countries have done.

We see many examples of developed countries where food costs are much lower than in New Zealand. What is not so clear is whether the lower cost of food in these countries is due to the tax systems they operate under, or due to greater competition in their food retail systems along with a significantly greater number of consumers giving greater scale and purchasing power for retailers. Or is it both?

A recent poll in New Zealand indicated 76 percent of the population want GST to be removed from food. So why have successive governments, including this one, said they won't be doing that?

Economists say we have one of the best GST systems in the world, being simple, with low compliance costs to administer. Our GST system is considered to be efficient and importantly, doesn't cause anomalies as seen in countries with differential regimes. For example, Value Added Tax (VAT) is added to chocolate-covered biscuits but not chocolate-covered cakes in the United Kingdom, which led to a long legal dispute about whether Jaffa cakes were cakes or biscuits.

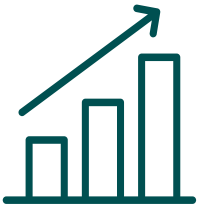
New Zealand has had GST since 1986. It was introduced at a rate of 10 percent, then rose to 12.5 percent before settling at 15 percent in 2010. New Zealand collected $26.39 billion from GST in the 2017 financial year, constituting about 30 percent of all tax collected.

> "A recent poll in New Zealand indicated 76 percent of the population want GST to be removed from food. So why have successive governments, including this one, said they won't be doing that?

If GST was removed from food, to achieve the same tax take, the GST rate on other items would need to increase by approximately two percent. Alternatively, income tax rates would need to increase. This, of course, assumes the government would not be prepared to reduce its expenditure!

So why do targeted reductions on GST, in this case food, become so complex? Google VAT rates on food in Ireland to understand some of the challenges they have faced in trying to create tax distinctions between foods. Would processed foods be exempt? Would fizzy drinks be exempt? Would fish and chips from a takeaway be exempt? Should restaurant and hotel meals also be exempt? These real questions have caused countries that have removed GST from food to end up with significant complexity, leading to increased compliance costs.

We must also take into account that Ireland's top personal tax rate is 52 percent to make up for this revenue shortfall.



**GST WAS INTRODUCED AT A RATE OF 10 PERCENT IN 1986, THEN ROSE TO 12.5 PERCENT BEFORE SETTLING AT 15 PERCENT IN 2010.**

**NEW ZEALAND COLLECTED**

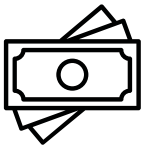
**$26.39 BILLION**

**FROM GST IN THE 2017 FINANCIAL YEAR, CONSTITUTING ABOUT 30 PERCENT OF ALL TAX COLLECTED**

Removing GST on fresh fruit and vegetables seems like it would be a simpler option. But then, the debate and arguments begin; such as: If you can freeze or can it, is it still fresh? And why only horticulture products? Why not all perishables such as dairy, meat, seafood and eggs? And if my product is made from fresh, why can't that be included? Legally, even this approach becomes difficult to manage.

There is often an emotional aspect to the argument when we discuss this, so it is important to think about what we seek to achieve in removing GST from food, especially fresh, healthy food. Is it about getting good food to those who can't afford it, so helping these people to have healthier diets? That's a good start for me.

In 2018, a Tax Working Group said an exemption for food would have an impact on lower-income households but would give more money back to higher-income earners and households.



**HOUSEHOLD BENEFITS PER WEEK:**
**DECILE ONE: $14.58**
**DECILE TEN: $53.03**

They calculated it would benefit a decile one household by $14.58 a week but that it would benefit a decile ten household by $53.03 a week, due to their greater purchasing power and the fact wealthier households are already able to buy plenty of good, healthy food. Some experts in this debate have concluded if the driver is about trying to achieve social aims, then don't do that by messing with GST. Compliance costs would be too great and it would be far better to support these families directly, by using the welfare system or even making food stamps available for healthy food.

Research led by the University of Auckland found that removing GST for fruit and vegetables would result in shoppers buying around half a kilogram more fruit and vegetables, per household, each week. Not earth-shattering or overly convincing to me.

At the centre of this debate is the reality that, overall, food is very expensive in New Zealand. We only have to look at our butter and cheese prices as an example – even though Fonterra argues it applies international prices to the New Zealand market.

> **"At the centre of this debate is the reality that, overall, food is very expensive in New Zealand**

So, is the real problem with New Zealand's high food prices the lack of any real competition? Large, populated countries such as the United States and the United Kingdom have much more competitive food markets with more players at wholesale and retail levels, easier serviceability and the ability to source year-round fresh produce from countries and counties that are close by, keeping prices down. Enormous competitive entities, arising from more favourable business models and huge numbers of customers.

I think this is more likely to be the case, but I welcome your thoughts on this.

What I think we can be fairly confident about is that our growers, who are struggling to get a reasonable price when supplying New Zealand's supermarket duopoly, won't end up with any more coin in their pockets if GST is removed from fresh fruit and vegetables. And after supermarkets have covered their costs of administering a more complex system, would there actually be any cost savings passed onto their customers?

**Kia Kaha.**


NZGROWER

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Your Levy AT WORK

MPA Associate Member (NZ)

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# STEPPING TOWARDS A SUSTAINABLE WORKFORCE

Nadine Tunley : HortNZ chief executive

**New Zealand's dependency on productive, healthy primary industries – and perhaps more importantly, its people – has never been clearer. But ironically, the shortage of skilled workers in our primary sectors remains at an all-time high.**

As part of the 2022 Budget, the Government announced a further $230 million injection for the Apprenticeship Boost Programme and an extension of the programme until the end of 2023. The funding will go towards training programmes and supporting a further 24,000 apprenticeships.

While the apprenticeship boost is a starting point for alleviating skill shortages and labour pressures, it only goes so far in addressing what's a pan-sector issue: the need for a sustainable labour pool and succession planning.

The latest Situation and Outlook for Primary Industries (SOPI) report forecast that horticulture export revenue will rise by nearly 5 percent to $6.9 billion for the year to 30 June 2022. This continued growth trajectory will not be achievable without substantial investment in our people.

Attracting New Zealanders into horticulture was always going to be a challenge.

> "This continued growth trajectory will not be achievable without substantial investment in our people

The seasonal nature of the roles, the rural locations, the family and lifestyle commitments – these are just a handful of reasons New Zealanders are less likely to opt into horticulture than their backpacking or migrant counterparts.

Our industry is not alone in this dilemma.

The challenge now is to work together and make a concerted effort to not only retain our 60,000-strong workforce, but to grow it. Industry has shown a tremendous commitment in tackling this so far:

- HortNZ developed and released the PickNZ job board in September 2021 to fulfil employers' need to find seasonal workers. Since the job board went live, more than 33,000 roles have been advertised, from highly skilled positions to fruit picking vacancies.
- The GoHort Career Progression Manager (CPM) network has proven itself as an effective vehicle for strengthening horticulture career pathways too. Long-term employment rates have improved and industry's collaboration with polytechnics and universities across the regions has resulted in a steady uptake of horticulture training and courses. More than 5000 New Zealanders have been placed into training or employment as a result of the CPM network.
- The Recognised Seasonal Employer (RSE) scheme continues to hold a pivotal role in meeting seasonal employment demand, supporting not only the growth of New Zealand's horticulture and wine industries but Pacific economies and permanent jobs held by New Zealanders. Industry's relationship with the Pacific will continue to be key for future proofing our sector in the years to come.

On the technology front, growers are investing in systems and equipment to become more sustainable, efficient and profitable. Automation will not only remove labour-intensive tasks but create a career path and skilled roles for those with technology and people management capabilities. Employers are increasingly recognising the importance of a strong internal work culture too and the impact that has on attracting and retaining staff.

The apprenticeship boost is just a small step in what is an ongoing journey to secure our most valuable asset – our people.

Industry has the opportunity to shape a bright future for itself, but to do that we must continue to work together, to innovate and find new ways of attracting and retaining future talent, so our industry can take advantage of fresh thinking and future opportunities. ●


Sarah Dobson, a 25-year-old environment and sustainability technician at A.S. Wilcox, won the 2022 Pukekohe Young Grower competition in May

# YOUR LEVY AT WORK

INDUSTRY WIDE ISSUES FOR INDUSTRY GOOD

# NATURAL RESOURCES AND ENVIRONMENT

Michelle Sands : HortNZ strategy and policy manager

### Otago Regional Council policy statement

The Otago Regional Council released its recommendations on the Section 42A Hearing Report of the Resource Management Act (RMA) on 4 May 2022. The reports were prepared on a topic-by-topic basis and provide recommendations on submissions to the hearing panel. Submitters now have until 29 July to prepare their own evidence in support of their submissions and in response to the recommendations. Horticulture New Zealand is currently reviewing the s42A recommendations and will be preparing industry and planning evidence, as well as legal statements.

### Horizons Regional Council NPSFM 2020 freshwater process

Horizons Regional Council has been consulting on long-term visions and values for freshwater over April and May. The consultation is part of the first step in developing a framework for freshwater management that achieves the requirements of the National Policy for Freshwater Management (NPSFM) 2024. HortNZ has provided feedback, emphasising the value of food production and growing, the need to provide for domestic food supply (as well as the other benefits) and has indicated support for growers making their own submissions.

### Consultation on Climate Change Adaptation Strategy for Aotearoa

The Climate Change Adaptation Plan looks to adapt and minimise the impacts of climate change. It sets out current efforts to build climate resilience and a proposed multi-year work programme. The Ministry for the Environment leads this work.

HortNZ has prepared a submission on behalf of all growers, highlighting the importance of horticulture in New Zealand's transition to a low emissions economy by providing options for meeting New Zealand's emission reduction targets should other initiatives not proceed at the necessary pace. Also outlined in HortNZ's submission are options for the way New Zealand adapts to changing climate, bringing new opportunities for horticulture to expand into other areas as regional climates shift.

### Consultation on Freight and Supply Chain Issues Paper

The Ministry of Transport is consulting on the draft Freight and Supply Chain Strategy. The strategy looks to identify what is required to ensure a well-functioning, sustainable and reliable system over the next 30-plus-years. The strategy will help to inform investment decisions by central and local government and focuses on four key areas:

1) Low emissions
2) Resilience
3) Productivity and Innovation
4) Equity and Safety.

HortNZ is supportive of the Freight and Supply Chain Strategy and made some key recommendations:

- Incentive and guidance for small growing operations transitioning to low/zero emissions.
- More emphasis on climate change adaptation throughout the transport network – particularly coastal roads.
- Development of a national freight and supply chain business continuity plan.
- Port sector reform.
- Filling critical shortage of truck driver vacancies by a more accessible and flexible pathway to heavy vehicle driver licences.

HortNZ will continue to engage with the Ministry of Transport on the strategy that considers the horticulture supply chain and transport system.

### Freshwater Farm Plan Regulations in development

The Ministry for the Environment (MfE) is drafting new Freshwater Farm Plans regulations to give effect to Part 9A of the Resource Management Amendment Act 2020. Part 9A sets out, at a high level, what Freshwater Farm Plans need to cover, which land uses are captured (including horticulture) and that they must be audited and certified. The regulations will include more detail on the criteria for Freshwater Farm Plans, for example the content requirements, who can audit and certify the plans and where and when they will be required across the country. Regulations are expected to come into effect at the end of 2022.

MfE is engaging with primary sector, Māori and environmental non-governmental organisations (NGOs) on elements of the proposed regulation design. HortNZ is participating in engagement workshops and our key focus is highlighting the importance of industry assurance programmes like GAP (Good Agricultural Practice) to be recognised in the regulation to audit and certify Freshwater Farm Plans for horticulture growers.

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# A GUIDE TO NEW ZEALAND'S BIOSECURITY SYSTEM

Eve Pleydell : HortNZ risk policy advisor


*The world is full of pests and diseases that we don't want in New Zealand. The pre-border parts of our biosecurity system aim to keep those threats offshore and prevent them from arriving in New Zealand*

## Part 2: Pre-border biosecurity

**In last month's article, we used a line of slices of Swiss cheese to represent the way that the different layers of New Zealand's biosecurity system work together to provide maximum protection. In this article we will take a closer look at the offshore or pre-border components of the system.**

### Key messages

- The goal of the pre-border biosecurity measures is to keep biosecurity risks offshore and away from New Zealand.
- Everyone who imports goods that may present a biosecurity risk has to comply with the regulations stipulated in the Import Health Standard for that commodity.
- New data-driven technologies could increase the speed and agility of the regulatory system, but are we willing to accept a higher level of risk that could come with that?

According to the Food and Agriculture Organisation, every year up to 40% of global food crops are lost to pests and diseases. We all know that New Zealand is a unique haven with relatively few pests and diseases compared to other co untries and we would all like to keep it that way.

The pre-border parts of our national biosecurity system aim to prevent unwanted pests and diseases from arriving in New Zealand.

Keeping plant pests and diseases out in an increasingly interconnected and complex world is not easy. All sorts of imported goods could bring pests into the country, from the obvious ones like plants for planting and seeds for sowing, to fresh fruit and vegetables, cut flowers, horticultural equipment, vehicles, soil, and even empty containers that could be providing safe passage for hitchhiking insects such as brown marmorated stink bugs or red imported fire ants.

The most effective method of protection would be to prevent anything from being imported into the country and to stop anyone from crossing the border, which is obviously undesirable and unrealistic. To enable the necessary movements of goods and people, the Ministry for Primary Industries (MPI) develops Import Health Standards (IHS) that must be followed to safely bring goods and personal effects into the country. If someone wants to import something that could bring an unwanted pest or

disease with it, there has to be an IHS that covers that item. If there is no IHS, then it cannot come in.

Developing and maintaining these Import Health Standards is a huge task. Firstly, risk assessors from the Ministry for Primary Industries (MPI) conduct an Import Risk Analysis that aims to identify all the pests and diseases that could be introduced on or in that item, whether they could establish here, and what harm they could cause if they did. Then, MPI's risk managers decide how to manage the risks that have been identified. This could include treating the imported item with insecticides before it leaves its country of origin (which is an example of an offshore treatment) or conducting a diagnostic laboratory test for a particular disease. In addition, imported plants for planting, including budwood, have to spend time in MPI's post-entry quarantine facility before they are released into the country. This allows plant experts to check and test the growing plants for unwanted diseases in a contained environment.

> **"For the foreseeable future, static Import Health Standards will continue to be the bedrock of our biosecurity defences**

There is a fine balance that needs to be found in this regulatory process. If the import requirements are too extensive, it becomes logistically or economically prohibitive to import something. If they are not restrictive enough, then more pests and diseases will arrive here. To ensure that an IHS is both fit for purpose and practical to apply, MPI includes a consultation process within the IHS development cycle. This is a public consultation process and anyone can make a submission. Horticultural industry groups often make submissions on behalf of their members. It is fair to say that some robust discussions can be had during these consultations as all parties try to find that sweet spot of enabling trade and innovation while protecting the country.

This is a very real tension. *The Fit for a Better World* strategy for accelerating economic development through the primary sector acknowledges that providing access to new high-value plant varieties and cultivars is essential to enable horticultural sectors to be high growth performers. However, with its biosecurity hat on MPI is unlikely to weaken border controls and put other sectors at greater risk from unwanted pests and diseases. The *Fit for a Better World* strategy also acknowledges that key regulatory systems like biosecurity need to modernise and become more flexible. This is a big challenge, but enabling the biosecurity system to harness the power of cloud-based data mining to monitor changing risks in real-time and provide evidence for intelligence threat forecasting could help MPI to meet that challenge.

