
37
years + still growing
MARLBOROUGH
RESEARCH
CENTRE
Te Rito Hiranga o Wairau
ANNUAL REPORT 2020 / 2021

New Zealand Wine Centre – Te Pokapū Wāina o Aotearoa – A Growing Science, Technology and Education Centre - connecting Marlborough & New Zealand to research, business and education

contents

overview

Highlights

MRC Trust board members have been the rock on which the centre has flourished over the past 37 years. The need for an independent research organisation in Marlborough resulted in the establishment of MRC in 1984. The founding Directors knew the economic drivers for building a strong regional and national economy. So much has changed since that time. Massive advances in technology, carried along by the rapid pace of change, have resulted in a better and stronger regional economy.

Founding chairman, Bob de Castro, followed by John Marris, each made significant contributions to the success of MRC. It has become a Marlborough tradition where volunteers spanning many organisations make a commitment to serve quietly in the background by putting in their time, professional experience, and genuine dedication to the objectives of our organisation.

Current chair, Bernie Rowe, and Trustees, Ivan Sutherland and Edwin Pitts (below L-R), are presiding over major large scale building works that will set the organisation up for the next decades. The main focus of the Trust Board is to facilitate and co-fund locally-based science capability, to encourage and introduce new or evolving technology and information transfer to the primary production sector. The overriding objective has been to improve the long-term prospects and viability of land-based business. To achieve that, high quality, modern facilities are essential.

After several years of planning, actual investment in new facilities that support innovation and the evolution of new science and spin off technology is a reality. The past year has seen physical building works commence on the Jerram Tocker Barron Architects designed New Zealand Wine Centre. Once completed in early 2022, it will provide a magnificent new addition to the campus and showcase what is possible through targeted investment in science and technology.

Building the new New Zealand Wine Centre

During the past year funding was confirmed for an $8million development on the NMIT Budge Street campus. Construction firm Evan Jones Construction Ltd was awarded the tender to build a staged development over an 18-month period. Excavation for the foundation began in January 2021. Putting aside Covid impacts, lockdowns, building materials supply and logistical issues that could have frustrated the contractors and pushed the project far out, project management team APL Ltd and Jerram Tocker Barron have successfully kept the construction phase on target with completion adjusted to early 2022.

The New Zealand Wine Centre will lead the way across the wine regions of New Zealand for collaborative, innovative and integrated science and technology development. The years ahead look positively bright. The MRC Trust Board has placed tremendous confidence in this far-reaching investment in the grape and wine sector. The scene has been set for the emergence of a wide range of new industry-focussed projects. The future will be based on changing climate impacts, meeting and matching the continued market demand for Marlborough's Sauvignon Blanc while looking ahead to changing preferences for the flavour and style of wines grown and made in the region.

Construction to date has concentrated on a major upgrade of the new combined main entrance through NMIT. This major improvement has resulted in a light-filled welcoming modern entrance connecting to the New Zealand Wine Centre and Bragato Research Institute. By creating this direct connection, the strategic intent of fostering future collaboration between science, technology and education is unavoidable.

Over the past 12 months and because of the pause brought about by lockdowns, deeper thought has been given to the future direction of local research programmes. In conjunction with Plant and Food Research, a project has evolved based around an Experimental Future Vineyard. This will bring together new and smarter technology based on sensors, monitoring and the use of artificial intelligence, all housed within a controlled growing environment. The MRC Board considers this investment will have far-reaching benefits and secure future direction across a wide range of

parameters from climate change adaptation, disease management, identification and control through to selection of new grape plants. This project is an exciting realisation of adaptive investment.

Cawthron Marlborough Environment Awards

As the long-term premier sponsor of the Supreme Award for the biennial awards we were delighted once again to acknowledge the outstanding variety and quality of the applicants. There were several that stood out, but a

trail-blazing wilding pine project won the Supreme Award at the 2021 Cawthron Marlborough Environment Awards, announced at the Marlborough Events Centre.

The Marlborough Sounds Restoration Trust was set up in 2003 to stop the rapid spread of wilding pine trees and to bring back the native bush and distinctive skylines of the Sounds.

Working with landowners, Council, Government agencies and sponsors, the Trust raises funds to hire contractors to track down and poison each tree, one bay at a time. The Supreme winner was selected from the seven category winners announced at the Awards Dinner. The winners were Lawson's Dry Hills, Marlborough Community Gardens, the Marine Farming Association, Pinoli Premium Pine Nuts, Mount Oliver, OneFortyOne Kaituna Sawmill, and the aforementioned Marlborough Sounds Restoration Trust.

Farewell to Liam Sloan CEO - NMIT

Since moving to the Budge Street campus in late 2003, MRC has established a productive working relationship with NMIT staff. At a well-attended farewell for Liam Sloan in August in the BRI boardroom, his service to the Top of the South regions was recognised and applauded. Liam and his predecessor Tony Gray were strong supporters and promoters of the links between the science, technical and industry organisations clustered under the MRC umbrella. Current CEO, Wayne Jackson, has continued this relationship and equally recognises and supports what is being developed under the New Zealand Wine Centre and what potential exists to build on this existing base.

Farewell of MJ Loza, founding CEO - BRI

MJ Loza was appointed founding Chief Executive to establish the Bragato Research Institute. Under his leadership, MJ built a research team, completed construction of a new research winery and set the scene for greater engagement with industry under NZ Wine. His resignation to take up a new position in Hawkes Bay resulted in Jeffery Clarke stepping into the Chief Executive role.

NZ Dryland Forests project leader takes top honours

Paul Millen has become synonymous with durable hardwood production through his high profile and strong advocacy for planting selected eucalyptus species to establish a durable hardwood industry in NZ. For over thirteen years MRC has provided annual grants and administration to the programme. It is not overstating the fact that this programme has flourished. Paul was accorded the highest honour by the NZ Forestry industry by being the recipient of Forester of the Year presented by the Honourable Stuart Nash, Minister for Forestry.

Marlborough Primary Producers Forum

In conjunction with Marlborough District Council, an inaugural meeting of the Marlborough Primary Producers Forum was held. The purpose of this group is to bring together future-focused farmers who would benefit from being part of a collegial, integrated and well-connected forum that would address many of the issues being brought about by rapid change. The proposed review of the Resource Management Act is an example. The intent of the forum is to meet when required, several times a year with a dedicated agenda set to deal with the issues that are topical.

MRC, supported by Council, will provide facilitation and administrative support.

Gerald Hope, Chief Executive

PFR highlights

2020/2021 has been a busy, but again slightly disrupted, year for our research. Summaries about our individual projects can be found in another section of this report so here we take the opportunity to talk about the future of the Plant and Food Research (PFR) partnerships with MRC and other campus institutes which is shaping up to be exciting and varied.

Our government-funded programmes need to move further back in the research pipeline to better support our communities and meet Te Tiriti (Treaty of Waitangi) obligations. Our future work will provide fundamental research and research tools to support more applied viticulture and environmental studies that MRC, NMIT and the BRI might wish to undertake. A key focus of that work will be to produce a vineyard "Digital Twin". This is essentially a computer programme that creates a virtual 3-D representation of a vineyard and all its biological and management processes.

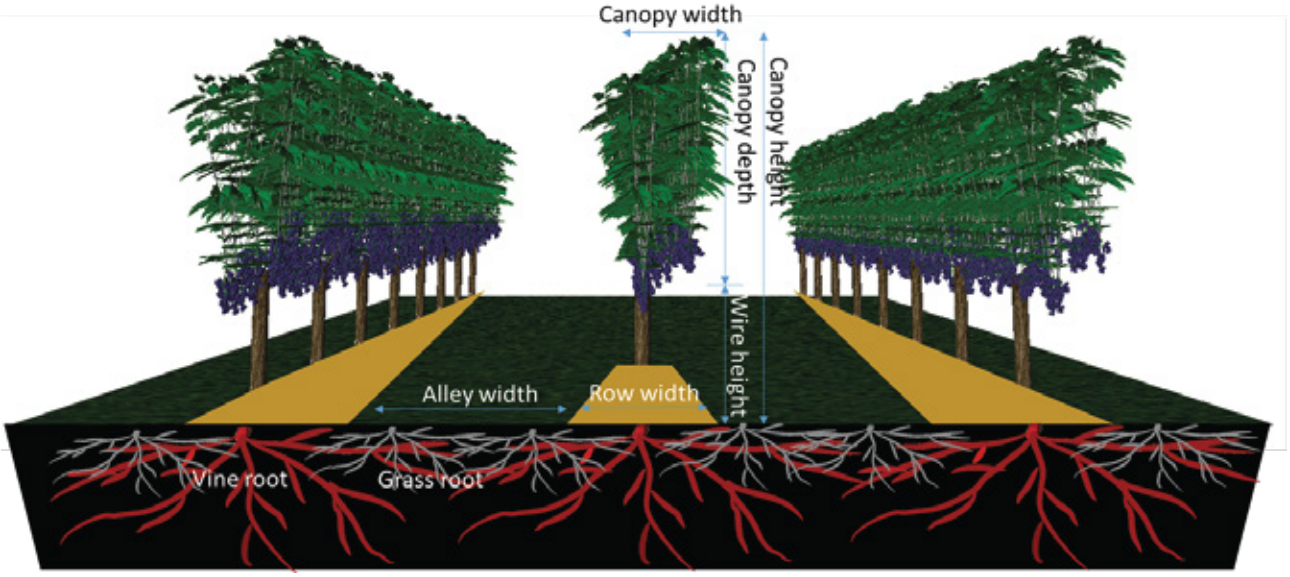
Our long-term aim is to create a roadmap for transformation towards a highly automated vineyard that is resilient to future environmental challenges. The vineyard model will also be a store of the global viticulture knowledge base and will be a hub for international collaborations. Once developed, the model will test our ability to predict outcomes from virtual experiments and help identify knowledge gaps that will become a focus for future field experiments.

Alongside the "Digital Twin" we also have an ambitious plan to establish an experimental future vineyard as part of Te Pokapū Wāina o Aotearoa, the New Zealand Wine Centre (NZWC). The facility will house large but modular and semi-portable containers (think drop-in pitch) containing full-sized vines grown in a range of regional viticultural soils in a semi-controlled environment. These would be fully instrumented to facilitate an ecosystem/big data approach to viticulture research while reducing data collection costs. Alongside the BRI winery, the experimental vineyard would be a unique wine research asset and, with a highly automated data collection framework, it would provide an ideal platform to establish and grow international collaborations that could function remotely. Zones of the experimental vineyard could also be dedicated to demonstrating market-ready digital technologies to growers and stakeholders such as the Marlborough District Council. The experimental facility would also attract national and international students destined to become the next generation of digitally competent viticulturists, vineyard managers and environmental experts.

We are also increasing our efforts to add value to the bioresources produced in Marlborough. Insects are emerging as a sustainable solution to organic waste, with the potential of reducing carbon emissions and offering an alternative source of proteins, lipids and other biopolymers. An estimated 91,000 tons of grape marc was produced in NZ in 2020 of which 80% was in Marlborough. Stockpiling this organic waste can result in leachates that contaminate soil and waterways. While there are some solutions available, we are currently unaware of any that convert large quantities of grape marc into higher-value products. To achieve this beneficial outcome, we will assess the ability of insect species, such as black soldier fly, to convert significant quantities of marc into ingredients for use in animal feeds. We hope to participate in the Te Tauihu (top of the South) initiative map bioresources that would be the first step in a feasibility study for the establishment of an insect factory.

The formal establishment of the NZWC on campus is exciting and we look forward to increasing our cross-institution partnerships. We are, however, at a crossroads of important changes to science funding in New Zealand and we have been working hard to ensure Marlborough is well placed to continue its tradition of research excellence.

Damian Martin, Science Group Leader - Viticulture & Oenology, Plant and Food Research



Vineyard digital twin - a virtual 3-D representation of a vineyard.

BRI highlights

Bragato Research Institute (BRI) is pleased to be a long-standing tenant at the Marlborough Research Centre (MRC). As New Zealand Winegrowers' research arm, our vision is to transform the New Zealand grape and wine industry through research, innovation and extension. BRI focusses its research on the short- and long-term priority areas identified by its members, and then drives industry uptake of research outcomes. BRI's decision to be located at the Marlborough Research Centre came from a desire to work closely with research and industry partners based on site, and alongside NMIT.

BRI's national Research Winery on the MRC site – a facility unique in the Southern Hemisphere – opened in February 2020 but undertook its first full vintage in 2021, without the COVID-19 constraints of the previous year. The winery was busy with research projects and commercial clients, proving that it is meeting a previously unmet need. For vintage 2021, the winery fermented 186 different wines. The ferments provided winemakers with cost-effective trial wines made under tightly controlled conditions. The feedback from commercial customers has been very positive.

Cellar Manager Matt Mayernick – cleaning is a big part of vintage!

The Research Winery has also attracted substantial support from the wider industry, in Marlborough and further afield, with cash sponsorships by Hill Laboratories, Fermentis, and WineWorks, signed this year.

Industry members were welcomed into the Research Winery for BRI's first Open Day in September, introducing them to BRI's available technology and services.

Research Winery Manager Dr Tanya Rutan discusses tank setup during the BRI Open Day.

BRI offers a range of commercial services to industry from the MRC site. In addition to Research Winery trials, BRI offers a new soil health consulting service, and wine sensory evaluation services.

During the past year the BRI extension team has been fully established, with two new staff based in Blenheim added late in 2020. The team's role is to communicate research to members, ensuring information and tools delivered by research programmes deliver benefits to the wine industry. This has included organising workshops and webinars, creating and updating factsheets, and other communication tools. The main industry conference, Grape Days, was held in June 2021 and attracted a record 926 attendees over three regions with the largest turnout in Blenheim. The conference concluded with a tour of the MRC site.

