NZGROWER®

VOL 77 | NO 08 | SEPTEMBER 2022 HORTICULTURE NEW ZEALAND

FIFTH GENERATION GROWERS

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

WHAT IS HORTICULTURE'S GREATEST RISK?

Barry O'Neil : HortNZ president

What do we think of as horticulture's greatest risk? Is it the inability to have confidence of future labour needs? Maybe it's not having reliable water access, or the risk of inflationary input prices? Or maybe even disjointed and illogical government policy?

According to our primary sector leaders, these risks are not the most significant ones. Once again and for the twelfth year in a row, Ian Proudfoot's Agribusiness agenda has identified biosecurity as our sector's biggest risk.

For the last twelve years we have consistently identified that our number one priority for the primary sector is wanting New Zealand to have a world class biosecurity system – or ideally the best biosecurity system in the world.

In my opinion, we already do have a world class biosecurity system, which over my career I have been fortunate to be part of. We just have to travel to other countries where few or no biosecurity checks occur on arrival to understand the efforts New Zealand makes to keep out unwanted pests and diseases.

But if we have a world class biosecurity system, then why do many in the primary sector get wound up about Foot and Mouth disease being found in countries such as Indonesia?

Foot and Mouth disease (FMD) in livestock is akin to the Queensland fruit fly in horticulture. In 2003, the Reserve Bank estimated the impact of a medium FMD outbreak in New Zealand would be in the order of a $10 billion shock to the economy over two years.

The disease decimated United Kingdom farms in 2001, with more than 750 individual outbreaks forcing the UK government to slaughter and burn more than a quarter of a million animals.

> **For the last twelve years we have consistently identified that our number one priority for the primary sector is wanting New Zealand to have a world class biosecurity system – or ideally the best biosecurity system in the world**

So, it is understandable that some of industry worry when something like FMD comes onto our radar. Sometimes concern turns into criticism of our country's biosecurity efforts, which is totally unfounded for many good reasons:

Firstly, FMD is endemic in many parts of Asia, West Eurasia, the Middle East and Africa, which means that a big part of the world has it already, and for decades. Every day there are people and goods arriving in New Zealand from regions that have FMD, not just when a country close to us like Indonesia has a problem with it. The Ministry for Primary Industries' (MPI) biosecurity team and their predecessors have had to manage the risks, and continue to do so.

BIOSECURITY
HAS BEEN IDENTIFIED AS OUR SECTOR'S BIGGEST RISK FOR THE 12TH YEAR IN A ROW

They have been 100 percent successful so far, as New Zealand has never had an outbreak of FMD.

Also, let's not forget it is not MPI that are importing the produce or attracting the tourists and workers to come to this country. They are not the ones creating the risk. Rather they are the ones that have been tasked with mitigating the risks that others continually create.

We as New Zealand travellers, or as businesses importing goods, are creating the risks and we therefore need to take personal responsibility for that. This should be part of our DNA, requiring with our purchase contracts that the goods must be clean and sometimes fumigated, or if we are travelling that we are not bringing back risk items with us. We should also take care that our shoes

and clothes are not presenting risk at the border.

When I hear criticism that MPI are not doing their job properly, I struggle to understand what is being claimed and why. Yes, we are all human. Mistakes happen and we learn from them. But do people really think our biosecurity workers aren't committed to their task, or that they don't take pride in the work they do day and night to keep pests and diseases out of New Zealand?

Biosecurity encompasses more than just managing risks at the border. We also need good surveillance to find and then eradicate pests and diseases that do slip through the net, along with pest management to minimise impacts if something does establish here. We do have all these components, and these are world-leading as well.

In reality, we need to be a biosecurity team of five million – which is all of us, not just the MPI workers at the border. We all need to be biosecurity aware and continually doing our bit to keep pests and diseases out, while also being on the lookout for things that will very occasionally slip through the net. There is no such thing as 100 percent security against anything in life.

> **"Biosecurity encompasses more than just managing risks at the border – We also need good surveillance to find and then eradicate pests and diseases that do slip through the net**

While horticulture is not directly impacted by FMD, it would be indirectly impacted as would all of New Zealand. With internal movements of many risk activities stopped, the rural economy would grind to a halt, tourists – including backpackers just as they are starting to come back into the country – would cancel their travel, and many of our trading partners would ban New Zealand products – not just animal products.

Queensland fruit fly is an equivalent risk for the horticulture sector as FMD is for the livestock sector. It is not that other countries don't have fruit fly – Europe and Asia do – it's just that they don't have the Queensland fruit fly. Markets would react immediately to stop trade in fruit and veggies from NZ if the Queensland fruit fly became established here. Australia has worked for decades to get markets to open for its horticulture products, with some success, but often requiring treatments such as methyl bromide or irradiation before trade is allowed – not something we would want for our high quality, nutritious, fresh produce.

We are more dependent on the primary sector and its exports for economic prosperity than any other developed country in the world. Collectively industry needs to make biosecurity one of its top priorities – just as it has been the Agribusiness agenda's number one priority for the last twelve years.

Ngā mihi ●

NZGROWER

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Your Levy AT WORK

MPA Associate Member (NZ)

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MAINTAINING GROWERS' SOCIAL LICENCE

Nadine Tunley : HortNZ chief executive

August was an intense month for our industry.

Wet weather continued to affect vegetable production across the country, particularly the Nelson region which declared a State of Emergency until the end of August. Fruit as well as vegetable growers were affected, with orchards turning into rivers.

Many of you will have also seen the media turn its attention to the Recognised Seasonal Employer (RSE) scheme, with a series of negative stories culminating in a feature on the TVNZ Sunday programme. We are focused on correcting this negative perception and working with the Government to improve the scheme they administer and manage.

The Government is under immense pressure because of the labour shortage across New Zealand and deepening social issues. That is perhaps why on the one hand, the Government is relaxing immigration settings and publicly offering support for the RSE scheme, while on the other hand, the Government is reviewing the scheme and involving unions.

Growers are passionate people, proud of what they do to feed New Zealanders and the world nutritious, great tasting food. However, being able to grow – use land and water, and have access to a workforce – is increasingly seen as a privilege.

As an industry, we talk about maintaining social licence – that is, maintaining our ability to grow by having the support of New Zealanders and the government to plant, pick, pack and promote.

> "Growers are passionate people, proud of what they do to feed New Zealanders and the world

If we were to lose our social licence, growing in this country would become a lot more challenging than it already is. Society's requirements are ever changing as new generations come through and the attitudes of older generations change in response to what they see happening in New Zealand and the world.

The saying, 'Do unto others as you would have them do unto you', is often referred to as the 'Golden Rule' and has considerable currency in today's society.

While as an industry we can show that 98 percent of RSE growers are good employees, one bad employer is one too many, and not just in today's environment. One bad employer is one too many, full stop. As an industry, we must come together and make that known.

The significant majority of you do a good to excellent job within the RSE scheme. If you are concerned about how others may be performing, let your product groups know and we will assist. Remember, the RSE programme is yours collectively to protect.

> "As an industry, we need to be united and clearly articulate what we need, as well as the behaviours we expect of employers in the scheme

Government as decision maker

The RSE scheme is a government run scheme and the Immigration Minister is the decision maker. As an industry, we will continue to engage with the government, to give growers as much certainty as possible and to ensure that the scheme continues to deliver for the nine different Pacific nations that are part of the scheme, keeping in mind that each nation's needs are different.

I believe that as an industry, we need to be united and clearly articulate what we need, as well as the behaviours we expect of employers in the scheme. To break up and become disjointed or start to finger point would do nothing to maintain our social licence. Indeed, I believe not acting in unison would be highly damaging to growers' social licence.

I know that growers are under immense pressure and it is coming from all quarters, least of all the weather. But I firmly believe we must stick together, continue to promote what's great and important about our industry and deal firmly with those – no matter how small in number – that threaten our industry's social licence at a time when we need it the most.

LETTER TO THE EDITOR

Growers, please speak up!

Growers, are you sick of prices dropping for your fruit [or vegetables] or just staying stagnant whilst production costs continue to increase? Are you given a take or leave price from the retailer/marketing company? Then please speak up (albeit this may not apply to kiwifruit and apple growers).

One voice will get lost in the crowd, but many will be heard.

How come the marketers and supermarkets make such a good profit yet the poor grower who battles mother nature and who actually grows the fruit get the very least? With labour prices as high as they are, even the pickers are making more money at times. It's widely said that supermarkets are making $1m a day!

The marketers need to hold their prices and not keep dropping them to below cost for the grower. Demand that prices increase for your fruit!

Growers' production costs are up 30 percent and yet this year the price for some of our local fruit has even dropped. The prices in the supermarkets don't reflect what they are paying, or should I say, fleecing the grower.

So, if we are receiving less, why are they charging so much? We are getting robbed and enough is enough. Everything is going up so why aren't the growers' prices going up to compensate our extra costs too? We're not asking for a lot, just a starter of 50c per kg more (which would help ease pressure, not necessarily answer all our prayers or not by any means make us rich).

So, if something is $3.49 per kg it would be $3.99 per kg. It wouldn't be a huge jump to the consumer. We are getting the wool pulled over our eyes and we all need to make some noise!

I don't condemn the supermarkets and marketers for making a good profit, but the growers need to make money too and they just need to understand this.

Growers, please email the people you deal with i.e., retailers and marketing companies and express your concerns. Also send an email to both the Labour and National Ministers that hold our relevant portfolios. Considering its elections next year, I would email both parties in case there is a change of Government in 2023.

For the little returns we are getting I feel growers are working as modern-day slaves. So, if you want change, please speak up … and let's get heard!!

Signed

Letters to the editor are the sole opinion of the contributor. If you would like to submit a letter to the editor, email your commentary to: info@hortnz.co.nz

2022 HortNZ AGM.
(Notices of Motion)

Please visit www.hortnz.co.nz for up-to-date information about the AGM and related documents. A proxy form and AGM information will be provided to eligible growers by email or by post, where we do not hold an email address for voting members. If you have not received the information please contact the **Board Secretary**.

These motions will be considered at the Horticulture New Zealand Annual General Meeting (AGM) being held at the Headingly Centre, 2 Headingly Lane, Richmond, Nelson on **Wednesday 21 September 2022** at **4.00pm**.

MOTION 1

That the minutes of the 16th AGM of Horticulture New Zealand (HortNZ), held on 6 August 2021 at Mystery Creek, Hamilton be taken as read and confirmed as a true and correct record of that meeting.

Proposed by the HortNZ Board

EXPLANATORY NOTE

A PDF of the Minutes of the 2021 AGM is available at www.hortnz.co.nz. If you have any questions or would like hard copies, please email board.secretary@hortnz.co.nz

MOTION 2

That the President's and CEO's Reports for the financial year ending 31 March 2022, as published in the Annual Report, be taken as read and adopted.

Proposed by the HortNZ Board

EXPLANATORY NOTE

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

MOTION 3

That the audited financial statements for the year ended 31 March 2022 be adopted.

Proposed by the HortNZ Board

EXPLANATORY NOTE

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

MOTION 4

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

Proposed by the HortNZ Board

EXPLANATORY NOTE

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

MOTION 5

That directors' remuneration be increased by 3.5% taking effect from 1 April 2022 as follows:

Position	Current Figure	New Figure
Director	$30,413	$31,477
Vice-President	$37,775	$39,097
President	$81,802	$84,665

Director fees are all inclusive; therefore, no additional per diem fees will be paid for board sub-committee meetings, and regional or industry committee meetings attended on behalf of the board."

EXPLANATORY NOTE

The Independent Director Remuneration Committee met earlier in the year and conducted a review of Director's remuneration. The Committee recommends to the AGM that an increase of 3.5% is warranted to keep the Director's Fees current, recognise the increase in CPI while acknowledging the current fiscal environment for grower members.

REMUNERATION REVIEW

The terms of reference require the Committee to go to market every three years for a full review of director remuneration. A full review was carried out in 2021 (delayed from 2019). The Committee recommends that with the impact of covid and market challenges the Board should consider bringing forward a full report to 2023 rather than 2024. This will also pull the full review cycle back into line with the terms of reference.

MOTION 6

That the Budget for the year ended 31 March 2023 be endorsed.

Proposed by the HortNZ Board

EXPLANATORY NOTE

A copy of the Budget for the year ended 31 March 2023 is available at www.hortnz.co.nz. If you have any questions or would like hard copies, please email board.secretary@hortnz.co.nz

MOTION 7

That BDO, Wellington, be appointed auditors for the year ended 31 March 2023.

Proposed by the HortNZ Board

MOTION 8

Amendment of Constitution and Rules ("Rules")

Proposed by the HortNZ Board

That the Rules be amended by:

1.1 Deleting from clause 2, the words "Level 2, Huddart Parker Building, Post Office Square" and inserting in their place "Level 4, Kiwi Wealth House, 20 Ballance Street".

1.2 Deleting clause 8(a) and inserting in its place the following clause:

(a) "A general meeting of all members of the society, called the "AGM", shall be held in each year:

(i) not later than 6 months after the balance date of the society;

(ii) not later than 15 months after the previous AGM,

by a quorum of members:

(iii) being assembled together at the time and place appointed for the meeting; or

(iv) participating in the meeting by means of audio link, audiovisual link, or other electronic communication; or

(v) by a combination of both of the methods described in paragraphs (iii) and (iv)."

1.3 Deleting clause 9(i) and inserting in its place the following clause:

"**Quorum:** Thirty-five (35) members present in person, or participating in the meeting by means of audio link, audiovisual link, or other electronic communication, or present by proxy shall form a quorum at all AGMs and other general meetings of the society."

EXPLANATORY NOTE:

The reasons for the three proposed changes are:
Amendment 1.1 – this amendment updates clause 2 to refer to the current registered address of the society.
Amendment 1.2 – under the current Rules, the AGM must be a physical meeting. This amendment provides that annual general meetings may be physical meetings, or online meetings, or a combination, to enable as many members to attend as possible. The amendment also clarifies the dates by which an annual general meeting must be held (and reflects the new Incorporated Societies Act 2022).
Amendment 1.3 – the current Rules require 35 members to be present in person for a quorum. The amendment relaxes the quorum requirement to 35 members, present in person, online or by proxy. The amendment is proposed because it better reflects the manner in which meetings might be held in future, and avoids the risk of the annual general meeting being inquorate.

If you require further information about the AGM or would like a hardcopy of any of the AGM documents, please visit our website **www.hortnz.co.nz**, call us on the HortNZ free phone **0508 467 869** or email Board Secretary, Kerry Norman at **kerry.norman@hortnz.co.nz**.

YOUR LEVY AT WORK

INDUSTRY WIDE ISSUES FOR INDUSTRY GOOD

NATURAL RESOURCES AND ENVIRONMENT

Ailsa Robertson : HortNZ environment policy team leader

Photos : JS Ewers

JS Ewers has one of the largest vegetable operations in the country

Freshwater Farm Plans make a splash in Waimea

In the heart of Appleby near Nelson, is the headquarters of one of the largest vegetable operations in New Zealand. Founded in the 1970s by John Ewers, JS Ewers continues to operate on the original Blackbyre Road block, where produce is still grown by hand, 365 days of the year.

Under the umbrella of Market Gardeners (MG), JS Ewers grows 19 product lines of fresh vegetables outdoors on 250 hectares and nine product line crops indoors in 13-ha of glasshouses. All of JS Ewers' produce is bound for the New Zealand market.

In early August, JS Ewers invited the Ministry for the Environment (MfE), Tasman District Council, Horticulture New Zealand, NZGAP and AsureQuality on a tour of their site. The purpose of the visit was to demonstrate to the Ministry and Council how growers are managing their environmental risks.

The tour was hosted by general manager, Pierre Gargiulo, and crop production operations manager, Dan Manuge. Pierre and Dan demonstrated the level of sophistication, expertise and organisation required to grow fresh, healthy and sustainable vegetables at this scale. Growing crops year-round means a range of factors must come together in near-perfect harmony.

One critical success factor is the ability for vegetables to rotate around the landscape. Rotation is important for soil health and pest and disease control. Planning the order of crops in a rotation is designed to minimise soil-borne pathogens that appear when the same crop or related crops are grown in sequence in the same soil. For example, brassica crops like cauliflower and broccoli suffer clubroot disease if grown shortly after another brassica crop and the pathogens can remain active in soil for decades.