For the foreseeable future, static Import Health Standards will continue to be the bedrock of our biosecurity defences. While they are a slow and cumbersome tool, they serve their purpose well and are providing us with some of the best biosecurity protection in the world. We are not yet at the point where technology and innovation has enabled the system to speed up while achieving the same level of protection. Perhaps as a sector we need to think deeply about whether, in order to take better advantage of global advances in plant genetics, we are willing to accept a lower level of protection from unwanted pests and diseases. This a big, complex question to tackle, and involves stakeholders other than industry. For now, you will have to plan several years in advance if you want to bring new sources of plant germplasm or budwood into the country.

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**

# **YOUR** INDUSTRY

**ACROSS THE SECTOR – ACROSS THE COUNTRY**

**34** ASSISTED HARVESTING

# AN INDUSTRY WITH A WEALTH OF CAREER OPPORTUNITIES

Anne Hardie

*Alex Tomkins has discovered there are numerous careers in horticulture that she didn't know existed*

**At just 22, Alex Tomkins has landed a role working on projects aimed at improving the business of the country's largest single-site packhouse.**

Working with the head of business improvement at Trevelyan's Pack and Cool in Te Puke, Alex's new role as business improvement coordinator will first see her working in the packhouse through the avocado season, then shift to the role of assistant packhouse manager over the kiwifruit season. That will give her an understanding of packhouse operations needed for her new role.

Alex's appointment follows a year at Southern Cross Horticulture where she learnt about kiwifruit orchard development and management through its graduate programme.

Forging a career in New Zealand's food production industry has been her focus ever since spending six of her school years in Asia and seeing the high quality of New Zealand horticulture products in the supermarket.

Alex spent her final two years of school back in New Zealand, studying agriculture and horticulture science. Field trips delving into the kiwifruit industry were lightbulb moments for her as they revealed the scale of the industry and the career opportunities within it.

A Bachelor of Agri Commerce degree at Massey University followed where she was one of a minority who had not grown up in horticulture or agriculture. That didn't hold her back. She was named Rural Student of the Year in the academic section and also selected for the International Horticultural Immersion Programme – including a study tour with other young leaders to Europe and Asia.

> **"Alex would like to see the primary industries integrated into school curriculums more than they are now, such as in economics and accounting, so that students can see how they contribute to the NZ economy**

When she completed her degree two years ago, she stepped out into the workforce with a goal of working toward supply chain management to get fresh produce to consumers around the world.

"Getting fruit to the consumers is pretty intricate when you are dealing with fresh produce which is perishable," Alex says.

She is still interested in that path but has also discovered numerous careers in horticulture that interest her.

"I knew the kiwifruit industry was big and horticulture in general, but until I began working in it, I didn't know some of those roles even existed."

Alex would like to see the primary industries integrated into school curriculums more than they are now, such as in economics and accounting, so that students can see how they contribute to the New Zealand economy. That may attract more people to a career in the primary industries.

Her enthusiasm for the industry led to her selection for the Food & Fibre Youth Network Council which was created to give young people a voice in shaping the future of the food and fibre sector. It has been an opportunity to engage with the Ministry for Primary Industries and other stakeholders, plus network with a range of young people from different industries.

Each councillor is passionate about their sector, and though Covid-19 has made face-to-face meeting challenging since the network was established, Alex says the group has still been able to share ideas and raise industry issues.

# FINDING THE BALANCE BETWEEN MOTHERHOOD AND CAREER

Elaine Fisher

*Molly Shaw enjoys New Zealand's great outdoors*

**"What could be better? I love berry crops and working with a beautiful crop is a draw. They make people happy and they are healthy too," says plant scientist Molly Shaw of Berryworld Ltd.**

Molly is in a role she loves because she deliberately chose to continue to work part-time while raising her two children, who are now 11 and eight.

Born in New York State, Molly came to New Zealand with her structural engineer husband and 18-month-old son in 2012.

"When you hear the words New York you think of the city, but the state is large and the part of the country where I grew up reminds me of north of Auckland with its rolling hills, and green fields with cows and trees between," says Molly who is also a member of Women in Horticulture.

Molly's father, a GP, decided in his 50s to retrain as an electrician, and her mother, who has a biology degree and was a primary school teacher, became a full-time mum for the family of four girls.

"When the last of my sisters left home, I watched my mum fail to go back to her career, from which she had been away for more than two decades. While I saw she had not lost touch, she had lost confidence. That reinforced to me not to give up my career when I had children."

It was Molly's father who encouraged her to follow her interest in plants and attend Cornell University, a state-sponsored research university in New York state, which offered a plant science degree.

"Cornell is a big extension university where, in addition to research and teaching, a lot of the professors work with farmers and carry out research of benefit to them."

It was field trips with those professors, in particular her favourite professor, berry specialist Dr Marvin Pritts, that inspired Molly to pursue a similar career.

To do so she needed a master's degree. Reluctant to spend any more time than necessary studying, Molly completed both her undergraduate and master's degrees in just four years. "I wouldn't advise anyone to do that. You never get those years of your life back. I didn't do an OE, Peace Corps or any of those things most young people do."

For eight years after graduation, Molly worked as a fruit and vegetable extension educator. After the birth of her first child, Molly appreciated how critical it was for her to have a life outside the home, and returned to work part-time.

"The realisation hit that I hadn't travelled as a younger person and perhaps now, while the baby was 'portable' it was time to do so."

The devastating 2011 Christchurch earthquakes provided work opportunities for her husband as well as a work visa for Molly, enabling the couple to begin a new life far from home.

> "While it's easier than for previous generations, it's still not easy

Molly has no regrets about the time she has spent, and continues to spend, raising her children, but she acknowledges that motherhood has affected her career. It took perseverance and courage to finally find a part-time job as an agronomist with Zealandia Horticulture in 2012, and with Berryworld in 2020.

"If at 18 I had known the questions to ask, I would have had more insight into my future. I grew up in an all-girl family and was naive in that I thought there would be fewer barriers as a woman in the workforce now. While it's easier than for previous generations, it's still not easy."

And barriers there were. Although Molly appreciates New Zealand's more generous maternity leave and a culture that values parenthood and work/life balance, she nonetheless found it hard to find a role which suited her family life and provided opportunities for her to grow professionally.

"While one issue is juggling the responsibilities of parenting and a career, another challenge is finding a workplace culture where the skills often brought by women (facilitation, negotiation, cooperative problem-solving) are appreciated and rewarded. I've had to really grow in my ability to back my own opinions and stay engaged during conflict, but in my opinion it's worth it as those skills are important in other areas of life as well.

"As a mother working part-time, you are never going to win on the number of hours you work. At times you will feel like you are neither a great mother nor a great employee. I really encourage women to think about the other things they bring to both roles, and that staying employed is an investment in their future – despite the high cost of childcare."

In her current role with Berryworld, Molly is managing the Strawberry Foundation Stock Unit.

"Strawberries are vegetatively propagated, which means there is all kinds of potential for viruses and other nasties to pass from mother plant to daughter plant and accumulate over the generations, to the detriment of quality and yield.

"To counter this, Berryworld keeps a stock of mother plants in a clean greenhouse. They are handled with great care and virus tested in multiple ways. They are the foundation stock that the strawberry runner growers start with each year. Four generations down the line, those daughter plants bear the fruit crop for strawberry growers in New Zealand."

Molly is also involved in pest control and plant nutrition and thoroughly enjoys working on production challenges with growers too.

Her advice to young women planning their future is: "Find a subject you love and a job where, as a woman and potentially a mother, your edge is based on the skills you bring, not the number of hours you work."

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.

# NO ESCAPING THREE WATERS

Rose Mannering

**There will be no chance for growers to fly under the radar with the government's proposed Three Waters reform package.**

While its main thrust is to improve the stormwater, drinking water and wastewater infrastructure (the Three Waters) of cities and towns, rural water supplies will also be scrutinised under new water legislation.

Hastings District Council is one of 2000 submitters who have raised alarm bells regarding what water quality requirements for rural landowners will be. Their submission states that in Hawke's Bay alone there are 6000 private water supplies and it is vitally important that practical solutions are found for this group.

For the towns and cities, decades of under-investment has led to many district councils being unable to meet environmental and public health requirements.

There are clear distinctions: Three Waters will not be involved with regional council work with regard to water consents. They will be taking over the management of council infrastructure for stormwater, drinking water and wastewater, carving New Zealand into four separate zones for this purpose. The zones are Auckland and north thereof; central North Island; East Coast of the North Island and top of the South; and finally the rest of the South Island. Representation on these four entities will be mainly by government appointment and there is concern about loss of regional control.

Growers will be most affected by the regulatory arm of the Three Waters Reform, Taumata Arowai. Taumata Arowai is developing regulations which will ultimately mean growers will need to prove their water is safe to drink. The regulations are being developed in bands, depending on how many people on each property use the water.

Taumata Arowai principal technical advisor, Jim Graham, says anything more than a domestic supply will eventually come under his organisation's rules. Anybody who supplies water to people other than their own family will have a duty of care to prove their water is safe. Even lifestyle blocks that have a secondary dwelling will be required to register as a water supplier.

"The principle of the act is that anyone who supplies water has a duty of care to ensure it is safe; they need to be able to demonstrate that their water is good," Jim says.

Those not registered have until 2025 to register with Taumata Arawai and will then need to comply with the regulations by 2028. Jim says rural water supplies will be classified in bands. Growers in the lower band will be classed as having less than 25 people on their orchards for 60 days per year (to allow for harvesting peaks) and will

only be required to submit *E. coli* water testing samples twice a year to Taumata Arawai. If their water is clear, there will not be any need for treatment.

A positive result for *E. coli* at a registered laboratory will automatically be reported to Taumata Arawai, who will in turn contact the water supplier and ask them to take remedial steps.

"But we do not want to be pedantic, we only want to be involved if suppliers are reckless or negligent," says Jim.

If the water fails testing, then solutions like filtration, ultraviolet light disinfection or even chlorination may need to be applied. For spring and bore water users, bore security has already come under scrutiny, with the need for headworks which minimise the risk of contamination from surface water. The water supplies must be fenced to exclude stock.

> **"The principle of the act is that anyone who supplies water has a duty of care to ensure it is safe; they need to be able to demonstrate that their water is good**

Many of the standards for maximum contaminants in drinking water administered by Taumata Arawai existed under the Ministry of Health (MOH). Larger horticultural users will already be registered water suppliers with this ministry, but they will now be required to comply with new regulations and operate under Taumata Arawai this year.

Local government Minister, Nanaia Mahuta, leads the reform for the government, which aims to supply safe, reliable and affordable water services for good health and the environment. Fixing town water systems will cost too much for local government to achieve alone. A MOH report published more than a decade ago estimated 34,000 New Zealanders become ill each year from drinking poor-quality water.

In March, a Three Waters working group recommended that local councils take direct and proportionate shareholdings of the four new public water entities the government intends to create. One share would be allocated to each council for every 50,000 people within their territory.

Sub-regional representative groups were also recommended, for smaller rural councils to have a say in the larger regional representative groups already proposed.

Local iwi representatives will also be at the table of each water entity. Nanaia says there will be a 50-50 split between council and iwi on the representative group for each of the four entities, which would choose the board to run the organisation.

The working group was appointed in November to iron out issues raised by disgruntled councils across the country.

Local Government New Zealand Te Kahui Kaunihera ō Aotearoa has agreed to a package with the government which would deliver $2.5 billion for councils to wrap around the reform proposals. The package aims to ensure councils are financially no worse off as a result of transferring their Three Waters assets and to cover off transitional costs.

Hastings Mayor, Sandra Hazlehurst, has voiced opposition to the project, especially as Hawke's Bay has proposed its own regional solution in a study earlier funded by the government.

"[The government] would have us believe that in Hastings alone, we need to spend $60m a year for the next 30 years on enhancing water services – adding up to $1.9b," Sandra says. "I have to ask and I have: On what?

"We have spent just on $80m over the last four years to upgrade all of our drinking water supplies. It is simply not credible that with ten brand new treatment and storage drinking water facilities and a fully compliant wastewater facility that our residents need to spend the amount of money they are talking about." ●

# COSTS UP ON ALL FRONTS

Glenys Christian

**Pukekohe vegetable growers are in a position they've never been in before, with fertiliser, fuel and labour costs the highest they have been in three years[1].**

"Our biggest concern is the cost of growing," says Pukekohe grower, Bharat Jivan. "Greens are difficult because once they're ready you've got to harvest them, and you're not even sure whether you're going to get a return on them."

Covid-19 has added additional costs to growers' operations this year, with sick employees unable to turn up for work and businesses needing to add PPE (personal protective equipment), among other things, to their expense list.

Bharat says Pukekohe growers continue to be short of both permanent and casual workers, and that growers are just trying to keep up with crop harvesting. Finding local labour hasn't been easy and the backpackers they would usually employ haven't been in the country either.

While backpackers will be able to return later this year, they might choose to go to Australia where a horticultural work visa is available and pay rates are higher.

A shortage in fertiliser supplies coupled with fertiliser price increases is also hitting Pukekohe growers hard.

"We bought fertiliser ahead, but we're going to have to buy for the coming season and we're told prices could keep going up," says Bharat.

In response, some growers may try to scale back on crops that use a lot of fertiliser.

"We might look at cereals which don't use so much fertiliser, instead of growing potatoes and onions," Bharat says.

Diesel and petrol cost increases are affecting growers too, with not a lot that can be done to reduce this expense.

To top it off, Pukekohe experienced an unprecedentedly dry summer and autumn, adding the cost of needing to irrigate to offset conditions. Irrigating late in the season has also left some growers concerned about water rights, which ran out at the end of May. Cooler temperatures around the middle of May had not been accompanied by rain, which saw reductions in potato and onion yields too.[1]

"There is less revenue coming in to offset increased costs," Bharat says. "The real impact will come through in winter when growers are planning for their next crop. That's a real worry."

Howe Young, who started growing in 1966, recently harvested pumpkins where 45 percent of the crop had to be thrown away due to damage from caterpillars which were loving the dry, warm field conditions.

His biggest concern is that he believes there's no way the increased costs can be recouped.

"We're price-takers – there's no doubt about that."

Howe says there is little growers can do about increased costs.

"If we don't use fertiliser, we don't get a crop and if we don't use sprays, supermarkets might not take our produce because consumers don't like holes in their vegetables," he says.

While supermarkets' winter price freeze on pumpkin, carrots, onions and frozen mixed vegetables is good news for consumers, Howe believes retail margins will still stay the same.

Growers say the only two ways supermarkets could achieve a price freeze is by holding down supplier prices or reducing their margins.

"Most people are more cost conscious," he says. "But when they see high prices for vegetables, they think growers are making a lot of money."

Howe would like to see the Commerce Commission's report into the supermarket sector followed up by the establishment of a grocery ombudsman and a mandatory code of conduct for growers put in place.

Bharat says growers recognise the ceiling to the prices consumers would pay for vegetables.

"It's a real dilemma. I don't think anything much can be done. The whole world is in the same situation with inflation. We are living in difficult times.

"If they [supermarkets] want to honour their statements, they should cut their margins because of suppliers being under the pump at the moment."

Growers are just trying to get through this season, he says.