BRI's Extension team gather data in the vineyards

The past year also saw governance changes at BRI. Prof. Charles Eason joined the Board on 1 July 2021. Prof. Eason was formerly the Chief Executive of the Cawthron Institute and brings a wealth of directly relevant skills and experience. In May 2021, founding BRI CEO MJ Loza resigned to become CEO of a winery business. The BRI Board was very pleased to appoint Jeffrey Clarke (formerly New Zealand Winegrowers' GM Advocacy & General Counsel) into the role, becoming BRI's CEO from 1 July 2021.

A commitment to Vision Mātauranga and education was put into practice with the inaugural Puhoro STEM Academy summer intern, Annaleise Faint, spending three months at BRI. Annaleise presented her experiences to Massey University and won the Vision Mātauranga prize for her graphics and poster on grapevine trunk disease.

The year ahead is focused on undertaking and communicating a diverse range of science to benefit winegrowers nationwide. Much of this work will be done in partnership with other research organisations, including on site at MRC. MRC's successful application to Kanoa (PGF) means new facilities (the New Zealand Wine Centre) are currently under construction, which will enable further collaboration. BRI has committed to lease new office space and is looking forward to being a part of future research and innovation across the various MRC-based organisations.

For more information about Bragato Research Institute, visit **www.bri.co.nz**

Jeffrey Clarke, CEO, Bragato Research Institute

MRC digital snapshot

The Marlborough Research Centre (MRC) uses social media to grow the visibility of its activities and to share its news, promote events and seminars. Social media is also used to share relevant information from tenants, partners and the primary industries with its audience.

MRC engages with Facebook, Twitter, and more recently, since August 2020, also with LinkedIn users.

Over the 12 months ending June 2020, followers of the MRC Facebook page increased by 20%

Most popular posts

Interest was high in the Regenerative Farming Seminar, promoted in July 2020. Announcements of the New Zealand Wine Centre, and the Marlborough Cawthron Environment Awards were also popular.

Website

The website is MRC's information hub. After the home page, the four most popular pages are the Blenheim Weather Station, current workshops, how to contact us and the news section.

Web Traffic

Visits grew by 7%. That included 2900 unique visitors, up by 11% on last year.

personnel

as at 30 june 2021

MRC TRUSTEES

Bernie Rowe	LL.B	Chairman
Edwin Pitts		Trustee
Ivan Sutherland	VFM, ANZIV	Trustee

MRC BOARD

Edwin Pitts	Chairman	
James Morton	BSc (Hons), MSc, PhD	Lincoln University
Warwick Lissaman	BCom, PG Dip Com	Pastoral Representative
Andrew Naylor	MApplSc (Vit)	Pernod Ricard Winemakers
Mark Peters	FCA	Marlborough District Councillor
Roger Robson-Williams	BSc (Hons), PhD, PG Dip Leadership	Plant & Food Research
James Jones	BAgSci (Hons)	Wine Industry Representative

MRC

Gerald Hope		Chief Executive
Susan Foster		Office and Accounts Manager
John Patterson	BCA	Associate MRC

BUDGE STREET CAMPUS

Plant & Food Research

Damian Martin	BSc, DEA, PhD	Science Group Leader
Rob Agnew	BAgrSc	Scientist
Dion Mundy	BSc, MSc (Hons)	Scientist
Claire Grose	BSc Viticulture & Oenology	Research Winemaker
Sue Neal	DipHort, DipFieldTech	Research Associate
Victoria Raw	BSc (Hons Agri), GDip(Vit)	Research Associate
Julian Theobald	BSc (Hons), MSc, PhD	Scientist
Junqi Zhu	BSc, PhD, MSc	Scientist
Lily Stuart	Bag, PG Dip in Oenology	Research Associate
Jennifer Beullens		Site Services Administrator
Richard Hunter	Dip Ag, JP	Maori Relationship Advisor
Rafidah Horner	MSc (Immunology)	Permanent Seasonal Worker
Lorna Deppe	PhD (Ecology)	Permanent Seasonal Worker
Franzi Grab	MSc, GDip (Vit&Oen)	Permanent Seasonal
LinLin Yang	BSc Viticulture & Oenology	Technician
Muriel Yvon	MSc (Food Technology & Oenology)	Research Associate/Laboratory Manager

Bragato Research Institute

Jeffrey Clarke	CEO	
Fang Gou	PhD	Data Co-ordinator
Tanya Rutan	MSc (Hons), PhD Chemistry, BSc (Hons) Biology	Research Winery Manager
Matt Mayernick	Bsc Physics, Grad Dip V&O	Research Wine Cellar Manager
Len Ibbotson	BSc	Viticulture Extension & Research Manager
Darrell Lizamore	PhD	Principal Research Scientist – Grapevine Improvement (Christchurch)
Michelle Barry	MSc	Technical Communications Specialist
Janette McKibbin	BFA	Research Administrator (Auckland)
Stephanie Flores	BBus, MJ	Communication Manger
Augusta van Wijk	BPRM, Dip Bus	Business Development Manager (Nelson)
Fraser Broom	PhD	Science Strategy Manager (Christchurch)
Trish Grammer		Communications Manager
Sanket Babre	BSc(Hort), Grad Dip V&O	Viticulture Extension Assistant
Yuchi Ando	Grad Dip Vit	Viticulture Research Technician
David Armour	B.Biotech (Hons), PhD	Research Programme Manager

Marlborough Winegrowers Assn Inc (Wine Marlborough Limited)

Marcus Pickens	BCom, Dip.Com	General Manager
Sarah Linklater	BCom	Marketing and Communications Manager
Joanna May		Financial Administration
Nicci Armour	BSc (Hons), PhD	Advocacy Manager
Loren Coffey		Events Manager

New Zealand Winegrowers

Edwin Massey	PhD	General Manager Sustainability
Bridget Ennals	BSc (Hons) Horticulture	Sustainability Guardians Programme Co-ordinator
Hazel Thomson	Dip Envt & Sustainability	Sustainability Lead – Pest and Disease Management (Maternity Leave)
Jasmin Howie	BSc, Grad Dip V&O	Sustainability Lead – Pest and Disease Management
Jim Herdman		Biosecurity Advisor
Teresa Smith		SWNZ Membership Support
Sandy McArthur		SWNZ Membership Support
Louise Vickery	Dip Vit & Wine Production	SWNZ Membership Support
Meagan Littlejohn M.A.		SWNZ Team Leader
Frederic Kennedy		SWNZ Systems & Database Coordinator
Sarah Adams	BA (Hons)	Communications and Digital Advisor

GROVETOWN PARK CAMPUS

AsureQuality Limited
Duncan Beattie

Hill Laboratories
Kirsty Adams
Vanessa Burrows (Maternity Leave)
Karen Nichol
Laura Croad
Aaron Fountain
Hannah Ansley

DNAiTECH
Murray Broom, PhD

Nelson/Marlborough Fish and Game Council
Vaughan Lynn

Marlborough Tour Company
Abbe Hutchins

Rowley Vineyard
Contracted to Giesen Group Ltd

GCH Aviation Limited
Colin Aitchison
Jared Buckley

Ministry for Primary Industries
Compliance and Resources (Fisheries) –
Chris Beal/Liz Murray/Ramon Smith
Maori Primary Sector Partnerships -
Judith MacDonald
Verification Services –
Nadja Berger, Piers Hamilton
Agriculture and Investment Services- Nova Mercier

Ngati Toa Wairau
John Grey

new faces

JEFFREY CLARKE
CEO, BRI

Jeffrey Clarke initially took up BRI's CEO role on an interim basis in early April following the resignation of MJ Loza. He was previously General Manager Advocacy & General Counsel at New Zealand Winegrowers.

Jeffrey is thrilled by the opportunity to help lead BRI at this exciting stage of its growth.

Mr Clarke has worked for NZ Winegrowers since 2014 and has been involved with BRI since its inception. His work as general legal counsel included the original contracts to establish BRI, as well as ongoing advocacy and legal support for the research organisation. Mr Clarke also represented the NZ wine industry at international wine bodies such as the OIV and World Wine Trade Group.

MATT MAYERNICK
Research Winery Cellar Manager, BRI

Matt Mayernick studied and worked in Colorado, USA, and later in Canterbury. He is most excited about digging into the science, getting his hands dirty, making the wine and then seeing the end result.

"The winery is so well thought out and purpose-built for research that it is very easy to carry out some very interesting experiments", he says.

"The MRC campus has become the hub for ideas and the meeting place for the wine industry's top people to collaborate and share their thoughts for the future of the industry. It's the ideal situation to have so many organizations on one campus. If I have a question about something, there is likely to be an expert on campus," Matt says.

TRISH GRAMMAR
Communications Manager, BRI

Trish Grammer is BRI's new Communications Manager. She has a degree in English from the University of Otago and a post-grad qualification in Journalism from the University of Canterbury. Trish started her career in journalism before moving into public relations, including running her own successful PR firm in Auckland.

Trish says the purpose of her role is to "let the wine industry and other BRI stakeholders know what we're doing, and how it's relevant to them".

You may have met Trish in previous roles including Mud House (when it was owned by its founders), Delta, and more recently Glover Family Vineyards, which has given her a great understanding of the wine industry, grape-grower and winery needs. Trish is very excited to focus on communications again.

DAVID ARMOUR
Research Programme Manager, BRI

Originally from Queensland, Australia, David Armour joined BRI in January.

David's focus will be working with BRI's research partners to manage two of the industry's key research programmes: Vineyard Ecosystems examines how vineyard management practices can enhance biodiversity and improve grapevine performance and the other looks at Pinot Noir quality and productivity.

"Whether it's the deep science, teaching the next generation, or those upskilling, solving challenges at a regional or national scale or enabling the industry to grow, we're all tackling something multifaceted and having such diversity in the one location. MRC is a fantastic hub to be part of," David says.

YUICHI ANDO
BRI's Viticulture Research Technician, BRI

Yuichi joins the BRI after over a decade gaining experience in viticulture, most recently as Vineyard Manager of the Allan Scott Family vineyards. Yuichi's mix of technical viticulture, practical vineyard operations management and tertiary qualifications make him an ideal candidate as BRI expands its extension programme and increases direct participation in applied viticulture and winemaking research.

SANKET BABRE
Viticulture Extension Assistant, BRI

Sanket became a part of the team at BRI while on a two year secondment from Constellation Brands, where he manages approximately 300 hectares of vineyard.

The secondment offers an excellent opportunity for BRI to further strengthen ties with industry and to help upskill industry personnel in the field of Viticulture Extension. Sanket brings over a decade of practical viticulture experience to the team, including operations, management and technical viticulture. He has a Bachelor degree in Horticultural Science and a Graduate diploma in Viticulture and Oenology.

NICCI ARMOUR
Advocacy Manager, Wine Marlborough

Nicci has spent her career problem-solving for people and communities - first as a scientist, then in a housing start-up. Prior to landing in Marlborough she established an innovation and research consultancy in the Bay of Plenty's horticulture sector.

Originally from a farm in Southland, and then on to Queenstown, Nicci's wine experience started in Central Otago. Her journey over the last 20 years traversed Hong Kong, Brisbane, and Tauranga. Nicci is keen to dig deep with Wine Marlborough's members and understand how she can really make a difference.

AARON FOUNTAIN
Laboratory Technician, Hill Laboratories

Aaron started work at Hill Laboratories at the beginning of January after completing college in 2020. He is excited about working in the lab and is interested in pursuing a career in Biochemistry. Aaron's role will provide opportunities to learn and expand his knowledge.

SARAH ADAMS
Digital Communications Advisor, NZ Winegrowers

Sarah Rowley Adams relocated to Blenheim from the Auckland NZ Winegrowers office. Her role involves running the social media channels and maintaining the website.

Sarah is looking forward to working closer with environment and research teams, as well as interacting with a wider range of people in the wine industry including those at MRC.

FREDDIE KENNEDY
Systems and Database Coordinator, NZ Winegrowers

We welcomed Frederic (Freddie) Kennedy to the Budge Street Campus in March. NZ Winegrowers are in the process of a technology review providing exciting opportunities for Freddie. He is improving Grape Link to make an immediate difference in growers' lives.

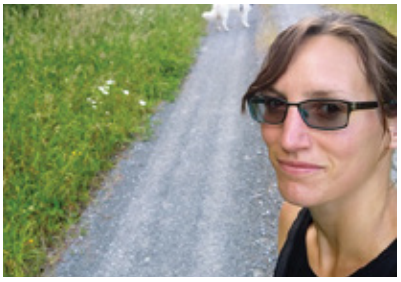
Grape link is the portal used by NZ Winegrowers members to submit compliance data, such as declarations and spray diaries. A new customer relationship management system is also in the pipeline.

MURRAY BROOM AND TATIANA CEBAN
Directors, DNAiTech

Murray is a biochemist with a PhD from Otago University and was involved in the gene mapping of Batten disease, a degenerative neurological disorder, and developed large insert chromosomal libraries (YACs) for AgResearch and the US Department of Agriculture. He is a co-founder of Izon Science, a Christchurch-based nanotechnology company.

Tatiana's background is in education and psychology, and she manages the digital aspects of DNAiTECH.

NADJA BERGER
Travelling Technical Supervisor, MPI



Originally from Austria, Nadja joined MPI in December, moving to the Top of the South from Christchurch.

Nadja is responsible for Food Safety, working with the Top of the South food producers.

PIERS HARRISON
Specialist Advisor, MPI

Piers transferred to the MPI office at our Grovetown campus from Wellington. “Same job in a new location,” he says. He enjoys working in an office on the outskirts of town of the Marlborough region after working in Wellington for several years.

