building the future

MARLBOROUGH RESEARCH CENTRE
Te Rito Hiranga o Wairau

Annual Report 2021 / 2022

Despite the trials of the previous two years, our future is looking bright thanks to the clarity of vision, the ongoing commitment and the invaluable collaboration of all our strategic partners.

contents

organisational structure

MARLBOROUGH
RESEARCH CENTRE
TRUST

TRUSTEES
Bernie Rowe - Chairman
Edwin Pitts
Ivan Sutherland

MARLBOROUGH RESEARCH
CENTRE ADVISORY COMMITTEE
Policy and Advisory

CHIEF EXECUTIVE
Gerald Hope
Susan Foster - Office & Accounts Manager

ROWLEY VINEYARD
10ha Sauvignon Blanc
Rowley Crescent
Grovetown

NEW ZEALAND WINE CENTRE
85 Budge Street
Blenheim

GROVETOWN PARK
CAMPUS
S.H. 1, Grovetown

RESEARCH & EDUCATION COLLABORATORS

Nelson Marlborough Institute of Technology

New Zealand Dryland Forests Initiative

Lincoln University

University of Canterbury

University of Bordeaux

Tenant
PLANT & FOOD
RESEARCH

Tenant
NZ WINEGROWERS
SUSTAINABLE WINEGROWERS NZ

Tenant
BRAGATO RESEARCH INSTITUTE

Tenant
WINE MARLBOROUGH

Tenant
NMIT

Tenant
ASUREQUALITY LTD

Tenant
GCH UAV LTD

Tenant
HILL LABORATORIES

Tenant
FISH & GAME NZ

Tenant
MARLBOROUGH TOUR COMPANY

Tenant
MINISTRY for
PRIMARY INDUSTRIES
Fisheries/Verification
Maori Primary Sector

Tenant
NGATI TOA WAIRAU

Tenant
DNAiTECH

Tenant
BUCK FORESTRY

Tenant
PIER TWO

personnel + tenants

as at 30 june 2022

MRC TRUSTEES

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

MRC ADVISORY COMMITTEE

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
James Jones	BAgSci (Hons)	Wine Industry Representative
Paul Johnstone	BSc(Hons), PhD	Plant and Food Research
Damian Martin	BSc, DEA, PhD	Plant and Food Research
Jeffrey Clarke	BA, LLB	Bragato Research Institute

MRC

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

BUDGE STREET CAMPUS TENANTS

BRAGATO RESEARCH INSTITUTE
NEW ZEALAND GRAPE AND WINE RESEARCH
RANGAHAU KAREPE, WĪNA O AOTEAROA
www.bri.co.nz

LALLEMAND
LALLEMAND OENOLOGY
Original by culture
www.lallemandwine.com/en/new-zealand

nmit | Te Pūkenga
www.nmit.ac.nz

NEW ZEALAND WINE
PURE DISCOVERY
www.nzwine.com

Plant & Food Research
Rangahau Ahumāra Kai
www.plantandfood.com/en-nz

WINE MARLBOROUGH NEW ZEALAND
www.marlboroughwinenz.com

GROVETOWN PARK CAMPUS TENANTS

AsureQuality
www.asurequality.com

BuckForestry SERVICES
www.buckforestry.com

DNAiTECH
Measure once to welcome. Measure once to integrate.
www.dnaitech.com

GCH UAV
www.gchuav.com

Hill Laboratories
TRIED, TESTED AND TRUSTED
www.hill-laboratories.com

Marlborough
TOUR COMPANY
www.marlboroughtourcompany.co.nz

New Zealand Food Safety
Haumaru Kai Aotearoa
www.mpi.govt.nz/food-business

Fisheries New Zealand
Tini a Tangaroa
www.mpi.govt.nz/fishing-aquaculture/fisheries-management

Fish & Game NEW ZEALAND
www.fishandgame.org.nz/nelson

PIER TWO
beautiful jetties
piertwo.co.nz

mrc trust board overview

Preparing the Annual Report is a time to reflect on progress made over the past year across a range of Marlborough Research Centre (MRC) activities. In summary it has been the most productive and successful year in the history of the organisation.

Marlborough District Council has supported MRC research since 1984. An annual grant ensures relevant industry led research is undertaken that benefits the wider region. With the launch of the New Zealand Wine Centre the relationship with industry, council and MRC is strengthened further.

We are small financially with gross revenue of over a $1million dollars on average each year. However, the breadth and range of engagement with the primary sector and business in the Marlborough region is substantial. We have 'many fingers in several pies' and take our role as business facilitator, relationship builder, research and business connector and campus host very seriously.

There will always be more that needs to be done connecting research, business and primary production to sustainably grow the regional economy.

From the board's position, we celebrated the completion of the New Zealand Wine Centre - Te Pokapū Wāina o Aotearoa. Te Pūkenga NMIT have a brilliant new public facing entrance that steps off a massively improved new carpark, welcoming visitors on campus. This leads to the New Zealand Wine Centre that was officially opened by Prime Minister Jacinda Ardern on 29 September.

Rt Hon Prime Minister Jacinda Ardern addresses guests at the official opening of the New Zealand Wine Centre

Over 140 guests celebrated this milestone and reveled in what turned out to be an intimate and memorable official opening event, forced indoors due to the threat of rain. The occasion was attended by researchers, innovators,

Rt Hon Prime Minister Jacinda Adern unveils the plaque

Ministry officials, primary sector leaders and partners as well as MRC supporters and associates.

A highlight of the opening was the announcement by the Prime Minister that a forward-looking innovative and world leading Experimental Future Vineyard would be established as part of the jointly funded Kānoa and MRC investment under the umbrella of the NZ Wine Centre.

MRCT board chair Bernie Rowe launched the opening, and his speech follows.

Gerald Hope
Chief Executive

MRCT board chair Bernie Rowe

Kia ora, welcome and thank you Prime Minister for joining our celebration. Welcome back Minister Stuart Nash who has in recent visits become familiar with MRC and our research programs, specifically the Dryland Forest eucalypt programme.

Welcome Mayor Leggett, Kaikoura MP Stuart Smith, Deputy Mayor Nadine Taylor, councillors, researchers, industry leaders and innovators, educators - invited guests.

Today marks a significant milestone for the MRC Trust. The official opening of Te Pokapū Wāina o Aotearoa (The New Zealand Wine Centre) signals a continued evolution for New Zealand Wine sector with strengthened alignment through research, education and industry partnerships.

This development is significant. It represents the largest investment made in MRC's near 40-year history. On completion, the total investment around the grape and wine hub with Bragato and MRC will be $20 million.

The NZ Wine Centre was created in response to the future demands of an internationally recognised wine sector, now a $2 Billion industry. Marlborough produces over 80% of New Zealand's export wine and is justifiably the home for the national Centre for grape and wine research and education. This Centre will enable the industry to keep pushing forward through innovation and respond to changing market demands, climate change and seek out sustainable environmental outcomes.

With the completion of the NZ Wine Centre we have created an integrated Hub that will be more than capable of taking the wine industry into the future – and accelerating new opportunities for New Zealand.

Today is a fitting precursor to the celebration of 50 years for the modern Marlborough wine industry in 2023.

There are a number of people to recognise and thank for the successful completion of this magnificent addition to our campus. It has not been an easy construction with lockdowns, product and material supply disruptions and Covid impacts on staff.

Our appreciation to:

- Simon Hall and Karl Vercoe from Jerram Tocker Barron architects, for an outstanding design,
- Peter Owen and his team from Evans Jones Construction for their commitment to the development during a very challenging period,
- Our project team of John Patterson, Susan Foster and our CE Gerald Hope along with Luke Van Velthooven and Mandy Clark of APL and our QS Brendan Blackmur,
- Kānoa – Robert Pigou and his team with special mention of Elliot Linford-Hall, Pip Jamieson and Kerrie-Lee Magill.

MRC will continue to promote and fund research, to bring together business and education for the better good of the Marlborough region. Fittingly the Centre showcases one of Marlborough's emerging businesses, the NZ Dryland Forests Initiative (NZDFI). The timber feature under the soffit and on the pillars showcase locally grown durable eucalyptus. We utilised durable stringybark eucalypt timber as decorative panelling to demonstrate the potential versatility and appearance these hardwood species offer.

There is a strong relationship between the Wine Industry and NZDFI. The vision of regional eucalypt forests producing durable hardwood posts for our wine industry saw the hardwood programme commence 15 years ago. It is now in its commercialisation stage.

Current eucalypt research programmes continue to be supported by the Crown with the latest grant of $262,000 being approved by the Sustainable Land Management & Climate Change Fund managed by MPI. This programme focusses on use of eucalypt to improve sustainability and reduce Greenhouse gas emissions in the wine industry.

