



House Standing
Committee on Industry,
Science and Resources

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Food and Beverage
Manufacturing in Australia

ENQUIRIES

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A. INTRODUCTION AND EXECUTIVE SUMMARY

La Trobe welcomes this inquiry and the opportunity to participate in this consultation. Home to the La Trobe Institute for Sustainable Agriculture and Food (LISAF) and with Sustainable Food and Agriculture as one of our six key Research Themes¹, we look forward to working with the Committee to expand innovation in the Australian food and beverage manufacturing industry. In Section B and Section C we highlight the ways in which government policy and funding settings could help achieve that aim.

La Trobe has long-standing expertise in agri-food, supported by our network of regional campuses across central and northern Victoria and our world-class AgriBio facility, located at our Melbourne Bundoora campus. The 11-yr old AgriBio Building houses world-leading research facilities and personnel made possible through our partnership and co-location with the Victorian State Government (AgVic). In addition to agri-bio expertise, La Trobe is renowned for its research in the Food, Nutrition and Dietetics fields². Coupled with a clinical trials capability that can evaluate the nutritional and health benefits of foods, this puts La Trobe in a unique position to work with government to drive innovation in the food and beverage manufacturing sector.

Section D profiles the Australian Food Innovation Centre (AFIC) – as part of our exciting partnership with CSIRO, AFIC is a proposal to establish a new and purpose-built facility at our Bundoora campus, to support research innovation, (re-)skilling of the agri-food sector future workforce, commercialisation and manufacturing of food and beverage by providing state-of-the-art research facilities and expertise, as well as opportunities for co-location, industry collaboration and start-up incubator spaces.

The research undertaken at AFIC extends beyond pure innovation in food and beverages to explore the way this sector of the economy intersects with agricultural production, supply chains, mitigating climate change and improving health outcomes. In so doing, La Trobe research is strongly aligned with, and contributing to, achieving the Federal Government's key objectives as outlined in the draft National Science and Research Priorities 2023 and the List of Critical Technologies in the National Interest. La Trobe is also keen to work with Government to achieve the goals of the National Reconstruction Fund, including its priority to add sustainable value to Australia's agriculture, forestry, and fisheries sectors. We believe that our joint proposal with CSIRO for AFIC would be a means of achieving this priority including by supporting regional development and creating local jobs.

Further information about any of the points raised in the submission can be provided upon request.

B. RECOMMENDATIONS

1. Through a cross-government approach, address the linkages (and opportunities) between agri-food production and nutrition and health to minimise the impact of non-communicable health related disease (the fastest growing outlay in the health budgets of developed countries)
2. Develop a national food and beverage roadmap for Australia which incorporates an overhaul of the agriculture and food manufacturing sectors and has the potential to position Australia as a leading producer and exporter of premium quality food

¹ La Trobe's research is focused on six priority themes linked to the United Nation's Sustainable Development Goals: Digital technology & transformation; Healthy people, families & communities; Resilient environments & communities; Social change & equity; Sustainable food & agriculture; and Understanding & preventing disease

² La Trobe's research in nutrition and dietetics is rated 'well above world standard'. [Australian Research Council, 2019, Excellence in Research for Australia (ERA) Outcomes 2018]

3. Reimagine the entire food system embracing biological and digital innovation (such as Artificial Intelligence and the Internet of Things) and integrating it into the supply chain
4. Invest in significant research and development relating to food and beverage technologies including the establishment of a fund similar to the Medical Research Future Fund (MRFF) for the agri-food sector
5. Put in place funding and policy settings to address the gap in the industry innovation system for end-to-end commercial scale production infrastructure (or 'bespoke manufacturing') which would enable businesses to scale up and commercialise their production and take their product to market.
6. Put in place a workforce plan to address the skills that will be required by the future agricultural and food manufacturing workforce
7. Put in place a solid regulatory framework to underpin the food industry, including consistent policy across the nation on food labelling and on food processing that leads to sustainable, healthier (and affordable), and nutritious food options
8. Dedicate funding to key public health and consumer education campaigns on food, reducing food waste and on the link between food and non-communicable food-related disease³

C. LA TROBE RESPONSE TO THE INQUIRY'S TERMS OF REFERENCE

Expanding innovation in the food and beverage manufacturing industry in Australia, with regard to:

- **Innovation trends and new technologies both local and internationally**

As outlined in further detail in Section D, one of the gaps that has been hampering innovation is the lack of end-to-end commercial-scale production infrastructure (or 'bespoke manufacturing'). This would enable businesses to scale up and commercialise their production and eventually take their product to market. La Trobe's AFIC is expected to help generate 20-30 new food manufacturing facilities across the food and beverage industry.

