final report

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Evergraze – More Livestock for Perennials

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Date:	August 30th 2011 (Agreed variation)

Introduction

EverGraze is a national research and delivery partnership between the CRC Future Farming Industries (CRC FFI), Meat and Livestock Australia (MLA) and Australian Wool Innovation (AWI). Demonstration sites are also supported by Catchment Management Organisations (CMOs) and the Caring for our Country program.

EverGraze aims to deliver profitable livestock systems and catchment health from improved and native perennial pasture systems in the high rainfall zone (>550 mm) of temperate Australia. The project combines farming systems research, bio-economic modelling, demonstration and extension to achieve this outcome.

This is the final report for the MLA contract. In this report, we aim to provide the final analysis of research outcomes from the completed systems research sites (Hamilton, Wagga Wagga, Albany, Holbrook and Tamworth), and an update of results from the two continuing sites (Orange and Chiltern). It is our intension to modify these Proof Site reports to present each as a web-page within the EverGraze Package. A full analysis of impact resulting from extension from 2007-2010 was provided in the June 2010 final report for AWI. In this report we aim to provide an analysis of impact from the 2010-11 extension effort. Preparation for the next 3 years of the "delivery phase" has been a large focus for the project during the past 9 months. The outcomes from this planning are reported here.

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Achievements

Research (6.4)

- Farming systems designed and tested in six regions of the high rainfall zone of temperate Australia achieved up to 50 per cent increased profits and reduced risk while addressing dryland salinity, erosion, soil health, acidity and biodiversity.
- Evidence developed from research and modelling, quantifying the productivity, economic and natural resource management impacts of the combinations of practices that were implemented on Improved and Native Proof Sites – based on the principle putting the right combination of plants in the right place for the right purpose with the right management.
- See EverGraze Research Summary below for national recommendations and achievements from research

Communications (6.8)

- 4 EverGraze Update newsletters distributed to >4000 members on a database (3131 producers, 421 agency staff, 445 advisers and 106 other)
- Contribution to partner and stakeholder publications and newsletters
- EverGraze website designed and managed with >1500 hits per month, 1800 per year
- Publication of EverGraze Actions, Exchanges, tools and case studies
- Development of the EverGraze brand to be highly recognised

Development (6.7)

- 171 knowledge products developed including 74 science/conference publications, 16 EverGraze Actions, 5 EverGraze Exchanges, 34 case studies and 12 brochures.
- Two decision support tools developed and downloaded by 3300 in 2010-11
- Mail survey of 240 meat and wool producers to determine knowledge, skills and practices relating to the use and management of perennial pastures and challenges with implementing grazing strategies.
- EverGraze Whole Farm Grazing Strategies and Pastures for Place and Purpose training programs developed and piloted with 6 groups. Several other short workshops developed and delivered to Supporting Site groups.
- EverGraze principles and practices from Improved Proof Sites applied to development and analysis (through GrassGro and CAT modelling) of strategic plans for three farms in southwest Victoria, south coast WA and southern slopes NSW through the EverFarm pilot (case study publications drafted). EverFarm strategic decisions process successfully piloted and applied to re-development of Whole Farm Grazing Strategies training program

Capacity building (6.6, 6.8)

- 186 researchers, extension staff, other service providers and lead farmers directly engaged and working on EverGraze as part of the project team, Supporting Site project or governance (EverGraze Regional Groups and National Advisory Committee)
- One PhD and two masters graduated; 4 PhD's continuing in 2011-14
- Dedicated activities to build capacity of the Supporting Site coordinators network and other service providers

Extension (6.8)

- National extension strategy led by Geoff Saul (2008-2010) and Kate Sargeant (2010-2011). Regional extension coordinators and teams operating in northeast Victoria, southwest Victoria, Gippsland, southern NSW, central tablelands NSW, northern slopes NSW

- >14000 engaged in over 330 field days and workshops and 30 conferences nationally
- >50 Supporting Sites, associated producer groups and a coordinators network operating in Victoria, NSW, SA, WA and Tasmania with support from AWI and 11 CMAs (2007-2010). 25 continuing sites in 2010-12 with additional funds from Caring for Our Country administered by Central Highlands Agribusiness Forum. Supporting Sites demonstrating practices developed from EverGraze and previous projects and developing knowledge and skills to apply the EverGraze principles on farm.

Monitoring, Evaluation, Reporting and Planning (6.9)

- Feedback sheets and pre/post surveys demonstrated development of knowledge, skills and intent to change in areas relating to feedbase, livestock, soils and grazing management (6.9)
- Telephone survey of 350 EverGraze producer participants, 100 non-participants and 150 next users undertaken in April 2010 indicated that approximately 3100 made changes to the feedbase and management practices as a result of engagement in EverGraze activities. Changes to the feedbase and grazing management were estimated to cover 180,000 ha.
- 6-monthly reports developed for research, extension and Supporting Sites delivered to the partner investors. Final report, including impact report compiled for AWI in June 2010
- Monitoring and evaluation protocol and infrastructure designed for 2011-14 and piloted in 2011 to deal with farming systems R, D & E. 2010-11 impact report (Couttes and Stone) estimated over 600 producers made changes (from feedback sheets); impact demonstrated on farm (from narratives and case studies); public and private service providers utilising EverGraze tools and information to assist producers to make decisions; government organisations utilising EverGraze to build capacity and capability within their organisations.