In closing I would like to recognise our campus partners Plant and Food Research, Bragato Research Institute, Wine Marlborough, Sustainable Winegrowing NZ, and Te Pūkenga NMIT who have the shared responsibility of collaborating to ensure the whole is greater than the sum of the parts.

official opening

new zealand wine centre
te pokapū wāina o aotearoa
29 september 2022

Clockwise from top left:
1: Olina Anderson
2: Ivan Sutherland, Jacinda Ardern
3: Front: Ngarita Warden, Ann Baker, Pam Wood, Catherine Harris, Jacinda Ardern
Middle: Don Cross, Tracy Johnston, Carole Crawford, Rachel McConway, Adelaide Reid, Kristen Clunies-ross
Back: Stewart Field, Glenn Kirkwood
4: Pam Wood, Jacinda Ardern, Ngarita Warden

Clockwise from top left:
1: Nevil Bhoraniya, Jianhang Zhou, Jacinda Ardern
2: Fang Gou, Hazel Thomson, Jacinda Ardern, Jasmin Howie, Sandy McArthur, Bridget Ennals, Lousie Vickery, Teresa Smith
3: Front: Rafidah Horner, Linlin Yang
Middle: Jolon Dyer, Dion Mundy, Franzi Grab, Jacinda Ardern, Damian Martin, Jen Beullens
Back: Julian Theobald, David Hughes
4: Jacinda Ardern
5: Jacinda Ardern, Linlin Yang, Fang Gou

Clockwise from top left:
1: Project Management Team
Front: Simon Hall, Gerald Hope, Mandy Clark, Susan Foster, Peter Owen, Karl Vercoe, Brendan Blackmur
Back: John Patterson, Luke van Velthooven
2: Rino Tirikatene, Ivan Sutherland, Jacinda Ardern, Bernie Rowe
3: Mike Trought, Jacinda Ardern, Damian Martin

Clockwise from top left:
1: Jacinda Ardern
2: Craig Churchill, Nadine Taylor, John Leggett, Anne Best, Sue Blackmore, Gerald Hope, Edwin Pitts
3: Front: Mandy Clark
Middle: Bridget Ennals, Sandy McArthur, Teresa Smith, Hazel Thomson, Jim Herdman
Back: Loren Coffey, Alex Lloyd
4: Seth Mason

commitment to research

and to marlborough wins prestigious MRC award

Rob Agnew, the longest serving member of the Marlborough Research Centre and the Plant and Food team received the respected MRC Award, announced by Mike Trought, Fellow New Zealand Winegrowers at the opening of the NZ Wine Centre.

Mike Trought told the audience, “to say that Rob was central to the success of research in Marlborough was an understatement. I have made a few decisions in my life that I have never regretted. Asking my wife Marion to marry me was one. Appointing Rob to work with me at the Marlborough Research Centre was another.”

The MRC Award recognises exemplary service to Marlborough and the regional economy. Specifically in the fields of research, science and technology development aligned to the primary production sector.

“The recipient of this prestigious Award must have shown outstanding service in their chosen career over a period of time and have contributed significantly to regional development,” says MRC CE Gerald Hope.

A steadying hand in the chaos of harvest, a friendly shoulder when things don’t go as planned, totally organised, ensuring the gear is ready and working before heading out into the field, were attributes valued by the team.

Rob is the “go to” person if you want to know about the weather in Marlborough and how it is likely to be affecting our agricultural and horticultural crops, or how much rain we have had, or how we are doing in the national sunshine stakes, or how many frosts we have had and the extent to which climate change may be affecting the long-term weather. To achieve this, Rob has been totally committed to maintaining a network of weather stations around the region for a long time, no easy task when a spider can cause them to turn off.

More impressive, Rob has been a high-profile member of the staff in the eyes of the public. A search of the Marlborough Express data base for articles that feature

Rob Agnew (left) with Prime Minister Jacinda Adern at the opening of the New Zealand Wine Centre

Rob reveals 144 “hits” going back to 2009 (the year the database started), nearly one article a month for 14 years. Few people in Marlborough have that level of profile.

“But it is probably his commitment to the weekly Vinefacts, started in 1997 by MRC, that possibly accentuates Rob’s commitment to the industry. Starting with a small, weekly newsletter summarising disease, yield and weather events to the industry, it has grown to a national newsletter, sent out to most grapegrowers and winemakers throughout New Zealand. The issue this week will be number 708”, Mike told the audience.

"In addition to the research programmes, Rob was, for many years, Chief Judge at the science fair, a task that I know he found immensely satisfying, encouraging local young minds to get the excitement out of science that we do," Mike said.

The Award Trophy by the distinctive Anneka Bester commissioned sculpture is of New Zealand’s endemic Karearea, an icon of the wine industry, with sharp eyes and fast spreading wings. Cast in bronze it sits in an egg-shaped acrylic trophy.

Left to right: Ivan Sutherland and Edwin Pitts present Rob Agnew with his MRC Award

construction of the new zealand wine centre te pokapū wāina o aotearoa

The Marlborough Research Centre (MRC) has led the development of the NZ Wine Centre with key partners Nelson Marlborough Institute of Technology NMIT/ Te Pūkenga, MBIE via Kānoa, Plant & Food Research, Wine Marlborough, Marlborough District Council and New Zealand Winegrowers through the Bragato Research Institute (BRI) and Sustainable Winegrowing NZ.

Te Pokapū Wāina o Aotearoa sits on the Budge St campus alongside the wine and viticulture teaching and research facilities of NMIT, Plant & Food Research and the Bragato Institute. The new centre provides offices, meeting rooms and co-shared space for wine growers and companies to meet and work with wine researchers from around New Zealand and across the world and for viticulture students to rub shoulders with industry..

The NZ Wine Centre - Te Pokapū Wāina o Aotearoa unites and integrates the various scientific, industry and education activities based at the Budge Street campus while retaining autonomy and excellence of delivery from each entity.

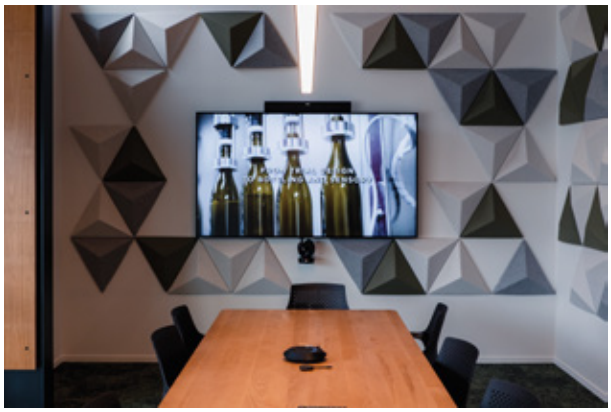
September 2020 - D-block clears the site for the New Zealand Wine Centre

April 2021 - Concrete floor is poured

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.

Above, right and below: September 2022, ready for the official opening by the Prime Minister Rt. Hon. Jacinda Ardern.



nmit entrance

Left and above; May 2021 - October 2022; NMIT's entrance and reception refit at various stages of progress, from initial deconstruction to completion.

& carpark

Right, below; June 2021 - March 2022, Carpark upgrade, almost doubling parking capacity at the campus.

our year at a glance

AUGUST

Kaikoura earthquake impact on Flaxbourne catchment

The Ministry for Primary Industries provided funding to Flaxbourne Settlers Association (FSA) to investigate and understand the impact of the Kaikoura earthquake on the water resources within the Flaxbourne catchment. Marlborough Research Centre assisted FSA by managing the contract on the Associations behalf. The project reports and analysis can be accessed from our **website** along with the presentation made by Jack McConchie on behalf of the group.

Above, left to right; John Hickman Chair of Flaxbourne Water Resources Committee, Jack McConchie, Technical Principal (Hydrology & Geomorphology), WSP Opus, John Patterson, MRC Associate.

SEPTEMBER

From vineyard post replacements to Forester of the Year

Marlborough's Paul Millen won the New Zealand Institute of Forestry's prestigious 2021 award as NZ Forester of the Year. This recognises 18 years work undertaking research on eucalypts by establishing trials in various parts of the country, initially to develop durable untreated posts for Marlborough vineyards.

OCTOBER

Forestry Minister Stuart Nash planted the first elite XyloGene seedlings of eucalypt species that produce durable heartwood. The planting spearheads a new phase for a project which has already seen more than 30 eucalypt plantations established in suitable regions of New Zealand. XyloGene is the brand name for these elite seedlings developed in a project led by NZ Dryland Forests Initiative.

Above: Forestry Minister Stuart Nash plants the first elite XyloGene eucalypt seedling

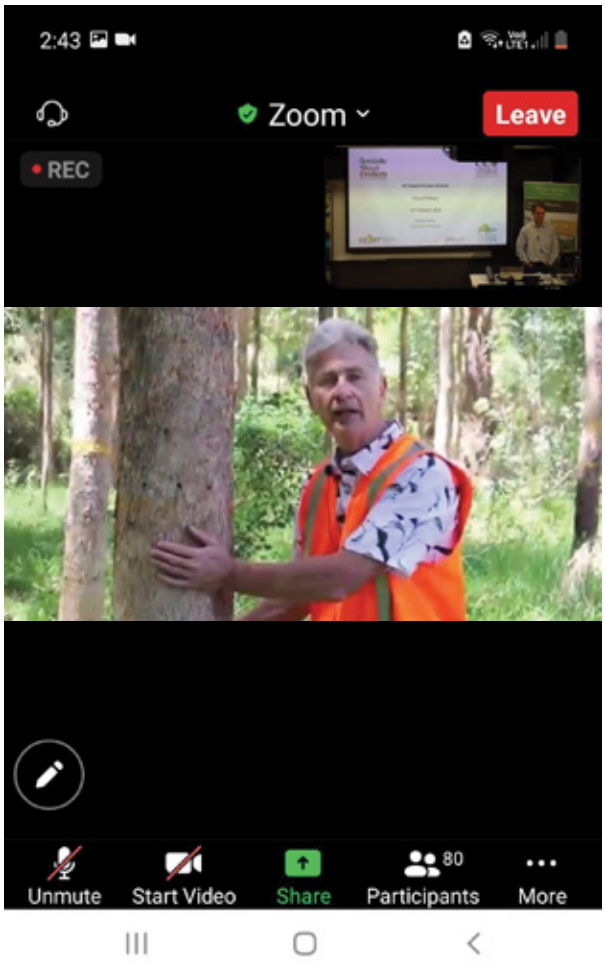
Left; Paul Millen receives his award from Forestry Minister Stuart Nash

DECEMBER

The new car park became operational just prior to Christmas almost doubling the amount of car parking spaces.