Production location and timing are carefully managed to ensure reliability of supply and to match the crop with the soil characteristics. Planning a rotation is done a year in advance as seeds and many other inputs must be ordered ahead of time to ensure availability. Much of the seed is produced in the northern hemisphere which faces supply challenges; so, it is essential to have a good relationship with seed suppliers and constantly be trialling new varieties.

> **Founded in the 1970s by John Ewers, JS Ewers continues to operate on the original Blackbyre Road block, where produce is still grown by hand, 365 days of the year**

With strong residential growth in the Tasman region and increased competition from other land use, land availability is increasingly challenging. Over half of JS Ewers' vegetable operations depend on leased blocks, but not just any leased land will do. It needs warm, free-draining soils without excessive contour, and with suitable climatic conditions – not too windy or frost prone. The land must also be of adequate size – greater than 4-ha – to allow efficient machinery manoeuvre during planting, spraying and harvest, while also having access to a reliable quantity of irrigation water and being located within a proximity of their packing facility.

Labour is another critical factor. JS Ewers employs between 140 to 200 staff depending on the time of year and offers an annual internship programme and Primary Industry Training Organisation (Primary ITO) apprenticeships to help upskill staff. Their workforce comprises of a mix of local, permanent staff, Recognised Seasonal Employer (RSE) scheme staff from Tonga, and South-East Asian refugees that have settled in the region.

Members of government ministries, councils and industry toured JS Ewers' site in August to see how growers manage environmental risks

Employing a team of skilled and available staff is critical to planting, growing, harvesting and packing the many lines of products grown to meet market specifications.

Like all growers, JS Ewers face major challenges such as meeting the rising cost of inputs (like fertiliser and fuel) and freight cost increases. Regardless, the product needs to be harvested in as fresh condition as possible and of optimum quality to ensure the price the grower is paid by the market is enough to cover their input costs – and to remain a viable business.

Growing vegetables is challenging and complex. As a country, we rely on the expertise of growers to balance all these factors so that we can sustain ourselves with a reliable and varied supply of fresh, local and healthy vegetables all year round.

Pierre and Dan shared their journey of environmental sustainability to manage emissions and freshwater. JS Ewers has made significant commitments to decarbonise their operations over time, including investing in multi-row side-dress fertilising applications and mobile irrigators to deliver exactly what the crop needs to grow.

Horticulture™ New Zealand
Ahumāra Kai Aotearoa

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Global Positioning Systems (GPS) are utilised in planting, fertilising, spraying and cultivation activities to track what is happening with their crops at every stage, from seed to shelf.

The company also manages their freshwater impact through GAP, using the NZGAP Environment Management System (EMS) add-on.

Dan says NZGAP is the company's preferred vehicle for compliance across food safety, employment and the environment.

"It's widely recognised by our produce buyers and integrates all requirements into one system and audit," he says. "The EMS add-on challenged us to review our practices and identify improvements that can be made. We're audited against the action plan that we've set ourselves, so it's not just another box-ticking exercise."

The EMS directs growers to assess risk of sediment, nutrient and water loss on-farm and manage risks appropriately based on their activity and local environment. The EMS has a toolbox of practices to manage risks from horticulture, based on research, field trials and grower knowledge. For example, using precision agriculture is best practice and growers choose appropriate, cost-effective methods and technologies for their operations to achieve the outcomes.

> **"Growing vegetables is challenging and complex. As a country, we rely on the expertise of growers to balance all these factors so that we can sustain ourselves with a reliable and varied supply of fresh, local and healthy vegetables all year round**

HortNZ and NZGAP are advocating for the GAP programmes to be recognised in new Freshwater Farm Plan (FWFP) regulations being drafted by MfE. The regulations will capture horticulture operations with five or more hectares and mixed land use with 20 or more hectares. It is expected these regulations will become operative in some regions in early 2023.

On the Waimea Plains, HortNZ is working with Tasman District Council to agree on the water science and how horticulture is represented in their freshwater modelling for Tasman's 2024 plan change. The plan change will implement the National Policy Statement for Freshwater Management 2020, with policies and rules to manage freshwater takes and discharges. Regional councils across the country will be initiating this plan change process in the next two years.

JS Ewers' Nelson site holds 13-ha of glasshouses

JS Ewers grows 19 product lines of fresh vegetables

For the Waimea catchment, a key challenge is the level of nitrates in groundwater, from historic and current land uses. In some bores, nitrate levels exceed the drinking water standards and may affect the ecology of spring-fed streams. High nitrates in irrigation water can also affect apple fruit quality. Through the upcoming plan change, HortNZ will advocate for the value of horticulture for food security and in New Zealand's transition to a low emissions economy when Council is considering how to reallocate freshwater in an overallocated catchment.

HortNZ is supporting all GAP certified growers in Waimea Plains over five hectares to develop a FWFP using the GAP EMS add-on. Because of the issue of high nitrates, growers need to follow best practice for nitrogen and irrigation to minimise further impact on the plain's aquifers. JS Ewers is the vegetable case study and is helping to show Council how the EMS works for vegetables and what best practice looks like for crop nutrient budgets and irrigation efficiency.

We encourage all growers to start a FWFP now. The EMS add-on is available to all GAP certified growers, whether you are NZGAP or GLOBALG.A.P certified. When you register via NZGAP, you will receive free property mapping to start your farm plan.

Contact NZGAP to find out more: **nzgap@hortnz.co.nz**

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Young Grower of the year

NATIONAL FINAL 2022

The 2022 Young Grower of the Year national final will be held at the Richmond A&P show grounds in Nelson from 10am – 3pm on Wednesday 21 September.

Winners from each of the six regional Young Grower competitions will compete in a series of business and practical modules designed to test their horticultural skills, business knowledge, leadership abilities, oratory talents and more. All are encouraged to attend and support the finalists in the day's activities.

THE 2022 FINALISTS ARE:

Nelson – Meryn Whitehead (Vailima Orchards)

Central Otago – Jacob Coombridge (Webb's Fruit)

Pukekohe – Sarah Dobson (A.S Wilcox & Sons)

Hawke's Bay – Maatu Akonga (T&G Global)

Gisborne – Maninder Singh (LeaderBrand)

Bay of Plenty – Laura Schultz (Trevelyan's)

The awards dinner and speech night will begin at 6pm, **Thursday 22 September** at the Rutherford Hotel.

Tickets are still available and can be purchased individually or booked as a group of 10.

BOOK TICKETS HERE: eventspronto.co.nz/yg22

FIND OUT MORE AT:
younggrower.co.nz

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A GUIDE TO NEW ZEALAND'S BIOSECURITY SYSTEM

Eve Pleydell : Biosecurity expert

Part 5: What will happen if I call the 0800 pest and disease hotline?

In this, the last of our series of articles explaining how New Zealand's biosecurity system works, we explore what happens if someone does find something unusual on their farm and reports it to the Ministry for Primary Industries (MPI). We hope to demystify this process by explaining what may happen and why, and provide some reassurance by outlining the support available to growers affected by an unwanted pest or disease.

Growers play an important role in the country's pest and disease surveillance system. As growers, orchardists and packhouse operators, you are the eyes and ears of the biosecurity system and you hold huge knowledge about what is normal. When you see something that does not look quite right, reporting it protects your own enterprise, the wider industry, and (in some cases) New Zealand as a whole.

However, anyone who has been directly involved in a biosecurity response will know that reporting can set off a cascade of pretty stressful events. It is easy to understand the temptation to turn your back and pretend you have not seen anything. Unfortunately, this inaction could cost you and the wider industry more pain in the long run, as it increases the unwanted invader's chances of establishing in New Zealand and becoming part of the horticultural landscape. Think higher pesticide costs, market access risks, loss of premiums, reduced yields, or poorer quality produce.

Key points:

- Rapid reporting of unusual things saves livelihoods.
- The Ministry for Primary Industries (MPI) requires information to investigate the scale of the hazard that is being reported and assess how it can best be managed.
- Under the Biosecurity Act 1993, MPI has the legal authority to contain and control unwanted pests and diseases within New Zealand.
- Industry product groups work with MPI throughout this process and are here to support you.
- The current compensation laws provide that growers are likely to be entitled to compensation where MPI has exercised powers under the Biosecurity Act and a verifiable loss has resulted.

There are currently two methods you can use to report to Biosecurity New Zealand (the biosecurity branch of the Ministry for Primary Industries (MPI) directly: phoning the pest and disease hotline **(0800 80 99 66)**, or using a new online reporting tool: **report.mpi.govt.nz/pest**

An alternative option is the Find-a-Pest app for insects and weeds. This app allows users to post photos of odd-looking pests for identification by other users. Pests that are identified as potentially being unwanted in New Zealand by designated experts are then reported to Biosecurity New Zealand for investigation. Whichever method you choose, you need to catch the pest, take a photo of it and ideally hold it in a secure pottle. If the thing you have spotted is unusual disease symptoms in a plant, tree or fruit, good quality photos will also be extremely valuable.

> "As growers, orchardists and packhouse operators, you are the eyes and ears of the biosecurity system and you hold huge knowledge about what is normal

When Biosecurity New Zealand receives a report, they require information to be provided to help them determine what this unusual thing is. You will be asked for your contact details and for some initial information about the thing you have seen. You will then be contacted by a pest and disease specialist from Biosecurity New Zealand who will discuss your finding with you. They will want to know how many insects or diseased plants there appear to be, will request some good quality photos, and they will explain to you how to send them samples, if you have some.

If the unusual thing does not turn out to be an unwanted biosecurity risk, then no further action will occur. However, if the specialist thinks this could be a suspected biosecurity risk, then Biosecurity New Zealand will start an investigation.

An Incursion Investigator will likely visit your property. The Investigator will gather information from you as they try to piece together the jigsaw of how the possible pest or disease may have arrived on your property, when it was

There are currently **two methods** you can use to report to Biosecurity New Zealand (the biosecurity branch of the Ministry for Primary Industries (MPI)) directly:

MPI's Pest and disease hotline:
0800 80 99 66

MPI's online reporting tool:
report.mpi.govt.nz/pest

likely to have turned up and where it may already have moved on to. This information is important as it helps them build a full picture of the size of the issue and what options may or may not be available to manage this situation. Good farm records are invaluable during this time.

> **"In the case of suspected biosecurity risk, then Biosecurity New Zealand will start an investigation**

The sorts of things Biosecurity New Zealand will want to know are what plants or plant materials have come onto the property in recent weeks, who has visited the property (including contractors) and where have plant material or products been sent to from the property. This is very similar to the Covid-19 tracing activities that we have become used to. The Investigator is trying to map the movements of the pest and disease so that they know where to direct efforts to prevent it from spreading too much further.

Under the Biosecurity Act 1993, MPI has the legal authority to do what is required to manage this potential risk. Depending on the issue, they may set traps on your property and your neighbours' properties, and they may put legal restrictions in place to prevent risk items (such as infested or infected plants or products) from leaving the property. These restrictions may also limit the people and machinery coming onto your property.

Being the focus of an investigation like this is stressful, but if you find yourself in this situation, industry groups are here to provide any support or help that you may need. Please do pick up the phone at any time to ask us questions or request support.

If this investigation does identify that an unwanted pest or disease is present, then a full biosecurity response may be launched to either attempt to eradicate the invader completely or to minimise the negative impacts by controlling and managing it. We've seen both of these strategies used during the different stages of New Zealand's response to the global Covid-19 pandemic.

The actual actions Biosecurity New Zealand will use to control the invader will depend on what it is, but generally movement controls are put in place to stop it from spreading off your property while it is being managed. These movement controls may be applied to people, plants, products or vehicles. Traps may continue to be set and monitored. Treatments such as pesticides may be used, or plants infected with contagious diseases may need to be destroyed and disposed of in a way that avoids spreading the disease further. Good hygiene practices, usually including disinfection, will be required across your property throughout this process.

While no one can compensate a grower for the general stress and sleepless nights they will experience being involved in a biosecurity response, the Biosecurity Act 1993 does currently provide a good economic compensation package for people who suffer economic loss due to Biosecurity New Zealand exercising powers under the Act on their property to control a biosecurity risk. Generally, the Act provides payment for losses suffered due to damage or destruction of property or movement restrictions on items. The legal aim of the current compensation package is that no one directly impacted by MPI's actions under the Act should be left in a better or worse position. This does require an affected grower to submit a claim for compensation that is supported by verifying documents. Make sure that your farm records do support the size of the claim you are submitting. MPI's website has more information about what is eligible for compensation and how to submit a claim.

> **"The Biosecurity Act 1993 does currently provide a good economic compensation package for people who suffer economic loss due to Biosecurity New Zealand exercising powers under the Act on their property**

This draws our series of biosecurity articles to a close. Biosecurity is a complex area and the risks posed to New Zealand's horticulture sector by unwanted pests and diseases is likely to get larger, not smaller, in the future. However, if all New Zealanders see themselves as biosecurity champions and play their part, we can minimise the chance of biosecurity threats arriving and establishing. Working together and doing the right thing is best in the long-run for our sector.

If you have questions or concerns, please contact HortNZ or your industry body – we are here to help and support you.

ACKNOWLEDGING GROWERS' COMMITMENT AND SUCCESS

Andrew Bristol

Danny Bearsely (centre) was presented with the Bledisloe Cup by HortNZ vice president, Bernadine Guilleux (left), and HortNZ chief executive, Nadine Tunley, in recognition of his outstanding contribution to commercial growing in New Zealand

Horticulture New Zealand has been using regional events to acknowledge growers' commitment and success this year, because the 2022 Horticulture Conference was cancelled due to uncertainties surrounding Covid-19.

Danny Bearsley was awarded the horticulture Bledisloe Cup at a vegetable grower event in Christchurch in early August. The horticulture Bledisloe Cup is awarded annually in recognition of an outstanding contribution to commercial growing in New Zealand over decades.

Danny is credited with saving the Hawke's Bay process vegetable industry in the 1990s. This industry now processes more than 5,500 hectares of produce sourced from the Hawke's Bay, Gisborne and Manawatu regions.

Danny's horticulture career spans more than four decades. While he diversified into growing apples and kiwifruit, and fresh broccoli in the 1990s, Danny has always retained a healthy interest in the process vegetable industry.

Today, Danny maintains his involvement in horticulture through the wine industry.

At the same event, Robin Oakley, a fifth-generation grower from Canterbury, was awarded a HortNZ Environmental Award for 2022.

"Oakley's is dedicated to continuous improvement," said Robin. "I am proud that our efforts have been recognised by HortNZ and want to share with New Zealanders the good work that is done on our farms."

Oakley's Premium Fresh Vegetables grow potatoes, beetroot, broccoli, pumpkin and arable crops including grass seed, wheat, peas and maize on more than 450 hectares. They wash, grade and pack produce on site.

In recent years, Robin has taken considerable steps to reduce, monitor and manage greenhouse gas emissions, nitrogen leaching and improve soil quality, through initiatives such as the Sustainable Vegetables System project.

In particular, Robin has looked to power usage and installed 564 solar panels at Oakley's Southbridge post-harvest site in April this year. These 390-watt panels will account for around 40 percent of the site's annual energy demands.

Two Environmental Awards

HortNZ has awarded two Environmental Awards this year.

The other HortNZ Environmental Award for 2022 was presented to MG – Market Gardeners Ltd Auckland Branch – in recognition of its commitment to environmental sustainability, at a vegetable growers' function in Pukekohe in late July.

"MG has won the award in recognition of its real commitment to environmental sustainability," said HortNZ President, Barry O'Neil, who presented the award.

"Thanks to MG's focus and investment, the cooperative has made a measurable long-term difference, delivering a 57 percent reduction in carbon emissions by converting to natural refrigerants, installing solar and diverting food waste away from landfill at its flagship branch in Auckland."

Two years ago, MG signed off on its first sustainability roadmap, which has set the direction and defined improvement targets. This included focusing on their Auckland branch, having worked out that the bulk of their carbon emissions came from electricity consumption, refrigerants and food waste.

> **"Danny Bearsley is credited with saving the Hawke's Bay process vegetables industry in the 1990s**

"As a co-operative, we have a strong focus on making decisions today that benefit future generations," said MG general manager of communications and sustainability, Ellery Tappin.

"While the sustainability projects delivered at our Auckland branch have been driven by the MG Board, management and team on-the-ground, the improved performance is delivered on behalf of the grower-shareholders who own our co-operative.

