

Final Report

1. Project Information

GRDC Project No:

Line of Business

Program

Project title

Commencement date

Completion date

Number of years

2. Contact Information

Project Supervisor Contact

Title	Initials	First name	Family name (Surname)
Dr	G	Glenn	McDonald

Position

Name of organisation

Australian Business Number (ABN) *if applicable*

Mailing address

PMB 1 Waite Campus			City/Town/Suburb	Glen Osmond	
State	SA	Post Code/Zip Code	5064	Country	Australia

Telephone number (office)

Fax number (office)

E-mail address

Administration Contact

Title	Initials	First name	Family name (Surname)
Ms	C	Chelsea	DuBois

Position

Telephone number (office)

Fax number (office)

E-mail address

3. Budget Summary

Financial Year	2009 2010 \$	2010 2011 \$	2011 2012 \$	2012 2013 \$	2013 2014 \$	\$	Total \$
Total GRDC \$ Agreed (excl GST)	202,029	202,029	202,029	202,029			808,116

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4. Project Summary

The Eyre Peninsula Grain & Graze 2 project, jointly funded by GRDC and Caring for Our Country, developed and promoted the adoption of production practices in mixed farming systems on Eyre Peninsula that improve whole farm profitability and sustainability. This was achieved by assisting farmers with decision making skills and identifying profit drivers by participating in farmer forums (Sheep groups). Research and extension into grazing cereals, the impact of livestock on soil health and the investigation of suitable perennials for Eyre Peninsula was undertaken to further assist farmers with decision making, filling feed gaps and maintaining soil cover.

5. Outcome Benefits

The following changes in practice were recorded as a result of the EP Grain & Graze 2 project:
304,781 ha of enterprise selection, location and interaction are informed using land capability assessment compared to 2009 levels.
16,454 ha additional area of perennials species grown on marginal cropping land or as part of a crop rotation.
181,140 ha of land is managed to enhance the capture and storage of rainfall in the soil through the use of grazing cereals.
122 more farmers now use improved land class knowledge to adopt practices and enterprise mixes that are more appropriate for the land class and climatic conditions (increased % of all crop grown on more suitable crop land).
Farmers adjust livestock numbers, duration, intensity of grazing and using other feeding regimes (containment areas) to improve profit while maintaining groundcover targets. The number of farmers NOT using strategies to improve usage of the whole farm feed base declined from 72 to 61. There was a shift to using even more strategies from 2010 to 2013 results.

Source: Roberts, Grain and Graze 2: Draft Impact Report 2013

These practice changes are providing economic, environmental and social benefits for mixed farmers on Eyre Peninsula.

C Farm results: increase in profitability of \$9.6 million annually, or \$38.4 million over the life of the project (2010 to 2013).

Source: Nicholson, Outcomes of the Grain and Graze 2 program (2010 to 2013)

6. Pesticide and Herbicide Research

Did this project conduct research on pesticide and herbicide products?

No

Yes List the active ingredients, rate and timing

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7. Outputs

Reproduce any outputs not previously reported against

Output 1	Planned delivery date	Achieved
	31/12/2013	Yes

Description

Project Management: EP Grain & Graze 2 contract signed.
 Project Management Committee established and planning and progress meetings held 3 times per year.
 Project Coordinator appointed [Project Management Committee supported. Project activities recorded and evaluated. Delivery of WUE Evaluation entry/baseline survey and exit surveys. EPFS Summary of research results produced annually. Communications strategy implemented. Annual reports submitted. Final report submitted.]
 Research Officer appointed.

Achievement prior to this report

Achievement for this reporting period

All project management requirements met as per output 1 description.

Achievement of commercialisation details

Not applicable.

Non-achievement details

Not applicable.

Output 2	Planned delivery date	Achieved
	31/12/2013	No

Description

Adaptive Management: activities delivered including Farmer Forums, Practice Balance Sheets and supporting activities such as Profitability & Risk workshops or Agricultural Financial Forums delivered as required from the Adaptive Management 'pool'.
 4 groups meet twice annually.
 Practice balance sheets developed and distributed.

Achievement prior to this report

Achievement for this reporting period

Sheep Groups - 4 groups met at least 3 times annually, exceeding the target. By the completion of the project, 6 Sheep Groups were operating successfully across EP, with efforts being made to seek funding for continuation. Profitability & Risk - 6 groups of young farmers have participated in 'Introduction to Farm Finance and Risk Management' workshops. Profitability & Risk workshops being delivered by Krause in 2014.

Achievement of commercialisation details

Not applicable.

