

1Bragato Research Institute

Submission to MDC Long-Term Plan 2021-2031

Agritech: Fostering innovation for start-ups and technology in the wine industry.

This submission is in support, in part, of Marlborough District Council's proposal for investing in the economy, as outlined on pages 8-10 of the consultation document. This submission supports the Council's current proposal to foster growth in technology as a new key economic sector. However, the MDC proposal falls short of what is required to create a meaningful technology sector, with \$100,000 per annum also supporting the food and screen sectors as currently proposed. Bragato Research Institute proposes an MDC investment of \$150,000 per year, over the next 10 years, to grow and foster agritech innovation in Marlborough for the wine industry.

Background

Marlborough District Council has previously invested in the New Zealand Winegrowers Research Centre (t/a Bragato Research Institute) through the Smart and Connected vision to:

- Support its role in economic development of the region
- Achieve this economic development by balancing growth with protecting Marlborough's special environment
- Support growth of the national wine industry from Marlborough, through research excellence, development and innovation
- Grow opportunities for upskilling and employment in research

The initial three-year investment from MDC will end in June 2022, and Bragato Research Institute has delivered a return for the community:

- A 2020 independent study by NZIER found that the institute contributes \$2m to the Marlborough economy each year, at its current research spend and outputs. This is anticipated to rise as the institute pursues more investment for research from industry and Central Government
- The institute delivered Marlborough's first Green Star building (and only second at the top of the South Island). This certification is a tangible illustration of our commitment to sustainability, in line with the commitment of our industry
- This first Green Star build in Marlborough required a local construction office to upskill its staff in Green Star standards. Since then, our local construction partner has upskilled more of its staff as Green Star accredited

- We have expanded our team, adding skilled employment to the region over the past year. One of these roles is a two-year secondment from the wine industry to upskill a vineyard manager in research and practice change
- The institute has signed a memorandum of understanding with NMIT and other educators to integrate research with student learning. The past two vintages have provided opportunities for student interns in the winery, and our winery research manager is working with tutors on other opportunities
- The institute now has two Board members (Dr Di McCarthy and Prof. Charlie Eason) located in the Top of the South region - further evidencing the desire to integrate actively at a local level

We can build upon and accelerate these environmental, social and economic returns for the Marlborough community with an MDC investment in agritech. A key focus of agritech for the wine industry will not only be productivity, but sustainable growth to achieve the industry's environmental goals as well.

While this submission directly relates to Council's proposed investment in the economy, the contents of this submission also align with Council's goals in infrastructure and the environment:

- Mitigating climate change through pursuit of cleaner technologies
- Reducing waste to landfill
- Innovations to enable a circular economy
- Water optimisation
- Precision technologies

At the heart of our aspirations for agritech is accelerating the productivity and profitability of the industry while simultaneously reducing the environmental impact of the industry.

Why – the rationales

As a region where economic development is founded in the primary sector, Marlborough faces a number of challenges in relation to growth – labour, sustainability and environmental impact. The long-term plan looks to address some of these key issues through supporting the development of a tech and innovation ecosystem within the Marlborough region. A technology eco-system is a network of organisations that drive the creation and delivery of information technology products and services.

Covid-19 has changed the world and it's not finished yet. From supply chains and labour shortages to reaching consumers, the primary industries are having to adapt. In the Marlborough region, growers are looking for technology solutions to drive efficiencies, address labour shortages and lower their environmental footprints.

Marlborough is the powerhouse of wine production in New Zealand with 79% of the industry production, and wine is the largest primary industry in the region. It contributes \$571 million to the local GDP each year. As the largest, it is well-positioned to take the lead in agritech for the region and to work with other sectors on issues and outcomes that can be shared across a number of

primary industries, including forestry, farming, aquaculture and food manufacturing. Bragato Research Institute was established to provide the interface between science, technology and industry, and is well placed to lead this initiative in collaboration with Wine Marlborough.

