



IMPACT STATEMENT 2024



**WE HELP
INNOVATIVE
BUSINESSES
CREATE VALUE.**

Contents

Our Values/Mission Statement	4
Our Impact Statistics	6
How we work	7
Message from the Chair	8
Our People	10
Science Leadership Group	10
Management	11
Our Board	12
Message from the General Manager	16
Case Study: AgriSea – Māori-owned manufacturer of seaweed products	18
Case Study: Ecogas – anaerobic digestion bioenergy plant	19
Case Study: Good Grub Agritech – bioconversion by insects	20
Case Study: Ovāvo – freeze-dried avocado powder	21
Our Partners	22



Our Values/ Mission Statement

The Bioresource Processing Alliance (BPA) provides access to the combined world-class science capabilities and technical facilities of four of New Zealand's national research providers – AgResearch, Callaghan Innovation, Plant & Food Research and Scion, along with universities.

We provide funding support for appropriate projects that utilise the expertise of our research partners.

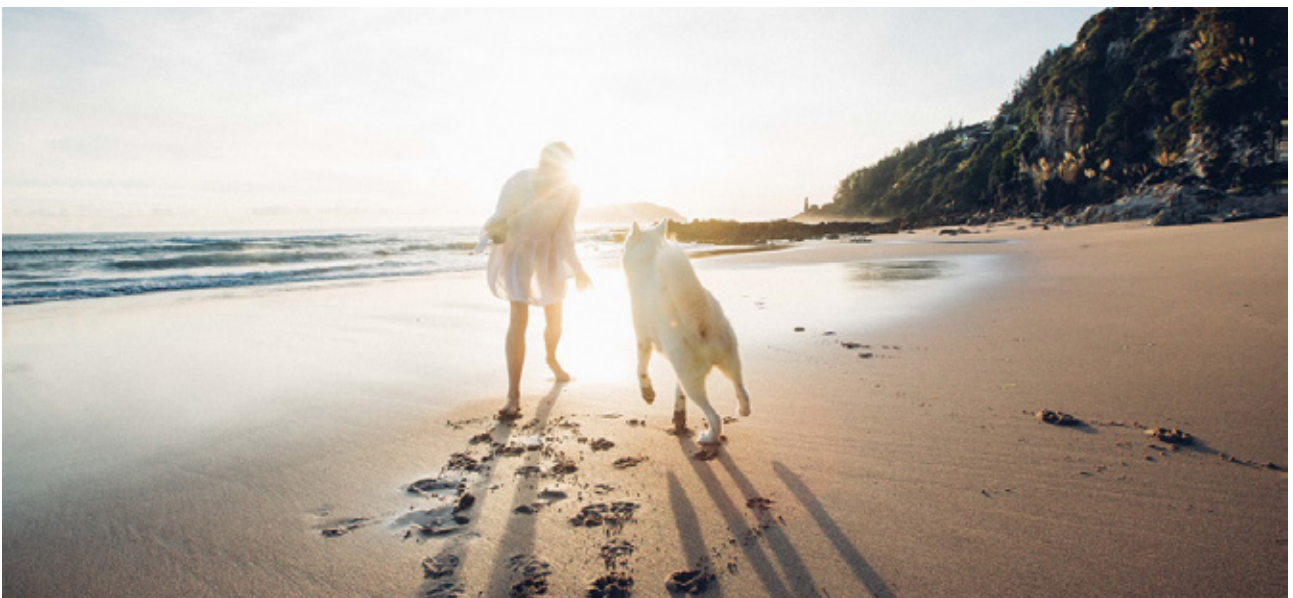
We help our industry partners to:

- Access raw materials from across the primary sector
- Develop new high-value products from raw biological materials
- Establish robust economic analysis and development plans
- Develop methodologies for processing by-products
- Tap into pilot scale plants to assess the commercial feasibility of a new process or product
- Reduce costs of processing by-products
- Increase the value of raw materials

We co-fund and undertake research and development projects with companies by using the expertise of our partners – AgResearch, Scion, Plant & Food Research and Callaghan Innovation – along with universities throughout Aotearoa New Zealand.

We're funded by the Ministry of Business, Innovation and Employment (MBIE) to support value-add opportunities utilising low value biological by-products of primary industry processing. This includes raw materials derived from forestry, marine, agricultural, horticultural, animal and microbiological streams.

