

HORTICULTURE
NEW ZEALAND
SUBMISSION

Submission on the Te Ara Paerangi Future Pathways Green Paper

15 March 2022

To: Ministry of Business, Innovation & Employment

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Our submission

Horticulture New Zealand (HortNZ) thanks the Ministry of Business, Innovation and Employment for the opportunity to submit on the Future Pathways research science and innovation green paper and welcomes any opportunity to continue to work with MBIE to discuss our submission.

This submission is being made by Horticulture New Zealand and is supported by the following organisations:

- Katikati Fruitgrowers Association
- Onions New Zealand Inc
- NZ Apples & Pears Inc
- New Zealand Asparagus Council
- New Zealand Avocado
- NZ Feijoa Growers Association
- NZ Persimmon Industry Council
- Summerfruit NZ
- TomatoesNZ
- Vegetables New Zealand Inc

Importance of research to New Zealand horticulture

Research is a key factor in future-proofing horticulture

Access to high-quality, customer-focussed research services is essential to ensure that the New Zealand horticulture sector can continue to grow, innovate, improve production practices, support regional communities, provide domestic food security, and remain internationally competitive. Timely and world class research is critical to set the sector up for success, ensuring that we can continue to address the challenges that we face and make the most of opportunities that arise.

Historically, the Crown Research Institutes have been instrumental to the success of the horticulture sector. To remain impactful, a forward-focussed research system needs to work in true partnership with the end-users of the research produced. This includes ensuring that smaller industries with limited resources have access to the research they require to grow and that horticulture across all regions of the country is supported by research that is relevant to their geographical location.

Background to HortNZ

HortNZ represents the interests of 6,000 commercial fruit and vegetable growers in New Zealand, who grow around 100 different crop types and employ over 60,000 workers.

There is approximately 120,000 hectares of horticultural land in New Zealand - approximately 80,000 ha of this is fruit and vegetables. The remaining 40,000 ha is primarily made up of wine grapes and hops, which HortNZ does not represent.

It is not just the economic benefits associated with horticultural production that are important. The rural economy supports regional communities and rural production defines much of the rural landscape. Food production values provide a platform for long term sustainability of communities, through the provision of food security.

HortNZ's purpose is to create an enduring environment where growers prosper. This is done through enabling, promoting and advocating for growers in New Zealand.



Executive Summary

Horticulture New Zealand is providing an end-user perspective of a national research system that would support the horticultural industries to meet the challenges of today and those of the future.

In any reform of the current system, we recommend that you:

- ❖ Ensure that research conducted in New Zealand is of relevance to and accessible by New Zealand industries.
- ❖ Actively involve industry and other end-users in the processes for prioritising the research conducted, setting the strategy underneath the priorities, and deciding how funds are allocated.
- ❖ Include 'Emerging risks and opportunities' as one of the whole-of-system priorities.
- ❖ Support long-term research programmes as well as shorter-term projects.
- ❖ Accommodate the research needs of regional communities as well as national needs.
- ❖ Articulate the overall purpose and objectives of the research system, design the system to deliver that purpose, and then fund it adequately so that it is able to deliver.
- ❖ Avoid designing an overengineered research system accompanied by burdensome and costly management processes.
- ❖ Provide for the core expertise that underpins New Zealand's primary sector research.
- ❖ Consider collaboration a core function that is provided for outside of contestable funding.
- ❖ Ensure knowledge transfer is designed into all research proposals from the outset to generate maximum impact from research spend.
- ❖ Ensure appropriate access to data collected using public funding.
- ❖ Continue to engage with industry parties such as Horticulture New Zealand and other horticultural industry product groups.

Submission

Whilst HortNZ and the wider horticulture sector is interested in the entirety of the New Zealand research system, comments in this submission focus on those parts of the green paper that are most pertinent to our sector.

1. National research priorities

The full breadth of the national research system needs to effectively deliver research across multiple horizons from 'blue-sky' investigator-led research, to 'mission-led' collaborative research, to highly focussed research questions for a specific end-user. Not all of these horizons are likely to fit under a single set of national research priorities.

Nonetheless, prioritising research of national importance at the system level would inform the design of the most appropriate frameworks for research funding structures and institutions. It would also provide transparency around funding decisions. However, to ensure that New Zealand's publicly funded research remains relevant to its end-users, the prioritisation process has to be consultative in nature with active participation from industry end-users at all stages.

