SOUTH AUSTRALIAN AGRICULTURE:
A NARRATIVE TO ENCOURAGE FUTURE POLICY REFORM

Simon James Fielke
Bachelor of Environmental Policy and Management
Bachelor of Environmental Studies (Honours)
University of Adelaide

Thesis submitted for the degree of Doctor of Philosophy
Discipline of Geography, Environment and Population
Faculty of Humanities and Social Sciences
University of Adelaide

October 2014
TABLE OF CONTENTS

TABLE OF CONTENTS .................................................................................................................. ii
LIST OF TABLES ........................................................................................................................ vi
LIST OF FIGURES ......................................................................................................................... viii
ABSTRACT .................................................................................................................................. ix
DECLARATION .............................................................................................................................. x
ACKNOWLEDGEMENTS ............................................................................................................... xi
PREFACE ...................................................................................................................................... xii
ABBREVIATIONS AND ACRONYMS ......................................................................................... xiii

CHAPTER 1: INTRODUCTION ......................................................................................................... 1

1.1 Introduction ............................................................................................................................ 1
1.2 Primary concern ....................................................................................................................... 1
1.3 Purpose of the study ............................................................................................................... 2
1.4 Gaps in knowledge – the research questions addressed ....................................................... 2
1.5 Study outline ......................................................................................................................... 3
1.6 Conclusion ............................................................................................................................. 4

CHAPTER 2: HISTORICAL BACKGROUND TO SOUTH AUSTRALIAN AGRICULTURAL CONCERNS ......................................................................................................................... 5

2.1 Introduction ............................................................................................................................ 5

2.1.1 The early years of settlement (1836-1962) ...................................................................... 5
2.1.2 Conventional farming dominates despite increased environmental recognition
(1963-1980) .............................................................................................................................. 8
2.1.3 Sustainable development and agriculture (1981-2000) .................................................... 10
2.1.4 Relying on science and technology to increase productivity (2001-2012) ....................... 14
2.1.5 Current policy settings (2013-present) ........................................................................... 17
2.2 Why choose South Australia? Introducing two theoretical pathways .......................... 20

2.2.1 Business as usual ............................................................................................................... 21
2.2.2 Imagining a multifunctional future .................................................................................. 23
2.3 Conclusion ............................................................................................................................. 26

CHAPTER 3: EXAMPLES OF ALTERNATIVE PARADIGMS OF PUBLIC AGRICULTURAL SUPPORT .............................................................................................................................. 28

3.1 Introduction ............................................................................................................................ 28
3.2 Global examples of agricultural governance ................................................................... 28

3.2.1 Canada ............................................................................................................................... 29
3.2.2 China ................................................................................................................................. 30
3.2.3 The USA ........................................................................................................................... 31
3.2.4 Brazil ................................................................................................................................. 31
3.2.5 Why not examine these examples in more detail? .................................................. 32
3.3 The European alternative ................................................................................................. 32
  3.3.1 A brief history of the CAP ...................................................................................... 32
  3.3.2 The United Kingdom example of recent CAP reforms ........................................... 35
  3.3.3 Criticisms of the CAP ............................................................................................ 37
3.4 Conclusion ....................................................................................................................... 39

CHAPTER 4: RESEARCH DIMENSIONS, METHOD AND RESPONDENT
CHARACTERISTICS .............................................. 40
4.1 Introduction ..................................................................................................................... 40
4.2 Dimensions of the study ............................................................................................... 40
  4.2.1 The audience ........................................................................................................... 40
  4.2.2 The purpose ............................................................................................................ 41
  4.2.3 Time ....................................................................................................................... 43
  4.2.4 Techniques ............................................................................................................. 43
4.3 Limitations ..................................................................................................................... 44
4.4 Mixed method participatory approach ........................................................................... 45
  4.4.1 The quantitative South Australian farmer survey .................................................. 47
  4.4.2 An innovative blended learning process ................................................................. 48
  4.4.3 Pilot study survey ................................................................................................... 49
  4.4.4 Online state-wide survey ........................................................................................ 52
  4.4.5 Region and industry specific mail-out survey ....................................................... 53
  4.4.6 Survey data analysis ............................................................................................... 56
  4.4.7 Qualitative interview data ...................................................................................... 57
  4.4.8 South Australian agricultural governance stakeholder interviews ..................... 58
  4.4.9 United Kingdom agricultural governance stakeholder interviews ...................... 59
  4.4.10 Interview data analysis ........................................................................................ 59
4.5 Characteristics of survey respondents and their farms ................................................. 60
  4.5.1 Respondent characteristics and data grouping for statistical analysis ............... 61
  4.5.2 Variation across groupings .................................................................................... 66
4.6 Conclusion ..................................................................................................................... 71