Through the transformation of by-products, we aim to increase productivity, generate export revenue, and create environmental and social benefits for New Zealanders.





**AS AN
INNOVATION
ALLIANCE,
WE PIONEER
SUSTAINABLE
SOLUTIONS.**

Our Impact Statistics

BPA funding by the numbers – highlights from 2023–24

We're so proud of the incredible ideas we've helped bring to life over the past year! Here's a snapshot of the impact we've had:



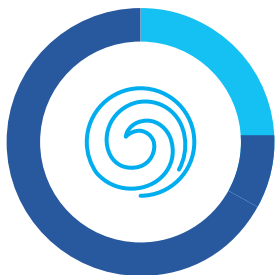
41 APPLICATIONS RECEIVED

- 28 commercial ventures
- 13 student projects



31 PROJECTS APPROVED

- 21 innovative commercial ideas
- 10 student projects secured funding



24% MĀORI AFFILIATED ENTITIES



22 NUMBER OF PROJECTS COMPLETED

The BPA funds multi-year projects

At the BPA, we're driving the future of sustainable innovation across New Zealand's bioeconomy – and we're well on our way to another great year!

Total approved funding for research projects:

\$1,959,797.91



Total cash co-funding from industry partners in approved projects:

\$504,111.37

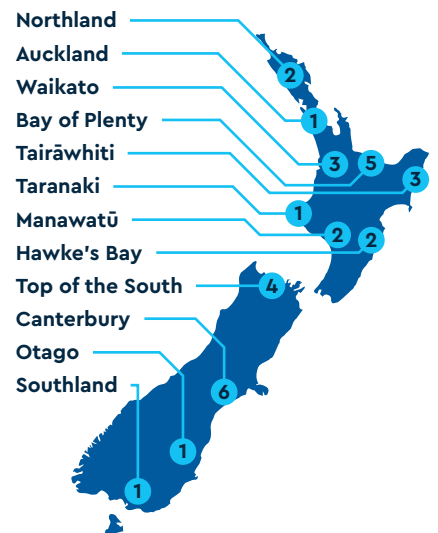


Average funding per commercial project:

\$90,700



REGIONAL SPREAD



How we work

From consultancy, research and development through to pilot plant trials and commercialisation, the BPA aligns the appropriate research team with each project.

We co-fund these R&D projects with industry using raw materials derived from forestry, marine, agricultural, horticultural, animal and microbiological streams.

Applications can involve multiple research organisations, depending on what expertise and equipment is required. Once the application is submitted, it is reviewed by a small team of science leaders. They make a recommendation to the BPA Board, which holds the final decision-making authority.

All applicants must work with one (or more) of our R&D partners to submit a proposal.

Applications can only be submitted via a BPA R&D partner (AgResearch, Scion, Plant & Food Research and Callaghan Innovation) or a university.

To be eligible for funding, projects must:

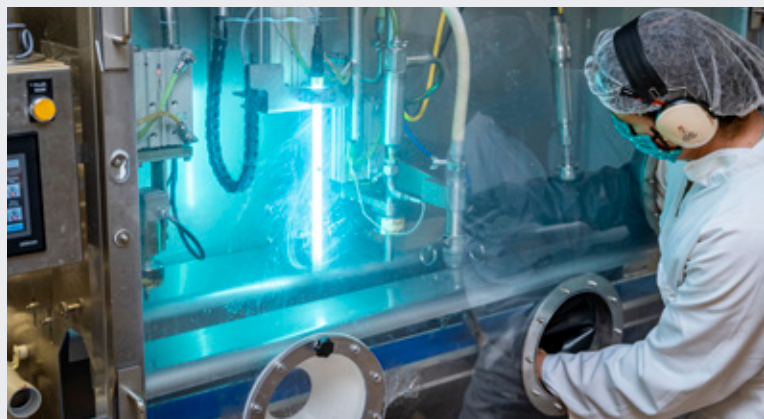
- Add value to, or create value from, a biological by-product or secondary stream
- Be led by a BPA R&D partner (AgResearch, Scion, Plant & Food Research and Callaghan Innovation) or a New Zealand university
- Involve an industry partner who can make a cash and/or in-kind contribution to the project
- Have clearly identified economic, environmental and/or social benefits