Planning (6.3)

- EverGraze Package concept and delivery model for 2011-14 developed and tested with FFI CRC Adoption Team, National Advisory Committee, EverGraze Project Research and Extension Teams, EverGraze Regional Groups and EverGraze Coordinators Networks (6.1 & 6.3)
- Gaps in Regional Packages identified and modelling work proposed by ERG's for 2011-14 (6.3)
- Research, Development and Extension proposal developed and accepted by FFI CRC, AWI and MLA for the 2011-14 Delivery Phase (6.3)
- EverGraze leading the way for development of a FFI CRC Industry Use Plan for the EverGraze Farming System (including component projects) - developed for implementation in 2011-14

EverGraze Research – Summary of Principles, Design and National Recommendations

EverGraze designed and tested farming systems in six regions of the high rainfall zone of temperate Australia which achieved up to 50 per cent increased profits and reduced risk while addressing dryland salinity, erosion, soil health, acidity and biodiversity.

How?

The EverGraze Principles applied:

1. The right perennial plant put in the right place for the right purpose with the right management, improves profitability and natural resource management simultaneously
2. Strategic investment in perennials needs to be combined with high performance livestock and optimum tactical management to achieve desired outcomes;
3. The right combination of perennial species across the farm and their management creates flexibility and options to reduce seasonal risk and create marketing opportunities;

Pre-experimental modelling
Farm and catchment scale modelling was used to apply the EverGraze principles to local environments for design of farming systems experiments which would achieve target profitability and natural resource outcomes

EverGraze Regional Groups
Regional advisory groups comprising farmers, advisers and scientists drove direction and application of research to ensure relevance to regional issues

Application of previous research
Reviews were completed (Virgona, Lodge) to ensure application of best-practice recommendations from previous research

Testing on the ground
Data was collected to reflect productivity, profitability and natural resource management parameters for farming systems based on improved perennials at Hamilton, Albany and Wagga Wagga from 2006-2011.

Farming systems based on native pastures were tested at Tamworth, Orange, Holbrook and Chiltern from 2008-2012.

Comparing to regional benchmarks
It was possible (with some limitations) to compare productivity and profitability performance of EverGraze Proof Sites to regional benchmarks in some regions (Hamilton, Wagga, Orange) which helped to provide recommendations of the combined potential benefit of practices implemented on the sites.

Post experimental modelling
The project is now using validated models to test the systems under a range of season, market and management conditions; incorporating different combinations of practices and new species developed by Future Farm Industries CRC