Non-achievement details

Besides the @risk workshop with bankers, accountants and advisors, Agricultural financial forums not held. Practice balance sheets did not evolve as stand alone documents, articles supporting decision making for changed practices were produced for the EP Farming Systems Summaries (2009-2012).

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Output 3	Planned delivery date	Achieved
	31/03/2013	Yes

Description

Research Growing and Using Biomass:
Growing biomass: 1. Find suitable perennials for grazing in low rainfall areas 2. Trial techniques for the establishment of woody forage species in low rainfall environments.
Using biomass: 1. Grazing cereals on upper Eyre Peninsula 2. Grazing cereals on lower Eyre Peninsula 3. Determine the impact sheep have on soil health in a low rainfall mixed farming system.

Achievement prior to this report

Achievement for this reporting period

All trials undertaken and completed. See attached report for results.

Achievement of commercialisation details

Not applicable.

Non-achievement details

Not applicable.

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8. Milestones

Milestone number:	Planned achievement date	Achieved
1	30/06/2010	Yes

Description

Signing of contract, establishment of independent steering committee including formal notification of committee members to the GRDC.

Achievement prior to this report

Achievement for this report

Contracts signed. Steering Committee established, membership included Dr Glenn McDonald, Peter Kuhlmann, Dean Willmott, Matthew Dunn, Andy Bates, Ed Hunt, Brent Cronin, Bruce Heddle, Dr Annie McNeill, Dr Nigel Wilhelm, Sam Doudle, Mark Stanley, Bryan Smith, Mark Fitzgerald, Simon Guerin, Jordan Wilksch, Craig James, Roy Latta, with Naomi Scholz providing executive support for the committee.

Milestone number:	Planned achievement date	Achieved
2	30/09/2012	Yes

Description

Project Management Committee planning and progress meetings held.

Achievement prior to this report

Achievement for this report

A total of 33 project management related meetings were held over the life of the project, to discuss project development and progress, research issues and trial design, results and extension activities.

Milestone number:	Planned achievement date	Achieved
3	30/06/2013	Yes

Description

8 regional farmer forums across the EP conducted and reported to the GRDC.

Achievement prior to this report

Achievement for this report

5 specific farmer forums were conducted - 4 x Sheep Forum - 'More Profit, Less Hassle' across Eyre Peninsula, and 1 x Enrich Grazing Perennial Shrubs Forum. 26 x whole farm 'farmer meetings', where farmers were presented with EP G&G 2 research results and discussed applicability to their farm systems and future issues for mixed farming systems were held through the life of the project. The Sheep Groups met 35 times.

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Milestone number: 4	Planned achievement date	Achieved
	30/06/2010	Yes

Description

Implementation of activities (eg replicated trials, strip trials, demonstrations) at selected sites to achieve the outcomes specified in this project specification. Work plans including trial locations and hypothesis arising from this Milestone will be documented and provided to GRDC annually.

Achievement prior to this report

Achievement for this report

Annual trial plans documented and submitted to GRDC.

Milestone number: 5	Planned achievement date	Achieved
	31/03/2013	Yes

Description

Deliver outputs achieved in Milestone 4 in an annual results summary format to growers, regional advisers, the wider public and the GRDC. This publication will include results from collaborative partners where appropriate. Reporting will also occur at results days, annual publications, at field days, seminars etc.

Achievement prior to this report

Achievement for this report

Research results delivered to growers, advisers and the wider public via 35 articles in the EP Farming Systems Summary 2009, 2010, 2011 and 2012. 2013 results to be presented in EPFS Summary 2013, published in March 2014. Results also presented at 37 farmer meetings/forums, 32 field days/paddock walks, 11 popular media articles, 31 workshops and in 4 booklets. 4 YouTube videos produced.

Milestone number: 6	Planned achievement date	Achieved
	31/12/2013	Yes

Description

Extend the results and findings from activities described in Milestone 4 to growers and the wider public domain through key personnel presenting at appropriate field days, GRDC updates and other extension activities at relevant times.

Achievement prior to this report

Achievement for this report

Research results delivered to growers, advisers and the wider public via 35 articles in the EP Farming Systems Summary 2009, 2010, 2011 and 2012. 2013 results to be presented in EPFS Summary 2013, published in March 2014. Results also presented at 37 farmer meetings/forums, 32 field days/paddock walks, 11 popular media articles, 31 workshops and in 4 booklets. 4 YouTube videos produced.

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Milestone number: 7	Planned achievement date	Achieved
	31/03/2013	Yes

Description

Annual Progress report submitted to the GRDC incorporating the key findings and implications together with progress against key specified practice change targets.