"We are particularly proud that our investment in sustainable projects is not window dressing – rather, it's making a real, measurable difference."

The last awards for 2022 will be presented at the HortNZ Annual General Meeting in Nelson on **21 September**.

HortNZ president, Barry O'Neil (centre), presented MG manager of communications and sustainability, Ellery Tapin (left) and MG Auckland branch representative, Marcus Gobald, with the 2022 HortNZ Environmental Award

Robin Oakley (left), a fifth-generation grower from Canterbury, received a HortNZ Environmental Award

YOUR INDUSTRY

ACROSS THE SECTOR – ACROSS THE COUNTRY

GREENHOUSE GOOD NEWS FOR FRUIT AND VEGETABLE GROWERS

Supplied

Rendered artist's image of the completed PEQ facility

Construction of a new Post Entry Quarantine (PEQ) facility for biosecurity plant health started in March this year with a completion date of April 2023.

The new facility will have twelve Level 3B greenhouses and is part of a flagship programme for the Ministry for Primary Industries (MPI). Level 3B greenhouses are designed to house high-risk and high-value imported germplasm (e.g., Prunus, Malus, Vitis) to ensure it is free from unwanted plant pathogens before the material is released to the country.

The facility doubles MPI's current capacity for processing important plant germplasm and increases the ability to screen, test and protect export crops from pests and diseases that could threaten the fruit and vegetable industry.

> "The PEQ facility will provide industry with greater ability to import new cultivars to support their exports

Over the past few years, demand for PEQ services has increased. As MPI is the only Level 3B PEQ operator in the country, this has resulted in an increased wait to bring plant material into Aotearoa-New Zealand.

The PEQ facility will provide industry with greater ability to import new cultivars to support their exports and bridge the demand until a new Plant Health and Environment facility is constructed on an adjacent site in Mt Albert, Auckland.

This proposed new facility will help safeguard New Zealand's horticulture industry and support crucial export markets by:

- Allowing MPI to test a higher number of samples that are sent in with suspected exotic pests or diseases (such as bacterial canker in kiwifruit, fruit flies or plum pox virus).
- Providing more resources for research and development into these testing methods.
- Growing surveillance programmes that protect the primary industries and environment and reassure trading partners that New Zealand does not have certain diseases.

A detailed business case for the new facility will be delivered to Cabinet for consideration later this year. Once approved, the new facility will help protect the environment and ecosystem and accelerate the economic potential of the primary sector to boost financial recovery post Covid-19.

Check out the construction photos of the Interim Post Entry Quarantine (IPEQ) facility below the artist rendering of the new facility.

FIFTH GENERATION CELERY GROWING BUSINESS STANDS THE TEST OF TIME

Four generations of the Franklin family still grow celery at Waimauku to the northwest of Auckland. From left: Luke, Arlo, Jasmine, Saskia, Alan, Monique, Lucy and Graham Franklin

Fifth-generation growers Luke and Jasmine Franklin operate a celery growing business to the northwest of Auckland. HELENA O'NEILL talks to Jasmine about their operation and the benefits of running a long-lasting family venture.

The Franklin family celery operation began on a small block of land in Mt Roskill over a century ago, before the urban sprawl spurred the family's decision to move to the small settlement of Waimauku. Over the years they managed to acquire neighbouring land growing celery and are now producing 1500 cases each week.

Now, Franklin Farm occupies a 28-hectare property at Waimauku, northwest of Auckland. Twelve hectares are used to grow crops while the rest of the land is used for water storage and for farming sheep.

"The family has been growing celery for 116 years, but the first and second generations grew a few other things as well," says Jasmine. "They had a few fruit and vege shops in town on the waterfront, growing a chunk of it themselves and sourcing a bit of it from the market. But mostly celery the whole time."

During the winter months, Franklin Farm supplies celery primarily to Auckland, with a smaller volume sent to Palmerston North. By October, the growing operation and its neighbour are supplying celery to the whole country.

"We grow all year round; we pick for the market six days a week," Jasmine says.

Jasmine and Luke live on the property with their two children Saskia (9) and Arlo (7). Luke's parents Alan and Monique also live on the family property, with Alan working as the operation's manager and Monique as the packhouse manager. Grandfather Graham is also on site most days doing spraying or whatever else is needed.

"Graham is our mentor and keeps an eye on us, giving us a bit of advice when needed," Jasmine says. "We really like the lifestyle. We're out in the fresh air, we're not on a huge scale so it's quite manageable and enjoyable. Our family is very supportive and we seem to get on very well. We manage to keep personal and business stuff separate."

The Franklin family constantly look at the way they grow and how to make improvements. Prior to taking over the business, Luke and Jasmine spent several years investigating regenerative growing practices and

developing strategies that focus on reducing inputs and improving soil health.

Luke says they use several different varieties of seeds, but they keep the names of those 'in-house.'

"We're often testing for seed companies," Luke says.

"We'll often plant a small amount of a few varieties to give them feedback," Jasmine adds.

The family run a lot of trials to improve what they do. It's a slow process as a trial can take almost a year from set-up, to cropping and rotating. And with trials you don't get the perfect result the first time.

> **"We grow all year round; we pick for the market six days a week**

The couple understands that making difficult decisions is crucial to maintaining a sustainable and profitable growing operation. Jasmine says they see value in regenerative growing practices both financially and environmentally.

The youngest of the Franklin generation, Saskia (left) and Arlo, trying their hand at harvesting the family's celery crop

Clockwise from left: Luke, Arlo (7), Graham, Alan, Saskia (9) and Monique Franklin, hard at work in the packhouse

While regenerative farming is part of their long-term plan, Luke and Jasmine have taken steps to look at all opportunities to improve their environmental performance. The operation uses solar power to run the coolstore, packhouse and workshop and they plant multi-species cover crops in the summer months to add diversity to the soil biology and structure.

It's been almost two-and-a-half years since Luke and Jasmine took over ownership of the farm, just as the Covid-19 pandemic ramped up across the globe.

"We bought the business off Luke's parents and grandparents in April 2020," Jasmine says. "The year before the family had talked about passing the business on and everyone being at a good age to help and teach us. We had everything in the works for 1 April to take over and then we had the lockdown one week beforehand."

> **"The operation uses solar power to run the coolstore, packhouse and workshop and they plant multi-species cover crops in the summer months**

Father-in-law Alan offered to delay the transfer of the business, but Luke and Jasmine decided to forge ahead as planned.

"I spent a lot of my time in the early stages just policy writing and trying to keep on top of operating safely. Doing much the same thing [as before Covid], just extra safety measurements and home-schooling," says Jasmine. "We quite liked having the kids home … we managed to between ourselves juggle it really well. We were a bit sad when they went back to school."

With the country plunged into an unknown and unexpected series of lockdowns and Covid-19 restrictions, the advice offered by MG Marketing made a huge difference in how Luke and Jasmine dealt with the unprecedented situation.

"We supply a big chunk of our produce through MG Marketing and they had a set person who was working with growers almost every day, keeping us up-to-date with what we needed to be doing in our workplace – policies, all of that," Jasmine says. "If we didn't have them helping us it would have been really hard. They were incredible."

For Jasmine, who is a trained teacher, running a family horticulture business is hard to beat.

"The flexibility is just too good. I really like working with my husband every day. I know some people can't do it, but we do it really well."

Franklin Farm has four generations actively working for the business from Grandfather Graham in his mentoring and hands-on help, to Luke and Jasmine's daughter helping out each weekend.

"Saskia helps in the packhouse on a Sunday," says Jasmine. "Both she and Arlo are there with us often after school or on the weekends and they both seem to really enjoy it. Arlo reckons he's going to carry it on, Saskia reckons maybe, or maybe she will have a bakery shop."

For now, it seems there's a sixth generation waiting in the wings to cement Franklin Farm's future operations for the next few decades.

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GROWING PRESSURE ON LEASE LAND OPTIONS

"If the figures don't add up, then you aren't making good management decisions," says Gisborne grower, Dean Davies, on the issue of finding – and paying for – land to lease

Affordability is holding lease land prices in check for now, but there is growing pressure on its availability in and around Gisborne. KRISTINE WALSH speaks to growers on how compliance and a land shortage is thwarting the future of growing.

There is a changing landscape for lessees around Gisborne as both the value of land and the cost of compliance are on the up.

However, experts say there are factors at play to stop prices from getting out of hand.

For grower and Process Vegetables New Zealand board member, Dean Davies, issues around availability and compliance come before the big question of price – and that has impacted on what he grows.

In the past, Dean and his wife Sharlene have supplemented their four-hectare home paddock with lease land to grow crops including sweetcorn, peas, maize and grain for milling.

The land they have to work with ranges from around 50 hectares to the 100-ha they are currently cultivating. But last year that figure fell to an all-time low of just 15-ha.

Because they didn't have the land available when peas were due to be planted in September, they couldn't take a contract with the processor they usually supply.

Consequently, Dean might not get to grow peas this year… or the next.

"All sorts of things have a knock-on effect and since one of our processor's larger local growers is pulling back, they may no longer have the scale to make it worthwhile getting peas from Gisborne," Dean says. "Once you lose that scale, it is hard to rebuild it.

> **"We can't just go out looking for land with an open chequebook – if the figures don't add up, then you aren't making good management decisions**

Having grown peas for decades, Dean says it's a disappointing reality to be facing.

"We've grown peas for a long time – but the loss of that big grower, plus the fact smaller growers like us might not have had land at that time, it all has an impact," he says.

"Most of our land is on long-term lease, around a decade; but we have had some patches come up for much shorter periods… say, a landowner might want just one season off grass but they don't want to grow a summer crop themselves.

"But with the price of land having skyrocketed, they can often make more money by just going straight back into grass and grazing it. For us, that means we have had to look further afield for land, sometimes right to the extremes of our district, for plots not sought after by permanent croppers."

Part of the reason land prices have gone up so much around Gisborne's fertile Poverty Bay Flats is due to interest from apple and kiwifruit growers.

"But we can't just go out looking for land with an open chequebook," says Dean. "If the figures don't add up, then you aren't making good management decisions."

> **"The increasing pressures on lease land availability and cost are just something else we are having to work through so until the prices for produce reflect that, we're likely to be in for a bit of a tough time**

When growers do find land, they have to take into consideration Farm Environment Plans, which are now compulsory in the Gisborne district for those growing annual crops or commercial vegetables.

For Dean Davies, that means doing his own plan for longer-lease plots or working with the landowner for land available for a shorter time.

Overall, he says, the aim is to strike a balance between leasing too much land – causing costs to spiral – and too little, where a grower might not have the scale to turn a profit.

And within that, the price-per-hectare needs to be accessible.

"At the end of the day we are not doing this for love," Dean says. "We need to make a living.

"That said, I have a passion for growing veges so will definitely stick with it.

"The increasing pressures on lease land availability and cost are just something else we are having to work through so until the prices for produce reflect that, we're likely to be in for a bit of a tough time."

Gisborne real estate agent, Jacob Geuze, sees Dean's problems from the other side of the equation.

A specialist in rural land – and from a cropping background himself – Jacob has seen vegetable and grain growers pushed aside by those working with higher-value crops.

"We're in a situation where land prices have doubled in recent years, but lease prices have not and if they had, many lessees could not afford to pay it," Jacob says. "So, we are kind of out of sync and that's having a particular impact on vege growers."

He says finding lease land around Gisborne is a long-standing issue that has only got worse as permanent cropping has got a stronger foothold on covetable land.

"That's tough for the lessees, but also presents challenges for land buyers," Jacob says. "At the moment, buyers looking at parcels of land are looking at lease valuations and finding the figures just don't stack up.

"So, they're having to look at alternative plans, such as cropping it themselves, even if that wasn't their original intention."

With further price pressure on lease land likely, Jacob believes that larger growers might start looking out of the region to secure land, leaving smaller growers to take on those growing costs.

"That's going to be difficult for annual croppers and vege growers and will inevitably have some impact for the consumer."

At the extreme end of that small-grower scale is Gisborne man Terry Gordon, who, at the age of 75, has decided he wants to grow vegetables and flowers.

Despite having on-call advice from a relative in the industry, he wasn't having much luck sourcing lease land through word-of-mouth so took an unconventional approach, sticking a sandwich board on the side of the road.

"I started by offering $2000 a hectare and didn't get so much as a nibble," Terry says. "But as I increased it bit by bit, the responses started to come in."

> **"They're having to look at alternative plans, such as cropping it themselves, even if that wasn't their original intention**

That means Terry is paying above standard rates for the three hectares of flat arable land he has secured, but he reckons the figures add up.

"A lot of the bigger fellows have lots of extra costs in things like equipment and labour that they are locked into," he says. "Those are costs I just won't have, which makes it economical at that scale."

Working out just how much is too much – or just enough – to pay for lease land is the challenge for registered valuer Carolyn Blair, of TelferYoung from Commercial Real Estate (CBRE) in Gisborne.

With qualifications in both forestry and business, Carolyn has, for years, observed shifts in rural land prices in and around Gisborne.

Carolyn points out the rate of land use change on the East Coast has in recent times been influenced by the conversion of bare land and citrus orchards to kiwifruit, apples and sauvignon blanc grapes.

Also in play is the availability of land in the region (more than in many other areas); climate conditions that offer growers an early season and the increase in investment in horticultural infrastructure, which makes the region more attractive to developers.

While much of her work is around hill country leases, she says there's more pressure around leases for horticultural land. However, as the pool of lessees in Gisborne tends to be dominated by a few larger players, runaway lease prices have been kept in check.

"What we are finding is that because those larger players will only pay a certain amount, the value of leases is not

Desperate measures…Terry Gordon stuck a sandwich board on the side of the road to find lease land around Gisborne

moving up as quickly as you might expect given the value of flat land," Carolyn says. "So, when working out a lease price, we have to look at it from two sides – often a percentage of land value and return on investment, as well as affordability – then try to bring the two together."

Issues like water allocation, soil quality, or flood risk, can also impact the value of a lease, Carolyn says.

"The upside is that someone like a vegetable grower who doesn't need a certain quality of soil, or access to water, can negotiate around that."

Lawyers say leasing land can be a win-win. The lessor gets regular income from their land while holding on to potential capital gains; while the lessee gets access to land without prohibitive capital investment.

However, it is important for both parties that a lease agreement is clear on issues from Farm Environment Plans and crop restrictions to rent reviews and subletting.

The chair of Gisborne Produce Growers Association, Calvin Gedye, grew up on the Poverty Bay Flats – his grandfather ran stock and his father was a grower – so he knows just about every patch of land in the area and what it was used for in decades past.

But even Calvin, who is also a Gisborne grower, has found it hard to source good quality land to lease at an accessible price. This year Calvin has dropped the area he grows on to about 45 hectares, including 30-ha of his own land.

"There was a time when we were growing on more than 200 hectares with a big focus on supplying processors, particularly with tomatoes," Calvin says. "But we found that by the time we'd paid all the bills, we weren't making any money. So apart from about 20 hectares of grain we're focusing on growing vegetables for our direct consumers."

Calvin services those consumers through his company The Tasty Vege Co and works hard to maintain the advantage he gets through his straight-to-market business model.

> **"The reality is you can only pay so much for a lease and we're looking at a situation where there's a perception that the land is becoming too valuable to grow annual crops on**

But he worries about other growers who may be forced out of the industry as they find it harder to find good patches to grow on and as the climate throws extra challenges their way.

Calvin believes winter crops in particular are under pressure as many landowners want to keep their land for winter grazing. Some are also wary of the impact that increasingly challenging weather events could have on their properties.

"The reality is you can only pay so much for a lease and we're looking at a situation where there's a perception that the land is becoming too valuable to grow annual crops on," Calvin says. "I am optimistic at the moment, but long-term you have to be concerned about the future of growing. People have to eat, but in terms of the price of New Zealand-grown vegetables, they might be in for a rude shock at the check-out."

Calvin's own response has been to reduce the area of land he farms while increasing the diversity of produce he grows, with a focus on higher-value products.

But he thinks it is time for the industry as a whole to be talking about how to keep the market well supplied with good quality, New Zealand-grown produce.

"The common-sense answer would be to process more to keep the freezers stocked but that's not something we, as growers, can impose on the industry," he says. "But it's got to be part of the grown-up conversations we all need to be having as a nation around providing an affordable, high-quality and consistent food supply."