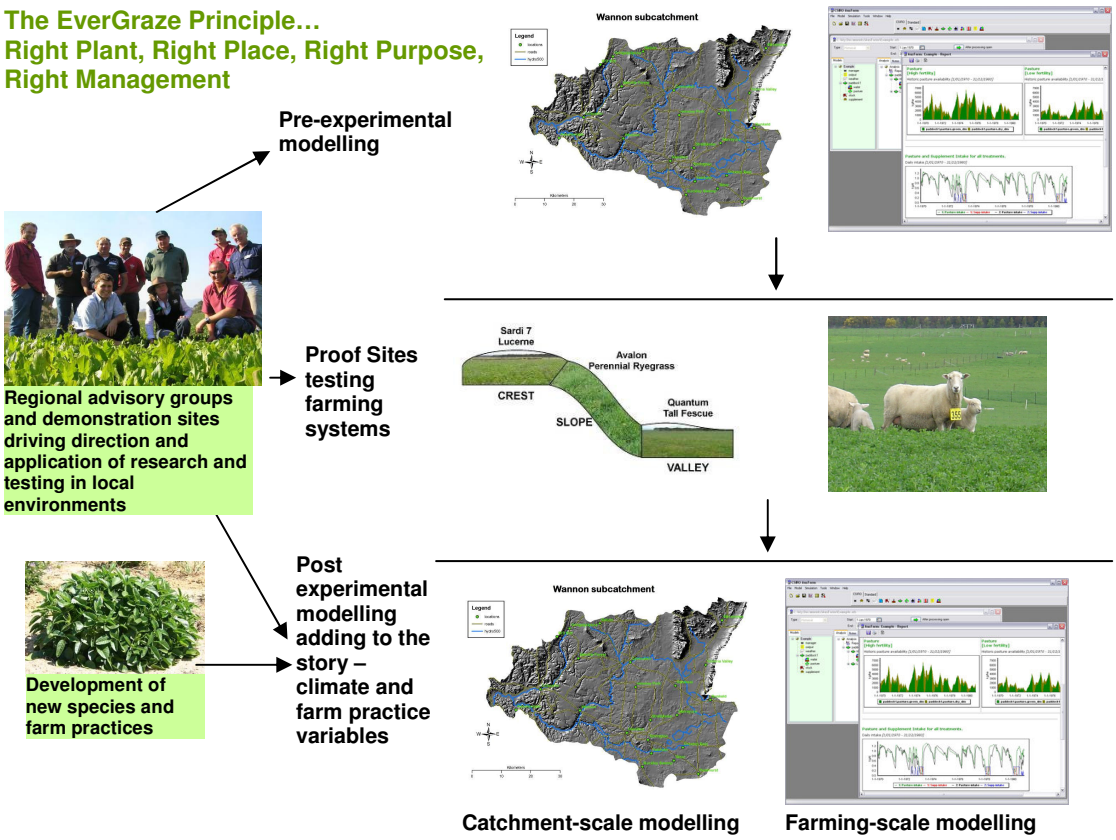


Figure 1: Process in the design and testing of EverGraze Farming Systems

Some key messages from research (across sites)

Note: These cross-site key messages and Proof Site messages are preliminary. They will be further developed for the regional packages.

Significant improvements in profitability and natural resource management *can be achieved with farming systems, based on perennials, by putting the right plant in the right place for the right purpose with the right management.*

Summer active perennials *are key to reducing risk of high supplementary feeding costs in poor years (Hamilton, Wagga, Albany); more opportunity for finishing lambs in good years (Wagga); improve reproductive performance through nutrition leading up to joining (Hamilton, Wagga, Albany); reduced recharge (Hamilton, Wagga); and with no expense to winter growth (Hamilton)*

Summer active perennials *had the largest impact on recharge (Wagga, Hamilton)*

Recharge outcomes *are an interaction between plant species and grazing pressure (Wagga)*

Composition and ground cover *are highly influenced by landscape and season in native pastures (all native sites)*

Production and composition differences across native pasture landscape types highlight the ***importance of landclass fencing*** *(Orange)*

Site results highlight the need to ***balance risk and return*** *in the selection of stocking rates and livestock systems (all sites)*

Increased gross margins result from flexibility *- combinations of perennials that respond to rainfall year round (Tamworth, Wagga, Hamilton, Albany); split joining (Wagga); trading stock (Wagga benchmarking study)*

High weaning rates *result from nutrition to meet condition score targets (all sites); higher conception from green feed at joining (Wagga); hedgerows (Hamilton) or shrubs (Wagga) for shelter at lambing*

National Recommendations:

A number of common threads, based on the principles, ran through all EverGraze Proof Sites to achieve the intended profit, natural resource management (NRM) and risk management objectives. These are categorised as the feedbase, soil management, the grazing system, the livestock system, tactical management and monitoring. The actual combinations of practices applied to the Proof Site systems depended on the environment and issues to be addressed in each region.

The Feedbase

Right combination of plants	Right place	Right Purpose
• Consider the place, intended productivity and natural resource management purpose and management requirements • Consider seed costs, establishment ease, persistence, complementarities with other species on the farm, weed risk and habit	• Match pasture species to climate, landclass, topography and soil type for maximum production and persistence	• Select a combination of plants which match feed supply/demand • Use deep rooted and persistent perennials to address recharge, soil erosion/health and weed control • Consider shelter (hedge rows, shrubs or another alternative) for lamb survival • Include a deep rooted summer active perennial where possible to reduce recharge, provide quality out-of-season feed for finishing young stock, increase fecundity of ewes and/or manage seasonal variability

The Soils

- Prepare soil fertility and condition according to plant requirements prior to establishment
- Maintain soil fertility and condition at critical levels to maximise production, persistence and return on investment

The Grazing System

- Fence according to landclass, topography and soil type to enable
    - appropriate placement of plant species;
    - grazing management strategies and appropriate utilisation of different land-classes for maintaining persistence, production, composition and quality of perennial pastures
- Consider interactions between plant and animal production targets over the whole farm as well as farm management and lifestyle in the design of grazing systems which can adapt to variable conditions
- Use Food On Offer (800 kg/ha) and ground cover (75% ground cover) thresholds in grazing management and stock containment areas when required to maximise persistence and maintain good pasture composition
- Use feed budgeting to plan ahead, enabling tactical management of feed shortages and the spring surplus
- Manage pasture composition with grazing management and appropriate weed control

The Livestock system

- Use high performance reproductive enterprises with good genetics to maximise productivity
- Match calving and lambing times and trading strategies to feed supply/demand and quality
- Balance risk and return in the selection of livestock systems, pastures and stocking rates – consider split joining or a trading stock component for increased flexibility
- Use quality genetics to maximise productivity