The proposed \$150,000 per year per annum investment would enable Bragato Research Institute to:

- Accelerate the development in Marlborough of fit-for-purpose agritech for the wine sector – helping take emerging technology or technology currently available and facilitating its adaptation to the wine sector by tech businesses.
- Conduct a needs analysis and take a co-ordinated approach to technology innovation that has clear industry pull to deliver impactful initiatives and solutions.
- Enable user-led technology development in a supportive ecosystem (lack of this has been identified as a barrier to adoption of technology by New Zealand Agritech).
- Support the development of solutions to address key industry challenges around labour, costs of production, waste streams and environmental impact monitoring. Including investigating how technology could provide solutions for the shortage of skilled labour in the region, which is projected to continue to be an issue for the growth of the industry (Marlborough Wine Industry Growth Forecast, 2021).
- Support the development of solutions to address NZ Wine’s environmental goals:
 - **Climate Change**, carbon neutral by 2050
 - **Water**, world leader in efficient water use and the protection of water quality
 - **Waste**, zero waste to landfill by 2050
 - **Soil**, protect and enhance soil health.

What – the investment plan

With the investment from MDC, Bragato Research Institute would initiate and maintain a technology programme, designed to increase the rate of innovation in the wine sector, with attention paid to applicability of solutions to address barriers to financial and environmental sustainability in the broader primary sector. It will require deep engagement with industry to create a solid foundation for future success. It will achieve this by employing a New Technology Manager who will deliver the programme to industry, identify and articulate opportunities and pathways for addressing the challenges, and draw on relevant expertise, such as expertise in human-centred design and innovation.

Phase 1 - Scoping and needs analysis

Initial focus will be industry wide problem discovery and customer journey mapping to discover and validate industry issues amenable to technology solutions, leveraging off work already done in this area by industry. This will ideally include stakeholders from regional and national government. This will require deep engagement with industry using design thinking principles through design sprints. This information will shape the programme to ensure it has strong industry pull, as opposed to tech push. It will also provide the additional information required to collaborate with industry groups (e.g. Agritech NZ) and organisations (e.g. Sprout) who specialise in supporting initiatives of this nature. AgritechNZ are an industry organisation who launched the national

agritech Industry Transformation Plan (ITP), and Sprout is one of seven incubators in NZ accredited by Callaghan Innovation and specializing in acceleration and innovation programmes. Other national technology organisations to get involved in are AIForum – Artificial intelligence to be used in vineyards – crop estimation and optimization. Last but not least the IoT Alliance – for monitoring environmental and vineyard output through sensor-technology.

Phase 2 - Mapping the technology landscape

Technology is a rapidly changing landscape, so we need to ensure collaboration to understand what is currently available. There are likely some low-risk, high-reward opportunities to adopt technology that is readily available in other sectors, but which need expertise for vineyard adaptation. Our in-house research team can provide the expertise for field trials and trial design to ensure robust testing in a vineyard setting. Our research winery provides further opportunity for technology trials in a winery setting, which has already happened over the past two years with local innovators.

Phase 3 – Identifying gaps and solutions

This phase features co-designing the desired outcomes—environmental, social, financial and future resilience. This programme would identify pathways for solutions (innovation or acceleration of existing technologies), including establishment of a Marlborough Sprout cohort specifically for the wine sector. This phase would also aim to engage with, and participate in MDC initiatives for development of a wider regional technology community.

For example, agritech solutions for solving long term labour issues are likely to be focused on robotics, sensing and automation. These areas are evolving rapidly and some wine companies and universities are already working on solutions. BRI wants to encourage industry collaboration for developing solutions that are accessible to the entire industry, and leverage funding opportunities on behalf of the industry.

Phase 4 – Implementation

With the foundation for an innovation community now in place, this phase would facilitate co-development between innovators and industry to identify pathways and partners. Specifically, it seek to would identify:

- a. Near-to-market solutions delivered through partnerships e.g. Sprout, NZ Agritech, investment community – such as the Marlborough Angel Investors who are looking for local investment propositions.
- b. Solutions that would be eligible for further start up funding eg: Callaghan funding
- c. Solutions requiring R&D before delivery, which align with BRI /NZW strategy and which could be considered for co-investment under BRI's Future Vineyards programme of work, which is currently in development.