CHAPTER 5: FARMER PRIORITIES AND PERCEPTIONS OF RISK ............ 72
5.1 Introduction ..................................................................................................................... 72
5.2 Overall results in regard to respondent priorities and perceptions of risk ................. 73
5.3 Online versus mail-out survey respondents – differences in perceptions .................... 84
5.4 Loxton versus Barossa Light respondents – differences in perceptions ..................... 85
5.5 Cropping and livestock versus horticultural and viticultural respondents –
differences in perceptions ................................................................................................. 86
5.6 Property size groupings mirror industry groupings ............................................ 87
5.7 Generations of property ownership – variations in perceptions ......................... 89
5.8 The effect of receiving government support on respondent perceptions ................. 89
5.9 Education level of respondents – effects on perceptions .................................... 90
5.10 The effect of respondent age on perceptions .................................................... 91
5.11 Conclusion ........................................................................................................... 92

CHAPTER 6: FARMER OPINIONS OF GOVERNMENT SUPPORT ......................... 94
6.1 Introduction ........................................................................................................... 94
6.2 Respondent opinions on government support for South Australian agriculture .... 94
6.3 Online versus mail-out – government support opinions .................................... 104
6.4 Loxton versus Barossa-Light – government support opinions ......................... 105
6.5 Cropping and livestock versus horticultural and viticultural respondents – government support opinions ................................................................. 106
6.6 Small versus larger property sizes – government support opinions ................. 108
6.7 Recipients versus non-recipients – government support opinions ................... 109
6.8 Education level – effect on government support opinions ............................... 110
6.9 Effect of age on respondent government support opinions .............................. 113
6.10 Conclusion ........................................................................................................... 114

CHAPTER 7: THE FUTURE OF SOUTH AUSTRALIAN AGRICULTURE CONSIDERING LIKELY POLICY DIRECTIONS ...................................................... 115
7.1 Introduction ........................................................................................................... 115
7.2 A lack of government support .............................................................................. 115
7.3 The complexity of agricultural policy in South Australia – a balancing act .......... 118
7.4 Improving education levels and encouraging innovation .................................. 122
7.5 Conclusion ........................................................................................................... 127

CHAPTER 8: OPTIONS TO INCREASE THE MULTIFUNCTIONALITY OF AGRICULTURE AND BROADER THEORETICAL IMPLICATIONS ...................... 129
8.1 Introduction ........................................................................................................... 129
8.2 Option 1: An example of state intervention through the CAP in England .......... 129
8.2.1 Concerns about agricultural governance in England ...................................... 131
8.2.2 English agricultural governance priorities ..................................................... 133
8.2.3 CAP relevance to South Australian neoliberal capitalist productivism ........ 136
8.3 Option 2: Alternative, community-based agricultural organisation ................. 139
8.3.1 The example of farmers’ markets ................................................................. 141
8.3.2 Benefits of alternative agricultural organisation ......................................... 143
8.4 Option 3: Increased farmer education ............................................................... 144
8.4.1 Applications of ecocentric education .............................................................. 145
8.4.2 The role of farmer education ................................................................. 146
8.5 Broad theoretical implications of the study findings and barriers to multifunctional agriculture ................................................................. 147
  8.5.1 Education and cooperation to increase agricultural agency .............. 148
  8.5.2 Overcoming barriers to multifunctionality ........................................... 151
8.6 Conclusion ................................................................................................. 154

CHAPTER 9: ENCOURAGING AN EDUCATED SOCIAL DEMOCRACY IN AUSTRALIA AND FINAL POLICY RECOMMENDATIONS ................................. 155
9.1 Introduction ................................................................................................. 155
9.2 Social democracy to improve farmer education levels and support socio-environmental public goods ......................................................... 156
9.3 Three policy recommendations ................................................................. 157
9.4 Further research options ............................................................................ 161
9.5 Conclusion ................................................................................................. 161
APPENDIX A – REFORMATTED PILOT SURVEY .............................................. 163
APPENDIX B – REFORMATTED ONLINE SURVEY ......................................... 171
APPENDIX C – REFORMATTED MAIL-OUT SURVEY .................................... 180
REFERENCES ................................................................................................. 188
LIST OF TABLES