The livestock management

- Utilise pastures with high stocking rates
- Maximise conception and lamb survival by
    - managing ewe condition according to Lifetimewool guidelines;
    - considering feed quality and supply at joining;
    - scanning to separate singles and twins for feeding appropriately;
    - using shelter for lamb survival
- Manage growing stock to meet target market specifications

Tactical management and monitoring

- Monitor soil, pasture and livestock condition and performance to enable;
    - Response to varying climate and market signals;
    - Appropriate allocation of pastures and supplements to meet target market specifications and reproductive performance;
    - Appropriate fertiliser and conditioner applications to meet pasture production and persistence targets in the long and short term;
    - Timely grazing management decisions for manipulating composition and/or maximising pasture production;
    - Feedback on response to inputs (eg. supplementary feed, fertiliser, sprays), grazing strategies or performance of newly established pastures to improve future decision-making

The Proof Site Farming Systems

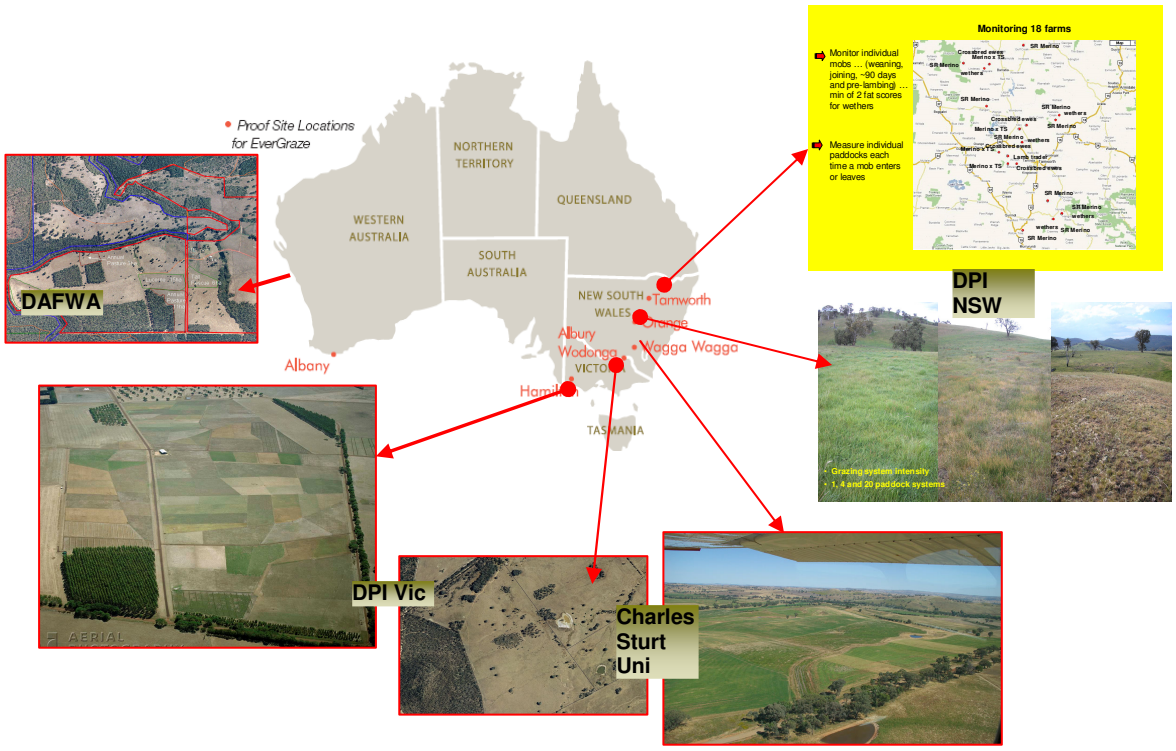


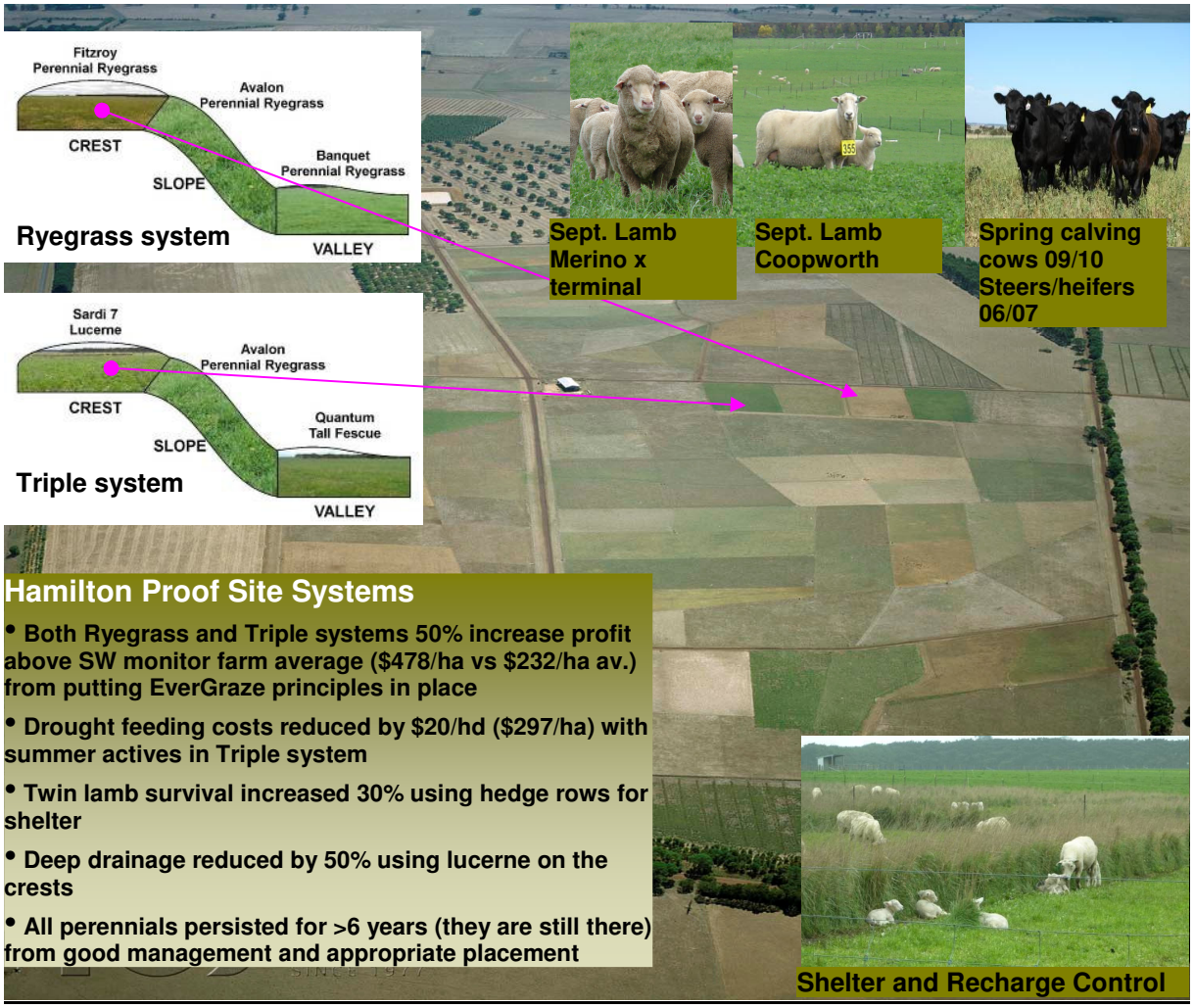
Figure 2: Geographic spread of EverGraze Proof Sites

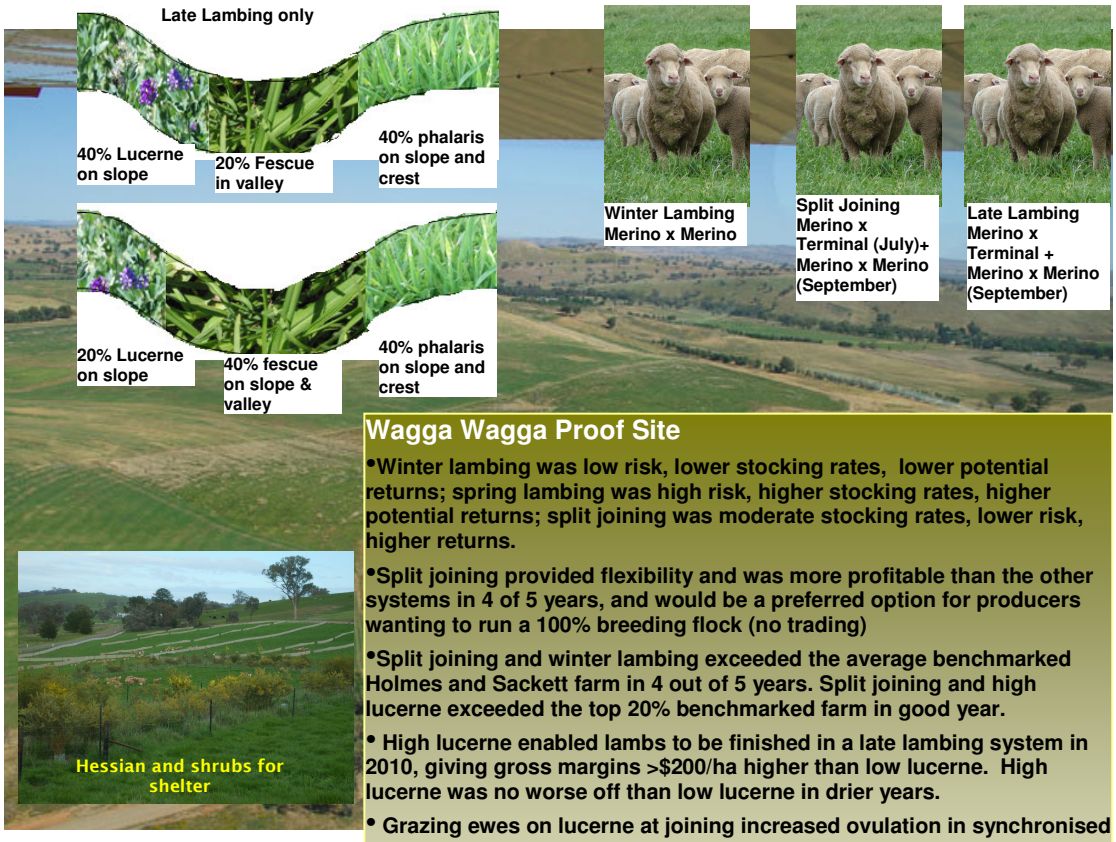
A summary of the farming systems tested on the seven Proof Sites and preliminary synthesised experimental and modelled outcomes across sites is provided in Appendix 6.4.16. A snapshot of the key messages across the sites is provided below. The analysis in Appendix 6.4.16 and the summary below are preliminary and are intended to provide an overview. They will be further developed for the regional packages. To obtain a full understanding of the outcome within a regional context, it is necessary to refer to individual Proof Site reports and Tactical Management Regimes modelling reports provided in Appendix 16.4.1-16.4.7.