NOVA MERCER
Senior Regional Advisor, MPI

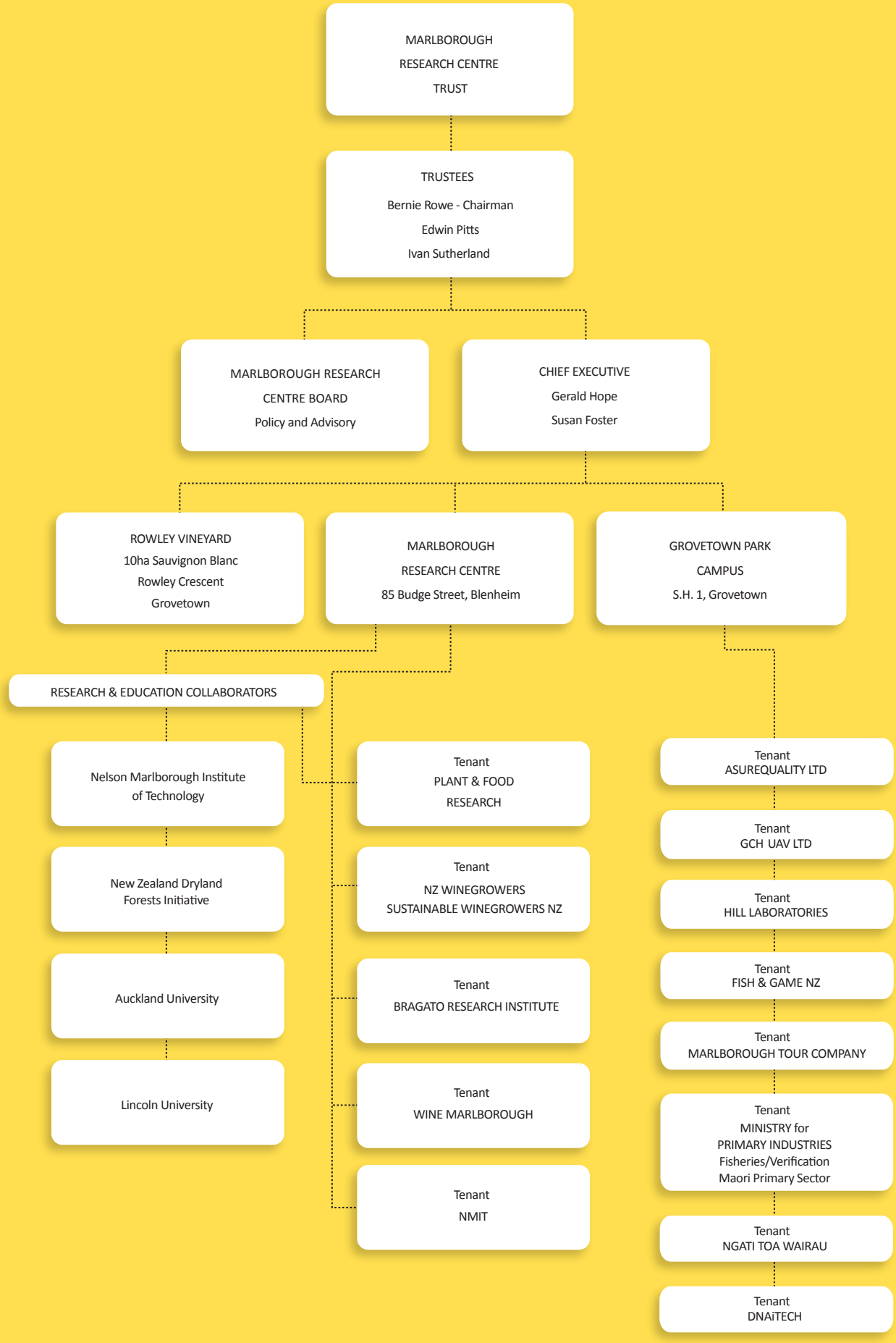
Nova is part of the South Island Regions Team within the Rural Communities & Farming Support Directorate. “Our roles are about understanding our regions and communicating with Wellington, as well as supporting our primary sectors and rural communities where we can, particularly in relation to wellbeing,” she says. “We can’t do this work alone and work closely with the Rural Support Trust and other key government agencies and industry groups. We also have civil defence roles during and after adverse events.”

CHARLOTTE PATTERSON-GREEN
Veterinary Technical Supervisor, MPI

Charlotte commenced her role with MPI in February. She is enjoying meeting new people and getting out and about in Marlborough. Born in Angus, Scotland, what the previous Equine Veterinarian enjoys most about her adopted home in the Marlborough region is the climate, the Sounds and the mountains.

NATASHA MATEROA AND KATE JOHNSON
Laboratory Technicians, Hill Laboratories

Kate Johnson and Natasha Materoa normally work at Ormond Nurseries but came to assist Hill Laboratories for three months during the busy grape vine period, completing Elisa tests on grape vine leaves, and testing for viruses passed on by mealy bugs.



organisational structure

our year at a glance

july 2020

Funding of $3.79m from the Provincial Growth Fund cements Marlborough's place as the epicentre of New Zealand wine industry research and innovation.

The funding is the culmination of more than a third of a century's work.

Construction of the $8m development to commence in January 2021.

august 2020

The New Zealand Wine Centre - Te Pokapū Wāina o Aotearoa and refreshed NMIT campus is moving ahead with tenders opening in September for stage one of the build.

It will provide offices, meeting rooms and co-shared space for wine research institutions and industry to collaborate.

september 2020

The Grape Days Spring Seminar Series, organised by the Bragato Research Institute were offered online this year.

Four webinars over four weeks shared information from New Zealand growers and their trials, as well as researchers from Bragato Research Institute, Linnaeus, South Australian Research and Development Institute, and Plant & Food Research.

New Zealand Wine Centre Stage 1 is underway, marked by NMIT's D-block removal and site clearance for the new development.

our year at a glance contd.

october 2020

Nick Snyder, Political and Economic Counsellor, and Paul Foster Bell, Political Specialist from the United States Embassy visit MRC for a familiarisation visit to the New Zealand Wine Centre - Te Pokapū Wāina o Aotearoa.

We look forward to building further business and research connections with the United States.

As sponsors of the Marlborough Wine Show, we took a look behind the scenes during the first of the two judging days.

An army of wine stewards cleaned some 2100 glasses for the two days of judging.

The MRC supports wine excellence in Marlborough by sponsoring two Chardonnay trophies. The 2020 show attracted 604 wines, including 10 from NMIT students.

november 2020

Molecular DNA biology technology beyond the lab

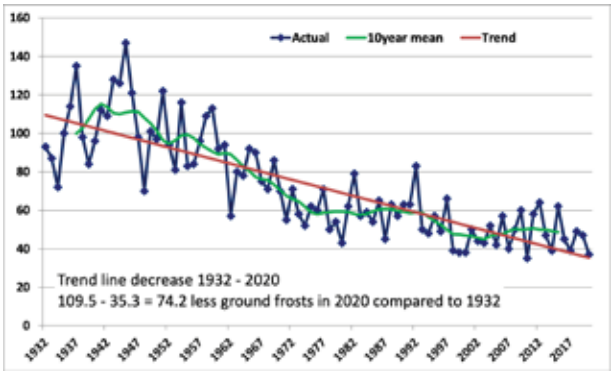
Start-up biotech company DNAiTECH enables low-cost molecular biology with its portable isothermal DNA amplification technology. The technology has applications in education, the bio medical and agricultural sectors. DNAiTECH now has a lab at MRC's Grovetown campus, with space for research and development and production.

our year at a glance contd.

december 2020

The 2020 meteorological data gathered by Rob Agnew of Plant & Food Research reveals that 2020 was Blenheim's 9th hottest year on record since 1933.

Blenheim also had the lowest number of ground frosts on record since then.



january 2021

Durable Eucalyptus productivity looks promising.

During a field visit Paul Millen observed 2 to 6m growth rates of 2-year-old durable Eucalypt trials. This work is part of a larger trial funded in 2018 by the Ministry of Business, Innovation and Employment (MBIE), and Forest Growers Research (FGR), Speciality Wood Products (SWP) to test site suitability and potential productivity of a number of species.

april 2021

Wilding Pine work recognised at Cawthron Marlborough Environment Awards

The Supreme and Landscape and Habitat enhancement award in 2021 was given to Marlborough Sounds Restoration Trust for their trail-blazing community action on wilding pine control. The efforts of this volunteer Trust have had a huge impact on the appearance and biodiversity of the Sounds.

our year at a glance contd.

may 2021

Founding CEO of the Bragato Research Institute, MJ Loza, was farewelled.

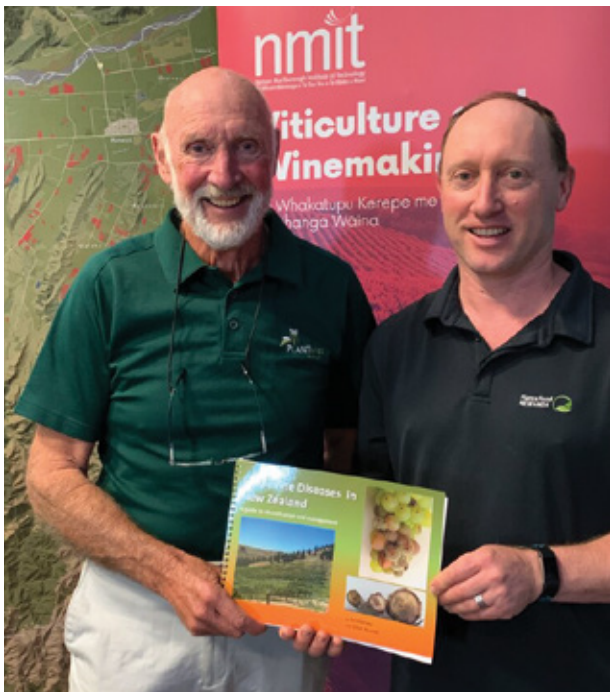
MJ Loza shared the MRC office area with his growing team of BRI researchers and technical specialists for the past three years. It's fair to say that substantial progress has been made during MJ's tenure at the head of this new entity. Most tangible is the magnificent purpose-built, award-winning research winery.

Sustainable Regional Hardwood Industries

NZDFI identifies 12 potential regional catchments and is working with partners in priority regions to identify future processing sites and annual planting targets. Each catchment could result in 200 new FTEs and contribute $82.5 million per year to the regional economy.

Dion Mundy, Senior Scientist at Plant & Food Research and lecturer at NMIT, launched his first book.

'Grapevine Diseases of New Zealand' is a guide to the identification and management of diseases affecting grapevines. Dion co-wrote the book with Ian Harvey from PLANTwise.



our year at a glance contd.

june 2021

New Zealand Wine Centre Roof Shout

Simon Hall of Jerram Tocker Barron Architects was happy with progress, saying that "the building is coming together really nicely. The users of the campus will be impressed with the quality of the project and the connections it will be creating."

Bragato Research Institute confirms Jeffrey Clarke as new CEO

Mr Clarke, previously General Manager Advocacy & General Counsel at New Zealand Winegrowers, took up the role on an interim basis in early April following the resignation of MJ Loza.

We are thrilled to have him join the team to help lead BRI at this stage of its growth.

new zealand wine centre
te pokapū wāina o aotearoa
provincial growth fund construction

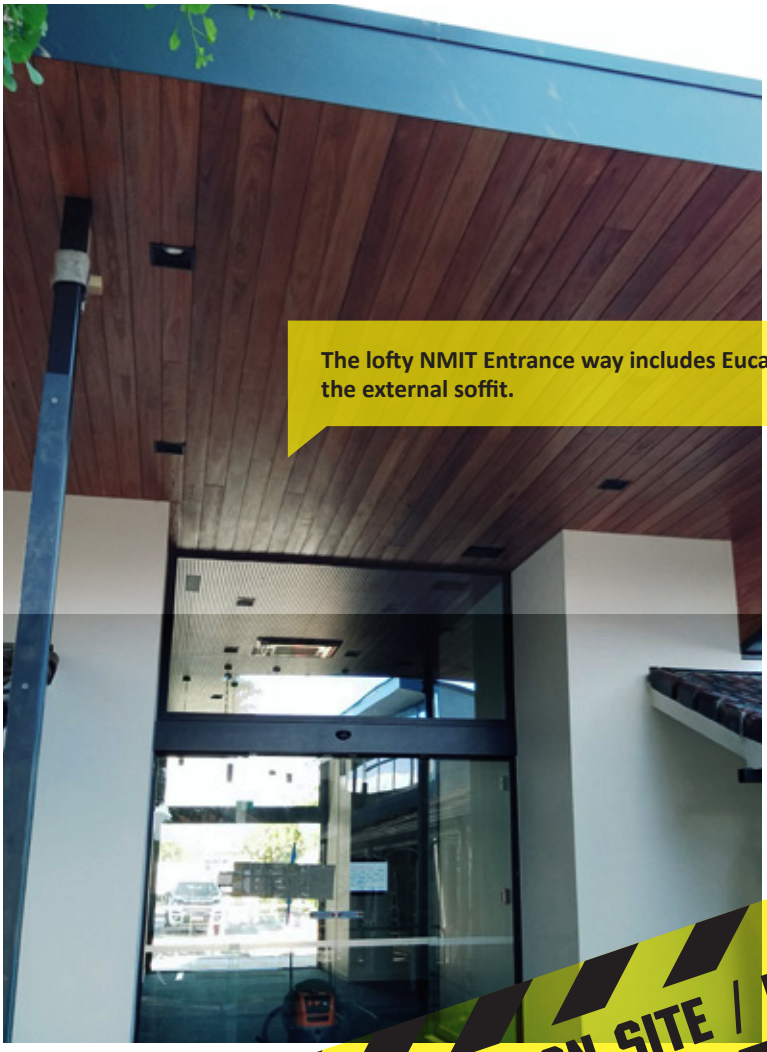
September 2020 - D-block clears the site for the New Zealand Wine Centre, Evan Jones Construction is awarded tender Stage 1 and Stage 2 of the build.

2021 Stage 1 - Construction begins with ground works.

May 2021 - The concrete foundations have been poured and walls are beginning to take shape. The old NMIT reception has been moved off Ballinger Drive.

June 2021 – Roof installation and internal framing are underway. Earthworks begin to increase the car park space.

October – The Wine Centre is ready for its windows



The lofty NMIT Entrance way includes Eucalypt on the external soffit.

molecular dna biology technology
beyond the lab

Murray Broom

It began with a desire to serve education with affordable instruments, but the speed and robustness of DNAiTech's portable isothermal DNA amplification technology has sparked interest in the medical field and has applications in the agricultural technology sector also.