Close engagement with industry players will allow them to select and invest in the solutions they think have the greatest chance of success, and the highest relevance to their needs.

Through the programme, Bragato Research Institute would position itself as providing ready access to industry expertise and a sounding board, in order to support current tech companies that are

working in the sector or new companies looking to engage with the industry. These activities are already happening informally. By formalising a programme, it ensures the Marlborough region and the national wine industry develop a reputation as being welcoming to tech startups and tech investment.

Expected outputs from the programme

- Networking strategy established for investors and Marlborough agritech – to enable information sharing among innovators and with the investment community, helping position Marlborough as a supportive region for tech innovation
- Agritech collaborations to co-develop solutions for New Zealand (and international) winegrowing to ensure we are leveraging the capability that already exists in the sector and relevant pan-sector initiatives that could be adapted to the wine industry.
- Identify and prioritise industry needs (from the ground up) ensuring industry pull as opposed to tech push
- New tech initiatives started – potential for IP generation and profit share that can be reinvested into the industry and the region
- Addressing broader social, environmental and infrastructure challenges for the region
- Accelerating progress towards environmental goals for the industry and the region

Outcome

- Agritech investment in the region
- Engagement with the wine industry to inform the developing Future Vineyards programme
- Collaboration formed with Agritech accelerators (eg. Sprout)
- Collaborations formed with agritech developers
- Active ecosystem and network of innovators to feed into wider MDC efforts in technology
- Collaboration with other primary sectors
- MDC investment has potential to be leveraged by industry co-investment such as into Future vineyards programme
- Regional economic benefit through:
 - 1) Helping Marlborough become a supportive region for tech innovation
 - 2) Encouraging development of agritech, robotics, automation, artificial intelligence and the use of sensor technology to increase the productivity and sustainability of the wine industry
 - 3) Facilitating the development of technological tools to support increased productivity and improved environmental outcomes in vineyards and wineries
 - 4) Encouraging the creation of sustainable high-wage jobs in technology in the region

Conclusion

In summary, an MDC investment in agritech for the wine industry can leverage the institute's capability and international research network to foster the development of technology that meets the needs of the industry and the region. This, in turn, will help meet key community objectives over the next 10 years:

- Economic growth and prosperity – driving innovation and quality employment by attracting new capability and investment to the region, and protecting the key economic sectors already based in Marlborough
- Infrastructure – mitigating the potential impacts of climate change and enabling growth while managing downstream impacts
- Environment – enhancing and preserving the quality of life in Marlborough, and assisting the wine industry to achieve its sustainability goals
- Community – enhancing community outcomes and Marlborough as an attractive and desirable destination

Stakeholders and collaborators

- Marlborough District Council
- New Zealand growers and wineries
- Wine Marlborough
- NMIT and other training providers
- University researchers
- Technology suppliers / entrepreneurs.
- Sprout Accelerator, Palmerston North
- New Zealand Agritech ITP
- Callaghan Innovation
- The institute's international network of collaborators and researchers

About us

Bragato Research Institute drives world-leading innovation for the New Zealand wine industry — from blue sky research through to the practical application of science in our vineyards, wineries and supply chain. Launched in 2017 through programme funding from the Ministry of Business, Innovation and Employment, we are a wholly owned subsidiary of New Zealand Winegrowers, the national industry body for growers and wineries.

References

NZIER report to Bragato Research Institute (June 2020)
<https://bri.co.nz/2020/06/30/nzier/>

MBIE – Agritech Industry Transformation Plan (July 2020)
<https://bit.ly/3uwn0JZ>

Marlborough Wine Industry Growth Forecast (May 2021)

Contribution of wine to the Marlborough economy (2020)
<https://bit.ly/3fhSDkn>