

Introduction

Background to the inquiry

- 1.1 On 11 August 2015, the Minister for Agriculture, the Hon. Barnaby Joyce MP, wrote to the Committee requesting that it inquire into and report on the role of technology in increasing agricultural productivity in Australia.
- 1.2 On 13 August 2015, the Committee adopted the terms of reference referred by the Minister and commenced its inquiry into agricultural innovation. In accordance with the terms of reference, particular regard was given to:
 - improvements in the efficiency of agricultural practices due to new technology, and the scope for further improvements;
 - emerging technology relevant to the agricultural sector, in areas including but not limited to telecommunications, remote monitoring and drones, plant genomics, and agricultural chemicals; and
 - barriers to the adoption of emerging technology.

Conduct of the inquiry

- 1.3 The inquiry was advertised on 13 August 2015. Submissions were invited from state governments, a range of Australian Government departments, researchers and research bodies, and industry groups.
- 1.4 The Committee received 116 submissions and 16 supplementary submissions. A full list of submissions can be found in Appendix A. In addition, 12 exhibits were presented to the committee, which are listed in Appendix B.

- 1.5 The Committee held 15 public hearings, 11 of which were conducted in Canberra, two in Victoria (Wodonga and Melbourne), and two in New South Wales (Armidale and Sydney). A wide range of witnesses gave evidence to this inquiry, and their names and organisations are listed in Appendix C.
- 1.6 Three site inspections were also conducted during the inquiry. In January, the Committee visited the Alpine Valleys Dairy Pathways Project in the Kiewa Valley where it met with the representatives of the Project and members of the local community. In April, the Committee visited the University of New England's Kirby SMART Farm in Armidale, and the Australian Centre for Field Robotics at the University of Sydney.
- 1.7 The Committee wishes to thank to all those who facilitated its site inspections. Having the opportunity to visit these hubs of agricultural innovation in person made a valuable contribution to the Committee's inquiry.
- 1.8 The Committee also expresses its appreciation to all stakeholders who made written submissions to the inquiry or who took the time to meet with the Committee. The Committee acknowledges their significant contribution to the inquiry overall.

Structure of the report

- 1.9 The report consists of six chapters and four appendices.
- 1.10 Chapter 2 provides an overview of the structure of the Australian agriculture industry, including a brief summary of the roles of government and industry bodies. The chapter also addresses the first term of reference, providing some background information and case studies in relation to agricultural productivity improvements made in the past, and describes the current state of the agriculture sector in relation to productivity.
- 1.11 Chapter 3 addresses the second term of reference, by describing emerging technologies the Committee had heard about, and highlighting their potential to improve agricultural productivity into the future.
- 1.12 The remainder of the report – Chapters 4 to 7 – addresses the inquiry's final term of reference: barriers to the adoption of emerging technology. Each chapter focuses on a different set of barriers identified by evidence to the inquiry, and makes recommendations for government action targeted at overcoming these barriers.

- 1.13 Chapter 4 focuses on the role of telecommunications and data infrastructure in the agriculture of the future, and addresses issues relating to access to mobile and internet services, and factors impeding the adoption of data services in agriculture.
- 1.14 Chapter 5 addresses a range of barriers to innovation as they pertain to human capital, including workforce issues in agriculture, access to appropriate education for future members of the sector, and ensuring the industry is able to attract and retain the expertise required to drive research in agricultural innovation.
- 1.15 Chapter 6 focuses on the relationships between different stakeholders in the sector, and industry collaboration with government. It establishes the need for better cooperation and partnerships across the sector, and looks at the establishment of national priorities for research, development and extension in agriculture.
- 1.16 The final chapter of this report addresses the regulatory framework within which agricultural innovation takes place. Specifically, Chapter 7 considers some of the regulatory barriers to the development and adoption of innovation in agriculture, and makes recommendations for changes.
- 1.17 Throughout the report, readers will find references to a range of inter-related terms used to denote the process of innovation, encompassing education, research, development, extension and adoption. For example, while the term 'research and development' (R&D) has been used traditionally, more recently the trend has been to use alternatives which specifically acknowledge other important parts of the innovation process, such as 'research, development and extension' (RD&E).
- 1.18 In this report, such terms are used interchangeably, in acknowledgment of the fact that, while different stakeholders will wish to emphasise different parts of the innovation process, the entire process is relevant to the Committee's consideration of agricultural innovation.
- 1.19 Where references are made to evidence received by the Committee, the report will generally use the terminology offered by each witness. Otherwise, for the sake of simplicity and brevity, the report gives preference to 'R&D' being used to refer to the innovation process, while acknowledging that this process encompasses much more than simply 'research' or 'development'.

- 1.20 The majority of submissions to the inquiry focused on land-based food and fibre production. Deakin University considered agriculture to include fishing and aquaculture,¹ as did the National Rural Women's Coalition.²

1 Deakin University, *Submission 28*, p. 2.

2 Dr Patricia Hamilton, President, National Rural Women's Coalition, *Committee Hansard*, Canberra, 3 March 2016, p. 10.