A similar gap has been identified in the international Australasian region where the agri-food industry lacks the infrastructure to scale food processing from lab to pre-commercial production to test and take new food innovations to the market.

- **ways to support new and emerging products and industries, including premium and niche products, new proteins and Indigenous foods;**

The La Trobe Institute for Sustainable Agriculture and Food (LISAF), located within the AgriBio Building, is a multimillion-dollar investment by the University over the next five years to deliver solutions for sustainable and nutritious food production. One of the ongoing research projects linked to these Terms of Reference is outlined below:

- **Premium and niche products**

Generating "fit for purpose grains" means manipulating plant biology to engineer seeds and plants that are hardier and more nutritious than common varieties, while delivering on yield and processing

³ <https://www.emro.who.int/noncommunicable-diseases/causes/unhealthy-diets.html>

attributes. In 2022, La Trobe researchers completed a new oat transcriptome, revealing 2,000 previously unmapped genes in the oat genome. This will have wide ranging impact in breeding new and resilient oat varieties, which are fibre-rich, nutrient-dense and less susceptible to disease.

Australia's oat industry is worth \$400 million each year to the national economy and feeds thousands of people in Australia and overseas every day. By breeding better varieties of key crops that need less inputs in terms of fertilisers, water and pest control, we are also safeguarding against future resource shortages and climatic variation.

Our researchers are also investigating ways to improve key legume varieties, which will be an important raw ingredient in plant-based foods into the future. In the past, the emphasis has been on quantity, but in a world with increased pressure on resources, crops need to deliver quality as well, especially given the depleted state of Australian soils. Importantly, while quality standards are well defined for cereal grains (e.g. wheat protein content), this is not the case for legumes beyond morphological characteristics such as size and colour, and variation in grain quality due to climate variability is an issue that the food industry will need to solve to enable value-adding to bulk grain and grow capital investment in food innovation.

- **opportunities across both domestic and export markets for Australian manufactured products, including shifting consumer trends;**

As La Trobe highlighted in the recent Inquiry into Australia's Food Security, given its robust regulatory system, Australia has the potential to be the premium provider of high-quality foods to the Asia-Pacific region.

Australia could also do more to promote itself as a "clean and green" net exporter of food which adds value to commodities. This has the potential to transform the industry and create significant growth. Overall, there is a trend for consumers to seek more sustainable food choices and a global trend for finding alternatives to meat, which Australia could maximise to its own advantage. CSIRO's 2030 Food and Beverage Roadmap⁴ outlines a 2050 goal for Australian-grown and manufactured products to be "health, environmentally sustainable, and underpinned by efficient technologies and innovation-driven production changes" thus "enabling Australian farmers and processors to capture greater value in domestic and offshore markets." In order to achieve this aim, significant government investment in research and development relating to food and beverage technologies is required. One way of approaching this would be through the inclusion of the establishment of a fund similar to the Medical Research Future Fund (MRFF) for the agri-food sector.

The Australian Food Innovation Centre, profiled in Section D, will play an important role in building this capacity in Australia's food and beverage sectors.

- **approaches to circular economy, waste reduction and decarbonising, including packaging and food waste;**

La Trobe fully supports practices to improve sustainability through the minimisation of food waste and to supporting the potential of the "circular economy". According to a 2015 SARDI⁵ study, food waste costs the Australian economy \$20 billion each year. There are opportunities to create value from food waste such as using food and mixed organic waste to produce energy, composts, fertilisers

⁴ <https://www.csiro.au/en/work-with-us/services/consultancy-strategic-advice-services/CSIRO-futures/Agriculture-and-Food/Reshaping-Australian-Food-Systems>

⁵ SARDI (2015) Primary Production Food Losses: Turning losses into profit. South Australian Research and Development Institute, Primary Industries and Regions South Australia.

and higher value insect protein. La Trobe also supports the 2025 National Packaging Targets⁶ including the target of 100% reusable, recyclable or compostable packaging.

