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JULY-AUGUST 2018

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OrganicNZ

Published by the Soil & Health Association of NZ Inc.

Notes from the chair

As I write this, my last note from the chair, from a beautiful village in southern Germany, I have been reminded of the import of the proposed and pending single organic standard currently under consultation in New Zealand.

I have had a few organic conversations in Germany, which I had regarded as the home of organics ('bio'). Several people have commented however that confidence has been lost for many because there are apparently myriad 'standards' and people do not know which are real and which are spins.

We have a small version of that in New Zealand where at least one producer self-certifies their product to their own organic standard and declares themselves to be 'certified organic'. To be fair they may very well be producing to the highest possible standard but in the absence of third party verification who would know.

Your Council is very strongly supporting the proposed changes while being very mindful of making sure smaller producers are not adversely affected. Two of the key reasons for being supportive of smaller growers are that they bring innovation, and that the biggest producers today were small when they started – we need to foster growth. Council is lucky to have Chris May who has been working in this area globally for decades.

I believe that by and large people have justified confidence in organic produce in New Zealand and the single standard will build that and benefit all participants.

Many of you will have been following our GMO/GE challenges with Federated Farmers over the last several years and doubtless rejoiced in recent court decisions supporting the position of Soil & Health (and others). Personally I'm not too keen on gloating but it does need to be acknowledged that a huge workload has been carried by a few for the benefit of New Zealand. Many deserve to be named but this is not the forum, however both Mischa and Marion deserve specific mention – thank you!

The significant costs awarded to Soil & Health are certainly helpful but really only make a dent in the dollar and time cost incurred by Council and the other parties we worked with.

There have been numerous challenges and mistakes over the last while for Soil & Health which I won't dwell on here because they have been covered previously. Said issues will no doubt be constructively covered at the AGM.

Significant change has happened in recent weeks and major change around the council table will occur at the AGM. What I ask all who care about our organisation is that you get behind your Council; the job we all believe in is too important to lose sight of because of growing pains.

This will become much easier from a communication perspective (two-way) as we finish the development of a functional database. This change will make it easy for Council to chat with members regionally and/or by interest group. From that it should help us to access support and expertise which our collective membership has in huge measure.

Incidentally while our general manager Roger Archibald left recently we will have him to thank for the database improvements. Council wishes Roger the very best for the future.

In closing I wish Council, our members and all who care about the health and wellbeing of our country and its inhabitants the very best. I also make a special thank you to Mike and Lucy for stepping in to help out during a challenging period of play!

Thanks,

Graham Clarke
Chair, Soil & Health

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July/August 2018 Vol. 77 No.4

Features

Gardening

Health and food

Cover: Kelly Francis of Whenua Warrior
Photo: Qiane Matata-Sipu, qiane.co.nz

Happy 25th birthday, ecoseeds!

To celebrate, we have a prize giveaway: **5 subscribers will each receive 5 packs of seeds of their choice from ecoseeds**. Since 1993 ecoseeds has been selling New Zealand grown, certified organic, GE-free, open-pollinated vegetable and herb seeds. Their certified organic range is certified by OrganicFarmNZ.

All *Organic NZ* subscribers and Soil & Health members automatically go in the draw.
New or renewing subscribers/members: join by 31 July for a chance to win!

Join up at www.organicnz.org.nz or page 60.

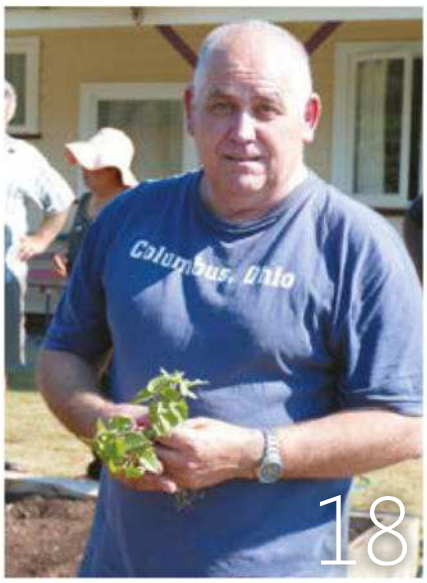
Offer open to NZ residents only. Delivery included in prize packages.

Science watch

Farming and horticulture

Building and technology

Regulars



OrganicNZ

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Membership
Soil & Health Association members automatically receive *Organic NZ* six times per year. See page 59

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Vote now – we need YOU!

Photo: Martina Sandkühler

It's heartening to see so many people, young and not so young, standing for election to Soil & Health's National Council. Members are spoilt for choice with seven candidates vying for four places. I urge you to vote – your vote counts and will shape the future of this organisation, and help set the tone and culture for organics in New Zealand. Read about the candidates, and the remits proposed for members' consideration, on pages 56–58.

I've been reading *The Hidden Life of Trees: What They Feel, How They Communicate* by Peter Wohlleben, and it occurs to me that Soil & Health is like a tree. A tree that has weathered many years, with its rings showing some lean and challenging years, and some years of health and expansion. With the renewed interest shown by so many high-calibre candidates and those who have nominated them, we look set for an exciting period of growth and new directions. Let's hope for renewed vigour in our branches, and our hard work bearing fruit, while we remain true to our roots.

Come along to the AGM in Auckland if you can, on 28 July, where you'll get a chance to meet the candidates and a whole lot of other organic folk besides. OrganicFarmNZ is holding their AGM on the same day in the afternoon.

We need to continue to find and implement sustainable solutions to farming, forestry and other land-use, to deal with the many challenges such as *Mycoplasma bovis* in cattle, and the forestry slash which exacerbated the effects of recent deluges in Tolaga Bay. I have yet to hear of an organic farmer whose cattle have been affected by *M. bovis*, maybe because their stock movements mainly don't intersect with the affected non-organic cattle. If you know about organic and sustainable practices, and innovative farmers, foresters, gardeners and growers, please let me know so we can share their stories.

I would like to pay tribute to Peter Proctor, who has just died at the age of 89 in June. This remarkable man has had a huge influence on organics and biodynamics in New Zealand and overseas. My introduction to him was via the intriguingly titled book *Grasp the Nettle: Making Biodynamic Farming and Gardening Work*, which he co-wrote with Gillian Cole.

Peter brought the biodynamic method to India in 1993 and has made many visits there over the years with his partner Rachel Pomeroy, to conduct biodynamic workshops. The film *One Man, One Cow, One Planet* is an inspiring portrayal of his work in India. Peter's humble and down-to-earth approach is a reminder to stay true to ourselves and live close to the earth. We will publish an obituary of Peter Proctor in the next issue.

Keep warm and dry through the winter – it's a great time to snuggle up with this latest *Organic NZ*. I hope to catch up on some reading during the longer nights, with a cup of hot chocolate, which (my dentist will be pleased to read, and yes he subscribes) I now sweeten with stevia instead of honey. Only the minutest amount is required! Thanks to Denise Cox for her article on homegrown sweeteners in the last issue – now I need to try growing stevia.

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Your letters

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SUGAR AND CANCER

Re the article in the May/June edition by Denise Cox on homegrown sweeteners. While all the information about these sweetners and how they might be grown made such good reading, and was to *Organic NZ* magazine's usual high standard of design, I am still really worried about the little statement at the end of the introductory paragraph: 'Sugar, especially fructose, feeds cancer cells, accelerating their growth and expediting the cancer's spread'.

While I'd hate to support gross consumption of sugar I feel this is a claim that should not be made and I can only refer you to the Mayo Clinic website under 'myth'.

Jane Russell
Bulls

Denise Cox responds:

Thank you for raising this. Eating too much sugar causes weight gain, and being overweight has been found to increase the risk of at least 13 different types of cancer. Cancer cells feed on sugars, as do normal cells, however studies have shown that fructose actively promotes the growth of certain types of cancer cells, for example pancreatic cancer – see: cancerres.aacrjournals.org/content/70/15/6368

Fructose consumption has been associated with colon, pancreatic, and liver cancers: www.ncbi.nlm.nih.gov/pubmed/25965509

A high-fructose diet may accelerate the progress of breast cancer: www.ncbi.nlm.nih.gov/pmc/articles/PMC5622605/

Also I note that in the May/June issue there is an article by Tremane Barr on his successful strategy for treating pancreatic cancer which included eliminating added sugars.

WINNING LETTER

HEALTHY DIET FOR IMMUNITY

I just read the letters about vaccination in the March/April *Organic NZ* and I'd like to share with you my experiences. I believe that a healthy body can overcome mumps, whooping cough and chicken pox and we only need to vaccinate to prevent rubella.

How can we give our children a healthy body? Give them food that does not produce acid in the body. The worst are sugar and meat, and the best are fruit and vegetables.

Swiss doctor Bircher Benner (who invented muesli) advocates: start each meal with something raw (it does not have to be much).

- Breakfast: citrus fruit, berries, Granny Smith apple
- Bread meal: banana, pear and some other fruit that is not acidic (apple)
- Cooked meal: salad (lettuce, grated carrot, tomato, cucumber etc.). Children often like to eat a piece of carrot or other vegetable raw.

Photo: iStock/Vaivirga

Not to waste vitamins, is it also best not to use refined food (white bread and rice).

Our family has not had these vaccinations and I don't remember feeling bad when sick. To replace meat: cheese, eggs, chick peas, mung beans (for soup), lentils, baked beans, tofu and tempeh.

Nina Vink
New Plymouth

Congratulations to this month's winning letter writer. **Nina Vink**, you receive a $50 voucher to spend on your choice of delicious, nutritious organic Purebread products. purebread.co.nz

FLUORIDE IN CERTIFIED ORGANIC PRODUCTS

Recently I was very concerned to find that the organic BioGro label on food and drinks does not take into account whether or not the product contains chlorinated and/or fluoridated tap water.

Chlorine is a chemical poison and the fluoride added to water is an artificial substance – a waste product of the aluminium and fertiliser factories. It is so toxic that it is illegal to dump it on land or in water. The different types of fluoride are explained in this link: www.echo.net.au/2018/03/dark-side-fluoride-explored.

We have a restaurant that prided itself on selling organic Phoenix juice and were appalled to find out that it uses fluoridated water. This reference gives details on beer and beverages containing fluoride: fluoridefree.org.nz/information/resources/products. We are in the process of changing our beverages to ones that have no fluoride or chlorine.

We have a government that invests

Feedback

We love your feedback, letters, tips, recipes, questions and photos!

Deadline: **31 July 2018** for the September/October 2018 issue. Please include your name, address and phone number. Maximum length 300 words. Letters may be abridged.

Email: editor@organicnz.org.nz
Post: PO Box 9693, Marion Square, Wellington, 6141

Facebook
***Organic NZ* has a lively forum on Facebook – jump on!**
www.facebook.com/organicnz

heavily in the fast-food industry and continues to ignore the poor diet and lack of dental hygiene that should be being taught to children. Instead, a toxic poison in everyone's water is advocated to 'solve the problem'. Yet this just creates additional problems of general ill health and fluorosis. Far better to at least implement Scotland's CHILDSMILE programme where they have had wonderful success in reducing dental caries by giving out free toothbrushes and teaching children how to brush their teeth properly. Key Auckland schools have also had great success in getting their pupils off junk food. This makes much more sense.

I do not consider that a company should be permitted to use the trusted BioGro label unless their products are fluoride- and chlorine-free, as neither of those toxic chemicals are organic. I urge *Organic NZ* to make haste on this to protect the good name and reliability it has enjoyed up until this time.

Mary Hobbs
Mount Cook

[We contacted Phoenix Organics and BioGro. Phoenix Organics referred us to BioGro as the letter relates to BioGro's certification process. – Ed.]

BioGro NZ responds:
Thank you for this. The BioGro organic standards currently allow drinking water quality – fluoride and chlorine are processing aids for the water that are mandated by local regulations – BioGro cannot make a standard that supersedes these regulations on human health. To quote: 'water sources should be chosen to ensure adequate supplies of uncontaminated water, and where necessary, water purity tests should be carried out'.
If you would like to look further please go through to the BioGro website [biogro.co.nz] and look at Module 3 Section 5.4.2c, Module 9 and Module 4 section 3.2, Module 13 section 4.2.2 and appendix A4.2 & A2 which all have references. BioGro has not, and cannot disclose ingredients used in any product we certify, and therefore is not in the position to confirm the brand mentioned is using what you claim – the only way this can be determined is by going directly to the manufacturer.
Quite recently, MPI issued a proposal for a National Organic Regulation offering a chance to make a submission on how these are developed – aspects of the organic standards will be a large aspect of this. We urge you to make a submission on your position before comments close to ensure you can voice this opinion at a government level. [Submissions closed on 11 June but there will be another iteration of consultation. See bit.ly/2sVRKGN – Ed.]

[Thank you for highlighting this issue. It's not mandatory to use only fluoridated and chlorinated water in foods and drinks, so certifiers could disallow the use of fluoridated, chlorinated water in organic products. In practice this could mean organic producers in areas with reticulated water that is fluoridated and chlorinated would face additional costs, either to install special filters, or to source other potable water.
The bigger picture is the difficulty faced by anyone wanting to avoid fluoridated and/or chlorinated water. Soil & Health is opposed to the fluoridation of drinking water, and made a submission in February on the Health (Fluoridation of Water) Amendment Bill – see organicnz.org.nz/submissions.
If the Bill is enacted in its current form then we will no longer have a say about water fluoridation via our local councils. Instead the District Health Boards would decide, and ultimately implement Ministry of Health policy which is pro-fluoridation. While the submission period has now closed, readers can always contact their local MP, and the Minister of Health David Clark david.clark@parliament.govt.nz, to express your views. – Ed.]

DIATOMITE MINE

With the Government taking petroleum and gas exploration effectively off the agenda, the recent inaugural New Zealand Minerals Forum in Queenstown suggests the industry is gearing up for action to mine rare earth elements to supply green-tech low-carbon-emitting industry, which is fast becoming the flavour of the day. The industry lobby group Straterra has thrown the gauntlet to the Government, calling for local regulatory conditions to be changed to attract investment (*Otago Daily Times* 31 May).

This article came two days after a front-page article announcing plans for a large diatomite mine in Middlemarch, Central Otago. Rights have been granted to open cast mine 40 ha, but the owners want to expand that to 400 ha. It could be one of the biggest mines of its type in the world, potentially taking 500,000 metric tonnes per year, and making New Zealand the second biggest diatomite producer in the world, behind the USA.

It is crucial that the Government act to prevent the 'gold rush' mentality taking hold. Central Otago still bears the scars from 150 years ago, while literally a few kilometres down the road from the proposed mine, the modern-day destruction continues. The scale of Oceania Gold's open cast mine at Macraes Flat never fails to take one's breath away.

While diatomite is a good and useful product, and as far as mining activities go, relatively benign to extract, certain applications are environmentally irresponsible. According to mining industry magazine *Q&M*, which first broke the story of the Middlemarch mine back in February 2016, diatomite is used in Malaysia and Indonesia as a fertiliser for palm oil production, an activity well documented as responsible for massive rainforest destruction.

It would indeed be an irony for New Zealand to import palm kernel extract from South East Asia fertilised by New Zealand diatomite, to augment our already environmentally damaging dairy industry. Cement manufacture is another use. We must not be complicit in profit-driven endeavours which masquerade as clean and green.

This mine is owned by Plaman Resources Limited, a New Zealand-registered shell company for Malaysian tech giant, the Iris Corporation, and the more shadowy Burleigh Nominees Limited who are registered in tax havens the Isle of Man and British Virgin Islands.

If these rare earth elements are to truly aid New Zealand's transition to a low-carbon economy, then we need more

regulation not less, to ensure they are made into products that do in fact achieve this goal. The promise of just 100 jobs from the Middlemarch mine suggests that processing of diatomite into a high-value product will not be done in this country.

Shane Loader
Dunedin

VACCINATION

It is very sad that Karen Cleary (Letters, *Organic NZ* March/April 2018) bases her decision to quit the subscription of this magazine on disinformation spread by the pharma-sponsored media and institutions publishing chequebook science with ties to the vaccine industry.

We urgently need a critical review of the revolving door relationship between government agencies and Big Pharma. The series *The Truth about Vaccines* and *Vaccines Revealed* are eye-openers to say the least.

Looking at measles or mumps I remember these being benign childhood diseases. Nothing like today where the media is reporting isolated cases of measles as if it were the black plague. One look at the chart and it shows that it was almost gone by 1960 before the introduction of vaccines.

There have been almost no measles deaths reported in the USA since 2003 according to the Centers for Disease Control (CDC). Meanwhile VAERS [Vaccine Adverse Event Reporting System, USA], which captures only a small percentage of injuries and deaths, reports at least 108 deaths associated with measles vaccines since 2003. 96 were reported with the MMR vaccine. Measles vaccines leave the individual with waning immunity which will result in measles in the highly vaccinated populations.

Illustration: Duncan Hill, hilldogg-visionary.blogspot.com

Why don't they ever disclose how vaccinated children's health compares to unvaccinated children?

What about Dr Merrill W Chase who uncovered the 'second arm of the immune system' or cell-mediated immunity? His finding became the groundwork for later research that pinpointed B-cells, T-cells and other types of white blood cells as the body's central safeguards against infections.

The herd immunity theory for example was formulated based on observations during the early twentieth century of how an infectious disease appeared to lose its capacity to infect and spread after more than half of the people in a community has been infected with the disease and developed natural, life-long immunity to that disease.

This theory was never meant to be applied to a vaccinated population, but rather was co-opted later in the twentieth century to help justify mass mandatory vaccination campaigns for the so-called greater good. This same concept does not work in highly vaccinated populations, as vaccination stimulates an artificial, temporary immunity that does not last as long as naturally acquired immunity.

Dana Heller
Auckland

[Abridged. I found five deaths attributed to measles reported by the CDC in the USA since 2003. Deaths or other adverse effects reported to VAERS following vaccination may or may not be caused by the vaccine. – Ed.]

News in brief

More news on pages 10–11

Organic kiwifruit growers win national award

Congratulations to Opotiki kiwifruit growers Mark and Catriona White, who have won the Ballance Farm Environment Award for 2018. It's the first time orchardists have won the national award. The couple transformed part of Catriona's parents' organic dairy farm into a kiwifruit orchard 10 years ago, knowing very little about kiwifruit. The farm is certified organic by BioGro, and produces green and gold fruit.

Organic Week award winners

Congratulations to the winners of the 2018 Organic Week NZ Awards. The Awards gave the chance for anyone to nominate people, brands and companies in five categories, and the awards were decided by popular vote. organicweek.co.nz

- Organic Brand of the Year: Little Bird Organics
- Organic Product of the Year: Free Range Deodorant
- Organic Eatery of the Year: The Unbakery
- Organic Retailer of the Year: Naturally Organic
- Organic Farmer of the Year: Frank van Steensel and Josje Neerincx, Wairarapa Eco Farm CSA

Bayer buys Monsanto

Chemical and pharmaceutical giant Bayer acquired seed and weedkiller company Monsanto in June. The Monsanto name will be dropped because of the company's toxic reputation. But if anything, says GM Watch, Bayer's corporate record is even worse. Read more: gmwatch.org

Competitions

Be in to win!

Honeywraps

Look what we have up for grabs: five packs of five Honeywraps, and two create-your-own starter kits!
Honeywrap provides a stylish, reusable alternative to plastic wrap, handmade here in New Zealand by three women on a mission to reduce waste. Made with 100% GOTS-certified organic cotton and a blend of beeswax, tree resin and jojoba oil, these cloths can be shaped over food and dishes to keep them fresh.
All the Honeywraps prints are designed by New Zealand artists, and will make your lunch, dinner party or picnic food look amazing. Best of all they reduce the amount of plastic entering our oceans and landfills.
www.honeywrap.co.nz

Thunderpants organic cotton duvet sets

Win one of two certified fairtrade organic cotton single duvet sets!
Thunderpants, the iconic Wairarapa-based family business known for its organic clothing, has launched a new range of bedding, Sleepy Goodness, made with fairtrade, GOTS-certified organic cotton. Match your underwear to your bedding with the popular Whales print, designed by Wellington artist Greta Menzies.
The bedding is manufactured in India as part of the Chetna Project. Chetna Organic works with small and marginal farmers towards improving their livelihood and making farming sustainable and profitable. Thunderpants know fairtrade begins at home too: they've just become an accredited living wage employer.
Each duvet set contains a single duvet cover and pillowcase.
www.thunderpants.co.nz

Foxtots prize packs

Be in to win a selection of organic cotton baby wear from Foxtots!
Two readers will each win a blanket of your choice from the gorgeous range of prints, a romper, pair of pants, cute hat, and a pair of moccasins.
While working in the fast-paced fashion industry in Australia, Foxtots founder Jessie dreamed of creating a sustainable, organic range of clothing. With many friends having babies, Jessie found dressing them in unique gender-neutral clothing was proving difficult. So Foxtots was born. The cotton clothing carries GOTS organic certification, with nature-inspired prints and trendy styling. Check out the full Foxtots range on their website.
www.foxtots.co.nz

IncaFé organic coffee

When you gift a subscription to *Organic NZ* or membership to Soil & Health, you go in the draw to win a gift pack of organic fair trade coffee. Sign someone up at www.organicnz.org.nz or page 60.

How to enter

To enter the draw for these competitions, send your name, street address (no PO boxes), phone number, the name of the competition you are entering, and any extra information if required by the particular competition, to: competitions@organicnz.org.nz or *Organic NZ* Competitions, PO Box 9693, Marion Square, Wellington, 6141. Competitions are open to New Zealand residents only. One entry per person per competition is accepted. **Entries for all competitions close on 31 July 2018.**

Winners

Tranzalpine Honey gift packs
Lauren Yarrall, Waipawa; Rachel Pierard, Raglan; Donna Lusby, Christchurch; Fiona Miller, Northland; Lewis Polei, New Plymouth; Jill Brown, Otaki; Sarah Lau, Wellington; Kath Blewman, Otaki.

Raglan Coconut Yoghurt
Sue Ellen Sandilands, Lyttelton; G Roberts, Wellington; Joy Eliassen, Auckland.

Meals in Steel
S Young, Wellington; Wayne Duncan, Auckland; John Olsen, Nelson; Bea Blakely, Owaka.

IncaFé Organic Coffee
Keren Lilburn, Waipukurau; Miriam Saphira, Auckland; Julia True, Fielding; Nic Moon, Nelson.