FEBRUARY

"Developing a Sustainable Hardwood Industry in Marlborough" was NZDFI first virtual workshop attended by 120 registrants, including 12 from Australia. Workshop participants were taken on a tour of four Marlborough sites to see durable eucalypts being grown and utilised.



MARCH

NMIT's spacious reception area is now open. Its lofty entrance way includes Eucalypt on the external soffits. The NMIT carpark is now also completely open.

Harvest at MRC's Rowley Crescent Vineyard took place for a pruning trial collaboration between Bragato Research Institute (BRI), NMIT, Mark Allen from Mark Allen Vineyard Advisory Services and four growers, including MRC's Rowley Crescent Vineyard.

We welcomed new tenant Buck Forestry Service (BFSL). Founded by director and general manager Kevan Buck in 1997, the company provides a range of technical services to the forest industry.

New landscaping and enhanced carpark

The landscaping of the Marlborough Research Centre entrance way is almost complete and looks very inviting. It has re-opened the campus to the community after months of being fenced away.

MAY

Marlborough Cawthron Environment Awards

The Marlborough Sounds Restoration Trust received the Supreme Award for its work to rid the Marlborough Sounds of wilding pines. One bay at a time the trust removes the wilding pines that destroy the natural landscape and put native bush at risk.

With its group of dedicated volunteers, the trust shared its award-winning habitat enhancing work on a Cawthron Marlborough Environment Awards field trip. MRC takes great pride in sponsoring the SUPREME Award jointly with Plant & Food Research.

58 guests cruised Tōtaranui/Queen Charlotte Sound to see how what seemed like an impossible task when the Trust formed in 2003 has become reality through poisoning the pines, one bay at a time, to bring back native bush

JUNE

Startup Weekend first to use the NZ Wine Centre meeting space

The 54-hour pressure cooker event had participants came together at the new campus facility to test their abilities to create, develop and pitch a business. Over the weekend, participants were asked to validate their ideas which were critiqued by local Marlborough mentors, before pitching their business in front of friends and family. “The new venue at MRC was a perfect location to host the event and we look forward to returning in 2023”, says Startup Weekend Marlborough project manager Tracey Green.

Mark Unwin, Marlborough District Council, presents to the Startup cohort

JULY

The New Zealand Hemp Industry Association ‘Discovery and Investment Tour’ was held on campus to explore the sustainable benefits of hemp across a variety of industries in Marlborough.

SEPTEMBER

Prime Minister Rt. Hon Jacinda Ardern officially opened the New Zealand Wine Centre - Te Pokapū Wāina o Aotearoa in Marlborough.

Below: The Prime Minister also announced an agreement between MRC, Plant & Food Research and NMIT to develop an Experimental Future Vineyard adjoining the new Wine Centre.

Rob Agnew awarded the MRC Award

Rob Agnew, the longest serving member of the Marlborough Research Centre and Plant and Food team received the respected MRC Award at the opening of the NZ Wine Centre. The MRC Award recognises exemplary service to Marlborough and the regional economy, in research, science and technology development aligned to the primary production sector.

Above, left to right: Ivan Sutherland and Edwin Pitts present Rob Agnew with his MRC Award

MRC purchases townhouse for visiting academics

Below and below left: Visiting researchers and staff may utilise the newly acquired 3-bedroom accommodation situated in central Blenheim and within a 5-minute drive from the New Zealand Wine Centre.

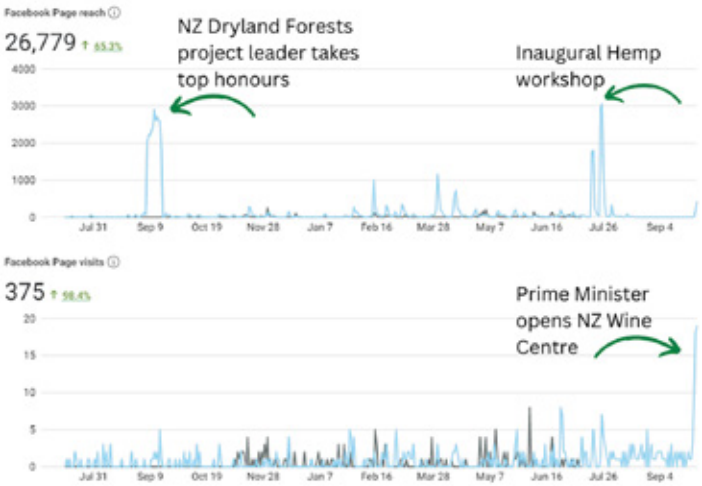
mrc digital snapshot

September 2022

The Marlborough Research Centre (MRC) regularly uses social media to grow the visibility of its news, activities and to promote events and seminars held on campus. MRC engages with users of Facebook, Twitter, and LinkedIn.

MRC also shares relevant information from tenants, partners and the primary industries with its audience.

- MRC reached over 26,000 Facebook page visits this year, contributing to this were two advertised events. These were Paul Millen receiving NZ Forestry's highest honour for his work with NZ Dryland Forests and the inaugural Hemp Workshop toured by the New Zealand Hemp Industry Association, held at the MRC theatre.
- The opening of the New Zealand Wine Centre brought many new visitors to the MRC page



Above: Facebook statistics and highlights

Most Popular Post

The most popular organic post highlighted a research collaboration that brought together wine, research and education at MRC's Rowley Crescent Vineyard for the 2021 vintage. It reached 2421 people.

Website

The website had 3.8K visits with traffic growing by 12%. In total, 3.2K unique visitors (up by 10%) consumed 7.4K pages. That means each unique visitor consumed between two and three pages on average.

After the home page, the most frequently viewed pages are the Blenheim Weather, News and Contact us pages.

research and development

Marlborough Research Centre - Research Reports 2021 - 2022

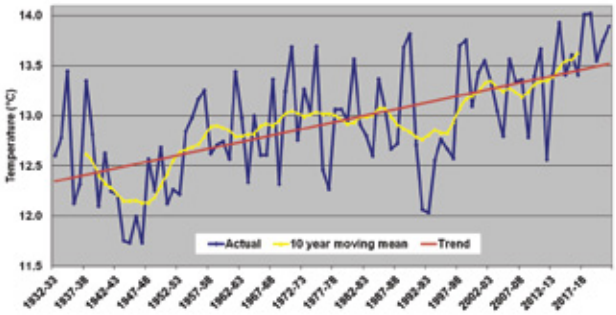
plant and food
research highlights

Damian Martin – Science Group Leader Viticulture & Oenology

The past 12 months have been challenging, busy and exciting. As part of a thriving partnership, Plant and Food Research (PFR) undertook a total of eight research projects on behalf of the Marlborough Research Centre Trust (MRCT).

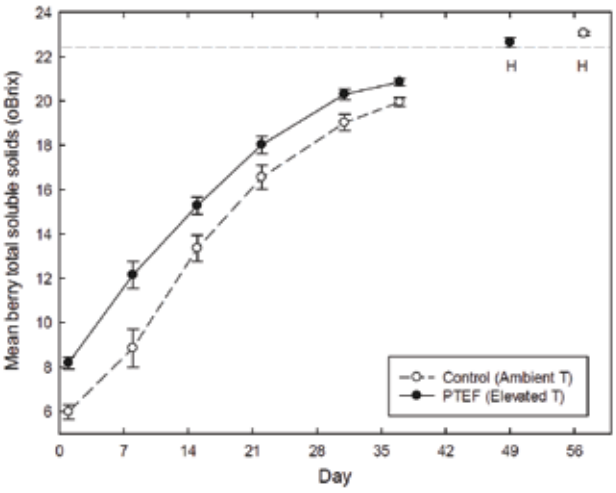
Climate trends and impacts

It seems fitting to start by talking about the weather, with July 2021 to June 2022 the fourth warmest year on record (1932 to 2022). This highlights the continued warming trend that Blenheim has experienced over recent decades (Agnew R, Raw V).

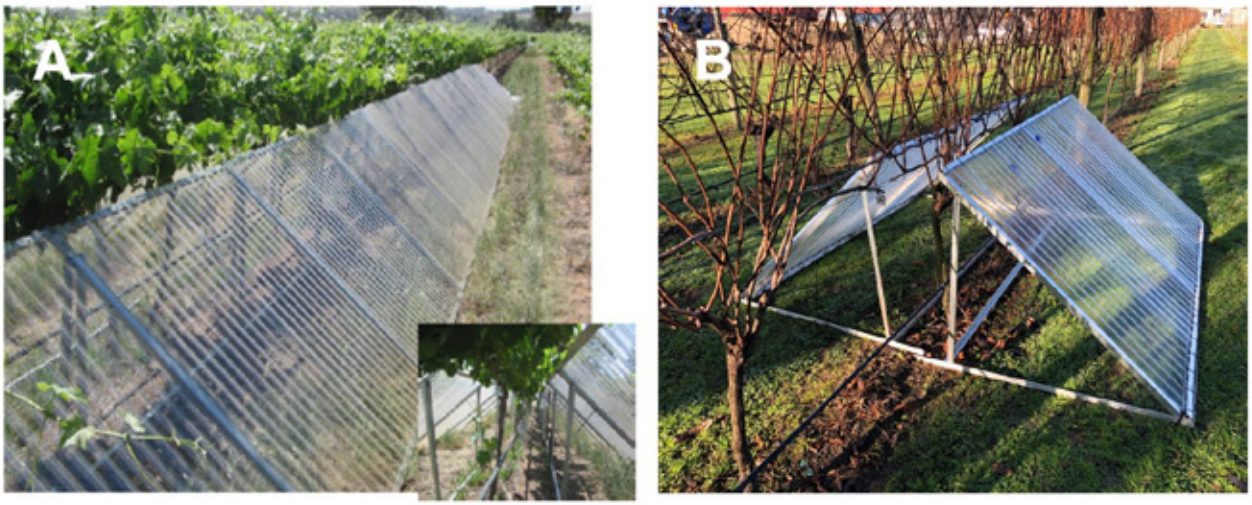


Above: Mean annual temperature in Blenheim (July to June) over 90 years 1932-33 to 2021-22

To confirm predicted future climate change impacts, we successfully deployed an in-vineyard passive temperature elevation system which increased average growing season temperature by 1.4°C (predicted 2070-2090 scenario) and resulted in significant advances (ranging from 5 to 9 days) in dates of flowering, véraison, berry maturation and harvest (Theobald JC, Neal S, Agnew R, Sanchez M).