Achievement prior to this report

Achievement for this report

Annual progress reports submitted on time with required information.

Milestone number: 8	Planned achievement date	Achieved
	31/03/2013	No

Description

Final Report submitted to GRDC.

Achievement prior to this report

Achievement for this report

Anticipated submission of report end April 2014.

Milestone number: 9	Planned achievement date	Achieved

Description

Achievement prior to this report

Achievement for this report

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9. Delivery Activity— Benchmarking

What were the proposed target audiences and/or organisations for the activities/outputs? (e.g. Grain growers, agribusiness, researchers, breeders)

Sheep Groups - farmers and agribusiness reps

Was this activity/output delivered as part of the project?

No

Yes

Date of delivery (dd/mm/yyyy)

30/04/2010

Was there recurring years for this activity/output?

No

Yes

Month and year of activities/outputs
April 2011, April 2012, April 2013

Did this activity/output include third parties?

No

Yes

Name of principal contractor
Rural Solutions SA

Was this activity/output funded within the project budget?

No Details of external funding

Yes **Include in budget and operating notes.**

Was this activity/output national/regional/local?

National

Regional Specify region if possible

Local Specify locality if possible

Buckleboo, Kimba, Poochera, Lock, Cummins

Final summary of the outcome for this activity/output

One group has completed 3 yrs, 2 groups 2 yrs and 2 groups 1 yr benchmarking. Seeing improvements in groups that have done multiple yrs (production & income). Benchmarking activities rated as highly important by Sheep Group participants in evaluation. See EPFS 2012 Summary article 'Benchmarking your sheep enterprise' p 132.

Delivery Activity— Publications (may include industry report/refereed scientific paper)

What were the proposed target audiences and/or organisations for the activities/outputs? (e.g. Grain growers, agribusiness, researchers, breeders)

Mixed farmers, agribusiness

Was this activity/output delivered as part of the project?

No

Yes

Date of delivery (dd/mm/yyyy)

30/06/2010

Was there recurring years for this activity/output?

No

Yes

Month and year of activities/outputs

Did this activity/output include third parties?

No

Yes

Name of principal contractor

Was this activity/output funded within the project budget?

No Details of external funding

EPNRM,

Yes

Was this activity/output national/regional/local?

National

Regional Specify region if possible

Eyre Peninsula

Local Specify locality if possible

Final summary of the outcome for this activity/output

2 publications produced:
 • Use of Saltbush and other Perennials on EP: Joint publication with EPNRM, RSSA, EP G&G
 • Pasture Options for EP: Joint publication with EPNRM, RSSA, EP G&G

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Delivery Activity—

Case studies

What were the proposed target audiences and/or organisations for the activities/outputs? (e.g. Grain growers, agribusiness, researchers, breeders)

Mixed farmers, agribusiness, researchers

Was this activity/output delivered as part of the project?

No

Yes

Date of delivery (dd/mm/yyyy)

31/12/2013

Was there recurring years for this activity/output?

No

Yes Month and year of activities/outputs

Did this activity/output include third parties?

No

Yes Name of principal contractor

Neil Ackland, EPNRM

Was this activity/output funded within the project budget?

No Details of external funding

Australian Government, EPNRM

Yes

Was this activity/output national/regional/local?

National

Regional Specify region if possible

Eyre Peninsula

Local Specify locality if possible

Final summary of the outcome for this activity/output

Case study booklet produced: Changing land management to increase ground cover - Producer Surface Stories. This publication is a collaboration between the Eyre Peninsula Natural Resources Management Board's Sustainable Farming Systems program, Eyre Peninsula's Farming Systems Groups and farmers to assist the region's land managers to adopt farming practices that better reflect their land capability, minimise risk and maximise profitability. Includes 14 local case studies and technical notes.

Delivery Activity—

Conferences/Workshops

What were the proposed target audiences and/or organisations for the activities/outputs? (e.g. Grain growers, agribusiness, researchers, breeders)

Mixed farmers, agribusiness, researchers

Was this activity/output delivered as part of the project?

No

Yes

Date of delivery (dd/mm/yyyy)

25/02/2011

Was there recurring years for this activity/output?

No

Yes Month and year of activities/outputs

Did this activity/output include third parties?

No

Yes Name of principal contractor

Rural Solutions SA

Was this activity/output funded within the project budget?

No Details of external funding

Yes **Include in budget and operating notes.**

Was this activity/output national/regional/local?

National

Regional Specify region if possible

Eyre Peninsula

Local Specify locality if possible

Final summary of the outcome for this activity/output

4 x Sheep - Less Hassle More Profit forums held across EP in 2011. Bob Hall, WA, was the keynote speaker, challenging growers to invest in their sheep enterprise to make the fit with cropping easier. These forums led to the formation of sheep groups - participants indicated their interest in forming groups in their local areas.