GISBORNE GROWER WAGES A WAR AGAINST FALL ARMYWORM

Kristine Walsh

There were pluses and minuses for a Gisborne vegetable grower who opted to turn in his cover crop after discovering a potentially devastating pest on his property.

Fall armyworm – so named because it can wipe out a crop overnight – was discovered in Tauranga in March of this year, and just a month later caterpillars were found in Waikato, Auckland, Taranaki, eastern Bay of Plenty and Gisborne.

The Gisborne grower spotted the potentially devastating pest "all over" his property – as well as on a couple of lease blocks.

His response was to 'rework' the affected paddocks to get rid of any vegetation that could provide a home and food source to the armyworm.

The upside of that approach, he said, was that removing the food source served to break the worm's developmental cycle.

The downside was that removing the cover crop did away with the organic matter he planned to work into the soil to improve its health. That could also impact on his ability to meet his Farm Environment Plan requirements, but given the circumstances, he says he's "hoping to get a pass on that."

> **"We haven't seen it over winter but that's just because the weather doesn't suit what is a sub-tropical bug – there's a chance that by November it could again be popping up around the district**

He's also hoping not to see the pest again but believes that is unlikely.

"We haven't seen it over winter but that's just because the weather doesn't suit what is a sub-tropical bug," he says. "There's a chance that by November it could again be popping up around the district – perhaps due to reinvasion – so we're just going to have to keep an eye out."

While the fall armyworm moth can feed on over 350 plant species, primary hosts include maize, potatoes, tomatoes, capsicum, aubergines and several species of brassica.

Its risk to New Zealand has been considered low as the pest in all its life stages – egg to adult – cannot hibernate over winter.

However, if established, it could do significant damage; so growers are urged to look out for eggs, larvae, pupae and moths – the latter being most active during late summer and early autumn.

The Ministry for Primary Industries (MPI) says useful pest management tools for growers who find fall armyworm (*Spodoptera frugiperda*) on their properties are crop rotation, crop monitoring, early detection and spraying.

Management options might also include:

- **Cutting up volunteer plants and converting to silage or bailage;**
- **Spraying with insecticide;**
- **Herbicide spraying out volunteer crops, followed by tilling and crop rotation.**

MPI says the circumstance of each grower is likely to be unique. Therefore, growers are advised to contact their industry representatives on the most appropriate way forward.

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HUMBLE HERITAGE VEGETABLE BRINGS NEW WAVE OF OPPORTUNITY FOR GROWERS

As part of his experimental vegetable regime, Calvin Gedye put a crop of kohlrabi behind the more standard broccoli patch at one of a number of properties he grows on around Gisborne

A renewed interest in nutritious heritage vegetables like kohlrabi is encouraging growers like Calvin Gedye to be experimental in the field. KRISTINE WALSH reports.

The way Calvin Gedye tells it, there was a time when a Michelin-level chef would lose a star just for including kohlrabi on their menu.

"That goes back to just after World War II when people considered it to be peasant food and didn't want to have anything to do with it," says the Gisborne grower. "But times have changed. These days, consumers are very interested in heritage vegetables, especially those with a lot of nutritional value."

These days Michelin-starred chefs are pumping out recipes featuring everything from kohlrabi purée to pickled kohlrabi and even kohlrabi sliced wafer-thin to form gluten-free dumpling wrappers.

That's why Calvin decided to grow an experimental crop for his direct-to-consumer business, The Tasty Vege Co.

Resembling a root vegetable, kohlrabi is actually a member of the brassica family. Its name is translated from both German – "kohl" meaning cabbage – and the historic Italian word "rape", meaning turnip.

It features a stem that swells to a turnip shape above the ground and has a taste reminiscent of – but slightly sweeter than – broccoli stems and cabbage. Both the bulb and leaves are loaded with vitamins, minerals and fibre.

While it comes in red or green varieties, the crisp inside flesh of kohlrabi is always pale green and if chilled, keeps very well.

> "These days, consumers are very interested in heritage vegetables, especially those with a lot of nutritional value

It likes a bit of sun to get those nice fat bulbs but grows most of the year round. Calvin says you can even have a crop right through summer as well as the winter months if you keep an eye out for bolting. A bit of extra water can stave off that bolting, but kohlrabi don't like wet feet so decent drainage is advised.

Calvin first saw kohlrabi in an online video that documented the journey of "a couple of American boys" who were growing it in Pennsylvania.

"It looked interesting, so I talked to some other growers who were giving it a go," Calvin says. "There was some being grown… just not a lot."

Roasted, puréed, in fritters, stir-fries, soups or a 'slaw; there are many ways a modern cook can use kohlrabi. While not formally on a diet, Calvin reckons he could drop a kilogram or two by swapping mashed potatoes for his Kohlrabi purée.

"It's a way of getting lots of nutrients in a low-carb dish, which is really good for you," he says. "Even better, it's delicious, and that's what we want from our food."

One Tasty Vege staffer eats it raw, like an apple – but Calvin admits introducing lesser-known vegetables can be a hard-sell.

TO MAKE CALVIN'S PURÉED KOHLRABI:

Simply peel and cube two or three kohlrabi; boil in salted water until soft (about half an hour); mash or purée with a bit of butter and cream or milk; season and serve.

"It is one of those humble vegetables that has almost been forgotten about, so it is time to rediscover it," he says. "But because there is not a lot of it around you have to educate people first.

"It was the same with broccoli in the late 1970s. New Zealanders didn't know anything about it and didn't really eat a lot, but now it is a shopping staple."

Calvin's super-power in terms of consumer education is his direct contact with buyers.

While pre-packed vegetable boxes are his main stock-in-trade, he also sells at the Gisborne Farmers' Market and operates a side-of-the-road vege van.

Calvin Gedye grows both red and green varieties of kohlrabi on his Gisborne property

"It's those latter two that give us a really good indication of how people are responding to our more experimental products," he says. "With the kohlrabi, one German woman who pulled up at the van was delighted to see it. She was really excited to have access to a food that had been a big part of her family history, and she just about bought the lot! But then you'll get someone who has never heard of it but [sic] open to giving it a try."

He believes that due to a growing interest in heritage vegetables, along with its nutritional value, the future for kohlrabi is bright.

The 'cabbage turnip' is not the only small crop Calvin grows – in response to consumer request he will soon be planting a crop of ginger.

"But with costs the way they are these days, everything has to earn its keep so you can't go too wild," he says. "The kohlrabi, though, has proved itself in the market so we'll definitely continue to grow it." ●

INNOVATING TO MEET YEAR-ROUND MARKET DEMAND FOR BERRIES

Jeet Punia harvesting strawberries

Kiwis have been enjoying fresh, locally grown strawberries in the depths of winter this year thanks to a high-value berry grower filling the market gap left by a strangled Australian supply chain. GEOFF LEWIS reports.

Sunrise Berries owner, Todd Feather, opted into the strawberry game in 2014, when he gave up dairy farming and bought a 200-hectare spread of land in Onewhero, overlooking the lower reaches of the Waikato river.

The farm came with "massive water rights", but it wasn't until Todd was introduced to a grower at a 60th birthday party that he began to think about the property's opportunities for growing something with a higher value than grass.

"I was introduced to a man selling tunnel house frames," Todd says. "He [later] introduced [me] to The Fresh Berry Company (Driscoll's) which has a licence for its own berry genetics."

Three years ago, in an eight-month, $3.5 million project, Todd established Sunrise Berries Ltd.

A nine-hectare area of north-facing land was carved off from the dairy block and converted into five hectares of strawberries and four hectares of raspberries – propagated in a hydroponic tunnel house operation.

Tunnel houses protect the produce from the vagaries of the weather and provide the grower with a greater consistency of production and income, Todd says.

Established in a natural coconut coir medium, Sunrise Berries feeds its plants a mix of nutrients; firstly, to promote vigorous vegetative growth and then to boost fruiting. Mixed into the water, the nutrient recipes are adjusted through the season to create good-sized, good-tasting, long-lasting fruit and to improve resistance to pests and diseases. Currently all the company's berries go to market through Driscoll's.

> "Tunnel houses protect the produce from the vagaries of the weather and provide the grower with a greater consistency of production

The company's point of difference has become growing berries out-of-season.

"We're relatively new and we've been learning from the outset," says Todd. "The idea is that if we just wanted to compete with the in-ground guys we wouldn't need all this, but there is a far greater opportunity [to make money by] providing for the market earlier and later in the season."

Traditionally, in-ground strawberries are grown from October to January, but Todd says it is hard to remain cost-competitive with outdoor growers.

> **Growing out-of-season paid dividends this winter, when poor weather and Covid-19 strangled the usual supply of imported Australian strawberries**

"Over the Christmas season it's hot and everyone's on holiday," he says. "The real opportunity is February to June. We want to produce when everyone else isn't."

Growing out-of-season paid dividends this winter, when poor weather and Covid-19 strangled the usual supply of imported Australian strawberries. Sunrise Berries' hydroponically-grown strawberries filled that market gap and New Zealanders have been eating locally grown strawberries year-round during 2022. The Monterey variety, grown by Sunrise Berries, is also increasingly popular and ideal for a longer growing season, Todd says.

Todd Feather with nutrients for dousing the crops

View of Sunrise Berries' covered crops looking toward the Waikato River

Strawberries New Zealand chair and Whenuapai grower Tony Rakich says while only a small proportion of locally consumed strawberries are imported, out-of-season growers like Sunrise Berries are a benefit to the market.

"There is definitely value in early and later production, especially this year as Australia has had a tough season," Tony says. "At the peak of the season we (in-ground growers) are really pumping the production. It would be good to see production all-year round, which would save on imports."

> **"Todd estimates that this year's out-of-season production is double the value – if not 2.5 times more – than in-ground production**

When it comes to raspberries, Sunrise Berries crops October to December and then March to June. Todd says they are aiming to pick raspberries through the border seasons.

Last year, Sunrise Berries produced around 18 tonnes per hectare in raspberries and 50 to 60 tonnes per hectare in strawberries, and exported three to four tonnes of strawberries too.

Todd estimates that this year's out-of-season production is double the value – if not 2.5 times more – than in-ground production.

"The value is in being able to produce across the whole season outside the peak periods," he says. "The aim is consistency across the four main berry categories, strawberries, raspberries, blackberries and blueberries. We're not in blueberries but we plan to grow blackberries to the Driscoll's model next season."

The business employs about 100 people at the height of the season, but as with many other horticultural enterprises, Sunrise Berries faced the same labour shortages which came with the Covid-19 border closures.

"It's been a huge challenge," Todd says. "We got workers from far and wide. We are working towards Recognised Seasonal Employer (RSE) accreditation. It's a long process.

"We understand the government's attitude – to use local labour first – but that costs in lost production, low productivity and unreliability. We are trying to time our crops to smooth our demand for labour. It's all about consistency of product."

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MICROGREENS SIDE HUSTLE TAKES OFF AS URBAN SPRAWL TAKES OVER

Chris Thomas started his microgreens business, Totara Urban Grow, from his home in Pukekohe

Microgreen growers are increasing in popularity as urban sprawl continues to swallow up prime horticultural land. HELENA O'NEILL speaks to a new microgreens grower about his decision to set up his home business on top of a full-time job.

Tucked away in a spare room of his Pukekohe home, Chris Thomas is cultivating a small, but profitable venture. It's early days for his microgreens business, Totara Urban Grow, but Chris is part of a growing number of Kiwis embracing the highly nutritious shoots.

> **"We started with sunflower, pea shoots and radish which are usually the go-tos. We made a bit of a mix from that. Then we were asked a bit about broccoli, so we tried that**

"My grandparents owned their own garden centre in New Plymouth," Chris says. "Each school holiday we would go stay with them and help around the greenhouse and that sort of thing.

"My father was really into his garden… and when we got this place it was 'which garden will I do first?' Along with doing a vege garden, I started growing seedlings."

Keen to try something different, Chris read about microgreens being grown in urban locations like the Crunchy operation in Invercargill, run by Bibhas (Benji) Biswas. *(NZGrower, May 2021, April 2022)*

"I started some test growing and my partner said if I were to keep doing it then I should at least make some money from it. It went from a hobby to a small Sunday market.

"We had been to the Clevedon Farmers' Market a couple of times and thought we would try that first and see how that went.

"We're about four months into that now. Most of our conversations are about what microgreens are. Everyone has heard about sprouts, they're quite popular. They're just the next stage of growth of the plant, the microgreens."

Selling at the Clevedon Farmers' Market is a big-time commitment, with Chris working a 47.5-hour week job and his partner, Sheldon, also working full-time while studying.

"My partner has started helping a little bit more," he says. "Initially it was coming to the markets while I do the day-to-day things with the growing and the watering. Every now and then, he will jump in and help with the seeding. We're now taking turns manning the stall on the Sunday."

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The Totara Urban Grow stall at Clevedon Farmers' Market

Totara Urban Grow's pea shoots

Totara Urban Grow has up to six varieties growing at any one time.

"We started with sunflower, pea shoots and radish which are usually the go-tos," says Chris. "We made a bit of a mix from that. Then we were asked a bit about broccoli, so we tried that. Most weekends broccoli is our most popular variety."

The duo dabble a little in the other varieties like mustard, carrot tops and coriander from time to time too.

"We've just started beetroot which catches people's eye with the nice vibrant red," says Chris. "We've also tried kale and mizuna, the Japanese mustard. The ones we're currently growing for market seem to stick for now, [but] every now and then we will swap one out.

> **"Any waste that we get from the microgreens or from growing them goes to the lady who makes our stickers**

"For the pea shoots we plant on a Monday, they're about 12 to 13 days to grow. They're the longest ones and everything else is around ten days to grow. It's a little bit hard to keep up with the market demand as to what quantity is required. It takes about two weeks to change up our cycle."

Totara Urban Grow uses recyclable and commercially compostable plastic packaging and aims to reduce any waste products.

"Any waste that we get from the microgreens or from growing them goes to the lady who makes our stickers," says Chris. "They go to her chickens and they love it."

Selling at a Farmers' Market offers a great opportunity for prospective buyers to see their products in person and for Chris to educate about microgreens.

"I don't mind talking about it and giving out samples," Chris says. "It's a bit of education around microgreens."

Early in August, Totara Urban Grow began offering EFTPOS at their market stall, which has already paid off in increased sales.

"Other than being nutritious and good for you, microgreens have a lot of flavour. It helps with turning a normal sandwich into something with a little more flavour, something with flavour rather than boring lettuce. Or something to sprinkle on top of your meals. We've swapped our salads to use microgreens instead."

As a newcomer to the urban microgreen movement, Chris is impressed by the attitudes of fellow growers.

"I was a little bit late in joining the Microgreens NZ Facebook page," he says. "It's full of knowledge and I should've started there… everyone on there is super helpful.

"I get my seeds from South Pacific Seeds down here in Pukekohe or from Kings Seeds. It's a nice little community group to fall into.

"There are multiple growers throughout Auckland and further down the line – they're all so happy to share the information. Seeing someone else succeed is them succeeding. I'll pass that on when I see new people come on too, to pass that knowledge on."

Coming from a construction background, Chris has found this willingness to share refreshing.

"I think that's what has made me stick at it, knowing that there are those people there with a willingness to share," he says. "Every batch of seed is different, each grow cycle is different. It's about trying to gain that consistency.

Chris says he plans on developing his burgeoning microgreens business further too.

> **Every batch of seed is different, each grow cycle is different. It's about trying to gain that consistency**

"Expansion is definitely what I'm aiming for. We're just in the process of getting our food certificate so we can get selling to local businesses.

"We can only go so far at Clevedon; we will aim to supply restaurants and cafés. Here in Pukekohe, there are plenty of bars and cafés. I want to start local and then go from there." ●

Broccoli is one of the most popular microgreen varieties at the Clevedon Farmers' Market

TARANAKI BRANCHES OUT INTO HORTICULTURE

New kiwifruit plantings are underway on 27-ha of land in Taranaki, including on Waitotara Orchard. Photo: Apata Group

Traditionally known as a dairying region, a recent assessment of Taranaki's land and climate has identified 270,000 hectares of land suitable for horticulture. ELAINE FISHER reports.

Research into the land's horticultural viability is part of the *Branching Out* project blueprints commissioned and published by regional development agency, Venture Taranaki, which promotes nine new food and fibre investment opportunities for the district. The investment blueprints encompass innovation and growth, market potential and a path for the region to leverage its untapped food and fibre potential.