Above: Mean berry total soluble solids (ºBrix) of control (ambient T) and passive temperature elevation frame (PTEF) (elevated T) treatments as indicated in the key. Bars = 1 x standard error, n = 4. The dashed horizontal line indicates the total soluble solids target of 22.5ºBrix. Day 1 corresponds to 15 February 2022. H indicates date of harvest for each respective treatment.



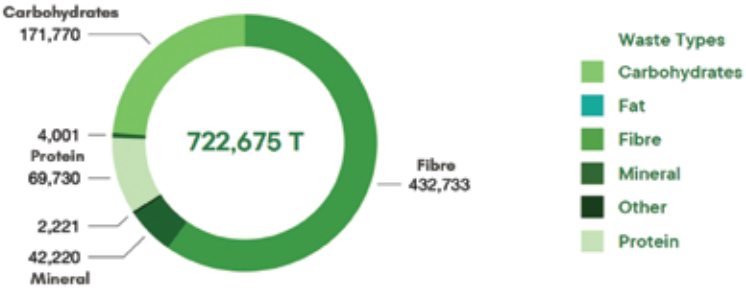
Above: Passive temperature elevation frame (PTEF) systems for simulating warmer growing season temperatures; (A) image taken from Sadras and Soar (2009), (B) two locally developed framed sub-units forming part of the PTEF delpoyed in the Nelson Marlborough Institute of Technology research vineyard during 2021-22.

Waste as a bio resource

We also focused on adding value to the bioresources produced in Marlborough. A Top of the South organic waste mapping study conducted in partnership with Food Security Solutions identified a total volume of organic waste in excess of 700,000 T p.a., coupled with enthusiasm within the business community to engage in cross-sector sustainability and circular economy initiatives.

Total mix of organic waste in the ToS region

The tonnages of each major waste type class are shown in the figure below. Fibre and Carbohydrates are the dominant waste classes followed by lesser amounts of Protein, Minerals and Fats.



Above: Total fresh weight tonnages and bio-waste types produced in the Top of the South. The coloured segments represent the proportions of each waste type.

In a complementary waste study PFR investigated whether mealworm larvae fed on common Marlborough organic waste streams could be used as a feed source for animals, including fish. Preliminary analyses of mealworm larvae fed on grape marc and flour indicated that the larvae were high in palmitic and oleic acids, essential fatty acids that cannot be produced by most animals including fish, and so need to be provided within their diet (Page-Weir N, Davis V, Rogers K, Todd J).

Above: Small-scale testing of dried grape marc consumption by mealworm larvae (Tenebrio molitor)

Indigenous groundcovers to control weeds

Planting indigenous groundcover plants to control weeds may benefit the ecology instead of compromising it, compared with current practice. A pilot study with native low growing plants has built science capability within PFR and paved the way for the establishment of a larger collaborative trial within a commercial vineyard for the 2023 season.
https://static1.squarespace.com/static/58effb56e4fcb501941e1658/t/6306df692ca8e41fcf303390/1661394800178/22654-C+-+LinLin+Yang+-+Low-growing+indigenous+groundcover+plants+FINAL.pdf

Veronica odora var. *prostrata*

Muehlenbeckia axillaris

Coprosma propinqua var. *martinii* 'Taiko'

Above, left: Indigenous groundcover plants selected for the trial

With funding from the MRCT Claire Grose presented a poster "Producer friendly colour analysis of Pinot noir berries" at the 18th Australian Wine Industry Technical Conference in June 2022 in Adelaide, while also attending an extensive program of plenary sessions, workshops and trade exhibitions show casing wine tech innovation (Grose, C).

Above: Claire Grose (PFR) and Matthias Meyer (Marama Labs) presenting the research poster at the Australian Wine Technical Conference 2022, held in Adelaide, 26–29 June 2022.

Grapevine Trunk Diseases

University of Bordeaux partner PhD researcher Malo Tardif was unable to come to New Zealand last summer due to border restrictions. However, everything is in now place for his arrival in early November 2022. Malo has completed the first two years of his PhD in developing image analysis and machine learning techniques to diagnose the severe vine decline conditions of flavesence dorée, eutypiose and botryosphaeria. Two scientific outputs[1,2] have already been produced from Malo's research which is a remarkable achievement. During his visit, Malo will apply in-person the methods and learnings from his study in France to recognising grapevine trunk diseases in Marlborough vineyards.

PFR also continues to publish research[3] on grapevine trunk diseases with our international collaborators with the assistance of capability funding from the MRCT.

Moving into the Te Pokapū Wāina o Aotearoa shared campus facilities was a major highlight after a fortunately sunny autumn of "al fresco" lunches in the portico. The newly announced Experimental Future Vineyard infrastructure project will be a great additional tool to allow for the development of new research programmes that look to the future.

We know climate change will add to challenges facing wine production in New Zealand, with warmer days and potentially more insect pests and diseases able to establish here. We also know that consumer expectations will continue to evolve, with increased focus on sustainability credentials. Being able to understand how best to grow excellent grapes that allow winemakers to meet their environmental, financial and societal requirements will ensure our wine sector can continue to grow.

1*Tardif, M., Amri, A., Keresztes, B., Deshayes, A., Martin, D., Greven, M., & Da Costa, J.-P. (2022). Two-stage automatic diagnosis of Flavescence Dorée based on proximal imaging and artificial intelligence: a multi-year and multi-variety experimental study . OENO One, 56(3), 371–384. https://doi.org/10.20870/oeno-one.2022.56.3.5460*

2*Tardif, M., Amri, A., Keresztes, B., Deshayes, A., Martin, D., Greven, M., & Da Costa, J.-P. (2022). Automatic diagnosis of a multi-symptom grape vine disease using computer vision. XXXI International Horticultural Congress: IHC2022, Angers, France*

3*Vanga, B. R., Panda, P., Shah, A. S., Thompson, S., Woolley, R. H., Ridgway, H. J., Mundy, D. C., and Bulman, S. DNA metabarcoding reveals high relative abundance of trunk disease fungi in grapevines from Marlborough, New Zealand. BMC Microbiol 2022 22 (1):126*

Hogget Lamb Survival Pilot Study using Dried Sauvignon Blanc Grape Marc supplementation from Scanning to Lambing

P V A Anderson

Introduction

Efforts to find a major contributing cause for the high lamb loss between scanning and tailing in hoggets has invariably been unrewarding for those investigating it. The average loss for StockCare® properties is consistently close to 30% per year, with much of that loss suspected to occur between scanning and lambing, rather than around the actual perinatal period.

Invariably infections or trace element deficiencies have been the first consideration when looking at evidence of embryonic loss or abortions in hoggets. Fetal programming as a contributing factor has also been investigated by the author but to date no common underlying factor has been confirmed.

In light of the finding by Dr Peter Smith (AgResearch) "Grape Marc – Potential to change lamb survival" and the significant improvement in lamb survival with multiple bearing ewes when fed dried grape marc during the last month of pregnancy, a trial feeding grape marc from scanning to lambing on a Marlborough property was run to see if this would help with the hogget lamb survival. This took place on a very high performing flock but one that has been consistently hampered by a high lamb loss in the well grown hoggets.

The possible influence of Sauvignon Blanc Grape Marc supplementation

Overall, there appears to have been a slight improvement in the final lambing percentage through reduced hogget loss as well as better lamb survival.

The percentage of hogget deaths were similar for both groups between set stocking and tailing when the treatment group were not being fed Sauvignon Blanc Grape Marc (GMS41), but they had less than half the deaths from scanning to set stocking when they were being fed the supplement.

While hogget loss is a component of the lamb loss there was a greater lamb loss in the Control mob from set stocking to tailing suggesting the GMS41 had some effect on lamb survival.

The effect of feeding GMS41 on parasites

GMS41 fed animals had significantly lower Faecal Egg Counts (FECs). Unlike the Control mob, at no time while being fed GMS41 did their average FEC get higher than 100 eggs per gram (except at weaning time). When fed the supplement during pregnancy, the GMS41 fed animals gained a little more weight as well. The results suggest that while GMS41 was in their diet they were less susceptible to parasitism.

However, as seen in our other trials, stock seem to need constant access to the supplement. Not feeding it during the critical early lambing period through until tailing and not giving a drench at set stocking is quite possibly the main cause of hoggets and their lambs significantly lower observed weights and their lower Condition Score compared to the Control mob at Tailing time.

While the GMS41 was readily consumed, farmer observation suggested that there was a variation in individual hogget demand for it. Their lambs also very quickly started eating the GMS41 after tailing when it was re-introduced, so perhaps a number of hoggets were not getting their daily requirement while their lambs were consuming a significant amount. This could possibly explain the lower FEC in the lambs (120epg Lamb v 394epg hogget), compared to the Control mob. (291L v 283H). It could also explain their weaning FEC – the highest FEC for the T mob of the trial.

Above: Hoggets showing immediate interest in a bucket of Grape Marc when first introduced to it.

The full report can be viewed on our website.