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[Additional Extension Activities/Referred Publications \(in bibliographical format\)](#)

See EP G&G 2 Final Report for full list. EPFS Summary articles can be downloaded from www.minnipaagriculturalcentre.com.au

Booklets

- Use of Saltbush & other Perennials on EP: Joint publication with EPNRM, RSSA, EP G&G 2
- Pasture Options for EP: Joint publication with EPNRM, RSSA, EP G&G 2
- Changing land management to increase ground cover - Producer Surface Stories: Joint publication with EPNRM, RSSA, EP G&G 2
- Sheep - Less Hassle, More Profit proceedings, February 2011.
- Feed budgeting & Ground Cover Workbook: Daniel Schuppan, Landmark.

Conference papers

- Latta, R. and J. Crettenden (2012). Improved crop production in response to intensively grazed improved legume pastures. 16th Australian Agronomy Conference 2012. Armidale, NSW: http://www.regional.org.au/au/asa/2012/crop-production/7963_crettendenjr.htm.
- Latta, R. (2011). Grain yield of wheat following winter grazing in a low rainfall environment. World Congress on Conservation Agriculture, Brisbane, Australia.

[Delivery/Path to Market](#)

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10. Environment/Economic/Social Analysis

Outline the benefits/risks associated with this proposed investment.

Benefits

Include an estimate of the benefit and the scale to which the impact will apply (i.e. ha, tonnes).

Also include likelihood of benefit and proposed extent of the adoption by industry in the project timeframes and beyond.

Risks

Include likelihood of risk and management options.

Environmental Benefits

The project examined practices with potential environmental benefits based on maintenance of ground cover, use of perennials & managing soil organic C. Many farmers have now developed skills to allow them to make informed decisions based on land class information. Over 1000 farmers & advisers participated in workshops or training sessions, representing a significant proportion of EP farming land.

Environmental Risks

It is not anticipated that the successful implementation of the key results from the project will lead to any detrimental environmental issues.

Economic Benefits

The business workshops, meetings & training sessions conducted by the project allowed farmers to develop a better understanding of economic risks associated with their enterprises & to benchmark their practices, enabling them to make more informed decisions to improve financial performance. The high penetration among farmers has potential to make significant improvements in farm profitability.

Economic Risks

As an aim of the project was to improve a farmer's ability to manage risk it is not anticipated that the project will lead to substantial increases in economic risk at a regional or individual level.

Social Benefits

The project improved the skills base of many farmers and their improved viability will ultimately help rural communities in the region. The project also targeted young farmers to encourage future learning and provided an opportunity of networking.

Social Risks

None are immediately apparent.

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11. Overview of Project Achievements

See EP G&G 2 Final Report December 2013.

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12. Conclusions

See attached EP G&G 2 Final Report December 2013.

13. Recommendations

As above.

14. Other Research and Development Opportunities

Further investigate impact of livestock on soil health and production in high and low input situations. The Enrich sites provided excellent information to assist with forage shrub selection and management, however establishing shrubs from seed appears one of the major hurdles in the further adoption of forage shrubs and more research is required.

15. Attachments

EP G&G 2 Trial Program 2013
EP G&G 2 Activiy Record Sheet 2010 onwards

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16. Management of Intellectual Property/Commercialisation

Provide a summary of any strategies undertaken or planned to facilitate the protection and / or commercialisation of the project's realised outputs

Not applicable.

Provide a list of all scientific or technical papers published, and any patents filed

Conference Papers:

Latta, R. and J. Crettenden (2012). Improved crop production in response to intensively grazed improved legume pastures. 16th Australian Agronomy Conference 2012. Armidale, NSW:

http://www.regional.org.au/au/asa/2012/crop-production/7963_crettendenjr.htm.

Latta, R. (2011). Grain yield of wheat following winter grazing in a low rainfall environment. World Congress on Conservation Agriculture, Brisbane, Australia.

Provide a list of any confidential information, if relevant and attach details to this report

Not applicable.

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17. Details of International Collaboration

Did this project have international collaboration?

No

Yes Provide details of the international collaborating organisations/people below

Provide details of the international collaborating organisations/people below

Not applicable

Detail the nature of the international collaboration

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- 18.** Please use this area to include any additional text to support your report. Please do not include images. You may also attach a document (e.g. Word, Excel, PDF) limited to a maximum of 5 x A4 pages to this Report. Any additional information will be viewed as supplementary data. The report will only be evaluated on the previous sections of this document.

