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Foreword

Australia's primary producers face what is both a significant challenge and major opportunity in coming decades – to make a substantial contribution to feeding the world's population. We will need to increase our food production significantly to provide for an estimated nine billion people worldwide by 2050. Regardless of climate change and the need to reduce emissions, this challenge is significant when viewed through the context of future land, water, energy and nutrient availability; land and water quality concerns; policy barriers; and a general decline in the research investment that drives productivity.

Climate change provides a new layer of complexity and diversity, emissions reduction another.

To meet this challenge, our producers and policy makers must be supported by smart, effective and collaborative research. The Climate Change Research Strategy for Primary Industries (CCRSPI) is an integral part of that smarter research effort. It is an important joint initiative under the National Research, Development and Extension (RDE) Framework, supported by all research and development corporations, CSIRO, the states and territories, and the Commonwealth.

CCRSPI's aim is to develop a national RDE roadmap for primary industries to respond to the challenges and opportunities of climate change. It will provide a strategy for delivering a more efficient and effective national research effort.

The inaugural CCRSPI Conference was a unique event: the country's only dedicated primary industries and climate change conference, bringing together scientists, policy makers, industry representatives and producers. Over the three days of the conference there were 326 delegates in attendance, 80 presentations made, nine theme synthesis papers presented, and concurrent sessions held in 11 topic areas. It provided an invaluable opportunity to exchange knowledge, ideas and innovations, and develop a shared vision for how primary industries can tackle the challenge of a changing climate.

The conference, and in particular the synthesis papers presented here, highlight three points that decision makers at all levels need to consider:

- Our knowledge of potential climate change impacts, and options for both adaptation and mitigation, is small compared to what is needed. Additional investment in research and support for innovation is critical.
- Our landscapes and rural communities are under stress. They are often portrayed as being part of battle between environment and production, or the people neglected in favour of urban votes.
- The risk of unforseen or perverse outcomes is high. The need for 'reductionist' research remains as important as ever; however, the need for systems research is vital to understand the complexities of the biophysical, social and financial implications of climate change and related policies.

The conference program included many farm case studies presented by the producers themselves. Their stories were a highlight, demonstrating their great ability to adapt and innovate, born from generations of productivity in one the driest and most variable countries in the world.

A tremendous research effort in climate change and primary industries is underway, and is documented in these synthesis papers. Australian researchers have an opportunity to lead the world in climate-smart primary production systems, while Australian primary producers and decision-makers have an opportunity to feed the world in a changing climate. It is up to us all to take up the opportunities on offer by supporting a smart and efficient national research effort. I hope this collection of papers will inform and inspire.

Dr Michael Robinson
Former CCRSPI Chair, Executive Director and Chair Conference Organising Committee.