DNAiTECH's core product is a hand-held device that integrates with smartphones as the optical reader and data processor, enabling molecular biology beyond the lab, for example for on-site environmental testing, Point-of-Care biomedical applications, agritech applications and as a teaching tool for secondary education.

Initially, founder and biochemist Murray Broom saw a niche in education where affordable instruments for students were lacking, making applied biochemistry teaching difficult. With an MBIE grant, Murray devised a pilot study to overcome these barriers to science and technology. "A group of students studied the tributaries of Te Waihora, with DNAiTECH DNA technologies designed specifically for secondary education," Murray says. By taking water samples from local rivers, streams and lakes, students mapped the build-up of microorganisms such as E. coli (a marker for faecal contamination) and M. Autumnalis, (a cyanobacterium that produces a toxin lethal to dogs), running DNAiTECH's real-time DNA amplification.

Since then, DNAiTech has received Callaghan Innovation grants to develop a number of applications in the medical field, assisting DNAiTech with its goal to develop affordable, specific, usable, rapid, robust technology for the bio medical and agritech sectors.

"In some cases, when the pathogen needs to be cultured," Murray explains, "the clinician would need to wait 4 to 5 days for the results. With our technology they have the results in 20 – 40 minutes. That can make a real difference. With Corneal disease, for instance, the symptoms can advance significantly before results are available, and the doctor needs to make a treatment decision during the consultation."

"The advantage is that our diagnostic tool provides rapid results at a fraction of the cost of current conventional DNA reading technology," says Murray.

The start-up biotech company is a new Marlborough Research Centre (MRC) tenant located on MRC's **Grovetown Park Campus.**

research & development highlights

adding value
to marlborough waste streams

Project 1: Bioconversion of grape marc using insects

This pilot study was carried out by Plant and Food Research (PFR) staff at Mt Albert in Auckland in collaboration with PFR Marlborough staff. It investigated the ability of nine insect species to feed on Sauvignon Blanc grape marc.

Figure 1. Conversion of grape marc and flour into dust-like frass and grape seeds. (a) Mealworm larvae were fed grape marc plus a small amount of wholemeal flour and left for a week at 25°C. (b) After a week, the larvae were removed and weighed, and the resulting frass and grape seeds were also weighed. The weight of the grape marc was reduced by about half, but the bulk was much reduced.

Mealworms and black soldier fly appear to be able to digest grape marc. Further work is needed to determine whether this can be scaled up to a level where these insects are a useful method for converting large quantities of grape marc into more valuable products. Our aims with further work will be to determine (1) the amount of grape marc these species can consume; (2) the quantity of insect proteins and lipids that are produced as a result; (3) the uses for these proteins and lipids as components of livestock feed, fish feed or pet food; and (4) the logistics of setting up a facility to use insects to bioconvert grape marc and other organic waste sources into these products. Insects are emerging as a sustainable solution to organic waste with the potential of reducing carbon emissions and, at the same time, providing an alternative source of proteins, lipids and other biopolymers.

Project 2: Developing a hydroseeding product using grape marc for native plant establishment

Grape marc is a bio-waste produced in large volumes from the wine industry each vintage and disposal is a major problem in the Marlborough region and nationally.

The aim of this project is to develop a hydroseeding product from grape marc (to replace imported hydroseeding material) that is highly suited for sowing native groundcovers under horticultural crops, such as grape vines.

This project represents a technological approach aligned to a wider programme of work developing permanent native ground cover in vineyards and orchards.

The principal goal of the overall programme is to eliminate chemical herbicide use but, if successful, the programme will generate a wide array of positive outcomes.

These outcomes include increased biodiversity, increased natural capital stocks and reduced fossil fuel inputs in horticultural production systems, while also promoting the wellbeing of communities living in proximity to horticulture.

A hydromulch product would be key to the establishment of native plants on a large scale at an affordable cost compared with hand planting of seedlings. The hydroseeding product would be formulated from processed grape marc and other ingredients to deliver the moisture conditions, nutrients and physical performance required for excellent seed germination while suppressing weeds.

The full report on project one and two can be found on the **Marlborough Research Centre website**.

plant & food projects conducted in the mrc tunnel house

Three projects were conducted in the MRC tunnel house in 2020-21.

Grape marc nitrogen mineralisation study

This grape marc nitrogen (N) mineralisation study was conducted in pots in the tunnel house to determine the N supply from Sauvignon Blanc grape marc. The experiment was conducted to compare the N release from two rates of grape marc (equivalent to 100 and 300 kg N/ha) and two grape marc incorporation treatments (surface applied or incorporated in the soil).

It is a follow-up to the 2019 report "Soil remediation through the use of grape marc".

In general, the incorporation of grape marc to soil resulted in more immobilisation of soil N in the short term compared with the surface-applied marc. Increasing the rate of grape marc applied from an equivalent of 100 kg N/ha to 300 kg N/ha increased the net N supply to the soil after 16 weeks.

The immobilisation of N, observed following addition of marc to soil, will need to be carefully considered if marc is applied for the purpose of supplying N to a crop.

Immobilisation of N will remove N from the plant-available pool, leading to potential N deficiencies. If the N supply is too slow (due to a period of immobilisation) then the time where N is supplied to soil may be at a period where plant uptake is slower, or at a time of year where losses due to leaching (i.e. winter/high rainfall) are greater. However, the immobilisation of N in the short term, immediately after application, may prevent losses of N during high-risk periods (e.g. winter) but the long-term N supply needs to be explored. The year-on-year dynamics of marc application also need to be explored given the yearly generation of marc material.

The full report on this project can be found on the **Marlborough Research Centre website.**

Figure 1: Pots with three equivalent rates of grape marc (0, 100, 300 kg/ha) applied to soil surface or incorporated in the soil showing different rates of oat germination two weeks after sowing

Below: The MRC tunnel house

Grapevine trunk disease studies

Two studies from Plant and Food Research were conducted by Dion Mundy this season in the tunnel house. One study, using older vines, looked at a range of trunk diseases in mature vines and investigated the physiological responses to infection at a whole vine level. Measurements of vine leaves were conducted on naturally infected and inoculated vines to see if leaves could be used to detect disease before other symptoms were expressed. In the second PFR experiment, small cutting plants that had been surface sterilised were inoculated and grown to investigate plant response to a range of trunk disease pathogens.

Dion also supervised a Nelson Marlborough Institute of Technology (NMIT) student project on trunk disease. This project investigated a native New Zealand white rot fungi, which has been detected in vineyards, to see if it was pathogenic in a small model system (plants grown from cuttings). This project will not conclusively prove if the white rot fungi is a pathogen but it provides some of the ground work that will build our understanding in the area of white rots as part of the esca complex, and whether we have a unique New Zealand esca complex with a native component. The NMIT project builds on the continued research by PFR to understand the Marlborough and New Zealand context for grapevine trunk disease.

Understanding potential rootstock influence on soil drying (drought) responses in Sauvignon Blanc

The objectives of this pilot study were to:

Explore physiological responses of Sauvignon Blanc on different rootstocks to an episode of soil drying under semi-controlled environment conditions in the plastic tunnel house, with the added advantage of removing potential rainfall interference.

Observe whether different scion x rootstock combinations conferred any other soil drying/drought tolerance adaptations or advantages when vines are grown with restricted root volume in plastic bags.

Develop a standardised approach to growing and managing potted vines within the tunnel house as a means by which scion-rootstock combinations may be 'screened' for beneficial traits in the future.

A full report on these projects can be found on the **Marlborough Research Centre website.**

Figure 1. (Top) grafted vines established; (Bottom right) pots with automated irrigation drip-lines established; and (Bottom left) measurement of leaf gas exchange (photosynthesis and water loss) on selected leaves of vines during a 2-week period of soil-drying (January 2021).

rapid diagnostic uc davis
publication support 2021

Dion Mundy

June 2021

Our aim is to produce a multi country publication which reviews the current methods of diagnostics for grapevine trunk disease and how they are being applied to advance our knowledge of these diseases. This publication will build on past joint publications with the UC Davis group.

During the season in Marlborough, small experiments were conducted in the MRC tunnel house to confirm some of the detection methods which Plant and Food Research have been developing and testing under New Zealand conditions.

We have confirmed that the qPCR method that was developed in Bordeaux to detect Phaeomoniella chlamydospora detects New Zealand isolates. The pathogen can result in Grapevine trunk disease such as black goo in young vines, singly or in a complex with other pathogens as is seen in the esca disease complex.

The UC Davis team is already using the French qPCR method to detect P. chlamydospora in field experiments in California and we have now confirmed our ability to use our published sawdust collection method to collect DNA for this same test.

The aim in the next 12 months is to complete our publications and continue to build our international collaboration so that New Zealand can benefit from the expertise and experience of our international colleges.

Figure 1. Looking forward to visiting collaborators such as the pathology staff at UC Davis again.

meteorological services highlights

Funding provided for meteorological services weather data supports many research projects. The data is also used by many wine industry organisations, and the wider agricultural and horticultural sector.

Met report author Rob Agnew, Plant & Food Research Scientist, summarises the 2020–21 year was the sixth warmest July to June year on record for Blenheim over the 89 year period from 1932–33 to 2020–21. Four of the ten warmest years on record have occurred in the last 8 years, since 2013-14.

One of the clearest pictures of Blenheim's warming temperatures is seen in the large decrease in the total number of ground frosts recorded per annum (Figure 1). The trend line in Figure 1 indicates that in 2020 Blenheim recorded an average of 74 fewer ground frosts than in 1932.

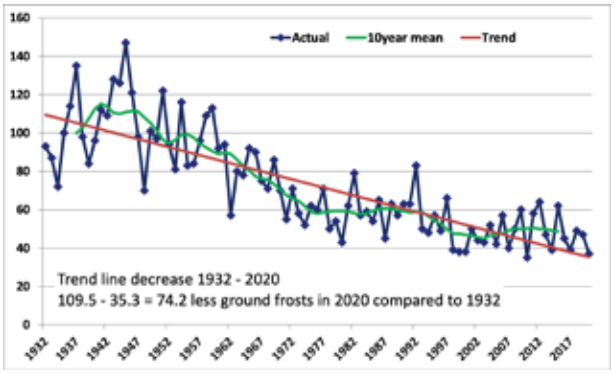


Figure 1. Annual number of ground frosts recorded in Blenheim over the 89 years 1932 to 2020.

Total rainfall of 539.4 mm for the 2020-21 year was 85% of the long-term average. However, monthly rainfall exhibited considerable variation. For the third year in a row, January and February were very dry and the 5.5 months from December 2020 to mid-May 2021 were dry. Figure 2 indicates that March 2021 recorded well above average rainfall of 79.2 mm, however, almost the entire month's rainfall was confined to the final 4 days of March, and this was then followed by a very dry April.

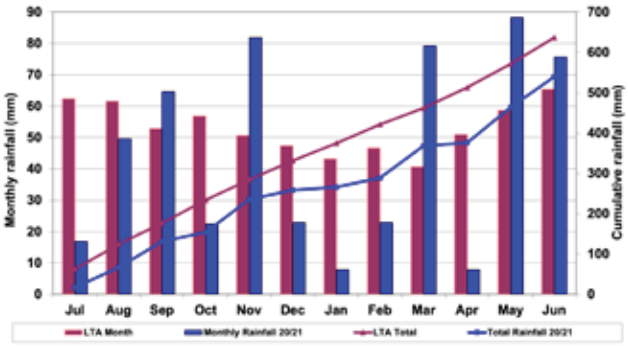


Figure 2. Monthly and cumulative rainfall in Blenheim for the 12 months from 1 July 2020 to 30 June 2021 compared with the long-term average (LTA).

Marlborough farmers are largely geared towards growing grass in the spring and autumn. Dry summers with little pasture growth are normal. From a pastoral farming point of view the early part of the growing season from August to November 2020 received good rainfall and consequently good pasture growth. The rainfall in late March and again in late May 2021 with warm soil temperatures meant that good grass growth occurred in the autumn.

A full report on this project can be found on the **Marlborough Research Centre website** along with detailed **summaries** from the Blenheim and Awatere weather stations.

seminars + workshops

In the 12 months from July 2020 to June 2021, staff from The New Zealand Institute for Plant and Food Research Limited (PFR) were involved in the presentation a number of seminars.

These seminars fell into three categories:

1) public seminars held at Marlborough Research Centre (MRC);
2) presentations by PFR staff to groups visiting the MRC;
3) presentations by PFR staff at national and international seminars.

The public seminars were advertised through the MRC, PFR and/or Nelson Marlborough Institute of Technology (NMIT) email distribution lists. Fewer public seminars organised by PFR have been held at the MRC in the past two years. This is partly because living in a COVID-19 conscious environment has led to many seminars now being delivered online and partly due to very few national or international scientists visiting PFR Marlborough, who would often be invited to give a presentation.

July 2020. Climate change and heatwaves

This seminar was organised by Dr Mike Trought, Honorary Fellow of Plant & Food Research. Presented by Dr Salinger, the talk examined the three extreme heatwaves that have affected the New Zealand region: back-to-back heatwaves in the two summers of 2017–18 and 2018–19 and in 1934–1935.

Dr Salinger talked about the heatwaves' effects on many sectors, including the devastating ice loss in the Southern Alps and wider impacts for crops, including wine grapes and marine life.

Such heatwaves are becoming more common and are a guide to future climate with anthropogenic global warming.

Research by a multidisciplinary team of 19 published a paper looking at what happened and why. The paper is entitled 'Unparalleled coupled ocean-atmosphere summer heatwaves in the New Zealand region: drivers, mechanisms and impacts'.

August 2020. Predicting grapevine yields and development

Presented by Senior Lecturer in Viticulture at Lincoln University, Dr Amber Parker and Dr Junqi Zhu, Scientist, PFR.