Improved Sites (2006-2011)

The Improved Sites at Hamilton, Wagga and Albany used modern perennial pasture species and cultivars matched to the landscape to extend the growing season, and genetically improved sheep and cattle genotypes to maximise livestock production while improving NRM. An initial stretch target of 50% increased profit and 50% reduced groundwater recharge was set prior to the experiment beginning. Additional component studies were undertaken at Hamilton and Wagga to address ewe fecundity and lamb survival issues. A range of livestock systems were tested at each site.

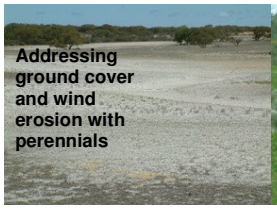
At all sites, at least one summer active perennial species (lucerne, kikuyu, chicory and/or summer active tall fescue) was placed in the right part of the landscape to respond to summer rainfall, providing out of season feed and reducing water loss through the profile. Winter active perennials (perennial ryegrass, phalaris and/or winter active tall fescue) provided the bulk of the growing season feed.

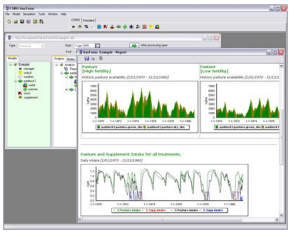




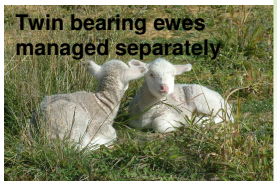
Wagga Wagga Proof Site

- Winter lambing was low risk, lower stocking rates, lower potential returns; spring lambing was high risk, higher stocking rates, higher potential returns; split joining was moderate stocking rates, lower risk, higher returns.
- Split joining provided flexibility and was more profitable than the other systems in 4 of 5 years, and would be a preferred option for producers wanting to run a 100% breeding flock (no trading)
- Split joining and winter lambing exceeded the average benchmarked Holmes and Sackett farm in 4 out of 5 years. Split joining and high lucerne exceeded the top 20% benchmarked farm in good year.
- High lucerne enabled lambs to be finished in a late lambing system in 2010, giving gross margins >$200/ha higher than low lucerne. High lucerne was no worse off than low lucerne in drier years.
- Grazing ewes on lucerne at joining increased ovulation in synchronised ewes by 10% on average (up to 22%)
- Once established, shrubs increased twin lamb survival by on average 10% (2008-09). Ground water recharge was reduced to a comparable level to lucerne.
- Lucerne persisted well through drought years. Phalaris and fescue appear to be recovering in the good years
- Recharge outcome was a function of herbage mass and species. 75% reduced recharge in the split joining system compared to annuals





Modelling to examine systems in non-drought years



Albany (Wellstead) Proof Site

- Kikuyu can eliminate wind erosion
- Perennials use ground water to drive production further and reduce recharge by as much as 50% **(not proven due to drought)**
- 120% weaning is achievable **(Actual)**
- Chicory and Lucerne can grow lambs at 300 gm/hd/day **(Actual)**
- 20–40% of the farm under perennials is most profitable **(Modelled)**
- Minimum increase in GM of $40/ha compared to annuals only **(Modelled)**
- Reduction in supplementary feeding of around 39-44kg/hd **(Modelled)**
- Annuals are vital in the composition of good perennial swards

