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Technology & Engineering



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Science

National Committee for
Agriculture, Fisheries and
Food

**SUBMISSION TO THE AUSTRALIAN PARLIAMENT STANDING
COMMITTEE ON AGRICULTURE AND WATER RESOURCES**

An inquiry into growing Australian agriculture to \$100 billion by 2030

14 October 2019

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14 October 2019

Standing Committee on Agriculture and Water Resources

Parliament House

Canberra, ACT

Email: agriculture.reps@aph.gov.au

Dear Standing Committee,

The Australian Academy of Technology and Engineering (ATSE) and the National Committee for Agriculture, Fisheries and Food (NCAFF) of the Australian Academy of Science (AAS) welcome the invitation from the Australian Parliament Standing Committee on Agriculture and Water Resources to comment on the Inquiry into growing Australian Agriculture to \$100 billion by 2030, in particular to discuss *the opportunities and impediments to the primary production sectors realising their ambition to achieve a combined \$100 billion value of production by 2030*.

The Academies have a long standing interest in the future of Australian agriculture and have recently produced three significant reports on this topic:

- Food and Fibre - *Australia's Opportunities* (ATSE 2014)¹
- Australia's Agricultural Future (Australian Council of Learned Academies 2015)²
- Grow. Make. Prosper - *The Decadal Plan for Australian Agricultural Sciences 2017-26* (AAS 2017)³

In addition, in 2016 ATSE held a joint workshop in Beijing with the Chinese Academy of Engineering on 'Technology Advances of Food Safety'.

ATSE and NCAFF commend the National Farmers Federation for its initiative in establishing this ambitious target and for seeking to develop national strategies to achieve its goals. The Academies note that the AgriFutures Australia report '*Agriculture – A \$100b sector by 2030?*'⁴ by ACIL Allen Consulting has estimated, using economic modelling, that at the present rate of growth (approx. 1.5 per cent p.a) the value of the Agricultural, Fisheries and Forestry industries will reach \$83.7 billion by 2030. Therefore to reach \$100 billion by 2030, a significantly higher annual productivity growth rate (approx. 3 per cent) would be required. ATSE and NCAFF additionally note the difficulty of forecasting prices and markets over a long period.

¹ Australian Academy of Technology and Engineering (2014) Food and Fibre – Australia's Opportunities. Available at: <https://www.applied.org.au/wp-content/uploads/2019/01/food-and-fibre-report.pdf>

² Daly, J, Anderson, K, Ankeny, R, Harch, B, Hastings, A, Rolfe, J and Waterhouse, R (2015). Australia's Agricultural Future. Report for the Australian Council of Learned Academies, www.acola.org.au

³ Australian Academy of Science (2017) Grow. Make. Prosper – The decadal plan for Australian Agricultural Sciences 2017-26. Available at: <https://www.science.org.au/files/userfiles/support/reports-and-plans/2017/agricultural-decadal-plan-2017-26.pdf>

⁴ ACIL Allen Consulting (2019) *Agriculture - A \$100b sector by 2030?* AgriFutures Australia Publication No. 19-025. Available at: https://www.acilallen.com.au/uploads/files/projects/256/ACILAllen_AgriFutures_2019-1566966143.pdf



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On the basis of scientific evidence, ATSE and NCAFF believe that this 3 per cent productivity growth target will not be achieved unless the Commonwealth Government addresses the existential threat of climate change to Australian agriculture. For example, the potential wheat yield across the Australian wheat belt has decreased by 27 per cent since 1990 due to a 28 per cent decline in growing season rainfall and a 1°C increase in maximum temperatures (Hochman *et al.* 2017)⁵. In this period actual Australian wheat yields have remained constant despite the best efforts of Australian farmers. Clearly it will not be business as usual for Australian farmers as Australia progresses towards 2°C warming with the associated changes in rainfall in Southern Australia in the 2030-40 timeframe.