Before submission, applicants must ensure that:

- All parties have signed the proposal
- All the required fields have been completed
- There is a clear project plan, with defined time frames for deliverables and clear criteria for any go/no-go decisions
- All parties are clear about the IP arrangements, and understand the BPA's guiding principles with regard to IP

There are two project categories:

- **Commercial projects** generally involve companies and have cash and/or in-kind contributions from these companies.
- **Student projects** can be internships or Master's projects. Interns can be sponsored by a business or a BPA R&D partner, but if hosted by a business the student will need to be supervised by a relevant BPA R&D partner. Post-doctoral projects may be considered but please check with the BPA first.



Message from the Chair

This will be my final report as Chair of the BPA.

The organisation is undergoing a substantial transition as we bed in new leadership at both board and executive levels. We have been in transition mode for a couple of years as new appointees learn the ropes and take up various roles. In this process, we are keen to preserve much of the successful culture of the BPA, but after a decade it is also time for refreshment and new blood.

Anna Yallop, our long-serving executive officer, retired from her role in 2023 and we thank her for her many contributions. She has been replaced by Dr Nicky Solomon who has hit the ground running, and has just completed a very successful first year in the role.

The other long-serving independent director, Dr Kevin Marshall, also retired a year ago, and his role has been taken over by the hugely experienced and respected Dr Max Kennedy. Kevin's experience and leadership helped to shape the way in which the BPA works, and we appreciate and recognise his decade of dedicated service.

The way the BPA works is different to other available funding vehicles, and I have often been asked what makes it so successful.

The crucial point of difference for the BPA is that it seeks to empower the researchers in the discovery and invention process, aligned with companies. Researchers are incentivised to seek out real industry problems and to get to know the key industry decision makers. The companies can usually express what they need clearly enough, but only the researcher can determine how the need can be met. When they can see how, an industry leveraged proposal can be easily developed for BPA consideration.

The process ticks all the excellence measures for applied research that MBIE has used for years. There is market pull and industry need identified by a real company. There is a credible science/invention project developed by the researcher who will have to deliver it.

The researchers are generally experienced senior CRI professionals who are likely to succeed. And finally, the path to market is provided by the company that has agreed to co-fund the work. The BPA forces a subtle culture change on the CRIs by requiring the researchers to engage with companies and simultaneously empowers the researchers because they can deliver the BPA leverage to a company's project.

The success of the BPA model was recognised by government when it secured its own funding line in MBIE's budget. This baseline funding is set to continue which is great news because the opportunity to create new revenue streams from secondary bioresources in New Zealand is so huge and the BPA has so far barely scratched the surface.

There are huge volumes produced from food-safe production facilities which often just need a relatively minor tweak to become a valued and valuable resource.

And so, I shall depart the scene with the BPA in a very secure position and with huge opportunities to add value to home-grown products. Max Kennedy has been appointed as the new Chair and I have great faith in his abilities to continue leading the BPA to even greater heights.

The shareholders (Scion, Plant & Food Research, AgResearch and Callaghan Innovation) have demonstrated through the BPA that, when circumstances are appropriately structured, they can generously cooperate to create a best team approach.

In departing, I would like to thank the shareholders, universities and MBIE for their support. I would also like to thank my fellow directors, General Manager Nicky Solomon, and the Science Leadership Team for their many contributions over many years. It has been an interesting experience and very rewarding.



Garth Carnaby – Outgoing Chair



**WE TRANSFORM
LOW-VALUE
BIOLOGICAL
BY-PRODUCTS
INTO ECONOMIC
OPPORTUNITIES.**

Our People

Science Leadership Group

The Science Leadership Group is made up of industry experts from across our alliance. They review proposals for funding and support in the first instance, and make their recommendations to the Board for final approval.

Christophe Collet, Scion

Christophe is a Senior Industrial Biotechnologist, Microbial Biotech Team Leader at Scion in Rotorua. His current research area focuses on using biomass resources available in New Zealand, including wood waste, dairy waste streams, other agro-industrial waste streams, industrial gases containing CH₄ and/or CO₂, to produce value-add materials, such as Single Cell Protein (SCP), bioplastics like PHA (PolyHydroxyAlkanoate), bio-composites and Synthetic Biology products.