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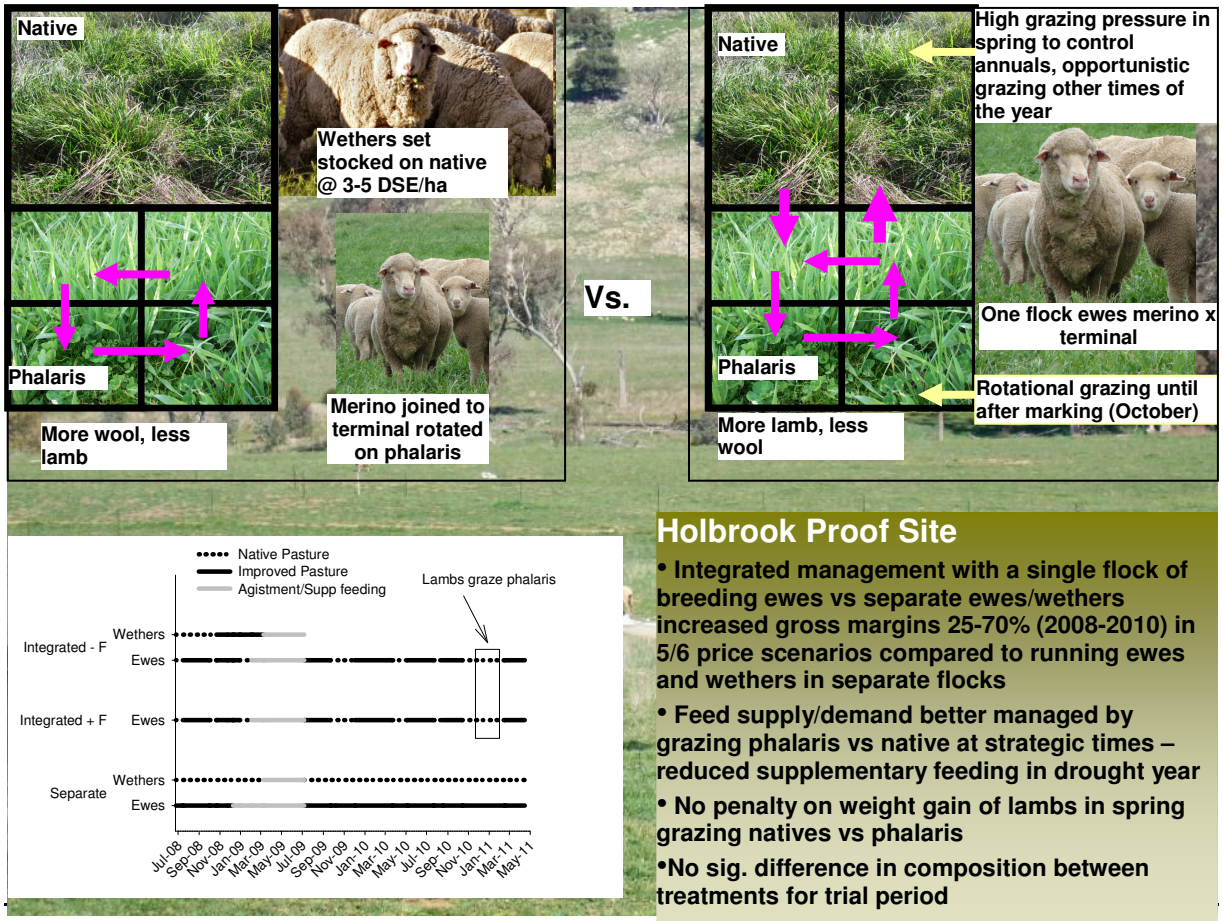
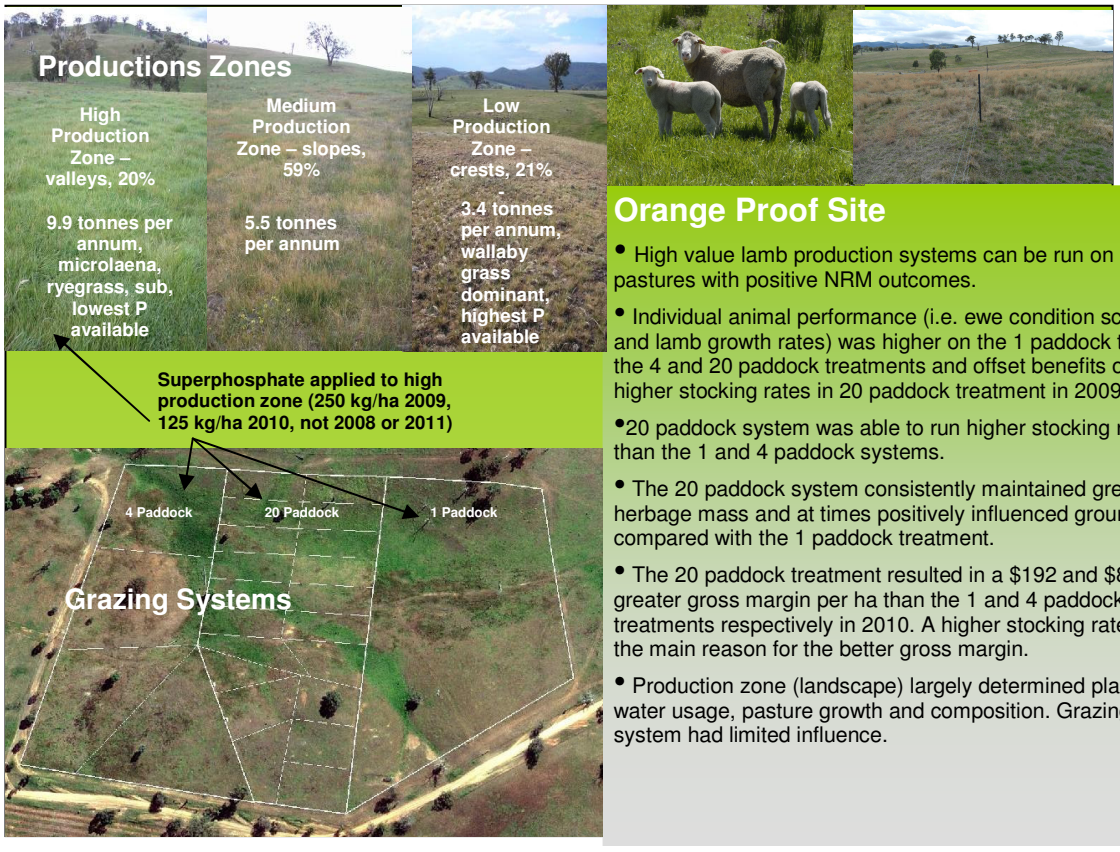
Native Sites (2008-2011)