The potential role of dried Sauvignon Blanc grape as a practical means of gastro-intestinal parasite and lung worm control in weaner deer

P V A Anderson, G J Batten

May 2022

Following the encouraging results found with controlling parasitism in goats using dried and milled Sauvignon Blanc grape marc (Anderson and Batten December 2020) a further trial was undertaken on a group of weaner deer in Marlborough.

Tannins protect plants against disease and discourage overconsumption by herbivores. Of all ruminants, goats and deer are adapted to and can neutralise this effect of tannins more effectively than other livestock and were thought to be a good species for further studies. However, we now know that dried and milled Sauvignon Blanc grape marc (GMS41) with its high tannin content is very palatable and accepted by all the other species (sheep, cattle and horses) tested.

Whenever the treatment group deer were eating the GMS41 their Faecal Egg Counts (FECs) were low or eggs were undetected in faecal samples.

These results suggest that deer fed GMS41 on a regular basis from weaning could be successfully managed without the need for any synthetic anthelmintic treatment at any stage.

This could be a very significant finding for an industry where resistance to anthelmintics has become a major problem and where deaths in young deer from lungworm without routine anthelmintic use is common. It would also make an attractive option for farmers with its ease of use and where the logistics of mustering and handling to administer anthelmintics potentially presents an issue for the health and safety of both operator and animal.

Above: Deer study at Koromiko.

The full report can be viewed on our website.

The Influence of feeding Grape Marc to Goats on Milk Composition

P V A Anderson, G J Batten

May 2022

This study on a small milking goat herd near Ward in Marlborough presents encouraging results. There appears to be significant improvement in milk crude protein levels in the milk from grape marc fed animals.

However, the trial got underway when several animals from an already small herd had dried off, limiting the number of animals that could be included. This means that the results were not quantifiable.

A repeat trial with the same herd but involving more goats is planned to start after kidding later in 2022. It will also involve further monitoring of parasite burden.

The full report can be viewed on our website.

Above: Milking goat eating her Grape Marc ration while being milked.

Above: Milking goats consuming their daily meal ration supplemented with Grape Marc after being milked.
For many of the goats the time available during milking was not sufficient for them to consume their full daily GM ration.

Horehound Biocontrol

Ronny Groenteman, Manaaki Whenua – Landcare Research

June 2022

Current state of knowledge about the horehound clearwing moth in New Zealand

The Horehound clearwing moth is a biocontrol agent for horehound. It was imported from Australia in 2018 as part of a biological control programme against white horehound at two release sites in the Mackenzie Basin and north Canterbury.

In spring 2021 we collected eggs to redistribute the moth to new sites. When adults did not emerge, we hypothesized that that the cool and wet conditions would have slowed down the development of the larvae and pupae. We decided it was crucial to move the pupae from field into a controlled environment for emergence and mating for successful reproduction.

Above: Collection of pupating larvae inside roods from the North Canterbury site, November 2021

Prior to release in 2018, no other insects were recorded from the roots of horehound in New Zealand. However, to our surprise the larvae collected by us were of two different types, and none of them were clearwing moth. We dug up more roots from the Mackenzie site and brought them to the controlled environment for dissection. In some of those roots we found a third type of larva, at a much lower abundance, that through DNA tests were confirmed to be clearwing moth.

In mid February 2022 we collected further roots for dissection with the aim to get an initial understanding of the abundance of the clearwing moth compared with the 'other' larvae. We collected within the release area and 100m away, to get an indication fo the moth's spread.

The results told us that

1. the moth is probably still mainly confined to the area where they had been released
2. within the release area there were at least twice as many larvae of the other instects as there are larvae of the clearwing moth
3. both species can be found in the same root in parallel tunnels

The full report can be viewed on our website.

Eucalyptus Tissue Control

David Leung

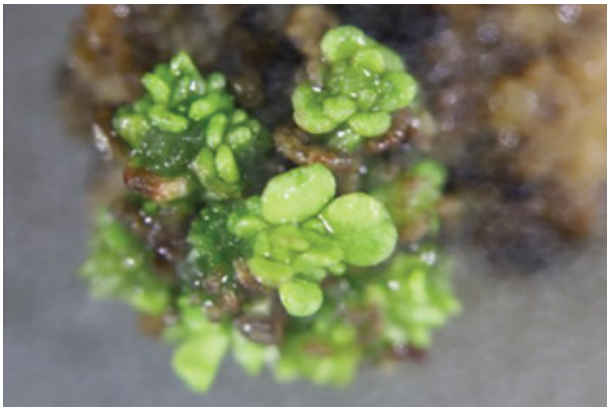
February 2022

This research project on Eucalyptus bosistoana selected by NZ Dryland Forests Initiative and conducted by David Leung, University of Canterbury, reports on progress from last year. It had two objectives:

1. to investigate the composition of tissue culture medium
2. to investigate rooting requirements

Milestones achieved:

Bud break was successfully achieved in four out of five lines using a common protocol that suits many clones. This, rather than the need to use different protocols for different clones will simplify commercial propagation.



Above: Multiple shoot clusters formed after bud break from a surface-sterilised shoot cutting

The new shoots from the bud breaks (Objective 2) were elongated and separated from each other before rooting trials could begin. During the reporting period we found that if there was no active shoot elongation, there was no root formation.

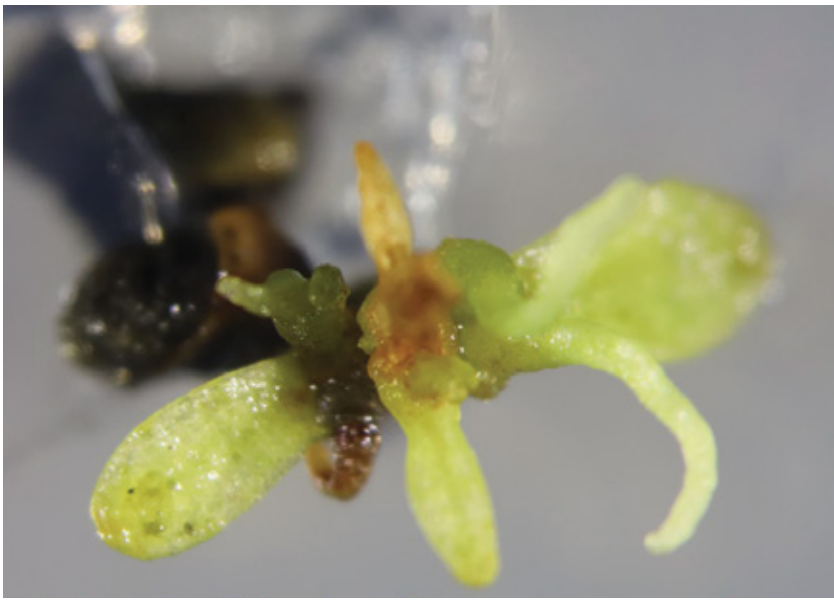
We now have one medium that seems to promote shoot elongation.

Rooting was demonstrated in the line 490 in December 2021, after trialling a range of rooting inducing media trials that were disrupted by the Covid19 lockdown and lab access restrictions.

The knowledge gained will help to devise future research to achieve rooting of shoots of different lines following bud break and growth.

The full report can be viewed on our website.

Above: Multiple new shoot buds



A critical milestone: rooting

NZDFI Research and Development Highlights

July 2021/June 2022

Our two plus year partnership with Te Uru Rākau ended on 30th June 2022.

This partnership focused on research and development that enabled scaling the production and sale of over 240,000 improved nursery stock, both clonal plants and seedlings.

- We successfully planted new trials at 10 new sites despite Covid-19 lockdowns.
- Dr David Leung of the University of Canterbury School of Biological Sciences developed a suitable tissue culture protocol to enable micropropagation of E. bosistoana.
- Proseed NZ in Amberley developed clonal propagation techniques for E. bosistoana. The first 11,000 clonal planting stock were deployed in our 2021 trial series.

XyloGene®
Durable Eucalypts by NZDFIP Ltd

NZDFI's future generations of improved nursery stock will be known as XyloGene®, a registered trademark to certify genetically improved seed and germplasm stock.

The official launch of NZDFI's XyloGene® improved planting stock was held at NZDFI trial host Warwick Lissaman's Awatere valley property in Marlborough October 2021. Forestry Minister Stuart Nash planted elite E. globoidea seedlings to establish a new 2nd generation XyloGene® seed orchard on the Lissaman property.

NZDFI plans to continue to work in partnership with the Government, and has proposed that NZDFI's vision can be incorporated as one of the goals for Te Uru Rākau's Industry Transformation Plan (ITP) for Forestry. The ITP priorities, which include to (i) increase domestic wood processing, (ii) derive more energy from biofuels, and (iii) encourage the production of long-lived and engineered wood products, align very closely with NZDFI's long-term goals.

The full report can be viewed on our website.

Financial Reports

Marlborough
Research Centre
Financial Overview
& Highlight's
2021 - 2022

contents

Marlborough Research Centre Financial Overview and Highlights 2021/2022

1. The Marlborough Research Centre Trust Annual Report received an unqualified audit opinion for the financial year ended 30 June 2022.

Financial Overview and Highlights

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

Description	Notes	2020/21 Actual	2021/22 Actual
Operating Surpluses	a	$308,510	$342,630
Other Revenue	b	$862,007	$917,868
Total Grants	c	$797,318	$869,820
Net Surplus		**$106,782**	**$116,233**

a. Of particular note is the improved harvest revenue from the vineyard offsetting reduced surpluses for the campuses due to developments and maintenance undertaken at both campuses during the financial year.

b. Increased other revenue and total grants is associated with Central Government funded initiatives for NZ Dryland Forests, 1 Billion Tree fund.