Stewart Collie, AgResearch

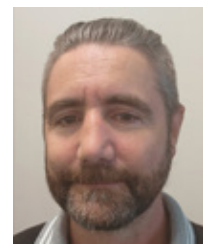
Stewart Collie is the Science Team Leader for the Bioproduct and Fibre Technology Team in the Smart Foods and Bioproducts Group at AgResearch. His background is in wool and textiles, but the current research activities of the team include a range of bio-based material formats and processes, especially protein-based materials coming from secondary resource streams from the agriculture sector.



Richard Edmonds, Plant & Food Research

Richard is a food processing engineer and a member of the Food and Products Technology group at Plant & Food Research. His focus is on plant protein processing and the use of techno economic analysis to tie concepts together to produce viable commercial outcomes.

Prior to joining Plant & Food Research in 2018, Richard was with the Leather and Shoe Research Association, first as a research officer then as a research scientist after completing a PhD in enzyme processing lambskins in 2008.



Dr Stephen Tallon, Callaghan Innovation

Dr Stephen Tallon is a senior scientist at Callaghan Innovation in the Biotechnologies group. He leads a team of process and biotech engineers specialising in developing new products and processes in the food and natural products industries. The team operates a pilot product development suite for rapid assessment and development of opportunities, from concept through to small scale manufacture. Specialist subject areas include the use of pressurised and supercritical solvents, separation processes, and enzymatic transformation. He also has expertise in process design, feasibility assessment, and hazard assessment.



Our People

Management

Our General Manager maintains links between the BPA, our R&D partners, industry and the innovation sector. She provides funding advice and support in developing project ideas and submitting applications.

Nicky Solomon, General Manager

Nicky joined the BPA as General Manager in August 2023 and also represents the New Zealand Food Innovation Network in the region from Tairāwhiti down the east coast to Wellington. Additionally, she runs Hawke's Bay's activity related to the 'Sustainable is Attainable' initiative, bringing food processors together to collaborate on opportunities and challenges related to sustainability including adding value to co-products. Nicky has a PhD in Food Science, and is a member of the Food Waste Champions 12.3 and the NZ Food Safety/Haumarū Kai Aotearoa Advisory Board. She is the current chair of the board of Foodeast Haumako.



Our People

Our Board

Our Board of Directors governs the BPA's performance, makes funding decisions, and provides strategic direction.

Max Kennedy, Chair

Max Kennedy is a biochemical engineer specialising in fermentation and is the Managing Director of consulting company, Biolighthouse Ltd. Previously, he was Manager of Contestable Investments at the New Zealand Ministry of Business, Innovation and Employment (MBIE). In this role, Max was responsible for Research & Development supporting transformative economic, environmental and social outcomes for New Zealand including from the Endeavour Fund (New Zealand's largest contestable research fund), the industry-led Partnership Fund, the Pre-Seed Acceleration Fund, and the Vision Mātauranga Capability Fund. Max also led MBIE's COVID Innovation Acceleration Fund to support research to respond to the COVID-19 pandemic.

Max was appointed as Chair of the BPA in September 2024.

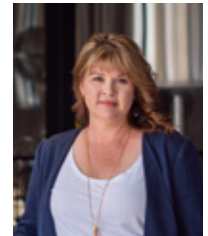


Katy Bluett, Independent Board Member

Katy is an experienced food industry professional. Through bespoke consulting services in her business Appetite for Change, she supports ambitious businesses to innovate, commercialise and grow faster.

Katy is also Executive Director of Future Food Aotearoa, a founders movement formed in 2020 to accelerate the growth and impact of foodtech businesses from New Zealand.

Katy has worked in a variety of local and international leadership roles across top FMCG, ingredients and technology companies, launching over 1000 F&B products along the way. She has also led the F&B sector for Callaghan Innovation, the Government's Innovation agency, working with more than 400 of NZ's most innovative and promising F&B businesses, fuelling her passion for food systems transformation.



Owen Catchpole, Callaghan Innovation

Owen is the Chief Engineer for the Biotechnologies Group of Innovation Expertise, a business unit of Callaghan Innovation. The group specialises in near-to-market research and development into the application of bioprocessing to biologically-derived raw materials to make high value nutraceuticals, food ingredients and biopharmaceuticals. His work was instrumental in establishing a supercritical extraction industry in New Zealand to make such products, which has led to a Royal Society NZ Science & Technology Silver Medal, the NZIC Fonterra prize for Industrial and Applied Research, being elected a Fellow of Engineering NZ and a Fellow of the Royal Society Te Aparangi, and most recently, being awarded the R J Scott Medal.