Consumer demand drives NZ organic growth

Consumers here and overseas are increasingly choosing organic, natural and ethical products, which is driving the strong growth in New Zealand's organic sector. Since 2015 the sector has grown 30% and is now worth $600 million a year.

On 20 June the *2018 OANZ Organic Market Report* was launched at Parliament by Minister for Primary Industries Damien O'Connor. It shows that retail sales of organic products are growing twice as fast as conventional products, up 8.8% to $250 million. Organic exports are booming, up 42% to $360 million, as consumers in Asia, North America and Europe seek out New Zealand organic fruit, vegetables, dairy, meat, wool and wine, and natural beauty and body care products.

"The 2018 report findings tell us loud and clear that opportunity lies before us," says Brendan Hoare, CEO of OANZ (Organics Aotearoa New Zealand). "The world wants what New Zealand has to offer, and we have the capability to grow our share of the global market where the organic food segment alone is worth €85 billion and is growing at 10.5% a year."

"The organic market, particularly the food segment, is the fastest growing sector in the world, driven by consumers who seek sustainable, ethical and authentic natural products that are good for them and easy on the planet," said Doug Voss, chair of Organics Aotearoa New Zealand.

"New Zealand is well placed to ride this wave and has the reputation, production

and export capabilities to meet demand domestically and internationally for organic food and other products. It is up to producers, marketers, retailers and policy makers to act on the market signals."

The *OANZ 2018 Organic Market Report* takes a holistic view of the New Zealand organic sector, presenting the latest research on size, growth, trends, perceptions, challenges and opportunities across the value chain from consumer to producer, looks at how we are tracking globally and also investigates in a special case study the multiple benefits of organic production from a true cost accounting point of view.

The report, published online at oanz.org, is a major undertaking by OANZ, the national voice of the organic sector, and coincides with progress on establishing a single, mandatory, national organic standard and robust regulatory framework.

The standard and underpinning legislation is required to support export opportunities, encourage investment in organic production, give consumers and customers peace of mind about authenticity – and bring New Zealand's regulatory framework on par internationally.

Some highlights of the *OANZ 2018 Organic Market Report*:

- Almost 80% of New Zealand consumers are buying organic fresh, frozen or packaged food and beauty products at least fortnightly, citing health as the key motivation.
- Just under half (48%) of Kiwi consumers buy organic products because of their concern for the environment and sustainability.
- More than 50% of producers surveyed across the whole industry indicated interest in gaining full organic certification or transitioning towards organic.
- Certified organic operations were up 12% to 1118 licensees and 1672 certified enterprises.
- Land under organic production had increased by 17% to almost 89,000 hectares due to 50% growth in organic livestock area.

Read the report online: www.oanz.org

S&H celebrates: Fed Farmers drop GE legal action

The Soil & Health Association is celebrating. Not only has Federated Farmers decided to drop legal action, but also Soil & Health has been awarded over $22,000 in court costs. Following years of court action for a precautionary approach to genetically modified organisms (GMOs), Soil & Health welcomed Federated Farmers' decision in May to drop legal challenges to several local council resource management plans controlling the outdoor use of GMOs.

Federated Farmers has run a number of cases before the courts challenging the rights of communities in Auckland, the Far North and Whangarei to manage the outdoor use of GMOs within their own districts and regions. The courts continued to find that territorial authorities have the right under the Resource Management Act (RMA) to set their own policies and rules controlling GMO use, a finding that Federated Farmers repeatedly challenged.

Soil & Health, representing organic and GE-free farmers, primary producers, home gardeners and consumers across New Zealand, has long campaigned against Federated Farmers in each case.

Soil & Health National Councillor Marion Thomson congratulated the farming organisation for seeing the sense in dropping further litigation, allowing councils to get on with making GE policies and plans that reflect the needs of regions and communities.

"This back-down by Federated Farmers is a significant milestone in our fight for a precautionary approach to the outdoor use of GMOs in New Zealand. Soil & Health's members, as well as a number of other individuals and support groups, have contributed a significant amount of financial investment to this cause, as well as giving their time to publicly voicing their concerns, and we wholeheartedly thank them for their efforts," said Ms Thomson.

Auckland Council, Far North District Council and Whangarei District Council all prohibit the general outdoor release of

Above: Marion Thomson (left) and Mischa Davis, Soil & Health's policy advisor, have put many hours of hard work into court cases on GE. Thank you both! Photo: Philippa Jamieson

GMOs and made field trials a discretionary activity with performance standards in place, while Northland Regional Council adopted a precautionary approach in its regional policy statement.

Safe to eat? Not for kids!

Children are being exposed to a cocktail of pesticides every time they eat non-organic raisins and sultanas.

The latest New Zealand Total Diet Study (TDS), released in May by the Ministry for Primary Industries, showed residues of 26 pesticides in just one sample, and all eight samples tested contained pesticides. Every few years the TDS tests a range of everyday foods for pesticides, contaminants and nutrients.

The Soil & Health Association is one of five groups concerned about food safety who are urging action from the government to reduce pesticide residues and encourage organic agriculture. Along with the Safe Food Campaign, Pesticide Action Network Aotearoa New Zealand, GE Free NZ and RITE: a Safer System for Pesticide Assessment, Soil & Health is calling for:

1. Zero tolerance to pesticides in baby food
2. Support for transition to organic production
3. A cross-party pesticide reduction strategy
4. Urgent reassessment of glyphosate, and its inclusion in the TDS
5. Greater and more sensitive pesticide residue testing
6. Less spin and more transparency with reporting

A notable omission in the TDS testing was glyphosate, an active ingredient in weed sprays such as Roundup, a probable human carcinogen and potential reproductive toxin, and the most common herbicide in the world. MPI says it will conduct glyphosate testing separately.

Photo: iStock/Vania Tonova

Some key points of the Total Diet Study are:

- Foods with the greatest number of pesticides: raisins/sultanas (33 pesticides), grapes (23), strawberries (18), bran flake cereal (16), nectarines (11), frozen mixed berries (10).
- Less sensitive methods of analysis used for pesticide detections – up to 100 times.
- 8 pesticides detected in baby food, in 22% of 32 samples.
- Very high levels of aluminium in muffins, scones, cakes and slices – possibly due to an aluminium compound in baking powder, or the use of aluminium tins and trays.
- Neonicotinoid insecticides (known to harm bees) measured for the first time.

"We do applaud the new inclusion of neonicotinoids, which are neurotoxic to people as well as bees, but consumers deserve to be better informed about which brands of food are more likely to contain residues," said Steffan Browning of Soil & Health.

"What parent wants to give raisin and sultana products with 23 or 26 different chemical residues to their children when another product tested had only two?"

"Nobody actually has any real understanding of the effect of 26 different pesticides together in one small box of raisins, because pesticides in mixtures such as this can behave very differently to the single pesticide assessed by MPI," said Dr Meriel Watts of Pesticide Action Network Aotearoa New Zealand. "It is unconscionable for the government to assume this cocktail is safe when they have never tested it."

"The best way to lessen all these residues and contaminants going into our bodies is to eat organic food, and this is especially important for children," concluded Mr Browning.

New Zealand Total Diet Study 2018: bit.ly/2yb8VJj

Organic rules OK!

Recently the Ministry for Primary Industries (MPI) sought feedback on whether New Zealand would benefit from new organic regulation. They released a discussion paper in May, and held a series of public meetings around the country. Feedback was due in June, and there will be a second opportunity for feedback when more detailed proposals are developed. MPI will assess how the regulation might work in practice, and its possible benefits, costs and impacts.

The proposals are for a single national organic standard (for domestic, exported and imported products), and to regulate the term 'organic' so that products labelled organic must be certified organic. The proposals have been driven and championed by the organic sector. Soil & Health supported the proposals in its submission, with the proviso that the regulation must not disadvantage small-scale producers.

Consumers would not necessarily notice any change, as organic certifier logos will likely remain the same. Consumers and producers will benefit from the certainty that anything labelled organic is not greenwash but has met rigorous organic certification standards. Exporters will benefit from overseas market recognition of a single national standard.

- MPI's consultation documents: bit.ly/2sVRKGN
- Soil & Health's submission: organicnz.org.nz/submissions

Southeast Asian organic leaders visit

The Asia NZ Foundation brought seven South East Asian agribusiness entrepreneurs to New Zealand in mid-June to attend the National Agricultural Fieldays. Among them were Raphael Dacones, CEO of Teraoka Family Farm in the Philippines, which he changed to organic in 2014; Neak Tharen, founder and CEO of Natural Garden, the Cambodian market leader for the production and retail of organic foods; and Walaiporn Phumirat (Be), founder and CEO of Backyard Strawberry in northern Thailand.

Above: Raphael Dacones

Whenua WARRIOR

Moko Morris talks with Kelly Francis, a Kai Oranga graduate and the catalyst for over 250 food gardens that have been planted since last spring.

Above: Kelly Francis. Photos: Qiane Matata-Sipu

Motivated by attending a Kai Oranga course at Papatuānuku Marae, Kelly Francis (Ngāti Wharara, Ngāti Korokoro and Ngāpuhi) created a charitable trust and social enterprise movement called Whenua Warrior. Her vision is to have a harvestable garden available to every person in the country and her mission is to feed, teach and empower communities through māra kai (food gardens).

Providing solutions and connection

The idea came to Kelly from understanding communities that she had been in, the challenges they face and the solutions she had learnt to share. It solves multiple issues including knowledge- and time-poor whānau, provides financial stability through not having to purchase vegetables, and offers a connection to Papatuānuku (Mother Earth) and what she provides us with.

"The most important thing I learnt on the Kai Oranga course was Hua Parakore – the six principles of the Hua Parakore verification system," says Kelly.

Above: Tainui with beetroot seedlings

"It also came from knowing the mana you can get from providing kai to your whānau, the need to understand the whakapapa of your kai and the advantages of connecting your wairua with mahi māra kai. I wanted to find a way to help our communities with these indigenous techniques and tried to imagine the entire country understanding their food in this depth… and then find a way to give that koha to them."

So Whenua Warrior was born.

How it works

Involving others comes naturally for Kelly; they usually find her. It's the story, passion or mahi behind each project that attracts people to her kaupapa. Finding people is very important to her – but whoever is there on the day are the people that were meant to be.

Her approach to gardening projects is to ensure that community and their needs are met first and foremost. What Whenua Warrior build and who they build it with needs to be sustainable and beneficial for years to come. Anyone can put a box of dirt in your backyard, but not everyone can teach how to get that box of dirt to benefit you, your family, hapū and iwi.

Once a māra kai is established, there must be buy-in from families so that there is a foundation of people that work together to ensure the benefits are felt wide and far. 'Build day' is about the community and its people, not the garden. Post-build is about supporting the people to support the garden.

There are two different arms to the Whenua Warrior approach:

1. 100% community-based, with no money involved. The community identifies what they need and Whenua Warrior supports them to source seedlings, soil and materials, then helps to facilitate the build and works out ways it can be managed.
2. 100% community-based, backed by funding. A call-out is made to the community as above, then funding is accessed if required.

This approach has been successful and over 250 māra kai have been built so far, in South Auckland, Mount Wellington and

Whangarei. Whenua Warrior is now in its eleventh month, and has started on more of the larger-sized gardens rather than focus on the number. In September this year, 50 gardens will be built in the back of 50 homes in Kawakawa. The process from initial contact to actual build varies from place to place but is usually done in under six weeks.

Hua Parakore principles

Kelly explains the principles of Hua Parakore (clean, pure, kai atua) in the following way:

"When contemplating a project, I look at the dates of the maramataka (moon planting calendar) that I can plan on to benefit the build day, hui days, decision days. It is an important aspect in all parts of the project for the wellness of people and for the timeline structure for the project.

"I consider te ao tūroa [the natural world] when we are on the whenua and trying to discover what Papatuānuku already has and what can be built to benefit the tangata whenua. Knowing your surroundings and your options for build is something our tohunga would be responsible for before the land was confirmed to build māra on.

"At this stage whakapapa is considered as well. What happened here? How was this whenua used? What is the whakapapa of the area, people, whenua? Kōrero on the land will potentially allow us to discover the best possible places to plant A versus B.

"We then have the holistic connections that are in our principles: wairua, or spirit. I ask to make sure that I am allowed on the land to do the mahi – ask tangata whenua directly but also karakia to ask our tupuna to ensure our holistic safety. We connect everything physical to spiritual and must acknowledge everyone at every time."

Wairua can also be a verb – 'acting with wairua, doing with wairua', says Kelly. "All actions taken in the build day must have everyone's wairua in mind. I think that the wrong wairua can mean an empty plate. Everyone must be in tune with each other… and share the mauri.

"Mauri is what you are passing on from you to kai, and from kai back to you. This is most important when planting – and the atmosphere for planting needs to be completely serene and positive. What you plant is what you eat, and I consider it a hugely important part of build day to get the community mauri at its highest to allow the passing from them to their kai, and eventually from the kai to them.

"Mana – this is felt mainly when all of the above has been completed. The principle that can only be reported to yourself. Mana is not something you earn – it is something within you. Only you can choose how much mana you apply to each decision you make. It is your spiritual pat on the back – and I normally feel this when I am back home and contemplating the completion of each project."

Whānau and kai more important than money

Kelly says the most fun part is meeting the communities and teaching and learning at the same time together. She shares the matauranga (knowledge) in a way that benefits Papatuānuku, focusing on knowing that people are better off and proving her strong view that money shouldn't be the main focus of life: family and kai is.

"I built this idea out of hope, because I truly care about what your kids will be able to access when they are responsible to provide food for their tables. We should be thinking of what we can do NOW to benefit them then," says Kelly.

"I strongly encourage all families in New Zealand to plant fruit trees and vegetables in every household. There are no negatives to growing your own food."

Above: Gardening is a whānau affair: Tainui, Pania Newton, Passion and Kelly at Ihumatao, Māngere

Kai Oranga

Find out more about free Kai Oranga courses here: www.wananga.ac.nz/programmes/school-of-iwi-development/kai-oranga
0508 926 264

Whenua Warrior

facebook.com/whenuawarrior

The 6 principles of Hua Parakore

1. Whakapapa
2. Wairua
3. Mana
4. Maramataka
5. Mauri
6. Te Ao Tūroa

Moko Morris is a Soil & Health National Councillor who lives in Ōtaki. She is also the national coordinator of Te Waka Kai Ora, the NZ Māori Organics Authority.

Return to sender
compost from urban waste – CAN YOU TRUST IT?

Photo: iStock/Sasilstock

Recently *Organic NZ* readers have expressed concern about whether municipal compost is clean and clear of toxic chemicals. Given that municipal waste is the basis for this material, that is a valid concern. **Joseph Dougherty** investigates.

What goes into urban compost?

We need to know what the constituents of the compost are, how the compost is treated, screened, evaluated, etc. so we can have confidence it will be good for our garden and our food.

The composition and treatment of compost varies from town to town and product to product. It can be made up of plant and animal waste, sawdust and bark, wool, rendered meat waste and municipal green waste such as trimmings, clippings and weeds, as at Napier's BioRich plant; and/or food scraps combined with a range of different bark mulches added in, as at Timaru or Wellington, or many other cities.

"Seventy-five percent of our material is from household food scraps and green waste collected in the kerbside bin service we have been running since 2006," says Ruth Clark of Timaru District Council. Sawdust, bark and branches are major components, and even trees can be processed in some places with large shredders.

What's not accepted?

Some things are explicitly excluded, such as green materials which have been sprayed with clopyralid. Timaru District Council's signage and resident brochures list 18 products containing this chemical (since 2008 these have only been available to commercial operators and not home gardeners).

Also excluded are fibrous materials (flax and cabbage tree leaves clog the shredders), and plastic and timber; e.g. at Wellington City's processing facility. BioRich won't accept tannery or fellmonger waste either. At Living Earth Christchurch grass clippings are separated out to remove potential clopyralid residue.

Exclusion is achieved through screening devices which remove unwanteds from the material, or by staff spotting them in the loads, or through education of providers, i.e. trusting people to read and respect the instructions on treated or sprayed material. That probably works well with large commercial providers of waste; they'll know if material has been sprayed and they won't want trouble. But backyard dumpers? Who knows?

Above: A Timaru District Council worker winds a Gore compost cover over a built (completed) compost windrow. In the cover are spikes for monitoring temperature and oxygen, connected to the red and blue probes and to the data loggers at the front of the windrow. Also at that end is a fan for pumping oxygen beneath the pile when necessary.
Photo: Ruth Clark, Timaru District Council

Above: Darren Hoskins, Wellington City Council's operations manager landfills, records the temperature of a compost windrow at Capital Compost.

Above: Darren Hoskins with a bag of the finished product.
Photos: Wellington City Council

Scale, speed and science

Council composting is big scale, e.g. 40,000 tonnes per annum from Napier's BioRich facility, 62,000 tonnes a year from Christchurch's Living Earth plant. Composting is quite an art, as any backyard practitioner knows. Or a science. Stepping into the municipal compost zone makes you think of that term: the operations are so sophisticated, the process so well understood and the results so predictable it makes me marvel. Something so good comes from, well, crap, literally: manure and plant cuttings and food scraps; and becomes beautiful rich plant food so quickly and on such a scale.

It's the speed of the turnaround which grabs me: from drop-off of waste to pickup of compost in two months at Timaru, and at Napier for horticulture-grade material, or just a few months longer for household grade is pretty typical throughout the country.

The recipe for success is essentially simple: get the mix of greens and browns right, heap them up, give them air and voila! Except in these operations, the aeration, mixing and monitoring can be very specific and scientific. In Timaru the material is computer-monitored for temperature and moisture, and adjustments made accordingly.

"For example, our aged-bark-mulch range which we add to the mixes are tested for nitrate hungriness to get the balance right," says Darren Hoskins, operations manager at Wellington City's Capital Compost.

Nigel Halpin of BioRich says that at their plant in Napier oxygen levels are kept between 5% and 20% by blowing air into the piles when necessary. "Oxygen levels decrease due to microbial activity so blowing speeds up composting and helps get the temperature up to 55ºC." This is hot enough to kill pathogens, which is mandated in the New Zealand Compost Standards.

High standards essential

The Standards also mandate that pathogens such as E. coli, faecal coliforms, campylobacter and salmonella are tested for regularly. All compost producers must have their products assessed and certified by third parties, such as AsureQuality or BioGro in order to be saleable. Both AsureQuality and BioGro have an input assessment checklist with an assessment standard they work to, like EU regulations or the IFOAM accredited programme.

"Each new product is tested initially and thereafter tested again periodically; with microbiological analysis required after new procedures are introduced," said Robert Murray of BioGro.

"If they don't meet the standards, they are disposed of," said Nigel Halpin. As each batch is large, pretty costly and wasteful to get it wrong.

Heavy metals and other chemical toxins are also tested for.

For certification, a sample is sent away for laboratory analysis (Hill Laboratories and AsureQuality are the major testers in New Zealand). All samples must meet or better the NZ Composting Standards and certified organic composts must meet much more stringent levels of absences of contaminants such as chemical residues. I was not able to obtain the NZ Composting Standard as

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this required buying it; however, the organic standards one can find on BioGro's website (www.biogro.co.nz): BioGro Input Standards: Appendix A, Residue levels in Certified Products.

Additionally, as Dirk Lewe of BioGro told me: "For [certified organic] compost, the standard that must be achieved is that residues present must be less than 10% of the maximum residue limits of agricultural compounds in the Australia New Zealand Food Standards Code". That's right: the organic compost you buy must have met the same standard as food!

Testing for persistent and harmful chemicals

The range of chemicals tested for is huge. There is a reason for that: huge numbers of different toxins get sprayed into the environment and have been for 60 years or so. Some of these are known to be persistent in soil e.g. ethofumesate (active ingredient of products like Fumate) has a DT90 average of 264 days – the length of time taken for 90% of it to dissipate in the field.

Glyphosate binds to soil minerals and persists for up to one year, according to *Chemistry World*. It is water soluble and persists in plant matter for 10–27 days. BioGro requires testing for it and its equally toxic residues like AMPA. Sri Lanka banned glyphosate in 2014 because of a link with kidney failure (20,000 farmer deaths by then).

However, most non-organic composts are not tested for these, according to Graham Corban of Hill Laboratories. Nor does Hill's analyse for ethofumesate or benzalkonium chloride (the active ingredient in moss-killing product Surrender, and a neurotoxicant).

Clopyralid: the 'compost killer'

The main chemical of concern for commercial composters in New Zealand is clopyralid, a pyridine carboxylic acid, which has been repeatedly demonstrated to survive composting intact and then damage various crops grown in such compost. Clopyralid strongly affects the growth of tomatoes and cucumbers and probably others, and it actually concentrates in compost. You find it in such odd-sounding sprays as Versatill, Multiple, Tango and the ominous Void.

However, picloram is another of these acids (found in Tordon), and can take four years to break down in compost or manure, according to Oregon State University and, unlike clopyralid, there is no clamour to exclude it from entering compost here. Tordon is a common shrub killer, but is banned in Sweden and California. Bifenthrin, a synthetic pyrethroid, also persists in compost, damaging some crops, according to the Department of Pesticide Regulation of California. Ditto 2,4-D.

The good news: nearly no nasties

The good news is that not that much of these nasties actually seems to turn up in our municipal compost. Graham Corban reported, in

Above: If you can't compost at home, put food scraps in your green bin - or lobby your council to have a green waste collection service. Food scraps should never go to the landfill, where they produce methane. Photo: iStock/terra24

Above: Green waste being shredded at Wellington City Council's Capital Compost.

Above: Green waste at BioRich's Napier facility. Photo: BioRich

40 samples taken since 2017, that no bifenthrin was detected and Robert Murray could only remember a couple of samples returning positive for clopyralid, a few for copper and nothing else in the last year and a half. Picloram and glyphosate levels, when tested, have generally been negligible.

Nigel Halpin believes that possibly part of the reason for this is that sprayed materials often don't get taken to landfills, especially stuff sprayed with glyphosate. "It's just left to lie where it was," he said, so it doesn't come in as greenwaste to BioRich's yard. Materials killed by other sprays may be of sufficiently low volume that the residue levels are not high enough to seriously harm crops post-compost. Heavy metals like cadmium can turn up in the final product, but as Nigel Halpin says, only to low levels.

Clearly, according to Graham Corban, "more testing and a thorough analysis on a whole bunch of compost samples needs to be done to be sure about what's happening with some residues". Some things aren't being checked and others might slip through due to the low frequency of some tests. The sampling so far isn't showing much sign of trouble, thank God!