Table 2.1: Decline in the number of farms in South Australia .......................................................16
Table 2.2: Key structural elements of productivist, multifunctional and post-productivist agricultural regimes .........................................................................................24
Table 3.1: Options to increase support to agriculture ranging from heavy state intervention to market-based ..............................................................................................................28
Table 3.2: Theoretical benefits and costs of top-down European multifunctionality and bottom-up Australian multifunctionality ...........................................................................39
Table 4.1: Intensive and extensive research: A summary ...................................................................49
Table 4.2: Comparison of 2011 census data for all agriculturalists and mail-out survey response numbers for Loxton and Barossa-Light case study regions ........................................56
Table 4.3: Non-parametric tests used in survey analysis to determine variation .............................57
Table 4.4: South Australian agricultural governance stakeholder respondent details .................59
Table 4.5: United Kingdom agricultural governance stakeholder respondent details ...............60
Table 4.6: Local Government Area of respondents’ properties .....................................................62
Table 4.7: Primary agricultural activity of respondents ....................................................................64
Table 4.8: Grouping categories for analysis .....................................................................................66
Table 4.9: Survey format by selected variables ................................................................................67
Table 4.10: Case study region by selected variables .........................................................................68
Table 4.11: Industry grouping by selected variables .......................................................................70
Table 4.12: Property size by generations of ownership .................................................................71
Table 5.1: The importance of various agricultural land use values ..................................................73
Table 5.2: Summaries of how respondents were achieving the land use outcomes important to them ........................................................................................................................................74
Table 5.3: Future sustainability outcomes as perceived by respondents ...........................................76
Table 5.4: Comments about the future of their property, community and wellbeing made by respondents ................................................................................................................................................77
Table 5.5: Risks to the agricultural pursuits of respondents ............................................................80
Table 5.6: Respondent’s recognition of future risks to their farm businesses ...............................80
Table 5.7: Opinions of respondents on the future of South Australian agriculture as a whole ......................................................................................................................83
Table 5.8: Priorities, future outcomes and risks across online and mail-out survey formats ..........85
Table 5.9: Priorities, future outcomes and risks across the two case study regions, Loxton and Barossa-Light ................................................................................................................86
Table 5.10: Priorities, future outcomes and risks across the two industry groupings, cropping-livestock and horticulture-viticulture ..................................................................................87
Table 5.11: Priorities, future outcomes and risks across the two property size groupings ............88
Table 5.12: Priorities and future outcomes across the generations that the respondent’s
LIST OF FIGURES

Figure 2.1: Map of South Australian agricultural expansion in first the 100 years of settlement including peri-urban (Barossa-Light) and rural (Loxton) case study regions ................................................................. 6

Figure 2.2: Government subsidies as a percentage of gross farm revenue in various countries, 1995-1997 and 2008-2010 ................................................................. 13

Figure 2.3: Trends in Federal and South Australian public agricultural support .................. 19

Figure 2.4: Diagram showing the cyclical nature of capitalist productivism in both profitable and unsustainable years for Australian farmers ........................................ 22

Figure 2.5: The transition to multifunctional resource use of agricultural space in Australia: Driving forces and outcomes ................................................................. 25

Figure 3.1: Variations in government support as a percentage of farm revenue for selected countries (2008-2010) and primary support mechanisms ........................... 29

Figure 3.2: Historical development of the CAP ............................................................... 33

Figure 4.1: The epistemological continuum ................................................................. 41

Figure 4.2: Study flow chart over time from top to bottom highlighting research questions (RQ) answered by each element of the study in italics ........................................ 46

Figure 4.3: Dates mail-out surveys were received .......................................................... 55

Figure 4.4: Spatial presentation of Local Government Areas of survey respondents with case study regions highlighted ................................................................. 63

Figure 4.5: Highest level of education attained for all South Australian agricultural industry employees, survey respondents and all other industry employees, 2011 .......................... 65

Figure 4.6: Relative location of the two mail-out survey case study areas, Barossa-Light and Loxton ........................................................................................................ 69

Figure 5.1: Age categories of all South Australian agricultural industry employees compared to all other industry employees, 2011 .................................................. 78

Figure 5.2: Respondents’ perceptions of the overall sustainability of South Australian agriculture (n=235) ....................................................................................... 82