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 2021	30 June 2022
Fixed Assets	a	$5.312 million	$8.049 million
Loans (Suspensory)	b	$1.369 million	$2.452 million
Loans (ANZ)	c	0	$900,000
Total Trustee's Equity		$5.171 million	$5.288 million

a. Fixed Assets – Growth in the value of Fixed Assets is due to the developments undertaken to create Te Pokapū Wāina O Aotearoa (The New Zealand Wine Centre) on the Budge Street campus. Refer the separate section in relation to the recent and planned developments.

b. Suspensory Loans from Kānoa's Provincial Growth Fund for the development works undertaken. These loans are suspensory provided the Wine Industry continues to invest in excess of $2 million in research annually for the next two years. This is the equivalent to the industry levy income applied to research.

c. The Loan facility of $2.8 million from the ANZ is guaranteed by Marlborough District Council. $900,000 has been drawn as of 30 June 2022. A further $500,000 was drawn to meet development costs in August 2022.

Financial Support Provided

4. The following provides a list of grants provided by MRC during the 2021/22 financial year.

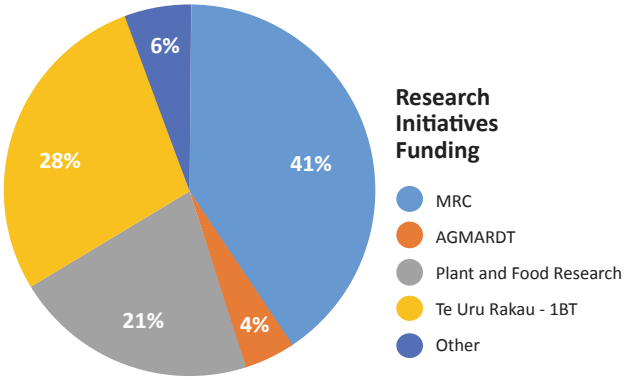
Description	Actual 2021/22	Budget 2021/22
Meterological Services	$27,500	$27,500
UC Davis, University of Bordeaux support of Rapid Diagnostic Initiative	$6,000	$6,000
UC Davis, University of Bordeaux PhD support	$27,000	$27,000
Seminars and Workshops	$4,300	$6,000
Adding Value to Marlborough Waste Streams	$20,000	$20,000
Experimental Future Vineyard (EFV)	$81,225	$85,500
Climate change simulation hardware and pilot project	$6,000	$6,000
Cost efficient establishment of low-growing indigenous plants	$5,000	$5,000
Top of South Waste Mapping study	$60,000	$60,000
Evaluating dried and milled Grape marc for improving animal performance and production	$37,000	$37,000
Biocontrol of Horehound	$5,000	$5,000
NZ Dryland's Forest (NZDFI)	$9,000	$9,000
Start Up Weekend - MDC and Business Trust Marlborough	$3,000	$3,000
Total	**$291,025**	**$297,000**

5. Explanation of the programmes is contained in the body of the Annual Report. In addition to the financial contributions MRC has managed the NZ Dryland Forest Initiative which has received $617,272 in funding support via Government agencies.

Leverage of Funding

6. The contribution by MRC for the 2021/22 financial year amounting to $291,025 attracted funding from Central Government Crown Research Institute and AGMARDT. The graphical representation (right) shows the total expenditure ($713,000) towards research and the contributions made.

7. For every $1 of MRC funding provided $2.45 was secured towards the research initiatives from third parties.



Te Pokapū Wāina O Aotearoa (The New Zealand Wine Centre)

8. Marlborough Research Centre has been developing the New Zealand Wine Centre over the last three years along with its partners Plant and Food Research, Bragato Research Centre (New Zealand Winegrowers) and Nelson Marlborough Institute of Technology (now Te Pūkenga – New Zealand Institute of Skills and Technology).

9. Marlborough Research Centre secured $3.8 million of suspensory loans, from the Provincial Growth Fund, as co funding towards the development of the New Zealand Wine Centre. This funding was additional to the Regional Research Institute funding that MRC assisted New Zealand Winegrowers to secure for the establishment of the Bragato Research Institute on the Budge Street campus.

10. The campus development was officially opened by the Prime Minister on 29 September 2022 where she announced the creation of an Experimental Future Vineyard to sit alongside the Research Winery which was opened in February 2020.

Te Pokapū Wāina O Aotearoa – Capital Development

Capital Expenditure	Actual 30 June 2022	Actual 30 Sept 2022	Forecast	Variance
Integrated Hub and Offices	$3,314,932	$3,539,178	$3,731,823	$192,645
Shared entrance, car parking and landscape	$1,291,923	$1,291,923	$1,351,759	$59,836
Experimental Future Vineyard	$93,360	$97,853	$2,300,000	$2,202,147
	$4,700,215	$5,646,044	$8,108,582	$2,462,538
Funding				
Provincial Growth Fund	$2,452,452	$2,887,452	$3,791,201	$903,749
Nelson Marlborough Institue of Technology	$263,500	$263,500	$340,000	$76,500
Marlborough Research Centre	$1,314,841	$1,314,841	$1,215,512	-$99.329
ANZ Loan Funding	$900,000	$1,400,000	$2,761,869	$1,361,869
	$4,930,793	$5,865,793	$8,108,582	$2,242,789
Surplus / Deficit	**$230,578**	**$219,749**	**$0**	**-$219,749**

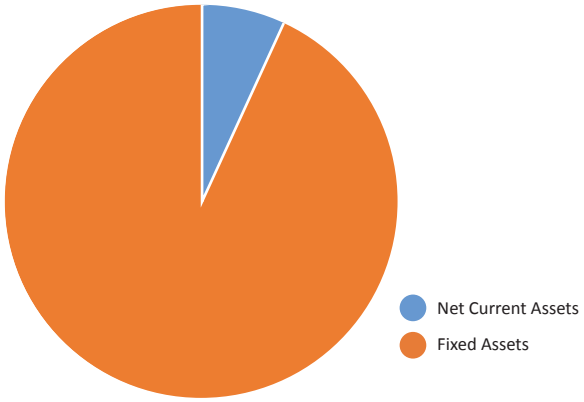
Experimental Future Vineyard (EFV)

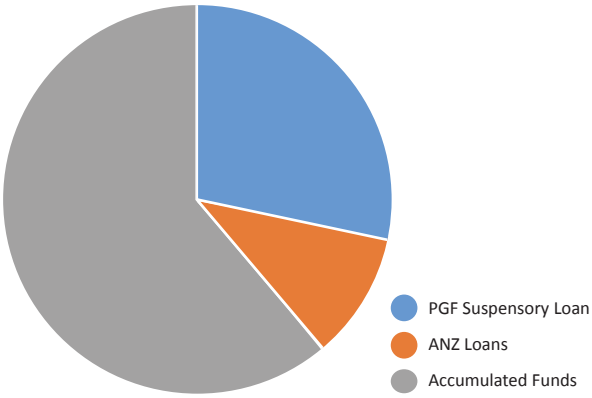
11. The establishment of a world-leading viticulture research asset to complement and be the vineyard equivalent of the BRI Research Winery. It will, alongside the other campus developments, place Marlborough as a 'world-focal-point' for an integrated above and below-ground (whole-ecosystem) approach to study perennial production systems.

12. The EFV is a development to be leased to Plant and Food Research who will operate the facility and create the integration between research, industry and education.

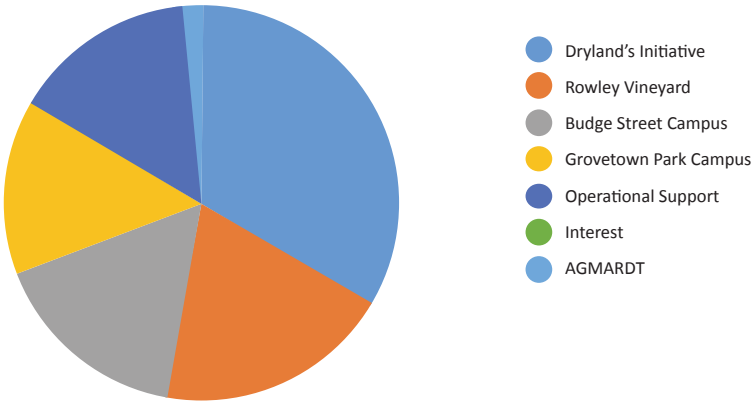
Financial Overview

A Graphical Representation

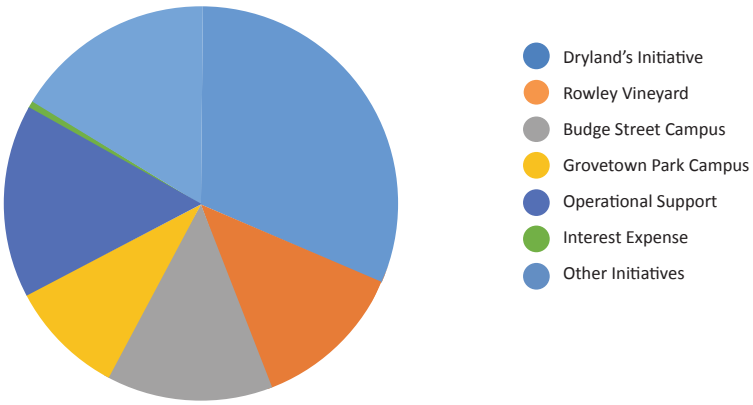




Income



Expenditure



Entity Information

Marlborough Research Centre Trust (MRC)
For the year ended 30 June 2022

Legal Name

Marlborough Research Centre Trust (MRC)

Charities Register Number

CC10533

Date of Formation

21 December 1984

Location

85 Budge Street
BLENHEIM

Chief Executive

Gerald Hope

Trustees include

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

Trustees

The number of Trustees is three that forms the Board. The power of appointments 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 Advisory Committee that provides science and policy advice to the Trust on matters relating to areas of research that are funded annually.