As to the quality of non-municipal organic composts, there are so many brands and makers it would require another investigation altogether.

Joseph Dougherty lives in Sawyers Bay, Dunedin, is an ecologist, a researcher and a trustee of the Dunedin Environment Centre Trust.

how to grow kūmara

With the price of Aotearoa's most iconic vegetable soaring, it makes sense to grow your own. **Rachel Rose** talks to the experts on how to sprout and plant your own kūmara.

Above: First kūmara harvest for the author: cause for celebration! Photo: Rachel Rose

Kūmara (*Ipomoea batatas*) has been a staple food in this land since the 1400s. Māori had to work hard to successfully grow this heat-loving tropical vine in Aotearoa. It still has a daunting reputation today for being fussy and hard to grow and that can put home gardeners off.

But organic kūmara can be hard to find and is expensive to buy. It's also incredibly delicious, which makes two compelling reasons why you should have a go at growing your own. This is feasible for North Island gardeners and those in coastal areas of the South Island. Banks Peninsula is the traditional southern limit for māra kūmara.

Plan your garden

Now is the time to plan your kūmara garden: what varieties you want to grow and how to source mother tubers [see sidebar]. Kūmara are best grown from tipu (tupu in some dialects): vigorous green sprouts from a healthy tuber. Kūmara can be grown by planting whole tubers in the ground, but this considerably shortens the growing season and increases the cost. It's not advised.

Above: Dr Nick Roskruge. Photo: Rachel Rose

Dr Nick Roskruge is associate professor at Massey University's School of Agriculture and Environment, and chair of Tāhuri Whenua, the National Māori Vegetable Growers Collective. He says tipu should be planted between mid-October and early November. Base your planting date on your knowledge of local conditions. Tipu will be devastated by frost, so gauge when you think that danger is past. The soil also needs to be warming up: 14 degrees at a minimum.

It takes six to ten weeks for tipu to be ready to plant out, so work backward from your estimated planting date.

How to produce tipu

Kath Irvine, of Edible Backyard, grows beautiful fruit and veges in her Horowhenua garden. She's been growing kūmara for 11 years. To start your tipu, she says: "Find a container with holes in it. I use an old wooden box, but a bucket or old pot all work. If you live in a warmer climate, you can just make a hole in the ground."

"Partway fill your container with river or propagating sand, lay your kūmara sideways and top up with more sand. Moisten."

Warmth is important. Kath sprouts her tipu in her greenhouse. Horse poo or grass clippings beneath the sand, a heat pad, hot water cylinder, a cold frame or cloche, or a sunny windowsill are other ways to generate the heat needed.

With the right combination of warmth and moisture, many tipu will sprout from each kūmara, and each one will grow into a vigorous plant. When you're ready to plant, pull each tipu off the mother.

"If there is scurf [black skin] on the mother, cut the tipu off a centimetre from

Above: Kūmara of many colours: Owairaka, Toka Toka, Beauregard, Kokei, Purple Dawn, Koganesengan, Orange Sunset. Photo: Kaipara Kumara, www.kumara.co.nz

Left: Rodrigo Estrada de la Cerda, project manager of Tāhuri Whenua, showing off some locally grown samples from the Manawatū. Photo: Nick Roskruge
Right: Nick demonstrates how to plant a tipu in order to create a J-shaped root. Photo: Rachel Rose

the mother to avoid transferring disease," warns Nick.

Each tipu needs a minimum of four or five leaves. Tipu can grow to 30–40 cm but these are too long to plant. "There's too much vegetation to be supported while the roots are settling," says Nick. "Cut a long tipu into segments and plant all of them."

Each tipu is a clone of its mother, so for genetic diversity it's wise to grow tipu from more than one tuber. You could swap tipu with fellow gardeners.

Tips for planting

Kūmara are heat accumulators. These equatorial plants are day-length neutral and it is warmth that triggers the swelling of their tubers. They need daytime temperatures of at least 21 degrees and warm nights.

So choose the sunniest, warmest place in your garden, with a well-drained fertile soil. It's traditional to grow three or four plants in a single mound, says Nick, but he's a fan of rows, which keeps the roots drier. He leaves a metre between rows and plants tipu at 30–40 cm spacing. "The spacing is important. Planting too close will constrain the size of the tubers," he warns.

At the Marton Community Garden, where Nick led an Enviroschools workshop on planting tipu, a long, raised bed had been built especially for kūmara. Nick's students quickly hilled up rows running north–south before he demonstrated the vital technique for planting each tipu.

There's lots of lore handed on about kūmara needing a hard pan to produce a good crop. Leading teachers describe burying corrugated iron sheets in the ground to simulate an iron pan on deep, fertile soils!

That's not necessary says Nick, but each tipu must be planted in a J-shape, with the tip of the root facing upwards. This prevents roots from running deep down into the soil and producing only long, skinny tubers.

"Pick tipu up like a frying pan, with the roots facing away from you. Extend your index finger so the base of the roots are at least two or three centimetres beyond your fingertip. Face east. Drive your index finger into the prepared mound on a 45-degree angle and then pull back a little. When you release the tipu, it should be standing reasonably upright and have all its roots covered."

Each tipu then receive a cup of water, but no more until the shoot shows signs of new growth. Don't worry if the newly planted tipu wilts, Nick says. Once the tipu are growing, water to encourage the vines to start running and then ease off until closer to harvest. The best time to water is in the evening, says Nick. "It helps the plants keep working overnight."

If the vines run vigorously, lift them and fold them back on top of the bed. This prevents them putting down roots, which will detract from the size of the final harvest. The leaves are also edible and a powerful source of nutrition.

Rachel Rose grows food and habitat for humans and non-humans on a large urban block in Whanganui.

Which kumara for you?

If ordering online, tell the retailer you are buying to propagate and ask them to select mid-sized kūmara without soft or brown spots. Propagating from non-organic kūmara is not advisable as fungicides are liberally applied to prevent rot during storage.

- The most commonly available kūmara are **Beauregard** (orange, an American variety) and **Owairaka** (red skin, white flesh). These and lesser-known varieties can all be found or in organic retailers in the main centres.
- **Purple Dawn**: purple skin and flesh. Less sweet compared to common varieties.
- **Hawaiian Blue**: beige skin, attractive marbled purple and white flesh.
- **Toka Toka** (aka **Gold**): beige skin and pale yellow flesh. Sweeter than Owairaka.
- **Orange Sunset** (a new variety developed by Plant & Food NZ, as is Purple Dawn) and Japanese cultivars **Kokei** and **Koganesengan** are now being grown commercially but organic produce does not seem to be available yet.

Koanga Institute has a large variety of named Māori and early commercial varieties and sells tipu in October: www.koanga.org.nz.
See www.ediblebackyard.co.nz for more advice about bed preparation and care of kūmara.

GREAT glasshouse design

Sharon Stevens shows how her family's glasshouse makes the most of the elements: nestled in the earth, and capturing the sun and the rain.

In the winter of 2016, my family installed a new glasshouse. Fortune smiled on us. First, my sixteen-year-old nephew, Jacob, visited for several weeks and helped dig the foundation: there was an unusual amount of digging to be done. To top it off, Phil, my husband, chanced into conversations that helped develop his design.

We can't loan out Jacob, but we'd like to do the next best thing and pass on received advice, together with tips from our own experience.

Glasshouse structure

Our glasshouse started as a standard aluminium kitset (5.6 x 3.3 m, with a 2.4 m ridgepole). Phil erected the kitset on top of a timber sill-plate, whose straight and level edges covered any imperfections in the poured concrete foundation.

The glasshouse's most noticeable feature is its floor, which has been dug to a depth of 70 cm, giving a final height of 3.1 m. This extra height expands what we're able to grow inside, and the dug-out design is critical for how we approach watering and thermal regulation.

Low-tech, integrated rainwater system

In the glasshouse, we water by hand. Our village's chlorinated water supply harms soil life, so we skip the convenience of a hose and instead use rainwater-filled watering cans. Daily hand-watering keeps us alert to our plants' various needs, but it takes time, and we're not keen on hauling water indoors. Fortunately, over the two years we've had the glasshouse, we've been able to access *all* the water we need – from the inside.

Our approach is straightforward.

Above: Jane Evans, Julie Doyle, and Phil Stevens enjoy a conversation about our glasshouse. Photo: Charlie Higgison

Above: Sharon Stevens demonstrates how excess water flows across her outdoor potting table and into a bucket. Photo: Charlie Higgison

Outside the glasshouse, next to a southern corner, Phil installed a second-hand, 200-litre, food-grade plastic barrel. This barrel collects rainwater from the glasshouse's rooftop guttering. A pipe runs from the bottom of the barrel through the earth, passing underneath the kitset walls. Gravity allows water to drain through the pipe into four more connected barrels, providing a total of 800 litres of additional water storage inside the glasshouse. A float valve in the first indoor barrel keeps the outer barrel from over-filling the indoor ones (see illustration). An outflow from one of the indoor barrels makes it simple to fill a watering can.

Within the glasshouse, our seedlings, cuttings, and small- and medium-sized potted plants sit on benches made of corrugated iron. The corrugated surfaces are tilted slightly so that when water drains or falls between pots, it first runs into guttering and then into buckets for reuse. From time to time we clear the corrugated iron of potting soil, and, when required, we strain collected water through a screen to keep potting mix from clogging our watering cans. We use the same water-conserving design for our outdoor potting tables.

Above: Water harvested from our glasshouse roof drains to interior barrels for storage and easy access. Illustration: Rain Stevens

Above: Perry Stevens shows off a tall, tropical turmeric plant, which has been temporarily located outside of the glasshouse for a clearer photograph. Photo: Charlie Higgison

The rocket mass heater

Phil built our rocket mass heater using a standard design, described in *Rocket Mass Heaters* (3rd ed.) by Evans and Jackson: www.rocketstoves.com. The heater has two components: a J-shaped rocket stove and an integrated tunnel that runs through a cob (earthen) bench.

This heater incorporates the primary advantage of any rocket stove: it provides almost total fuel combustion and, therefore, more heat and less air pollution. For this reason, rocket stoves are incorporated into designs for highly efficient ovens, cooktops, water heaters, and more.

When a horizontal tunnel is inserted into a rocket stove's flue system and then surrounded by thermal mass, the result is a rocket mass heater: a highly efficient way to first generate and absorb heat, then slowly release it again when the fire dies down or when temperatures drop overnight.

Our rocket mass heater doesn't quite work like magic, however, and its challenges have earned it the nickname Puff or – when better behaved – simply 'the dragon'. The cross-sectional diameter of our stove system is 100 mm – the smallest size anyone ever recommends. While Phil wanted to save space, our dragon is recalcitrant and inefficiently back-drafts in the first few fires of the season, when the cob bench surrounding the tunnel is at its coldest. If Phil were to start over, he would choose a 150 mm diameter cross-section.

Heat collection and release

A glasshouse is all about microclimate control to extend growing options. To support heating and cooling, Phil's design integrates a range of strategies.

Chief among these is the temperature-buffering impact of thermal mass – bulky materials that first absorb excess heat, then slowly release it as surrounding air cools, moderating temperature fluctuations. Examples of effective thermal mass include ponds, other slow-moving water bodies, rocks, and the earth itself. Applications in the built environment include bricks, tiles, stored water, stone walls, and earth-based construction. These materials are placed where they will absorb heat from sunlight, fire, or other sources.

In our glasshouse, the primary thermal mass is the earth itself – the compact subsoil that surrounds the bottom quarter of the glasshouse. Additional thermal mass is provided by our indoor water barrels, which are black and located on the glasshouse's south wall. Our last significant source is an earthen cob bench that is integrated into our indoor heating system: a rocket mass heater (see sidebar).

Winter warming

In the coldest months, our growing patterns require more heat than the sun provides. An indoor compost pile serves as one winter heat source. During the coldest periods, we also light the rocket mass heater for three to four hours daily, from late afternoon into evening. These sources – especially the heater – can raise the overnight glasshouse temperature by several degrees, enough that we've never had an indoor frost, in spite of some issues with significant heat loss.

Our primary source of heat loss is through the thin glass roof and walls on all sides of the glasshouse. The south-facing glass brings no advantages. Even the east-facing glass is of limited value; we've built our glasshouse against a feijoa hedge that protects against southeasterly storm winds. Phil intends to insulate the southern and eastern walls plus the south-facing plane of the gable roof. For this purpose, he's collecting used corflute real estate signs. Each sign has two external layers separated by an air-trapping corrugated interior.

Cooling and ventilation

In the summer, our glasshouse requires cooling. One of the longer sides of our glasshouse faces a long north–south driveway to the glasshouse's north. This open space ensures that northern sun will always find its way to glasshouse walls: perfect for winter. On sunlit summer days, heat from the northern exposure requires management. Our primary cooling sources are standard ventilation (kitset doors and windows) and summer shade cloth. Once again, thermal mass helps regulate the extremes.

Additionally, to protect the glasshouse from errant vehicles, Phil has installed a thigh-high barrier in front of the glasshouse. Along this, we're growing paired kiwifruit vines, whose summer leaves provide a bit of seasonal shade.

Challenges and trade-offs

Good drainage is essential in all glasshouses, and especially in a dug-out. We've had one significant flood, with half a metre of water collecting on the dug-out floor. Fortunately, Phil had anticipated this issue from the outset. During the build, he installed Novaflo drainage leading from the lowest part of the slightly slanted dug-out floor into an open council drain on our section. The Novaflo is 75 mm in diameter, and it drained the flood within the day, with no harm done to the trees and other large potted plants we keep on the glasshouse floor.

Given Phil's effective flood management, our design's primary trade-off is its entry, with three narrow steps that lead from ground level down onto the glasshouse's subsoil floor. Phil and I have a strong preference for designs that support aging and mobility changes. In this case, we compromised our universal design values in favour of the dug-out's advantages. We have discussed the possibility of installing a ramp, but this would significantly constrain the available space.

Extending the growing season

Our glasshouse extends the growing season long enough that our luffa gourds can mature. We also plant quantities of basil and tomato seeds in early spring, yielding abundant seedlings for planting out, exchanging, and gifting. We tend additional tomato and basil plants from inside the glasshouse to feed us into winter. Our winter lettuce greens also prefer the indoor warmth.

Other plants stay in the glasshouse year-round. We grow a small quantity of kūmara in large pots for our own use, and Phil has expanded his beloved collection of perennial chillies. Thanks to the extra headroom from the dug-out design, he's also able to grow subtropical trees: a mango and a moringa. This latter tree (*Moringa oleifera*) is also known as a horseradish tree or benzoil tree, and is cultivated for its edible leaves, fruit, and seed oil. Its roots reputedly taste a bit like horseradish.

Among our new plants, my personal favourite is our turmeric, which the glasshouse has enabled me to enjoy freshly picked for the first time. It's a deeper orange than powdered turmeric, and tastes spicy and sweet, almost fruity, even a bit juicy when freshly harvested. We also grow turmeric's close relatives, ginger and galangal, and we've moved our long-suffering lemongrass into the glasshouse, where it now thrives. All in all, life is good in the world of Asia-inspired curries.

Next time my nephew Jacob comes to visit, we owe him a homegrown feast.

Together with her husband, Phil, **Sharon Stevens** teaches permaculture design courses on behalf of the charity RECAP (recap.org.nz).

THE ART OF espalier

Sharon Stevens interviews Sarah Frater, owner of Edible Garden, to find out more about the art of fruit tree espalier, focusing on apples and pears.

Espalier – the art of shaping trees through controlled pruning, bending, and tying along supports – is becoming an increasingly popular way to grow fruit in small spaces. Espaliered fruit trees can bear abundantly, and they are easy to reach for harvest. Some people also espalier for aesthetics – to hide a garden shed, for example – or to take advantage of warm and sheltered microclimates.

Edible Garden owner Sarah Frater first turned to espalier around 20 years ago when she was growing over 50 varieties of berries and fruit and nut trees within a 750-square-metre garden. To create a canopied playspace for her young children, she bought two inexpensive garden arches, placed them 1.2 metres apart, then espaliered four dual pears alongside them – trees that each had two different varieties of pear grafted onto a single rootstock. This yielded eight varieties of pear in easy reach, some fruiting early in the season, some later, while requiring less than one and a half square metres of yard space.

Traditional forms

Espalier involves training a tree against a support, such as a wall, fence, or trellis. Traditional forms include multi-branched **fans** radiating upwards from near their bottom, **V and U shapes**, perhaps with multiple V's or U's nested together, **serpentine** S-like curves, and single-branched **step-overs** bent horizontal and low over the ground, perhaps to create a small border for a pathway.

For beginners, Sarah recommends horizontal **T-shapes** and **cordons**. These can be combined with other forms. An upright cordon can be allowed to grow laterals trained into U-shapes to create a traditional **candelabra** form. T-shapes can be repeated in the same tree, allowing multiple rows of horizontal branches. Multiple plantings can be allowed to overlap, or can even be woven together to create fences or tunnels.

Cordons are often planted at an angle to control their vigorous growth habits, and can then be formed into a dense screen by planting them close together, or by alternating the direction they are angled to create a row of X-shapes (see illustrations).

Choose your planting site

Traditionally, espaliered trees were planted against sun-facing walls of homes and garden sheds, creating warm and sheltered microclimates to support trees that were otherwise challenging to grow in cool climates. Now that people are choosing espalier for space-saving more often than for microclimate control, it is at least as popular to espalier against a fence.

Wall-growing does remain popular, but it requires extra considerations. Will your tree get enough water if you plant close to a home with overhanging eaves? Will your tree get sunburnt if your wall is

Above: Sarah Frater pruning away sub-lateral growth on her crabapple border. This is a traditional T-shaped espalier, but it is low-lying like a stepover. Photo: Charlie Higgison

white, metal, or otherwise reflective? Will your tree have enough airflow around it to protect it from fungal infections? (This is especially an issue with peaches and nectarines.) Will your warm microclimate favour mites and other pests? Will your tree be in the way if you wish to paint or otherwise maintain your wall?

Many of these problems can be mitigated by leaving a gap between your tree and your wall, perhaps with the aid of a trellis.

Support your tree

Wherever your espalier, you will need supports for tying your branches. Sarah's farmer father helps her string wires along a fence, and once he did such a good job tightening them that Sarah couldn't reach behind them with her ties. She now places wood blocks between her wires and their supporting structures to maintain a workable gap.

Sarah recommends soft tying materials such as nylon stockings, hessian fabric, or cotton. Even so, ties need to be checked each autumn to make sure they're not constricting growth. In time, espaliered plants will likely strengthen to the point they do not require support.

Feed the soil

Because espalier isn't natural, espaliered trees require high-quality care. This includes preparing the soil and feeding in plenty of compost. Companion planting is also beneficial for tree health. Consider deep-rooted herbs like yarrow to increase nutrient availability and heavily scented ones like peppermint pelargonium to confuse pests. Comfrey, borage, and lavender are also good choices.

Above: Sarah demonstrates a low first cut for an espalier pear. The graft is visible about a centimetre below the bottom leaf. Photo: Charlie Higgison

Above: This T-shaped apple has a stub of a central leader and two laterals that reach to the wire at 45 degrees before being tied horizontally. Note the abundance of fruit spurs. Photo: Charlie Higgison

The first cut

Although espaliered trees benefit from TLC at the roots, when it comes to pruning, it's okay to remove more than most people at first imagine. On planting day, most of a tree's vegetative growth should be pruned away.

Sarah suggests talking to the person from whom you're buying a tree and identifying where your chosen variety is grafted onto either the rootstock or (where applicable) onto a transitional interstock above the rootstock. As long as your cut is above the highest graft, you can't really go wrong, and you'll generally leave more buds than a beginner can readily spot.

T-shape pruning

For a standard T-shaped espalier, you only need two or three buds: two for the side branches (laterals), and – if continuing the design upwards to a second T – the top-most bud for the central leader.

In general, this first cut should be about five centimetres below the first wire. When shoots appear in spring, they can be tied onto short canes (such as bamboo). These canes can be tied onto the wires to guide

Choose your tree

While espalier is suitable for peaches, apricots, figs, pomegranates, olives, almonds, hazelnuts, olives, blueberries, mulberries and more, Sarah recommends apples and pears for beginners, or perhaps quinces. Read on for more of Sarah's tips.

- **Make sure you have spur-bearing trees.** Espalier removes upright growth, so avoid tip-bearing varieties such as Granny Smith and Egremont Russet apples. There are many spur-bearing apples to choose from: Freyberg, Hetlina, Winter Banana, and many more.
- **Consider pollination requirements.** There are a few suitable self-fertile pear varieties, such as Belle du Jumet, Conference, Louis Bon Jersey, Seckle, and Princess. Most other pears require a pollinator, which is why dual-grafted pears are common in space-saving espalier. Duals can be harder for beginners, however. Among apples, particular consideration is required for triploids, which are varieties that require pollination from two other varieties.
- **Select a vigorous rootstock.** Rootstocks are classed on a continuum from dwarfing through to vigorous. While some horticulturists recommend dwarfing rootstocks, Sarah notes that these unnecessarily 'double-dwarf' a tree: espalier-style pruning is already height- and vigour-reducing. A medium or vigorous rootstock will support tree vitality and abundant cropping.
- **Match your rootstock to your soil type.** For espalier apples, Sarah prefers medium rootstocks MM102 or MM106 for free-draining soil and vigorous Merton 793 or Northern Spy for heavier soil. For pears, she recommends a Quince BA29 rootstock with a Beurre Hardy interstock (a transitional graft between the rootstock and pear variety).
- **Use dwarfing rootstock only when your need for additional control outweighs the tree's need for vitality.** Those who do recommend dwarfing rootstock find them especially beneficial when planting cordons vertically rather than at an angle to the ground, because this approach tends to be naturally more vigorous.

Above: Edible Garden is rooted in Sarah Frater's passion for connecting people to the earth through homegrown food. Photo: Charlie Higgison

the central leader upwards and guide the laterals at 45-degree angles to the sides. With continued growth, the laterals can be bent down to grow flat along the wires. In the winter, the central leader can be cut again to develop a T along a second, higher wire.

To prevent disease from entering at cuts, prune on dry days and protect wounds with beeswax or an organic tree paste.

Prune to encourage fruit

Espalier requires pruning away excess vegetative growth several times during the growing season. Cut away all **sub-laterals**: secondary branches growing from your primary lateral branches. Keeping sub-laterals cut back to within a few centimetres of your laterals will encourage remaining buds to flower and direct the plant's energy towards bearing fruit.