Our People

Stefan Clerens, AgResearch

Stefan is Science Group Manager of Smart Foods & Bioproducts, one of AgResearch's four Science Groups. The Group comprises nine science teams in the food science and biomaterials space. The Group's food sciences capabilities include microbial food safety and shelf life, flavour and aroma profiling, dairy and meat processing, non-invasive sensing, fermentation, gut health, behaviour and cognitive wellbeing, consumer understanding, and emerging proteins.

His research experience revolves around omics technologies, specifically proteomics and peptidomics as applied to food and bioproduct matrices.

Stefan received his PhD from the University of Leuven (Belgium) in mass spectrometry of biomolecules. He is also a member of the Riddet Institute Partner Reference Group, and sits on the New Zealand Synchrotron Group and the Canterbury Joint Postgraduate School Food Transitions 2050 as the AgResearch representative.



Marc Gaugler, Scion

Marc is a chemical engineer, and heads up Scion's Distributed and Circular Manufacturing Portfolio, part of its Materials, Engineering and Manufacturing Group. His current research area focuses on using biomass resources available in New Zealand to produce value-add materials, such as bioplastics, composites and biochemicals from woody biomass. He started his professional life developing, identifying and developing bio-based plastics additives, and then moved into plastics product and processing development.



Peter Gostomski, University of Canterbury

Peter is currently the acting Deputy Vice-Chancellor Research at the University of Canterbury. Previously he has been the acting Executive Dean of Engineering and the Head of Department in Chemical & Process Engineering. His research interests are in bioprocess engineering, looking at both the production of biochemicals and environmental biotreatment technologies. Specific projects that he is actively working on include biofiltration, denitrification and microbial fuel cells. He is a Fellow of both IChemE and Engineering NZ.



Our People

Susan Marshall, Plant & Food Research

Sue is Science Group Leader of the Seafood Processing and Marine Products Group within the Seafood Portfolio at Plant & Food Research. The Group's marine product research focuses on optimised utilisation of marine biomass through development of foods, nutraceuticals, and biomaterials; the industrial processes needed to make them; and the application of new analytical technologies for real-time process monitoring. She is particularly interested in bridging the gap between laboratory science and large-scale manufacturing, with an emphasis on zero waste, and 'green' processing solutions to reduce energy and chemical use.



Francene Wineti, Independent Board Member

Te Atihaunui-a-Paparangi, Ngati Tuwharetoa, Ngati Rangī, Ngati Kahungunu ki Wairoa.

Francene is owner and director of Awariki Limited, a niche consultancy company delivering specialised services on kaupapa Māori research and development and Māori cultural capability. Francene has a wealth of experience in iwi/Māori development and strong relationships in the government, science and innovation sectors with well established iwi/Māori networks, across all faces of Māori business.

Her areas of expertise include fisheries, aquaculture, agribusiness, agrifood, science and innovation, and iwi/Māori economic development. She holds a number of governance roles including Director of Ngāti Tuwharetoa Fisheries Limited, Hautaki Trust and Trustee of Te Huarahi Tika Trust – the Māori Radio-spectrum Trust and Te Ara Pōtiki Trust – a charitable trust that aims to increase the number of Māori people connected to and experienced with international startups in the Agri-food sector.





**OUR GOAL IS
TO GENERATE
ADDITIONAL
REVENUE FOR
NEW ZEALAND BY
WORKING WITH THE
PRIMARY SECTOR**

Message from the General Manager

The 23/24 financial year was an exciting one for the BPA, and my first at the helm.

Stepping into the role mid-August with the first funding round of the year in full swing, it certainly felt like a steep learning curve and huge thanks to the team for their support and patience. The Board, the Science Leadership Group and the Callaghan Innovation Product Manager and Product Coordinator have all been incredibly helpful and encouraging as we have embarked on a new era for the BPA together. The outgoing General Manager, the fabulous Anna Yallop, was enormously generous with her time and help, for which I am extremely grateful.

