Victoria Drought Resilience Adoption
and Innovation Hub
The University of Melbourne, Dookie Campus
940 Dookie-Nalinga Road, VIC 3647

3rd March, 2023

Subject: Submission to the Productivity Commission; Inquiry into the Future Drought Fund

Dear Productivity Commission,

On behalf of the **Victoria Drought Resilience Adoption and Innovation Hub** (**Vic Drought & Innovation Hub**) I would like to take the opportunity to make this submission to the Productivity Commission Inquiry into the effectiveness, efficiency and appropriateness of Part 3 of the *Future Drought Fund Act 2019*.

The Vic Drought & Innovation Hub

Headquartered at a University of Melbourne regional campus (Dookie), the Vic Drought & Innovation Hub is one of eight hubs nationally established in 2021 through the Drought Resilience Research and Adoption Program of the Future Drought Fund (FDF). The Vic Drought & Innovation Hub is formed by a core partnership of four regionally engaged Victorian universities (The University of Melbourne, Deakin University, La Trobe University and Federation University), the Victorian State Government through Agriculture Victoria and five regional Nodes led by farming groups or regional innovation centres (Riverine Plains, Food & Fibre Gippsland, Southern Farming Systems, Birchip Cropping Group, Mallee Regional Innovation Centre) with established and evolving regional engagement partnerships.

The remit of the Vic Drought & Innovation Hub was since expanded to broader agricultural innovation covering priorities of the National Agricultural Innovation Agenda. The Vic Drought & Innovation Hub is also hosting the Victoria National Soil Coordinator (funded through the Building Landcare Community Capacity program as part of the National Soils Strategy) and an Innovation Broker supported by AgriFutures through their innovation agenda.

In 2020-21, the gross value of agricultural production in Victoria was $17.5 billion, which represents 25% of Australia's gross production value and makes Victoria the second largest producer nationally. Victoria's agriculture sector is also among the most diverse in Australia, with contributions to gross agricultural productivity of dairy ($2.86 billion), grains ($3.55 billion), beef ($2.58 billion), sheep ($2.62 billion including sheep meat $1.90 billion and wool $0.72 billion), and horticulture ($3.24 billion with fruit and nuts contributing $1.57 billion and vegetables $1.11 billion) of the same magnitude (https://agriculture.vic.gov.au/about/agriculture-in-victoria). The Vic Drought & Innovation Hub therefore covers a most diverse range of stakeholders across different industries and agro-ecosytems.

Early successes

The formation of the Vic Drought & Innovation Hub's core partnership of 4 universities, Agriculture Victoria and five regional farming and innovation groups to jointly pursue the Future Drought Fund's vision of "an innovative and profitable farming sector, a sustainable natural environment and adaptable rural, regional and remote communities – all with increased resilience to the impacts of drought and climate change" is in itself a major success. In the highly competitive research, development, extension, adoption and commercialisation (RDEA&C) landscape of Victoria competition among these players often prevailed over collaboration. The Vic Drought and Innovation Hub is an invaluable opportunity to harness synergies and avoid competition where it is unproductive.

The Vic Hub's operating model with Node partners leading regional consultations and engagement encourages structured collaboration across regions and industries, allows targeting issues of direct importance to regional stakeholders, and facilitates bi-directional information flow between research and development providers, extension and adoption, and end-users in industry and regional communities.

Early successes of the Vic Drought and Innovation Hub in numbers

The locally led consultation process has identified six key priority areas with 21 specific priorities, to build drought resilience of farmers, and their environment and communities. More than 30 different projects have been implemented by Regional Nodes across Victoria, and a further 8 projects are already complete.

Local partners use the priorities identified to seek new partnerships, mobilise resource sharing and increase the impacts of FDF investments. As one example, the funds invested with the Vic Drought & Innovation Hub's North East Regional Node have supported the delivery of work to 43 research partners, 33 commercial partners, with $2,944,836 investment in new projects from grants either through the Hub, or through Commonwealth and other grant processes.

The Vic Drought & Innovation Hub is reaches farmers and local stakeholders 'on the ground'. For example, between July and December 2022, the Vic Drought & Innovation Hub partners implemented 34 different learning activities, in 15 different Local Government Areas across Victoria, benefitting 2,821 participants. Seventy-four percent of those were farmers, 20% agricultural business agents, and 3% government extension officers.

The eight Hubs have established a strong collaboration and knowledge sharing culture nationally and thus collectively constitute an invaluable resource to identify issues and solutions to drive agricultural innovation towards the Future Drought Fund's aim to "enhance the public good by building drought resilience in Australia's agricultural sector, the agricultural landscape, and communities."

The Vic Drought & Innovation Hub's interactions with the Department of Agriculture, Fisheries and Forestry (DAFF)'s Future Drought Fund team were very supportive and positive. The visits of DAFF staff and the Hub Advisory Committee members to the Hub have received very positive feedback from the Hub partners and regional stakeholders and demonstrate the importance of 'on the ground' engagement and the great opportunity the Hub offers in this respect.