Entity Purpose or Mission

The intent and purpose of the Trust is to provide a research centre based in Marlborough and to fund targeted primary sector research. The Trust Deed specifies that MRC undertakes to fund innovative research, encourage and promote production in all forms from pastoral, horticultural, agricultural and arable sectors.

With the completion of the New Zealand Wine Centre in the past year alongside the recently established Bragato Research Institute the central hub of co located innovators and research specialists is expanding.

Optimising the professional working relationships and interactions between Plant & Food Research, BRI and NMIT while bringing together research, business and education is paramount in future years.

Maintaining a close alignment with Marlborough District Council on regional economic development programmes is equally important to ensure maximum district wide benefit is achieved.

Vision

Our vision is to be an integrated cohesive hub for the grape and wine sector in New Zealand, while maintaining connections and accessibility to research and education for other primary production sectors in Marlborough.

NMA Nelson Marlborough Audit Limited

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

To achieve our vision we will:

- Identify research, new innovation and appropriate development opportunities that will result in sustainable future focused economic development
- Facilitate and connect research, innovative business and education pathways to each other
- Connect research, business and education 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 region.

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 and within New Zealand and to the world.

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

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

Energeti c – We will diligently apply ourselves to achieving our vision.

Unique – We will offer a unique value proposition to Marlborough and New Zealand as the only independent multidisciplinary New Zealand Wine Centre.

Main Sources of Cash and Resources

MRC Trust receives its primary income from commercial rental received from two campuses which it owns and administers. An annual grant from Marlborough District Council of $286,020; sale of grapes from the Rowley Vineyard to a NZ owned Marlborough based wine company. Other income and expenditure are 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 to Raise Funds

Grants, rental income and sale of grapes.

Reliance on Volunteers and Donated Services

MRC would not exist without the help and support of many local companies and individual supporters in the primary 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 and other organisations as required. The value of this in-kind support is assessed at $84,000.

There is strong support and generous goodwill for the research programmes undertaken through the MRC.

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.

NMA Nelson Marlborough Audit Limited

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

IRD Number

031-535-289

GST Status

Payments Basis, Two Monthly, Coinciding with Balance Date

Chartered Accountants

WK Advisors and Accountants Limited
P O Box 349
Blenheim 7240
Contact - Vaughan Harris

Auditors

NMA Nelson Marlborough Audit Ltd
PO Box 732
Nelson 7040

Barrister and Solicitors

Gascoigne Wicks
PO Box 2
BLENHEIM 7240

Bankers

ANZ Bank

NMA Nelson Marlborough Audit Limited

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 2022

Description of Entities Outputs

MRC Trust provides an annual research allocation. The objective is to identify and fund local primary sector research, support industry driven initiatives, promote and encourage technology transfer in all ways practical.

The past year has seen the final construction of the New Zealand Wine Centre - Te Pokapū Wāina o Aotearoa on the NMIT Budge Street campus. Once fully operational the New Zealand Wine Centre will provide the work environment and facilities for greater collaboration both within New Zealand and internationally. The new facility is in no way intended to detract or diminish other entity brands or their respective research programmes.

Further major campus development is planned that is future focused and taking on the challenges of a changing commercial and climate influenced environment. Leading technology will evolve with the construction of the Experimental Future Vineyard. This is a significant further investment that will be completed during the 2023 financial year.

MRCT will be the project manager and co funder.

Research Grants approved 2021 – 2022

Description	Status	Budget 2021-2022	Actual
Meteorological Services	Ongoing	27,500	27,500
Supporting University of Bordeaux PhD 50% share.	Current: - completes August 2023. $18k for 2022/23 year.	27,000	27,000
Rapid Diagnostic UC Davis publication support	Ongoing Fund travel for grape vine trunk (GTD) collaborations in USA and/or France. Alternatively, to support GTD proximal sensing data collection costs.	6,000	6,000
Seminars & Workshops	Ongoing Travel support for visiting researchers Covid recovery programme – Variation agreed to send staff member to Australian Wine Industry Technology Conference	6,000	4,300
Experimental Future Vineyard (EFV)	Ongoing The EFV would be a small vineyard comprised of large but modular and semi-portable containers (think drop-in pitch) containing a range of regional viticultural soils in a semi-controlled environment. PFR have also approved funding for the development of this project. The EFV capital investment will be from other sources of funding yet to be confirmed.	85,500	81,225
Adding Value to Marlborough Waste Streams	Pilot project is underway, and results are positive with meal-worms consuming grape marc and completing their life cycle.	20,000	20,000

NMA Nelson Marlborough Audit Limited

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

Top of the South waste stream mapping	Provision for pilot study in partnership with John MacDonald from Food Security Solutions. To complete a waste Map of the Top of South region. This will complement the PFR/WMF feasibility study of insect digestion of grape marc and may open up additional waste pre-treatment business opportunities within the region. This work may require additional co-funding from local sources. Includes funding of 30,000 from MRC and $30,000 from AGMARDT	60,000	60,000
Climate change simulation hardware and pilot project	New activity. Set up of in-vineyard passive heating system to simulate warmer growing conditions in Marlborough. Initial monitoring and feasibility study.	6,000	6,000
Cost efficient establishment of low-growing indigenous plants	Alternative study if the "Waste Streams" project is not funded by either WMF or BPA.	5,000	5,000
Agri – Pastoral			
Evaluating Dried and Milled Grape Marc for Improving Animal Performance and Production.	Evaluate effect of SBM on goat milk qualities, sex ratios of deer and sheep, lamb survival, and different feeding rates	37,000	37,000
Biocontrol of Horehound	New two-year funding at $5Kper year. Completes 2023 Redistribution of the horehound clearwing moth.	5,000	5,000
In-Kind			
NZDFI	1BT project	9,000	9,000
Start Up Weekend – MDC and Business Trust Marlborough	Use of facilities at 85 Budge Street for 3 day event.	3,000	3,000
Total		297,000	291,025

Capital Development

MRC has undertaken a four staged capital development, the budgets and expenditure as at 30 June 2022 is as follows:

Expenditure	Forecast	Actual YTD
Stage One - Integrated Hub and Offices	$3,686,943	$3,314,932
Stage Two - Shared Entrance, car parking and Landscaping	$1,331,745	$1,291,923
Stage Three - Experimental Future Vineyard	$2,381,225	$93,360
Stage Four - Accommodation	$725,000	
	$8,124,913	$4,700,215

Funding for these developments is provided by Provincial Growth Fund $3.8 million, NMIT $340,000 and MRC through reserves and loan funding $4 million.

NMA Nelson Marlborough Audit Limited

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 - Rowley Vineyard Operations

Marlborough Research Centre Trust (MRC)
For the year ended 30 June 2022

	NOTES	2022	2021
Trading Income			
RV - Grape Sales		**344,768**	**221,285**
Total Trading Income		344,768	221,285
Gross Profit		344,768	221,285
Expenses			
Vineyard Operating Costs		**155,002**	**116,447**
Vineyard Rent, Rates & Insurance		**6,720**	**7,074**
Total Expenses		161,721	123,521
Net Profit from Trading		183,046	97,764

NMA Nelson Marlborough Audit Limited

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 2022

	NOTES	2022	2021
Trading Income			
Group Charges		126,820	133,370
BS - Tenant Rentals		187,363	172,355
BS - Theatre Charges		1,400	3,605
Total Trading Income		**315,584**	**309,331**
Gross Profit		**315,584**	**309,331**
Expenses			
Depreciation and Amortization		87,855	64,226
Group Costs		106,281	118,526
BS - Repairs & Maintenance		33,132	14,197
Total Expenses		**227,268**	**196,949**
Net Profitfrom Trading		**88,316**	**112,381**

NMA Nelson Marlborough Audit Limited

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 - Grovetown Park Property

Marlborough Research Centre Trust (MRC)
For the year ended 30 June 2022

	NOTES	2022	2021
Trading Income			
Group Charges		87,217	94,575
GP - Tenant Rentals		147,460	134,707
Total Trading Income		**234,676**	**229,282**
Gross Profit		**234,676**	**229,282**
Expenses			
Depreciation and Amortization		30,494	25,221
Group Costs		73,291	75,800
GP - Repairs & Maintenance		59,623	29,897
Total Expenses		**163,408**	**130,918**
Net Profitfrom Trading		**71,268**	**98,364**

NMA Nelson Marlborough Audit Limited

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 2022

	NOTES	2022	2021
Income			
Operating Surpluses Transferred			
Rowley Vineyard Operations		183,046	97,764
Budge Street Property Account		88,316	112,381
Grovetown Park Property Account		71,268	98,364
Total Operating Surpluses Transferred		**342,630**	**308,510**
Other Revenue			
MRC - Marlborough District Council		270,596	266,597
NZ Dryland Forests Initiative Projects Grants		617,272	412,557
Grant - Flaxbourne Earthquake Study		-	182,854
Grant - Other		30,000	-
Total Other Revenue		**917,868**	**862,007**
Total Income		**1,260,498**	**1,170,517**
Expenses			
Operating Expenses			
MRC - Audit Fees		5,950	4,835
MRC - Insurances		8,977	7,565
Office Expenses		18,752	17,650
Operating Expenses		15,223	28,470
Personnel		191,787	182,435
Trust Share of Operating Costs		16,348	16,967
Total Operating Expenses		**257,038**	**257,922**
Grants			
Grant NZ Dryland Forests Initiative - Expense		590,795	481,932
Grant - Adding value to Marlborough Waste Streams		20,000	32,500
Grant - Anthemintic Potential of Grape Marc		37,000	19,500
Grant - Cawthron Environment Awards		-	5,000
Grant - Climate Change Simulation hardware and pilot project		6,000	-
Grant - Cost Efficient Establishment of Low-growing Indigenous Plants		5,000	-
Grant - Experimental Future Vineyard		81,225	-
Grant – Flaxbourne Earthquake Study		-	169,054
Grant - Horehound Biocontrol Project		5,000	-
Grant - Meteorological Service		27,500	27,500
Grant - PFR CSeminars and Workshops		4,300	-
Grant - Rapid Diagnostic US Davis Publication Support		6,000	6,000
Grant - Soil Remediation - Grape Marc		-	10,000
Grant - Top ofthe South Waste Stream Mapping		60,000	-
Grant - UC Davis - Bordeaux Uni		27,000	27,000
Grant - Wine Marlborough Labour Survey		-	10,000