The BPA has created an incredible legacy since its inception, and its value has been acknowledged by businesses and researchers alike, who have worked together over the best part of the last decade to create additional value for Aotearoa New Zealand. It is a huge privilege to work in such an inspiring organisation, and with such forward-thinking businesses and researchers.

As we embark on a new era for the BPA, with baseline funding from MBIE, we have been focused on setting up the organisation for the next phase of its existence, which started with refreshing the website and creating a LinkedIn presence, to help us ensure that any business in the country that could benefit from the BPA knows about us. We have redeveloped our application forms to make them more user-friendly, and we're continually improving our processes to ensure that we operate at maximum efficiency.

Primarily, we're continuing to build upon the BPA's legacy, supporting innovative businesses to create high value products and processes from primary industry by-products and co-products.

It is sad to farewell Dr Garth Carnaby from his position as chairman of the board. I am immensely grateful to Garth for his wisdom and guidance over the last year and consider myself extremely fortunate to have had the opportunity to work with someone with such substantial experience and expertise.

I'm looking forward to the year ahead and being part of the BPA as it goes from strength to strength.

Ngā mihi



Nicky Solomon – General Manager



**WE PROVIDE
FUNDING SUPPORT
FOR PROJECTS
THAT UTILISE THE
EXPERTISE OF
OUR RESEARCH
PARTNERS.**

Case Study:

How collaboration and big thinking can create global firsts



AgriSea is a Māori-owned family business based in Paeroa which specialises in the manufacture of seaweed products.

AgriSea has been working with Scion, one of the BPA's four R&D partners, to take the waste stream from the seaweed industry, apply green chemistry and turn it into nanocellulose – a high-value, high-performing material. This manufacturing process, a compelling demonstration of the circular bio-economy at work, is being done at scale for the first time in Aotearoa New Zealand.

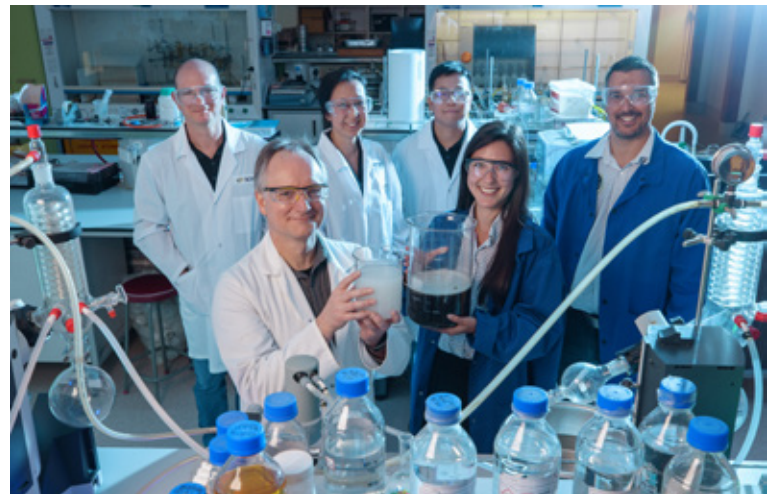
Scion and AgriSea have been working together for several years – but their first connection was a chance encounter.

AgriSea's Chief Innovation Officer Tane Bradley describes how they first met at an event in Rotorua in 2017 when they happened to sit next to each other. The conversation that ensued really piqued their interest in trying to understand the true value of seaweed.

The AgriSea team attended a showcase meeting with the BPA at Scion's headquarters, and it was there that they learnt how the BPA helps businesses get to the next level by transforming low-value biological by-products into economic opportunities.

"The BPA has enabled us to take our business to the next level of scalability and commercial viability," says AgriSea CEO Clare Bradley.

"We absolutely couldn't have done it without their support.



"Doing it on our own would have been a long, slow and hard journey," she says.

"Our relationship with the BPA has enabled us to go at pace, at scale and really try to bring it to market quickly."

For more information on AgriSea, go to www.agrisea.co.nz



Case Study:

Circular bioeconomy propelled by the power of partnership



Ecogas operates New Zealand's first commercial scale anaerobic digestion bioenergy plant near Reporoa, representing a milestone in the transition to a circular bioeconomy.

Scion scientists were involved in de-risking the key technologies used in the facility during its early planning and development phase several years ago, and they continue to explore further research opportunities with them to enhance bioenergy production.