See attached: EP G&G 2 Final Report December 2013

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19. Plain English Summary for Public Release

<p>Project Title: Eyre Peninsula Grain & Graze 2</p> <p>GRDC Project No:</p> <p>Primary Contact: Dr Glenn McDonald</p> <p>Organisation: University of Adelaide PMB 1 Waite Campus Glen Osmond SA 5064 Australia</p> <p>Phone: (08) 8303 7358</p> <p>Fax: (08) 8303 7109</p> <p>Email: glenn.mcdonald@adelaide.edu.au</p>	
<p>Objectives</p>	<p>The objective of this project is to provide information and to develop management tools to improve the productivity of mixed farming systems on the Eyre Peninsula. The work will focus on assessing the potential contribution from grazing winter cereals on the productivity and sustainability of the farming systems and on the value of perennial species in areas constrained by poor soils and low rainfall.</p> <p>Proposed practice changes as a result of project activities:</p> <ul style="list-style-type: none"> • Increase in number of farmers growing cereals for multipurpose use • Increased use of perennials on less productive soils • Increase in number of farmers adopting improved grazing strategies
<p>Background</p>	<p>In 1994/95 sheep were present on 94% of farm businesses on Eyre Peninsula. This declined to 73% by 2006/07, with a 488,000 fall in sheep numbers, due to a combination of improvements in crop agronomy, increased use of break crops, higher grain prices, drought, declining livestock prices, use of no-till sowing and consequent intensification of cropping systems particularly on lower and eastern Eyre Peninsula. However, in the meantime input costs of cropping have risen considerably and when coupled with greater machinery investment, businesses that have reduced livestock numbers substantially and focussed more heavily on cropping are now placed at greater financial risk each season.</p> <p>The EP Grain & Graze project showed that a mixed farm with a well managed livestock enterprise can be as profitable as a continuous cropping business for most districts across Eyre Peninsula, and carries less risk. There is a role for EP Grain & Graze II to continue to improve the understanding of profit drivers and whole farm finance of Eyre Peninsula businesses, and to ensure the livestock component is well run and can compliment, not hinder, cropping programs and practices such as no-till.</p>

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<p>Outcomes</p>	<p>There was a demonstrable increase in the use of perennials, but not on less productive soils, according to the Roberts Evaluation survey conducted in 2013. There are still issues with efficient and effective establishment of suitable species on upper EP, with more work to done.</p> <p>However, according to the Roberts Evaluation survey there were increased numbers of farmers growing cereals for multipurpose use, with the average area of cereals grazed per property increasing from 74 to 295 ha.</p> <p>Farmers also adopted more improved grazing strategies (a large proportion of EP growers already used multiple strategies, but over the life of the project even more strategies were adopted).</p>
<p>Implications</p>	<p>There was an increase in profitability of \$9.6 million annually, or \$38.4 million over the life of the project (2010 to 2013) on Eyre Peninsula. Source: Nicholson, Outcomes of the Grain and Graze 2 program (2010 to 2013)</p>

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20. Scientific Report for Public Release

Are you required to submit the Scientific Report for Public Release for GRDC Progress and Final Reports?

No

Yes

Use the section headings shown below:

- Abstract:
- Introduction:
- Materials and Methods:
- Results:
- Discussion:
- Conclusion:
- Appendices:
- Acknowledgements:
- References.

Step 1: Click to go the template on our website

Step 2: Attach this Scientific Report to the Progress Report

21. PRIVACY

The personal information you supply will be held on a database by the GRDC. The information held by the GRDC may also include your particular field of interest and in some cases details of some research projects undertaken. Third parties, such as researchers, federal and state agencies, growers and other members of the public, sometimes ask the GRDC to provide contact details. It is the GRDC's usual practice to pass on the information if it is satisfied that it is for legitimate industry or research purposes.

If you do not want to have your contact details disclosed in these circumstances, please inform us by ticking the box below.

No

22. Certification

Reports to the GRDC should be made by the organisation conducting the research and coordinated through their central administrative area. For example, tertiary education institution reports should be processed through the Registrar or Bursar's office. Ensure the Certification details are complete before the form is submitted electronically. The electronic copy received by GRDC will be the copy that is evaluated.

Ensure that one hardcopy of the electronically submitted form is signed by the Project Supervisor and a duly delegated representative from the research organization.

Send this hardcopy to the GRDC (**Contracts Coordinator, GRDC, PO Box 5367, Kingston ACT 2604**) by the published closing date.

Project Supervisor's signature

Name

Date

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Research organisation signature

Name and title of authorised signatory

Date

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