*1 Statistics New Zealand data*

# SEEDS FEATURE

Photo; Trefor Ward

# SEED COMPANIES PLAY THEIR PART

Glenys Christian

Seed companies are trying to manage their costs to growers in an effort to reduce their spending.

New Zealand Grain and Seed Trade Association (NZGSTA) vice-president, Charlotte Connoley, says seed costs are continually increasing due to factors such as testing, logistics and particularly airfreight.

"It's pretty difficult. All companies are aware of the situation and they're putting in place processes that can reduce costs where they can," she says.

Some companies are buying in two years' supply of some seeds rather than just one, in the hope that will avoid future price increases and reduce the cost at which they can supply seed to growers.

"They are taking on a lot more risk in trying to manage costs," Charlotte says. "There's pressure on everyone and seed companies recognise they've got to play their part to keep a lid on it."

When it comes to the global trade of seeds, she says phytosanitary issues are always going to be on the radar because new pests which could pose a threat to New Zealand's horticulture and agriculture sectors aren't suddenly going to go away. But the association, in which seed companies are very engaged, is working positively with the Ministry for Primary Industries (MPI) to improve the processes required to keep them at bay.

"It's really positive because that relationship is key," she says.

There could be delays with sweetcorn seed arrivals into New Zealand this year due to greater United States verification and testing for high plains wheat mosaic virus. Charlotte is urging growers to get their orders in as soon as possible so seed companies can supply them after meeting biosecurity requirements.

Small seed lots are still quite challenging when it comes to importation processes.

But with solanaceous and cucurbit family seeds, where a huge suite of tests is required before importation into this country, new tests are being looked at to more easily manage the biosecurity risks involved. It is hoped that public consultation on the proposals will be able to begin shortly.

With issues such as these, Charlotte, who has recently moved from South Pacific Seeds (SPS) in Pukekohe to become Kings Seeds' general manager in Katikati, says more collaboration is a positive trend.

Regular discussions between NZGSTA and Horticulture New Zealand have already led to considered industry responses to government on a number of issues.

# NEW VARIETIES BY: BAYER SEMINIS

### SV1446SD – YELLOW SWEETCORN

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

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

### KONA – SPINACH

Kona (SVVB2636) is a semi-savoy variety that is well suited for the later spring to early summer and autumn production, producing dark green leaf with excellent thickness and pliability giving increased yield potential.

Resistance: HR: Pe:1-15,17; Pfs:1-8,10-15,17

### SV1514SK – YELLOW SWEETCORN

SV1514SK is a 103-day processing hybrid that hits the mark for factory recoveries. With a cob size of 19.9cm x 55mm and a kernel depth of 14mm, SV1514SK performs superbly from the field yield to the factory recovery.

Resistance: HR: RpG5, IR: MDMV/SCMV/Pst

### SVNH3211 – ONION

SVNH3211 is a very early mid-day hybrid. With a topfall of 7 to 10 December in Pukekohe, SVNH3211 pushes the boundaries of a mid-day onion into a maturity usually reserved for short-day onions. Firm bulbs allow the option of mechanical harvest, while excellent skin quality adds the assurance of storage.

# NEW VARIETIES BY: PREMIER SEEDS

### CUCUMBER CARRANZA

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

Resistances: HR: Cca, Ccu IR: CVYV; CUSDV

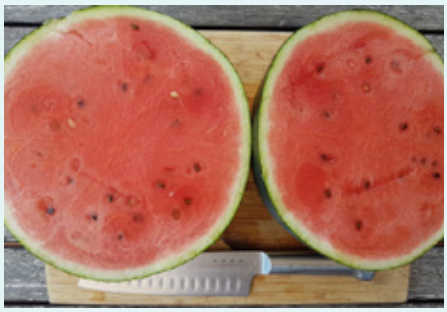
### CARROT NATUNA F1

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

### CUCUMBER CAOBADO

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

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



### WATERMELON SANRES

Relative maturity (RM) 70 days. Black, round seeded melon with deep red internal colour. Larger and more productive than current standards, having strong plant health with concentrated fruit setting, resulting in heavy (7kg) fruits. Sanres displays excellent internal qualities; is strong against internal splitting with uniform through colour, high brix levels (12–14°) and overall, an exceptional eating experience.

### CAULIFLOWER NEWLYN (BJ3338)

Newlyn (BJ3338) is a new variety from Bejo, for late autumn to early winter harvest window in the South Island. It has good vigour and large frame, presenting a well wrapped heavy curd.

### CHINESE CABBAGE EMIKO

Relative maturity (RM) nine weeks from transplant for spring, summer and autumn production. Shows good vigour with attractive compact head. Clubroot resistant and strong against tip-burn. This makes Emiko an ideal summer variety.

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

# NEW VARIETIES BY: SOUTH PACIFIC SEEDS

### HADLEE – RED RADISH

A vigorous variety, HADLEE is a red radish for cool season harvest. Produces round, dark red roots with a high yield potential because of its hybrid uniformity. Features strong tops which are suitable for bunching presentation of the roots, or can be easily removed for packing into punnets.

### ATTAKAI – GREEN CABBAGE

ATTAKAI is a high-quality hybrid drumhead cabbage for warm season production. Produces a medium sized blue-grey head (1.5-3kg head weight) with exceptional internal qualities and good flavour. Upright, compact frame offering ideal protection from the damaging sun. Intermediate resistance to black rot and tip-burn and offers a high resistance package to *Fusarium* yellow. Matures in approximately 14-18 weeks.

### TANTO – BUNCHING ONION

TANTO is a high quality, hybrid bunching onion for warm season production. A highly uniform variety, producing long white upright stems with attractive dark green leaves. Firm, upright stems make this variety a highly presentable bunching onion for both sleeve and banded display. TANTO is easy to pull and clean and has shown to have good tolerance to brown tips and bulbing. Warm season harvest only.

### ZEPLIN – TELEGRAPH CUCUMBER

ZEPLIN is a Continental cucumber for heated glasshouse production. A consistent performer, maintaining a high level of production across a wide harvest window with a combination of strong resistance against viruses and powdery mildew. Because of its open plant architecture, ZEPLIN is a generative, labour friendly variety. Fruits maintain high quality across the growing cycle of the crop. Cucumbers are smooth with a slight rib and nice dark green colour. Single fruiting, 32-34 cm fruit length. Harvest spring to autumn.

### SÁBANA – ICEBERG LETTUCE

SÁBANA (SPS 176-21) is a summer harvest iceberg suited to warm and hot conditions. A Salinas style variety producing a uniform crop with exceptional head quality and a short core. Medium head size and frame. Slow to bolt, holds well in the heat and shows good tolerance to internal tip-burn in humid conditions. A slightly faster maturing variety than many current summer lines, SÁBANA may be harvested as early as late spring in some drier regions and may continue on into autumn. *Fusarium* resistance (Fol. 1) – a huge advantage in humid areas and on heavy soils.

### HEIDI – CELERY

HEIDI is a vigorous, hybrid main season celery with dark green healthy foliage and long, broad finely ribbed stalks. Produces tall, upright bunches which are easy to harvest. A uniform variety, strong against cracking at the knuckles. Shows strong tolerance to *Septoria* spotting. Performs well under cool and challenging conditions and is suitable for both sleeving and naked presentation. Susceptible to bolting if grown when the pressure is high.

# NEW VARIETIES BY: SEED AND FIELD SERVICES LTD (Distributors for HM Clause)

**POLYDOR CARROT**

This new HM.CLAUSE mid-maturity Nantes carrot has strong erect tops and good attachments, making for ease of top lifting. Smooth, well blunted, and good quality, with uniform dark orange roots that are good against breakage, splitting and very good against bolting. Commercial seed is now available.

**ARCHER**

New robust lettuce for the shoulder and cool slot from Vilmorin & HM.CLAUSE. It has an excellent, large, dark green frame which enables production of first class heads. It sits up very well, improving harvest efficiency. Archer suits both the fresh and processing market. Commercial seed is now available.

HR Bl:16-36/ Nr:0

**LAILAH**

Shoulder and main season slot zucchini, with an open frame habit, allowing for ease of harvest. A long peduncle attachment will improve presentation and drive labour efficiency. Ability to pick over an extended cycle, which provides high yield potential. Lailah produces high gloss, dark green fruit that features smooth skin and a small blossom scar. Includes a great disease package.

IR: Px / ZYMV / WMV / PRSV.

**FIRECUT**

FireCut is a multi-leaf, triple red incised leaf type, for the warm season. A versatile lettuce variety which has great leaf curl and depth with small cut point, making it suitable for cut leaf production to enhance any salad mix. FireCut showcases the same disease package as Supercut, holding an all-round mildew package.

Bl: 16-36 and Nr:0 for peace of mind

**BAMBERA**

A new dark green mini cos suited to the cool season slot just before and after Yambu and Calido. This cos lettuce displays thick, lightly blistered leaves and a bright yellow internal colour. Bambera is very upright in habit, and has a v-shaped butt, making it an ideal option for hearts or twin-pack sleeving. Maintains uniformity even in variable weather.

HR Bl:16-36/ Nr:0

**JUSTIFY F1 BROCCOLI**

Exciting new cool season broccoli. With a potentially wide harvest window, Justify is adaptable to many regions while maintaining great weather change tolerance. Its easy peel ability makes this a harvester friendly plant with great vigour and uniformity. The attractive dome-shaped heads feature fine, tight blue-green beads. Commercial seed is now available.

# NEW VARIETIES BY: LEFROY VALLEY

**AUROUS**

Sutured medium ropey oval melon with ESL (extended shelf life). Strong vine with easy fruit set. Fruit are a good size, around 1.8kg. with a small cavity.

Px, Fom:0,1,2

**LAUNCH**

Bicolour sweetcorn: Lovely 20cm cob of uniform length and good tip-fill. Eighty to eighty-five days to maturity. Great disease package with a good flag and husk colour. Excellent presentation and nice easy snap makes Launch the perfect fresh market variety.

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

**HAUPIRI**

For harvest late spring to early summer dependent on location. Medium to dark green flat round head shape with excellent uniformity and well-presented heart. Also suitable for bagging.

HR: Bl 1-36, Nr:0

**LYDIARD**

An exciting new cauliflower suited to harvest early January to mid-April dependent on location. A semi-erect plant with good wrap and leaf cover. The curd is semi-smooth white and firm, with medium sized florets, producing heads 900–1200gm.

**KAHIKA**

For harvest early January to early April dependent on location. Adaptable summer to early autumn lettuce with excellent uniformity, neat frame and clean butt. Medium-large flat round head shape with consistent heart fill. Also suitable for bagging.

HR: Bl 1-36, Nr:0

**MAYAN GOLD**

A sutured melon with mild ropey net. The blocky-oval fruit of 1.6-2kg, have a medium-small cavity, LSL (long shelf life), great flavour with brix 12-14°, and beautiful aroma. Yields well with good fruit numbers, shipping and storage ability. Plant has good canopy cover and strong vine.

Gc:1-2, Fom ●

# NEW VARIETIES BY: TERRANOVA

**SWEETCORN MEMPHIS**

Sweetcorn Memphis has very long, large diameter cobs and is a later maturing bi-colour to complement our Buffalo and Springfield Plus varieties. The cylindrical cob shape has excellent tip-fill and an average row count of 18. It presents well with good husk colour and cover and a large flag leaf. The variety is rust resistant and easy to hand pick.

**LETTUCE LESINA RZ**

Lesina RZ is an addition to our green coral or Lollo Bionda range. It is dark green with excellent vigour, giving thick leaves and high yield. Lesina RZ is suitable for year-round harvest in open field or hydroponic production. It is strong against tip-burn and has a comprehensive *Bremia* resistance package and is *Nasonovia* aphid resistance.

**LETTUCE EXANIMO RZ**

Exanimo RZ is a mid-green Salanova® incised, crispy type giving increased yield and recovery for processing, combined with an excellent taste profile with softer juicier texture. It also has the Knox™ trait for delayed pinking and improved shelf life. The variety is slow bolting and suitable for year-round production in most areas, with a comprehensive *Bremia* resistance package and *Nasonovia* aphid resistance.

**LETTUCE STRONEX RZ**

Stronex RZ is our new double red Salanova® incised crispy type. It is a vigorous variety with well incised leaves and an upright plant habit. It has the Knox™ trait for delayed pinking and improved shelf life. Stronex RZ is suitable for year-round production in most areas, with a comprehensive *Bremia* resistance package and *Nasonovia* aphid resistance.

**LETTUCE RABELLO RZ**

Rabello RZ is a baby cos for open field or hydroponic production. It is suitable for twin packs and can be used for loose-leaf production. A key feature is it is very strong against tip-burn. The variety is slow bolting and suitable for year-round production in most areas, with a comprehensive *Bremia* resistance package and *Nasanovia* aphid resistance.

**CELERY KELVIN RZ**

Kelvin RZ is a slow bolting dark green celery best suited to harvest from early summer to autumn. This variety has an open habit and is strong against blackheart. The dark green leaves and slender, shiny stems provide a uniform apple green colour throughout. Well suited to processing for sticks or whole heads. The seed is available as primed pellets for efficient plant propagation.

# NEW VARIETIES FROM: KINGS SEEDS

**In response to requests from growers supplying farmers' markets and specialty retail, Kings Seeds is releasing commercial packs of the following varieties popular in Asian cuisine.**

### PEPPER GREEN BEAUTY

Popular Korean pepper harvested at the green stage with no pungency.

Has a taste and texture similar to cucumber, bred for high health properties to aid in controlling diabetes.

### TOMATO ORANGE ICICLE

Good tasting, meaty paste tomato. Ideal novelty tomato for farmers' market sales.

Mid-season production of 100 to 150-gram fruit often hanging in clusters of two or three. Indeterminate variety.

### MELON CHINESE WINTER

Also known as wax gourd. A gourd used in Asian cuisine much like you would use bitter gourd, okra and luffa. Fairly bland taste but absorbs the spicy flavours of what it is cooked with.

### CULANTRO

Strap leaved herb with a strong coriander taste. Well-known in Asian and South American cuisine.

Very good shelf life when cut and excellent for dehydrating as it retains its flavour.

### EGGPLANT THAI GREEN EGG

A hybrid eggplant, Thai Green Egg produces small fruit approximately 3-5cm in diameter. The sturdy plant produces high yields of the pale green fruit with a dark green vein pattern. Popular in curries and Thai cooking.

### ROSELLE

Grows like okra having a tall upright plant. Flower buds are harvested for edible flowers and to add colour to cocktails. Leaves are also very nutritious.

Popular in Asian cuisine and in cocktails worldwide.

# COUNTDOWN TO NEW ZEALAND'S LARGEST CENSUS OF AGRICULTURE

Supplied by Statistics New Zealand


**Growers across the country are being urged to participate in the Agricultural Production Census to provide an accurate and up-to-date picture of the nation's growing primary industries. Information packs for the upcoming census will be in the mailboxes of all commercial growers by the beginning of July 2022. Growers can make sure they count by completing the survey and ensuring that all questionnaire sections are filled in.**

Statistics New Zealand conducts the census once every five years in partnership with the Ministry for Primary Industries (MPI). This comprehensive survey asks growers about their production, land use and orchard practices for the 2021–22 year ending 30 June 2022.