The BPA provided funding to enable them to take what was a pilot scale project to the next level.

At the state-of-the-art processing facility, anaerobic digestion is used to break down waste into valuable resources, including electricity, biogas and nutrients.

Biogas is used to produce electricity and heat to keep the Ecogas plant self-sufficient. It's also used to heat local commercial tomato glasshouses and there are plans underway to upgrade it into bio-methane and bio-CO₂.

Fully operational, the \$30 million plant can turn 75,000 tonnes of organic food waste collected from households and businesses around the North Island into renewable clean energy and biofertiliser.

It partners with the Auckland City Council in providing a long-term solution for the processing of kerbside organic waste, and has recently announced a partnership with the Christchurch City Council to expand its processing into garden waste.



An organics processing facility is planned for South Hornby, evolving the Reporoa organics processing facility design and operations for the needs of Christchurch and wider Canterbury.

Ecogas, whose two founding partners are Pioneer Energy and EcoStock Supplies, won the Low Carbon Future award at the NZ Energy Excellence awards 2023 for its transformation of food waste into energy and liquid fertiliser.

For more information on Ecogas, go to www.ecogas.co.nz

Case Study:

BPA's support a catalyst for growth – Good Grub Agritech



Jessie Stanley's no stranger to combining entrepreneurial thinking and business skills to help fuel her deep-rooted passion for saving the planet.

Jessie is the co-founder and director of Good Grub Agritech, the Auckland-based company which uses insect bioconversion to turn organic waste into a highly nutritious and unique source of protein for pet foods and fish and poultry feeds.

The BPA was the first to support Good Grub Agritech with a \$18,000 grant to fund a Masters' student internship two years ago. The fourth year Food Science student helped them conduct the first of their science experiments in partnership with Massey University, giving the nascent business credibility and confidence.

Jessie is a seasoned food innovator, having co-founded the much-loved I Love Pies brand which she sold to Walter and Wild in 2018.

Her involvement with community group Save Our Sands and Greenpeace was a catalyst for realising a desire to combine her business skills with helping the environment. This led her thinking about how to better utilise food waste and sparked the idea to bring black soldier fly larvae (BSFL) farming to New Zealand.

Products they're looking at creating include fish pellets using industrial-grade extrusion equipment, but the initial process involves costly trials.

They're currently identifying potential partners in the aquaculture industry who can provide co-funding for the project, and Jessie says they'll also apply to the BPA for a second round of funding to help move the project from bench scale work to a process closer to a commercial one.

They aim to start building their commercial scale pilot plant at the end of 2024 with production due to start in 2025–6.

For more information on Good Grub Agritech, go to www.goodgrub.co.nz



Case Study:

Ovāvo freeze-dried avocado powder

OVĀVO



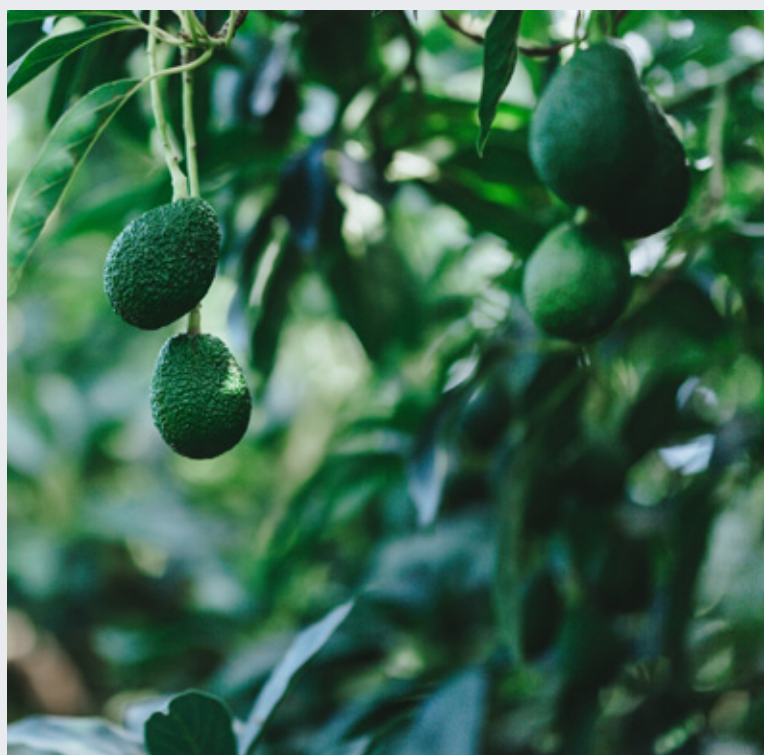
Leading Northland-based avocado grower Ovāvo was keen to convert its process grade fruit into an innovative new product with health and product application benefits.