The blueprints focus on nine opportunities: kiwifruit and avocados – to diversify the region's existing food and fibre industries – gin botanicals, grains, legumes and vegetables, hemp fibre for construction, hops, medicinal plants, sheep dairy and trees (including their value chains).

Launched in July, the blueprints contain details about sector opportunities and drivers of growth, required growing conditions, crop management, value chain development, financial assessments, and potential impact for the region – economically, socially, and environmentally.

Taranaki has been identified as an emerging growing region, with rich volcanic soil, good water availability, a temperate climate and the most sunshine hours in the country. The region is well suited for the establishment of horticulture and is attracting keen investment interest, says project lead, Michelle Bauer.

To date, 27-ha of new kiwifruit plantings are already under development and the region is seen by the industry as having potential for future growth, particularly as traditional production areas are predicted to shift due to temperature changes.

The avocado industry has shown particular interest in the region, with new orchards under development.

"We have more than 50 growers who have expressed interest in supporting pilot trial activities across a range of ventures," says Michelle.

The nine blueprints are the culmination of extensive research, analysis and insights provided by sector stakeholders, partners, support services and academic institutions.

Among those who assisted with identifying the opportunities are kiwifruit marketer Zespri, Plant & Food Research Limited, specialist service providers, Bay of Plenty post-harvest operators including Trevelyan's and Apata, and national and regional nurseries.

> **"The blueprints focus on nine opportunities: kiwifruit and avocados – to diversify the region's existing food and fibre industries – gin botanicals, grains, legumes and vegetables, hemp fibre for construction, hops, medicinal plants, sheep dairy and trees**

Michelle says while regions promoting diversification is not unusual, what is unique about the *Branching Out* project is that it takes the value chain perspective and provides potential investors with an overview of key decision considerations – from commercial establishment, supply and value chains, potential returns, to everything in between.

The nine opportunities the project focuses on were narrowed down from a long list of 96 suggestions.

"We decided to progress the opportunities with high-growth and strong market potential, alongside opportunities where skills, capabilities and infrastructure existed in-region already that could be applied to an adjacent industry," Michelle says. "Among those taking up the challenge is Matthew Hareb who is developing an avocado orchard."

"I'm Taranaki born and bred and for the last 15 years I've run an earth-moving contracting business in the oil and gas industry," Matthew says. "I am now looking to diversify and see avocados as the next chapter in the book."

Commercial plantings of Zespri Green kiwifruit have been established near Waitotara in South Taranaki and the blueprint document states there is potential for more kiwifruit development in the region.

"The region is well positioned to capitalise on this development, transferring skills and knowledge to the industry and building on the existing leadership in food and product development," the documents states. "Prices for land suitable for kiwifruit development in Taranaki are low compared to land in established kiwifruit growing regions.

"Zespri is encouraging regional diversification to meet demand and spread risks from climatic events and pest or disease outbreaks.

"There is growing demand for value-added products that can be produced from kiwifruit, and kiwifruit orcharding is seen as a viable complement to dairy."

Michelle says of the nine opportunities identified by the *Branching Out* blueprint, kiwifruit, avocado and sheep dairy are likely to be the first to launch.

Taranaki local, Matthew Hareb, has chosen to diversify his business venture by developing an avocado orchard

"All the ventures have significant market potential," Michelle says. "In some cases, the path to market is clear, for example, with kiwifruit, avocados, or sheep dairy; so these would be considered closer to launch – particularly as there are currently plants in the ground, or sheep milk being sent to the dryer.

"In other cases, the path to market will need to be established such as for gin botanicals or medicinal plants. But in all cases, it is clear that a market does exist and future trends and consumer preferences support this."

Michelle says among those who may decide to diversify their land use could be dairy farmers who have parts of their property suitable for horticulture.

Hop growing is among the nine new food and fibre investment opportunities for the district

"We are also looking for significant scale in new diversification activities, but are aware of people with smaller blocks of land between 10 and 40-ha actively looking for horticultural opportunities."

Carefully managed land use and land diversification could have positive environmental and social impacts, Michelle says.

"We have a key piece of research around how to measure the environmental, social and cultural outcomes as industries scale up under way," she says. "We are hoping all those involved in new ventures will take a sustainable approach."

> **"We have more than 50 growers who have expressed interest in supporting pilot trial activities across a range of ventures**

When the blueprints were launched in July the website traffic to the *Branching Out* page saw a 154 percent increase compared with the previous month, and over 1000 unique visits.

"In addition to the enquiries that we are receiving directly, we can see from our website analytics, that hemp fibre for construction was the most visited page followed by medicinal plants, gin botanicals, avocados and sheep dairy," Michelle says.

Venture Taranaki has called for landowners to add their details to the land use register, and registrations have increased since the blueprints launch. Michelle believes this is due to the interest in the opportunities presented.

> **"We decided to progress the opportunities with high-growth and strong market potential, alongside opportunities where skills, capabilities and infrastructure existed in-region already that could be applied to an adjacent industry**

"As we look towards the second phase of the project, there are opportunities to get involved in pilot activities and new product development – so we would encourage those interested to register their information," she says.

The blueprints serve to build investor confidence and act as an informative roadmap for complementary land-based activities and associated value chain enterprises in Taranaki.

"The investor-ready blueprints are to be used by community including landowners, farmers, food manufacturers, growers and investors to give them all the information they need to get started," Michelle says. "We are encouraging these groups to review the opportunities presented by visiting the Venture Taranaki website, downloading the blueprints and joining our land use registry so that we can connect them to others and share information on the ventures that are of interest."

"Our councils are supportive of the *Branching Out* project and as ventures progress, we will continue to work closely together," Michelle says.

Branching Out is managed by Venture Taranaki and a steering group of the food and fibre sector participants. The two-year initiative is funded by the three district councils in Taranaki and the Ministry for Primary Industries' Sustainable Food and Fibre Futures fund, with significant in-kind support from Venture Taranaki, Massey University, Crown Research Institutes, and primary sector/food and fibre industry enterprises.

For more information visit:
www.venture.org.nz/projects/branching-out

Venture Taranaki Branching Out *project lead, Michelle Bauer*

ONE-IN-100-YEAR RAINFALL DAMPENS NELSON GROWERS' WINTER HARVEST

Anne Hardie

Lettuces under water on the Waimea Plains

Weeks of continuous rain followed by the August floods left outdoor greens in a sorry state and waterlogged soils impossible to replant in the Tasman region.

Waimea Plains Appleby Fresh grower, Mark O'Connor, measured about 400mm of rain during a four-day deluge that caused flooding and slips throughout the region. About 160mm fell on the last night, causing the most damage to the plains.

Like much of the country through winter, soils were already waterlogged before the big Nelson rain event and product was already short. Mark says they were sending product to the North Island because of shortages there – until the Top of the South got hit.

Through continual rain and flooding, Mark says the business lost a significant amount of vegetables including cabbages, cauliflowers, and lettuces. He was in the process of cutting vegetables that were still saleable, and the worst of them destined to be rotary hoed into the ground.

"We'll put another crop in the ground and we'll keep going," Mark says. "I think we're going to see shortages of product for a while now though – maybe [until] Christmas – because people won't be planting. You can expect vege prices to be dearer – but still affordable."

> "We've lost a few vegetables, but we've come out better than those people in Nelson who have lost homes

Between the second week of June and the region's wild weather in August, Mark says he only had six days where conditions were suitable enough to plant – compared with the 20 to 30 days they could plant in a typical year through that same period. He had seedlings on hold from the nursery supplying his plants because the soil was too wet to plant them.

The business will take a knock, but that pales in comparison with those who lost their homes through flooding and slips.

"We've lost a few vegetables, but we've come out better than those people in Nelson who have lost homes," Mark says. "That must be traumatising."

Just up the road, Connings Food Market grower, Ben Conning, had a similar story to tell.

The team usually plant new crops about three days a week through winter, but this year they were lucky to plant one day a week.

"It's supposedly been the wettest winter on record here," Ben says. "It's all very well getting plants in the ground, but then you can't get the fertiliser on, or it washes through."

> **"The team usually plant new crops about three days a week through winter, but this year they were lucky to plant one day a week**

Saturated soils, a lack of sunshine and lack of nutrients have all taken their toll on crops through winter. On the upside, prices have been strong through the season due to the lack of product available country wide.

Surface flooding is not usually a problem on the Connings' market garden, but soils have been so saturated through winter, with a high water table, that the heavy rain event this August left vegetables sitting in water.

"It has been one of the most challenging growing periods," Ben says.

The toll on crops will create holes in supply down the track.

Ben says warmer spring temperatures will likely grow crops faster and accentuate those supply gaps further. Some crops will be smaller due to the wet weather and adverse conditions.

"We wanted to get a lot more onions in the ground this winter and got just enough in," Ben says.

Connings are hoping for a drier spring, though the planting window will close for some crops before that happens. Ben says the combination of moisture and heat leading into spring will likely increase humidity which is associated with higher disease pressure.

Added to weather woes, Ben says labour is becoming increasingly expensive, making it challenging to make money from lower-return crops. Going forward he expects growers will have to grow less and aim at higher-value crops to keep their businesses afloat.

Mud-covered cabbages

While fruit crops in the region weathered the onslaught of rain, Motueka Fruitgrowers Association chairman, Richard Clarkson, says the wet conditions have created more opportunity for pests and disease. It will be some time before growers can assess how much stress the already waterlogged soils will place on crops.

Richards says phytophthora root rot could surface as a problem as fruit trees entered the budbreak stage in spring. Budbreak had already occurred in Braeburn and Lady in Red around the time of the heavy rain, prompting growers to get on their sprayers to protect their budding crop.

> **"Warmer spring temperatures will likely grow crops faster and accentuate those supply gaps further**

"Come thinning, apple growers will have to judge how hard to chemically thin stressed trees, while needing volume to achieve profitable returns," he says.

Many Tasman growers produce kiwifruit as well as pipfruit and Richard says growers are now expecting their kiwifruit returns to be lower than predicted due to quality issues both onshore and offshore.

Fruit growers will need a good season next year to offset the challenges of rising labour and production costs to enable them to invest in their businesses, including turning crops over.

"We have another 12 to 18 months of quite heavy headwinds ahead for us as growers before coming out the other side," Richard says. "Hopefully we will have a nice dry spring."

TECHNICAL

THE LATEST INNOVATIONS AND IMPROVEMENTS

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

The United Nations' Food and Agricultural Organisation (FAO) global symposium on 'Soils For Nutrition' held online from 26 to 29 July, attracted more than 9000 registrants.

Delegates heard from over 100 keynote speakers from around the globe, with a particular focus on third world nations and the importance of growing sustainable food for the health and nourishment of all humanity.

Qu Dongyu, the FAO director general, opened the symposium. From the outset, there was acknowledgement that food production all begins with the soil and that there had been significant losses of once productive soils via land degradation and the decline in biodiversity. There was also acknowledgment of the need to adopt long-term sustainable practices which are more efficient and resilient than what we have been doing in the past. Qu said 95 percent of our food is produced from the soil and that of the 18 essential elements in food production, only three come from the atmosphere – the other 15 elements are from the soil. He mentioned nutrient deficiencies caused by depleted soils, but also warned of nutrient excesses from overuse of fertilisers and the consequential cost to human health and aquatic life from nutrient imbalances.

> "There was acknowledgement that food production all begins with the soil and that there had been significant losses of once productive soils via land degradation and the decline in biodiversity

Over the past 70 years the number of vitamins and minerals in our foodstuffs have drastically reduced. To avoid deficiencies, Qu said it was essential we begin to include micronutrients as fertiliser inputs. He also spoke of the importance of soil organic matter and crop diversification and how good soil husbandry can help build climate resilience. Healthy soils are vital for a healthy planet.

Minister of Agriculture for Bangladesh, Dr Razzaque, spoke on his Government's priorities for improving the nutrition of the Bangladeshi population in the face of a challenging environment. Arable land in Bangladesh has declined by over 32 percent since 1972. Low soil fertility and low organic matter are both a big problem in Bangladesh and he emphasised the importance of balanced soil fertility management for healthy soil. Thirty years ago, 37 percent of Bangladesh was low in zinc but that figure has now rocketed up to 78 percent. Whereas thirty years ago 28 percent of the country was high in zinc, but now it is down to 5 percent. Boron levels in the population have followed a similar trend to zinc, but not quite as severe.

Martin Broadley from Rothamsted Research in the United Kingdom said that 20 percent of the world has significant zinc deficiency, including much of Africa, India and the northern part of South America. Selenium deficiency is also a big issue worldwide. Globally, one-third of people suffer from at least one micronutrient deficiency, he said.

Half of humankind is fed on fertiliser-based foods and had fertiliser not been applied, the food would not have been grown. For poor nations, the cost of fertiliser nutrients is now a major problem and with the doubling of costs of many fertilisers over the past two years, subsistence farmers cannot afford to pay for them. Today, over 87 percent of African soils have some sort of soil fertility deficiency from the mining of soil nutrients which have not been replaced. The average annual nutrient input per hectare in Africa is 17kg compared to over 100kg/ha in western countries. The rejection of fertilisers will increase hunger and poverty on the African continent, whereas the Northern Hemisphere (Europe and North America) uses an excess of fertilisers. In Sri Lanka, two million farmers were told by the government to stop using chemical fertilisers and go organic when fertiliser prices increased dramatically. Agricultural production consequently dropped 50 percent which, along with the lack of tourism and other factors, has resulted in economic collapse.

There were several sessions on *Nutrient Use Efficiency*. One speaker claimed that the average utilisation for nitrogen and phosphorus was 60 percent and potassium was 70 percent. Another researcher from Brazil spoke of the low efficiency of chemical fertilisers, with nitrogen ranging from 30 to 50 percent, phosphorus only 15 percent, and potassium 50 to 60 percent. There was a call for the UN to push for the sustainable use of fertilisers and for fertiliser companies to look at ways of becoming more efficient through the use of organic amendments, polymers and so on. Excessive nutrients increase greenhouse gas losses from nitrous oxide and also from

the loss of organic matter. One kilogram of nitrogen creates the equivalent of 10.7kg of CO_2 in terms of its impact on climate change.

Microbes, biostimulants such as humic and fulvic acids, and seaweed featured in several sessions too, as well as discussions on the use of bio-fertilisers to improve nutrient uptake, nutrient efficiency, crop quality and tolerance to abiotic stress such as drought.

Microbes assist in mineralisation, nitrification, solubilisation, nitrogen fixation and acquisition. Bio-fertilisers inoculated with various bacteria or fungi have been developed but the results from using them are not always consistent. Rather than focusing on a particular microbial strain, it was suggested that a suite of different bacteria and fungi which had complementary functions and niches would benefit plants and the environment. In one experiment, a co-inoculation of *Rhizobia, Azospirillum brasilense* and *Pseudomonas fluorescens* increased soya bean yield from 8.4 to 16.1 percent. There was an environmental benefit from the *Azospirillum brasilense* too – producing 400 percent less CO_2 equivalent and 25 percent less nitrogen use with the microbes. Bigger root growth helped to mitigate moisture stress – a big issue in many parts of the world. Improving soil microbiology could reduce the amount of expensive chemical fertilisers required for crop production.

However, there were cautions and problems associated with bio-fertilisers and biostimulants: managing complexities, storage and handling challenges, undesired side-effects, biosafety, the need for specialised application in some circumstances, and potential issues with their commercial application. It was acknowledged that more studies are needed to determine optimum environmental ranges for bio-fertilisers and biostimulants, as well as how they are integrated into agricultural systems.

The take-away from the symposium was that soil is a complex living system and a non-renewable resource upon which all terrestrial life depends. Soils are the farmer's capital asset. Take care of your soil and it will take care of you. Participants from some of these countries have had millennia of growing crops on their soils. This symposium was an early warning call for the world's food producers.

> **"The take-away from the symposium was that soil is a complex living system and a non-renewable resource upon which all terrestrial life depends**

For me, the take home messages when applied to market gardening in New Zealand were all about sustainability and functionality. As an industry we have been applying NPK nutrients at unsustainable levels in excess of what is actually required – particularly nitrogen and phosphorus. By and large, micronutrients have been ignored and so too have bio-fertilisers and biostimulants. Many orchardists and fruit growers on the other hand. have seen benefits in applying bio-stimulants such as seaweed, humates and fulvic acid, and regularly apply additional organic material such as composts to maintain or build up humus in the soil. Doing what we have always done does not necessarily bode well for the future.