NMA Nelson Marlborough Audit Limited

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

	NOTES	2022	2021
MRC Grantto NZDFI		-	8,832
Total Grants		**869,820**	**797,318**
Total Expenses		**1,126,858**	**1,055,240**
Net Operating Surplus		**133,640**	**115,277**
Depreciation and Amortization			
MRC - Depreciation - Loss on Disposal		2,805	232
MRC - Depreciation Expense		6,873	11,144
Total Depreciation and Amortization		**9,678**	**11,376**
Net Surplus Before Interest		**123,962**	**103,901**
Investment Income			
MRC - Interest Received		607	2,880
Total Investment Income		**607**	**2,880**
Interest			
Interest - Loans		8,336	-
Total Interest		**8,336**	**-**
Net Surplus (Deficit) for the Year		**116,233**	**106,782**

NMA Nelson Marlborough Audit Limited

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)
As at 30 June 2022

	NOTES	30 JUN 2022	30 JUN 2021
Assets			
Current Assets			
Bank accounts and cash		850,402	1,764,640
Debtors and prepayments		89,817	74,431
GST		66,274	119,958
NZDF IP Ltd Loan/Advance		8,729	-
Total Current Assets		**1,015,222**	**1,959,029**
Non-Current Assets			
Property, plant and equipment	3	4,726,354	3,646,929
PGF Architectural Fees		401,630	496,945
PGF Civil Fees		32,709	31,430
PGF Construction		2,582,979	971,355
PGF Professional Fees		226,005	128,048
PGF Project Management Fees		79,500	37,500
Total Non-Current Assets		**8,049,178**	**5,312,207**
Total Assets		**9,064,400**	**7,271,235**
Liabilities			
Current Liabilities			
Accounts Payable		357,843	700,088
Accrued Expenses		57,234	9,941
Donation - PFR from MGGT		9,252	9,252
Receipts in advance		-	11,850
Total Current Liabilities		**424,329**	**731,131**
Non-Current Liabilities			
Loans		3,352,453	1,368,719
Total Non-Current Liabilities		**3,352,453**	**1,368,719**
Total Liabilities		**3,776,782**	**2,099,850**
Net Assets		**5,287,618**	**5,171,385**
Accumulated Funds			
Accumulated surpluses or deficits		5,118,806	5,002,573
Reserves		168,812	168,812
Total Accumulated Funds		**5,287,618**	**5,171,385**

Signed by:

Date:
27 / 10 / 2022

NMA Nelson Marlborough Audit Limited

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 2022

	2022	2021
Cash Flows from Operating Activities		
Receipts from providing goods and services	898,749	781,075
Interest, dividends and other investment receipts	607	4,576
Grants, sponsorship and other revenue	903,868	862,007
Payments to suppliers and employees	(687,664)	(609,864)
Grants paid	(925,906)	(741,759)
Interest Paid	(8,336)	
Net GST	3,862	(68,184)
Net Cash Flows From Operating Activities	185,181	227,851
Cash Flows from Investing and Financing Activities		
Proceeds from loans borrowed from other parties	1,983,734	1,368,719
Proceeds from sale of fixed assets	-	
Payments to purchase investments	-	703,452
Payments to purchase fixed assets	(3,083,151)	(1,255,824)
Net Cash Flows From Investing and Financing Activities	(1,099,417)	816,347
Net Cash Flows	(914,236)	1,044,198
Cash Balances		
Cash and cash equivalents at beginning of period	1,764,640	720,442
Cash and cash equivalents at end of period	850,404	1,764,640
Net change in cash for period	(914,236)	1,044,198

NMA Nelson Marlborough Audit Limited

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 and Notes to the Performance Report

Marlborough Research Centre Trust (MRC)
For the year ended 30 June 2022

1. Basis of Preparation

The financial statements presented here are for the entity Marlborough Research Centre Trust (MRC) a Trust registered under the Charitable Trusts Act 1957.

Marlborough Research Centre Trust (MRC) is eligible to apply Tier 3 PBE Accounting Standards : PBE SFR-A (NFP) Public Benefit Entity Simple Format Reporting - Accrual (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 bases consistent with those used in previous years.

Revenue

Revenue is recognised to the extent that it is probable that the economic benefit will flow to the entity and revenue can be reliably measured. Revenue shall be recorded on the occurrence of a recognition event. This is when there is a legal right to receive cash either now or sometime in the future. Revenue is measured at the fair value of the consideration received.

The following specific recognition criteria must be met before revenue is recognised:

- Sales of services are recognised in the accounting period in which the services are rendered.
- Rental income is recognised on an accruals basis in accordance with the substance of the relevant agreements.
- Interest revenue is recognised as it accrues, using the effective interest method.
- Lease income is recognised on an accruals basis in accordance with the substance of the relevant agreements.
- Grant revenue is recognised when the conditions attached to the grant has been complied with. Where there are unfulfilled conditions attaching to the grant, the amount relating to the unfulfilled condition is recognised as a liability and released to revenue as the conditions are fulfilled.
- Sponsorship income is recognised on an accruals basis in accordance with the substance of the relevant agreements.

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, with the exception of account receivables and payables. Marlborough Research Centre Trust (MRC) is registered for GST.

NMA Nelson Marlborough Audit Limited

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

Account Receivable

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

Work in Progress

Work in Progress has been valued at cost of materials, labour and other direct costs incurred to date.

Fixed Assets

Fixed Assets have been included at cost less accumulated depreciation, with the exception of land, which have been revalued as at June 2014. Details of fixed assets are set out in Note 3.

Depreciation

Depreciation has been charged on either a diminishing value (DV) or cost price (CP) basis. Details of rates and depreciation claims are set out in Note 3.

Income Tax

No provision for Income Tax has been made as there is no current tax payable, as Marlborough Research Centre Trust (MRC) is not subject to income tax.

2. Audit

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

3. Property, Plant and Equipment

	2022	2021
Buildings		
Buildings	5,744,733	4,734,357
Accumulated Depreciation - Buildings	(1,316,794)	(1,281,235)
Total Buildings	**4,427,939**	**3,453,122**
Furniture and Fittings		
Furniture & Fittings	322,360	207,416
Accumulated Depreciation - Furniture & Fittings	(130,433)	(140,591)
Total Furniture and Fittings	**191,927**	**66,824**
Plant and Machinery		
Plant & Machinery	163,479	211,458
Accumulated Depreciation - Plant & Machinery	(133,160)	(166,684)
Total Plant and Machinery	**30,319**	**44,774**
Other Fixed Assets		
Other Fixed Assets	301,334	301,334
Accumulated Depreciation - Other Fixed Assets	(225,166)	(219,125)
Total Other Fixed Assets	**76,168**	**82,209**
Total Property, Plant and Equipment	**4,726,354**	**3,646,929**

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.

NMA Nelson Marlborough Audit Limited

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

Depreciation rates used are:

Building 2% CP
Grovetown Park building fitout and amenities 2-3% CP or 4-25% DV
Budge Street building fitout and amenities 14.1-20% DV
Plant and Equipment 10-50% DV
Motor Vehicles 12-30% DV
Furniture and Fittings 8-40% DV
Vineyard 6-40% DV

4. Events After the Balance Date

There were no events that have occurred after the balance date that would have a material impact on the Performance Report (Last year - 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 payables by any other party whatsoever. (2021: Nil).

6. Capital Commitments

In regards to Capital Commitments at balance date, we refer to The Statement of Service Performance, Stage One, Two, Three & Four expenditure.

7. Ability to Continue Operating

The entity will continue to operate for the foreseeable future.

8. Related Parties Transactions

Gerald Hope is a director of New Zealand Dryland Forests Limited

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

Income - $617,272 (2021: $412,557)
Expenses - $590,798 (2021: $481,932)

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

Accounts Receivable - $41,371
Accounts Payable - $75,704

Related party loans to New Zealand Dryland Forests Limited details for the 2022 year are as follows:

NZDF IP Ltd Loan/Advance	
Opening Balance:	$0
Advances:	$120,953
Repayments:	$112,224
Closing Balance:	$8,729

NMA Nelson Marlborough Audit Limited

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

	2022	2021
9. Loan		
PGF Facility Draw Down	(2,452,453)	(1,368,719)
ANZ Loan - NZWC	(900,000)	-
Total Loan	**(3,352,453)**	**(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 borrowing of $2.8m with a facilities guarantee agreement provided by the Marlborough District Council. The balance of funds for the development is sourced form 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.

NMA Nelson Marlborough Audit Limited

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

NMA Nelson Marlborough Audit Ltd

To the Beneficiaries of Marlborough Research Centre Trust

Report on the Performance report

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 2022, 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 2022 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 performance;

(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 alternative 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

27 October 2022

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

MARLBOROUGH RESEARCH CENTRE
Te Rito Hiranga o Wairau

Private Bag 1007
Blenheim
New Zealand

T: +64 3 577 2370
F: enquiries@mrc.org.nz
www.mrc.org.nz

Only Marlborough