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Committee Secretary
House Standing Committee on Industry, Science and Resources
PO Box 6021
Parliament House
Canberra ACT 2600

Tuesday, 30 April 2024

Submission to the Senate Inquiry on Food and Beverage Manufacturing in Australia

Dear Committee Secretary

Thank you for the opportunity to make a submission to the House of Representatives Standing Committee on Industry, Science and Resources. Attached is our submission provided by academics from the Centre for Agriculture and the Bioeconomy at the Queensland University of Technology (QUT).

Our submission centres around six (6) recommendations for how to advance food and beverage innovation in Australia:

1. Engage in social appraisal of food and beverage technologies.
2. Include a focus on biodiversity-friendly foods.
3. Support small and medium-sized businesses rather than further corporate concentration and centralisation.
4. Ensure innovation does not further ultra-processed food consumption.
5. Develop a considered approach to “new proteins”.
6. Greater support and investment for food upcycling.

Sincerely,
Dr Hope Johnson, Associate Professor Bree Hurst, Dr Ayesha Tulloch, Dr Carol Richards, Dr Rudi Messner and Lakey Lakey.

Submission to Senate Inquiry on Food and Beverage Manufacturing in Australia

About the authors:

The authors are a team of scientists and social scientists from the Centre for Agriculture and the Bioeconomy at Queensland University of Technology (QUT). We are experts in food systems, food law and policy and agricultural innovation. We conduct multidisciplinary researched aimed at bringing about more just, sustainable and healthy food systems.

Dr Hope Johnson is a Senior Lecturer and ARC DECRA Fellow in QUT's Faculty of Business and Law. She researches food and agricultural law and policy.

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Lakey Lakey is a PhD Candidate in the Faculty of Science. He researches legume-based agrifood systems.

Recommendations:

Recommendation 1: Engage in social appraisal of food and beverage technologies

Participatory deliberation of technologies and technological pathways should be a focus when considering how to expand innovation in food and beverage manufacturing. In spaces where food innovation is a focus, too often natural scientists dominate, the goals and processes are narrow, and technological choices are made without adequate consideration of societal impacts and alternatives.[1] 'Opening up' the dialogue around potential technological pathways would lead to a more robust innovation process and build in social

[1] Shelia Jasanoff, 'New Modernities: Reimagining Science, Technology and Development' (2002) 11(3) *Environmental Values* 253 ('New Modernities').

licence from the onset.[2] This involves building ways to engage with public and social scientist knowledge systems to avoid technological lock-in and move towards the development of technologies that better fulfil the public interest.[3] In particular, we suggest a focus on:

- Identifying and understanding stakeholder preferences and values before zeroing in on a particular technology;
- Embedding social and environmental factors into the design, development and execution of technologies; and
- Engaging with ways to find common ground between conflicting views about food technologies.

Recommendation 2: Include a focus on biodiversity-friendly foods

Food innovation generally, and as illustrated in the Terms of Reference, tends to focus on waste reduction and reducing greenhouse gases (GHGs). This misses a key piece in how to make food systems *sustainable*, which is preserving and increasing biodiversity (i.e., the variety and variability of animals, plants, microorganisms, and genetic resources). There is more than a decade of research providing evidence for biodiversity declines and likely species extinctions caused by food production, processing, and trade.[4] Declines of biodiversity in food systems disrupts and damages the land and sea systems that support reliable food production, decreases dietary diversity, and poses a barrier to healthy, resilient, and sustainable food systems.[5] In particular, we suggest:

- Ensure food innovation is sustainable by enabling and incentivising innovation that supports biodiversity.[6] This includes directing resources away from food innovation that supports habitat destruction and monocultures, and ensuring support for food innovation that draws on a diversity of plant varieties.