Grower participation is crucial to ensure statistics accurately reflect the reality of what is happening across the sector, so agricultural and rural communities can best be supported, says Ana Krpo, Stats NZ's manager of Agricultural Production Statistics.

"Every operation is different, so every response is important to paint a clearer picture of horticultural activity throughout New Zealand. The census will provide a snapshot of the industry at national and regional levels, as well as provide insights into changes over time. This critical information will enable fruit and vegetable growers, the industry, businesses and government to make informed decisions. The results will be used in developing programmes, priorities, and policies which help drive productivity and profitability."

Ana Krpo says Stats NZ has made changes to the survey in response to feedback, with the choice of an online option that can be filled out in one sitting, or a paper form. "We appreciate the time invested by busy growers in gathering information on the 2021–22 year's production to complete the Agricultural Production Census by the 19 July 2022 deadline. It is vital that everyone responds so that all of agriculture is represented, and no one is left out. The more fully completed responses we get, the better informed we all are to support the industry into the future."

All commercial growers should expect to receive their information pack in the mail by early July.

Support completing the survey is available through a dedicated Stats NZ email address and free phone number included in the information pack. There is more information at **www.stats.govt.nz/about-the-agricultural-production-survey**

# HEALTH BENEFITS SPUR GROWTH FOR BLACKCURRANT GROWERS

*The cGP Lab co-founder and agronomist Jim Grierson discusses blackcurrant maturity with a grower*

**Five years ago, the blackcurrant industry faced serious challenges when a major buyer ended its contracts with half the industry's growers. The remaining dozen growers are now finding a solid market in health benefit products. HELENA O'NEILL speaks with Jim Grierson of The cGP Lab about the industry and the growing health benefits of blackcurrants.**

New Zealand blackcurrants rank significantly higher in levels of antioxidant activity than other fruits. They appear to help the body's own response to oxidative stress and conditions including cardiovascular diseases, asthma, diabetes and age-related degenerative diseases.

According to Blackcurrants New Zealand (BCNZ), research reveals that benefits including endurance, recovery and mental performance are associated with anthocyanins, which are major antioxidant compounds.

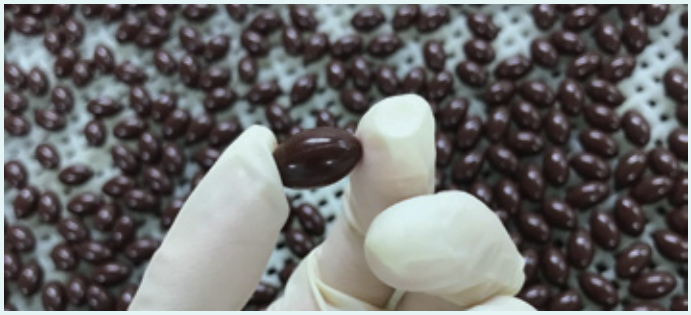
The cGP Lab (formerly VitalityNZ) was founded by Jim Grierson and David Eder who met through a mutual love of blackcurrants. Jim is also an agronomist and has acted as an advisor to the blackcurrant industry for the past 40 years.

During their time in the blackcurrant business, Jim and David have seen the health benefits that friends and family experience when they regularly consume blackcurrant products. This led the pair to discover the potential health properties of the fruit, boosted by a chance encounter with Auckland University scientist Dr Jian Guan, whose analysis of New Zealand blackcurrants found they were packed with cyclic Glycine-Proline (cGP).

Dr Jian says cGP is a brain nutrient that normalises a hormone essential for overall body health, and may play a wider role in improving circulation and creating more new blood vessels than we previously understood.

> **"cGP is a brain nutrient that normalises a hormone essential for overall body health**

"The health benefits that we have in New Zealand blackcurrants are high levels of anthocyanins, and we've also discovered the level of cGP in New Zealand blackcurrants," Jim says. "Those levels are not like that overseas, so it is quite unique to New Zealand."



*Blackcurrants are used in the cGPMax Brain Health capsules*

His company is involved in a new international clinical trial testing the cGP molecule found in New Zealand blackcurrants, which may offer hope for thousands of Kiwis living with diabetes and associated metabolic disorders.

Dr Jian says cGPMax capsules will be tested in an open-label trial among a group of diabetic participants living with a range of metabolic syndromes.

The patient trial is already underway at a university-affiliated hospital in China – using cGP derived from New Zealand blackcurrants at a Canterbury production facility.

The aim of the trial is to establish the efficacy of the natural form of cGP on type 2 diabetes associated with dyslipidemia, hypertension, peripheral neuropathy, retinopathy and kidney dysfunction, Dr Jian says.

"Metabolic syndrome is a cluster of disorders resulting from poor metabolism, including hyperglycaemia, high blood pressure, poor insulin function and excessive LDL (low-density lipoprotein) cholesterol. There is a strong correlation between poor metabolism, heart disease, cancer and premature death.

The trial is expected to be completed later this year and will investigate whether consumption of the natural form of cGP can improve blood pressure, cholesterol and complications from diabetes including poor eye function and nerve damage.

Dr Jian, who has studied cGP for more than 30 years at Auckland University, says feedback from those taking non-synthetic cGP as a supplement for brain health suggests it may assist with other conditions.

"While consumer use of concentrated cGP is still in its relative infancy, there are indications that it may offer hope to those living with a wide range of metabolic disorders."

Feedback from those taking the supplement include type 2 diabetics who suggest they have regained sensation in their feet after taking cGP, she says.

If the trial is successful, the company hopes to create more export opportunities for the New Zealand-made cGPMax supplement in Asian markets like China where the populations of those with metabolic disorders has risen steadily over the past ten years.

*Blackcurrants being sorted during harvest season*

**WHILE CONSUMER USE OF CONCENTRATED CGP IS STILL IN ITS RELATIVE INFANCY, THERE ARE INDICATIONS THAT IT MAY OFFER HOPE TO THOSE LIVING WITH A WIDE RANGE OF METABOLIC DISORDERS**

*Auckland University associate professor and cGPMax chief scientist Dr Jian Guan*

After the discovery that South Island blackcurrants are uniquely rich in cGP, The cGP Lab is now investigating other natural sources of the nutrient.

"We're also looking at cGP and the viral protection aspects of blackcurrants and for what they term long Covid," Dr Jian says.

Jim, who is a member of BCNZ's management and executive committee, says around 85 percent of the country's blackcurrant crop goes to health benefit-related industries, with the remainder into individually quick frozen (IQF) fruit or to juicers.

"Most crops are being grown for health benefits, which gets a better return for the growers at the farm gate, which is really healthy for the industry and really pleasing," he says. "We've got 12 growers producing 4500 tonnes on an annual basis. This last year was a bit less than that because it wasn't a good growing season.

> **"We're also looking at cGP and the viral protection aspects of blackcurrants and for what they term long Covid**

"Fruit is now going into health benefit type products. Before that about half of our industry was involved with supplying Ribena in New Zealand. That was pulled in 2017 when they decided to buy their blackcurrants from Poland where they were a bit cheaper … the industry really imploded then."

A few growers who were due to retire accelerated plans to wind up their operations due to the loss of that major contract, Jim says.

"We're now left with 12 growers and they grow good quality fruit. They could double their acreage without having any more growers, as they have the infrastructure and the machinery. Blackcurrants are all about machinery, the only thing that's done by hand is the planting.

"Beyond that, everything is done by machinery."

Ben Rua, Ben Ard, Blackadder and Kepler are the main varieties grown commercially in New Zealand, but a new variety, Ben Lewis, is under development. Ashburton grower, James Tavendale, harvested the first commercial crop of Ben Lewis earlier this year. The variety is the result of more than a decade of plant breeding to increase the level of anthocyanins, along with reducing the length of chilling period required.

New Zealand is also part of a blackcurrant breeding programme with Scotland and Poland.

"We specialise in cool climate growing conditions. Blackcurrants must have chilling in the winter like apricots do in Central Otago. Because temperatures are warming up around the world, we are breeding blackcurrants that don't require as much chilling as they have in the past," says Jim.

"That's been quite a strength to our breeding programme."

BCNZ and Plant & Food Research are partners in BlackHort, a jointly funded New Zealand blackcurrant breeding programme, which began in 1992. BlackHort focuses on commercial objectives, incorporating characteristics desired by growers and marketers, including colour, flavour, acidity, sugar content, enhancing health-related qualities (e.g., vitamin C and anthocyanin) and lower winter chill tolerance, along with several other attributes.

"I'm an agronomist but from a growing point of view, it's certainly a good influence from our soils and maritime climate. Plant breeding does also help."

"The industry is probably the best balanced now than it ever has been in terms of production versus requirement and that's incrementally growing each year."

The 12 growers that are left are really good, conscientious growers, he says. They are also set up in a way which allows for future growth on their existing properties.

"It's in a healthy state. It's taken us a long time to get here."

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# Celebrating Market Access Solutionz's significant contributions to horticulture

by Elaine Fisher

As Market Access Solutionz celebrates two decades of service to New Zealand horticulture, many of its significant achievements have been acknowledged by industry leaders.

Established to solve market access challenges for New Zealand's primary sector and help it thrive and grow, MAS has met and continues to exceed the goals it set 20 years ago when it was founded by Stephen Ogden and Nikki Johnson.

Today Stephen is managing director of MAS and Nikki, who left the company in 2016, is Strategic Projects Manager - Northern Hemisphere Supply at Zespri International.

In keeping with its founding principles, the Wellington-based company's team of six continues to provide independent technical services in biosecurity, food safety, crop protection, export market requirements, plant health research management and industry management.

MARKET ACCESS solutionz

CELEBRATING 20 years HELPING GROWERS ACCESS THE WORLD

**Peter Silcock, former CEO of HortNZ** remembers when Stephen and Nikki left their roles with what was then the Ministry of Agriculture and Forestry (MAF) to set up MAS.

"It took a leap of faith and determination to form MAS, but Nikki and Stephen could see the need for the industry, and particularly smaller product groups, to have access to independent advice.

"The formation of MAS was a big step forward in terms of market access and biosecurity technical capability and MAS has played a significant role in increasing horticultural

**James Kuperus, CEO of Onion NZ** says MAS assisted New Zealand onion producers to maintain trade with the European Union when its pest and disease requirements changed two years ago.

"We were looking at quite significant trade losses. However, MAS was able to find a practical and pragmatic solution for inspection which enabled us to maintain our trade."

The expertise and breadth of knowledge MAS has built across many industry sectors in two decades is invaluable, James says. "MAS has been a steady hand for our sector. It has evolved and adapted to ensure it keeps pace with, or even ahead of market trends.

"Stephen has incredible experience in the sector and with the Ministry for Primary Industries. The work he has done in the last 20 years for the horticultural sector is exceptional. This anniversary is a great time to acknowledge the work of

**Marie Dawkins, former CEO of Summerfruit NZ** says MAS played a significant role in helping New Zealand cherry growers gain access to Japan and Korea.

"Summerfruit, as a small organisation with a limited budget, was not in a position to have a person in house to work on market access research. When MAS was formed Summerfruit was one of its first clients.

"One big success was getting cherries into Japan without fumigation. Stephen pretty much designed the assurance programme and worked closely with growers and packhouses to ensure it was managed correctly."

MAS also helped gain access to Korea for New Zealand cherries and worked successfully on regaining access for apricots to the EU.

"Stephen led the hard-won battle to maintain a pre-clearance programme for Summerfruit to be exported to Western Australia. He worked with growers and packhouses to keep the programme viable and workable. Both would have been a lot more difficult without the work of the MAS team.

"MAS drove research to get agri-chemicals registered for minor crops or to retain those which might otherwise be removed. For a relatively small sector, Summerfruit has punched above its weight and has some considerable successes. Stephen has been a part of making that happen."

**Wayne Hall, Citrus NZ Chairman** says MAS has become a 'one stop shop' for the industry. First Nikki, then Rebecca Fisher and now Peter Ensor have taken the role of Citrus NZ executive manager, offering a wide range of management and consulting services to the industry.

That work includes the introduction, eight years ago, of the successful early season testing programme for Navel oranges. "MAS and Citrus NZ work alongside growers and supermarkets to ensure consumers enjoy great tasting fruit."

MAS has helped Citrus NZ develop a strong relationship with supermarkets. "We now meet regularly with representatives of both Woolworths (NZ) and Foodstuffs for positive discussions about the industry and the growing season and we encourage retailers to come to our conferences to talk about their business."

Organising Citrus NZ conferences is another role for MAS which also carries out research work. This is headed by Sally Anderson, MAS Scientific Services Manager. "Overall, the MAS team provides us with a comprehensive service."

**Helen Gear, Executive Officer Plant Market Access Council** (PMAC) says MAS, with its 20 years of experience, is fast becoming horticulture's institutional knowledge keeper in Wellington.

"MAS has areas of experience not found in other sectors. It is particularly good at providing services to smaller sectors which don't have the ability to employ someone full time, ensuring they keep up with the rapidly changing world and increasingly complex market access requirements."

MAS has represented Summerfruit NZ on the PMAC board and currently represents Citrus NZ. "MAS is particularly valuable on the board and working groups because it has views across more than one sector, bringing valuable knowledge and perspective."

Helen says MAS makes another less formal, but still valuable contribution to the industry through the social events it hosts twice a year.

"These are opportunities for representatives of government departments and industry leaders to get

**Stephen Ogden, MAS Managing Director** says horticulture's industry organisations provide incredible support for growers, and it is a privilege for the MAS team to work with them to deliver the services and support that help create a robust primary sector.

"We are proud of our achievements to date and will continue to evolve to meet the new challenges of the next 20 years."

Standing L-R – Lisa Wong, Stephen Ogden, Peter Ensor, Sally Anderson Seated L-R – Stephen Salter, Chrissy Williams

Nikki Johnson, Hon Jim Sutton (Minister of Agriculture 10 Dec 1999 to 19 Oct 2005), Stephen Ogden at the MAS 2002 launch function

# LIGHTENING THE TOUCH ON FOOD PRODUCTION

Glenys Christian

*Chief executive of Onions New Zealand, James Kuperus, left, with Pukekoke grower, Howe Young, who is managing the onion trial*

**Vegetable growers in New Zealand could soon be producing food with a much-reduced need for chemical sprays.**

Onions were successfully grown on a four-hectare demonstration block in Pukekohe recently without the use of the chemical, mancozeb, to control downy mildew.

"We've proved we can do this," says Howe Young, who manages the plot. "It was an average yielding crop, but it was quite dry and we weren't irrigating."

The trial forms part of the *A Lighter Touch (ALT)* programme which was established in April 2020 with the aim of changing the approach to food production by transitioning from reliance on agrichemical pest management to a more agroecological approach to crop protection.

The Ministry for Primary Industries (MPI) has committed $11 million in funding through its Sustainable Food and Fibre Futures (SFFF) fund, with another $16 million coming from the horticulture industry.

The programme's key partners are the Foundation for Arable Research (FAR), Zespri and HortNZ.

Chief executive of Onions NZ, James Kuperus, says the programme is very much part of the industry's aim to be a global leader in reducing the use of chemical inputs.

"We're never going to be the cheapest producer of onions, but we can grow a quality product sustainably," he says.

Under the *ALT* programme, demonstrations are carried out for the good of all Onion NZ members and at a commercial scale so that small or individual growers don't have to take on the potential risks of becoming early adopters of new crop protection methods.

"We hope that will speed their uptake," says James.