By focusing efforts to minimise loss and upcycling of waste, significant benefits can be gained including by improving global food security, improving return to growers, increasing productivity and economic growth, reducing greenhouse gas emissions and more efficient use of resources required to grow, manufacture and transport food.

In the short term, we must stop wasting the food we work so hard to produce and look at innovative ways to make use of waste (and side streams from food processing), such as repurposing into other products such as fertiliser, animal feed or packaging to name a few.

In the long term, consumers need to be incentivised and educated to change their behaviour. We believe that governments/public health departments have a role to play in this regard.

- **future workforce and skills needs; and**

Overhauling the food and beverage manufacturing industries would place an increased reliance on technology-based solutions to deliver the efficiencies and precise growing conditions required to produce high quality crops and value-added food products. It would also require a significant upskilling in both the agricultural and food processing workforce, with many opportunities to retrain and expand career paths in this sector. Of necessity, this would need a cross-disciplinary (from biology to computing and beyond) workforce. Universities such as La Trobe could help train the future workforce.

- **how the research sector can help to grow this ecosystem;**
- **mechanisms for the Australian Government to support further innovation and sustainable growth in the sector.**

The nexus between agriculture, food and better health

One issue which we believe that this Inquiry should address is the need to draw stronger links between the agri-food and health research sectors. To drive innovation, there is a need, and considerable opportunity, for these two sectors to coalesce to provide sustainable quality nutritious food for the growing global population faced with the challenges of changing climates and limited resources. Australia's economy will benefit from growing export markets for value-added and premium products, especially into the high growth Asia-Pacific region.

- Shifts in nutrition toward more westernised diets are the most influential factor in triggering the world's epidemic of non-communicable food-related diseases in the past 50 years. Australia has some of the highest rates of diet-related health conditions, placing an unsustainable burden on Australia's health budget. The cost to our economy of diabetes and obesity alone is ~\$73 billion p.a. against an entire agricultural output of ~\$80 billion p.a. Meanwhile, the agri-food sector is a significant contributor to economic wealth and employment in Australia worth \$270 billion per annum, 20% GDP, and 1.6 million employees, of which 57% are rural or regionally based. Historically, the health and agri-food research sectors have largely developed independently.
- We believe this inquiry should look more closely at the opportunities presented through the intersection between food supply and its impact on health to improve nutritional outcomes and

⁶ <https://apco.org.au/national-packaging-targets>

also to minimise the impact of disease on the nation's public finances. This will involve examining policy around food labelling, how waste streams are re-purposed and public campaigns to encourage consumers to make healthier food choices.

D. THE AUSTRALIAN FOOD INNOVATION CENTRE (AFIC): A LA TROBE-CSIRO PARTNERSHIP

La Trobe University and CSIRO are seeking support from the Commonwealth Government (alongside state government and industry investment) to establish the Australian Food Innovation Centre at La Trobe's Bundoora campus - a unique and nationally significant food research centre in Melbourne's North which will generate significant benefits to the Australian economy. The proposed Australian Food Innovation Centre will be a leading innovation and training facility designed to achieve industry-led translational research and commercialisation outcomes in food and beverage manufacturing, nutrition and sustainability. It will create opportunities for new and diversified food export markets, help to mitigate the impact of food production on climate change, provide greater sovereign capability in food security, and help to mitigate the impact of diet-related non-communicable diseases such as obesity, diabetes and cardiovascular disease.

Through the partnership between La Trobe and CSIRO, AFIC will support research innovation, (re-)skilling of the agri-food sector future workforce, commercialisation and manufacturing in the agri-food sector by providing state-of-the-art research facilities and expertise, as well as opportunities for co-location, industry collaboration and start-up incubator spaces. AFIC will also co-ordinate a national network across the food sector addressing longstanding challenges of the currently fragmented and highly distributed food sector.