Remember that espalier trees are already more stressed than trees with a more natural form. Thin your fruit to help your trees develop fleshier fruit without over-taxing them.

Find out more

If you'd like to get started using espalier to grow more fruit, nuts, and berries in a small space, read more and seek additional advice. Ask a friend for help or consider a workshop, such as those taught by Sarah (sign up to her newsletter at ediblegarden.co.nz). Seek out examples: those integrated into the Sustainable Backyard at the nationally famous Hamilton Gardens, for example, or those in Ashhurst's Olsson Orchard (recap.org.nz/orchard), developed with guidance from Sarah and additional volunteers.

Talk to growers and gardeners in your area. One of Sarah's customers – an elderly woman "who's feeding every child in the neighbourhood" – brings Sarah photos of her espaliered trees every year and asks Sarah to mark exactly where she should prune.

"Don't worry if you think you've pruned too hard. Trees are resilient, and they have more buds than we think," says Sarah.

To underscore the point, she breaks into song: Cat Stevens' 'The first cut is the deepest'.

Above: A mature fence of apple and pear cordons planted in an X-shape. Illustration: Rain Stevens

Above: Cordons planted close to each other and angled to reduce their vigour. Wooden braces train the cordons to continue growing at an angle, and are periodically retied higher up as the cordons grow. These three cordons show the progression of growth: the cordon at the left is the youngest, as if newly planted in winter; the one on the right shows another year or two of growth. Illustration: Rain Stevens

Sharon Stevens and her family live on a one-hectare, biodiverse lifestyle block.

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Moon calendar for July

By **Rachel Pomeroy**

The winter garden

The shortest day has now passed, but expect more cold and rain before we notice winter starting to lift in mid-August. This is not such a busy time in the garden but very rewarding harvests are there for the industrious autumn gardeners. Brussels sprouts and leeks are especially sweet following the touch of winter frosts.

It's planting time for roses and the bare-rooted fruit trees and grapevines. Also time for pruning and winter care of those which are well established. It certainly makes planting easier if, in early autumn, you dug the holes, back-filled with soil and compost then sowed green crop on top. It means it's now an easy dig of a smaller hole, spread the roots a little, then firm the soil back around the plant.

If you are considering starting a new garden, take a good look at the area at this time of year, when the sun is low, the winds are cold, and the rain sometimes heavy. Is the area free-draining with a good aspect to the sun? Will shelter planting be required? Do you have firm all-weather access to the area? Proximity to water for summer irrigation?

Photo: iStock/LDProd

Star watching and home gardening are **Rachel Pomeroy's** interests.

July 2018

Date	Day	Constellation*	Full moon, new moon and nodes	Ascending (A) / Descending (D)	Things to do
1	Su		Node 5 am	d	Rest day
2	M	9 pm		d	Harvest beetroot, carrots, parsnips
3	T			d	Prune roses
4	W			d	Transplant self-seeded flower seedlings
5	Th	1 am		d	Plant out lettuce seedlings
6	F			d	Plant out silverbeet seedlings
7	Sa			d	Free emerging garlic sprouts from any weeds
8	Su	1 am		d	Sow peas
9	M	5 pm		d	Prune fruit trees
10	T			d	Dig in green crop for August/September sowing
11	W			d	Harvest beetroot, carrots, parsnips
12	Th	4 am	Moon opp Saturn 2 pm	d	Collect garden waste for compost
13	F		New moon 3 pm	a 1 am	Low moon energy day
14	Sa	1 am	Node 3 pm	a	Rest day
15	Su	10 am		a	Sow peas
16	M			a	Sow last broad beans
17	T	8 pm		a	Layer fresh lawn clippings with chopped garden waste for compost
18	W			a	Sow early onions in trays
19	Th			a	Sow beetroot in warmer soil
20	F			a	Harvest celeriac
21	Sa	6 am		a	Bake yeast bread
22	Su	4 pm		a	Lightly aerate soil if compacted by heavy rain
23	M			a	Sow green crop where leeks and brassicas have been harvested
24	T			a	Sow spring cabbage under glass
25	W	6 am		a	Sow peas
26	Th			d 9 am	Prune fruit trees and grapevines
27	F	7 pm		d	Plant out fruit trees, grapevines
28	Sa		Full moon 8 am, node 11 am	d	Lunar eclipse visible just before dawn
29	Su			d	Plant out beetroot seedlings
30	M	3 am		d	Dig in green crop
31	T			d	Plant new roses

Starting time given: until that time the constellation of the previous day is still active.

Key						
	Flower		Leaf	a	Ascending	* These are the signs of the zodiac that the moon can be seen in for a certain period of time. The 12 constellations are divided into the four categories of root, flower, leaf and fruit/seed.
	Fruit and Seed		Root	d	Descending	

For further information refer to the *Biodynamic Farming and Gardening Calendar 2018–19* (see next page for contact details).

Moon calendar for August

By **Rachel Pomeroy**

August 2018

Date	Day	Constellation*	Full moon, new moon and nodes	Ascending (A) / Descending (D)	Things to do
1	W	5 am		d	Plant out silverbeet, lettuce
2	Th			d	Weed around garlic for ample air and light
3	F			d	Prune hedges and shrubs as required
4	Sa	6 am		d	Plant new fruit trees
5	Su			d	Plant and prune grapevines
6	M	1 am		d	Plant out beetroot seedlings
7	T			d	Turn compost as required
8	W	2 pm	Moon opp Saturn 9 pm	a 11 am	Lightly hoe around garlic, especially if soil is compacted or rain-beaten
9	Th			a	Sow seed for spring flowering annuals
10	F	11 am		a	Harvest greens as required
11	Sa	9 pm	New moon 10 pm, node 2 am	a	Low moon energy day
12	Su			a	Sow peas
13	M			a	Mow around fruit trees to allow free air movement
14	T	5 am		a	Sow beetroot, carrots in warm soil
15	W			a	Sow onion seed to prepare seedlings
16	Th			a	Collect compost materials
17	F	1 pm		a	Harvest citrus for marmalade
18	Sa			a	Make tamarillo chutney if fruits are still on the plant
19	Su	1 am		a	Sow lettuce, silverbeet, spinach
20	M			a	Sow cabbage and other brassicas
21	T	11 am		a	Sow glasshouse tomatoes
22	W			d 3 pm	Any fruit tree care
23	Th			d	Plant out berry canes
24	F	1 am	Node 5 pm	d	Rest day
25	Sa			d	Side dressing of compost or liquid manure to garlic
26	Su	10 am		d	Plant out seedlings of flowering annuals
27	M		Full moon 1 am	d	Surface hoe flower and rosebuds for aeration
28	T	11 am		d	Plant out silverbeet, lettuce seedlings
29	W			d	Plant out assorted brassicas
30	Th			d	Plant season-appropriate leafy greens
31	F	11 am		d	Plant out currant or gooseberry bushes

*Starting time in brackets; until that time the constellation of the previous day is still active.

Key						
	Flower		Leaf	a	Ascending	* These are the signs of the zodiac that the moon can be seen in for a certain period of time. The 12 constellations are divided into the four categories of root, flower, leaf and fruit/seed.
	Fruit and Seed		Root	d	Descending	

Notes

Note: Always consider your particular climatic conditions and the weather. Plant and sow the varieties most suitable for the time of year in your own location. Check with experienced local growers.

Full moon

Seeds germinate rapidly when sown one or two days before full moon. Avoid harvesting any crops for storage in the few days before full moon.

Ascending moon

Seed sowing, e.g. carrots, beans, spinach etc. Particular days for certain plants have been selected following the position of the moon in the constellations.

Descending moon

Soil cultivation, transplanting of seedlings and trees, composting (making and application), harvesting of root crops (e.g. beetroot, celeriac, carrots), cutting firewood, pruning fruit trees.

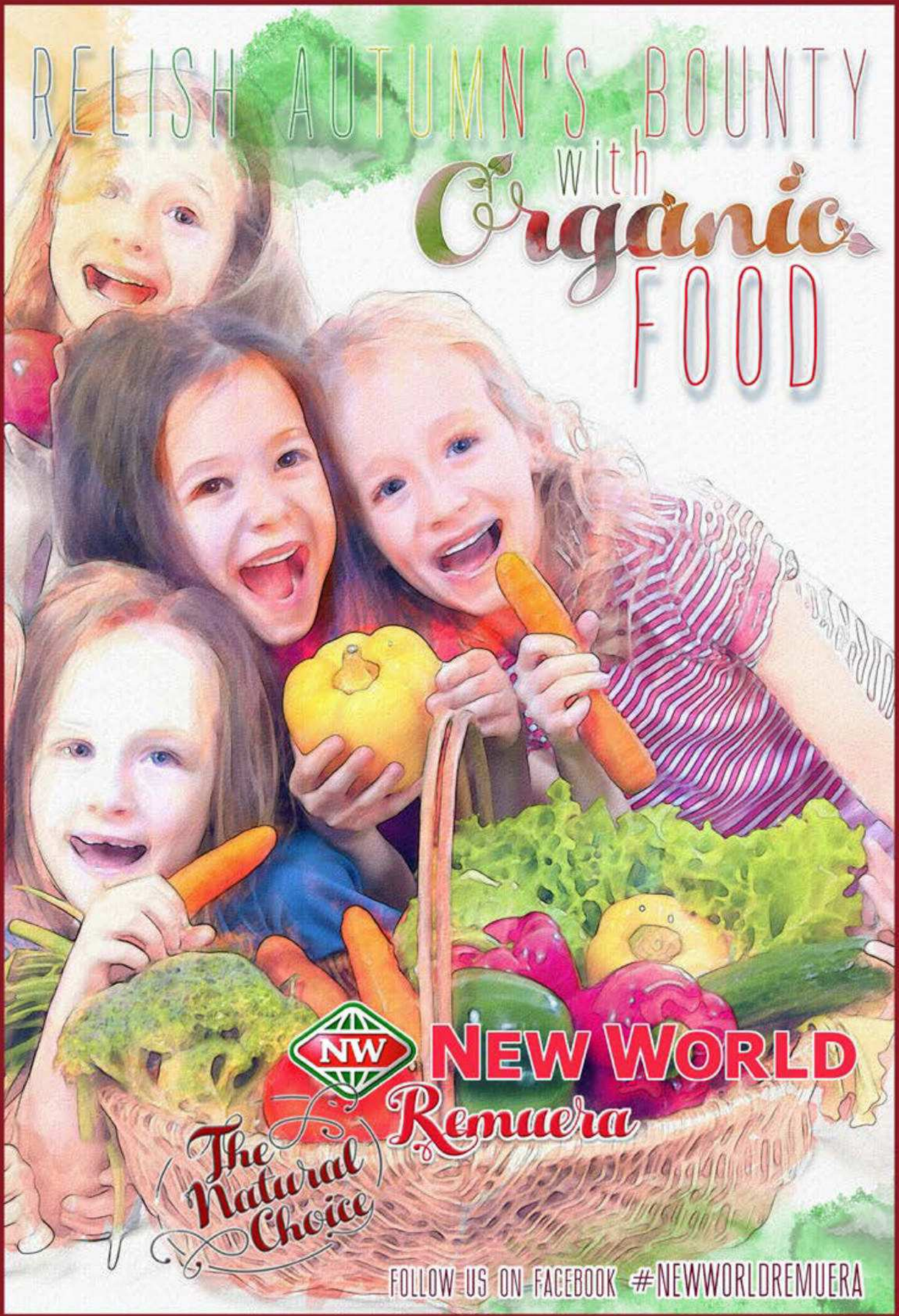
Moon–Saturn opposition

It is an excellent seed sowing time for all crops, in the 24 hours prior to the opposition.

Nodes

Times to avoid work with the land or plants: When the node occurs in the middle of the night, you may continue working during the day as its influence is strong for only a few hours. The effect of the node is, approximately, from 6 hours before until 3 hours after the time given. Avoid garden work on Node days given above.

For further information refer to the *Biodynamic Farming and Gardening Calendar 2018–2019* available from the Bio Dynamic Association, PO Box 356, Martinborough 5741, info@biodynamic.org.nz, ph 06 306 8582, www.biodynamic.org.nz.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reasons to be chia-full

By **Denise Cox**

Photo: iStock/Mr Prof

Chia (*Salvia hispanica*) belongs to the Lamiaceae or mint family. Pre-Columbian civilisations in Central America used its seeds for food, currency, oil, and medicine, however the Conquistadors banned chia cultivation due to its use in religious rituals, and substituted it with crops of barley, wheat and rice. Chia remained largely forgotten until the 1970s when chia seeds were sprouted on terracotta pots to make chia 'pets'.

In the late 1990s the renaissance of chia resulted from research into forgotten Aztec crops, and the Mexican Tarahumara people's legendary stamina, when eating chia seeds, to be able to run distances of up to 320 km over two days. Further research established chia to be a sustainable crop and therefore globally important.

Chia seeds are a complete vegan protein, are mineral-rich and gluten-free. Chia seed oil has the highest omega-3 fatty acid content available from plants. Chia's high levels of antioxidants make it keep considerably longer than seeds like flax (linseed) that goes rancid within months.

The global chia seed market is predicted to reach NZ$2.2 billion by 2021. At present 80% of this comes from Latin America; although Australia is rapidly becoming a major producer. Chia isn't yet commercially grown in New Zealand although there are some test plantings in Nelson.

Growing conditions

Chia is the perfect plant for organic growers. It's pretty, low maintenance, and pest- and disease-free. It thrives in free-draining sandy or loamy soils and needs little fertiliser or water to perform well.

Chia is frost-tender and needs a long growing season to produce seeds. Ideally start indoors and plant out in October when the soil warms, or sprinkle seeds in weed-free soil in spring. Choose a sunny site. Chia grows up to 1.5 metres tall, so plant behind smaller herbs. Space plants 50 cm apart. Stake plants and mulch to suppress weeds. Pinch out growing tips to encourage flowering.

Harvesting

Chia thrives in hot weather will set seeds 4–5 months after planting. The pretty blue flowers will be abuzz with bees and beneficial insects.

To optimise your seed harvest, pick individual flower heads after most of the blue petals die back. Dry the flower heads, then shake them so the seeds fall out. Crush the flower heads and use a sieve to remove any remaining seeds.

If you leave the flower heads to dry on the plants, many seeds will fall. The seed heads may turn mouldy in humid weather, destroying the seed.

Many uses of chia

1. **Appetite suppressant:** Chia seeds hold up to 12 times their weight in water, becoming gelatinous; this facilitates their digestion. You'll feel full after eating them; this is said to aid weight loss. Seeds swell within minutes when stirred into a small amount of warm water before adding them to other liquids.
2. **Drinks and puddings:** Stir 1–2 teaspoons of chia seeds into a glass of still or sparkling water. Stand 10–15 minutes until seeds gel. Add fruit juice and top with ice. Add seeds to milkshakes and smoothies. Make chia puddings with yoghurt, almond or coconut milk.
3. **Toppings:** Sprinkle fresh, ground or roasted seeds over breakfast cereals, salads and soups.
4. **Thickening and binding agent:** Use 1–2 tablespoons of ground or whole chia seeds to thicken soups, sauces stews and gravies. Substitute 2 tablespoons of ground chia seeds per kilo of meat instead of breadcrumbs in burgers.
5. **Chia flour:** Use ground chia seeds to replace some of the flour in breads or cakes. Grind seeds in a food processor or coffee grinder. For thick doughs, substitute chia flour in equal parts. For thin batter, mix 1 part chia seed flour with 3 parts flour.

6. **Egg substitute:** Use ground seeds as a vegan egg substitute in baking. To replace one large egg, stir 1 tablespoon of ground chia seeds in 3 tablespoons of warm water. Leave for 15 minutes until mixture gels before using.
7. **Jam:** Use chia seeds instead of pectin to make delicious short-life jams.
8. **Chia tea:** Use fresh young or dried chia leaves to make a delicious tea with anti-inflammatory and pain-relief properties. Reduces fever, blood pressure and cholesterol levels. Sweeten to taste.
9. **Chia sprouts/microgreens:** Sprout chia seeds to increase their nutritional value. Spread seeds on a shallow container. Spray with just enough water to evenly moisten them. Don't overwater otherwise they'll become gelatinous. Maintain temperatures of 24–26ºC; they'll sprout in 1–2 days. Spray with water every 8 hours. Rinse before eating.
10. **Feed chia leaves and seeds to poultry, or stock** to improve their overall health and the nutrient content of their eggs and meat. Add chia to equine feed for numerous health benefits, including a reduced risk of colic.
11. **Biomass:** Use chia leaves as mulch, or biomass for your compost heap.
12. **Chia oil** has the highest omega-3 content of any culinary oil, and a higher smoke point than coconut oil. It's also used medicinally and in cosmetics.
13. **Chia has numerous medicinal uses**. It's anti-inflammatory, and relieves joint pain. It prevents infections and stimulates healing when used as a poultice.
14. **Cosmetic use:** Chia oil is a superb skin moisturiser and hair conditioner. Or make an exfoliating mask with chia seeds.

Denise Cox is a writer and former commercial grower. She lives in Kerikeri.

Recipes

Chia brekkie

1 cup almond milk
1 cup Greek yoghurt
2 t honey
¼ t vanilla paste
⅓ cup chia seeds

1. Stir together almond milk, yoghurt, honey, vanilla and chia seeds.
2. Pour into bowls. Refrigerate overnight.
3. Serve with a topping of fresh fruit or a dollop of chia jam.

Chia jam

¼ cup chia seeds
½ cup water
2 cups fresh or frozen berries
1 T honey

1. Soak chia seeds in warm water until gelatinous.
2. Simmer berries until soft. Mash berries using a potato masher.
3. Stir chia seed mixture and honey into berries.
4. Cool and refrigerate. Keeps 8 days.

Photo: Denise Cox

Chia crackers

1. Mix together ¼ cup each of pumpkin, sunflower, and sesame seeds. Add ¼ cup ground chia seeds.
2. Stir in ½ cup of warm water. Stand 20 minutes.
3. Spread mixture onto a greased baking sheet. Cut into cracker shapes.
4. Bake 30 minutes at 160ºC.
5. Turn over, and bake a further 30 minutes.

Chia exfoliant

1. Mix 1 t ground chia seeds with ½ a cup of water and 1 drop of lavender oil.
2. Rub gently on face. Rinse with cold water.

Recipes for winter

Get-well-soon soup

By **Philippa Jamieson**

Any time I feel remotely unwell, I whip up a batch of this super flavourful and nourishing soup. Serves 4–6.

This is a versatile soup. You can play around with quantities depending on your taste, and use whatever veges are in season: potatoes, pumpkin, parsnip, Jerusalem artichoke, yams, cauliflower, mushrooms, shredded cabbage. Red lentils are quick to cook in this soup, but you could instead add cooked brown lentils, or cooked beans such as pinto or adzuki.
For an even more Asian flavour, add some chopped Vietnamese mint while cooking, or garnish with freshly chopped coriander.

1	large onion, finely chopped
2–3	garlic cloves, crushed
1 T	ginger, grated
1 T	soy sauce
1 T	vinegar (balsamic or apple cider)
¼ t	chilli (or more, to taste)
salt to taste	
1 T	coconut oil
½ cup	red lentils
1 litre	stock or water
2–3 stalks	celery
1	large carrot, sliced
2 cups	kūmara, cubed
2 cups	broccoli or cauliflower florets
2 cups	chopped leafy greens such as kale, cabbage, pūhā or nettle
1 T	miso, dissolved in ½ cup hot water
juice of 1 lemon	
2–3 T	karengo seaweed, dried

Photo: Philippa Jamieson

1. Heat oil in a large heavy-bottomed saucepan, then add the first 7 ingredients.
2. Put the lid on, reduce heat, and let the base ingredients 'sweat' for 5-10 minutes.
3. Add lentils and stock/water, and bring to a simmer.
4. After 10 minutes, add celery and carrots.
5. After another 5 minutes, add kūmara.
6. Once root veges and lentils are becoming soft, add broccoli and cook a further 5 minutes.
7. Add leafy greens and cook 5 more minutes.
8. Turn off heat, add lemon juice and miso, and stir through.
9. Put some karengo into each person's bowl, then ladle in the soup.

Kūmara fudge

By **Denise Cox**

Decadent and delicious. Add a teaspoon of chilli powder to make a chilli fudge.

2 cups mashed orange kūmara
½ cup peanut butter
½ cup maple syrup
⅓ cup cocoa or cacoa powder
1 t vanilla essence
⅓ cup dark chocolate chunks or chopped nuts
½ cup melted coconut oil

1. Using a food processor blend together all ingredients except coconut oil and chocolate chunks.
2. Stir in coconut oil and chocolate chunks.
3. Spread mixture in a greased dish.
4. Chill until set, then cut into squares.

Variation: Velvet chocolate kūmara pie
Make recipe as above but reduce the coconut oil to ⅓ cup. Spread into prepared biscuit or pie crust and chill.

Photo: Philippa Jamieson

Photo: iStock/marhero

Kūmara hotcakes

By **Denise Cox**

Fabulous for breakfast, brunch or a comforting evening meal.

1 cup mashed kūmara
2 eggs
⅓ cup almond flour
1 T melted coconut oil
2 T coconut oil for frying
1 t cinnamon
½ t salt

1. Using a food processor, process all ingredients together until batter forms.
2. Stir in the melted coconut oil.
3. Melt two tablespoons of coconut oil in a frying pan. Spoon out batter into rounds, flatten and cook until bubbles form. Turn over and cook for a further minute.
4. Serve with bacon (vegan or otherwise), bananas and lashings of maple syrup.

Variation: Corn and kūmara hotcakes – add half a cup of corn kernels to batter.

a holistic approach to depression AND ANXIETY

By **Sandra Clair**

By now we are all familiar with anxiety and depression, and mental health is frequently in the media spotlight. We likely know someone who has suffered with these issues or may be dealing with them ourselves.

Despite increased awareness and research into depression and anxiety, both continue to be on the rise in New Zealand and globally. The current rate of psychological distress is 7.6% in New Zealand – a 3.1% increase since 2012. Among young people aged 15–24, the rate is rising even faster, with 11.8% affected in 2017.

The World Health Organization estimates that over 300 million people globally are affected by depression, and nearly that number again are suffering from a range of anxiety disorders. Depression is ranked by the WHO as the single largest contributor to global disability.

Now more than ever we need to look at depression and anxiety through a holistic lens.