The plan is for four crops; onions, broccoli, barley and potatoes, to be rotated on the trial site, with onion demonstration coming into its second year. Pukekohe was chosen because of the support from local vegetable growers and wider industry, with regular field days held so the paddock can be walked and the results seen up close.

James says downy mildew control is a problem that onion growers quickly needed to adjust to. Onions NZ started providing a daily email forecast of the disease risk as part of a weather report so growers could make decisions as to whether they really needed to spray or if this long-used insurance policy wasn't really required.

An updated model has recently been developed under *ALT* and growers have supported its continuation as a good investment.

The next step is to look at a demonstration using alternative methods to control thrips, based on research carried out by Plant & Food Research Ltd (PFR) in Lincoln, Christchurch.

Antony Heywood, Vegetables New Zealand Inc chief executive, says its first demonstration on broccoli will look at how biodiversity, particularly amongst plants and insects, can benefit the agroecosystem.

"We've talked about the Integrated Pest Management (IPM) concept for many years and some crops are further ahead than others," Antony says.

When bringing biological control agents (BCAs) into a monoculture, it is necessary to build up numbers after an initial introduction and that requires either headlands, plant borders or inter-row plants where they can multiply. They'll then reach a level where spraying will be significantly reduced because they can effectively control the targeted pest.

A literature review has been undertaken, drawing on research already carried out by the Foundation for Arable Research (FAR) and PFR. Fine-tuning will now take place to get the best results in Pukekohe's temperate to sub-tropical climate.

> **"We're never going to be the cheapest producer of onions, but we can grow a quality product sustainably**

As a result of the work occurring through *ALT,* it is anticipated that growers' costs will not only be lower, but reliance on agrichemicals will be reduced significantly. It is hoped that will also lead to greater consumption of vegetables.

The biggest insect control problem for broccoli growers is the diamond-backed moth, on which PFR has carried out a number of research projects. Control measures that are developed should be relevant to growers of other vegetable crops, Antony says.

"That will give them more tools in the toolbox."

LeaderBrand's Dr Stuart Davis, who represents Vegetables NZ on *ALT's* Industry Stakeholder Advisory Group (ISAG), sees the value of the collaboration the programme brings between growers and researchers.

Stuart says a former director of Vegetables NZ was involved in LeaderBrand's IPM programme for lettuce as well as brassicas, but he always felt the work could be taken further.

"A group of growers would form to get a particular job done but then dissolve," he says. "We never had the continuity or the mechanism of putting people together."

When it came to the Environmental Protection Agency's (EPA) agrichemical reassessments, Stuart says growers often felt they were losing chemicals which they could use but there wasn't a coordinated programme to bring others in. One of the primary roles of *ALT* is to identify where there are gaps in crop protection programmes. The *ALT* team then seek out potential solutions to fill these gaps with IPM compatible solutions.

"If you want people to move, give them something to go towards," he says. "No grower holds on to old practices because they're sticks in the mud."

With *ALT's* initial projects, he hopes it's a case of "success breeds success".

"There's a long list of milestones and if most of those could be ticked off, I'd be happy."

# ASSISTED HARVESTING
## NEXT STEP IN LABOUR-SAVING

Photography; Trefor Ward

*Collecting data for 'assisted harvesting'*

**Several spin-off businesses associated with Waikato University are busy developing new technology to tackle the issue of labour shortages in the horticulture sector. GEOFF LEWIS reports.**

In March, graduates Josh Barnett and Jono Tobias collected data from a rig towed behind a tractor through a field of broccoli as part of the ongoing development of horticultural 'assisted harvesting' devices.

Jono has experience in electrical engineering whereas Josh, managing director of Axis7 Ltd – a research and development company with expertise in robotics and machine design – has a mechanical engineering background. He also designed an autonomous asparagus harvester through Waikato University several years ago that is now in the hands of Robotics Plus Ltd with $5 million in funding to take it further.

Now back in the field, Josh is scoping a study to collect data which would help in the development of a device to reduce the number of workers required to harvest broccoli. The study, funded by a $30,000 grant from the Agricultural and Marketing Research and Development Trust (AGMARDT), will help to address chronic labour shortages. While the project is in its early stages, further funding support looks promising.

Kaimai Fresh grows asparagus, broccoli, cauliflower and cabbages over 225-hectares near Matamata and has partnered with Josh to support the study. Owner, Matt Carnachan, says labour has become a critical problem.

"To find labour we've tried everything, going through Work and Income, finding people in the local area and the RSE (Recognised Seasonal Employer) scheme, nothing really works," he says. "In the past, with asparagus, we needed a lot of labour, but we have now reduced that to a team of eight to ten.

> "Josh is scoping a study to collect data which would help in the development of a device to reduce the number of workers required to harvest broccoli

"Asparagus will fall back to being a niche product. Our focus is now on brassicas and a smaller amount of labour. The issue is a matter of survival for all labour-intensive crops – potatoes, carrots, onions, salad greens – everyone is looking to autonomous harvesters."

*Broccoli harvesting by current industry standards is labour intensive*

Matt says Axis7's philosophy is not to make the leap to full automation, but to work on a level of functional automation – a harvester which can be towed behind a tractor and can reduce the number of workers needed, rather than replace them entirely.

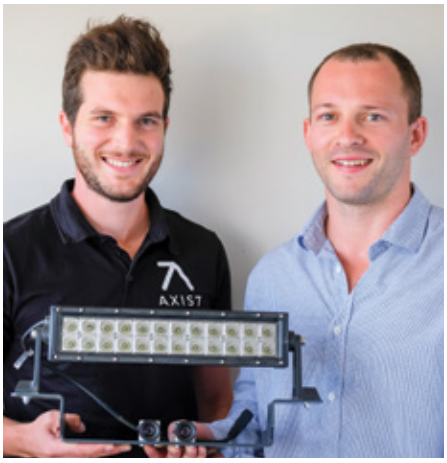
"Full automation becomes far more complex than a 'cut and convey' device that can be towed behind a tractor," Matt says. "There is a balancing act between speed, accuracy and cost."

Josh says the goal is to build a machine capable of replacing ten labourers in the Matamata operation.

"The labour issue has got to the point where produce is being left in the field – both in New Zealand and overseas."

The Axis7 data collection rig is equipped with stereo RBG (red-blue-green) cameras and a time-of-flight camera provided by expert three-dimensional (3D) imaging company, Chronoptics. Using machine learning, these sensors can be used to accurately locate and determine the maturity of the produce.

"We are fortunate to have worked on some great early-stage agri-tech projects in the past and see brassica harvesting as a global problem that we can help to solve," Josh says.




*Jono Tobias, project engineer (L) and Josh Barnett, director (R) with data collection camera supplied by Hamilton based Chronoptics*

*Matt Carnachan, owner, Kaimai Fresh*

*Jono Tobias setting up a laptop to collect the data from the rig*

Meanwhile an 'E-Bin' – a device designed to take the load off kiwifruit pickers – is another assisted harvesting project underway between Waikato University's engineering faculty and Zespri.

Headed by engineering lecturer Nick Pickering, its aim is to enlarge the potential labour supply by creating technologies which reduce the physically demanding aspects of kiwifruit harvesting.

Nick draws from 20 years' experience across aircraft avionics and airport IT (information technology) systems transformation. He worked professionally with Zespri while general manager of IT at Datacom and currently lectures at Waikato. There he discovered the capabilities of Waikato's Robotics, Automation and Sensing research group (WaiRAS).

"When I learnt about the work of WaiRAS I approached Zespri with some innovative ideas and then co-developed their on-orchard automation strategy," Nick says. "Assisted harvesting was one of the opportunities identified as a stepping stone to full automation.

"Watching videos and researching the challenge during the October 2021 lockdown, we quickly saw the demanding physical nature of the harvesting job with the majority of workers being under 30. At the same time, we were hearing about unemployment in the regions. So, we thought let's build something that expands the demographics of the picking workforce and try and kill two birds with one stone by creating augmented robotics that create jobs in our regions."

Nick says successful innovation often requires hitting the 'sweet spot' of technical feasibility, user desirability and financially viability.

"Coming from academia, we are good at the technical feasibility perspective but conscious that we don't always know the nuances of a specific domain; so, we decided to take a human-centred co-design approach by working closely with different specialists.

"In this case, working with Garcia Contracting Services, Agriculture Risk Management (ARM) and Zespri (initially in online workshops during the October 2021 lockdown) to continuously evolve the design to find something that meets every stakeholder's needs. Sometimes the hardest innovation is coming up with the simplest product possible."

> **"We're working to bring together health, computing and engineering specialists from academia and integrate them with industry to solve real world problems**

Nick says the most rewarding aspect of the project has been the capability development.

"Providing research and development value-for-money through a hybrid team of professional researchers and working alongside one of our full-time masters students Graeme Chubb."

The Zespri Assisted Harvest partner project began with testing in the Waikato lab on a fake canopy. Three-dimensional printed kiwifruit were used to evolve and assess mechanisms that work for end users while being gentle on the fruit.

The first prototype of the E-bin harvester is currently going through 12 orchard trials where fruit damage is being evaluated through the storage cycle as well as human factors such as performance, usability, injury risk and fatigue.

"We're working to bring together health, computing and engineering specialists from academia and integrate them with industry to solve real world problems – a capability that is key to keeping NZ Inc. competitive in the agri-tech arena." Nick says. "It's fantastic to see Zespri taking a lead here by funding the co-design projects for the good of the industry."

"We are working on autonomous vehicles on the survey robot project, but have kept the costs down for this through the use of auto-drives."

In the orchard, the battery-powered E-Bin moves in front of the pickers at about 50mm to 100mm per second in auto-mode. Users slide the empty bin on the front and then slide it off when the bin is full.

"The E-Bin means pickers don't have to physically carry bags of kiwifruit, which can weigh around 25kgs, allowing them to concentrate on harvesting," Nick explains. "Varying orchard widths can be accommodated with adjustable side catchers on the bin.

"The driver can go faster in manual mode (tethered control) to move around the orchard or make any required course corrections while picking."

The key has been making costs as low as possible to support a quick scale-up of the solution and resolve labour challenges as soon as possible, he says.

"It's early days but the prototype has been well received by all," Nick says. "We believe the human-assisted harvesting prototype will actually create jobs in the region for a wider demographic of people while supporting the kiwifruit industry's expansion targets.

The agri-tech innovations being designed through WaiRAS are also directed towards ease of use, efficiency and cost savings through the use of modular components. A high proportion of robotics solutions consist of the cost of sensors, batteries, computing and navigation equipment.

"As a result, we aim to build "Modular Agritech Systems for Horticulture (MAS-H)" from a hardware and software perspective. This is to ensure re-use across different domains and throughout the year."

This also reduces the impact of supply chain interruptions through the use of common spare parts, enabling regional support and a regional on farm and on orchard replacement strategy.

"We're looking at it from a perspective of what can we achieve for NZ Inc. with robotics and the available labour pool," Nick says.

# TECHNICAL

THE LATEST INNOVATIONS AND IMPROVEMENTS

# N-SIGHT: MAKING THE INVISIBLE, VISIBLE

Sustainable Vegetable Systems

Andrew Barber : Sustainable Vegetable Systems programme manager

**Nitrogen is invisible, its effects are not. Therefore, the cause-and-effect link is much harder to make than say sediment on the road. Change will only occur by working together to improve practices, not through unenforceable leaching numbers.**

The Sustainable Vegetable Systems (SVS) Programme is empowering growers through greater understanding of how nitrogen flows through a very complex vegetable growing system.

### Nitrogen budgets to change the regulatory direction

Some councils have set strict nitrogen leaching values. These values have been debated by planners and lawyers for years, resulting in little change in grower practice. Those growers who have tried to work within these limits have spent a significant amount of time and money modelling their system. As you dive into the vegetable modelling world it quickly becomes apparent to any model user just how complicated it is. An absolute nitrogen number is not defendable in court hence this should not be defined as a desirable outcome. Therefore, in the future there is likely to be greater emphasis placed on Farm Environment Plans (FEPs) to deliver changes in grower practice. Practice change leads to environmental improvement and that is a desirable outcome.

FEPs document growers' nutrient management practices. One of the key practices is the preparation of a nitrogen budget. The processes, methods and thinking that support the preparation of that nitrogen budget leads to greater understanding of individual steps driving nitrogen flow, and to practice changes that can be measured. The process, research, data monitoring and thinking lead to further questions that drive a system of continual improvement.

> "The Sustainable Vegetable Systems (SVS) Programme is empowering growers through greater understanding of how nitrogen flows through a very complex vegetable growing system

### Variability and uncertainty

Natural systems are extremely variable. Then add to that market uncertainty. Every day, growers deal with that variability and uncertainty and adjust their management decisions accordingly. We need to better understand and document that variability if we are going to tell that part of the story with integrity and an evidence base. It is the process of data sampling, analysis and presentation that leads to meaningful conversations.

Having the data is critical if the industry is going to engage with regulators, rather than being led back down that now well-worn path to the lawyer's office (apologies to lawyers).

All nitrogen flows are best represented as a range. Some of the components that make up the total variation in the complex system can never be improved upon, that is nature for you. Others however, will be improved over time as understanding and the underpinning data become more robust.

### SVS is built upon and alongside other nitrogen projects

SVS is built upon a lot of existing knowledge, including the Future Proofing Vegetable Production N budgets, Quick N tests, nutrient management guide, and the PNZ-79 emissions programme. Alongside its own leaching research and monitoring work, SVS is also helping to bring together concurrent projects, including soil mineralisable nitrogen (hot water N testing and guidance), and a crop residue project. Understanding these nitrogen flows, and their variability, are critical components of a robust nitrogen budget.

### The direction of SVS

While the regulatory requirements are far from resolved, SVS is focused on developing management tools and knowledge structured around a nitrogen budget. The tools and knowledge are underpinned by vegetable specific systems and data. The need for a FEP, with a key practice-based piece of evidence being a nitrogen budget, is one of the few regulatory certainties that we have. The industry's understanding of nitrogen flows will improve through preparing and improving our nitrogen budgeting.

> **"The industry needs to avoid the fate of many that passed this way before, with their tools eventually heading to the great tool shed in the sky**

SVS will enhance the ability, improve the robustness, and provide the evidence that growers and advisers need to prepare nitrogen budgets. The ability to conduct scenario testing will help growers plan for the variability and uncertainty. What was the likely impact of yesterday's 100 mm rainfall event? While I was previously within industry guidance for nitrogen fertiliser rates, how much more nitrogen am I now going to need, and can I justify it, to drive my crop to completion?

### What is the SVS tool?

A tool has many guises, from a computer programme (an app), to written material like wall charts and handbooks. The form of the tool depends on the user and the purpose. While remaining grower-centric we can think of the tool in terms of retail users – growers, and wholesale users – the service industry. These groups will engage with tools quite differently, but have a shared outcome of enabling growers to make sustainable nitrogen decisions economically and environmentally.

Reid and Morton's *Nutrient Management for Vegetable Crops in New Zealand* collated, analysed and presented guidance on vegetable nutrient management. Future Proofing Vegetable Production developed a single-page nitrogen budget. The *Potato Calculator* was a sophisticated programme that optimised nutrient management and potato production. The model that sits behind the tools needs to be consistent. They need to draw from the same knowledge base. The interface is a user demand decision.