As Franklin Roosevelt once said, 'The nation that destroys its soil, destroys itself'.

SOIL NITROGEN TESTING:
LEADING THE WAY TO REDUCED COSTS AND BETTER ENVIRONMENTAL OUTCOMES

Sustainable Vegetable Systems

Mike Beare : Plant & Food Research Ltd

Mike Beare is a principal scientist in the Cropping Systems and Environment group of Plant & Food Research Ltd

Recent advances in soil nitrogen testing have focussed on helping growers to better forecast how much additional fertiliser nitrogen (N) may be needed to meet, but not exceed, the demand of a growing crop. The goal is to improve N use efficiency to reduce costs and losses to the environment while maintaining crop yields and quality.

The plant available N that is supplied directly by soil can be divided into two forms:

Mineral N = **the plant-available N in soil at the time of sampling**

Mineralised N = **the N released (mineralised) from soil organic matter during the growing season.**

Mineral N testing is recommended to help growers estimate the amount of plant-available N (i.e., ammonium and nitrate) at the start of the main growing season (spring/summer).

In most cases, the majority of the mineral N that is available for crop uptake will be found in the top 30cm of soil. This is the N that is immediately available for crop uptake.

Mineralisation is a microbial process that involves the gradual breakdown of soil organic matter to release additional mineral N during the growing season. In cropping soils, mineralisation can contribute a large amount of plant-available N (40 – 300+ kg N/ha/year) that varies depending on soil type, land use history and the soil's environmental conditions – especially temperature and moisture. In general, the soil organic matter that breaks down during mineralisation is also gradually replenished during the decomposition of crop residues, roots and other organic material (e.g. compost, animal dung).

IRRIGATED TREATMENTS		Nitrogen fertiliser	Wheat Grain Yield	Grain Nitrogen	Harvest Mineral N	Fertiliser cost
No.	Description	kg N/ha	t/ha	%	kg N/ha	$/ha
1	All N as fertiliser	300	12.1	2.07	65.5	842
2	Fertiliser adjusted for mineral N	282	12.0	2.09	46.9	793
3	Fertiliser adjusted for mineral and mineralisable N	225	12.0	2.00	30.9	632
4	No N Fertiliser applied	0	5.6	1.50	28.2	0

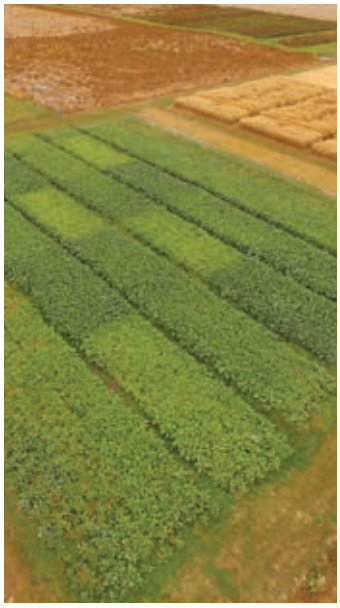
The amount of N that mineralises under field conditions is not easily measurable. However, it can be estimated from 1) a test of the soil's N mineralisation potential (i.e., the amount of N released under 'optimal' conditions in the laboratory), and 2) an understanding of how change in soil temperature and water content during the growing season affect the actual rate of N mineralisation under field conditions.

The new Potentially Mineralisable N (PMN) test, developed by Plant & Food Research Ltd (PFR), provides a relatively rapid and accurate measure of how much N can be released (mineralised) from a given soil, under 'optimal' conditions, over a 14-week period. The PMN test is now available through most commercial soil testing laboratories in New Zealand and is more reliable than the traditional anaerobically mineralisable N (AMN) test – also known as the Available N (AN) test – which measures mineralisation under highly artificial conditions (high temperature, waterlogged soil) that are not consistent with the field environment, and has poor precision.

> **"The new Potentially Mineralisable N (PMN) test, developed by Plant & Food Research Ltd, provides a relatively rapid and accurate measure of how much N can be released (mineralised) from a given soil**

Soil sampling for mineral N and PMN testing should be conducted prior to the first fertiliser application of the main (spring/summer) growing season, for both autumn and spring sown or planted crops. The sample should be composed of between 15 and 20 soil cores (top 30cm of soil) collected along a transect across the paddock and sent immediately to a commercial testing lab for analysis.

The mineral N and PMN test values provided by commercial laboratories are normally expressed as mg N/kg of soil and can be converted to kg N/ha by adjusting for the depth of soil sampling (e.g. 30cm) and the field soil bulk density (e.g. 1.2 g/cm3) using the following equations:



Mineral N (kg N/ha) = **Mineral N (mg/kg) x sample depth (cm) x soil bulk density (g/cm3) x 0.1**

PMN (kg N/ha) = **PMN (mg/kg) x sample depth (cm) x soil bulk density (g/cm3) x 0.1**

As noted above, the PMN test provides a measure of how much N could be mineralised from a given soil under optimal conditions over a 14-week period. However, conditions in the field are rarely optimal, so the actual amount of N mineralised at a specific location will depend on the local climate during the crop growing season at the site where the soil test is conducted.

A simple tool for estimating how much of the potentially mineralisable N will be mineralised during crop development in different regions of New Zealand is available on PFR's website: **www.plantandfood.com/en-nz/article/soil-nitrogen-testing-and-predicting-nitrogen-supply**.

What are the benefits of soil N testing?

A recent trial in Canterbury demonstrated the practical benefits of soil N testing to improve N fertiliser forecasting. While the test crop in this case was autumn wheat, the same approach would apply to all annual crops. Soil

N tests (0–30cm) were completed in August and used to calculate the soil N supply as described above. The starting mineral N content of the soil was 18kg N/ha and the N supplied from mineralisation was predicted to be 57kg N/ha over the main growing season (before crop senescence). These are not particularly high values.

The target grain yield was set at 12 t/ha (tonnes/hectare) for this irrigated wheat crop. The N requirement of the crop was estimated to be 300 kg N/ha, based on the arable industry guideline of 25kg N/ha per tonne of grain yield. Four fertiliser treatments were applied to the trial based on the soil N test results:

Treatment 1: **all of the N was applied as fertiliser (300 kg N/ha, assuming no soil N supply);**

Treatment 2: **Treatment 1 fertiliser rate adjusted down for the initial soil mineral N content;**

Treatment 3: **Treatment 1 fertiliser rate adjusted down for the initial soil mineral N plus the predicted in-field N mineralisation;**

Treatment 4: **no N fertiliser applied (all of the N supplied was from the soil).**

The trial showed that reducing the N fertiliser applied to account for the N supplied by the soil (Treatment 3) resulted in no reduction in grain yield (12 t/ha was achieved) or grain quality (percent of N as a measure of protein content) but saved about $210/ha in fertiliser costs. Furthermore, there was considerably less mineral N remaining in the soil at crop harvest where less fertiliser N was applied (Treatment 3), decreasing the risk that N might be lost by leaching.

So, accounting for soil N supply when forecasting the N fertiliser requirements of this crop improved N use efficiency and reduced fertiliser costs and the risk of N losses, without penalising the yield. This result looks like a win-win-win for production, costs and the environment.

Where do I learn more?

The Sustainable Farming Fund Project, Mineralisable N to Improve On-Farm N Management, has produced several reports and the project findings have been included in several industry articles and presentations. They are also available on PFR's website.

Partners and co-funders of the project include: *Ministry for Primary Industries, the Vegetable Research & Innovation Board, the Foundation for Arable Research, Potatoes NZ, Ravensdown, the Canterbury, Waikato and Hawke's Bay Regional Councils, Analytical Research Laboratories and Hill Laboratories. This article also supports the aims of the Sustainable Vegetable Systems (SVS) programme.*

For further information contact:
mike.beare@plantandfood.co.nz

PRODUCT GROUPS

ALL THE LATEST NEWS FROM YOUR PRODUCT GROUPS

PROCESS VEGETABLES ROADSHOW A SUCCESS

Richard Palmer : Process Vegetables New Zealand general manager

Dr Soonie Chng (left), Process Vegetables New Zealand chair, David Hadfield, and Lincoln University researcher, Zivana King

The second of the vegetable sector roadshows was held in Christchurch on 4 August and opened with a session on process pea research being undertaken, or supported by, Process Vegetables New Zealand (PVNZ).

Unfortunately, Covid-19 struck Dr Bruce Searle, the lead researcher in the pea seed research, but PVNZ chair, David Hadfield, ably stepped in and demonstrated his knowledge of the project by giving a good account of findings to date.

Dr Soonie Chng gave a fascinating overview of her first year's research into cold tolerant rhizobia, highlighting a very long list of isolates that could be useful to promote nitrogen fixation in early sown peas.

Zivana King finished off the session, outlining the findings from her PhD research which is aiming to improve our understanding of how pea plants respond to heat stress.

She is also looking to establish whether altering the sowing date or inoculating the seeds with Trichoderma can be used to reduce the loss of vigour resulting from heat stress.

All researchers noted the challenge of this past season's weather, a problem well known to pea growers!

The Sustainable Vegetable Systems (SVS) project proved particularly interesting to attendees, in particular, the Quick N Test and the nitrogen cycle in rotational crops.

The HortPlus presentation also demonstrated to those not already familiar, the opportunity for improved weather information for growers, but also decision-support tools for various pests and diseases which HortPlus provides to some sectors. PVNZ and Vegetables New Zealand are working with others on the possibility for a fall armyworm decision-support tool using this system.

Jessica Vereijssen and Melanie Davidson touched on pest and disease control in the third session, discussing integrated pest management (IPM) and the opportunities

Mike Barley from Hortplus presented on the opportunity

in areas such as biodiversity plantings to support beneficial insect populations. There was plenty of food for thought on opportunities for the process vegetables sector, including the 'A Lighter Touch' (ALT) research programme that PVNZ is engaged on looking at biological controls and biopesticides.

The PVNZ session finished with the Annual General Meeting (AGM) and recognition of Jim Sim's service in his capacity as PVNZ director. Jim will be retiring after a long and productive involvement with the sector.

> **"There was plenty of food for thought on opportunities for the process vegetables sector, including the 'A Lighter Touch' (ALT) research programme that PVNZ is engaged in**

Jim said he had both enjoyed his time on the board and gained a lot personally from the exposure to new ideas, new people and different sectors. With a vacancy now around the PVNZ Board table, the opportunity is there for someone else to realise the opportunities that Jim considered were the true highlight of his service.

The day's presentations ended with a fascinating talk from Clive Kaiser of Lincoln University on United States environmental brands, in particular Salmon-Safe – providing fascinating insights into the rise and fall of pea production in the Columbia River catchment.

A great many thanks to Lynda Banks and Antony Heywood for doing the hard work to turn the roadshows from idea to reality, and to all those who worked to support them to make the event happen.

More than 100 delegates attended the Process Vegetables New Zealand roadshow in Christchurch this August

INSIGHTS AND ACHIEVEMENTS FROM 2021

Gemma Carroll : Potatoes NZ Inc communications & Extension Officer

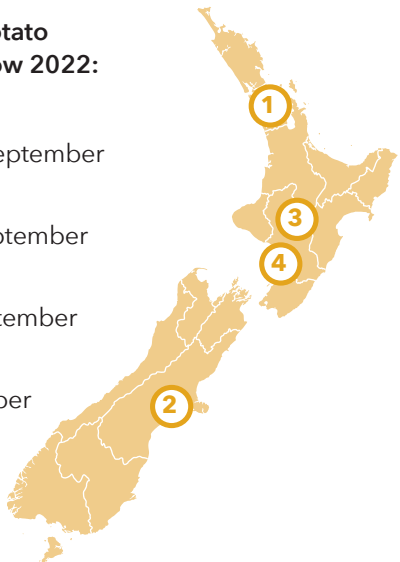
Last month, Potatoes New Zealand (PNZ) shared the quarterly report for the New Zealand Frozen Processed Markets, which is part of our ongoing monitoring of stability in that sector for our growers.

We were expecting to have held our August conference and Annual General Meeting last month too, but illness, weather events and other pressures meant the conference was postponed. We expect the AGM to be held sometime in September, but it too has been held up by the impacts of Covid-19.

We are very happy to support Fruitfed Supplies' upcoming Potato Protection roadshow, which will visit each of our spud growing regions in September and October. We are so grateful for the work of all agronomists across the country, who support and advise our industry on farm and in our research projects.

Fruitfed Supplies Potato Protection Road show 2022:

1. **PUKEKOHE**
   Wednesday 7 September
2. **CANTERBURY**
   Thursday 15 September
3. **OHAKUNE**
   Monday 26 September
4. **MANAWATU**
   Monday 3 October



https://potatoesnz.co.nz/news-info/events

Fruitfed Supplies

Looking back, as we do at this time of year to 2021, we saw an even tougher year than 2020 and the consequences of the pandemic really started to hit home. In addition, the rising costs of compliance and production meant industry saw a slight dip in overall industry value from $1.2 billion to $1.1 billion.

Potatoes New Zealand revised its industry goals in February 2022 after achieving 50 percent value growth in the domestic market – earlier than targeted in our previous Strategy & Plan.

The 2022 Strategy is:

1. **Double the value of fresh and processed New Zealand based exports by 2025.**
2. **Net Zero nutrient and greenhouse gas (GHG) emissions from the potato industry by 2035.**

These targets, agreed by the board, maintain industry's economic, social and environmental pillars.

Our industry reached an overall value of $1,094,966 in 2021 and has achieved overall value growth of 41 percent since 2013. The data shows that 72 percent of our New Zealand crop is processed (frozen and crisps) and this is the reason our industry value has held steady. Noticeably, there was a doubling in value for the crisping sector. Comfort food was popular during the pandemic!

There was a ten percent increase in volume exported, but a nominal increase in value for fresh and table potatoes to the Pacific Islands.

The export market peaked in 2017, but the continued impacts of Covid-19 resulted in a 20 percent drop in our exports from that peak, until the end of December 2021.

Growers maintained farmgate value at $181,637,000 but we observed a volume and value drop across both export and domestic markets.

The key takeout from 2021 is that a strong domestic market underpins our industry. It affirms that securing and stabilising our domestic market share should remain a top priority for PNZ. A strong domestic market maintains the resilience of our industry.

More detail on the 2021 industry values, volumes and performance can be seen in the 2013-2021 Potato Industry Graphs (right) and on PNZ's website: **https://potatoesnz.co.nz/administration/industry-values**.

PNZ spent $1.9 million on research and development (R&D) in 2021. As a commodity levy group, it is imperative that we control our own cheque book. As such, we are seeking additional funds to leverage the value of our levy.

PNZ projects

The PNZ Research, Development and Extension (RD&E) strategy comprises sustainability, optimising nutrients, pest and disease management, potato breeding, on farm productivity and manufacturing innovations. The specific objectives for 2021 activities were to provide growers with the tools to deal with existing pests and diseases, ensure they were protected from biosecurity incursions, as well as helping growers develop infrastructure and methods to improve water and nitrogen use efficiency.

PNZ projects were reported on regularly in *NZGrower*, PNZ newsletters, websites, technical bulletins, research and development programme events and at regional visits and meetings.

PNZ's in-house accomplishments

PNZ seeks to maintain and grow its markets, and one of the ways we do this is through 'industry good stories' – undertaking promotions and marketing initiatives.

Media communications remained steady in 2021 with around 10,000 followers across five channels. We spoke to 2500 subscribers through our monthly newsletter and email notices. We continued to benefit from the promotions run by our strategic partners at United Fresh.

Our team continued their good work in quality, covering the three essential industry functions of maintaining compliance, biosecurity and standards. We gained in-house capability in 2021, with the addition of father and son duo, Cyril and Tristan Hickman, as seed quality team members.

Our small team, ably supported by the PNZ board, has come through another pressure-cooker year for industry.