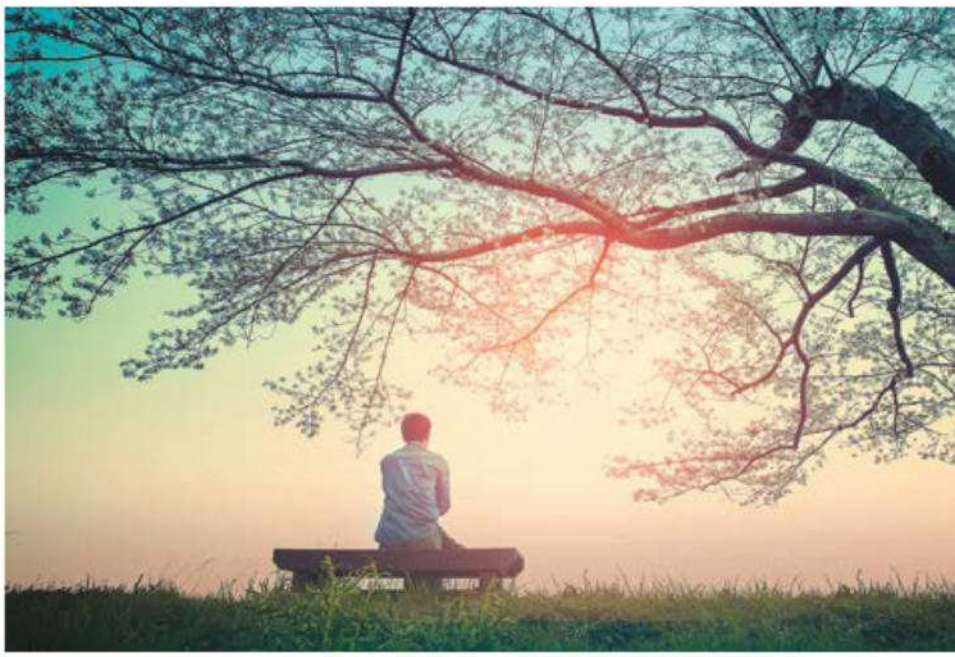

Photo: iStock/ookawaphoto

Causes and risk factors

There is no single cause to depression and anxiety – current evidence suggests that a genetic disposition combined with environmental factors can trigger as well as maintain these health issues.

In Western medicine, the causes are generally cited as:

- life circumstances, in particular grief, divorce, loss of a job, or financial issues;
- hormone imbalance, in particular low levels of serotonin or imbalances with the neurotransmitters serotonin, GABA, dopamine, noradrenaline;
- genetic vulnerabilities.

In natural medicine, we endeavour to evaluate a person's situation in a holistic way. In addition to the above factors we address further underlying issues such as:

- nutritional status – nutritional deficiencies such as B12, iron, magnesium, or low protein or unhealthy fat intake – can cause a state of depression by itself;
- high sugar and alcohol as well as some pharmaceuticals and recreational drugs can derange nervous system function and cause anxiety and depression;
- hormonal triggers, in particular ongoing stress and adrenal depletion, sleep deprivation, female hormone imbalances, and thyroid issues can cause exhaustion which may escalate into anxiety and depression;
- the gut–brain connection has been researched extensively and poor digestive health is now recognised as one of the major contributing factors to mental health issues;
- increased systemic inflammation has been seen in people with major depressive disorder, and reducing that through plant medicine and diet has resulted in great improvements of depressive symptoms.

What you can do: ask for help

The good news is that there are many things you can do to support your mental health. There are a lot of free resources available in New Zealand and asking for help should be step number one; no one should have to go through this alone. This crucial step is a sign of strength and determination.

Support from a counsellor, friends and whānau is key, as are self-help strategies such as journalling, art, and/or meditation. Websites like www.depression.org.nz and www.thelowdown.co.nz (for youth) provide effective self-help tools and resources to support you.

Plant medicine

Especially when you are in the depths of depression or anxiety it can feel impossible to start making lifestyle changes, even if you know they will help.

Using plant medicine is a safe and effective way to support your mental health. It is clinically proven to ease feelings of anxiety and depression and helps to rebuild nervous system function without disturbing side effects. Start with plant medicine, and once you have built up nervous system resilience and are feeling up to it you can implement other lifestyle changes more easily. This can help you to not feel overwhelmed and like giving up.

- **St John's wort** (*Hypericum perforatum*) stands out as a clinically proven plant medicine, and with good reason. It is the most researched plant in the world

and has the most robust evidence for its effectiveness in treating depression. Major research reviews have confirmed that St John's wort is equivalent to synthetic antidepressant medications, with fewer side effects and measurable reduction of post-treatment relapse.

In a traditional format such as organic medicinal tea, tincture or whole plant extracts it does not cause herb–drug interactions as seen with pharmaceutically standardised St John's wort pills that contain artificially manufactured hyperforin levels above 4 mg (always read the label).

St John's wort has been clinically shown to be beneficial with anxiety and sleep issues as well, which commonly occur alongside depression.

There are further excellent plant medicines which help support the nervous system or strengthen the adrenal glands to modulate the effects of anxiety and depression.

- **Chamomile** (*Matricaria chamomilla*) is probably one of the best known medicinal plants for stress and anxiety. It is gentle enough for children and yet extremely effective. In addition to its sedative and nerve-calming effects, chamomile also contains several anti-inflammatory constituents which have a soothing and anti-spasmodic effect in the digestive tract. This means it is great for those who also experience stress-driven digestive issues.
- **Lemon balm** (*Melissa officinalis*) and **lavender** (*Lavandula angustifolia*) also have clinically proven multiple health benefits, including calming worry and helping with sleep, inflammation and digestive issues.
- **Licorice** (*Glycyrrhiza glabra*) should be a part of any treatment plan for long-term stress, as it supports healthy cortisol function (our long-term stress hormone). It improves the body's resilience to mental, emotional, physical or environmental stressors.
- **Passionflower** (*Passiflora incarnata*) exerts a mildly sedating effect. It is excellent for the treatment of worry and sleep issues, without causing daytime drowsiness or grogginess the next day.
- **Kava** (*Piper methysticum*), an important medicinal and ritual plant of the western Pacific, is clinically proven to provide instant support in anxiety. It has been shown to be as effective as the anti-anxiety medication benzodiazepine, without its side effects and no dependency issues.

5 tips for good mental health

1. **Whole, organic foods** must form the basis of every mental health plan. Include a wide variety of colourful fruits and veges at every meal, as well as protein and healthy fats such as organic butter or olive oil. Including fermented foods such as sauerkraut or kimchi will support a healthy gut, which contributes directly to our brain function and moods.
2. **Avoid or reduce poor quality oils and cheap fats** as they can contribute to inflammation and low moods (as well as a host of other issues).
3. **Avoid or reduce caffeine, alcohol** and other stimulants and depressants. These can trigger or exacerbate anxiety and depression.
4. **Press play** – every day. Even five minutes of movement or exercise counts. A clinical trial has shown that moderate levels of exercise may lift moods quicker than a synthetic anti-depressant (relates to non-endogenous depressions).
5. **Plant medicine:** use herbs which help the body adapt to stress, or which have been shown to help with anxiety and depression, to alleviate these issues long term.

Whole, natural, organic

With all plant medicines, look for remedies formulated with whole, unaltered plants harvested in the wild or grown organically without herbicides and pesticides.

Used in their whole form, most medicinal plants have a very good safety profile. However, as soon as we change them – which can be seen in many chemically processed pills – we are dealing with something that has never occurred before in history. This can lead to safety concerns, adverse effects, and contraindications with other medications, which are not prevalent with traditional formats.

It is wise to consult a knowledgeable and caring medical herbalist to help select the right whole plant medicine for you. Find one in your area by going to www.nzamh.org.nz.

Investigate the cause

If you feel like digestive health, nutrition, inflammation, stress, insomnia or other lifestyle issues could be part of your issues, then it is important to investigate and to treat the underlying cause.

A holistic approach to anxiety and depression will always result in the best outcomes. Use all the resources that are available to you and don't hesitate to reach out for support.

Sandra Clair, MA (Berne), Post. Grad. Dip. Health Science, PhD candidate, is the founder of the award-winning New Zealand traditional plant medicine company Artemis: www.artemis.co.nz.

Bibliography available on request to editor@organicnz.org.nz.

wired versus WIRELESS

New Zealand is approaching a technological crossroads that has profound implications for human health and the natural world – but virtually no one knows about it. **Katherine Smith** investigates.

Government policies are now pushing risky wireless technologies to replace safe wired landlines that have served and still serve the country well.

Phasing out the copper network

On 4 May, the Economic Development, Science and Innovation Parliamentary Select Committee produced a revised version of the Telecommunications (New Regulatory Framework) Amendment Bill that includes a clause that will allow the *phasing out of the copper landline system* in parts of New Zealand that have been officially designated to be 'fibre areas'.

April 30 was the closing date for feedback on a discussion document by Radio Spectrum Management (a business unit of the Ministry of Innovation, Business and Employment – MBIE) called *Preparing for 5G in New Zealand*. Over 300 submissions were received, many citing health concerns. Submissions can be read here: www.rsm.govt.nz/projects-auctions/current-projects/preparing-for-5g-in-new-zealand/submissions-received

A report prepared by MBIE on the submissions on the Bill acknowledged the '136 submissions from parties opposing the removal of copper lines' and noted in passing that 'there were also a number of similar template submissions [expressing opposition to the removal of copper] which we have not included in our analysis'.

Power outages

Public opposition to the removal of copper referenced the fact that a corded phone connected to the landline network will function during a power outage, unlike a voice over internet protocol (VOIP) phone that is the only option for a safe corded phone with a fibre system.

It is possible to buy a UPS (uninterruptible power supply) for a VOIP phone connected to a fibre system, but a model that costs several hundred dollars that is recommended by Spark will reportedly function for only around four hours. UPS units can also contain lithium ion batteries, which are highly explosive. The MBIE report acknowledged that UPS systems to allow VOIP phones to function in a power outage could be beyond the financial means of many people – but MBIE was apparently unconcerned by this fact.

Many submitters disclosed that they had developed electrosensitivity (see sidebar). Use of a mobile phone can cause such severe symptoms that it is simply not an option for people who are badly electrosensitive to use cellphones, but this appears to be of no interest to the MBIE or the select committee.

Above: Cellphone tower in a suburban street. With the advent of the 5G network, the proposal is to double the number of cellphone base stations in urban areas. Photo: Katherine Smith

In a poor attempt to justify the piecemeal destruction of New Zealand's copper landline phone system that has been built up over many decades, the author of the MBIE report stated that there was 'nothing in the [telecommunications] bill itself that makes it more likely that consumers will use wireless technology'.

While this statement may be technically correct, it ignores the fact that telecommunications companies in New Zealand are aggressively promoting the use of wireless technologies. It also ignores the fact that the New Zealand government is doing next to nothing to provide accurate information to the public about the health risks of these technologies.

Health risks of wireless technologies

The information from the Ministry of Health on the health risks of wireless technologies remains sadly inadequate despite the fact that radiofrequency radiation (RFR) in the microwave range has been acknowledged to be a possible carcinogen by the World Heath Organization's International Agency for Research on Cancer (IARC) – largely on the basis of studies showing increased risk of brain cancers in longer term cellphone users.

Moreover, recently published animal studies have shown increased risk of cancer in rodents exposed to RFR in the microwave

range, leading for calls for this type of non-ionising radiation to be reclassified as a human carcinogen. (See: ehtrust.org/cancer-expert-declares-cell-phone-wireless-radiation-carcinogenic-humans).

A recent article on how telcos have been using 'tobacco science' type strategies to delude people into believing that cellular phones are safe may be read at this link: www.thenation.com/article/how-big-wireless-made-us-think-that-cell-phones-are-safe-a-special-investigation).

Moreover, one major telco, Spark, has gone on record as stating that it plans to move customers who currently enjoy safe hardwired internet access thanks to the copper landline system to wireless internet connections if they are considered to use only 'low to medium' amounts of data – *even if they live in a fibre area*. (The author of the article in *Computer World* states: "However it [Spark] gave no indication as to the threshold data volume on which the decision would be based." See: www.stopsmartmeters.org.nz/latest-news/spark-plans-force-customers-copper-wireless-internet).

Cell units every 250 metres?

Based on the 5G discussion document, the initial stage of the 5G system proposed for New Zealand would involve a doubling of cellular phone base stations in urban areas, as the 4G system is proposed to be used as a 'control layer' for the 5G system.

So-called 'small cell' units transmitting in the millimetre wave band (specifically 26 GHz) are proposed as a later stage of the 5G system. These small cell units could be placed *every 250 metres in urban areas*. That the US military's 'non-lethal' weapon 'Active Denial' (aka the pain ray) is based on millimetre wave technology (at 95 GHz) is cause for deep concern about any millimetre-wave-based communications system or device.

The Bill has to pass its second and third readings to become law, so there is still the possibility that massive public pushback could save our copper landline phone system. If we lose this precious asset the cancer epidemic we are now in will explode, affecting all of us and massively overwhelming our health care system to the point where it will not be able to function at all.

Katherine Smith is the editor of the *New Zealand Journal of Natural Medicine*.

What is electrosensitivity?

Electrosensitivity (also known as electrohypersensitivity, electromagnetic hypersensitivity and electromagnetic field intolerance syndrome) is a condition in which people develop a variety of unpleasant symptoms if they are exposed to levels of electromagnetic radiation that most people can tolerate without overt symptoms. In some cases, symptoms can be life threatening (for example, cardiac arrhythmias). Symptoms can occur in environments where a certain level of EMR is present regardless of whether or not the person is aware of the source of the EMR. In Sweden, this condition is recognised as a functional impairment (disability) because it is acknowledged that people with this condition are reacting to an adverse environmental influence. The Swedish government provides assistance with shielding homes to reduce the incursion of non-ionising radiation (such as from cellular phone infrastructure) into their homes.

Recent research shows abnormal functional MRI scans in people who have become electrosensitive after long-term exposure to electromagnetic fields. (For example, the condition may develop in people who have lived in close proximity to a cellular phone tower and/or those who have been heavy users of cellular or wireless phones.) The paper also reports that prior head injury and/or exposures to neurotoxic chemicals may be risk factors for developing electrosensitivity: www.ncbi.nlm.nih.gov/pubmed/28678737.

The estimated background level of radiofrequency radiation in the microwave range prior to our industrial age was just 0.00001 microwatts per square metre. Devices such as cellphones, wifi routers and leaking microwave ovens can expose people in close proximity to thousands or even tens of thousands of microwatts per square metre so it should be no surprise that a significant minority of the population cannot tolerate exposures from these devices; modern exposures to this from of radiation are biologically unprecedented.

More info

- Follow updates on the landline phone and 5G issues at the following websites: www.saveourlandlines.nz and www.5g.org.nz
- How to set up a safe, low-cost internet system via the copper landline system: www.naturalmedicine.net.nz/childrens-health-and-development/protect-your-health-with-an-inexpensive-safe-hardwired-internet-connection
- Information on setting up a fibre system safely: www.stopsmartmeters.org.nz/latest-news/considering-ultrafast-broadband
- General information on reducing exposure to EMR: www.naturalmedicine.net.nz/childrens-health-and-development/how-to-reduce-your-exposure-to-emr
- Basic information on electrosensitivity: www.saveourlandlines.nz/news/what-is-electrosensitivity-and-why-is-it-important

felted soap to the RESCUE!

By **Diana Noonan**

What would it take for *you* to ditch plastic in the bathroom? I thought I was doing pretty well with my baking soda toothpaste, solid bar shampoo and conditioner, and oatmeal scrub exfoliant – but the thought of a slippery cake of soap goobying up the hand basin meant I couldn't quite bring myself to biff the bottle of liquid handwash.

Until, that is, I discovered how to make 'felted soap'. A wash-and-scrub combo that won't turn slimy and slither across the vanity unit, this ingenious bit of bathroom technology can be made at home from any cake of soap, and scraps of natural wool salvaged from fencing wire. If you are not able to access salvaged wool, natural carded fleece is available online from at www.woolcraft.co.nz.

The technique used is called wet-felting. Here's how to do it.

Above: Max Olsen (left) and Frank Tesselaar with their felted soap creations. Photos: Diana Noonan

You will need

- 45 grams of natural wool per 100 grams of soap (I use 35 white and 10 black to create a decorative effect with contrasting colour)
- A squirt of detergent in warm water
- A stiff brush
- A cake of soap
- Heat-proof rubber gloves
- Mesh fabric (such as tulle) or a section of old pantyhose
- A twisty tie
- Very hot water
- A big basin (or the kitchen sink)
- A scrap of coloured wool and a felting needle (optional)
- A towel

Method

1. Wash the natural wool in detergent and warm water to remove the lanolin and any dirt. Dry the wool. Brush it out to make it soft and fluffy.
2. Spread the white wool on a flat surface. Lay the soap on top of it.
3. Gather the white wool around the soap to make a 'parcel'. Wrap the mesh tightly around the parcel. Hold it in place with the twisty tie.
4. Put on your heat-proof gloves. Pour the very hot water into the basin. Place the mesh parcel into the water. Rub the parcel all over, again and again, until the wool begins to thicken and felt together.
5. When the wool feels thoroughly felted, squeeze the water from it, and take off the mesh.
6. Place a very thin layer of black wool over the felted soap. Wrap the felted soap tightly in mesh, and secure with the twisty tie. If the water in the basin has cooled a little, add more hot water.

Above: Lay the soap on a bed of wool.

Above: Rub the parcel all over until the wool begins to thicken and felt together.

Repeat the rubbing procedure until the black wool is firmly felted onto the white wool. Squeeze the felted soap dry and remove it from the mesh.

7. If you are using coloured wool, lay this onto the felted soap in your desired shape, and repeat the mesh-wrap and felting procedure until the coloured wool is felted onto the black wool. Squeeze dry and unwrap. If you have difficulty getting the coloured wool to felt to the other wool (which may happen because there is only a little of it to work with), use a felting needle to help secure it in place.

Above: When the wool feels thoroughly felted, squeeze the water from it.

Above: Layer a few pieces of black wool over the felted soap.

Above: Lay the coloured wool onto the felted soap.

8. Wrap the felted soap in a towel and squeeze it to remove excess moisture. Leave it in a warm place (such as on a sunny window sill or on top of a hot water cylinder) to finish drying.
9. To use your felted soap, hold it under a tap or dip it in water and rub against your skin to bring up a lather.
10. When all the soap has been used up, the remaining piece of felt can be employed as a bathroom cleaning pad or pot scourer.

Diana Noonan writes and gardens in the Catlins. She enjoys crafting with natural materials, especially when it helps her live more sustainably.

More info

- To learn more about wet felting, go to www.weavespindye.org/steps-in-felting
- To make a felt ball (which is a good way to practise your new-found wet-felting skills) go to: www.marthastewart.com/266261/felt-balls
- To find out more about felting and other fibre crafts in New Zealand, see www.creativefibre.org.nz

GE betrayal?

A wake-up call

The public expectation underpinning FSANZ's legitimacy is a social contract. Regulation of new GE breeding techniques could be the endgame, writes **Jon Carapiet**.

New Zealand's regulations on commercial release of genetically modified organisms (GMOs) are imperfect but have at least allowed us, so far, to avoid the most negative effects of genetically engineered (GE) products that have been experienced overseas.[1]

International concerns of civil society and independent scientists around emerging genetic techniques have resulted in the demand for an international system of regulation, testing and labelling. Although countries like the US have followed industry lobbying and not required labels on novel foods, consumer demand has driven a huge non-GMO sector in the US.[2]

When it comes to GE, FSANZ (Food Standards Australia New Zealand, www.foodstandards.gov.au) is the bridge between the community and industry, governing the social 'licence to operate'. This licence is founded on the idea of regulation, testing, labelling, monitoring and capacity for emergency recall.

This is a wake-up call that the contract may be about to be betrayed.

Industry pressure

There is pressure from the biotechnology industry to abandon regulation of products modified using the latest genetic engineering techniques, including clustered regularly interspaced short palindromic repeats (CRISPR).[3]

There is a big problem in any attempt to avoid regulation by pretending that the products of CRISPR are not GMOs. This would allow untested and unmonitored CRISPR products to sidestep regulation and labelling.

That would be the very opposite of what consumers want.[2]

Keep it in the lab

New Zealand has had a place for contained and ethical genetic research, informing advances in marker-assisted breeding and medical science.[4]

At the same time our economy has benefitted by preserving our GE-free production systems.

We must not allow the undermining of food safety regulation vital to the shared value in our export reputation for clean, safe food, and the 'New Zealand story'.

Photo: iStock/vchal

New techniques risk unintended results

The social contract in place requires regulation of the new techniques being considered in FSANZ's recent consultation.

Independent scientists from Physicians and Scientists for Global Responsibility and the European Network of Scientists for Social and Environmental Responsibility warn that CRISPR is being hyped with the same promises of 'precision and accuracy' made for other forms of genetic engineering. However they warn that there is still the risk of unintended genetic effects from these modifications.[5]

It is wrong to assume safety of any products from CRISPR and the other genetic engineering techniques. There is a significant potential for unintended results. Deregulating the new techniques would fundamentally betray public trust and undermine confidence.

There is already significant public concern about the quality of decision making by FSANZ, and by the Environmental Protection Authority (EPA). FSANZ recently shamed itself by approving GE Golden Rice for the reason that it may contaminate the food supply and would disrupt trade if it were not pre-approved. FSANZ's politically motivated approval went ahead without safety testing, and received international criticism.[6,7]

The EPA's deeply flawed report on glyphosate – designed to justify their rejection of international scientific assessments of the risks of glyphosate-based herbicides – has also shaken public confidence in the authority.[8]

Bias and conflicts of interest?

However the framing of the consultation on new GE techniques that was recently undertaken on both sides of the Tasman, seems fraught with problems. There is a significant risk in FSANZ's approach

because of perceived conflicts of interest and unintentional bias within the advisory panel used by FSANZ.

It is concerning that the panel may have been influenced by a view of consumers that is based on potentially misleading market research experiments. These experiments have included creating models of consumer acceptance of novel foods based on misrepresenting benefits to consumers, which can be considered 'confusion marketing' or even unethical.

Trade over safety?

It is also wrong if FSANZ allows trade relations to influence its decision. Failure to regulate these new techniques would represent the fundamental unwinding of the food safety system.[9,10]

The risk to trade is much greater from a loss of global consumer confidence as a result. A major food safety event is a high risk to global trade and made more likely if safety of new GE techniques is just assumed.