The SVS trials, modelling workstream group, and SVS Technical Panel are all designed to improve the model's performance which in turn underpins any tool. The model outputs can be packaged in many ways. The Community of Practice group and wider grower engagement will help provide direction on how growers interact with the tools. Their level of sophistication may range from someone following a guide and look-up tables, through to someone planning and reflecting back on a paddock's cropping history using a computer-based programme.

As SVS heads into the second half of its programme, the emphasis begins to shift from trials to model development, grower engagement, tool design and support. The industry needs to avoid the fate of many that passed this way before, with their tools eventually heading to the great tool shed in the sky.

Our goal is to provide a useable N-management tool to empower growers and their advisors.

If you are interested in contributing to SVS focus groups or have feedback from a grower's or agronomist's perspective, please contact **Gemma.Carroll@potatoesnz.co.nz**

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MAY 2019

# FERTILISER COSTS SET TO INCREASE

opinion

Robin Boom : CPAg, member of the Institute of Professional Soil Scientists

**Single superphosphate, muriate of potash (potassium chloride) and urea are the three main fertiliser products sold in New Zealand through the two core fertiliser companies, Ravensdown and Ballance Agri-Nutrients.**

In December 2021, Ravensdown stated that they would not increase the price of superphosphate until the end of May, giving hill country farmers the surety of not having the pressure to apply their super in a hurry so as to avoid price increases.

Unfortunately, Ravensdown decided not to allow any new orders for superphosphate to be uplifted in the month of May at the old price of $370/tonne. Customers would have to wait until the beginning of June to uplift these which will likely see a jump in price.

Their reasoning was so that all of the orders in the system prior to 1 May would be able to be supplied and a last-minute rush of new orders would not overload the supply chain. The local Ravensdown store at Manunui is full of superphosphate at the time of writing, but it cannot be purchased at its current price as an order was not placed before 1 May.

Ballance Agri-Nutrients on the other hand are taking orders for superphosphate, despite running out of product. A new shipment of phosphate is expected to arrive at Tauranga harbour on 11 May, with superphosphate expected to be available after 20 May.

It is an unusual situation – one fertiliser company with product that will not sell it until after 1 June when the price is likely to increase, and the other fertiliser company willing to sell superphosphate but having no product.

Prices have increased since last December for nitrogen and potassium products – although Ballance did drop the price of urea nitrogen by $50/tonne back in March for two months to help farmers coming out of a drought. The discounted price for urea nitrogen expired on 20 May. Prices for most mainstream fertiliser products have increased markedly compared to two years ago – as can be seen in the costs per tonne comparison in the following table:

| FERTILISER | July 2020 | Ballance May 2022 | Ravensdown May 2022 |
|---|---|---|---|
| Urea | $568 | $1140 | $1290 |
| Ammonium Sulphate | $399 | $712 | $725 |
| DAP | $751 | $1430 | $1420 |
| Triple Super | $690 | $1117 | $1100 |
| Superphosphate | $295 | $379 | $370 |
| Potassium Chloride | $660 | $1090 | $1080 |
| Potassium Sulphate | $1014 | $1300 | $1310 |

Most prices between the two co-ops are fairly similar with the exception of urea, where there is currently a big difference in favour of Ballance. To be fair, this is in part, reflected in the current discounted price offered by Ballance and the fact that a lot of their product is locally made at their Kapuni plant; whereas all of Ravensdown urea is imported at the world price. It should also be pointed out that the superphosphate Ballance currently produce is called SuperPlus and is 9.5 percent phosphate, compared to Ravensdown super which is the standard 9 percent phosphate product.

As can be seen, most products have almost doubled in price, except for superphosphate which is expected to experience a price increase in June, and potassium sulphate which has increased by 30 percent in price since 2020. Historically, the difference between the price of potassium sulphate and potassium chloride has been quite significant, as observed in the 2020 prices. But currently, that price difference is a lot less. Potassium chloride cannot be used for some crops like potatoes which are sensitive to chloride, so potassium sulphate has been the go-to source of potash for these.

Potassium nitrate, which is a restricted form of potassium, has also increased from approximately $1550/tonne back in 2020 to $2700/tonne currently. There are three main sources of potassium around the world: Russia, Belarus, and Canada. Belarus has had a trade embargo against it for the past two years, and now with the Ukraine war, Russia also has an embargo; meaning Canada will be the main provider of potassium around the globe. With these demand and supply issues, the price for potassium is likely to increase further.

When it comes to other nutrients and specialist high analysis products, the comparisons are more varied between the co-ops (see table below):

| FERTILISER | July 2020 | Ballance May 2022 | Ravensdown May 2022 |
|---|---|---|---|
| **Sulphur 90** | $550 | $895 | $800 |
| **Calmag** | $644 | $745 | $580 |
| **Kieserite** | $587 | $702 | $710 |
| **12-10-10** | $890 | $1510 | $1220 *(Potash Gold)* |
| **Nitrophoska Select** | $850 *(Yara Mila Actyva)* | $1550 *(YM Actyva)* | $1390 |
| **Calcium Ammonium Nitrate (CAN)** | $650 | $1287 | $1162 |
| **SustaiN** | $625 | $1189 | $1319 *(N Protect)* |

In addition to the tabled products, there are other expensive compound fertiliser products which are imported mainly from Europe that growers use, where each fertiliser granule has the exact same analysis.

Historically, these have been a lot more expensive than the equivalent nutrient blends of the more common fertilisers used by pastoral farmers such as urea, potassium chloride and superphosphate. With the increased costs for using such products, it is surprising that growers have continued to use these compound fertilisers. More mainstream products are just as good a nutrient source for plants and significantly cheaper.

A tailor-made blend specific to the needs of a particular crop based on soil test data for a particular field will be better value for money and better environmentally. On fields where intensive horticultural crops have been grown year after year, some nutrients are found to be far in excess of crop requirements, yet the grower out of habit continues to overload the soil in these elements. This often negatively impacts on the availability of other elements. For example, applying too much potassium will impact on the availability of calcium and magnesium, thereby affecting shelf life and quality. Applying only those elements which are deficient is a much better practice.

There has been a lot of media attention recently on the increase in food prices at the supermarkets, yet when the increased cost of fertilisers, fuel and chemicals is considered, growers need to be paid more for the food they produce to survive.

Dr William Albrecht, Emeritus Professor of Soils at Missouri State University once stated that, "food is fabricated soil fertility." Most of the nutrients in our food comes from the soil and when the imported cost of those nutrients increases substantially, so too does the price of food.

# A DISTINCT LACK OF WESTERLIES

Georgina Griffiths : MetService meteorologist

## The year 2022 so far – a lack of westerlies.

**Farmers and growers are astute watchers of the weather because life and livelihood depend on it. January to May 2022 has been unusual in that Highs have favoured southern latitudes (Figure 1), while easterlies have prevailed across Aotearoa New Zealand.**

Figure 1 shows the year-to-date weather map compared to normal. It indicates differences compared to climatology, with red colours showing areas with more Highs than usual, and blue colours indicating more Lows than usual. It is obvious that Highs have favoured southern latitudes (the area south of, and over, the South Island). In contrast, the region near Fiji has experienced more frequent Lows. In between, there has been a prevailing easterly wind regime – or in other words, a lack of westerlies.

And while the ongoing La Niña conditions may have taken the blame, credit must also be given to a persistently quiet Southern Ocean, also known as a prevailing positive SAM (Southern Annular Mode), Figure 2. In other words, a lack of Southern Ocean storms washing up and over the country. The day-to-day weather maps during the positive phase often show high pressure south of the South Island (as well as over the Chatham Islands).



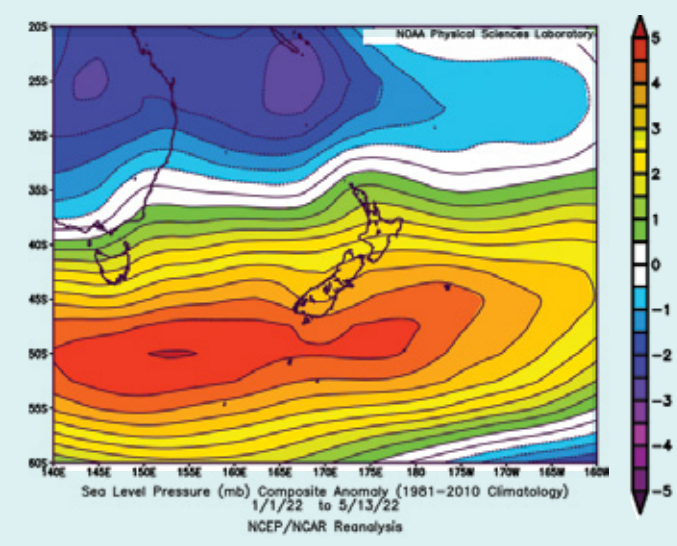



***Figure 1:*** *The mean sea level pressure anomaly (deviation from normal) for the year 2022 so far (1 January – 16 May 2022). Red colours indicate higher than normal pressures, while blue colours indicate lower than usual pressures (more lows). Map produced courtesy of NOAA/ESRL Physical Sciences Division*

The knockout combination of lows to the north and easterlies (La Niña) and a largely quiet Southern Ocean (positive Southern Annular Mode) led to an extended period of very low rainfall in Southland through the first quarter of 2022. A medium-scale adverse drought event was declared in Southland, Clutha and Queenstown Lakes on 1 April, acknowledging the extended dry conditions earlier in 2022 in these regions (Figure 3).

In contrast, areas exposed to easterly rainfall, such as Northland, Gisborne and Christchurch have run wetter than usual (Figures 4, 5 and 6), while Bay of Plenty and Nelson are sitting closer to normal (Figures 7 and 8).

Looking towards winter, all eyes are on the Tasman Sea, where an active subtropical jet is forecast to spawn frequent Tasman Lows, and a wetter and warmer than normal winter is predicted for most regions of the North Island and upper South Island.

As always, you should keep up to date with the MetService long-range forecast at **http://metservice.com/rural/monthly-outlook,** or ask us questions on the MetService Facebook or Twitter feeds.

## The Southern Annular Mode (Southern Ocean Storminess)

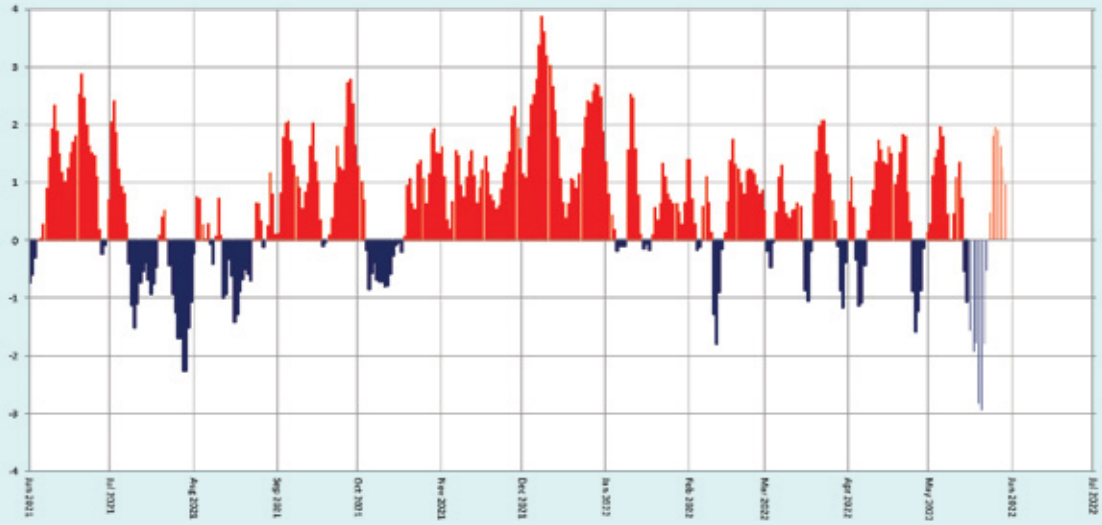


***Figure 2:*** *A plot of the SAM from 1 January 2021 to 30 May 2002. Note the persistence of the positive (quiet) phase during summer 2021–2022, and then a prevailing positive regime through most of early 2022. The lighter (washed out) bars from mid-May to end of May indicate the forecast state of the SAM, predicting the first decent cold and stormy Southern Ocean outbreak this year*

## Annual Rainfall Accumulation

*Annual rainfall accumulation (mm) for the last five years (2018 to 2022). The annual average rainfall accumulation is shown in black*