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[2] Andy Stirling, '"Opening Up" and "Closing Down": Power, Participation, and Pluralism in the Social Appraisal of Technology' (2008) 33(2) *Science, Technology, & Human Values* 262 ('"Opening Up" and "Closing Down"').
[3] Philip Lowe, Jeremy Phillipson and Katy Wilkinson, 'Why Social Scientists Should Engage with Natural Scientists' (2013) 8(3) *Contemporary Social Science* 207.
[4] Abhishek Chaudhary and Thomas Kastner, 'Land Use Biodiversity Impacts Embodied in International Food Trade' (2016) 38 *Global Environmental Change* 195.
[5] See, eg, Lori Ann Thrupp, *What Is Agrobiodiversity?* (Fact Sheet, Training Manual 'Building on Gender, Agrobiodiversity and Local Knowledge', Food and Agriculture Organisation of the United Nations, 2004) <http://www.fao.org/docrep/007/y5609e/y5609e00.htm#Contents>; Barbara Burlingame et al, 'Food Biodiversity and Sustainable Diets: Implications of Applications for Food Production and Processing' in Joyce I Boye and Yves Arcand (eds), *Green Technologies in Food Production and Processing* (Springer US, 2012) 643 <http://link.springer.com/chapter/10.1007/978-1-4614-1587-9_24> ('Food Biodiversity and Sustainable Diets'); Miguel A Altieri, 'The Ecological Role of Biodiversity in Agroecosystems' (1999) 74(1–3) *Agriculture, Ecosystems & Environment* 19; LE Jackson, U Pascual and T Hodgkin, 'Utilizing and Conserving Agrobiodiversity in Agricultural Landscapes' (2007) 121(3) *Agriculture, Ecosystems & Environment* 196.
[6] Ian K Dawson et al, 'Contributions of Biodiversity to the Sustainable Intensification of Food Production' (2019) 21 *Global Food Security* 23.

- Expand reporting standards beyond GHG emissions to include biodiversity and other planetary boundaries, using frameworks such as Science Based Targets for Nature.[7]

Recommendation 3: Support small and medium-sized businesses rather than further corporate concentration and centralisation

Corporate concentration in food systems is a fundamental issue in Australia and globally.[8] Previous food and beverage innovation has driven, and greatly exacerbated, corporate concentration, and as a result has generally not significantly advanced the public interest in sustainability, fair work, and public health.[9] In focusing on opportunities for expanding innovation in food and beverage manufacturing, it is essential to incorporate innovation that supports and increases the number of small businesses and fosters decentralised supply chains. This involves:

- Facilitating food retail diversification and viable alternatives to the supermarket duopoly and the centralised cold chain model more broadly;
- Investing in food innovation manufacturing equipment and ensuring cost-effective access to this equipment by diverse groups;
- Incentivising open access knowledge about a particular technology;
- Supporting small businesses involved in food innovation through grants and incentives even where they are not yet turning a profit;
- Ensuring food retailers allow innovative and healthy products on shelves;
- Including market access and establishment costs into funding and grant designs; and
- Consider options to prevent the further concentration of markets such as ways to avoid small innovative businesses (e.g., craft brewing, organics) being acquired by major food and beverages corporations.

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[7] Nayla Bezares, Gabriela Fretes and Elena M Martinez, 'The Role of Food and Beverage Companies in Transforming Food Systems: Building Resilience at Multiple Scales' (2021) 5(9) *Current Developments in Nutrition* nzab110 ('The Role of Food and Beverage Companies in Transforming Food Systems').
[8] See, eg, Jennifer Clapp, 'The Problem with Growing Corporate Concentration and Power in the Global Food System' (2021) 2(6) *Nature Food* 404; Bree Devin and Carol Richards, 'Food Waste, Power, and Corporate Social Responsibility in the Australian Food Supply Chain' (2018) 150 *Journal of Business Ethics* 199.
[9] Benjamin Wood et al, 'Maximising the Wealth of Few at the Expense of the Health of Many: A Public Health Analysis of Market Power and Corporate Wealth and Income Distribution in the Global Soft Drink Market' (2021) 17(1) *Globalization and Health* 138 ('Maximising the Wealth of Few at the Expense of the Health of Many').

Recommendation 4: Ensure innovation does not further ultra-processed food consumption

Australian diets are high in the consumption of ultra-processed foods yet lower in the consumption of fruit and vegetables.[10] A large body of work shows that high consumption of ultra-processed foods increases the risk of dietary-related non-communicable diseases, depression and mental health issues, and all-cause mortality.[11] CSIRO has recently focused on identifying ways to transition Australian diets away from ultra-processed foods.[12]

The NOVA classification is widely used to identify ultra-processed foods, as foods that result from industrial processes and use a mix of extracts from whole foods as well as additives.[13] They contain a range of ingredients not found in a home kitchen. Common ultra-processed foods include confectionary, breakfast cereals, mass produced baked goods, pre-prepared meals, and soft drinks.