Food safety and labelling paramount

All new GE techniques should be assessed for safety before being allowed in our food. They should also be labelled for consumer choice.

This includes gene editing, GE rootstock grafting, cisgenesis, intragenesis, RNA interference and null segregants. There should be no exceptions to this general principle.

That is the 'deal': the social contract, that FSANZ and industry lobbying is aimed at overturning.

The assumption that there have been no unintended genetic changes needs to be tested before products derived from these techniques are allowed in our food. While chemical and radiation mutagenesis can increase the rate of random DNA point mutations, gene editing techniques cause DNA double-strand breaks and can be used sequentially to make dramatic differences to DNA. They are also prone to additional unexpected mutations. DNA methylation is quite clearly a genetic modification technique and can result in heritable genetic changes. All GE techniques warrant pre-market safety assessment and regulation.

RNA interference, which can result in DNA methylation and gene silencing, also has the potential to be used in the future for the development of food products. It poses unique risks such as gene silencing in non-target species that need to be assessed before it is allowed in food. Products produced using RNA interference should also be labelled as genetically engineered for consumer choice.

Red alert: hold FSANZ to account

FSANZ's consultation on new GE breeding techniques is a red alert for regulatory failure. New forms of GE foods must be regulated and labelled.

It is time that government ministers and politicians call FSANZ to account. They must require improvements to food regulation, with 'omic' profiling (genomic, proteonomic analysis etc.).[11]

The integrity of New Zealand and Australian's food system must not be sold out. Brand New Zealand depends on it.

Jon Carapiet is a trustee of Physicians and Scientists for Global Responsibility, and the national spokesman for GE-Free NZ (in food and environment). For almost 20 years he has spoken in support of the need to moderate the powerful use of gene technology to protect New Zealand's capacity to produce and sell non-GMO food and to protect the rights of consumers at home and overseas. As an advocate for Brand New Zealand Jon draws on his years of experience as a senior market researcher and brand communications consultant.

Listen to a podcast of Jon being interviewed on Radio NZ National on 3 June 2018: bit.ly/2JGfoNS

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Pastoral CARE

Mary Ralston successfully adapted a holistic grazing system to include pasture renewal.

It's not often that a major farm job turns out to be easier, cheaper, more fun and give a better result than anticipated. But this was our experience with renewing pasture on our small farm near Methven, mid Canterbury.

Advantages of holistic grazing

We use a holistic grazing system. Basically this entails giving the stock fresh pasture every day and allowing a long recovery time between grazings. One of the main advantages of this system compared to 'set stocking' (putting stock into a paddock and leaving them there until they have eaten the whole lot) is that the most palatable species are not regrazed as they start to recover.

Under set stocking, animals will eat the most palatable species first. Clover and herbs such as chicory and plantain are tastier to cattle than grass, so will be eaten first. Depending on the stocking rate, size of paddock and weather, there will be some regrowth of these palatable species while the stock are still in the paddock, so these tasty greens will be eaten again. This leads to the loss of root reserves and inability of the herbs and clover to fully recover; sooner or later they'll disappear.

In a holistic grazing system, the animals are not given the opportunity to regraze the preferred species; they are given a fresh sward each day and prevented from going back to munch on the recovering clover and herbs.

Healthy soil, roots and microbes

Holistic grazing also puts more organic matter back into the soil. Ideally, animals should be given enough fresh pasture each day so that roughly one-third is eaten, one-third is left behind and one-third is trampled into the soil. Moving cattle frequently also means manure and urine is spread more evenly over the paddock, rather than being concentrated near the troughs or under trees.

Long recovery times are another feature of holistic grazing. This gives a mature pasture. When pasture species are allowed to mature before grazing they develop good root reserves, providing organic matter to the soil and benefiting soil microorganisms. Increased rooting depth also means greater ability to seek out moisture and minerals.

We learnt about the benefits of holistic grazing at an organic farming field day. After several years of set stocking the mixed pastures (red and white clover, chicory, plantain, grasses including cocksfoot and tall fescue) and noticing preferred species diminish, it made a lot of sense not to allow stock to regraze recovering pasture. We rejigged the stock water system so we could use a portable trough, and bought more electric fencing so we could have a fence behind the cattle as well as in front.

Pasture renewal

Organic farmers on the Canterbury Plains usually renew pastures by going through a cropping rotation and sowing pasture under or after the final crop. Cropping on our small property is impractical so I contemplated hiring a contractor to plough, cultivate and drill new pasture.

Fortunately, conversations about pasture renewal with the organic farmer whose stock we graze led us to adapting the holistic grazing system to reinvigorate the existing pasture, rather than completely redoing it. After all, there was nothing wrong with the grasses; all we needed was more clover and herbs.

Above: The cattle waiting to be let into their next block. Photos: Mary Ralston

How we did it

So in September 2016, just as grass growth was getting started after winter, rather than giving the cattle a generous amount of pasture each day, we restricted the area to ensure they would eat as much as possible and chew the grass lower than usual. This intensity opened up bare ground and subdued the ability of the grasses to recover: in other words, the cattle and their hooves created suitable conditions for seed germination.

We decided on which species to sow (red clover, chicory and plantain), borrowed a small hand-held lawn seeder, worked out the rate to sow the seed and how far the seeder spread the seeds. We calculated the area we were giving the cattle each day and therefore how much seed should go on. Then, before giving the cattle their next block, the seed was spun onto the uneaten pasture. The cattle would come in, eat and tread the seed into the ground.

Reaping the rewards

Was it successful? Yes, I'd say seven out of ten. Luck was on our side with regular rain to help germination and survival. The red clover seedlings were very apparent; the chicory and plantain less so. Some very wet days during the resowing resulted in bare ground where the cattle bunched up in the corner of their allotted space. The chicory is very abundant there, leading me to think it likes less competition from grasses to flourish.

Several months later the paddocks were ready to graze again. We were careful to graze lightly so the new plants would not be stressed, and topped the grasses to minimise competition and to give the new growth plenty of light. Throughout that first summer, and now after the second, the red clover is prolific. This is not just great cattle tucker but its nitrogen-fixing capability drives the productivity of the whole pasture.

Fact file

- Oatmore Farm: 8 ha, well-drained, fertile silt loam soil
- 1000 mm annual rainfall, spread erratically throughout the year, no irrigation
- Spring and summer nor-west winds can be very drying
- Pasture renewal experiment on three small paddocks (2 x 1 ha, 1 x 0.5 ha)
- Red clover sown at 3 kg/ha, chicory and plantain at 1 kg/ha each
- Fifteen 18-month-old dairy-beef-cross cattle (Jersey and Red Poll cross) were grazed in small blocks using electric fencing and a mobile water trough
- Seed was spun on before the cattle were moved onto the fresh block of pasture.

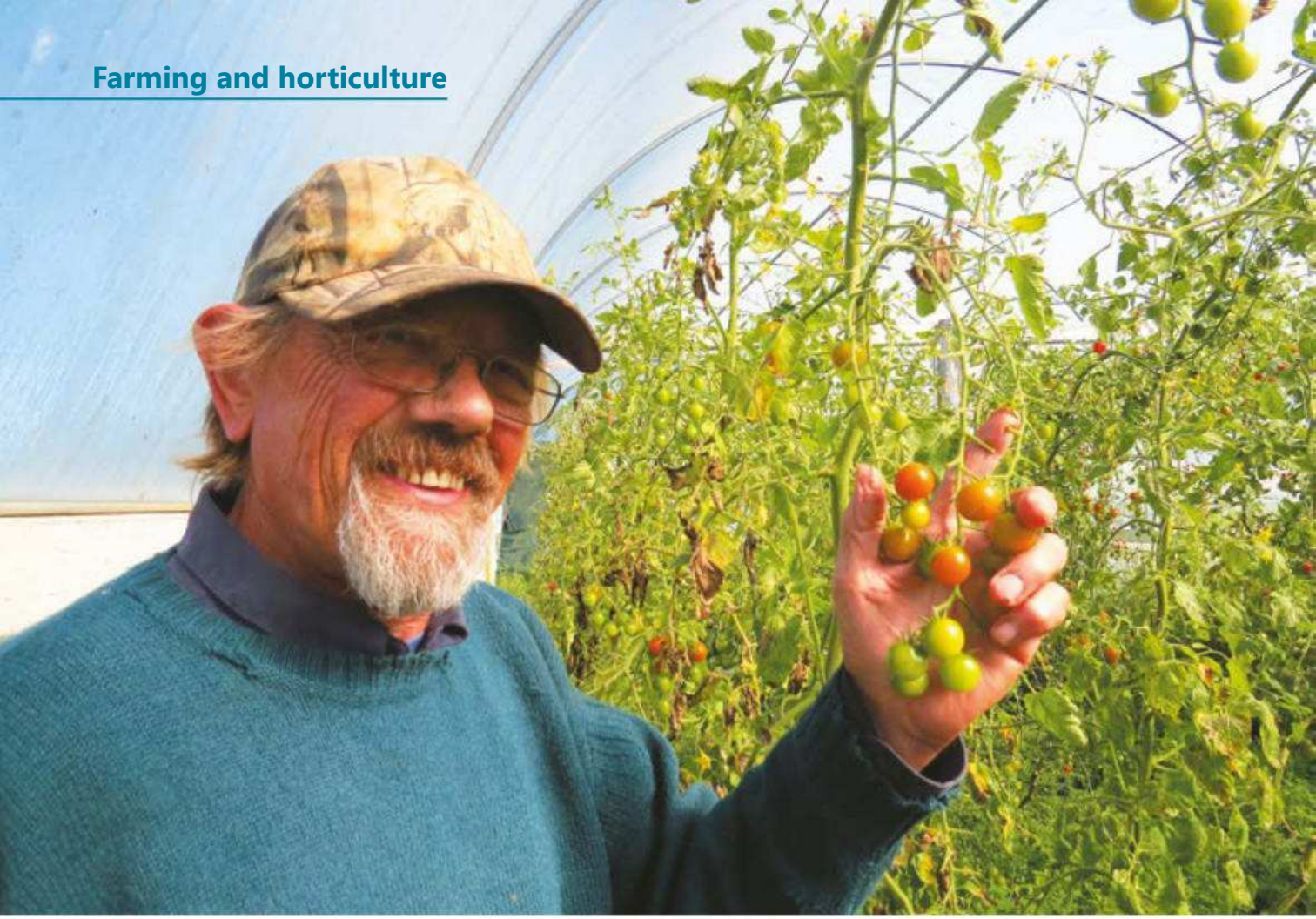
Scaling up

Our experiment was on a very small scale but it could easily be scaled up. Bigger blocks, more cattle (or sheep) and a mechanical seed spinner could make this practical on a bigger area. Irrigation would make germination and growth more reliable. This process wouldn't be possible without quiet stock, electric fencing and portable water troughs.

Mary Ralston lives on a small farm near Methven, mid-Canterbury, and loves the daily round of looking at pasture and moving the fence for beautiful cattle.

Above: Sowing the seed: we used a small lawn seeder to spin the seed onto the pasture before the cattle were let on.

Above: One year later – the pasture now has a good proportion of red clover



GROWING ON *a small* footprint

Maureen Howard visits Jim O'Gorman, a small-scale organic market gardener living a simple life off the grid in Kakanui, North Otago.

The sun is starting to wane when I meet Jim at his gate in late March. Behind him, his clay oven is heating for one of his quarterly equinox and solstice pizza parties.

Despite his party preparations, Jim gives me his full attention, enthusiastically showing me one of his hothouses. My eyes are drawn to a mass of shiny yellow tomatoes on tall vines and long pale yellow bean pods with beans nearly ripened. A tangle of weeds and herbs protect the soil beneath.

Back in his one-room house, Jim explains that he lives frugally but completely comfortably. A tiny woodburner easily keeps his well insulated home warm. Other tiny buildings house visitors or tools. Jim lives and works with no electricity, limited water, and no powered machinery. In the evenings he uses candles, and he powers his cellphone from his ute.

Growing on a small scale

With a degree in business studies, Jim is focused on how he can produce a quality product at the right quantity and price for the

Top: Jim O'Gorman
Above: Jim in one of his hothouses. Photos: Maureen Howard

Left: Jim grows seed for Koanga Institute – this one is the Yellow Climbing Butter Bean.
Right: Anjou chillies, a Mexican chilli grown for flavour rather than hotness.

customer. Most of his customers are restaurants in the North and South Islands, as well as some families closer to home who he has sold to for many years. One of his customers is the Good Earth Café in Dunedin.

Jim continues to use organic practices but his land is no longer certified organic. The benefits do not outweigh the financial costs, he tells me (his annual turnover is $15,000). His advertising is largely word of mouth and he has several times been asked to provide vegetables for visiting royals from the UK.

Jim grows small amounts of a variety of vegetable crops throughout the year, relying on his hothouses to ensure he has an income all year round. "As a small producer you must have a lot of diversity, because you could have a collapse of one crop," he says. As chefs come and go, an unstable demand is also an issue for Jim.

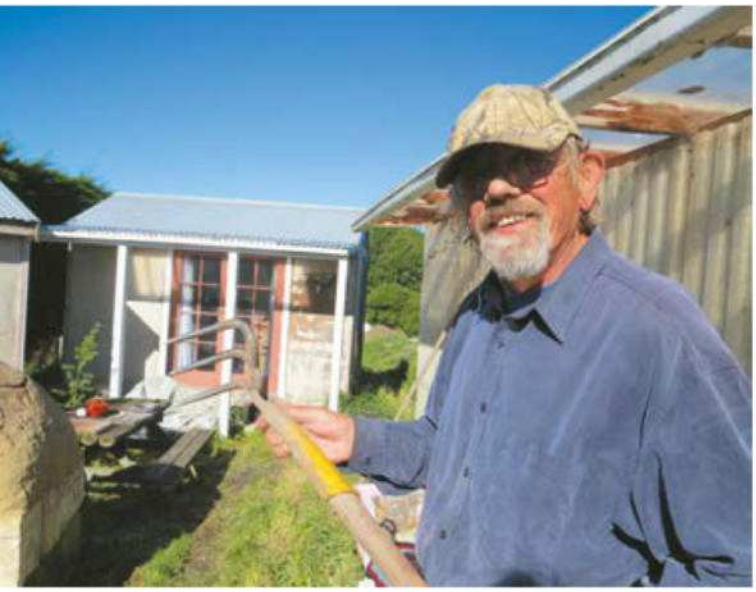
On a small property that allows close observation, Jim can experiment. For example in his hothouses he has been successfully growing potatoes followed by tomatoes for the last 17 years without ill effect. The biodynamic and biointensive movements have influenced his practices.

Soil tests

To make the best of the loess soil that rests on a thick clay base, Jim does three tests annually: a standard NPK test, a Reams test, and a Soil Food Web test. This last test is the most important, he says. It assesses whether bacteria, fungi and protozoa are present in good numbers and importantly in balance. On the basis of all his results, he adds nutrients to his compost pile. For example, he adds elemental sulphur in granular form sparingly to the compost when testing indicates it is needed, approximately every three years. "Sulphur is just as important as nitrogen," he says.

Currently Jim is fascinated by the CEC (cation exchange capacity) of his soils. CEC is a measure of how many cations (positively-charged atoms or molecules) can be retained on the surface of soil particles. Among other properties, it indicates the ability of a soil to retain nutrients. Organic matter has a very high CEC. By adding carbon-rich compost to his soils, Jim has increased the CEC of his soils from 21 to 37 meq/100 g over a three-year period and now maintains it in the mid 30s, which is a better level for his soil type. He believes this has led to an increase in soil fertility and plant vigour. Restaurants have told him that his produce lasts particularly well on their shelves and in their fridges.

Jim has improved his soils in other ways. When he first arrived on the property, his phosphate levels were 186 units (mg per litre) and he brought them down to around 120 to 130 (the recommended range is 45–90 mg/l). "That [186 units] was the result of farmers just basically pouring superphosphate on the land," he says. Over the years he has reduced the phosphate levels by adding compost to the surface of the soil, mimicking nature, and never digging it in.



Above: Jim with the 'turver': a claw-foot tool

Above: Low-tech living can be fun: Jim and his pizza oven

Dr Marion Johnson, an ethnobotanical veterinary scientist, is working with Jim to assess his soil over a ten-year period. Jim met Marion four or five years ago when he made a presentation at the University of Otago (with the interdisciplinary group CSAFE – Centre for Sustainability – Agriculture, Food, Energy and Environment).

Marion is interested to see what happens when a farm goes from a chemistry-focused to a biology-focused management system. Doing the standard chemical tests, they are finding that the chemistry changes as well as the biology under Jim's system. Jim's property is valuable in research terms because of his lack of technology, and its relevance to the developing world. However, he is adamant that the first thing that aid agencies need to do is to listen and ask questions, to find out what the challenges are for farmers and the reasons for their farming practices.

Carbon-rich compost

Jim makes a no-turn compost in autumn and spring. Local ingredients are collected and piled until ready to assemble, with seaweed an important source of micronutrients. When mature, the compost is applied thinly (1 cm) by hand on the surface of the soil.

Jim is very much in favour of a stable carbon-rich compost. Stable carbon helps support the development of fungal strands in the soil that provide benefits such as improved soil structure and water retention. His composting methods are heavily influenced by Albert Howard's book *An Agricultural Testament,* and Peter Proctor, biodynamic grower and teacher.

Weeds: friends, not foes

Weeds provide many benefits such as nutrients and cover for bare soils. The specific species is not important, Jim says, rather it is their functional qualities. Nettles, for example, are an excellent source of nitrogen. Allow them to grow, then cut them down and lay them on the surface as a feeder.

Jim is also a fan of chickweed as a mulch under his hothouse tomatoes and potatoes. The chickweed stops the soils from overheating and the crops from bolting. He recommends the book *Weeds, Guardians of the Soil* by Joseph A. Cocannouer.

Hand tools

Jim has a selection of handmade tools specially customised for his needs. A converted plasterer's trowel, deeply sharpened on both sides, is used to remove weeds at, or just below, the soil's surface. A tall hoe, designed by Jim and made by Tuatahi Axes, provides a similar function. Jim also has a long-handed digging tool with a strong claw at the base. He swings it like an axe, lifts the soil and breaks the lumps with the blunt side.

Challenges

Close to Jim's farm are conventional dairy farms that grow brassica crops to feed the cattle. A multitude of cabbage white butterflies breed there and then descend on his farm, attacking his Brussels sprouts. Now, he covers his crop with bird netting but unfortunately this also excludes birds and prevents them from eating aphids which can now proliferate.

Jim has also inherited a persistent problem with onion white rot (*Sclerotium cepivorum*). Despite previous efforts, he has not yet got on top of this particular pest and currently avoids growing members of the Allium genus.

"I used to grow Kakanui Garlic for Koanga, but now it rots. In one area I had 4000 plants and they all disappeared, rotted from beneath."

Jim hasn't given up yet. Together, with biologist and friend Max Crowe he plans to grow onions, pull up and crush the roots in rainwater and spray the liquid on other white-rot-affected beds. This, they hope, will activate the onion white rot present there, weakening and killing it because it will have no food. Good luck Jim!

Heritage crops

For many years Jim has been a seed potato conservator with Tahuri Whenua (the Māori Vegetable Growers' Group). He is conserving around seven Māori potato varieties, and grows other heritage

Left: Jersey Benne potatoes, which Jim grows exclusively for Riverstone Kitchen as 'first early' potatoes. They are usually harvested from early September and fill the gap until the first outdoor potatoes are ready.
Right: Last season was one of the best summers Jim has had, and his Lebanese cucumbers grew prolifically: 18 plants yielded 1300 cucumbers!

potatoes including Irish Pink Fir and a German variety called Ratte.

Jim also grows seed for Koanga, including Yellow Climbing Butter Beans, Yellow Yummies tomatoes, Hadfield peas and Fillbasket Brussels sprouts. Unfortunately, the seed of the sprouts was initially cross-pollinated with other brassica types, and it took years for him to bring it back true to form, collecting seed from three to four plants out of every 60 grown. With five cycles of this, and plants taking 18 months to mature and go to seed, this has been a big commitment of land.

Jim grows coriander and basil with the tomatoes, and lettuce and endive under the potatoes. Timing is important so that the potatoes do not shade out the undercrops. When Jim plants the seed potatoes, at the same time he plants lettuces on one side. The lettuces are ready to be harvested before the potatoes get too big.

"It's not companion planting because some of the things do not blend well," he says. "I'm multiple cropping." In winter he grows salad greens in the hothouses. His most precious crops are his early potatoes that are ready in September because that is when nothing else is being grown.

Future plans

It's dark now and Jim and I are sitting with several of his friends who live locally, eating some of his hot pizza. Before I leave, I ask him what's next on his 'to do' list. "Another new hothouse," he tells me, "to grow more very early potatoes for cafés!"

Maureen Howard is a sustainability tutor, facilitator and writer living in Dunedin where she hosts the show 'Eco Living in Action' on Otago Access Radio: ecolivinginactiondunedin.wordpress.com

A Place to Be

- Location: Kakanui, south of Oamaru
- 0.57 ha (about 1.5 acres)
- Soil type: loess over clay
- $15,000 turnover per annum
- 350 metres squared under cover (3 hothouses and a fine-mesh-covered house); outdoor beds
- On the land since 1996
- www.goodearthgreatfood.co.nz

Above: Sea views from Jim's place

Solar FLAIR

Crispin Caldicott visits a house made largely of recycled materials, built to take advantage of the Northland sun.

The squat, compact building nestling against a sandy hill quite belies the perceived size. From the drive at first glance it looks small, but inside, this home is spacious, comfortable and very carefully planned.

What distinguishes Sean's home is the evolution of its design and the care and thought that has gone into it over several years. As Sean has only had weekends to work on it, it has been a slow process but the home is now fully habitable. "The biggest expenditure has been sweat-equity," he said.

"An important part of that evolution was having a professional builder friend to bounce ideas off, tell me I was away with the fairies or how something different was achievable."

It's hard to put a cost on it, as all the material is either second-hand, 'rubbish' (concrete telegraph poles) or available on site (clay and sand). Most materials have been locally sourced, and many parts of the building have only proceeded when and if those materials have become available.