Phenology is a key biological indicator of climate change and an essential biodiversity variable for species worldwide. Amber's presentation illustrated how grapevine historical phenological records can inform us of the effects of climate change, and how we can use this information to develop tools to enable us to predict past, present and future changes in phenology in response to climate change. The impact of climate change on adaptation choices in response to phenology was also explored.

Seasonal differences in weather conditions cause marked variation in grapevine yield. However, quantitative relationships between various yield components and climatic factors at field scale are still lacking. By using a long-term field trial, we quantified the correlation between weather conditions during the key development stages and the yield components of Vitis vinifera L. Sauvignon Blanc growing under cool-climate conditions.

April 2021. Launch of specialist book titled 'Grapevine Diseases of New Zealand'

Book Authors & Presenters: Dr Ian Harvey and Dion Mundy, Senior Scientist, PFR

Dion Mundy has spent his working life helping the wine industry. Starting out on his family's Canterbury winery, Dion has had a ringside seat to observe the industry develop and grow.

As a scientist his research into understanding and managing grapevine diseases has made a significant difference to how grapes are grown in New Zealand and how they succeed overseas. Dion has written numerous articles and papers throughout his career and is a highly respected authority on grapevine diseases.

Dion's first book, co-authored with Ian Harvey from PLANTwise Services, Lincoln, 'Grapevine Diseases of New Zealand' is a valuable guide for everyone involved in the wine or grape growing industry. It is the first book dedicated to the identification and management of grapevine diseases in New Zealand.

possible benefits of feeding dried and milled marlborough sauvignon blanc grape marc to milking goats

A PILOT STUDY by Anderson P V A and Batten G J

With the encouraging results found in reducing gastro-intestinal nematode parasite (GIN) Faecal Egg Counts (FECs) after feeding young, weaned goats dried and milled Sauvignon Blanc grape marc (SBM) (Anderson and Batten 2020. Unpublished), we conducted a further study with milking goats from the end of July 2020 until the end of January 2021.

This study set out to determine whether 1) SBM reduces FECs and 2) the pathogenicity of a Haemonchus contortus (Barbers Pole worm) burden, if it occurred, over the kidding lactation period. As well as this, we tested milk to see if the tannins and fatty acids in the SBM had influenced the milk quality and fatty acid profile in a similar manner to that of high tannin diets in other trials.

We conclude from this study that feeding SBM to milking goats reduced GIN egg production and improved the fatty acid profile of the milk. With the anthelmintic properties, methane reducing potential, and reduced urinary N production possibilities, Marlborough SBM could play a very important role in dairy goat farming in the future. This does not preclude similar potential with other dairy species including sheep and cattle.

Figure 1 At the start of the study and before kidding, the treatment group had access to the SBM in a trough

Figure 2 The beneficial effect of supplementing goats with SBM to reduce the faecal egg output of GIN, and hence pasture contamination, was confirmed

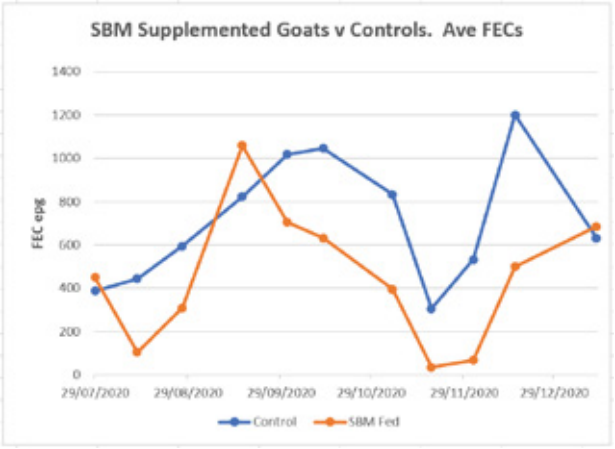


Figure 3 FEC Results - At all times when the Treatment group were getting their SBM, their FECs were less than the controls.

About the authors:

Garrick Batten is a former farm adviser, diplomat, and MAF technical and advisory services manager, who then spent the second half of his agricultural career focused on goat industry developments including managing his private business CAPRINEX.

Peter Anderson is a semi-retired veterinarian having practised in Marlborough since 1975. He has specialised in production animals, mainly sheep and beef cattle, and is an advisor with the StockCARE® programme which aims to improve flock and herd performance and profitability. He has been involved with many different 'on-farm' trial.

marlborough wine industry growth forecast


Giesen Wines

MARLBOROUGH'S VINEYARD area is continuing to grow, with another 5,150 hectares expected by 2024/25, taking the total planted area to 34,145ha. The results of the new Marlborough Wine Industry Growth Forecast 2020 show a high level of confidence in the region's wine industry, says Wine Marlborough general manager Marcus Pickens, who was nonetheless surprised by the extent of expansion plans. "There was a sense that the stellar growth of the past 10 years was set to slow, as the potential planting area declined. But the Upper Wairau is increasingly seen as viable vineyard space, and global demand for Marlborough Sauvignon Blanc is driving continued investment."

While some of the planned plantings are in the traditional Central and Lower Wairau Valley, and the Awatere subregion, 46% is forecast to occur in the Upper Wairau Valley, says the report, commissioned by Wine Marlborough and undertaken by Fruition Horticulture. See Fig 3.

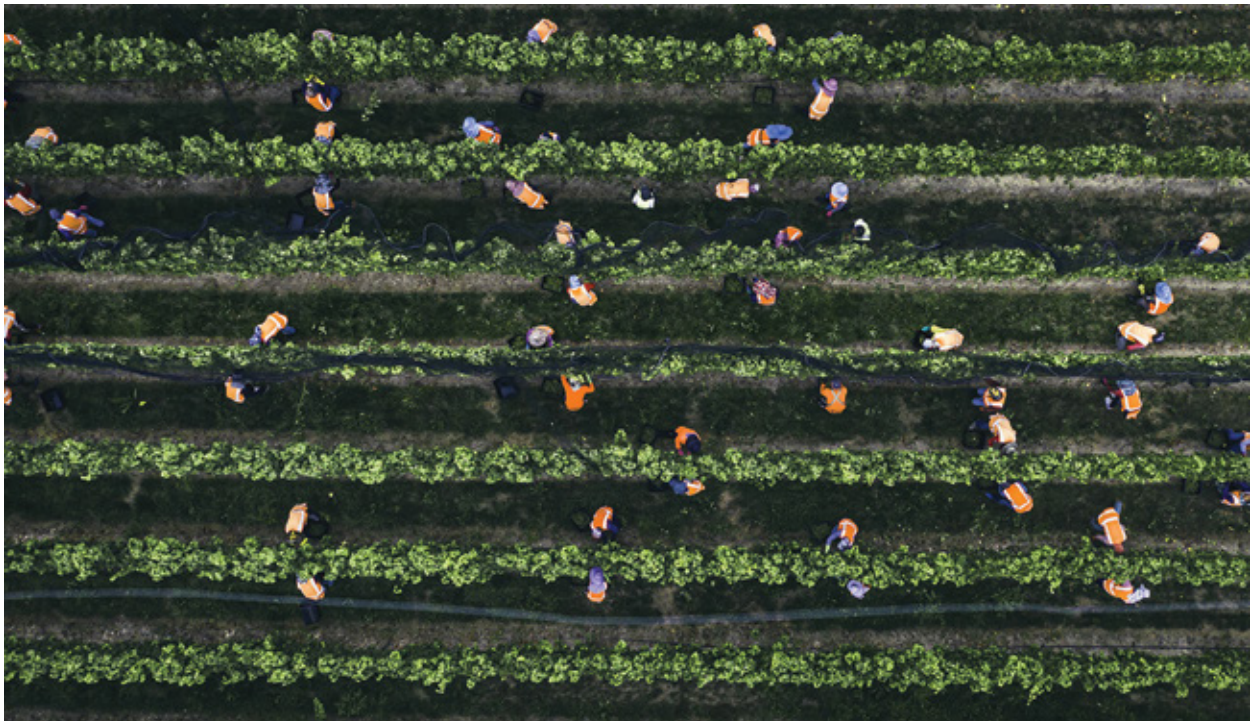
Marlborough's producing vineyard area has grown by 46% in the ten years to 2020, with the next largest region in New Zealand - Hawke's Bay - having grown by just 1%, it says. "The differences in scale and expansion are vast, with Marlborough's 46% growth equating to 8,784 additional hectares over the past 10 years against 41 additional hectares."

The survey was conducted in November and December 2020 and included 50 wine companies and growers, four winery-only businesses and 14 contractors, including two contractors who supply vineyard machinery services. It found continued strong optimism in the Marlborough wine industry, driven largely by strong international demand for the region's Sauvignon Blanc. That confidence is "tempered" to some degree by growers' "significant labour concerns" for winter pruning in 2021 and steeply rising labour costs. However, wineries are competing for available grapes from Marlborough growers, which is fuelling planting intentions, and the authors surmised that the smaller than expected harvest for the 2021 vintage - subsequent to the survey results - "is only likely to reaffirm these planting and growth intentions".

The expansion – "testimony to the global impact of Marlborough Sauvignon Blanc" - comes with opportunities and challenge in Marlborough's vineyard expansion and challenges, says Fruition horticultural consultant Greg Dryden. "The increased vineyard area, and estimates that wineries will process 440,100 tonnes for vintage 2025, up 33% from vintage 2020, will mean significant job growth for the region," he says.

The Marlborough Wine Industry Growth Forecast 2020 estimates a 17% increase (1,515 workers) in the number of workers required to meet the labour demands of the increased vineyard area, with an 8% increase in permanent and 20% increase in seasonal labour. Recruiting and retaining that staff, and ensuring enough accommodation, will require plenty of work, says Greg. "But we have learned a lot in the past year of labour shortages, and the industry is already working to do better with finding, retaining and housing its people." He also notes that the labour needs of the wine industry have changed in the five years since the last labour market survey, and are likely to evolve more into the future.

The 2016 report forecast a total vineyard labour force of 10,304 for 2019/20, but the requirement was just 8,986 for 2020/21. "Contractors have commented that the labour market is quite different now than what it was in 2016," the authors say. "In particular, in 2020/21 there are less contractors, a highly experienced (mostly RSE)



Wairau River's 2021 harvest. Photo Mike Heydon

workforce, longer seasons (pruning) and most operating six day working weeks."

Greg also notes that there is a lot of agritech being developed within the wine industry, which may end up "capping" the labour requirement, because growers facing spiralling costs are looking for ways to increase mechanisation, while tools like augmented reality for pruning are on the horizon. "It's certainly closer than many people realise."

As with the 2016 survey, the latest iteration reveals that finding workers with the right attitude and work ethic is the biggest challenge. "In 2020, this was reiterated by many, but many also outlined a number of new and successful initiatives to recruit and retain workers", it says. "These included flexible working hours, accommodation and transport assistance, extensive training opportunities and competitive rates of pay."

Marcus says the continued expansion of the wine industry will bolster Marlborough's economy. "Wine has a huge impact on the financial health of this region, and these growth plans will make it an even more significant player."

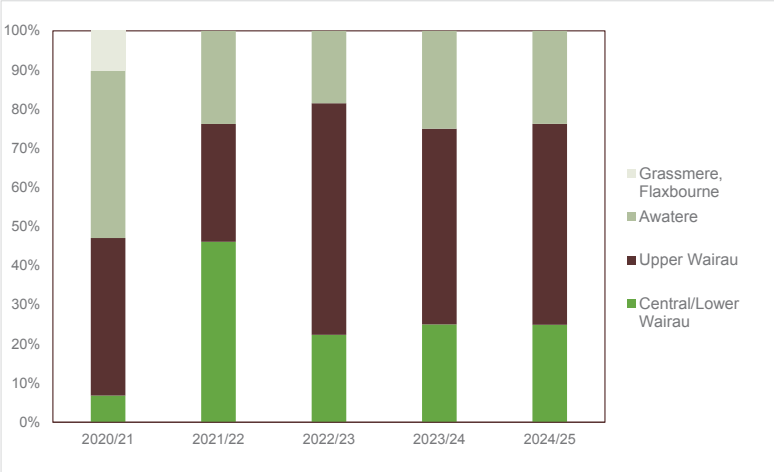


Figure 3 Proportion of annual new planting by Marlborough sub region.

This article, written by Sophie Preece first appeared in Winepress May 2021

Thank you to MRC for providing funding support for this project.