Submissions to the Commission's questions:

Are the funding principles, vision, aim, strategic priorities, and objectives of the Funding Plan (attachment B) appropriate and effective?

The principles, vision, aim, strategic priorities and objectives of the Funding Plan are ***appropriate***, but ***in practice there has been to date an emphasis on economic resilience and agricultural production with less regard to the environmental resilience aspects of sustainable agriculture***.

It is important to keep the focus on supporting the public good (as currently emphasised in the funding principles and aim), as this is where market failures lie[1)].

[1)]Alston and Pardey (2021) The Economics of Agricultural Innovation. Handbook of Agricultural Economics (Chapter 47), Volume 5, Elsevier.

Do the programs, arrangements and grants focus on the right priorities to support drought resilience? If not, what should the programs, arrangements and grants focus on and why?

The strong focus on adoption of existing yet not always rigorously proven practices has been too narrow to support a thriving agribusiness sector to capitalise on global opportunities in the face of climate change. To ensure continuous evolution of economic, environmental and social resilience in a sustainable manner, a portion of the Fund could be directed towards issues that are longer-term (e.g. post-2050).

From the viewpoint of the Vic Hub as part of the foundational programs, there has also been some uncertainty about the scope, especially around the weighting of the RDEA&C components. With the (appropriate) extension of the Hub remit to support agricultural innovation, many stakeholders assumed that this pushed the weighting further towards commercialisation, and that Hub activities should resemble the many start-up support systems already available.

In the business case for the Vic Hub submitted to DAFF we emphasised the importance in agricultural innovation of common and public good innovation, *i.e.* by the adoption and application in commercial enterprises of practices and knowledge that are publicly available once developed[1)]. Many such important innovations (some examples would be novel agronomic drought resilience practices, integrated pest management strategies, carbon sequestration strategies, benefits of more diverse systems etc.) are not achievable by market mechanisms because investors are not able to benefit from them, in contrast to marketable products such as new crop varieties (through breeders' rights), agrochemicals, or ag-tech instrumentation.

Future Drought Fund investment should therefore continue to focus on supporting public and common good innovations or address significant gaps and market failures in the innovation pipeline, which according to the Vic Hub's analysis in the business case are mostly two areas:

(1) Support for public and common good innovations that strongly take into account environmental and social sustainability and; (2) support in the development phase of technologies with commercial potential which still require practical, robust and rigorous evidence for innovators to take the next steps towards commercialisation.

A focus of the Hubs' activities on commercialisation in the narrow sense would contravene Funding Principle 4 not to duplicate programs, because numerous start-up support programmes and entities, already exist in that space, commercial or non-for-profit, and many with public funding support (Victorian examples include the Victorian Government's 'Agtech Angel Network', or more broadly LaunchVic and

many others). The Vic Drought & Innovation Hub is therefore aiming at filling gaps not competing with such existing systems.

[1)]Alston and Pardey (2021) The Economics of Agricultural Innovation. Handbook of Agricultural Economics (Chapter 47), Volume 5, Elsevier.

Should the scope of the Fund be broadened to support resilience to climate change? Why or why not?

The scope of the fund should recognise that drought cannot be seen in isolation from broader climate change. The Vision statement of the Future Drought Fund already explicitly includes "…increased resilience to… drought and climate change", and activities undertaken or brokered by the Vic Drought & Innovation Hub are already addressing climate resilience more broadly, because it is increasingly difficult to deal with drought resilience without taking into account the underlying and accelerating change in climate. Even though the visualisation of four phases of drought in a 'drought cycle' is useful for short-term practice changes, and used to good effect by the Vic Drought & Innovation Hub, it is imperfect in the mid-term because the drought 'cycles' are superimposed over an accelerating change of climate, including a changing atmosphere, creating entirely novel drought and climate events. A focus on drought in isolation runs the risk of developing practices that have unintended negative consequences under future conditions or result in increased greenhouse gas emissions further driving climate change.

Knowledge and application of past best practices is therefore only of limited use to guide adaptation to future conditions. This implies that drought resilience cannot be built merely by adoption and commercial application of existing knowledge, but that knowledge has to evolve and include new research to address the new, unprecedented conditions.

Whilst all of the above is within the scope of current Future Drought Fund provisions, ***formal rebranding to include 'climate resilience' would support continuous messaging and presence*** with stakeholders. Although the Vic Drought & Innovation Hub 's messaging is targeted towards building resilience, and emphasises that consideration and actions are especially required *outside* of acute drought situations, the branding as 'Drought Hub' made stakeholder engagement more difficult in times of acute flooding and waterlogging issues in the past La Niña years. Vic Drought & Innovation Hub consultations also suggest that talking about 'drought' invokes a crisis mindset, which goes against the intention of building resilience in good times, and makes it more difficult to address broader innovations to improve resilience and preparedness.