Figure 6.1: Responses to government support mechanisms among respondents with small and larger property sizes ........................................................................... 109

Figure 6.2: Responses to government support concerns among respondents for those who received some form of government support in the last ten years and those who did not ........................................................................................................ 110

Figure 6.3: Responses to government support concerns among respondents according to highest level of education ........................................................................... 112

Figure 8.1: Existing agricultural options displayed in terms of political and agricultural priorities ........................................................................................................ 148
South Australian agriculture has been production and export orientated since soon after European settlement. The associated cultural implications have influenced, and been influenced by, the neoliberal capitalist form that has framed Australian and South Australian governance since the 1980s. An extreme wave of neoliberal productivism has been encouraged that has led to numerous critiques of this pathway, especially in regard to the sustainability of socio-environmental outcomes of agricultural land use. The social and environmental consequences of agricultural land use are rarely explicitly valued or supported by policy in South Australia, however a multifunctional shift is occurring in other wealthy nations, which involves the increased valuation of the multiple functions of agricultural systems. This thesis examines the implications of liberal governance on agricultural stakeholders in South Australia in an effort to understand and address specific criticisms to help plan for a more multifunctional future.

South Australian farmers and agricultural governance stakeholders were asked to describe their opinions on current policy and outline their perceptions of what framework was required to facilitate a multifunctional agricultural industry. Four key research questions are addressed concerning: the self-perceived priorities of South Australian farmers; farmer perceptions of agricultural governance institutions; South Australian agricultural governance stakeholders’ perceptions of their roles; and, whether there are other, more appropriate policy mechanisms available to increase the sustainability of South Australian agriculture.

The original contribution to knowledge includes a survey of South Australian farmers’ perceptions of current policy settings, with a spatial focus around the rural Riverland town of Loxton and the peri-urban Barossa Valley. Three policy recommendations, which are deduced from primary and secondary data analysis, form the main conclusions. Firstly, farmers themselves, and future policy, must recognise the importance of education to generate resilient agri-businesses, as education level is shown to alter respondents’ priorities, increase the multifunctionality of land use, and reduce dependence upon government assistance. Secondly, to maximise the benefits of any policy implemented it must be flexible, community-focused to encourage cooperation, and avoid regulatory complexity to ensure farmer support. For example, a highly bureaucratic system, such as the European Union’s Common Agricultural Policy, that governs agriculture in the United Kingdom, is unlikely to be popular in the South Australian context. Finally, if the first two recommendations are combined into policy settings that encourage public-private partnerships in the agricultural sector, and increase explicit support mechanisms for social and environmental outcomes from farming, there will be beneficial implications for the long-term sustainability of agriculture in South Australia.
DECLARATION

I certify that this work contains no material which has been accepted for the award of any other degree or diploma in my name, in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text. In addition, I certify that no part of this work will, in the future, be used in a submission in my name, for any other degree or diploma in any university or other tertiary institution without the prior approval of the University of Adelaide and where applicable, any partner institution responsible for the joint-award of this degree.

I give consent to this copy of my thesis when deposited in the University Library, being made available for loan and photocopying, subject to the provisions of the Copyright Act 1968.

The author acknowledges that copyright of published works contained within this thesis resides with the copyright holder(s) of those works.

I also give permission for the digital version of my thesis to be made available on the web, via the University’s digital research repository, the Library Search and also through web search engines, unless permission has been granted by the University to restrict access for a period of time.

SIGNED: __________________________________________ DATE: _____
The Author would like to thank a few people without whom this work would not have been possible. Firstly, thanks to my primary supervisor Dr Douglas Bardsley for his support over the last three and a half years. I must also thank my co-supervisors Dr Dianne Rudd and Dr Brett Bryan who have helped me along my journey. Thanks must go to the Discipline of Geography, Environment and Population at the University of Adelaide and the Sustainable Agriculture Flagship of the CSIRO for the financial support that allowed me to complete this work. I would also like to thank John Tibby, Jennifer Bonham and Dianne Rudd for giving me the opportunity to teach during my candidature.

I am indebted to the South Australian farmers who completed the questionnaire, as well as the South Australian and English interviewees who took the time out of their busy lives to be interviewed. Whilst in Plymouth conducting fieldwork I was also fortunate enough to be hosted by Geoff Wilson, Ian Whitehead and the Plymouth University. This was a wonderful experience for which I am truly grateful and will never forget.