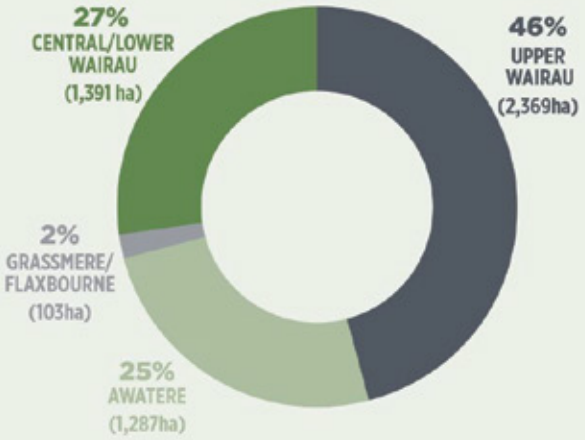
To read the full Marlborough Wine Industry Growth Forecast 2020 ***please follow this link.***

MARLBOROUGH WINE INDUSTRY GROWTH FORECAST 2020

KEY FACTS

PLANTING INCREASE

GROWTH LOCATION

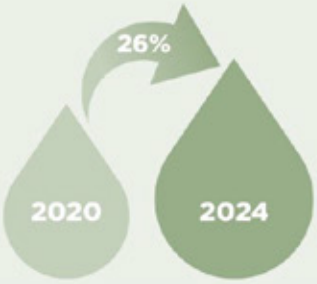


JOBS FROM 2016 TO 2020*

- Marlborough wine sector direct jobs +15%
- Jobs in sectors supporting the Marlborough wine sector +25%
- Total jobs associated with the Marlborough wine sector +20%
- Marlborough wine sector wages paid +24%

*Taken from NZIER contribution of wine to the Marlborough economy 2016 and 2020 - see following page for full chart

WATER STORAGE ON VINEYARD



TOTAL JOB GROWTH FORECAST

17% more jobs needed for marlborough wine industry overall by 2024/2025
8% growth in permanent roles
20% growth in seasonal roles

ON VINEYARD

IN WINERIES

WINE MARLBOROUGH NEW ZEALAND
NEW ZEALAND WINE PURE DISCOVERY
MARLBOROUGH RESEARCH CENTRE
MARLBOROUGH DISTRICT COUNCIL

CONTRIBUTION OF WINE TO THE MARLBOROUGH ECONOMY 2016 VS 2020

KEY STATS	VALUE 2016	VALUE 2020	% DIFF
Marlborough wine sector GDP	$477 million	$571 million	16%
Marlborough wine sector direct jobs*	2,350	2,750	15%
Wine sector's share of total employment in Marlborough*	10%	13%	3%
Jobs in sectors supporting the Marlborough wine sector	2,500	3,338	25%
Total jobs associated with the Marlborough wine sector	4,850	6,088	20%
Marlborough wine sector wages*	$130 million	$171 million	24%
Marlborough wine sector purchases from supplying sectors	$695 million	$835 million	17%

2020 values except Wine GDP and Price of Inputs (2019 data)
* (excl seasonal workers)
Source: NZIER, Statistics NZ, MBIE

WINE MARLBOROUGH NEW ZEALAND
NEW ZEALAND WINE PURE DISCOVERY
MARLBOROUGH RESEARCH CENTRE
MARLBOROUGH DISTRICT COUNCIL

The full report can be read on our **website.**

kaikoura earthquake
impact on water resources in the flaxbourne and waima (ure) catchments

Following the Kaikoura Earthquakes on 14 November 2016, MPI established an earthquake recovery fund to assist local communities to address the impacts of the earthquake. The Flaxbourne Settlers' Association, with the assistance of the Marlborough Research Centre (MRC), was granted $372,250 (plus GST) to investigate both the immediate and long-term impacts of the earthquake on the water resources of the Flaxbourne and Waima (Ure) catchments.

The contract was signed in November 2017 and was to be completed in September 2020. The contract was extended through to 30 June 2021 because of the impact that COVID 19 had on the work programme. The contract included contributions from Marlborough District Council in terms of cash and in-kind support for the initiatives carried out.

The Governance Group for the project were from the Flaxbourne Settlers' Association: John Hickman (Chair), Locky Taylor and Jim Rudd; Val Wadsworth (Marlborough District Council) and Gerald Hope (Marlborough Research Centre).

The Project Manager was John Patterson (Associate, Marlborough Research Centre) and the Technical Advisor to the project was Dr Jack McConchie (WSP).

Reports and Information

The reports produced from the project are on the **Marlborough Research Centre's website** and are summarised as follows:

- Post-Earthquake Information Assessment
- LIDAR – Practical Uses (LIDAR data is held by Marlborough District Council (MDC) and can be viewed through MDC's Smart maps application)
- Terrain Analysis
- Community Water Supplies and Geophysical Attributes of the Aquifer
- Needles Creek Monitoring Well
- Flaxbourne Turbidity Monitoring
- Flood Hazard Modelling
- Lake Elterwater
- Low Flow Gauging and Water Resource Implications
- Regulatory Response

Acknowledgements

These reports have been primarily produced by, or under the guidance of, Dr John (Jack) McConchie (Technical Principal - Hydrology & Geomorphology at WSP). Jack has been a significant guiding force in the monitoring, analysis and advice produced by the working group.

Outcomes from the Project

The main outcomes from the project are:

a. An understanding of the impacts of the earthquake on the topography in the catchments and the consequential impacts on water resources and the flood hazard.

b. Reinstatement and implementation of monitoring regimes to ensure that water quantity and quality assessments are provided for the catchments. Monitoring regimes to be continued under the stewardship of the Marlborough District Council and Flaxbourne Settlers' Association:

   i. Needles Creek Monitoring Well.

   ii. Low flow monitoring.

   iii. Turbidity monitoring

   iv. Lake Elterwater monitoring

   v. Community water supply monitoring.

c. Creation of information through high resolution LIDAR which will benefit the local community and individual landowners.

d. Provision of greater resilience to the community water supplies through the upgrading of monitoring systems and storage.

e. Identification of mitigation strategies, detailed in suggested regulatory responses, to meet future challenges to be faced by the community when responding to the increased flood hazard, and issues relating to water quantity and quality.

Next Steps

The next step to providing ongoing catchment-wide water management is to establish a community group, reporting to the Flaxbourne Settlers' Association, to address issues of water management in the catchments. The role will be to liaise with Marlborough District Council and other agencies (such as Kiwirail and Waka Kotahi NZ Transport Agency) to address wider water management responses for the area.

eucalyptus
tissue culture

This research project on Eucalyptus bosistoana selected by NZ Dryland Forests Initiative and conducted by David Leung, University of Canterbury, had three objectives:

1. to investigate effective means for sterilisation of micro shoot cuttings;
2. to investigate the composition of tissue culture medium;
3. to investigate rooting requirements.

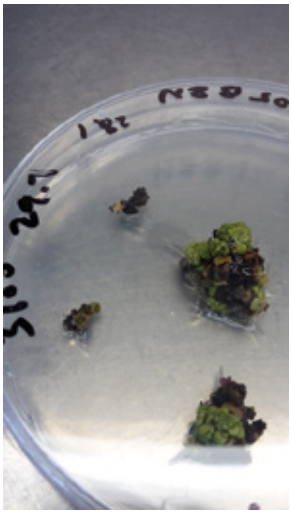
Milestones achieved:

- The cuttings from five different lines of Eucalyptus bosistoana were successfully surface-disinfected.
- At least 80% of cultured shoot cuttings were free from visible microbial contamination and stayed clean for at least two rounds of subculture.
- Bud break was achieved using three lines. Leung is awaiting these new shoots to elongate before rooting trials can begin.
- Budbreak for two further lines is underway.

The continued direction of this research is to find a common protocol that suits as many clones as possible to simplify commercial propagation operations and to make it practical for the industry to mass clone different breeding lines.

The full report can be viewed on our **website.**

Bud break and continuous shoot proliferation in a microcutting free of any microbial contamination have been achieved.



Bulking up shoot number and further shoot proliferation from smaller pieces from a shoot cluster.

Shoot elongation and isolation of single shoots for the next critical step of root formation in the next phase of the tissue culture research.

nz drylands forest initiative

NZDFI NEW ZEALAND DRYLAND FORESTS INITIATIVE
breeding tomorrow's trees today

Progress Report

MRC funded $12,500 for three areas of unbudgeted NZDFI work. To date, expenditure of $8832 has been reported with the balance of funding falling in the 2022 financial year This is consistent with previous funding allocations and provides further support for this existing programme.

Progress with two of these as follows:

1. Property access maps for NZDFI trial sites
   These are required to improve health and safety for researchers and others visiting the trials.
   A total of 23 identified sites needed maps to be produced.
   By 30 June, 17 maps had been finished with the final 6 drafted and needing only some minor amendments.

2. Submission on Climate Change Commission proposals
   A submission was drafted and provided to the CCC along with an associated submission to MPI's Emissions Trading Scheme.

The third area of work was:

3. Legal agreement review of NZDFI trial sites
   Gascoigne Wicks Laywers have been instructed to provide advice on new legal agreements with a priority given to trials that have the highest R&D value for NZDFI's ongoing research programme.
   This work has yet to be completed
   MRC had agreed to provide $5,000 to get this work underway this financial year. At this stage an initial report costing $1642 has been completed.

Financial Reports

Marlborough Research Centre Financial Overview & Highlight's 2020 - 2021

contents

Marlborough Research Centre financial overview and highlights 2020/2021

1. The Marlborough Research Centre Trust Annual Report received an unqualified audit opinion for the financial year ended 30 June 2021. The Annual Report has been circulated separately and is available online at **www.mrc.org.nz**

Financial Overview and Highlights

2. The following provide the key financial highlights for the year.

Description	Notes	2019/20 Actual	2020/21 Actual
Operating Surpluses	a	$391,240	$308,510
Other Revenue	b	$502,541	$862,007
Total Grants	b	$357,719	$797,318
Net Surplus		**$251,129**	**$106,782**

a. Of particular note is the reduced surplus associated with the vineyard (income declined 15% due to reduced tonnage) and reduced tenancy income on the Grovetown Park campus.

b. Increased other revenue and total grants is associated with Central Government funded initiatives for NZ Dryland Forests and Flaxbourne Earthquake studies with increased activity in association with these programmes. The Flaxbourne Earthquake studies were completed as at 30 June 2021.

c. Overall the Trust maintained a net surplus and continued to provide a significant level of support to the region through its contributions to research programmes.

3. The following highlights the Trust Equity and Assets Employed:

Description	Notes	30 June 2020 Actual	30 June 2021 Actual
Total Fixed Assets Employed	a	$3.749 million	$5.312 million
Loans (Suspensory)	b	-	$1.369 million
Net Current Assets		$1.315 million	$1.228 million
Total Trustee's Equity		$5.065 million	$5.171 million

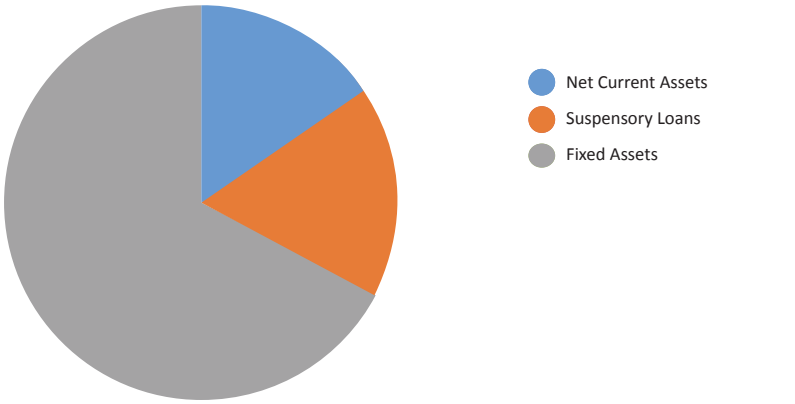
a. Total Fixed Assets Employed - Te Pokapū Wāina o Aotearoa (New Zealand Wine Centre) development on Budget Street campus commenced. Stages one ($3.596 million) and two ($1.333 million) are under contract. The total development budget is $7.6 million to be funded from bank finance ($2.8 million), Suspensory Loan from Kanoa ($3.8 million) and the balance from MRC reserves. The development will complement the Bragato Research Winery opened in February 2020 and enable an integrated campus to be developed for industry, research and education.

Financial Support Provided

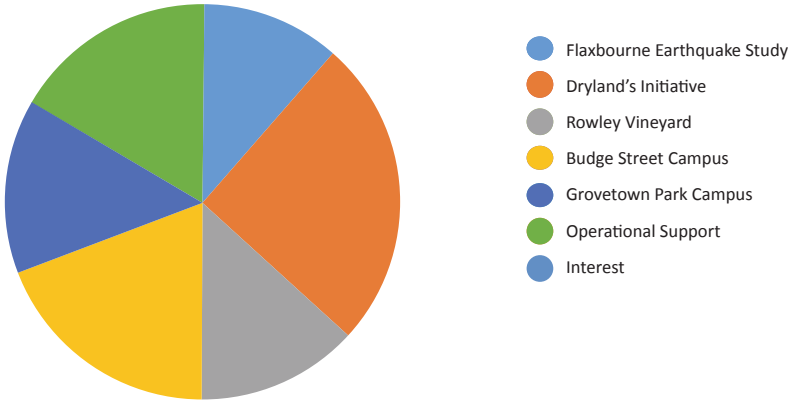
Description	Actual 2020/21	Budget 2020/21
Meterological Services	$27,500	$27,500
UC Davis, University of Bordeaux support of Rapid Diagnostic Initiative	$6,000	$6,000
UC Davis, University of Bordeaux PhD support	$27,000	$27,000
Seminars and Workshops	$0	$2,000
Adding Value to Marlborough Waste Streams	$32,500	$35,000
Soil Remediation – Use of Grape Marc	$10,000	$10,000
Subtotal (attributable to activity at Budge Street)	**$103,000**	**$107,500**
Anthelmintic Potential of Grape Marc	$19,500	$19,500
Cawthron Environment Awards	$5,000	$5,000
NZ Dryland's Forest (NZDFI)	$8,832	$12,500
Wine Sector labour demand survey	$10,000	$10,000
Total	**$146,332**	**$154,500**

In addition to the financial contributions MRC has managed the NZ Dryland Forest Initiative $481,932 and the Flaxbourne Earthquake Studies $169,054 during the financial year. Explanation of the programmes is contained in the body of the report.

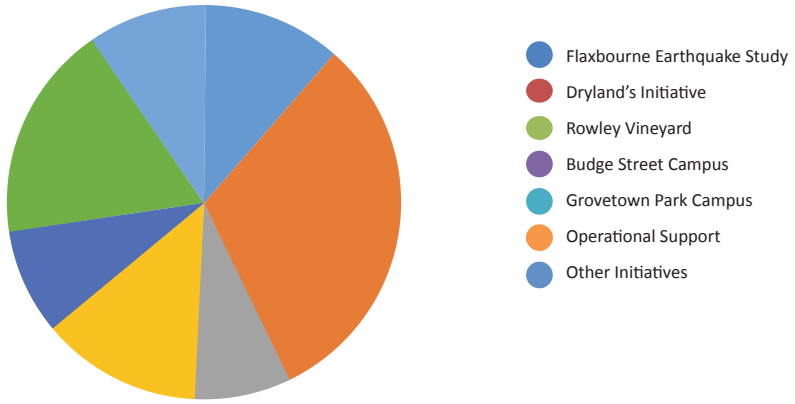
Equity Represented by:



Income



Expenditure



NOTE: These statements are to be read in conjunction with the Notes to the Financial Statements and are subject to the Auditors Report

Entity Information

Marlborough Research Centre Trust (MRC)
For the year ended 30 June 2021

Entity Purpose or Mission

The intent of the Trust is to provide a research centre based in Marlborough and to promote and fund research in all forms. The Deed specifies that MRC undertakes innovative research, encourages and promotes production in all forms from pastoral, horticultural, agricultural and arable sectors. With the establishment of Bragato Research Institute an expanding working relationship has formed that includes Plant & Food Research and NMIT, bringing research and education closer together. A close alignment with Marlborough District Council on regional economic development exists to ensure maximum district wide benefit is achieved.