There is also a need to maintain enough agility within the system to ensure that stakeholders and end-users can rapidly access research outputs that support them to meet the challenges of emerging risks and to embrace new opportunities, some of which may not fall under current areas of prioritisation.

RECOMMENDATION

'Emerging risks and opportunities' could be included as a standing item on the list of whole-of-system priorities.

Q1: What principles could be used to determine the scope and focus of national research Priorities?

END-USER FOCUS

Research priorities should be focussed on the challenges New Zealanders are facing now and those we will face in the future. Identifying and prioritising these challenges requires direct and ongoing input from the people facing them in addition to researchers and government officials.

ENHANCING NATIONAL AND REGIONAL RESILIENCE

The national research system has an important role to play in supporting New Zealand and its regions to thrive in a changing world. For example, strong research support to the full breadth of horticultural industries would enhance the country's resilience by providing: opportunities for economic and export diversification, domestic food security, optimised sustainability and rural employment.

STABILITY

Many of the issues that horticulture and New Zealand are facing are long term and multifactorial in nature. To effectively meet these challenges requires a body of multidisciplinary understanding to be developed over years and decades. This is not achieved if funding is channelled in to portfolios of disconnected, short-term projects. The stability to make incremental advances in knowledge and technologies also needs to be supported by a research system that is not frequently disrupted by changing research priorities or the withdrawal of funds after five years.

AGILITY

A set of rigid priorities and an inflexible prioritisation process would obstruct the ability of the research system to assist New Zealand to meet unexpected challenges or benefit from unexpected opportunities and discoveries. As well as supporting the long-term increase of knowledge in key areas, there needs to be sufficient flexibility built-in to the prioritisation process to enable end-users to have timely access to research outcomes in novel areas.

CROSS-GOVERNMENT ALIGNMENT

There are sets of national priorities in existence that could inform the development of some of the national research priorities. One example is the national security intelligence priorities¹ coordinated by DPMC, which include biosecurity, human health, environment, climate, and emerging technology.

Some government departments have also developed roadmaps that should be considered in the research prioritisation process. One example would be MPI's 'Fit for a Better World' that sets out a roadmap for the food and fibre sector to lead the way to a more sustainable economy².

Q2. What principles should guide a national research Priority-setting process?

PARTICIPATION

Ensure that non-scientific end users are well represented and actively contributing to the priority setting process.

INCLUSIVITY

To provide smaller-scale industries the opportunity to benefit from research that can help them grow, these end-users need to be included in discussions alongside the larger, more established and more connected industries. While these smaller end-user groups have less resource to invest in research than their larger counterparts, appropriate research-support could assist them to become more important contributors to New Zealand's regional communities and economy in the future.

¹ [National Security Intelligence Priorities | Department of the Prime Minister and Cabinet \(DPMC\)](#)

² [Primary sector roadmap to boost export earnings | NZ Government \(mpi.govt.nz\)](#)

REGIONALISATION

Across the country there are regional differences in the challenges faced and opportunities present. A prioritisation process that was heavily Wellington-based would be unlikely to serve the needs of all parts of the country.

COST-EFFECTIVENESS

Wide consultation is vital for identifying the most appropriate priorities, strategies and allocating the available funding. However, there is a need to avoid over-engineering the process itself as this would risk it becoming self-supporting, time-consuming for individuals, and expensive for the New Zealand public.

Modern technologies could be utilised to enable participation from outside the main urban centres without incurring huge travel costs by repeatedly bringing large numbers of people to central locations. Communication materials should also be streamlined. Producing a suite of state-of-the-art communication materials about the prioritisation process itself would not materially improve the quality or impact of the actual research but could deplete the funds available for actual research.

REVIEW

Whilst long-term stability in the science system is important, periodic review of national research priorities will also be needed. If the priorities are not reviewed from time to time to check that they are still relevant there is a risk that important research needs that fall outside of the current suite of priorities never get funded. The world is not static, and a single set of priorities is unlikely to suffice for multiple decades. There is a delicate balance to be achieved to ensure that the priorities are sense checked from time to time, whilst providing certainty and avoiding a move to short-term priority cycles.