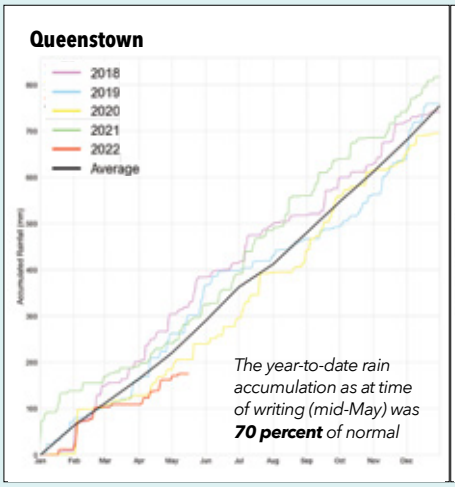



***Figure 3:*** *Queenstown*

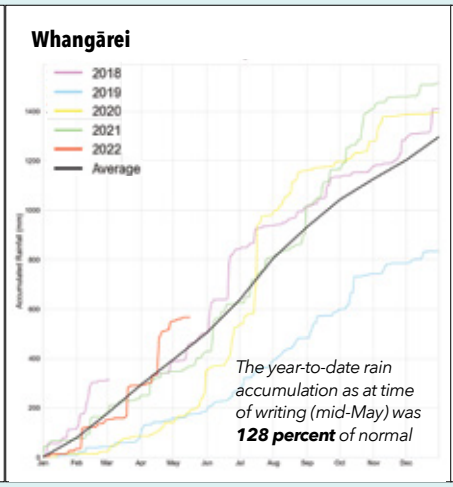



***Figure 4:*** *Whangārei*

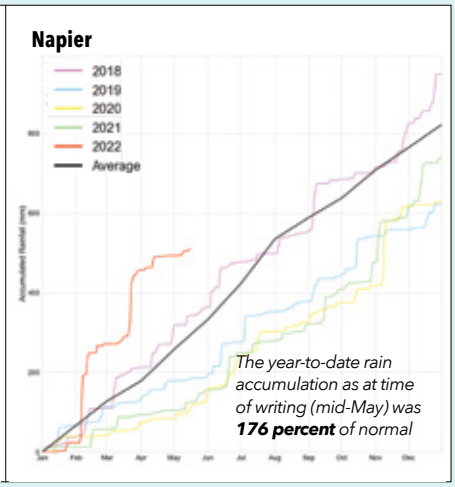



***Figure 5:*** *Napier*

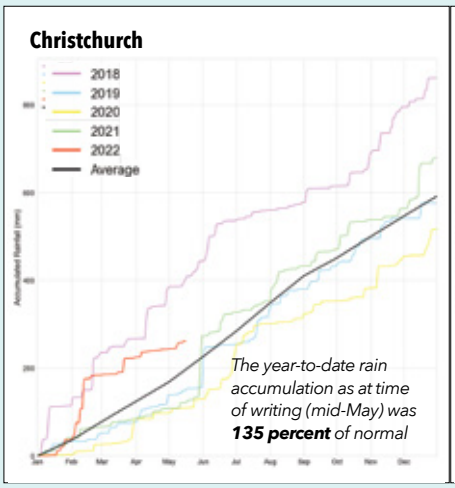



***Figure 6:*** *Christchurch*

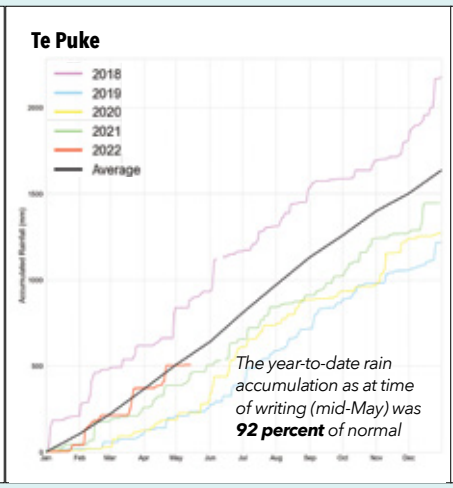



***Figure 7:*** *Te Puke*

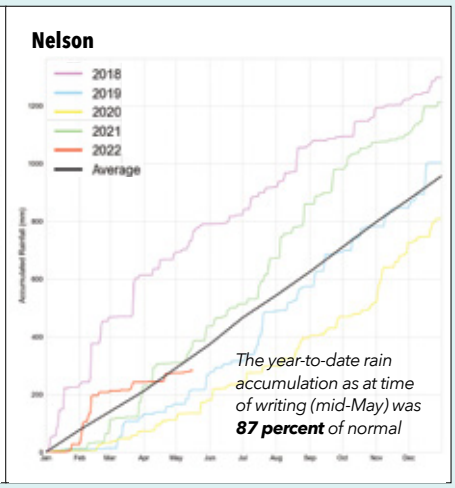



***Figure 8:*** *Nelson*

# **PRODUCT** GROUPS

**ALL THE LATEST NEWS FROM YOUR PRODUCT GROUPS**



# SUSTAINABLE GROWTH FOR POTATO INDUSTRY

Gemma Carroll : Potatoes NZ Inc. communications & engagement officer

## SUSTAINABLE GROWTH 2022 POTATOES NZ CONFERENCE

**Potatoes NZ (PNZ) is pleased to announce its long-awaited Sustainable Growth 2022 Potatoes NZ Conference will finally take place on 23 and 24 August 2022, after a three-year hiatus due to the Covid-19 pandemic.**

Draft programme topics include:

**Sustainable markets session**
- Economic situation for New Zealand
- Global potato markets
- New Zealand processing sector report: Imports and exports
- Consumer trends in a fast-changing world
- Digital transformations

**Sustainability session**
- Sustainable Vegetable Systems Programme
- Canterbury Potato Liberibacter Initiative
- Potato Tuber Moth Programme

**Dinner and networking**

**Special research, development and extension session**
- Official launch of the New Zealand Centre of Excellence for Potato Research and Extension
- Extension in practice

**Social sustainability**
- Potato Industry Champions for Change – meet the growers at the forefront of sustainable change
- What does good look like? A greenhouse gas story


- What is mātauranga Māori and why embrace it?
- Health and safety in the age of pandemics, climate crisis and tractor guards
- Farm profitability – building a system to understand our industry baseline

**Sustainable quality**
- New Zealand Seed Scheme – meet the new team
- Future project: a Q&A panel session

**Field trip**
- Sustainability in action

At the 2019 conference 150 delegates enjoyed a stimulating two-day event and celebrated industry success at the dinner.

If you are interested in conference sponsorship opportunities, please email: Gemma.Carroll@potatoesnz.co.nz

The conference programme is designed to reflect our Strategic Targets, Themes and Initiatives, while addressing current and future issues and opportunities.

Registrations for our Sustainable Growth 2022 Conference open at the end of May and you can find all you need to know on our conference website http://potatoesnzconference.nz/

## POTATO INDUSTRY STRATEGIC TARGETS 2022

**1 Double the value of fresh and processed exports by 2025**

- Aligned with the objectives of the government's business growth agenda
- Implies volume and value growth

**2 Zero net nutrient and greenhouse gas emissions by 2035**

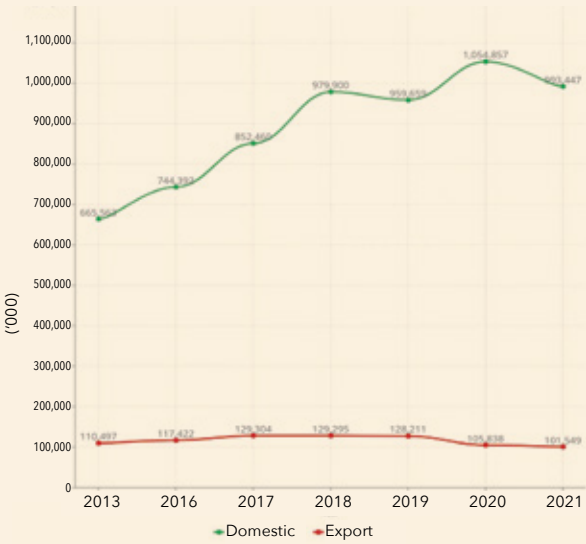
- Aligned with the objectives of the government's emission targets
- To be achieved in order of priority by reduction, mitigation and offsetting.

**2021 Potato Industry Strategic Themes & their Initiatives**


The 2022 PNZ Strategy and Business Plan has been printed and mailed to stakeholders and all our members. You can also see it online here: **https://potatoesnz.co.nz/administration/strategic-plan/**

Our 2021 data indicate our industry value has continued to grow since goals were set in 2013. We have now reached a total industry value of $1.2 billion, up from $1.16 billion in 2020. There has been a slight value drop in some of our sectors due to global challenges. Total export and domestic values held up better than expected in 2021.

**2013-2021 Potato Industry Domestic and Export Value ('000 NZD)**



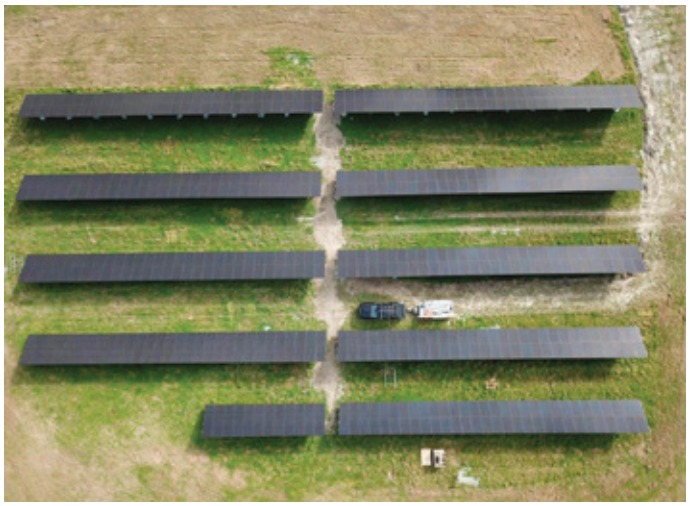

Our research and development programmes address sustainability issues including nitrate leaching, as part of our emissions reduction goals; and pest and disease management, as part of our sustainable quality theme. The current projects include the Sustainable Vegetable Systems Programme, the N-Mineralisation Project, the Canterbury Potato Liberibacter Initiative (multiple projects), and the Potato Tuber Moth Programme.

Information about all these programmes can be found on our website: **https://potatoesnz.co.nz/research-and-development/research-projects/**

As part of our social sustainability activity, we will hear from some of our grower champions at the 2022 conference. Some have appeared on our website and in this magazine, such as the Bhana family with their Adroit sensor innovations.

We are motivated and encouraged by those who are walking the talk when it comes to sustainability initiatives on farm. Trialing or incorporating new innovations is not only about meeting regulations, or new policies, but also ensuring longevity for grower operations by improving farm environments, inspiring teams, potentially reducing the hit to the bottom line when it comes to fertiliser management and energy use, as well as meeting the all-important market trend towards sustainably produced, nutritious food.

## OAKLEY'S IS A CHAMPION OF THE NZ POTATO INDUSTRY FOR SUSTAINABILITY



*Bird's eye view of solar panels*

Oakley's Premium Fresh Vegetables is an industry leader in harnessing the latest technology to minimise environmental impacts, like extensive use of on farm moisture probes which accurately measure soil moisture and are used to forecast irrigation requirements in conjunction with up-to-date weather forecast information and data about crop demands.

Oakley's also carries out extensive soil and plant nutrient testing to ensure just the right amount and timing of fertiliser applications to maximise quality and yield.

These are some of the tools Oakley's use to work beyond best practice and have a truly sustainable business.

The Oakley family is proud to announce the installation of 564 solar panels to power their Southbridge post-harvest site in Canterbury.

Potatoes and broccoli will be packed and cooled in one of the South Island's largest solar energy installations, providing for 40 percent of Oakley's yearly energy demands, using 390-watt panels. Oakley's worked with CPS Solar to implement the grid-tiered solar energy system. Significant volumes of spuds will be washed and graded using natural sun power, including their award-winning Golden Gourmet Potato boxes. The outcome will be reduced carbon emissions and sustainable storage, washing, packing and dispatch of fresh vegetables across the country.

The family business is excited to take these next steps towards the United Nations sustainable development goal to "ensure access to affordable, reliable, sustainable and modern energy," setting an example to other New Zealand farms.

The project complements the three Ballance Farm Environment Awards in 2020 for excellence in soil management, scientific monitoring and innovation.

Oakley's will contribute to Aotearoa's renewable electricity generation and reduce greenhouse gas emissions. The New Zealand government aims to reach a 90% renewable electricity target with these types of solar energy approaches. You will be able to see more of the family in an upcoming greenhouse gas roadmapping video due to be released early this winter, made with the New Zealand Agricultural Greenhouse Gas Research Centre.

Oakley's is committed to leaving the earth better than they found it and they are proud to positively impact the New Zealand Potato industry's sustainable growth.

# CRATE SUPPLY ISSUES A THING OF THE PAST

Antony Heywood : Vegetables New Zealand Inc. general manager

*Regan Hill, general manager VFCC and Alvaro Zapata, national operations manager*

**Viscount Fruit Case Company (VFCC) says its investment in collapsible H crates over the past 18 months will mean that growers will have enough crates over the critical times of Christmas and the new year period.**

Regan Hill, general manager VFCC, says they are partnering with major customers to understand their volume requirements over the next 12 months.

"We will then invest in our asset pool to ensure we deliver better supply outcomes for the coming peak. The team and I will be active in the market managing our asset pool with growers, markets and retailers to ensure we can increase cycle times and as a result, stock availability to growers."

Regan says VFCC will deploy several new systems later in 2022 and 2023, which will give growers confidence in the company's ability to support their businesses.

"Improved customer online ordering systems will make it easier to place orders, track order history and invoices. We will also continue to invest capital in new crates, bins and pallets.

> "...vision is to lead the circular economy through innovative packaging, reuse and recycling solutions

"By mid-2023, our new custom-built facility and wash plant in Auckland will significantly lift our capacity, further raise our quality standards plus be a great environment for our staff and customers."

VFCC's vision is to lead the circular economy through innovative packaging, reuse and recycling solutions.

## *Collaborating, innovating and supporting growers in New Zealand*

*Fruitfed Supplies has worked closely with growers, suppliers and industry members to support the continued growth of the horticultural sector.*

*The Fruitfed Supplies' research and development team conducts trials year-round to assess product performance in local conditions and alongside other products. This knowledge in a product's technical application allows our customer service and in-field representatives to provide growers with the most up to date product choices as part of a tailored spray and control programme.*

# We *know* horticulture

***Find your local Fruitfed Supplies team.***
***www.fruitfedsupplies.co.nz***

**Fruitfed Supplies**

*A trading division of PGG Wrightson Ltd*

# PROCESS VEGETABLES UPDATE

Richard Palmer : Process Vegetables New Zealand general manager

**Process Vegetables New Zealand (PVNZ), together with Vegetables New Zealand, is holding a grower roadshow in Christchurch on 4 August 2022. Presentations will include a specific session on the pea research being undertaken by Plant & Food Research as well as by a Lincoln PhD student. These presentations will highlight some of the focused research that PVNZ funds to improve productivity and provide answers to some of the key questions relating to environmental management.**

PVNZ continues to invest in research, well supported by processors and the Ministry for Primary Industries' Sustainable Food and Fibre Fund (SFFF). In the latter case, we have had a three-year programme of research looking at the variables in pea seed lines and the effect on crop yield.

**THE MIXING OF SEED LINES INCREASED VARIABILITY IN FLOWERING TIMES AND SUBSEQUENTLY, HARVESTED YIELD**

Dr Bruce Searle from Plant & Food Research (PFR) will present on the results from the third year of this research at the 4 August 2022 roadshow. The outcomes from Bruce's research have already been applied, with the second-year results showing the mixing of seed lines increased variability in flowering times and subsequently, harvested yield. PVNZ is currently working with PFR on a draft fourth year programme to identify how the environmental conditions of the mother crop affect subsequent seed performance, and importantly, how these effects can be mitigated to improve productivity.

PVNZ is also continuing research to quantify the actual losses of Nitrogen, Phosphorous, Potassium, Sulphur, Calcium, Magnesium and Sodium in peas, green beans and broad beans to provide more accurate coefficients for the Overseer model. Work already done has provided relevant and up-to-date coefficients for Overseer reflecting the known losses applicable in Canterbury. This is an area of work that is continuing, including aligned work looking at values for Hawke's Bay production.

The government's recent announcement of emission reduction targets further highlights the need for focus on these areas of work, both to understand losses but importantly, to assist growers to decide on appropriate reductions and the whole cost of inputs.

> **"What is clear is that consumers cannot expect pricing of fruit and vegetables to remain constant with growers soaking up increased costs**

The input cost to offset emissions will come at a price that will ultimately need to be borne by consumers. Given concern about inflation, the question is how this can be translated into improved pricing and grower returns, and perhaps most importantly, what actions the government will take to reduce the power of the supermarket duopoly.

What is clear is that consumers cannot expect pricing of fruit and vegetables to remain constant with growers soaking up increased costs. That outcome would be ruinous for growers and disastrous for the health and wellbeing of New Zealanders.

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**Reaching all levy-paying growers of vegetables in New Zealand.**

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TomatoesNZ

# REMINDER TO PAY YOUR TOMATO AND BIOSECURITY LEVY

Dinah Cohen : TomatoesNZ Inc. business manager

*The FTEK robotics team with the RLAP prototype*

## Pukekohe grower workshop

Tomatoes NZ (TNZ) and Vegetables New Zealand Inc hosted a workshop in Pukekohe on 18 May, updating undercover crop growers and industry representatives on a range of topics, including:

- Biosecurity
- Bio-controls and Integrated Pest Management (IPM) plans
- Energy efficiency
- Reducing harm in horticulture

Look out for a full article on the workshop in next month's issue.