Through the BPA, it worked with researchers at Callaghan Innovation and Massey University to develop a freeze-dried avocado powder which retains its natural properties (structure, colour, flavour, nutrients) and can be stored at room temperature.

The product has a range of positive health benefits, attributed to its nutrient composition and the phytochemicals present, including carotenoids, phenolics, and phytosterols.

Ovāvo has been working on a number of product applications using the freeze-dried powder, including ice cream, chocolate truffles, muesli bars, tortilla, chocolate flavoured breakfast drink and hummus.

For more information on Ovāvo, go to www.ovavo.nz



Our Partners

We oversee an innovative R&D programme which is delivered through an alliance of our four research partners: Scion, Plant & Food Research, AgResearch and Callaghan Innovation, along with universities throughout Aotearoa New Zealand.

By leveraging specialist skills and capabilities from across these research organisations and others in the innovation ecosystem, we're able to support a range of projects to transform low value by-products from primary industry into higher value products.



Plant & Food Research specialises in research and development related to fruit, vegetable, crop, seafood and food products. It has key expertise in marine and horticultural biological resource streams, low impact processing technologies especially enzymatic biotransformations, and extraction platforms and bioassays.

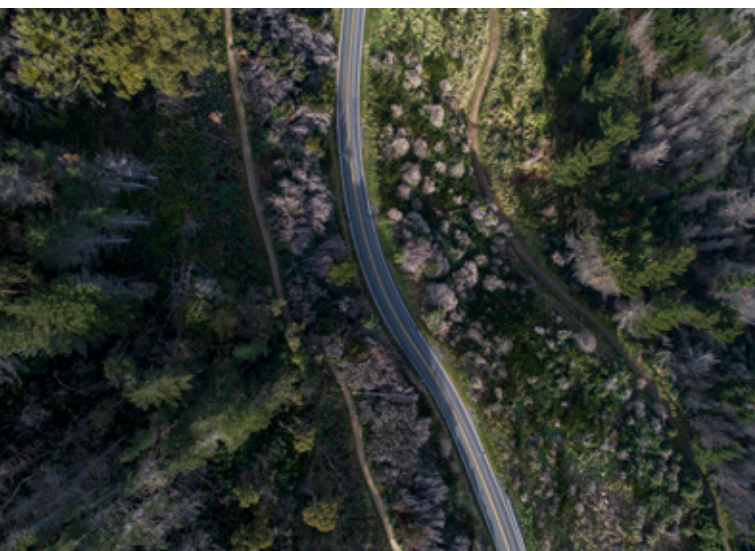
www.plantandfood.co.nz





AgResearch provides scientific research and development to New Zealand's pastoral sector and specialises in meat, dairy and animal fibre co-products, including expert knowledge in pre-processing, handling and product development with potentially difficult materials.

www.agresearch.co.nz



Callaghan Innovation offers engineering expertise and capability in process design and product development at pilot and small manufacturing scale. Technologies include solvent extraction, supercritical fluid processing, separation technologies, drying/dewatering and bioprocessing. Its scientific capability covers complex lipid analysis, protein and enzyme science, fermentation bioprocessing and natural product analysis, supported by a world-class suite of analytical equipment.

www.callaghaninnovation.govt.nz



Scion specialises in research, science and technology development for the forestry, wood products and other biomaterial sectors. It is the leading research organisation in sustainable forest management, wood processing, wood-related bioenergy, secondary streams and other biomaterials; and the biorefinery approach to whole-of-resource use.

www.scionresearch.com





WE HELP INNOVATIVE BUSINESSES CREATE VALUE.

For further information on the BPA,
contact General Manager Nicky Solomon on
nicky.solomon@bioresourceprocessing.co.nz