Q3. How should the strategy for each national research priority be set and how do we operationalise them?

COLLABORATIVELY

As well as being involved in identifying national research priorities, including end-user industry groups in the processes for setting strategies and funding decision making also helps to ensure that the research conducted is of high relevance and grounded in practical realities. There are existing collaborations that demonstrate the strength of this approach.

One good example is the Better Border Biosecurity (B3) collaboration³. This highly active collaboration, consisting of four CRIs and a university, has been providing quality research outputs to support government and industry in the prevention and management of plant biosecurity issues for over 17 years. The B3 collaboration is focussed on an area of national priority (biosecurity) and takes a mission-led approach with industry and government stakeholders represented at both the governance and science advisory levels. The collaboration develops 5-

³ [Home - B3 | Science Solutions for Better Border Biosecurity \(b3nz.org.nz\)](https://www.b3nz.org.nz/)

year strategies that are aligned with government strategies and industry roadmaps, and engages in annual cycles of project and portfolio assessment.

Other examples of research and industry collaborations include the New Zealand Agricultural Greenhouse Gas Research Centre⁴, the Bioresource Processing Alliance⁵, and the New Zealand Food Safety Science & Research Centre⁶ that has an industry advisory group.

RECOMMENDATION

Each national research priority could be operated by a collaborative, virtual organisation that included researchers, Māori, relevant industries, other notable stakeholders, and government. The virtual 'institution' would work as a team to set the strategy under the priority and make decisions about funding projects that best align with that strategy. To provide stability, a commitment to fund the collaborative organisation for the long term (i.e., 10+ years) would be required.

2. *Te Tiriti, mātauranga Māori and Māori aspirations*

As this is an important and complex area, we would encourage full consideration to be given to this prior to deciding how to identify research priorities and assess their relative importance.

Q6. *What are your thoughts on regionally based Māori knowledge hubs?*

We acknowledge that many research organisations are now actively embracing the challenge of becoming Tiriti-anchored. This process requires extensive and ongoing discussions to build the relationships and frameworks required to make this an actuality rather than an aspiration. We also acknowledge some of the resourcing issues that are accompanying this process with Māori representatives being approached simultaneously about multiple issues by multiple parties.

If regional Māori research hubs were established and funded as part of the national research system, this could provide a much-needed framework to encourage and enhance the integration of mātauranga Māori into all research.

Regional Māori hubs also make sense from a horticultural perspective as a lot of horticultural research is region-specific and enhanced connectivity with iwi in important horticultural regions would be beneficial for all.

⁴ [Global Research Alliance | New Zealand Agricultural Greenhouse Gas Research Centre \(nzagrc.org.nz\)](https://nzagrc.org.nz)

⁵ [ABOUT US | Bioresource Processing](#)

⁶ [Our People | NZFSSRC](#)

3. Funding

The current research system is structurally fragmented. Crown Research Institutes, Regional Research Institutes, Centres of Research Excellence, the National Science Challenges and universities are all competing for national funding. One knock-on effect of this is that public money is being spent paying research staff to prepare funding bids for public funds.

RECOMMENDATION

Structure should follow function. Invest time in understanding the purpose and objectives of the research system to ensure that the reformed system is optimally designed. Then fund the system adequately so that it can serve its intended purpose.

Q7. How should we decide what constitutes a core function and how do we fund them?

We see core functions are those aspects of the research system that are required for it to function but that are not aligned with any single priority.

KEY EXPERTISE

Maintenance of key fundamental science expertise in the country is an example of a core function that is being lost in the primary industry sectors as current experts retire and no-one else holds such detailed New Zealand-relevant knowledge. While individually these key knowledge holders might not align with any single research priority, their scientific and industry knowledge underpins multiple areas of research. Creating publicly funded positions for some of these key roles that may not be tied to any single organisation would recognise the value of the knowledge held by these individuals and help to create a career pathway, enabling better succession.

COLLABORATION PROVISION

Bringing the right people together to develop the right research questions often incurs costs. The provision of core funding to cover collaboration costs would enable the research funding to be spent on the research rather than the collaborations themselves.

Q8. Do you think a base grant funding model will improve stability and resilience for research organisations, and how should we go about designing and implementing such a funding model?