Vision
Our vision is to be an integrated centre for research and education based around the primary production sectors in Marlborough. As such we will:

- Find research, development and education opportunities that will result in opportunities for economic development
- Facilitate and connect research, education and innovative business to each other
- Connect research, education and business to the resources they require to succeed

Our focus is on maximising the region's potential through science, research and technology to benefit the health and wellbeing of all people in the Marlborough regional economy.

Values
To support our vision we will be:

Connected - We will be proactive and persistent in connecting people and opportunities in Marlborough to each other, to New Zealand, and to the world.

Achievers - We will focus on the achievement of real, measurable success in all areas of our participation.

Knowledgable - We will be open to new ideas, proactive about exploring opportunity and diligent about communicating new ideas.

Energetic - We will apply ourselves energetically to our vision we will not wait for opportunities to come to us, we will seek them out.

Unique - We will offer a unique value proposition to Marlborough and to New Zealand as the only independent Multidisciplinary Research Centre in the Marlborough Region

Main Sources of Cash and Resources
MRC Trust receives its primary income from rental received from two campuses which it owns and administers. An annual grant from Marlborough District Council of $262,000; plus sale of grapes from the Rowley Vineyard to a NZ owned Marlborough based wine company. Other income and expenditure is based on fixed term research contracts that do not eventuate every year but are administered by MRC as an "in kind" contribution toward those programmes.

Main Methods Used by Entity to Raise Funds
Grants, rental income and sale of grapes.

Reliance on Volunteers and Donated Services
MRC Trust would not exist without the help and support of many local companies and individual supporters in the primary production sector. Since establishment in 1984 board members and Trustees volunteer time as governors and donate resources in support of research programmes. MRC has a vineyard that sets aside areas for research to be undertaken by Plant and Food Research or other organisations as required. The value of this in-kind support is assessed at $73,000. Private landowners also allow use of areas of vineyard for grape and wine research or East Coast hill country for durable hardwood trials. This goodwill supports the delivery of district wide research and technology transfer and development.

Operational Structure
The Marlborough Research Centre Trust organisation is managed by a contracted Chief Executive supported by an Office and Accounts Manager. Both positions are responsible for the general management and smooth running of the Budge Street Campus and Grovetown Park Campus with 15 tenant groups housing around eighty people. Rowley Vineyard is contract managed. All positions report through the Chief Executive to the MRCT Board.

Trustees
The number of Trustees is three that forms the Board. The power of appointment of new Trustees is vested in the Trustees. The key to success over more than three decades of the MRC has primarily been due to the long service and commitment of individual Board members to the objectives of the MRC. A committee of MRCT is the MRC Board that provides science and policy advice to the Trust on matters relating to areas of research that are funded annually.

Entity Information cont.

Marlborough Research Centre Trust (MRC)
For the year ended 30 June 2021

Trustees include:
Bernie Rowe (Chair MRC Trust)
Edwin Pitts (Chair MRC Board)
Ivan Sutherland

Location:
85 Budge Street
Blenheim

Charities Register Number:
CC10533

Date of Registration:
1/07/2007

Chief Executive:
Gerald Hope

IRD Number:
031-535-289

GST Status:
Payments Basis, Two Monthly,
Coinciding with Balance Date

Chartered Accountants:
Sidekick Tasman Limited
PO Box 11-11
Blenheim 7240
Contact - Megan Cameron

Auditors:
NMA Nelson Marlborough Audit Ltd
PO Box 732
Nelson 7040

Barrister and Solicitors:
Gascoigne Wicks
PO Box 2
Blenheim 7240

Bankers:
ANZ Bank
BNZ Bank

NOTE: These statements are to be read in conjunction with the Notes to the Financial Statements and are subject to the Auditors Report

Statement of Service Performance

Marlborough Research Centre Trust (MRC)
For the year ended 30 June 2021

Description of the Entity's Outputs

MRC Trust provides an annual research allocation to support local researchers and innovators. The objective is to facilitate and fund local primary sector research, support industry driven initiatives, promote and encourage technology transfer and in all ways practical offer education insupport of the primary production sector.

By way of example. For over a decade MRC has financially supported and continued to invest in the very successful NZ Dryland Forests eucalypt programme. The Durable Eucalyptus hardwood programme has been progressively building a farmer base throughout Marlborough and New Zealand. After thirteen years it is in a commercialisation phase propagating 300,000 genetically improved seedlings to be launched under the XyloGeneTM brand. This is a strong example of a small local initiative that is well led and professionally managed growing into asubstantial national programme.

The past year has seen the commencement of the construction of multi-million dollar new buildings to establish the New Zealand Wine Centre. The objective is to unite all collaborators and researchers under the 'one roof' without each losing their identity and brand. Further major campus development is planned that is future focused and taking on the challenges of a changing commercial and climate influenced environment.

MRC is investing in and fostering greater collaboration between organisations under one banner Te Pokapū Wāina O Aotearoa – the New Zealand Wine Centre building on what has been established since the formation of the charitable Trust in 1984.

MRC continues to support small rural townships and communities tackling adversity through the water resilience initiative and studies in Flaxbourne following earthquakes which affected the region in 2016.

Research Grants Approved 2020-2021

Description	Actual 2020-2021	Budget 2020-2021	Notes
Metrological Services	$27,500	$27,500	Ongoing
Supporting University of Bordeaux PhD 50% share	$27,000	$27,000	Complete August 2023
Seminars and Workshops		$2,000	Ongoing
Soil Remediation- Use of Grape Marc	$10,000	$10,000	
Rapid Diagnostic US Davis Publication Support	$6,000	$6,000	
Adding Value to Marlborough Waste Streams	$32,500	$35,000	
Subtotal (attributable to activity at Budget Street)	**$103,000**	**$107,500**	
NZ Dryland's Forest (NZDFI)	$8,832	$12,500	
To determine the Anthelmintic Potential of Marlborough's Dried Grape Marc for the control of Gastrointestinal parasites in farmed animals.	$19,500	$19,500	
Flaxbourne Earthquake Study	$169,054	$80,000	Programme funded from MPI earthquake recovery programme
Wine Sector demand survey	$10,000	$10,000	Deferred from 2020
CawthronEnvironmentAwards	$5,000	$5,000	Ongoingbiannualfunding
SubTotal	**$212,386**	**$127,000**	
Total	**$315,386**	**$234,500**	

NOTE: These statements are to be read in conjunction with the Notes to the Financial Statements and are subject to the Auditors Report

Statement of Service Performance cont.

Marlborough Research Centre Trust (MRC)
For the year ended 30 June 2021

Te Pokapū Wāina o Aotearoa – New Zealand Wine Centre

Stages One and Two under Contract

Stages one and two construction contracts are expected to be completed early in 2022. The works focus on creation of an integrated campus with a common arrival point and entrance for the entire campus, a new meet and greet area, meeting rooms and offices to cater for the expansion of New Zealand Wine presence on site.

Stages one and two expenditure to date (as at 30 June 2021) is $1.665 million against a total budget of $5.120 million.

The entire development includes two further stages with stage three focused on developing further research facilities and stage four accommodation to meet the needs of visiting researchers. The budget for these stages is an additional $3.17 million.

Funding for the development of Te Pokapū Wāina O Aotearoa comes from Kānoa $3.791 million, loans guaranteed by Marlborough District Council $2.800 million and MRC building fund reserves.

TRADING ACCOUNT - ROWLEY VINEYARD OPERATIONS

Marlborough Research Centre Trust (MRC) For the year ended 30 June 2021

	2021	2020
Rowley Vineyard Operations		
Trading Income		
RV - Grape Sales	(221,285)	(261,062)
Total Trading Income	**(221,285)**	**(261,062)**
Cost of Sales		
Purchases		
RV - Cost of Goods Sold - Grapes	123,521	121,017
Total Purchases	**123,521**	**121,017**
Total Cost of Sales	**123,521**	**121,017**
Direct Costs		
Vineyard Operating Costs	116,447	114,138
Vineyard Rent, Rates & Insurance	7,074	6,879
RV - Transfer of Vineyard WIP	(123,521)	(121,017)
Total Direct Costs	-	-
Net Profit from Trading	**(97,764)**	**(140,045)**

NOTE: These statements are to be read in conjunction with the Notes to the Financial Statements and are subject to the Auditors Report

TRADING ACCOUNT - BUDGE STREET PROPERTY

Marlborough Research Centre Trust (MRC) For the year ended 30 June 2021

	2021	2020
Budge Street Property		
Trading Income		
Group Charges	(133,370)	(129,995)
BS - Tenant Rentals	(172,355)	(161,076)
BS - Theatre Charges	(3,605)	(3,090)
Total Trading Income	**(309,331)**	**(294,162)**
Direct Costs		
Depreciation and Amortisation	64,226	64,094
Group Costs	118,526	111,762
BS - Repairs & Maintenance	14,197	8,401
Total Direct Costs	**196,949**	**184,258**
Net Profit from Trading	**(112,381)**	**(109,904)**

TRADING ACCOUNT - GROVETOWN PARK PROPERTY

Marlborough Research Centre Trust (MRC) For the year ended 30 June 2021

	2021	2020
Grovetown Park Property		
Trading Income		
Group Charges	(94,575)	(102,572)
GP - Tenant Rentals	(134,707)	(154,215)
Total Trading Income	**(229,282)**	**(256,788)**
Direct Costs		
Depreciation & Amortisation	25,221	24,544
Group Costs	75,800	77,929
GP - Repairs & Maintenance	29,897	13,023
Total Direct Costs	**130,918**	**115,497**
Net Profit from Trading	**(98,364)**	**(141,291)**

NOTE: These statements are to be read in conjunction with the Notes to the Financial Statements and are subject to the Auditors Report

STATEMENT OF FINANCIAL PERFORMANCE

Marlborough Research Centre Trust (MRC) For the year ended 30 June 2021

	NOTES	2021	2020
Operating Surpluses Transferred			
Rowley Vineyard Operations		97,764	140,045
Budge Street Property Account		112,381	109,904
Grovetown Park Property Account		98,364	141,291
Total Operating Surpluses Transferred		**308,510**	**391,240**
Other Revenue			
NZ Dryland Forests Initiative Projects Grants		412,557	203,915
MRC - Marlborough District Council		266,597	261,626
Grant - Flaxbourne Earthquake Study		182,854	37,000
Total Other Revenue		**862,007**	**502,541**
Expenses			
Operating Expenses			
MRC - Audit Fees		4,835	4,765
MRC - Insurances		7,565	7,933
MRC - Associate		-	25,920
Office Expenses		17,650	17,009
Operating Expenses		28,470	54,194
Personnel		182,435	176,256
Trust Share of Operating Costs		16,967	12,859
Total Operating Expenses		**257,922**	**298,936**
Grants			
Grant NZ Dryland Forests Initiative - Expense		481,932	195,203
Grant - PhD Student Scholorship		-	3,000
Grant - Meteorological Service		27,500	25,000
Grant - Cawthron Environment Awards		5,000	-
Grant - Chilean Needlegrass		-	25,000
Grant – Flaxbourne Earthquake Study		169,054	51,016
Grant - Rapid Diagnostic Capability for Grape Vines		-	-
Grant - SFF Wasp Control		-	5,000
Grant - Soil Remediation - Grape Marc		10,000	25,000
Grant - UC Davis - Bordeaux Uni		27,000	18,500
Grant - Wine Marlborough Labour Survey		10,000	-
MRC Grant to NZDFI		8,832	10,000
Grant - Rapid Diagnostic US Davis Publication Support		6,000	-
Grant - Adding value to Marlborough Waste Streams		32,500	-
Grant - Anthemintic Potential of Grape Marc		19,500	-
Total Grants		**797,318**	**357,719**

NOTE: These statements are to be read in conjunction with the Notes to the Financial Statements and are subject to the Auditors Report

STATEMENT OF FINANCIAL PERFORMANCE contd.

