



NCCARF

National
Climate Change Adaptation
Research Facility



National Climate Change Adaptation Research Plan: Primary Industries

Summary

A research plan has been developed by the National Climate Change Adaptation Research Facility to identify the research required to ensure that Australia's primary industries will continue to be sustainable, by taking advantage of opportunities and benefits and reducing the negative impacts of unavoidable climate change.

The Plan is concerned with climate adaptation research priorities for agricultural, forestry and freshwater aquaculture producers and industries, associated industries and organisations, rural communities, and governments. It identifies a research program for a 5-7 year time frame and outlines a framework for longer-term climate change adaptation research and response.

Climate change will affect Australia's primary industries sector in highly variable ways depending on the type and location of climate impacts and primary production activities. Individual producers and industries throughout Australia will respond to climate change in line with their circumstances, awareness, knowledge and capacity, in light of emerging government policies and programs.

Climate change adaptation research will build on past and current research, particularly research concerned with responses to climate variability or other external changes. Research outlined in this Plan will also contribute to a considerable body of knowledge about the adaptation responses available to primary industries.

Potential advantages arising from climate change are a key priority for this NARP, including potential complementary benefits such as reducing net greenhouse gas emissions while also increasing the adaptive capacity of the primary industries sector or individual producers, industries or regions.

This Plan identifies three broad areas of research:

1. What does adaptive capacity mean in the primary industry sector and how can it be measured and increased?
2. How can governments, producers and other stakeholders identify the most appropriate adaptation response for a producer, industry or region?
3. What options are available for:
 - adjusting current production practices and technologies;
 - changing production systems;
 - transforming enterprises or industries?

The writing team identified six sub-themes within these broad areas, and devised a series of priority research questions under each sub-theme.

This document provides a summary of this Plan; the full Plan is available online at www.nccarf.edu.au

Research will gain the greatest stakeholder acceptance and use where individual primary producers are involved in the research process through their industry and community organisations and related industries. Stakeholder involvement enhances the relevance of research projects and the capacity of stakeholders to understand how research outputs can best be applied to their concerns to increase their capacity to adapt.



Priority research questions for climate change adaptation and primary industries

Understanding and expanding adaptive capacity

- What is adaptive capacity in the primary industries sector and how can it be measured and increased at the individual, industry, regional and national levels?

Levels of adaptation

- What factors define the effectiveness of different levels of adaptation response: adjusting practices, changing production systems, and transforming enterprises, industries and regions?
- What information, knowledge, tools, programs and policies are necessary for primary producers and industries to identify the range of potential climate change adaptation responses and understand their benefits, costs, risks and opportunities?

Adjusting primary production practices and technologies

- What types of improvements to production practices and technologies exist or could be developed to increase the adaptive capacity of Australia's primary industries, and what practical issues need to be addressed for implementation?
- What adaptations could yield benefits from changing atmospheric and climate conditions, such as increased atmospheric CO₂ and changes in temperature and water availability?

Changing primary production systems

- What characteristics of production system change in primary industries are likely to provide advantage under changed climate conditions?
- What information, knowledge, tools, programs and policies are needed to support effective changes in primary production systems?

Transforming primary production

- What characteristics of transformational change in primary industries are likely to provide advantage under changed climate conditions?
- What information, knowledge, tools, programs and policies are needed to support effective transformative adaptation in primary production systems?
- How can the well-being of individuals and communities unable to undertake transformational changes be maintained?

Integrating, implementing and reviewing adaptation

- How can integrated climate change adaptation response plans be developed at the local, landscape and regional scales?
- How can climate change adaptation requirements, options, benefits and costs be integrated with other information critical to primary producers and industries, and communicated to support successful adaptation being determined and implemented?
- How can adaptation by primary industries be monitored and measured, including assessing synergies, maladaptation and interactions with other sectors, to support ongoing improvements to adaptation approaches and initiatives?

Developing the Plan

The writing team for this Plan comprised Australia's leading professionals researching in the area of primary industries adaptation to climate change. The team was led by Professor Snow Barlow of the University of Melbourne and included Peter Grace, Roger Stone, Mark Gibbs, Mark Howden, John Howieson, David Ugalde, Craig Miller, Richard Eckard and Stuart Rowland.

The National Climate Change Adaptation Research Facility coordinated the development of this Plan, which was then widely disseminated in draft form. A formal period of review of the draft Plan ensured that all interested parties were able to contribute comments.

Criteria for prioritising research questions

The writing team prioritised research under each of the six sub themes according to:

- Severity of impact/degree of benefit
- Immediacy of required intervention/response
- Need to change current intervention/practicality of intervention
- Potential for co-benefit
- Potential to address multiple, including cross-sectoral issues
- Equity considerations

A coordinated national approach to research into primary industries and climate change in Australia

The implementation of the National Climate Change Adaptation Research Plan for Primary Industries will be supported by the Adaptation Research Network for Primary Industries, which is funded by the Australian Government through the National Climate Change Adaptation Research Facility. This Network is hosted by the University of Melbourne, and convened by Professor Snow Barlow.

The aim of both the Plan and the Network is to facilitate a coordinated research effort to address the information needs of decision-makers with respect to adapting Australia's primary industries to the impacts of climate change. This effort will include the identification of sources of research funding and the communication of research outcomes to inform decision making by government and industry.

The Australian Government Department of Climate Change has made an initial investment of \$2m for research addressing priorities in this Plan. This funding will be made available through the Climate Adaptation Research Grants Program and funds will be allocated via an open call for expressions of interest.



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How to get involved: key contacts

If you would like further information about the National Climate Change Adaptation Research Plan: Primary Industries please contact:

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NCCARF expresses its appreciation to the writing team and to the many individuals and organisations who contributed their time and expertise to the development of this Plan.

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