Base grants would provide certainty, stability, and end-user confidence. If a base grant also resulted in lower research overhead costs being passed on to industry funders and end-users, then research would become more affordable for smaller-scale customers. Currently smaller horticultural sectors are less able to fund and therefore benefit from research than more established sectors.

Discussing overseas models with people who participate in and use them and identifying what aspects of those might be suitable for New Zealand would be useful when designing the funding model. In Australia, for instance, private industries are often active decision makers determining how and where research money is spent. Plant Health Australia⁷, for example, is a government-industry not-for-profit company where all members have input into and provide funding for a range of large scale, nationally coordinated projects that could not be funded or pursued by organisations acting independently.

Another Australian model to look at is Hort Innovation⁸, which is a grower-owned, not-for-profit research and development corporation dedicated to horticultural research. The company is jointly funded by growers and the Australian Government. This model means that each sector has dedicated funds to spend on research that is important to them, without having to compete with one another for a pooled fund.

4. Institutions

Q9. How do we design collaborative, adaptive and agile research institutions that will serve current and future needs?

AVOID DUPLICATION

Current overlaps in the science conducted in different CRIs decreases the efficiency of the system and makes it confusing for an end-user to know who to connect with or whether the person/team they've connected with is the most appropriate one.

Virtual, cross-organisation collaborations would help to avoid duplication by bringing these different teams together under one multidisciplinary umbrella.

ENSURE INTEGRATION ACROSS THE SYSTEM

The CRIs have historically been critical to the success of the NZ horticulture sector, but we recognise that there are other entities in the science system. Optimal utilisation of the overall research system could be enhanced by a system that also encouraged the building of enduring partnerships between the universities and industries.

RECOMMENDATION

Creating business manager roles for a sector that are not affiliated with an individual research organisation and that understand industry needs would ensure that industry end-users are connected to the right organisation for the research that is required.

⁷ [Home - Plant Health Australia](#)

⁸ [Hort Innovation | The company \(horticulture.com.au\)](#)

Q13. How do we better support knowledge exchange and impact generation?

What should be the role of research institutions in transferring knowledge into operational environments and technologies?

Inadequate knowledge transfer undermines the role of research in society. The expected impact and how knowledge and outcomes arising from the research will be shared and implemented is something that should be considered at the concept stage. Details should be agreed between relevant parties prior to funding being awarded.

5. Research workforce

It is important that workforce considerations are not just tied to the national research priority areas. Some core and essential expertise is becoming scarcer in New Zealand (e.g., taxonomists, soil scientists, and agricultural chemical scientists) as key experts retire and there is an absence of succession planning at the system level.

Maintaining nationally relevant expertise in these more fundamental areas of science is not helped by a research system that bases the evaluation of science excellence on numbers of publications and then appropriates funding based on this. However, these experts in fundamental sciences as applied in the New Zealand context perform key functions in the country's scientific knowledge base, and the maintenance of this expertise in the country should be supported. In addition, the provision of scholarships associated with these positions could help to keep graduates in New Zealand.

RECOMMENDATION

Ensure the maintenance of a core of fundamental expertise within New Zealand by establishing funded positions for core scientific roles that are not tied to individual institutions.

6. Research infrastructure

Q17. How do we support sustainable, efficient and enabling investment in research infrastructure?

OPEN DATA

Data collected using public funds should be accessible for other publicly funded research without a huge price tag. One example that several contributors to this submission provided was the significant cost of weather data sourced from NIWA. Data such as these would be of value to multiple national research priorities, but the current costs cannot be covered by many research grants.

Enhancing data sharing requires substantial investment in data infrastructure development, maintenance, and support as well as the development of robust data governance processes and systems that are shared across the research system. The cost of this should not fall on individual institutions and companies.

ENCOURAGE RESOURCE SHARING

Overhead costs are high in the current system, which limits the funds for actual research projects. Designing a research system that has a greater degree of sharing of fundamental resources (such as cloud platforms and specialised laboratories) between institutions could help to bring some of these overhead costs down.

Conclusion

A fit-for-purpose national research system is vital to the ongoing success of the horticulture sector and the wider primary industries. We encourage MBIE to keep end users in mind as you develop the white paper, and to align the research system reforms with other government priorities and strategies. HortNZ is very willing to be involved in any further discussions on this subject - we believe it is of critical national and regional importance.