These foods also have a higher environmental cost, generally, than minimally processed or unprocessed foods, as they tend to involve more waste during the processing stage, more energy use for production, and more packaging.[14] Moreover, ultra-processed foods reinforce

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[10] Priscila P Machado et al, 'Ultra-Processed Foods and Recommended Intake Levels of Nutrients Linked to Non-Communicable Diseases in Australia: Evidence from a Nationally Representative Cross-Sectional Study' (2019) 9(8) *BMJ Open* e029544 ('Ultra-Processed Foods and Recommended Intake Levels of Nutrients Linked to Non-Communicable Diseases in Australia').

[11] .See, eg, Leonie Elizabeth et al, 'Ultra-Processed Foods and Health Outcomes: A Narrative Review' (2020) 12(7) *Nutrients* 1955 ('Ultra-Processed Foods and Health Outcomes'); Melissa Lane et al, 'Ultraprocessed Food and Chronic Noncommunicable Diseases: A Systematic Review and Meta-Analysis of 43 Observational Studies' (2021) 22(3) *Obesity reviews : an official journal of the International Association for the Study of Obesity* <https://pubmed.ncbi.nlm.nih.gov/33167080/> ('Ultraprocessed Food and Chronic Noncommunicable Diseases'); Talitha Silva Meneguelli et al, 'Food Consumption by Degree of Processing and Cardiometabolic Risk: A Systematic Review' (2020) 71(6) *International Journal of Food Sciences and Nutrition* 678 ('Food Consumption by Degree of Processing and Cardiometabolic Risk'); Xiaojia Chen et al, 'Consumption of Ultra-Processed Foods and Health Outcomes: A Systematic Review of Epidemiological Studies' (2020) 19(1) *Nutrition Journal* 86 ('Consumption of Ultra-Processed Foods and Health Outcomes'); Clara Gómez-Donoso et al, 'Ultra-Processed Food Consumption and the Incidence of Depression in a Mediterranean Cohort: The SUN Project' (2020) 59(3) *European Journal of Nutrition* 1093 ('Ultra-Processed Food Consumption and the Incidence of Depression in a Mediterranean Cohort').

[12] See, eg, Gilly Hendrie et al, 'Conceptualising the Drivers of Ultra-Processed Food Production and Consumption and Their Environmental Impacts: A Group Model-Building Exercise' <http://hdl.handle.net/102.100.100/488552?index=1> ('Conceptualising the Drivers of Ultra-Processed Food Production and Consumption and Their Environmental Impacts').

[13] Carlos Monteiro et al, *Ultra-Processed Foods,Diet Quality and Health-Using the NOVA-Classification System* (Food and Agriculture Organization of the United Nations, 2019) <https://www.researchgate.net/profile/Geoffrey_Cannon/publication/334945695_FAO_Ultra-processed_foods_diet_quality_and_health_using_the_NOVA_classification_system/links/5d45a462a6fdcc370a79b7aa/FAO-Ultra-processed-foods-diet-quality-and-health-using-the-NOVA-classification-system.pdf>.

[14] K Anastasiou et al, 'A Conceptual Framework for Understanding the Environmental Impacts of Ultra-Processed Foods and Implications for Sustainable Food Systems' (2022) 368 *Journal of Cleaner Production* 133155.

a lack of on-farm biodiversity, as they typically rely on a few uniform ingredients (vegetable oil, wheat flour, sugar etc.), rather than an array of plant varieties.[15]

Currently, food and beverage innovation centres on ultra-processed foods. There is a real risk, then, that enabling further food and beverage innovation without considering the quality of food being produced, will further entrench ultra-processed foods and the multiple adverse health and environmental outcomes. It is therefore essential that food and beverage innovation be redirected away from ultra-processed foods and towards minimally processed foods. In addition, food evaluation systems and approaches need to be expanded to comprehensively deal with the impacts of processing on foods and on the environment.[16]

Recommendation 5: Develop a considered approach to "new proteins"

There is a need to reduce the consumption of products created from intensive animal agriculture.[17] Meat and dairy alternatives can have a role in enabling a dietary transition away from intensive animal agriculture. However, meat and dairy alternatives are often ultra-processed and funded by large corporations rather than through small start-ups and decentralised systems.[18] Too often the term "protein" is emphasised, which reinforces a reductionist understanding of nutrition, given protein is just one macronutrient and there is no protein shortage in Australia or globally (though there are food insecure populations, which is a lack of all major nutrients).[19] In seeking to advance meat and dairy alternatives, the emphasis needs to be on minimally processed alternatives that can be sustainable farmed,