Marlborough Research Centre Trust (MRC) For the year ended 30 June 2021

	NOTES	2021	2020
Other expenses			
Loss on disposal of property, plant and equipment			
MRC - Depreciation - Loss on Disposal		232	-
Total Loss on disposal of property, plant and equipment		**232**	**-**
Total Other expenses		**232**	**-**
Total Expenses		**1,055,472**	**656,655**
EBITDA		**115,046**	**237,126**
Depreciation and Amortisation			
MRC - Depreciation Expense		11,144	10,129
Total Depreciation and Amortisation		**11,144**	**10,129**
Investment Income			
MRC - Interest Received		(2,880)	(24,132)
Total Investment Income		**(2,880)**	**(24,132)**
Net Surplus/(Deficit) for the Year		**106,782**	**251,129**

NOTE: These statements are to be read in conjunction with the Notes to the Financial Statements and are subject to the Auditors Report

STATEMENT OF FINANCIAL POSITION

Marlborough Research Centre Trust (MRC) For the year ended 30 June 2021

	NOTES	30 JUN 2021	30 JUN 2020
Assets			
Current Assets			
Bank accounts and cash		1,764,640	720,442
Debtors and prepayments		74,431	85,098
Income Accruals		-	1,696
Total Current Assets		**1,839,071**	**807,236**
Non-Current Assets			
Property, Plant and Equipment	3	3,646,928	3,647,454
PGF Architectural Fees		496,945	101,833
PGF Construction		971,355	-
PGF Project Management Fees		37,500	-
PGF Professional Fees		128,048	-
PGF Civil Fees		31,430	-
Investments			
Term deposits	2	-	703,452
Total Investments		**-**	**703,452**
Total Non-Current Assets		**5,312,207**	**4,452,739**
Total Assets		**7,151,277**	**5,259,975**
Liabilities			
Current Liabilities			
Creditors and accrued expenses			
Trade and other payables		700,087	160,517
Goods and services tax		(119,958)	19,703
Total Creditors and accrued expenses		**580,129**	**180,219**
Accrued Expenses		9,941	5,741
Donation - PFR from MGGT		9,252	9,252
Other current liabilities			
Current Liabilities			
Receipts in advance		11,850	-
Total Current Liabilities		**11,850**	**-**
Total Other current liabilities		**11,850**	**-**
Total Current Liabilities		**611,173**	**195,213**
Non-Current Liabilities			
Loans	9	1,368,719	-
Total Non-Current Liabilities		**1,368,719**	**-**
Total Liabilities		**1,979,892**	**195,213**
Total Assets less Total Liabilities (Net Assets)		**5,171,385**	**5,064,762**
Accumulated Funds			
Capital Reserves		-	159
Accumulated surpluses or (deficits)		5,002,573	4,895,792
Reserves		168,812	168,812
Total Accumulated Funds		**5,171,385**	**5,064,762**

Signed by: _____ Date: 2 November 2021

NOTE: These statements are to be read in conjunction with the Notes to the Financial Statements and are subject to the Auditors Report

STATEMENT OF CASH FLOWS

Marlborough Research Centre Trust (MRC) For the year ended 30 June 2021

	2021	2020
Cash Flows from Operating Activities		
Receipts from customers and other revenue	781,075	926,904
Interest, dividends and other investment receipts	4,576	22,436
Grants, sponsorship and other revenue	862,007	502,541
Payments to suppliers and employees	(609,864)	(596,809)
Grants paid	(741,759)	(383,639)
GST paid	(68,184)	14,856
Interest paid	0	0
Net cash flow from operating activities	**227,851**	**486,289**
Cash Flows from Investing & Financing Activities		
Proceeds from sale of fixed assets	0	0
Movement in Term Deposits	703,452	703,542
Payments Centre Development	(1,166,864)	(6,120)
Payments to purchase fixed assets	(88,960)	(163,725)
Cash from financing activities	1,368,719	0
Net cash flow from investing & financing activities	**816,347**	**873,297**
Net(decrease) / increase in cash and cash equivalents	**1,044,198**	**(387,008)**
Cash and cash equivalents at the beginning of the year	720,442	1,107,450
Cash and cash equivalents at the end of the year	**1,764,640**	**720,442**

NOTE: These statements are to be read in conjunction with the Notes to the Financial Statements and are subject to the Auditors Report

STATEMENT OF ACCOUNTING POLICIES

Marlborough Research Centre Trust (MRC) as at 30 June 2021

Basis of Preparation

Marlborough Research Centre Trust (MRC) is eligible to apply Tier 3 PBE Accounting Standards: PBE SFR-A (NFP) Public Benefit Entity Simple Format Reporting - Annual (Not-For-Profit), on the basis that it does not have public accountability and has total annual expenses equal to or less than $2,000,000. All transactions in the financial statements are reported using the accrual basis of accounting.

The accounting principles recognised as appropriate for the measurement and reporting of earnings and financial position on an historical cost basis have been used, with the exception of certain items for which specific accounting policies have been identified.

The financial statements are presented in New Zealand dollars (NZ$) and all values are rounded to the nearest NZ$, except when otherwise indicated.

The financial statements are prepared under the assumption that the entity will continue to operate in the foreseeable future.

Changes in Accounting Policies

There have been no changes in accounting policies. All policies have been applied on a consistent basis with those of the previous reporting period.

Income Tax

The Trust is not subject to income tax and it is a charity registered with the Charities Commission.

Accounts Receivable

Receivables are stated at their estimated realisable value. Bad debts are written off in the year in which they are identified.

Revenue Recognition

Revenue comprises the fair value of the sale of goods and services, excluding Goods and Services Tax, rebates and discounts. Revenue is recognised as follows:

Sales of Goods

Sales of goods are recognised in the accounting period in which they are rendered.

Rental Income

Rental income is recognised on an accruals basis in accordance with the substance of the relevant agreements.

Interest Income

Interest income is recognised using the effective interest method.

Grant Income

Grant income is recognised when receivable

Fixed Assets

Fixed Assets have been included at cost less accumulated depreciation, with the exception of land, which has been revalued at June 2014. Details of fixed assets are outlined in the Schedule of Fixed Assets and Depreciation.

NOTE: These statements are to be read in conjunction with the Notes to the Financial Statements and are subject to the Auditors Report

STATEMENT OF ACCOUNTING POLICIES

Marlborough Research Centre Trust (MRC) as at 30 June 2021

Depreciation

Depreciation has been charged on either a diminishing value (DV) or cost price (CP) basis, at rates approved by the Inland Revenue Department, with the exception of buildings, which have been depreciated at 2% CP. Details of rates and depreciation claims are set out in Note 3.

Work In Progress

Work in progress is recorded at cost.

Goods and Services Tax

The Statement of Financial Performance and Statement of Cashflows (where included) have been prepared so that all components are stated exclusive of GST. All items in the Statement of Financial Position are stated net of GST, which the exception of accounts payable and accounts receivable which are stated inclusive of GST.

Basis of Consolidation

Marlborough Research Centre Trust holds 100% of the shares in New Zealand Dryland Forests Limited and the results of this entity have been fully consolidated into the performance report.

Controlled entities are all those entities over which the controlling entity has the power to govern the financial and operating policies so as to benefit from its activities. The controlled entities are consolidated from the date on which control is transferred and are de-consolidated from the date that control ceases. In preparing the consolidated financial statements, all inter entity balances and transactions, and unrealised gains and losses arising within the consolidated entity are eliminated in full.The accounting policies of the controlled entity are consistent with the policies adopted by the Group.

The reporting date of both entities is 30 June. There are no significant restrictions on the ability of the subsidiaries to transfer funds to the Parent in the form of cash distributions or to repay loans or advances.

NOTE: These statements are to be read in conjunction with the Notes to the Financial Statements and are subject to the Auditors Report

NOTES TO THE PERFORMANCE REPORT

Marlborough Research Centre Trust (MRC) as at 30 June 2021

1. Audit

These financial statements have been subject to audit, please refer to Auditor's Report.

2. Investments

	2021	2020
BNZ Term Deposit 03143		
BNZ Term Deposit	**-**	**703,452**
Maturing 15 August 2020, interest rate 2.00%	**-**	**-**

3. Property, Plant and Equipment

	2021	2020
Buildings		
Buildings at cost	**4,734,357**	**4,671,111**
Accumulated depreciation - buildings	**(1,281,235)**	**(1,203,647)**
Total Buildings	3,453,122	3,467,464
Furniture and Fittings		
Furniture and fittings owned	**207,416**	**182,627**
Accumulated depreciation - furniture and fittings owned	**(140,591)**	**(128,801)**
Total Furniture and Fittings	66,824	53,826
Plant and Equipment		
Plant and machinery owned	**211,458**	**202,825**
Accumulated depreciation - plant and machinery owned	**(166,684)**	**(165,457)**
Total Plant and Equipment	44,774	37,368
Other Fixed Assets		
Other Fixed Assets	**301,334**	**301,334**
Accumulated depreciation - Other Fixed Assets	**(219,125)**	**(212,539)**
Total Other Fixed Assets	82,209	88,795
Total Property, Plant and Equipment	3,646,929	3,647,454

The Land and Improvements were revalued by Alexander Hayward, independent registered valuer (F.N.Z.I.V, F.P.I.N.Z) in June 2014. The methodology employed reflects fair value incorporating the lease conditions and remaining term in respect of land at Budge Street.

Depreciation rates used are:

Buildings 2% CP

Grovetown Park building fitout and amenities 2-3% CP, or 4-25% DV

Budge Street building fitout and amenities 14.4-20% DV

Plant and Equipment 10-50% DV

Motor Vehicles 12-30% DV

Furniture and fittings 8-40% DV

Vineyard 6-40% DV

NOTE: These statements are to be read in conjunction with the Notes to the Financial Statements and are subject to the Auditors Report

NOTES TO THE PERFORMANCE REPORT cont.

Marlborough Research Centre Trust (MRC) as at 30 June 2021

4. Events After the Balance Date

There have been no events subsequent to balance date which impact on the results disclosed in these financial statements sufficiently to warrant inclusion in these notes (2020: Nil).

5. Contingent Liabilities

At balance date there are no known contingent liabilities. Marlborough Research Centre Trust has not granted any securities in respect of liabilities payable by any other party whatsoever (2020: Nil).

6. Capital Commitments

In regards to Capital Commitments at balance date, we refer to The Statement of Service Performance, Stage 1 & 2 expenditure (2020: Nil).

7. Related Parties

Gerald Hope is a director of New Zealand Dryland Forests Limited.

Transactions occurring in relation to NZ Dryland Forests Limited for the year are outlined below (grants received and spent).

Income - $412,557 (2020: $203,915)

Expenses - $481,932 (2020: $195,203)

Accounts Receivable and Payable at year end in relation to New Zealand Dryland Forests Limited were:

Accounts Receivable - $Nil (2020: $Nil)

Accounts Payable - $10,156.80 (2020: $11,500)

8. Going Concern & Impact of Covid-19

The Trust has not been unduly affected by the Covid-19 pandemic. The Trustees continue to apply the going concern concept.

	2021	2020
9. Loans		
PGF Facility Draw Down	(1,368,719)	-
Total Loans	**(1,368,719)**	**-**

Funding for the development of Te Pokapū Wāina O Aotearoa has been secured from Kānoa (formerly PGF) totalling $3.79m. ANZ bank has approved borrowings of $2.8m with a facilities guarantee agreement provided by the Marlborough District Council. The balance of funds for the development is sourced from the MRC building reserve. The facility is secured by MRC in favour of the Ministry by a registered second ranking general security agreement in respect of all of its present and after acquired property.

NOTE: These statements are to be read in conjunction with the Notes to the Financial Statements and are subject to the Auditors Report

INDEPENDENT AUDITOR'S REPORT

To the Beneficiaries of Marlborough Research Centre Trust

Report on the Performance report

NMA Nelson Marlborough Audit Ltd

Opinion

We have audited the performance report of Marlborough Research Centre Trust, which comprise the entity information, the statement of financial position as at 30 June 2021, the statement of service performance, the trading accounts, the statement of financial performance, and statement of cash flows for the year then ended, and notes to the performance report, including a summary of significant accounting policies.

In our opinion, the performance report presents fairly, in all material respects;

- the entity information for the year then ended
- the service performance for the year then ended
- the financial position of Marlborough Research Centre Trust as at 30 June 2021 and its financial performance, and cash flows for the year then ended

in accordance with Public Benefit Entity Simple Format Reporting – Accrual (Not-For-Profit).

Basis for Opinion

We conducted our audit of the statement of financial performance, trading accounts, statement of financial position, statement of cash flows, statement of accounting policies and notes to the performance report in accordance with International Standards on Auditing (New Zealand) (ISAs (NZ)), and the audit of the entity information and statement of service performance in accordance with the International Standard on Assurance Engagements (New Zealand) ISAE (NZ) 3000 (Revised).

Our responsibilities under those standards are further described in the *Auditor's Responsibilities for the Audit of the Performance Report* section of our report.

We are independent of the Trust in accordance with Professional and Ethical Standard 1 (Revised) *Code of Ethics for Assurance Practitioners* issued by the New Zealand Auditing and Assurance Standards Board and the International Ethics Standards Board for Accountants' *Code of Ethics for Professional Accountants (IESBA Code)*, and we have fulfilled our other ethical responsibilities in accordance with these requirements and the IESBA Code.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Other than in our capacity as auditor we have no relationship with, or interests in, the Trust.

The Responsibility of the Trustees for the Performance Report

The Trustees are responsible on behalf of the entity for:

(a) Identifying outcomes and outputs, and quantifying the outputs to the extent practicable, that are relevant, reliable, comparable and understandable, to report in the statement of service perfor mance;

(b) the preparation and fair presentation of the performance report which comprises:
- the entity information
- the statement of service performance
- the statement of financial performance, statement of financial position, statement of cash flows, statement of accounting policies and notes to the performance report

in accordance with Public Benefit Entity Simple Format Reporting – Accrual (Not-For-Profit) issued in New Zealand by the New Zealand Accounting Standards Board.

(c) for such internal control as the Trustees determine is necessary to enable the preparation of the performance report that is free from material misstatement, whether due to fraud or error.

In preparing the performance report, the Trustees are responsible on behalf of the Trust for assessing the Trust's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the Trustees either intend to liquidate the Trust or to cease operations, or have no realistic alterna-tive but to do so.

NOTE: These statements are to be read in conjunction with the Notes to the Financial Statements and are subject to the Auditors Report

NMA Nelson Marlborough Audit Ltd

Auditor's Responsibility for the Audit of the Performance Report

Our objectives are to obtain reasonable assurance about whether the performance report as a whole is free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance but is not a guarantee that an audit conducted in accordance with ISAs (NZ) will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could be reasonably expected to influence the decisions of users taken on the basis of the performance report.

As part of an audit in accordance with ISAs (NZ), we exercise professional judgement and maintain professional scepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the performance report, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Trust's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of the use of the going concern basis of accounting by the Trustees and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Trust's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the performance report or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Trust to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the performance report, including the disclosures, and whether the performance report represents the underlying transactions and events in a manner that achieves fair presentation.

We communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

NMA Nelson Marlborough Audit Ltd

NMA Nelson Marlborough Audit Limited
PO Box 732
Nelson 7040

2 November 2021

NOTE: These statements are to be read in conjunction with the Notes to the Financial Statements and are subject to the Auditors Report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