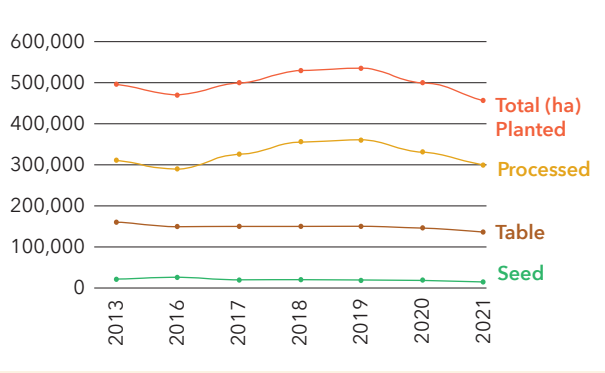
This year we farewell Bharat Bhana and Mike Moleta from our board, with much appreciation for their time in governance.

Looking forward, we remain focused on research programmes and extension to address growers' challenges.

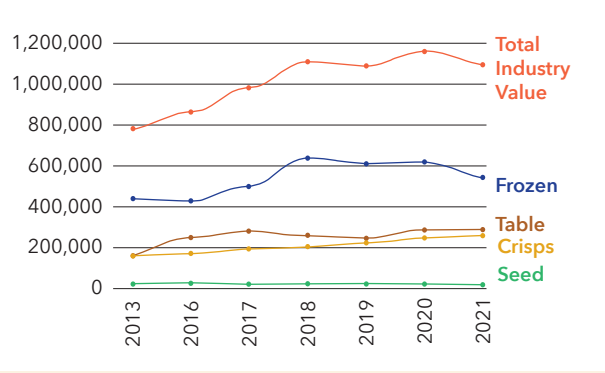
2013-2021 Potato Industry Graphs

2013-2021 Area Planted (ha)

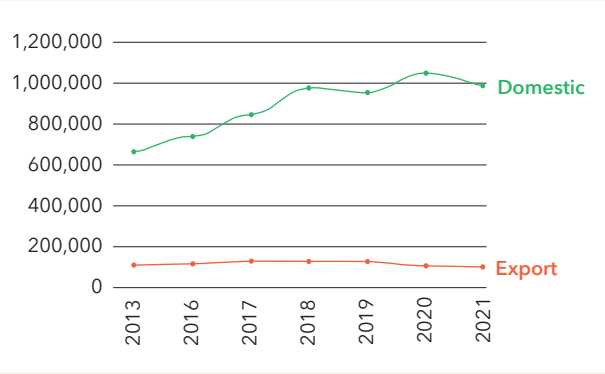
2013-2021 Production (MT)



2013-2021 Potato Industry by Value ('000 NZD)



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



2021 Key Achievements

1. **Biosecurity Readiness & Response –** PMTV pest management annual review.
2. **Biosecurity Readiness & Response –** routine monitoring for sector risk organisms.
3. **Quality Assurance –** NZ Seed Potato Certification Rulebook & Seed-lines revised and published.
4. **Quality Assurance –** employed two new team members to our in-house NZSPCA (Seed Potato Certification Authority) inspection team.
5. **Quality Assurance –** Residue Compliance Information for Potatoes New Zealand revised and published.
6. **Communication –** three times per week social media PR promoting sustainably grown NZ potatoes and potato products, across five channels with 10,000 followers.
7. **Communication –** four new videos on pests and diseases, innovation and RD&E added to our YouTube channel.
8. **Communication –** averaging 40 'positive news about potatoes' articles in national and global media each month.
9. **Communication –** 10 PNZ events or industry meetings held during 2021–2022 despite pandemic disruption, reaching 174 attendees.
10. **Communication –** successful pivot to regional industry forum, when PNZ 2021 conference was cancelled due to Covid-19 lockdown.
11. **Communication –** teamed up with EatNZ for Feast Matariki celebrations.
12. **Communication –** our strategic partners United Fresh ran two campaigns for us, Spring and Christmas, with a combined reach of over three million social media users.
13. **Research, Development & Extension –** 28 R&D projects completed since 2013.
14. **Research, Development & Extension –** four multi-project programmes and the ongoing Ag-Chem Strategy continuing without disruption.
15. **Research, Development & Extension –** $4.7 million Sustainable Vegetable Systems project meeting second year milestones.
16. **Research, Development & Extension –** assisted the processing sector's Canterbury Potato Liberibacter Initiative.
17. **Research, Development & Extension –** signed a memorandum of understanding to investigate the establishment of The Lincoln University, Potatoes NZ, Centre of Excellence in Potato Research and Extension.
18. **Grower Representation –** representation on Government Industry Agreement (GIA) Deed Governance Group, Plant Market Access Council (PMAC), Sustainable Vegetable Systems governance and the Trust Alliance Inc. Board.
19. **Administration –** Strategic Plan and Business Transformation Plan updated and communicated to growers and stakeholders.
20. **Administration –** membership database active and continuing to increase levy value as a result.

TomatoesNZ

TOMATOESNZ AGM AND SPEAKER EVENT

Dinah Cohen : TomatoesNZ business manager

Growers and industry joined TomatoesNZ for its AGM in Pukekohe on 17 August

Growers and industry joined TomatoesNZ (TNZ) for its Annual General Meeting (AGM) which was held online and in Pukekohe on 17 August.

The AGM saw the election of Ben Smith to the board, approval of the 2022–23 budget and recognised the service of Malcolm Pook, who was awarded TNZ life membership for his services to the board and his 50-plus year career as a tomato grower.

There was positive feedback on the speakers who shared their knowledge either as growers or as leaders in their field of energy. T&G general manager of undercover crops, Ben Smith, spoke about his experiences of dealing not with one but two possible biosecurity incursions in the same crop over a couple of months. This unfortunate coincidence did have some positive outcomes though, with Ben saying how quickly and efficiently the Ministry for Primary Industries (MPI) response team worked in the first few weeks after identification. He also mentioned how helpful both Helen Barnes (former TNZ general manager) and Barry O'Neil (Horticulture New Zealand and TNZ Chair) were in leading the communications on behalf of growers with MPI.

Grower2Grower managing director, Stefan Vogrincic, spoke about all the different elements to consider when planning the perfect irrigation system for crops. From substrates to delivery, water temperature and quality, to the active climate. There are many factors to get right and even with monitoring it can be hard to judge if the plants are getting the perfect amount of water. To monitor plant stress in a manner audible to humans, plant responses can be translated into electrical signals to clarify what is going on. The use of the latest technology can be extremely beneficial.

Geological and Nuclear Sciences Limited (GNS) socio-economic policy specialist, Celia Wells, delivered the latest research and development from GNS, in particular, using ground source heat pumps as a sustainable way of heating commercial greenhouses. She also told attendees about research into capturing CO_2 which does not involve

heating – rather, directly capturing CO_2 from the air. For more information about either piece of research, contact Celia directly: **c.wells@gns.cri.nz**

Apricus NZ Eco Energy managing director, Marcus Baker, concluded the talks with an overview of how ÖkoFEN pellet boilers work and the costs involved. For more information, contact Marcus: **marcus@ecohotwater.co.nz**

Unfortunately, we ran out of time to hear from Gerard Dobbs from Nature's Flame, a supplier of wood pellets in Taupō. You can watch their short video on how wood pellets are created here: **www.naturesflame.co.nz/woodpellettv.html**

If you would like a copy of Stefan, Celia, Marcus or Gerard's presentation, please email **dinah.cohen@hortnz.co.nz**

Key concerns from TomatoesNZ

TomatoesNZ has been working with growers to identify the main issues they currently face. This information is being used to put together a document that we can present to government delegates and policy makers so that we can focus their attention on what really matters to growers. If you would like to contribute to this living document, please download it from our website: **www.tomatoesnz.co.nz/latest-news/key-concerns-from-tomatoesnz** or email Dinah for a copy: **dinah.cohen@hortnz.co.nz**

United Fresh Technical Advisory Group – update on crate hygiene

In July, AgriChain Centre managing director, Anne-Marie Arts, updated the Technical Advisory Group (TAG) on hygiene for returnable plastic crates (RPCs). This is a culmination of research and other work completed over the last few years. The webinar is free to watch at the United Fresh website (17-minute mark): **www.unitedfresh.co.nz/technical-advisory-group**

Key take aways:

- Using the right cleaning products at the right concentration is important, but cleaning across the whole chain of movement is crucial. This includes both for external returnable crates and internal crates which travel between greenhouses and from production sites to packhouses and to Farmers' Markets.
- Sometimes internal crates are used as temporary rubbish bins as produce is sorted and graded. Internal crates need to be washed to the same standards as external RPCs. Growers should also have a standard operating procedure for handling their crates within their sites.

The document referred to in the webinar, which pulls together all of United Fresh's research on crate hygiene, can be downloaded here: **www.unitedfresh.co.nz/assets/TAG/United-Fresh-Research---Knowledge-Compilation---RPC---June-2022.pdf**

Malcom Pook received the TNZ life membership award

Final reporting from Lincoln University whitefly study

Based on the research undertaken at Lincoln University into pest incursions such as whitefly, a statistician has developed the following advice as a suggested protocol for identifying the overall strength of infestations:

Level	Whitefly numbers
0	0
1	<5
2	6-10
6	11-15
8	16-20
10	>20

- Score number of whiteflies per plant (see opposite for an example scale).
- Take 50 samples that are representative of the glasshouse.
  - These samples can be individual plants.
  - Find a convenient way to collect samples.
  - Make sure your sampling is representative of the entire glasshouse.
  - Since outbreaks can grow rapidly, it is good to sample often, for example, once a week.
- The first few samples are most important. There will be diminishing returns for additional samples.

Charts in section 1 show how much variability to expect for the average score of your sample. This variability depends on the average score.

ALT website resources

'A Lighter Touch' (ALT) has a range of resources available for growers on their website including recordings of previous webinars: **https://a-lighter-touch.co.nz/category/resources**

Residue Compliance Booklet – 2022 updates

This document has been updated with current compliance for fungicides and insecticides. TomatoesNZ has emailed this to all growers but if you would like a printed copy, please send your postal address to **dinah.cohen@hortnz.co.nz**.

View the annual report on the TNZ website: **www.tomatoesnz.co.nz/about/2022-agm**

VEGETABLES NEW ZEALAND ROADSHOW WELL-ATTENDED

Antony Heywood : Vegetables New Zealand Inc. general manager

Keith Vallabh (left) and Andre de Bruin receive Life Membership and Industry Service awards from Vegetables New Zealand at the Pukekohe Roadshow 2022

Covid-19 and 'super spreader' events were top of mind when the Vegetables New Zealand Inc (VNZI) Board decided to go on the road in lieu of this year's cancelled Horticulture Conference.

The VNZI Board liked the idea of presenting a technical-type forum to growers in their own town. While the initial concept was to hold four roadshows around New Zealand, in the end, delivering four events was going to be too costly and time consuming.

Given the avalanche of consultation in 2022, on top of an ambitious workplan schedule, the Board settled on two events – one in Pukekohe and one in Christchurch, partnering with Process Vegetables New Zealand (PVNZ).

As was the case at Mystery Creek in 2021, the format was to deliver short and sharp technical presentations of no more than 20 minutes with ten minutes for questions. General feedback from the roadshow rated the Sustainable Vegetable Systems (SVS) and Integrated Pest Management (IPM) sessions as having the greatest appeal with Q&A flowing freely.

The covered crops session was anchored by an update on the industry partnership agreement between VNZI and the Energy Efficiency & Conservation Authority (EECA). EECA sector decarbonisation programme lead, Insa Errey, updated the audience on the Energy Transformation Plan – a project to decarbonise the covered crop industry via energy efficiency upgrades, followed by an action plan for fuel switching options. Apex Greenhouses rounded out the session with an overview of what they can offer New Zealand growers. What was pleasing to hear from non-covered crop growers was the need for energy efficiency in all vegetable growing operations. The EECA did hear that point and encouraged all growers to connect with EECA or VNZI about how to translate this into action for better, more efficient use of energy.

The Pukekohe event was also a prime opportunity to deliver VNZI's Annual General Meeting (AGM). The key action that resulted from the AGM was the removal of the

John Murphy addressing the crowd of vegetable growers and service businesses in Pukekohe

biosecurity levy for the next financial year. Growers did ask during general business that VNZI develop actions for the following issues:

1. Cost of production and the need for better prices for produce to cover inflation
2. Code of conduct on fresh produce
3. More targeted action in the media to tell the grower story.

> **What was pleasing to hear from non-covered crop growers was the need for energy efficiency in all vegetable growing operations**

An awards ceremony recognising the service of several vegetable growers followed the AGM. VNZI recognised Andre de Bruin and Keith Vallabh as life members and awarded both men the Industry Service Award for outstanding service to the vegetable industry. Graham Martin received the Award of Merit in Christchurch at the Vegetables Roadshow Canterbury for his contribution to the Horticulture Canterbury Growers Society.

The meeting closed with an address from KPMG global head of agribusiness, Ian Proudfoot, on what food and fibre from New Zealand needs to deliver to a hungry world. Ian recognised that New Zealand needs to look after its own people first, but if we get that right, our nation could be well placed to be recognised as one of the best producers of food and fibre.

Henry Stenning of Agrilink explains how to do a Nitrogen Quick Test

onions NEW ZEALAND INC

PREPARING NEW ZEALAND'S ONION GROWERS FOR A DIGITAL FUTURE

Kazi Talaska : Onions NZ Inc. market access manager

Onions New Zealand has been undertaking work to understand the Information Technology (IT) and data requirements of New Zealand's vegetable industry.

This has involved collaboration with growers, agronomists and technology providers to understand how IT systems and data are being used, what solutions are currently available in the market and what we will require to future-proof the industry for the years to come.

The vegetable industry is seeing increasing requirements for compliance, supply chain traceability and export market legislation – all of which will require supporting information systems and tools to collect and manage the underlying data needed, from farm to plate.

A grower survey was conducted to understand the use of data and systems on-farm. Vegetable growers were asked to provide information on the IT systems they currently use and what functions they use those systems for: administration, accounting, production management, farm mapping?

Here are some insights from a sample of growers who completed the survey:

Many platforms don't talk to each other

New Zealand growers use a range of online farm management platforms for operations.

In many cases, each of these platforms is used for different on-farm purposes. For example, one might be used for agrichemical usage and irrigation logging, while another might be used for farm mapping. Because each growing operation is different, it makes sense to use a variety of ready-made solutions available on the market to suit your system. However, the end result is often siloed data that cannot be integrated.

On-farm calculations of carbon emissions, for example, requires an understanding of all farm inputs and operations such as fertiliser applications and fuel use; thus, having the complete set of data and systems that integrate (talk to each other) is important. Unfortunately, systems providing complete and integrated data solutions are costly. One grower highlighted that an Application Programming Interface (API) that connects platforms together was too expensive and hard to justify the up-front investment.

> "The vegetable industry is seeing increasing requirements for compliance, supply chain traceability and export market legislation – all of which will require supporting information systems

Production management systems capture input costs but are not integrated with fertiliser, chemical or other inventory systems – giving a 'rough idea' for GLOBALG.A.P. compliance.

Leading software is not tailored to the New Zealand growing system

Many off-the-shelf software applications available to New Zealand growers have been developed overseas – usually in the United Kingdom. The outcome is software that is not fit for purpose or customised for New Zealand's growing system, leaving identified gaps in functionality.

No one platform can perform all requirements on-farm. One surveyed grower said, "Off the shelf production management systems do not handle the complexity of intensive horticulture" and "high-rotation, multi-crop businesses are far more complicated."

Into the cloud

Although a few growers still use on-premise or desktop-installed software, most have now migrated to the 'cloud', procuring 'software as a service' applications, such as Xero and Figured, which work within a standard web browser and

provide enterprise levels of security and hosting. Cloud-based software is also helpful in that it works on mobile phones out in the field, subject to internet data connectivity.

New software automates your business processes or adds time?

Concerns were also raised around the amount of time needed for manual entry of data and the overall quality of data captured. For example, changing and splitting of paddocks that is common in vegetable rotation operations adds further complication to digitising farm records.

> **Concerns were also raised around the amount of time needed for manual entry of data and the overall quality of data captured**

Variability across the sector

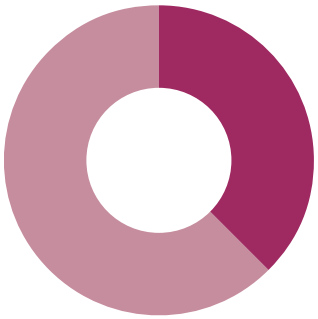
Large variability exists between how vegetable growers manage their IT systems and data. Microsoft Office 365 is the most popular platform among growers for basic productivity and collaboration. Muddy Boots (Telus Agriculture) is the most commonly used production management and spray diary software among those surveyed, but there are more than ten other production software vendors and products identified to be in use throughout New Zealand's horticulture sector. On the other hand, there remains a subset of growers who still manage a large part of their operation through spreadsheets and paper-based systems.