How could the Fund enhance engagement with and benefits for Aboriginal and Torres Strait Islander people?

Engagement with traditional owners requires longer term horizons to establish the reputation of being a reliable partner. With the current short-term funding arrangements there is little trust that the Hubs are an enduring entity and therefore engagement is of low priority for many traditional owner groups. In the absence of longer-term funding certainty, engagement may have to be supported by other channels that have an already established longer-term perspective.

Emphasising the (existing) broader focus of the Future Drought Fund programmes to better underline environmental and social sustainability may align better with the commonly more holistic aims and values of traditional owner groups, especially in regions where there is little involvement, and a very cautious attitude towards agricultural industries.

What opportunities are there to enhance collaboration in planning and delivering drought resilience initiatives, including with state and territory governments?

The current distribution of Drought & Innovation Hubs according to geography and agro-ecology, which in most cases follows state boundaries has generally worked well to engage state and local government levels in the Hubs' coordination efforts. The equitable distribution of funding to all Hubs is generally appropriate, considering the different challenges in the regions they cover. For example, the Northern Hub covers enormous geographical areas, whereas the Vic Hub covers a smaller area, but a great diversity of agro-ecosystems, agricultural industries and interest groups, as well as multiple research and extension providers, to be coordinated.

Among the great opportunities and early achievements of the Drought & Innovation Hubs is ***their ability to broker new partnerships for cross-industry and broader initiatives beyond long-standing 'trusted relationships' in the Australian agricultural innovation system***. Trust is especially important among players in the agricultural innovation space, and although it is a generally positive attribute, over-reliance on established and trusted relationships to the exclusion of new players has been identified as a serious weakness in agricultural innovation[2)]. It should be further emphasised that the Fund is seeking to bring in the best and most promising partnerships and initiatives in a strongly merit-based approach, which is open to new players.

[2)]Klerkx L, van Mierlo B, Leeuwis C (2012) Evolution of systems approaches to agricultural innovation: concepts, analysis and interventions. In I. Darnhofer, D. Gibbon, and B. Dedieu (eds.), Farming Systems Research into the 21st Century: The New Dynamic. Springer Dordrecht, pp. 457-483.

Are there any other changes needed to improve the effectiveness of Part 3 of the Act? Who needs to do what to make those changes happen?

The national Hub network should be involved in shaping and directing program guidelines from the outset. The Hubs collectively have become established as a leading nationally relevant resource in drought resilience and agricultural innovation. The Hubs should therefore be used to maximum effect in shaping the programs and initiatives of the Future Drought Fund. Currently, applicants to some (not all) Future Drought Fund programs are directed to Hubs to seek advice (not necessarily endorsement), or to align with Hub-identified regional priorities. As this is interpreted as a 'box ticking' exercise by many applicants, it is not effective in improving applications, avoiding duplication, or ensuring best value. ***Consideration should be given to directing an appropriate proportion of Future Drought Fund programs directly to, or through, the Hubs***. Because the Hubs are non-incorporated entities, and open to new partners at any time, this is unlikely to be a probity issue, but would strengthen the desire of potentially competing partners to collaborate with, within and across the Hubs, and thereby avoid unnecessary duplication and unproductive competition on a regional and national level. The Hubs are already positioning themselves as the most relevant national network for drought and climate resilience and innovation initiatives, and further success in this endeavour would support Australia's position as an international leader in drought and climate resilient agriculture.

The short timelines for submissions to the various Future Drought Fund programs significantly constrained the scope, novelty and quality of submissions. A calendar of grant calls over the entire funding plan published early in the funding cycle would allow the building of new partnerships and plan appropriately to fit in with crop cycles and seasonal activities.

Short timelines of program funding are major impediments on the quality and effectiveness of the funding arrangements. Robust field studies in environmental and agricultural science require more than one year, (e. g. evidenced by submission guidelines of leading scientific journals in the disciplines), and for adoption activities to be convincing and leading to the desired outcomes, multiple (a minimum of two but often even three) seasons are nearly always necessary, and for some industries such as tree crop horticulture or viticulture even longer.

Uncertainty of continued funding to the Hubs creates significant risks and difficulties in the Hubs' core business of brokering new partnerships and facilitating joint, non-traditional activities, and innovative proposals to advance drought resilience. DAFF's guidelines to have Hubs and Nodes based in regional and rural locations was greatly applauded, but undermined by short timelines and uncertainty, which compound already existing difficulties to attract and retain high calibre staff at Hubs and Nodes. Current and prospective industry, research, and community partners must have confidence that the Hubs' lifetime is sufficient to warrant serious engagement and deviate from business-as-usual.

Thank you for your consideration and kind regards,

Professor Michael Tausz
Director, Victoria Drought Resilience Adoption and Innovation Hub