Designed for winter sun

The house is based on sketch plans from Athfield Architects but the building process has resulted in many innovations and variations from the originals. The most striking part of the design is that winter sunshine can penetrate to every corner of both rooms (and of course the conservatory), virtually throughout the day. The entire floor is concrete, the earth walls are 300 mm thick, and although a log-burner has been installed, with such thermal mass and large glazing, little heating is required.

A prominent feature of the building is the large window area. "Originally the design didn't have nearly such large, or so many, sheets of glass," said Sean.

"I acquired a consignment of 10 mm thick panes, each roughly 2.5 by 1.5 metres. Brand new each one would have been around $500 – I got all 35 panes for $1000. The drawback was they are mostly safety glass – which can't be cut – and there was

Above: This exterior view of Sean's house shows the simplicity of the two-room design. The conservatory forms the passage between the two wings and is also the bathroom. Behind the house is a prominent pole which holds the 1000-litre header tank. Photo: Sue Ferens

no way I could afford to have them altered to allow opening windows.

"So I had to re-think, and came up with a solution from a conservatory I once owned, in which I put louvres in the corners of the walls. I've installed six of them here, so whatever the direction of the wind I can tap into the draught and the absence of opening windows is resolved."

The louvres Sean has designed are not the conventional 45-degree-angle ones involving several hinged sheets which never quite fit. These are a simple vertical swivel mechanism, made of timber, and have proved to be very effective. "They had small gaps at top and bottom, but they are now sealed with moveable insulation in the form of foam strips."

Recycled materials

Jarrah telegraph poles have been many people's first choice when self-building, but Sean discovered there was a waiting list for them. However, on enquiry he found he could have as many as he wanted of the modern concrete equivalents for free, as there is no use for them. This solved all the structural problems. There are 17 posts buried two metres into the ground, and tied together by 200 x 300 mm timber beams, with steel brackets bolting the lot together.

The front of the house faces due north, and when one enters it's almost like walking into a cathedral. The ceiling lifts away from the front to reach a high point of four metres on the rear, southern wall. This allows air to flow up and through the building to the small windows in the back wall above the kitchen area.

These little windows were another innovation made up on the hoof. They came from an old community hall and would have been similarly positioned – high up. Their mechanism is a brass worm drive operated by a long string. Such mechanisms are rare today, and Sean was presented with six of the windows complete with precious brass drives.

Above: Pizza oven, with solar panels in the background (which power the lights, dishwasher, washing machine, etc.). The pizza oven is situated in a sheltered spot behind the house. Photo: Sue Ferens

Above: Who would know the tiles in the bathroom were rejects! Photo: Sean's archives

Poured earth

None of the walls are load-bearing, save that they do support the heavy glass windows. The wall material is poured earth, consisting of clay and shredded newspaper mixed to a slurry, to which some sand and a small proportion of cement is added. Rammed earth and earth bricks are popular, but the simplicity of pouring section by section appealed.

"At the bottom they are a full 300 mm thick, but I have tapered them at the tops above the glass as there is less need for such density high up." Sean has applied a combination of lime plaster and cement finishes throughout.

Flexible concrete roof

The roof is perhaps the most interesting and complex part of the structure, and although Sean had determined upon flexible concrete as the finishing material, what supported it was not decided until a stroke of luck.

"My neighbour had some 65-year-old pine trees that he wanted felled," he explained. "So in return for felling them I got all the good, hard, dense timber that

such trees have become by that age." The entire roof structure comes from the same trees, just milled to different sizes.

The thickness of the roof and ceiling is at least equivalent to the walls. The tongue-and-groove sarking lies on top of the rafters. On top of that are 100 x 50 mm strips on edge at 800 mm centres with wool insulation in between. The top layer could have been plywood, but it was expensive in comparison with 200 x 25 mm planks that Sean simply milled out of the trees on site. As a kind of safety precaution this top layer of wood was covered in a waterproof membrane from Novaglass, and then the final layer of Flexus bendable concrete, 10–15 mm thick, was poured.

The flexible concrete recipe remains under lock and key due to patenting restrictions. Roughly speaking it consists of fine sand, cement, pozzolan (a cementacious material, often fly ash) and 'a fibre'. Sean had used a plaster roof before which developed cracking problems that he believed would be overcome with the use of flexible concrete.

"There was another very practical reason why I wanted to use it: I didn't want to be on my roof changing sheets of corrugated iron when I was 85! It was relatively easy to apply and certainly cost-effective – the outlay for the material on 130m^2 of roof was about $2500."

Sean says the flexible concrete is a structural material and believes it could prove to be a very effective and cheap roofing material in the future. "It could be thinner than mine, and if it does develop hairline cracks a coat of paint will reseal it."

Long-life lighting

Throughout the house Sean has installed LED lights; they are expensive but their longevity and low wattage makes them economical. The rear of the house, sheltered from the east by the bedroom and the

Above: Although the house is small, the high ceiling gives a sense of space. Photo: Sean's archives

Above: Front entrance. The vertical red strips are louvres for ventilation. Photo: Sue Ferens

Left: The bedroom during building. Photo: Crispin Caldicott. **Right:** Completed bedroom, showing the dividing wall behind the bed, which conceals the walk-in wardrobe. Photo: Sean's archives

west by the garage, has been turned into a delightful courtyard, complete with pizza oven, making it a natural entertaining area. At night it is brilliantly lit by a single 20-watt LED spotlight.

Call of nature

The bathroom and toilet have the slightly dubious honour of forming the back of the conservatory area – itself the linking corridor between living and bedroom. Ablutions can be undertaken with a wonderful view, but curtains have been installed and the bathroom works beautifully. A job lot of left-over tiles from a local supplier were used to tile all the conservatory and bathroom.

Keeping cool

As the home is in a hot microclimate, airflow was always a priority. This has been achieved with the height (the high ceiling) and ventilation – the swivel louvres and high opening windows on the south wall.

Standing inside the main room on a hot day, I felt markedly cooler than when outside, and with such insulation it should remain stable whatever the season. In the original design the roofline extended out another couple of metres to form a verandah, but this would have formed a natural tunnel for a cyclone to get underneath and lift possibly the whole roof. Instead Sean will grow vines up poles and wire to form a natural, living verandah. This will add shade and ambience in summer, but allow light and sunshine in winter.

Reduce, reuse, recycle, barter

Sean believes he would never have built the house without the assistance of wwoofers. It has been many years in construction, but is not 'complete'. Skilled help was available on occasions and frequently bartered for. Whatever material was available during construction was utilised if appropriate – the best examples being the windows and sliding doors.

There are no new materials other than some screws, bolts and brackets, and various kitchen and bathroom fixtures. Much of this was dictated by pure economics, but

Features

- **Designed** for maximum solar input and ease of living
- **Space** – 130 sq m including small garage
- **Construction** framework concrete – old telegraph poles
- Various **beams** of local pine and eucalypt – some obtained from old buildings
- **Walls** – poured earth: a slurry of clay, shredded newspaper, sand and cement, with a lime plaster finish
- **Floor** – polished concrete in main areas, and second-hand (reject) tiles in the bathroom and kitchen
- **Roof** – local 65-year-old pine trees (*Pinus radiata*) covered in flexible concrete (could be tinted), wool insulation
- **Doors** – mostly macrocarpa timber – stable-door design
- **Lighting/power** – LED throughout, 12 x 130w solar panels to batteries
- **Hot water** – solar, plus wood-burning stove
- **Kitchen** – fitted out with 12 sheets of a resin-based material (Koris) for $250.

There was a very practical reason why I wanted to use flexible concrete: I didn't want to be on my roof changing sheets of corrugated iron when I was 85!

the results are remarkable. If reject tiles can look as good as they do in this home then there is certainly no purpose in spending more.

It is very much a solar home, and the main living room concrete floor is bathed in sunlight almost from dawn to dusk, but any overheating is compensated for by the natural ventilation. Like much of New Zealand this is a windy zone, and any one of the six louvres is bound to be facing the right direction, although in fact just sliding open the front door seemed to be more than adequate.

Above all, the house has been designed for ease of living. "My mum died aged 96," said Sean, "but the quality of her last few years was detracted from by her surroundings. I've thought of that very hard as the project has proceeded and everything has been designed for ease in my old age. In fact it will be possible to have wheelchair races in here all day every day!" Along with his yoga, that will certainly keep him fit…

Crispin Caldicott is the editor of *Earth Building*, the magazine of the Earth Building Association of New Zealand (EBANZ, www.earthbuilding.org.nz).

This is an updated version of an article that was first published in *The Owner Builder* in Oct/Nov 2015 (www.theowner builder.com.au) and is reprinted with kind permission of the author and publisher.

Soil & Health Association of NZ 2018 AGM
Vote for YOUR Council!

Saturday 28 July 2018
9:30 registration and morning tea
10 am – 12:30pm AGM
Ferndale House, 830 New North Road, Mt Albert, Auckland

All members and supporters warmly welcome. Please register by 16 July 2018. Send your name, address, phone number, email address and number of people attending to manager@organicnz.org.nz or phone 09 419 4536.

AGM agenda

Opening
1. Welcome
2. Attendees and apologies
3. Minutes of 2017 AGM

2018 Reports
4. Chair report
5. Financial report
6. Appointment of auditor

2018 Elections
7. Appointment of returning officer and scrutineers
8. Nominees address members
9. Questions for nominees from the floor
10. Election of National Councillors
11. Voting on remits

Other Business
12. Branch reports
13. BioGro Constitution
14. General business (from the floor)

Closing
15. Election results
16. Close meeting

Nominations for National Council

The National Council consists of seven elected members who are voted in for two-year terms. Marion Thomson, Mike Ryan and Moko Morris have been elected for the 2017–2019 term. The terms of Mark Houghton-Brown and Gaz Ingram are up for renewal at the 2018 AGM. Graham Clarke and Chris May are stepping down from the National Council at the AGM.

The following seven people have been nominated for election to the four positions available.

Marion Wood

Nominator: Marion Thomson
Seconder: Chris Morrison

Marion Wood is executive director of Commonsense Organics. She is chair of the Organic Retailers of New Zealand, a former deputy chair of the Sustainable Business Network and on the Board of Fair Trade Wellington. She is also a director of Common Property Ltd, an organic market garden in Te Horo, an hour's drive north of Wellington.

Her focus is on making organic food more accessible to people in Aotearoa New Zealand, and developing a successful ethical business paradigm based on organics, environmental sustainability and fair trade, as well as financial sustainability.

Marion has a long involvement in the not-for-profit sector. She is a former national director of the YWCA of Aotearoa New Zealand, and worked as a founding consultant for the Waitangi Consultancy Group on Treaty of Waitangi issues. She was involved in:

- starting the first Trade Aid shop in Wellington;
- initiating and chairing the Council for International Development, the umbrella group for development agencies in Aotearoa New Zealand;
- a successful campaign to make Wellington the first fair trade capital in the southern hemisphere.

Allan Richardson

Nominator: Graham Clarke
Seconder: Kim Strang

I am married to Sonia and we have two young adult children, Grace and James. We are organic sheep and beef farmers and also sell sheep genetics near Heriot in West Otago. We have been organic for 21 years and currently run 12,000 stock units on 1300 ha.

I have been involved in YFC (Young Farmers) to a national level, was a Nuffield Scholar in 1999, and have been active in farming politics. We embrace the organic way of life and the many benefits that this involves.

It is vital that there is a strong voice for the organic family both big and small, and that we work together to achieve this.

Bailey Peryman

Nominator: Marion Thomson
Seconder: Moko Morris

Firstly, I am a dad and husband with a young family. I have 10 years' experience at the grassroots of the organics movement in Christchurch. I am an honours graduate from Lincoln University (Environmental Management), community gardener, local food entrepreneur, and recently co-founded Cultivate Christchurch (see article in *Organic NZ*, May/June 2018).

Since 2012, I've been involved with Soil & Health Canterbury, held the role of chair and attended national events and AGMs during the 2015–16 period of merging with BioGro. It has become clear there are significant governance challenges as a result of the merger and I am responding to recent calls for younger people to join the National Council (NC).

Elected to NC or not, I intend to use my ongoing leadership role within Cultivate to leverage support to grow the organics movement in NZ in the following ways:

- Develop regenerative and community-supported urban agriculture projects;
- Support small organic growers nationwide through the changes ahead from new MPI regulations for organics;
- Grow grassroots initiatives and networks that have significant nationwide potential;
- Engage with central and local government to build support for community-based education and training for young people in organics, as well as improving policy in support of food sovereignty initiatives.

Gaz Ingram

Nominator: Mark Houghton-Brown
Seconder: Craig Dowling

Gaz has been involved in the New Zealand organic scene for over 20 years, firstly as an organic pipfruit grower in Hawke's Bay and now as organic and biological manager for Farmlands Co-operative Society Ltd.

Gaz is also currently a director for

BioGro NZ Ltd, New Zealand's leading organic certification company and was chair of the NZ Biological Producers and Consumers Society Incorporated. He is a long-term resident of Hawke's Bay, originally growing up on a sheep and beef farm and now lives in Hastings, Hawke's Bay, with wife Sarah and daughter Madison.

Gaz is a strong supporter of not only the organic industry in New Zealand but also those who are actively trying to reduce their agrichemical and fertiliser usage by adopting newer forms of inputs and practices and developing a better understanding of the chemistry options they choose to use in their operations.

Mark Houghton-Brown
Nominator:
Tim Chamberlain
Seconder:
Gaz Ingram

Mark has been an organic farmer in some form over 30 years on three continents now, and has been a longstanding trustee of the Soil Association in the UK. He is a company director who has serial commercial governance experience with organic brands and has made a lifetime mission of putting sustainable agriculture into practical action.

Mark has lived in Nelson with his family for the past 10 years. He is on the board of BioGro NZ Ltd and is keen to help Soil & Health, and support the strengthening of the organic movement in its further development towards the vision during the merger process.

Penelope Bundy
Nominator:
Marion Wood
Seconder:
Chris Morrison

Penelope is passionate about increasing consumer access to safe and healthy organic food. She has been involved in the organic sector since 2012 and is the store manager for Commonsense Mt Eden.

Her relationships with customers, suppliers, growers, and other retailers gives her a unique understanding of the needs of those engaging with organics from all angles. This has equipped her with the knowledge of how the organic community can best serve our customers and ensure the growth of our sector.

At 26 years old, Penelope is the youngest candidate standing for election as she believes that there is a need for the organic movement to actively connect with those who are just starting their journey towards a more ethical way of living.

Steffan Browning
Nominator:
Matt Morris
Seconder:
Alison White

Kia ora tatou. I am a life member and previous National Councillor and Association spokesperson, 2003–2011, a period that had a steady growth in membership and strong positive media exposure, particularly on food safety, pesticides and genetic engineering, and the positive advantage of organic production and food. I maintained significant work on those issues as a member of parliament, 2011–2017, and remain committed to this work.

My experience as a BioGro certified grower of 17 years and then board member (2004–2012), including roles on the standards and certification committees, is critical on National Council now that Soil & Health owns BioGro NZ. I understand the importance of supporting a unified organic sector and the regulation of a national organic standard with integrity, ensuring the interests of BioGro and OrganicFarmNZ licensees and organic home growers are met, with a robust organic consumer guarantee.

I have been a town centre organic retailer and was a founding member of the Marlborough Farmers Market, while also New Zealand's then largest certified organic hothouse vegetable producer, selling throughout Aotearoa.

The Soil & Health Association has a long history, and once was a major New Zealand organisation with many branches and a membership rivalling other major NGOs. Membership has fluctuated in recent years and now needs a major lift.

The alarming doubling of the membership fee is unfortunately just one measure of a National Council that has become dysfunctional. This needs a reconnecting with and build of membership, trust and integrity, while ensuring a professionally run organisation.

A strong refresh of the National Council is needed with a mix such as the long experience of Marion Wood and myself with the generational vision of Bailey Peryman and Penelope Bundy.

Soil & Health 2018 voting paper

All Soil & Health Association members are eligible to vote. If you subscribe to *Organic NZ* you are probably also a member with voting rights - if unsure please check with the office at the contacts below. Your name and address on this voting paper is solely to confirm your membership.

How to vote:

1. Cut out or copy this voting paper and fill in your name and address.
2. Tick UP TO 4 nominees for National Council that you support.
3. Place a tick to indicate whether you support or oppose each of the 4 remits.
4. Post to the Returning Officer, Soil & Health Association, PO Box 9693, Marion Square, Wellington 6141, to arrive by 5 pm, 20 July 2018; OR vote at the AGM in person, OR place in a sealed envelope marked 'Ballot paper of (name of member)' and give to someone who is attending the AGM for them to give to the returning officer.

Contact for any queries: manager@organicnz.org.nz, 09 419 4536.

Member name _____
Member address _____
_____
_____

Soil & Health National Council candidates

To vote, place a tick beside the name(s) of UP TO 4 candidates. Voting papers with more than 4 ticks will be invalid.

- ☐ Steffan Browning
- ☐ Penelope Bundy
- ☐ Mark Houghton-Brown
- ☐ Gaz Ingram
- ☐ Bailey Peryman
- ☐ Allan Richardson
- ☐ Marion Wood

Remits

Remit 1
- ☐ I support this remit
- ☐ I oppose this remit

Remit 2
- ☐ I support this remit
- ☐ I oppose this remit

Remit 3
- ☐ I support this remit
- ☐ I oppose this remit

Please turn over to read the remits ➜

Remits to Soil & Health's 2018 AGM

Remits re Soil & Health membership and access to information
Three remits, proposed by Monique Olivier, and seconded by Nicholas Holmes.

Remit 1

That the Rules be amended to add the following sub-clause 6.1.6 to General Meetings:
6. General Meetings
6.1 There shall be held in each year not later than the 1st of August an Annual General Meeting of the Association to transact such business as may be appropriate including:
6.1.1 Receive the Annual Report by the Chair of the National Council.
6.1.2 Receive the Audited Annual Statement of Accounts and Balance Sheet.
6.1.3 Receive such other reports as may have been required or requested.
6.1.4 Elect National Council members.
6.1.5 Receive, discuss and vote on remits.
6.1.6 Determine the annual subscription for membership of the Association

Remit 2

That the membership revokes the National Council's decision on the new membership structure and fee increase and:
a. Upholds and retains clause 3.7 that entitles members to a free copy of the magazine.
b. Decides on the appropriate membership subscription fee for the coming year.

Remit 3

That the AGM instruct the National Council to add a password-protected members-only page to the Association's website that shall contain all records including but not limited to:

- The Rules of the Association
- Long-term Strategic Plan
- Annual Plan
- Minutes of AGMs and National Council meetings
- Annual Financial Reports

Rationale for the above 3 remits
In the May/June issue of *Organic NZ* a number of letters were published from members questioning the change of membership fees and structure. The reply from the chair of the National Council justified the near 100% increase as necessary to cover expenses but did not address other concerns such as the legality of these decisions under the current Rules of the Association.

The current Membership rules say:
3. Membership
3.7 All Honorary Life and financial Single or Joint members shall be entitled to receive free of charge one copy of each issue of the Association's journal and such other benefits and publications as the National Council may from time to time resolve. For the purposes of this section joint members shall be deemed as one single member.
3.12 Member's subscription shall run 12 months from the date of issue of the first copy of the Association's magazine to such member.

The current Governance rules say:
9. Governance
9.1 There shall be a National Council of the Association which subject to these rules and any policy directions of any General Meeting shall govern the affairs and business of the Association. The National Council shall consist of seven elected council members.

This implies the National Council did not have the authority to change the membership structure as outlined in 3.7. A change of the rules would be required first.
There is no guidance in the Rules as to when and how the membership fee should be set. Common practice in incorporated societies is this is decided by the members at the AGM.
Questions were also asked about transparency in decision-making and a request put for a secure members only page on the website where minutes of all meetings, including those of the National Council, can be accessed.

Your vote counts!

Voting paper on previous page

Book review

The Resilient Farmer

Weathering the challenges of life and the land

Doug Avery
(Penguin, 2017, $44)
Reviewed by **Dennis Enright**

This book speaks to important elements that many of us face in our lives.

Doug Avery sets out his journey, covering his succession to a family farm and the rigours of farming in a difficult and changing environment. He writes about how he succumbed to depression because of severe drought conditions that came close to destroying him and his farm, and the circumstances and personal resilience that saw him overcome that depression.

He describes how at his lowest point he met a man called Derek Moot, who introduced him to the value of growing lucerne in his region: a plant that fixes nitrogen from the air and maximises every millilitre of water in the ground below it. He needed to be a farmer of water and to farm in a way that focused on regional conditions and climatic conditions, rather than apply a one-system-fits-all farming model that had led him to this point.

Doug Avery learnt that the process of change is hard, and suffered some heart-rending setbacks, which in recent times included a major earthquake and hurricane winds that shattered and flattened the farm.

However, through his meeting with Derek Moot, engaging with family and friends and seeking advice from experts, he has turned personal, financial and environmental crises into an award-winning success. The latter part of the book describes his commitment to sharing his story for the benefit of others.

This is an easily read book with very powerful messages from Avery's personal experiences farming in the driest region of New Zealand: Marlborough. This inspiring book has messages for people in all walks of life.

Dennis Enright is the owner of NZ Biochar Ltd (nzbiocharltd.co.nz) and is a former Soil & Health National Councillor.

Join **Soil & Health** today:

Membership and subscription options

Magazine only subscription 1 year $49.00	$
Magazine only subscription 2 Years $90.00	$
Magazine Gift subscription 1 year $49.00	$
Magazine Gift subscription 2 Years $90.00	$
Membership and subscription 1 Year $95.00	$
Membership and subscription 2 Years $190.00	$
Membership only $75.00	$
Small Business Membership* $195.00	$
Commercial Membership* $295.00	$
Overseas Magazine only subscription 1 year $98.00	$
Overseas Membership and subscription 1 Year $135.00	$

*Terms and conditions apply

General Donation:

I'd like to make a donation to the Soil & Health Association (Donations over $5 qualify for a tax rebate. You will be sent a donation receipt) $

Single Issues:

(Go to www.organicnz.org.nz for the back issues list)

Current Issue ($8.90)	$
Back issue x 1 ($4) Issue: _____	$
Back issue x 3 ($10) Issues: _____+_____+_____	$

Resource Guides:

Organic Pastoral Resource Guide ($30)	$
Organic Summerfruit Guide ($25)	$
Organic Citrus Resource Guide ($25)	$
Organic Avocado Resource Guide ($20)	$
Subtotal	
Postage (single issues and Resource Guides)	$ 2.80
Add an extra $2.80 for more than 4 single issues and more than one Resource Guide	$ 2.80
Total	

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Payment Details: ☐ Cheque, payable to Soil & Health Association
☐ Visa or ☐ Mastercard

Card Number

Expiry Date Name on Card

Signed

Post: Soil & Health Association of NZ,
PO Box 9693, Marion Square, Wellington, 6141
Phone: 09 419 4536 **Email:** info@organicnz.org.nz

Subscribe online www.organicnz.org.nz

events and contacts

The Soil & Health Association – publisher of *Organic NZ* – has groups that meet in different parts of the country. These meetings and field days are wonderful ways in which to meet fellow gardeners and growers, and other people interested in healthy soil, healthy food and healthy people.
Here are the contact details of Soil & Health branches and groups, and coming events.