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[15] Allison Gaines et al, 'Deconstructing the Supermarket: Systematic Ingredient Disaggregation and the Association between Ingredient Usage and Product Health Indicators for 24,229 Australian Foods and Beverages' (2021) 13(6) *Nutrients* 1882 ('Deconstructing the Supermarket'); Fernanda Helena Marrocos Leite et al, 'Ultra-Processed Foods Should Be Central to Global Food Systems Dialogue and Action on Biodiversity' (2022) 7(3) *BMJ Global Health* e008269.

[16] Francesco Capozzi et al, 'A Multidisciplinary Perspective of Ultra-Processed Foods and Associated Food Processing Technologies: A View of the Sustainable Road Ahead' (2021) 13(11) *Nutrients* 3948 ('A Multidisciplinary Perspective of Ultra-Processed Foods and Associated Food Processing Technologies').

[17] EAT-Lancet Commission, *Food in The Anthropocene: The EAT-Lancet Commission on Healthy Diets* (The Lancet, 2019) <https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(18)31788-4/fulltext>.

[18] Jennifer Lacy-Nichols, Libby Hattersley and Gyorgy Scrinis, 'Nutritional Marketing of Plant-Based Meat-Analogue Products: An Exploratory Study of Front-of-Pack and Website Claims in the USA' [2021] *Public Health Nutrition* 1 ('Nutritional Marketing of Plant-Based Meat-Analogue Products'); Philip H Howard et al, '"Protein" Industry Convergence and Its Implications for Resilient and Equitable Food Systems' (2021) 5 *Frontiers in Sustainable Food Systems* 284.

[19] Lauren Alex O'Hagan, 'Flesh-Formers or Fads? Historicizing the Contemporary Protein-Enhanced Food Trend' (2021) 0(0) *Food, Culture & Society* 1 ('Flesh-Formers or Fads?'); Bee Wilson, 'Protein Mania: The Rich World's New Diet Obsession', *The Guardian* (online, 4 January 2019) <https://www.theguardian.com/news/2019/jan/04/protein-mania-the-rich-worlds-new-diet-obsession> ('Protein Mania'); Ariel Chen and Göran Eriksson, 'The Mythologization of Protein: A Multimodal Critical Discourse Analysis of Snacks Packaging' (2019) 22(4) *Food, Culture & Society* 423 ('The Mythologization of Protein'); Howard et al (n 18).

such as legumes.[20] Innovation and research support, therefore, needs to be channelled towards meat and dairy alternatives that are sustainable across multiple domains, minimally processed, and led by small and mid-size businesses and decentralised production systems. These kinds of meat alternatives can be enabled through: (a) public procurement, (b) educational campaigns to improve awareness among consumers about healthy and sustainable meat and dairy alternatives, (c) regulation of claims like "plant-based" to ensure accurate information about the product is being conveyed, and (d) development of cross-sector initiatives between farmers and small-scale start-ups that would facilitate market access outside of the prevailing supermarket and cold chain distribution systems.

Recommendation 6: Greater support and investment for food upcycling

Enabling the upcycled food industry is a way to simultaneously address the significant problem of food waste, advance Australia's food manufacturing capabilities, and establish Australia as a world leader in a new food category. Upcycling food encompasses food made using food waste and food surplus. As such, it is a way to keep food designed for human consumption that would have otherwise been wasted within the human food supply chain. Upcycled foods also extends to the conversion of surplus food into vitamins. While the notion of upcycling food is gaining traction in the United States and parts of the European Union, it is still in its infancy in Australia. Work could be done by both industry and government to better support and facilitate increased upcycling in Australia. This includes:

1. Creating grants to organisations of all sizes to encourage upcycling;
2. Establishing targeted subsidies and supports for prototyping and product development for small to medium enterprises (SMEs); and
3. Investing in manufacturing capabilities, such as the creation of regional manufacturing hubs that are close to farms.

[20] Fabio Stagnari et al, 'Multiple Benefits of Legumes for Agriculture Sustainability: An Overview' (2017) 4(1) *Chemical and Biological Technologies in Agriculture* 2 ('Multiple Benefits of Legumes for Agriculture Sustainability').