## RLAP prototype

Those attending in person were fortunate to see the showcase of the Robotic Labour Assist Platform (RLAP) prototype at FTEK – a business designing and manufacturing crop maintenance and harvesting equipment for the greenhouse vegetable industry. Developed by a team with enormous Kiwi ingenuity and empathy for what growers need, the RLAP prototype features a custom robotic arm with detachable tool heads that is capable of multi-tasking and operating at heights between 0.5m to 4.5m. The next stages of the project will be piloting the RLAP in the field alongside capital raising activities to advance the technology towards commercialisation. For more information about the prototype, contact FTEK directly: **sales@ftek.co.nz**

## EECA / TNZ funding for grower decarbonisation consultations

At the last TNZ Board meeting, directors agreed to partly fund energy consultants going into small to medium sized tomato businesses to provide specific ways for individual growers to decrease their reliance on fossil fuels and carbon emissions.

The consultation report will also include costs involved with making a fuel switch and the Energy Efficiency and Conservation Authority (EECA) will be available to go through the suggested options with you. Funding is through TNZ and EECA, and will be limited. There is a deadline for applying for this funding, so please get in touch with Dinah Cohen as soon as possible if you are interested in pursuing this: Dinah.cohen@hortnz.co.nz

EECA has also launched a new page on its website that is a one-stop-shop for the covered crop industry with plenty of useful tools for increasing your growing operation's energy efficiency: **https://www.eeca.govt.nz/co-funding/sector-decarbonisation/support-for-covered-cropping-sector/**


## Tomatoes NZ AGM

The TNZ Annual General Meeting will be held late afternoon in mid-August. The exact time, dates and details will be confirmed via separate communication to TNZ members. Horticulture New Zealand will not be holding a conference this year, however, TNZ board members will present on topics during the AGM that are relevant to all growers. More info to come.

## Board nominations

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.

If you are a tomato grower interested in joining the board, please get in touch with me to find out more: **Dinah.cohen@hortnz.co.nz**

# CONSUMER INSIGHTS ON NEW POTENTIAL ONION MARKETS

Kazi Talaska : Onions NZ Inc. market access manager

**Expanding into new markets is essential for industry growth and a top priority for Onions New Zealand. Understanding what consumers are looking for in these markets is an important tool needed to successfully enter and gain or increase market share in a country.**

Recently, Onions New Zealand initiated research with New Zealand Trade & Enterprise (NZTE) to size up the opportunity in some overseas markets, analysing market conditions, consumer preferences, and distribution channels.

Below are market and consumer insights into some new and high potential markets: Brazil, South Korea, Philippines, United Arab Emirates, India and Saudi Arabia.

### Consumer expenditure on vegetables

The United Arab Emirates (UAE) and South Korea spend the most on vegetables at US$221.00 and US$206.00 per year, per capita of the population. The incorporation of onions into the local diet and cuisine helps fuel a healthy demand for the product; which in turn, leaves more opportunities for imported products to help complement supply.

### Purchase of organic vegetables

Compared to New Zealand consumers, Brazilian, Saudi Arabian, and Filipino consumers purchase more organic vegetables. For Brazil, this is an increase of 31 percent compared to the New Zealand consumer. This indicates interest from these markets in a healthy and chemical-free product but more specifically, a willingness to pay for these attributes.

### Price-conscious

All markets except Brazil claim to be less price-conscious than the New Zealand consumer market. This is especially true for the Middle Eastern and Indian markets; this could mean these markets are more likely to pay higher prices for onions.

### Importing landscape

Saudi Arabia and the UAE have the highest import value for onions out of all the countries in the list, with a value of US$96 million and US$86 million respectively. This indicates a high volume of onions purchased and greater market potential for incoming exporters.

### Distribution channels

Supermarkets and hypermarkets are the dominant retail channels in all markets apart from India. A plus for the high priced premium New Zealand onion, that is more likely to be retailed in a supermarket and targeted to a high-end consumer. Exporters should consider the retail environment in a given market and what products the consumer is looking for.

### Tariffs

Although modern market access is increasingly challenged by non-tariff barriers, tariffs themselves represent a big hurdle to breaking into a market. South Korea has the highest tariff from this list at 135 percent, while the UAE, Saudi Arabia, and India sit at zero percent tariff. It is difficult to justify the extra costs that will decrease return for growers, despite the market potential, thus tariffs represent one of the primary considerations.

**BRINGING THIS ALL TOGETHER:**

| | Brazil | UAE | Saudi Arabia | India | South Korea | Philippines |
|---|---|---|---|---|---|---|
| Market trajectory 2020 | Low growth, low volume per capita | High growth, high volume per capita | High growth, medium volume per capita | High growth, medium volume per capita | Low growth, high volume per capita | Low growth, low volume per capita |
| Import value 2020 | $42M | $86M | $96M | $68M | $11M | $17M |
| Import tariff | 10% | 0% | 0% | 0% | 135% | 5% |
| Import value per tonne 2020 (USD) | $214 | $301 | $292 | $516 | $375 | $202 |
| Number of countries importing from 2020 | 8 | 43 | 31 | 15 | 10 | 6 |
| Consumer expenditure on vegetables 2020 ($USD per cap) | $46 | $221 | $158 | $45 | $206 | $77 |
| Consumer differences to New Zealanders | High organic consumption and price conscious | Low interest in ethical and pricing considerations | Low interest in ethical and pricing considerations | Low interest in pricing considerations | Low interest in organic or local suppliers | High interest in ethical and health |
| % hyper/supermarkets of bricks and mortar retail | 55% | 81% | 42% | 2% | 56% | 72% |

*New Zealand Trade & Enterprise Te Taurapa Tūhono*

## Next steps?

All things considered, the recommendation from this research was to invest in exporting to the United Arab Emirates (UAE). This is an affluent market with relatively high per capita spending on fruits and vegetables, with supermarkets as the major retail channel. Additionally, the zero percent tariff, high market growth, and onion import stability make it an attractive destination. Saudi Arabia, as another potential destination also stands out with similar market conditions.

Ultimately, market access is a continued challenge for the New Zealand onion sector. In recent years, higher momentum has been gained in Southeast Asia, with Indonesia taking the lead as a NZ$32 million market in 2021. In this space, the Philippines and Thailand also represent big next steps for the industry.

Consumer insights such as these support our position for market access and help the industry make more informed investment decisions, where the time taken to develop a market and financial costs of market access are high.

Onions New Zealand members can access this resource and more through the website **www.onionsnz.com** and by navigating to the resource tab and the resource library. The resource library lets you access different reports, market intelligence, grower resources, innovation and statistics.

# TRIAL RESULTS FORM THE FOUNDATION OF SPRAY PROGRAMMES

**For an insight into Fruitfed Supplies' Research and Development (R&D) programme, we spoke to Catherine James, one of the team's five Technical Advisors responsible for conducting product trials.**

Describing the team's set-up, Catherine says each Technical Advisor is specialised in one or more of these crops: vegetables, arable, pipfruit, summerfruit, subtropical fruits or grapes. Trials are conducted in the main horticultural regions, with vegetable trials held around Pukekohe, subtropical fruit trials in the Bay of Plenty, apples and grape trials in Hawke's Bay, Blenheim and Nelson. Further south, Canterbury hosts vegetable and arable crop trials.

Based in Pukekohe, Catherine's expertise lies in setting up and conducting vegetable trials. This work involves assessing and monitoring a product's efficacy, crop safety and compatibility alongside other products within a spray programme.

Technical Advisors work closely with Fruitfed Supplies' Technical Specialists. As Catherine says, "when I started in this role, I conducted trials and called on Daniel Sutton, Technical Specialist – Vegetables, for his knowledge of insect pests and diseases and for advice on the most effective way to set up the trial according to the vegetable crop. We are fortunate to have a lot of knowledgeable people across multiple crops within the business who we can contact for assistance."

Currently the R&D team is conducting trials of herbicides, fungicides, insecticides, biostimulants and adjuvants to assess their crop safety and efficacy. "In recent years", Catherine says, "I have noticed a shift to biologicals and Integrated Pest Management friendly products that produce low or no residues with short withholding periods."

*Fruitfed Supplies' Technical Advisor, Catherine James*

"Gathering this data for product manufacturers provides an understanding of how a product would fit within a commercial grower programme. As we sell a range of products through our Fruitfed Supplies stores, it is valuable to get a first-hand understanding and gain confidence in how a product works. Once a product is registered, we can then offer our growers recommendations based on the data we have collected from the trial," Catherine explains.

At the completion of a successful trial, in readiness for the product's registration for use in New Zealand, the data can be shared with Fruitfed Supplies' network of store teams and Technical Horticultural Representatives (THRs). "By having the opportunity to see how products perform in the field, including viewing the results alongside similar products, we are able to share this valuable information with our THRs and in-store teams who in turn, advise our growers."

Field visits, conducted by the Fruitfed Supplies Technical Team, offer growers a first-hand chance to view local trials. "If a product trial has produced good results and is soon to be registered in New Zealand, we'll invite growers on a visit to discuss our findings and give growers the chance to understand how a product has performed in the field."

*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.*

# LINCOLN UNIVERSITY COMMITTED TO GROWING THE GROWERS

**Growing and producing fresh, healthy food is one of the most essential staple industries across the globe. It is also a major cornerstone of New Zealand's economy.**

We recognise that and take seriously the responsibility for training those who produce our food.

The recent announcement of the launch of a Centre of Excellence for Potato Research and Extension, based at the University highlights that commitment.

The research conducted there will focus on working with potato growers to identify and understand the problems confronting them and to devise solutions.

But it's not just spuds.

We offer study programmes in agriculture, horticulture, agribusiness marketing, land and property management, agricultural science, viticulture and wine production.

All our qualifications include plenty of opportunities for practical work experience, from team projects in the lab to individual assignments at private companies. This will give you first-hand knowledge and help you to develop the exact skills the industry is looking for, making you highly sought after.

At Lincoln, we're constantly expanding our world-class academic instruction, globally-relevant research and opportunities for practical, hands-on experience.

The ways that we produce food have evolved. Our agribusinesses need to adapt to growing environmental and sustainability challenges. Technology is also transforming how we plant, grow, monitor and manufacture fresh foodstuffs.

We recognise the challenges and can teach you how to meet them head-on and overcome them.

Whichever programme you choose, when you graduate you will have the practical knowledge and applicable skills to play your part in growing a healthier tomorrow.

*Horticulture at Lincoln is practical-based and hands-on*

We have a wide range of postgraduate programmes which will be relevant if you are already working in the primary sector, which will expand your skills and enhance your prospects of moving up the tree, or branching off in another direction.

And you don't have to wait until 2023. You can start your study in July in Semester 2, and take advantage of our Fees Free options, available until the end of 2022.

Our Diploma in Horticultural Business is an online qualification for those already working in the New Zealand horticultural sector, which complements your knowledge of horticulture production and other food-related businesses with business skills.

It will nurture your ability to evaluate, analyse and solve problems as they relate to agribusiness, real-world horticultural production and marketing.

The Graduate Diploma in Viticulture and Oenology will expand your knowledge of the wine industry, and enable you to grow your own grapes and make your own wine.

You will cultivate your wine tasting and analysis skills, understand New Zealand's unique wine styles, and get to grips with our innovative, sustainable wine-making practices.

Then there is the Master of Agricultural Science degree which will expand your abilities to grow the impact of agricultural production through advanced management and science.

Whatever area of study, academic level and course duration you are looking for we have the programme to suit you and help you grow.

Literally and figuratively.

It's all at **www.lincoln.ac.nz**

# WEEDSEEKER 2: SMARTER SPOT SPRAYING

**Thanks to Trimble's latest advance in spraying technology, application of herbicide to control weeds can now be reduced by up to 90 percent, saving money and reducing environmental impacts.**

There is no doubt that horticulture is benefitting from technology advances when it comes to crop management. Trimble Agriculture has done it again with Weedseeker 2, utilising advanced optics to detect and apply herbicides to weeds, avoiding wasted spraying of bare soil.

This targeted approach means that significantly less spray is needed, with the specialised sensors communicating with the linked spray nozzle once a weed is detected to deliver the right amount of herbicide to kill the weed. In addition, Weedseeker 2 'learns' where weeds are located or are more prevalent across the area to be sprayed, meaning even more accuracy in future spraying sessions.

Sensors have a wide detection width of 50cm which means fewer sensors are needed to cover the length of the spray boom. Weedseeker 2 does not require the operator to reduce the speed of passes, operating comfortably and accurately at up to 40km/h. With the ability to operate at normal speeds there isn't a trade off on labour costs due to a need to slow down. In addition, Weedseeker 2 sensors have an automatic turn calibration and will adjust on the run to changes in ambient light, temperature, background soil or stubble, ensuring sensor accuracy in all conditions.

> **"Weedseeker 2 can be used with any ISOBUS compatible display, including all Trimble GFX series displays**

Weedseeker 2 can be used with any ISOBUS compatible display, including all Trimble GFX series displays. The simple and intuitive interface allows most users to easily track herbicide use and log coverage maps.


*Weedseeker 2 sensors ready for action*

Vantage New Zealand (formerly Agri Optics New Zealand) has grown to become New Zealand's leading precision agriculture solutions provider and the New Zealand dealer for world-renowned precision ag providers Trimble Agriculture, AquaChek, and Halo Systems. Founded in 2010 and rebranded in 2020 as Vantage New Zealand, bringing together highly skilled teams from Agri Optics NZ and GPS Control Systems.

Says founder and director Jemma Mulvihill, "With a highly skilled and knowledgeable team across New Zealand, we have the expertise, technology and skills to deliver leading precision ag products, services and solutions tailored to our customer's needs."

"We work alongside the agronomist, fertiliser or field rep, or direct with you the grower, to achieve real environmental, profit and production gains through the implementation of precision ag technologies leading to better and more informed management decisions."

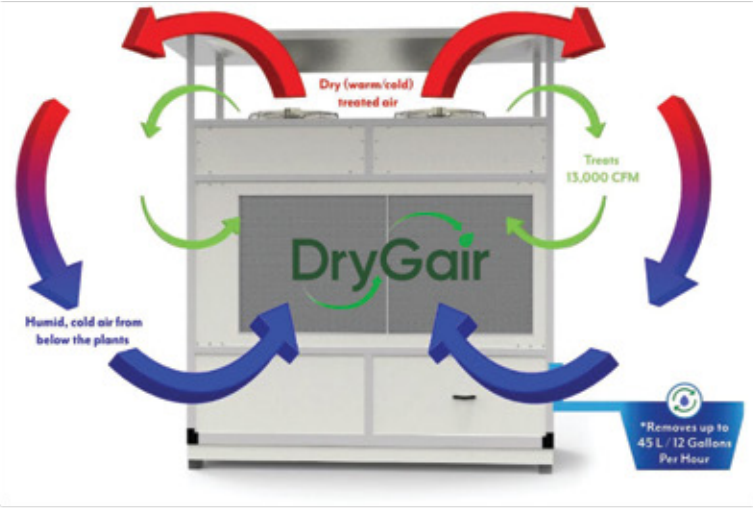
For more information visit **vantage-nz.com or call 0800 482 682 to connect with an advisor.**


**50% energy savings** compared to traditional heating and venting

**Reduce** heating demand and **increase** plant respiration without disease

Uniform climate conditions, **360° air flow distribution,** up to 22,000 $m^3$/hr

**Prevent humidity diseases,** reduce the need for pesticides




DryGair Energies Ltd develop and market efficient and environment-friendly dehumidification solutions for horticultural projects.

Our wide selection of dehumidifiers can fit any crop or growing facility, including split units for additional placement options, and heating and cooling units for added temperature control. Ideal for integration into existing or new commercial greenhouses. Efficient large scale dehumidification with plug and play ease of use.

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