Soil & Health Auckland Branch

All welcome. Meetings are held on the third Tuesday of each month (Feb to Nov) at the Auckland Horticultural Council Centre, 990 Great North Road, Western Springs (directly opposite Motions Road, the road that goes to the zoo). Trading table from 7 pm. Supper contributions appreciated. Entry: $2 for hall hire. More details: Dave Woods, 09 489 5470, 021 858 538, email dave.woods57@gmail.com.

Tuesday 17 July, 7.15 pm

Speaker: Linda Christianson, of Nourish, Health and Nutrition, will talk about gut healing for mental health. Linda worked at Framework at their gardens and is now employed by Pathways (an NGO for mental health) and provides clients with the opportunity to grow fresh and healthy food towards recovery.

Tuesday 21 August, 7.15 pm

Speaker: Megan May, founder of Little Bird Organics, will share her experiences of plant-based wholefoods eating.

Soil & Health Hawkes Bay contact

Marion Thomson, marion.thomson@live.com, 027 555 4014.

Soil & Health Palmerston North contact

Margaret McKenzie, 06 358 2535.

Soil & Health Wellington Branch

Contact Dave Treadwell, dave@ecoseeds.co.nz, 04 976 4448

Soil & Health Levin Branch

The Levin branch has gone into recess. Any local members wanting to be involved in re-establishing the branch, contact Fay Tekira-Macdonald, fay1213@yahoo.co.nz

Soil & Health Canterbury Branch

Seasonal celebrations, workshops and events: contact canterbury@organicnz.org.nz.

Soil & Health Mid-Canterbury Branch

Contact Di Candy, 021 0298 9945.

Soil & Health Central Otago contact

Cass Watson, casswatson@yahoo.com, 027 213 3758.

Soil & Health Dunedin Branch

Occasional events. Contact Dennis Enright, topveges@gmail.com, 022 678 4396.

What's on

MEETINGS AND EXPOS

Soil & Health 2018 AGM
Auckland
Saturday 28 July,
10 am – 12.30 pm
Ferndale House,
830 New North Road,
Mt Albert, Auckland.
See full notice on page 56.
The OFNZ AGM is on the afternoon of the same day.

OFNZ AGM
Auckland
Saturday 28 July, 1–2 pm
St Columba Centre, 40 Vermont St, Ponsonby. RSVP by Monday 9 July to organicfarmnz@outlook.co.nz, 021 228 4866.

ECO Annual Conference
Napier/Havelock North
7–9 September
The theme is 'Communities Protecting Nature: in Practice, Policy and Law'. Contact: eco@eco.org.nz, www.eco.org.nz, 04 385 7545.

WORKSHOPS & FIELD DAYS

Edible Backyard Workshops
With Kath Irvine, www.ediblebackyard.co.nz

Above: Permaculture people sure know how to have fun!
Photos: Katie Horrocks, @whatkatiedug

How to prune fruit trees
7 July, Wellington

Pruning workshop
22 July, Kaiapoi

Organic Gardening Basics
With Judy Keats. Kelmarna Community Gardens, Ponsonby, Auckland. Contact: 09 376 0472, kelmarnagardens@gmail.com, www.kelmarnagardens.nz

Healthy soil: 21 July
Propagation and planting: 4 August
Fruit trees and pruning: 18 August
Organic weed management: 1 Sept
Gardening with the seasons: 15 Sept
Natural pest control: 29 Sept

Kahikatea Farm Workshops
Hastings
Tutor: Jo Duff. Contact: kahikateafarm.co.nz/courses.html

Introduction to Permaculture Design
13–16 July

Edible Garden Workshop
25 August

Auckland Permaculture Workshops
apw.org.nz

Urban Design and Living
14 July

Resources and Redefining Waste
18 August

Koanga Institute Workshops
Wairoa
Contact: 06 838 6269, www.koanga.org.nz.

Propagation Workshop
14 July, 9 am – 4 pm

Reclaim Your Health Week
16 – 21 September
Prepare and cook nutrient-dense food.

Food Security Week
23–28 September
Comprises biointensive gardening and growing nutrient-dense food workshops.

Food Forest Design Qualification
21 July – 4 October
South Island
This level 5 course is held in four blocks, at Dunedin, Riverton, Wanaka, Christchurch/Lyttelton. A partnership between Food Forest NZ and Otago Polytechnic: foodforest.co.nz/food-forest-design-qualification

Above: The opening ceremony of the Permaculture Hui held at Waihi Beach in May, which was attended by about 200 people. The theme was 'Generating change'.

Deep Ecology Day
July 21, 10 am – 5 pm
Founder's Park, Nelson
Despair and empowerment work for healing our world, with Inna Alex. Contact: earthcarenz@gmail.com.

Alembics Distillation Workshops
Auckland Botanical Gardens
www.alembics.co.nz/workshops

Saturday 21 July
101 Basic Distillation

Saturday 11 August
Gin Immersion

Avondale Community Gardeners
Avondale, Auckland
Monthly social gardening tutorials and practicals. Contact Imi: 09 828 5854, avondalecommunitygardener@gmail.com.

Auckland Biodynamic Group
For information about biodynamic events, workshops and gatherings, subscribe to our monthly newsletter: aucklandbd@gmail.com, or contact Diane 09 418 0438.

Ecomatters Environment Trust
New Lynn, Auckland
Environment Centre and community gardens open Mon–Fri, 10 am – 4 pm, Sat until 1 pm. For info on workshops, see www.ecomatters.org.nz, 09 826 4276.

Kaipatiki Project Environment Centre
Birkdale, North Shore
Workshops, community planting days, parent-child groups. Contact: 09 482 1172, admin@kaipatiki.org.nz, www.kaipatiki.org.nz

Hamilton Organic Gardeners
Hamilton
To find out about our meetings and a wide range of events (health, gardening, political, environmental) in the Hamilton area, join our email list. Contact: hamiltonorganicgardeners@gmail.com.

Sustainable Taranaki
New Plymouth
Monthly workshops, speakers, field trips. Contact: info@sustainabletaranaki.org.nz, www.sustainabletaranaki.org.nz

Environment Centre Hawke's Bay
Workshops, eco tours, events. Contact: 06 870 4942, or email info@environmentcentre.org.nz, www.environmentcentre.org.nz

Riverton Organic Growers Group
Fourth Tuesday of the month, 7.30 pm
South Coast Environment Centre: 03 234 8717, office@sces.org.nz, www.sces.org.nz

Above: Nandor Tanczos at the opening ceremony of the Permaculture Hui held at Waihi Beach in May.

Please let us know of any organic-related events coming up.
Deadline for the September/October issue is 1 August.
We also welcome your photos from organic events.

Contact editor@organicnz.org.nz
ph 03 473 9293
PO Box 9693, Marion Square, Wellington, 6141

Goods and services directory

This directory is your guide to a range of goods and services that are either certified organic, or supply organic products.

- Certified organic goods, services or businesses are marked: ✓
- Non-certified producers are included on the implicit expectation that they share a philosophical and practical commitment to recognised standards of organic production.

Books

Organic Gardening Calendar by Kath Irvine $15 (less for orders of 10) and the Starters Guide To Organic Growing $5. Requests to Wendy Batterbee via email at wendek@clear.net.nz or Pauline via phone 04 293 4413.

Certification

OrganicFarmNZ. Low cost certification for producers supplying the New Zealand market. Contact us at organicfarmnz@outlook.co.nz, 021 228 4866, www.organicfarm.org.nz

Demeter New Zealand. Contact the Bio Dynamic Farming and Gardening Assn, PO Box 356, Martinborough 5741. Ph 06 306 8582. Email demeter@biodynamic.org.nz, Web www.biodynamic.org.nz

BioGro Certification. Contact PO Box 9693, Marion Square, Wellington. Ph 04 801 9741. Fax 04 801 9742. Email info@biogro.co.nz Web www.biogro.co.nz

AsureQuality. Contact: 0508 00 11 22. Email: certificationservices@asurequality.com. Website: www.organiccertification.co.nz

Eco-Building

Pyroclassic IV Woodburner – New Zealand made. Very low emission woodburner with high efficiency. Free catalogue. Ph 0800 479 762. Website www.pyroclassic.co.nz

Straw Bale Building Design & Construction Workshops, for design/ building professionals & homeowner builders, www.soldesign.co.nz

Education

Learn about Living Sustainably. A wide range of courses sharing the skills to produce your own food off the land. See www.LaLS.nz.

Fertilisers/Pest control

✓ **Fodda - Feeding the Earth.** Organic Soil Enhancer and General Fertiliser. NZ made, odourless, increases earthworms & microbes. www.tuturu.co.nz

✓ **Visit: www.greentrading.co.nz** for BioGro certified neem products for people, pets and plants

INGROUND WORM FARM. WORM WORLD Vermi-composting system. Worms deposit Vermi-Caste and Vermi-Juice directly into soil enhancing soil and plant growth. See Trade Me Listing for details. Contact stooglenz@xtra.co.nz

Fruit / Veg / Produce

✓**AVOCADOS,** Doug Brown, BioGro # 10, "ECOAVO", 221 Thompsons Track, RD. 2, KatiKati. Ph: 07 549 0617 Cell: 021 668 117, doug.brown@wave.co.nz - www.ecoavo.com

✓**Organic apples,** Demeter cert., Jan.-June, 06 364 3451, hgwg@xtra.co.nz

✓**Purebread ONLINE.** NZ's only BioGro certified, FREE delivery over $26. Naturally fermented, certified organic for OPTIMUM NUTRITION www.purebread.co.nz

Grains / Pulses / Nuts

Macadamias; Honey, Chocolate, Salt Roast, Butter, Dukkah, etc. Raw kernel and Nut in shell. Spray-free. OFNZ (UC2) Available at 79 Childers Rd, Gisborne and www.toreremacadamias.co.nz

✓ **Macadamia Nuts** Raw Out of Shell in bulk. Spray-free since 2011. OFNZ Certified Conversion(C2) www.simstal.kiwi

✓ **Milling Wheat, Rye, Barley, Linseed Straw,** Scotsburn Farm, BioGro #5236, 2615 Methven Highway, R.D. 6, Ashburton. Ph 03 3028462 or scotsburn@slingshot.co.nz.

✓ **Terrace Farm BioGro certified Grains & Flours.** Bread wheat, rye, buckwheat. All either whole, stoneground flour or Zentrofan flour. Buckwheat for green manure. Ira & Geoff Wilson, Terrace Farm, RD 12 Rakaia 7782. Ph 03 302 8663 or terracefarmorganic@gmail.com

Health & Beauty

✓ **Certified organic skincare,** personal care and cosmetics. Totally chemical free. 15-day money back guarantee. World's first. Order online at www.maximumwellbeing.com or phone 07 571 1141. Global organic business opportunity available www.miorganicbusiness.co.nz.

Make your own natural skincare products with Go Native, NZ's premium supplier of pure, organic carrier oils, essential oils, clays, butters and more. Let our team of experts guide you with easy-to-follow recipes, video tutorials and tips at gonative.co.nz

Natural care for eczema and psoriasis. Try Milk Relief Soap™. Handmade from goat milk and organic oils. 100% palm oil free. 90-day unconditional money back guarantee. Order online at www.goatmilksoap.co.nz or call 03 249 8578

Holistic / Integrative Eye Care by Optometrist with Nutritional & Environmental Medicine training. Eye & General Health consultations; Nutrition; Vision Training; Prescription Glasses & Sunglasses. Silverdale clinic, home visits Auckland. Monique Wiegand 094275027 www.moniqueclinique.com

✓ **Organic Unrefined Virgin Coconut Oil** delivered to you. Suitable for both food and skin/hair care. Glass jars or bulk pails. Orders $20 and over, free courier within NZ, 90-day unconditional money back guarantee. Order at www.CoconutOilShop.co.nz or call 03 249 8578

✓ **Viola Organics Ltd est 1986**. NZ made. BioGro Certified since 2003.Wonderful skin, body and hair products for the whole family. Request a free product catalogue to be mailed or shop online at www.violaorganics.co.nz Factory: 57 Memorial Drive, Riverside Whangarei Ph: (09) 4388 789

✓ **Visit: www.greentrading.co.nz** for range of BioGro certified organic neem, moringa, ashwagandha, curcumin, coconut oil, and many other Ayurvedic products.

Livestock

✓ **SHIRE®, Wiltshire, NZ Marsh & Lincoln Rams, Ewes & Lambs for sale.** Deliveries throughout NZ. Certified fully BioGro Organic since 1989. www.organic-rams.co.nz Also Hairy TUFTY® Cows, Bulls & Calves. www.hardyhairyhorny.co.nz Phone Tim Gow 03 225 5283 Email: tim@organic-rams.co.nz

Meats

✓ **Biodynamic/organic prime beef** from Demeter certified (No.95) livestock. Born, raised and processed on farm. All cuts of organic beef for you to choose. 4 flavours of lean gourmet sausages, gluten-preservative-MSG-nitrate-free. Vacuum packed in meal sized portions. Couriered throughout the North Island from 10 kg. Contact: Ursula Eisenmann, Waima Hill Organic Beef, RD 3 Kaikohe 0473. Ph/Fax 09 405 3833 Email: waimahill@organicbeef.co.nz, www.organicbeef.co.nz

Mountain Valley Organic meats. TUFTY® Beef & SHIRE® Lamb raised organically on Alpine & Herbal pastures near Fiordland delivered direct throughout NZ since 1990. Email: tim@organicmeats.co.nz

Organic Boxes

WAIRARAPA ECO FARM COMMUNITY SUPPORTED AGRICULTURE (CSA) – Weekly Soil to Plate Fresh Food Shares. Certified Organic. Visit us at www.wefs.co.nz

Processed Foods

✓ **Raw Milk Gouda Goat Cheese**
Bio-Gro certified made with Aroha
Email: aroha@organicgoatcheese.co.nz
www.organicgoatcheese.co.nz

Retailers

✓ **Commonsense Organics. Making ethical shopping an everyday choice.** We're a family business based on three key values: organic food, environmental sustainability and fair trade. We've been doing this for 25 years and these values still underpin everything we do! Our stores are the place to go for ethically produced fresh food, groceries, wholefoods, cosmetics and other home necessities. We have qualified naturopaths in store and carry a range of specialist products that meet the needs of those affected by allergies and food intolerances. You'll find our stores in Wellington City, Mt Eden, Kilbirnie, Lower Hutt, Johnsonville and Kapiti. Pop in and meet our friendly staff or shop online! www.commonsenseorganics.co.nz

Make your own natural skincare products with Go Native, NZ's premium supplier of pure, organic carrier oils, essential oils, clays, butters and more. Let our team of experts guide you with easy-to-follow recipes, video tutorials and tips at gonative.co.nz

Meals in steel: For stainless steel lunch boxes and water bottles. Visit: www.mealsinsteel.nz Call:099483876

✓ **IE PRODUCE -** YOUR BIOGRO CERTIFIED ORGANIC SUPERMARKET IE Produce "an award winning food retailer and New Zealand's first BioGro certified organic retailer, since 2000." IE Produce, 1 Barry's Point Road, Takapuna, North Shore. www.organicfresh.co.nz Phone 09 488 0211

✔ **Liberty Market** is South Island's first and only AsureQuality certified organic retailer and is still family owned. Best range of organic groceries plus organic bread baked daily right here. Corner of Moorhouse & Fitzgerald Aves. Christchurch. Open 7 Days. www.LibertyMarket.co.nz

Organic Living Healthfoods. Manawatu's complete organic grocery store. Also herbal and homeopathic remedies, natural skincare and more. Broadtop Shopping Centre, Broadway Avenue`, Palmerston North. Ph 06 353 0549. Email info@organic-living.co.nz

✔ **Piko Wholefoods** has over 35 years of experience in organics, wholefoods and special diets. We are a BioGro certified store with a range of groceries to suit everyone. Piko is owned by a charitable trust and donates its profits to community organisations.
229 Kilmore Street, Christchurch 8011. shop@pikowholefoods.co.nz Phone 03 366 8116 www.pikowholefoods.co.nz

✔ **Taste Nature –** Dunedin's Organic Food Shop and Eatery. Stocking extensive range of organic groceries especially certified organic produce, bulk dry and wet goods and organic gardening supplies. Eatery serves seasonal organic fare. Check us out at 131 High St, Central Dunedin or www.tastenature.co.nz or phone us on 03 4740219.

Waiheke Organic Food, 20 Tahi Rd, Ostend, Waiheke Island. Ph 09 372 8708, email organic@pl.net. Specialising in natural remedies & homeopathy, organic produce, dairy and meat, dietary and fine foods providing for vegetarian, vegan, paleo, raw and gluten free requirements . Stockist of Trade Aid, Bob Red Mill's, Dr Hauschka, Weleda, Giovanni, Kiwiherb & Harker Herbals. Focus on locally and NZ sourced products. Opening hours: Mon-Fri 9am-5pm, Sat 9am-2pm

Seeds & Plants

Apple Trees. Organically grown on vigorous rootstock. 60 varieties delivered nationwide since 1999. www.tastytrees.co.nz or ph.Chris 09 4085443. Txt 0273467645.

Are you developing an orchard? And want to maximise your earliest returns? Then don't compromise your kiwifruit plants. We will discount accordingly to quantity. Phone Te Puke Nurseries 07 533 1197.

✔ **Delicious Heritage Fruit Trees.** Disease resistant fruit trees, berry shrubs and companion plants. Certified Organic. Delivered bare rooted July /August. Your Southern specialist. 0272273004. www.habitate.co.nz

Grow mushrooms and edible fungi at home. Learn from the kits, then use your own materials. Buy MUSHROOM GOURMET kits at garden centres or visit www.mushroomgourmet.co.nz

Setha's Seeds, NZ Heritage Varieties of Vegetable and Flower Seeds grown organically. Workshops, internships and courses. www.sethasseeds.co.nz

Services

Helix Organics - Organic Certification made easy for you – Full support for organic producers and operators, and new applicants to obtain and safeguard their organic certification. Organic standard requirements, full technical support, product development, preparation of application and management of certification process. Contact Dr. Heli Matilainen heli@helixorganics.co.nz, 04 384 5358 or visit www.helixorganics.co.nz

✔ **Organic consulting** and BioGro certified approved horticultural contracting. Available for small lifestyle blocks or commercial orchards. Contact Peter Downard 07 872 4703.

Properties for sale / lease

Kotare Eco Village: Lease on section for sale by owner. For more information please visit: www.ecovillages.co.nz

Advertising in *Organic NZ*

Display Advertising

Advertise your business with a full-colour ad.
Contact Maria Biggelaar, 09 419 4539, Email: advertising@organicnz.org.nz

Goods & Services Directory

Ads under the Property, Business and Miscellaneous sections may be listed for one issue. Ads under all other sections must be booked for six issues. Producers wishing to list as certified organic must provide proof of certification.

Miscellaneous $1.15 per word; Property and Business ads $2.30 per word; all must be pre-paid. All other listings $1.15 per word, with 10% discount for year's listing. All ads minimum 14 words.

Send to: Soil & Health Association, PO Box 9693, Marion Square, Wellington, 6141. Ph: 09 419 4536, Email: info@organicnz.org.nz

Booking deadline for advertising in the September/October 2018 issue is 1 August 2018.
Please contact us for more information and to book your advertising.

built on BIOLOGY

Independent Home Design, Interior Design and Bio Consulting

To help our clients create beautiful living spaces that are free of harmful chemicals while incorporating beneficial elements of design that foster health and wellbeing and reduce the overall environmental footprint.

DESIGN CONCEPTS

All services presented from the holistic perspective of Building Biology.

We focus on incorporating environmental best practices into your new or existing building project. We will partner with you to design a healthy environment for your family through the use of natural building materials and the creation of holistically designed spaces.

We will also collaborate with your Architect and or Builder to bring your vision to life in a timely manner. Our designs are ethical, eco-friendly and, alternatively, can be arranged without house calls through a simple presentation/ consultation process.

CONCEPT MODULES

BUILDING MATERIALS
INTERIOR DESIGN
SITE ANALYSIS
INDOOR AIR QUALITY
NATURAL REGULATION
HYPERSENSITIVITIES

Bio homes come with many faces. Almost any style is possible to create in a low footprint version.

Matakana/Auckland

Built on biology Ltd t 09 4227372 w builtonbiology.co.nz

Grow a career in organics

FULL FEE SCHOLARSHIPS ARE NOW AVAILABLE

Lincoln University's new Diploma in Organic Agri-Food Production is a full-time, one-year, programme that covers the theory and practice behind contemporary organic agri-food production, giving you the skills and experience you need to work in the industry, within the organic sector, or your own garden or smallholdings.

The Diploma includes practical work to ensure you have that hands-on learning, and starts in July, at the beginning of Semester two.

Lincoln University & the Biological Husbandry Unit (BHU) provide on-farm facilities, equipment and experienced tutors to provide you with the widest possible knowledge of the industry.

You will study organic management, plant and animal health, and soils, and the programme includes Tikanga and Mahinga Kai components.

Entry requirements include NCEA Level 2, with a minimum of 40 credits over four suitable subjects (literacy and numeracy requirements for university entrance are also required) or a National Certificate in Horticulture at Level 4 or higher obtained through an approved polytechnic.

You will also be taught the academic skills necessary for successful study in a university context.

Join us in July to find out what growing organically on an agricultural scale really means.

To find out more about the programme contact:

Bill Martin
Biological Husbandry Unit
P: 03 325 3684
E: college@bhu.org.nz

To enrol visit **www.lincoln.ac.nz**
or call **0800 10 60 10**

BIOLOGICAL HUSBANDRY UNIT
Hosted by Lincoln University

Lincoln University
Te Whare Wānaka o Aoraki
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New Zealand's specialist land-based university

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