Only 37.5 percent of respondents said they managed their IT in-house, compared to 62.5 percent of respondents who said they use an external IT service partner.

On the question of IT governance, 50 percent of the survey respondents have a cybersecurity plan and continuity plan in place.

> **IT and data management is going to be increasingly important for industry in the future, but investment and successful adoption will be challenging**

So how do we ensure onion growers – and the wider horticulture sector – has a fit-for-purpose, competitive technology ecosystem that supports growers' needs and requirements? How do we get the right tools in front of growers to keep up with upcoming regulatory changes? And how do we support that transition and system longevity?



37.5%

OF RESPONDENTS SAID THEY MANAGED THEIR IT IN-HOUSE

What is clear, is that IT and data management is going to be increasingly important for industry in the future, but investment and successful adoption will be challenging. Growers need the tools to readily respond to changes in data requirements, and wider industry needs to begin investing in increased IT and data capabilities to effectively tackle forthcoming requirements for quality, compliance, traceability and export legislation.

Onions New Zealand is looking at the next steps for data management in the onion sector. In the next year, we will be exploring different options for data providers, governance groups and story-telling platforms.

The full IT systems report for the vegetable sector will be available on the Onions New Zealand resource library accessed from onionsnz.com through your grower login.

STRAWBERRY GROWERS NZ

QUEST FOR STRAWBERRY IPM HEROES

Dean Astill, director of The Fresh Berry Company and an observer on the SGNZ board addresses those attending a field day at Berry Farms, Bayview strawberry growing facility near Napier

The quest is on for leaders in the strawberry industry to adopt and champion Integrated Pest Management (IPM) practice. ELAINE FISHER speaks to figures in the strawberry industry about growers' efforts to reduce reliance on chemical controls and enhance consumer perception of the fruit they grow.

"The future increasingly lies in a more sustainable basis to do business. Growers are studying and investing in new varieties, new growing methods such as IPM and new growing structures," said Strawberry Growers New Zealand (SGNZ) chair, Anthony Rakich, at the recent SGNZ conference.

The conference was attended by more than 100 growers and industry associate members who heard from a variety of speakers on wide-ranging grower topics.

Mick Ahern, SGNZ executive manager, says several growers are trialling IPM on parts or all of their strawberry farms, but more leaders are needed to prove to the industry that IPM works and brings significant benefits.

IPM, a management practice under which growers use a combination of cultural, biological and chemical methods to prevent or control pests and diseases, is a key component of SGNZ's refreshed strategic plan – *Growing Better Strawberries Together*.

"The New Zealand strawberry industry has a unique opportunity to introduce IPM now before, as has happened in Australia, our major pests develop resistance to existing chemical controls," Mick says. "All the tools are there for growers to put IPM into practice and now we need industry 'heroes' to prove to fellow growers that it works."

Using IPM practices will likely see a reduction in chemical costs for growers. Those implementing the system should receive a premium for their strawberries in local and export markets too.

Strawberries growing under cover at Berry Farms, Bayview near Napier

IPM-grown produce often attracts a higher price due to the minimal use of sprays. In European markets there are three levels of 'premium' strawberries based on how they are grown: traditional (not premium); IPM (standard premium); and organic (high premium).

Berryworld Ltd has produced an IPM manual, available on the SGNZ website, for New Zealand strawberry growers as an aid to diagnose pests, diseases and disorders in strawberries. It is designed to cover fungal, bacterial, invertebrate and other issues found in New Zealand strawberry systems.

Mick says many growers are understandably still nervous about moving away from traditional pest and disease control measures, but pressures are mounting from consumers who want product grown with fewer chemicals. There is also greater awareness that some insects and diseases have become resistant to conventional agrichemical treatments. At the same time, growers are being limited to the smaller range of agrichemicals through changing regulations and lower maximum residue limits for market access domestically and internationally.

"Australian strawberry growers ended up with a real problem when most of their pests developed resistance to chemicals, so the move to IPM was forced upon them," Mick says. "In time, resistance to chemicals will happen here too.

"We have a unique opportunity now to introduce IPM while we still have a range of soft chemicals to control pests."

Australian IPM specialist, Dr Paul Horn, who has been assisting SGNZ with the development of its programme, agrees now is the time for the New Zealand strawberry industry to proactively adopt IPM.

"New Zealand growers can adopt IPM before pests become resistant to chemicals," Paul told growers at a field day last year. "When the Victorian strawberry industry moved to IPM, it was because they had to. Chemicals alone were not working. The New Zealand industry has the advantage of moving towards IPM before you use all the tools in the toolkit. You can keep targeted chemicals working for a long time when you're not using them frequently.

"Neither biologicals nor spray will do it all. It's about using all tools available to you and trying to prevent issues before they happen. IPM has been very successful in Australia and there's no reason it can't work in New Zealand."

Mick says around 99 percent of Australian strawberry growers now use IPM.

"One of the concerns raised by New Zealand growers is whether or not we have some of the beneficial insects which prey on pests in Australia, to effect control here," says Mick.

"Australian strawberry growers ended up with a real problem when most of their pests developed resistance to chemicals, so the move to IPM was forced upon them. In time, resistance to chemicals will happen here too

Research currently underway at Lincoln University – and funded by the Sustainable Farming Fund – has found new predator insects already in New Zealand which will be beneficial to strawberry IPM programmes.

Growers also have access to beneficial insects, mites and microbes produced by the New Zealand Company

Bioforce Ltd, which has been working with SGNZ in the development of its IPM programme.

The IPM programme for strawberries has grown out of an earlier one called, *Future proofing thrips management in strawberries*.

"When it comes to plant protection, our major investment for the past three years has been undertaken by Plant & Food Research Ltd (PFR), with assistance from Berryworld and participating growers," says Mick.

Funding was via a Sustainable Food and Fibres Futures (SFFF) grant from the Ministry for Primary Industries (MPI). The total project cost was $500k, of which SGNZ provided $30k per year, plus in-kind contributions.

"The project is overseen by Rob Silberbauer of Berryworld who has further enhanced SGNZ's standing and relationship with both PFR and MPI to such an extent that agreement has been reached with MPI to extend the work for another year on the same terms," Mick says.

"Partly, this is to comprehensively communicate the findings to growers following the disruptions of the last two years. Additionally, this will also be the platform to continue the work on the IPM crop management plan for

New Zealand strawberries which has grown out of the thrips project.

"This is a very significant advance for our industry and growers are encouraged to actively engage in forums to be arranged by Berryworld which will include overseas experts in this field."

Strawberry growers who would like to champion IPM are invited to contact SGNZ: **info@strawbsnz.co.nz**

The SGNZ IPM manual is available on the website: **www.strawbsnz.co.nz**

Strawberry conference addresses future issues

The implications of pending new food safety regulations, farm environment plans, seasonal labour and Integrated Pest Management (IPM) were among the key topics at the Strawberry Growers New Zealand (SGNZ) conference in Napier this July.

One hundred growers and industry associate members attended the event where speakers presented on a variety of topics that SGNZ levy funds have been invested in this last year. Presentations included:

- the importance of embracing IPM and pest control;
- the importance of BASES: Berryworld's Agrichemical Spray Entry System;
- farm environment planning;
- varieties performance;
- results from the Mystery Shopper programme;
- implications of pending food safety regulations;
- Supermarket Code of Conduct and
- an update on seasonal labour supply.

On the second day of the conference, around 80 delegates attended a field trip, hosted by Dean Astill of The Fresh Berry Company, to see strawberries growing under tunnel houses at the Berry Farms, Bayview facility near Napier.

GROWERS ENCOURAGED TO ENTER THEIR IDEAS IN FIELDAYS INNOVATION AWARDS

In recent years, agricultural innovation has been building momentum, helping farmers, growers, and organisations across the food and fibre sector work smarter, not harder.

A globally renowned awards programme, Fieldays Innovation Awards, is hungry for new ideas in the innovation space. Representing the innovation lifecycle in three award categories, Prototype, Early-Stage, and Growth & Scale allows individuals and companies, big or small, to get the support, recognition and mentoring they require to take their innovation to the next level. Special recognition is also given to younger innovators, with an award for the Fieldays Young Innovator of the Year.

Programme Developer for the New Zealand National Fieldays Society, Steve Chappell, says that the ideas nurtured through the Fieldays Innovation Awards are needed now more than ever.

> **"The landscape is changing rapidly, and innovators are rising to the challenge. Climate change, labour shortages, and how we will secure ample food and fibre for the world's growing population are issues that continue to weigh heavily on our industry and can be answered with innovation.**

With a total prize package over $60,000 worth of cash, services and products with tailored opportunities to progress innovations in each award category application, these awards are highly regarded.

The Fieldays Innovation Hub is the platform that showcases these award entrants as well as other innovative problem solvers and creators. The experience of exhibiting in the Fieldays Innovation Hub was "nothing short of life changing," says Marianne Awburn, co-founder of Springarm Products, winner of the 2021 Prototype award. "Connecting with our audience and getting a chance for real-life feedback was priceless – we wouldn't have wanted to launch our product any other way. Winning the award was the icing on the cake!"

Applications for the Fieldays Innovation Awards are always open. The cut-off for applications for the 2022 Awards is 1pm Thursday 6 October 2022.

Apply now at: **www.fieldays.co.nz/innovation**
Fieldays 2022 30 Nov – 3 Dec.

Fieldays Innovation Hub

Site: Located at the intersection of D Street and M Road, Mystery Creek

Are you ready to see the future? Visit the Innovation Hub to see the latest innovators, inventions, and industry developments all aimed at improving New Zealand's primary industries.

LEAFY GREENS SORTED!

Hydroponics is a method of growing plants without soil, using mineral nutrient solutions in water or another medium. In Australia, industry operators typically grow their crops under protective cover or outdoors and the hydroponic crop farming industry is valued at $503m.

Revenue for this market has grown significantly in the past five years and it has been less affected than other agricultural industries by the adverse weather during this time. The industry has also benefited from innovative equipment and efficient production methods which are allowing growers to produce consistently high-quality produce, and meet the stringent demands of the retail market.

Rising capital investment by the larger players is helping to increase yields, improve quality and lower unit costs so they can capture the retail market. Digital sorting technology is also a savvy investment for expanding operations, and earlier this year, Key Technology introduced the VERYX® Digital Sorter for fresh cut, hydroponically grown leafy greens.

The primary objective of sorting and grading equipment is to remove all foreign material (FM) – while allowing the right amount of product defects to make the grade and minimising false rejects. Digital sorting equipment identifies and removes foreign objects based on color, structure, shape, and size and this equipment is particularly important when working with delicate produce.

"Hydroponic growers want every single leaf to be perfect," says Marco Azzaretti, director of marketing at Key.

> **"Hydroponic greens are a premium product which typically cost two or three times the price of traditional, field-raised greens. VERYX can remove imperfect, misshapen, discolored, bruised, broken or torn greens and is significantly faster than manual inspection.**

"Veryx is the only belt-fed leafy greens sorter which can inspect product entirely in-air with top and bottom sensors to see all sides of the product with no blind spots, enabling VERYX to eliminate more FM and defects.

"Hydroponic greens are a premium product which typically cost two or three times the price of traditional, field-raised greens.

"VERYX can remove imperfect, misshapen, discolored, bruised, broken or torn greens and is significantly faster than manual inspection.

Consistent identification of foreign objects allows an operation to produce the same high-quality product, day after day. Each system can be customised to meet the exact needs of the producer, including the nuances of specific varieties and regional differences.

Next-generation sensor technology and intelligent software is able to collect, analyse and share data to reveal patterns, trends and associations.

"In addition to processing leafy greens, digital sorters from Key Technology are extremely versatile and suitable for a range of other produce – including fruits, vegetables and nuts.

For more information, please contact Heat and Control at **info@heatandcontrol.com,** or visit **www.heatandcontrol.com**

NEED WATER STORAGE? THINK VORTEX BLADDERS

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

At certain times of the year water is crucial to the sustainability, health, productivity and growth of plants, and the Vortex Bladder can help provide a very viable and affordable solution to achieving this.

Whether you want to fill the bladder using roof water or from other sources these bladders are easy to connect into your current or future irrigation systems.

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

What makes the Precise DE Water Bladders ideal for water storage?

- Stored in a bladder, water is not subject to the amount of evaporation caused by the sun and wind as it would be in an open pond or tank.
- Water is fully enclosed in a bladder, which keeps it clean and free from foreign matter, and from interference by birds and animals.
- A bladder is a better option than an open pond from a health and safety point of view, and does not need to be fenced.
- Bladders come in a wide range of sizes to suit your requirements.
- Bladders can be relocated as required.

Vortex Bladders are very easy to install. They can be packed up and stored or moved to another location, which is a big plus if they are not needed all year round. With a low profile they blend into their surroundings on your property, and can be easily landscaped in to minimise their visual impact.

No building permits or consents are required when installing the bladders. All they need is a level 100mm sand base.

Vortex Bladders are made of technical textile coated PVC with anti-UV treatment. They are assembled by high frequency welding which gives them great strength and resistance.

Vortex Bladders come with valves, reinforced corners, overflow fitting, a filling elbow, and an inspection hatch. All of these are pre-assembled in the factory to avoid any risk of leakage.

T: Allan **021 909 463** or Angus **027 498 3146**
E: **admin@precisede.co.nz**
www.precisede.co.nz

Precise DE

BIOSTIMULANTS BUMP UP PUMPKIN YIELD

New biostimulant trials are revealing how biostimulants work in a wide range of ways to support plant growth.

"Biostimulants work by activating beneficial microbes in the soil and on the leaves to create healthy biology which, in turn, supports plant growth and resilience. These beneficial microbes have a wide range of positive effects on plants and overall soil and foliar biology, such as chelating minerals so they become plant available, enhancing root growth so plants can take up more water and nutrients, and improving soil structure. They can even suppress disease and give resilience against drought, and increase photosynthetic potential," explains BioStart chief executive, Dr Jerome Demmer.

A new trial of BioStart's biostimulants, Mycorrcin and Foliacin, on a commercial pumpkin crop in Waiuku has shown a range of interesting results over the growing period. Firstly, the roots were assessed and it was found that the BioStart treated plants had more extensive roots than the untreated plants. This bigger root mass allows the plant to gather more water and nutrients from the soil.

Secondly, as leaf temperature is a good indicator of plant drought resilience, the leaf temperature was measured during the heat of the day. Leaf temperatures measured in January showed that the BioStart treated plants had a 3.6°C lower temperature than the ambient temperature, which was 0.9°C lower than the untreated trees. The lower leaf temperature means the plants are controlling their temperature better through transpiration and will therefore withstand drought and heat stress better and for longer.

Thirdly, leaf area was measured on day 50, and treated plants showed an increase of 17 percent over untreated plants. This means treated plants were photosynthesising at a greater rate and conserving soil moisture better through their bigger shading capacity.

Harvest revealed the outcome of all these individual improvements in the plant, with the BioStart treated area producing a significant increase of 13 percent in the number of marketable pumpkin heads, which equates to a 4.8 tonnes per hectare (t/ha) yield increase.

An added benefit for growers and retailers became evident when storage weights for the untreated and BioStart treated pumpkins were compared. The BioStart-treated pumpkins lost significantly less weight over four months during storage than the untreated pumpkins. This improved ability to store shows that head quality had been improved through better fruit cuticle integrity, resulting in lower moisture loss.

BioStart treated pumpkins on the left-hand photo showing greater leaf mass

BioStart treated pumpkin roots on the left, untreated on the right

How it Works

Plant biostimulants optimise beneficial biology in soil around the root area and on foliage.

BioStart Mycorrcin is a soil biostimulant that activates naturally occurring beneficial microbes present in soils that stimulate new root growth and branching, leading to better plant establishment, improved nutrient availability in the soil and uptake by the plant, and greater overall plant resilience.

BioStart Foliacin is a foliar-applied biostimulant that helps with green leaf retention and leaf biofilm recovery after environmental or chemical stress.

For further information contact your local BioStart Horticultural Advisor on **0800 116 229**

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