I would also like to thank Rhiannon Niven and Nicole Fielke for sharing their ideas and for their proofreading and Chris Crothers for her cartographic skills. My parents Chris and Julie, along with my brother Damian, have also helped me develop over the years so I owe a lot to them. Finally, I would like to thank my wonderful partner Sophie Hage and her family for their support and encouragement.
Sections of this thesis have been used to form papers that are under peer-review, have been accepted for publication, and have been published in various journals and books. To make this clear each paper has been referenced the same as any other reference in this work, when the relevant material has been used. The details of each paper can be found in the reference section at the end of the thesis. A guide to where each publication features is also included below for the sake of convenience.

Chapter 2 – Contains edited work from this paper (Fielke and Bardsley, 2015a).

Chapter 2 and section 8.3 – Ideas and conclusions from this paper (Fielke and Bardsley, 2013).

Chapter 3 and section 8.3 – Contains edited work from this book section (Fielke, 2015).

Chapters 4-6 – Results contribute to this paper (Fielke and Bardsley, 2015b).

Chapters 4-6 and section 8.4 – Results and discussion contribute to this paper (Fielke and Bardsley, 2014).

Chapter 7 and section 8.2 – Results and discussion contribute to this paper (Fielke and Wilson, Submitted).

All tables and figures containing data from the surveys conducted for this project are referenced ‘South Australian farmer survey, 2011-2012’. Abbreviations and acronyms are also expanded once at the beginning of each chapter in case readers are unfamiliar with the term and are only interested in particular sections of the study.
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABS</td>
<td>Australian Bureau of Statistics</td>
</tr>
<tr>
<td>ABARE</td>
<td>Australian Bureau of Agricultural and Resource Economics</td>
</tr>
<tr>
<td>CAP</td>
<td>Common Agricultural Policy</td>
</tr>
<tr>
<td>DEWNR</td>
<td>Department of Environment, Water and Natural Resources</td>
</tr>
<tr>
<td>DEFRA</td>
<td>Department of Environment, Food and Rural Affairs</td>
</tr>
<tr>
<td>DOA</td>
<td>Department of Agriculture</td>
</tr>
<tr>
<td>EMS</td>
<td>Environmental Management Systems</td>
</tr>
<tr>
<td>EC</td>
<td>Exceptional Circumstances</td>
</tr>
<tr>
<td>EU</td>
<td>European Union</td>
</tr>
<tr>
<td>FPA</td>
<td>Farmers’ Professional Association</td>
</tr>
<tr>
<td>FSC</td>
<td>Farmers’ Specialised Cooperative</td>
</tr>
<tr>
<td>GATT</td>
<td>General Agreement on Tariffs and Trade</td>
</tr>
<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
</tr>
<tr>
<td>GVAP</td>
<td>Gross Value of Agricultural Production</td>
</tr>
<tr>
<td>MEP</td>
<td>Member of European Parliament</td>
</tr>
<tr>
<td>NAFTA</td>
<td>North American Free Trade Agreement</td>
</tr>
<tr>
<td>NASAA</td>
<td>National Association for Sustainable Agriculture in Australia</td>
</tr>
<tr>
<td>NFF</td>
<td>National Farmers’ Federation</td>
</tr>
<tr>
<td>NFU</td>
<td>National Farmers’ Union</td>
</tr>
<tr>
<td>NLP</td>
<td>National Landcare Program</td>
</tr>
<tr>
<td>NRAC</td>
<td>National Rural Advisory Council</td>
</tr>
<tr>
<td>NRM</td>
<td>Natural Resource Management</td>
</tr>
<tr>
<td>OECD</td>
<td>Organisation for Economic Cooperation and Development</td>
</tr>
<tr>
<td>PIRSA</td>
<td>Primary Industries and Regions South Australia</td>
</tr>
<tr>
<td>RPA</td>
<td>Rural Payments Agency</td>
</tr>
<tr>
<td>SA</td>
<td>South Australia</td>
</tr>
<tr>
<td>SAFF</td>
<td>South Australian Farmers’ Federation</td>
</tr>
<tr>
<td>TDM</td>
<td>Tailored Design Method</td>
</tr>
<tr>
<td>UK</td>
<td>United Kingdom</td>
</tr>
<tr>
<td>UN</td>
<td>United Nations</td>
</tr>
<tr>
<td>USA</td>
<td>United States of America</td>
</tr>
<tr>
<td>WTO</td>
<td>World Trade Organisation</td>
</tr>
</tbody>
</table>