ATSE and NCAFF consider that this existential threat to productivity and profitability can be addressed by the immediate development of national strategies with funded policies to implement them in the following areas:

- National Strategy for Climate Change in Agriculture
- National Drought Policy that acknowledges climate change
- National Water Policy that includes projections of future climate change for agriculture
- An Integrated National Energy and Emissions Policy with strong policy frameworks and incentives to encourage farmers to achieve carbon neutrality where feasible

Such strategies must identify actions to prepare Australian Farmers for these current and emerging risks and enable them to grasp any opportunities that may emerge from changing climates and changing customer demands. These opportunities may emerge within the international market chain as well as agricultural production systems and enterprises. Given the challenges of climate change, a considerable portion of the 3 per cent annual growth required to reach the target will need to come from research and innovation both on farm and throughout the international market chain.

ATSE and NCAFF support the NFF's goal to become a Top 20 nation for Innovation Efficiency but believe that such a goal can only be achieved by appropriately funding R & D efforts to translate and fast-track world class research into tools and services that give Australian agriculture a competitive edge internationally. To achieve this, innovation policies must encourage and facilitate private investment in Rural R & D and product development (currently \$1.5 billion p.a.) to play a major role in the commercialisation of public sector research by Universities and CSIRO.

Policy certainty with regard to climate change, drought, water and energy are critical to achieving the necessary innovation but also to facilitate the estimated \$1 trillion of new capital investment required in agriculture to achieve the desired growth rate and ultimate target (ANZ 2012)⁶.

ATSE and NCAFF also acknowledge the excellent work done by ACIL Allen Consulting in identifying the key drivers and risks to achieving this target but considers further research resources in addition to the existing Rural Industry R & D arrangements will be required to address off-farm and on-farm issues specifically related to climate change, energy and carbon neutrality.

⁵ Hochman, Z., Gobbert, D.I., Honan, H. (2017) Climate trends account for stalled Australian wheat yields since 1990. *Global Change Biol.* 23(5) 2071-2081.

⁶ANZ (2012). *Greener Pastures: the global soft commodity opportunity for Australia and New Zealand.*



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Additionally, ATSE and NCAFF have identified the following issues that will require special attention:

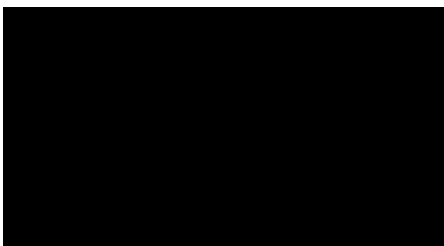
- Ensuring the regulatory environment enables the use of within species gene manipulation techniques that are capable of significantly accelerating genetic improvement of agricultural plants and animals (for example, for developing drought tolerant plant lines capable of high yield)
- ‘Sustainable Intensification’ where agricultural yields are increased without adverse environmental impact and without the conversion of additional non-agricultural land
- Rural Adjustment, which deals with farm businesses experiencing difficult financial circumstances
- The preservation of the natural resource base of Agriculture, Fisheries and Forestry – particularly soil and water

The attainment of this ambitious goal by 2030 will clearly involve a significant expansion of Australian agricultural and food exports. Our current and future export success is based on the production of clean, safe and nutritious food of known provenance from efficient, innovative and sustainable farming systems, as well as a strong, robust biosecurity system to manage the risks of pests and diseases.

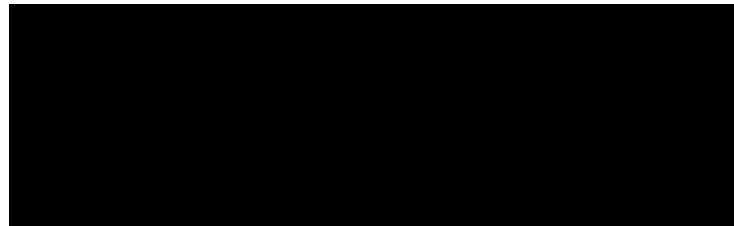
Australia has the opportunity to become a global role model for achieving sustainable production practices and fair, transparent value chains. To preserve this trading advantage Australia must meet its international environmental responsibilities in developing the policies necessary to support the attainment of this ambitious target.

ATSE and NCAFF would be pleased to further assist the Standing Committee in this inquiry as appropriate. The contact at the Academy of Technology and Engineering is [REDACTED]

[REDACTED]



Professor Hugh Bradlow
ATSE President



Professor Barbara Howlett
Chair, NCAFF