As outlined in the Food and Agricultural Growth Centre 2020 'Capturing the Prize' report, in Australia there is huge potential for further growth of the agri-food sector. With CSIRO and La Trobe providing system leadership, AFIC can play a pivotal role in unlocking the potential of this sector including:

- creation of new food products and export markets to unlock more than \$200 billion value added in 2030 – tripling the current size of Australia's food and agribusiness sector.
- Opportunities in unprocessed, organic and 'free from' foods could amount to \$45 billion in demand by 2030.
- Growing demand for traditional proteins could present an additional opportunity worth \$31 billion.
- In 2019, the food agribusiness employed approx. 538,000 people. Targeted innovation would lead to the creation of 842,000 potential jobs in 2030. These jobs will come from health and wellness, supply chain transformation and targeted eating.

Economic modelling undertaken in 2021 focused on the Victorian context estimates that AFIC will generate the following benefits with comparable benefits expected to accrue to the national economy:

- An increase in annual Victorian GSP of \$83 million
- An increase in Victorian household consumption of \$62 million per annum
- An increase in exports from Victoria of \$53 million per annum
- Will create over 590 jobs in construction and more than 290 jobs
- Once operational, positive cost benefit analysis of 1.38% at a 4% discount rate

In addition to the economic benefits to the Victorian and Australian economy, more broadly, we expect that AFIC would generate the following direct outcomes:

- \$50 million per annum in industry funded research by 2036.
- 10 new start-ups per annum, expecting that by the time they exit AFIC, each company would employ on average 15 staff.

- Upskilling of the existing and future workforce including through industry-facing short courses

A clear gap identified in the industry innovation ecosystem is for end-to-end commercial-scale production infrastructure (or 'bespoke manufacturing') whereby a business can scale up and commercialise their production and take their product to market. AFIC is expected to help generate 20-30 new food manufacturing facilities across the Australian food and beverage industry, leading to a financial growth of the industry of about \$680 million per annum after 10 yrs. This will facilitate an increase in employment as new start-up businesses and SMEs grow and expand due to implementation of their innovations leading to further increases in jobs for Victoria and Australia. Estimated new jobs that will be created through AFIC innovation activities for industry will be around 2400 in 10yrs after project inception assuming moderate growth.

AFIC is designed to improve advanced manufacturing in the sector. This collaboration with industry will increase development of technologies and cutting-edge capability to allow the industry to be competitive and world leading. Further, there is scope for scaling of capability and capacity through partnership with the New Zealand Food Bowl which has complementary small scale pilot plant infrastructure that can be tapped into.

A similar gap has been identified in the international Australasian region where the agri-food industry lacks infrastructure to scale food processing from lab to pre-commercial production to test and take new food innovations to markets. CSIRO and La Trobe will leverage and extend the innovation and industry ecosystem via AFIC through current collaborations and networks in Asia such as with Astar in Singapore and the Chinese Academy of Science (CAS), where both R&D and technology transfer is being enhanced through strong partnerships. AFIC will also exploit its strong networks into India and other parts of Asia. Our plan is to extend the innovation ecosystem to South East Asia opening up AFIC infrastructure and capability to Asian agrifood industry to promote and encourage manufacturing into Victoria and Australia. Stakeholder engagement with Asian food manufacturers has also indicated that alternative proteins, precision fermentation and nutrition and wellbeing for consumers are high priorities for the Asian agrifood industry, which will be addressed by AFIC, encouraging possible colocation of for example Singaporean companies into the centre.

Over the past decade there has been a shift of Australian food exports to Asia. This is due to strong population and income growth in the emerging markets of China, India, Indonesia, The Philippines, South Korea, and Vietnam. The share of Australia's agricultural exports to Asia increased from 52% in 2007–08 to over 70% in the most recent years. This demand is expected to increase over the long term and will be a key export market for Australia's beef, milk, sheep meat, wheat and other food products.

A more detailed funding breakdown of the proposal is currently in progress and can be provided on request. It should be noted that the current model has focused predominantly on agriculture and food production, but the impacts of research outcomes (achieved through industry partnerships) will also reduce the economic impact of health-related disease and environmental impact.

La Trobe will continue to provide regular updates to the Commonwealth Government including the House Committee on Industry, Science and Resources on ways in which it can support the establishment of the Australian Food Innovation Centre.