In 2007, reviews were conducted (Virgona, Lodge) to identify research gaps in the design of farming systems based on native pastures which could address productivity, profitability, soil erosion and perenniality issues in farming systems which were based on native pastures. Experiments were set up on four Proof Sites - Orange, Tamworth, Chiltern and Holbook. These systems used land-class fencing and applied grazing strategies to native pastures to either maintain or increase the native perennial grass component. Phosphorus fertiliser was used to maintain an annual legume component, providing enough feed quality to maintain a profitable reproductive enterprise. Integration of native and improved pasture use and management was applied to meet livestock production targets, and to allow for timely rest periods and grazing pressure to manipulate the feed supply/demand curve and pasture composition of both the native and improved components.



Holbrook Proof Site

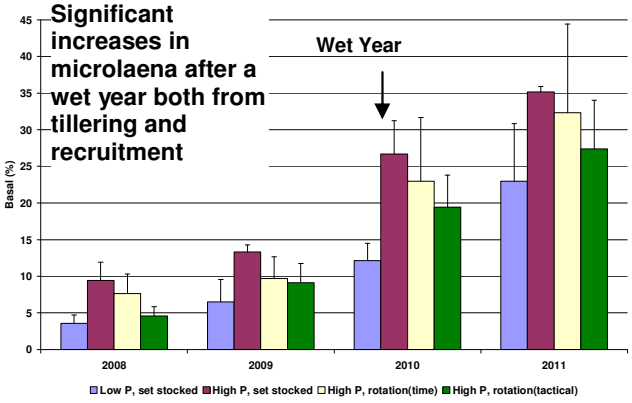
- **Integrated management with a single flock of breeding ewes vs separate ewes/wethers increased gross margins 25-70% (2008-2010) in 5/6 price scenarios compared to running ewes and wethers in separate flocks**
- **Feed supply/demand better managed by grazing phalaris vs native at strategic times – reduced supplementary feeding in drought year**
- **No penalty on weight gain of lambs in spring grazing natives vs phalaris**
- **No sig. difference in composition between treatments for trial period**



Orange Proof Site

- High value lamb production systems can be run on native pastures with positive NRM outcomes.
- Individual animal performance (i.e. ewe condition score and lamb growth rates) was higher on the 1 paddock than the 4 and 20 paddock treatments and offset benefits of higher stocking rates in 20 paddock treatment in 2009.
- 20 paddock system was able to run higher stocking rates than the 1 and 4 paddock systems.
- The 20 paddock system consistently maintained greater herbage mass and at times positively influenced groundcover compared with the 1 paddock treatment.
- The 20 paddock treatment resulted in a $192 and $81 greater gross margin per ha than the 1 and 4 paddock treatments respectively in 2010. A higher stocking rate was the main reason for the better gross margin.
- Production zone (landscape) largely determined plant water usage, pasture growth and composition. Grazing system had limited influence.

Microlaena ecology



Significant increases in microlaena after a wet year both from tillering and recruitment

Chiltern Proof Site

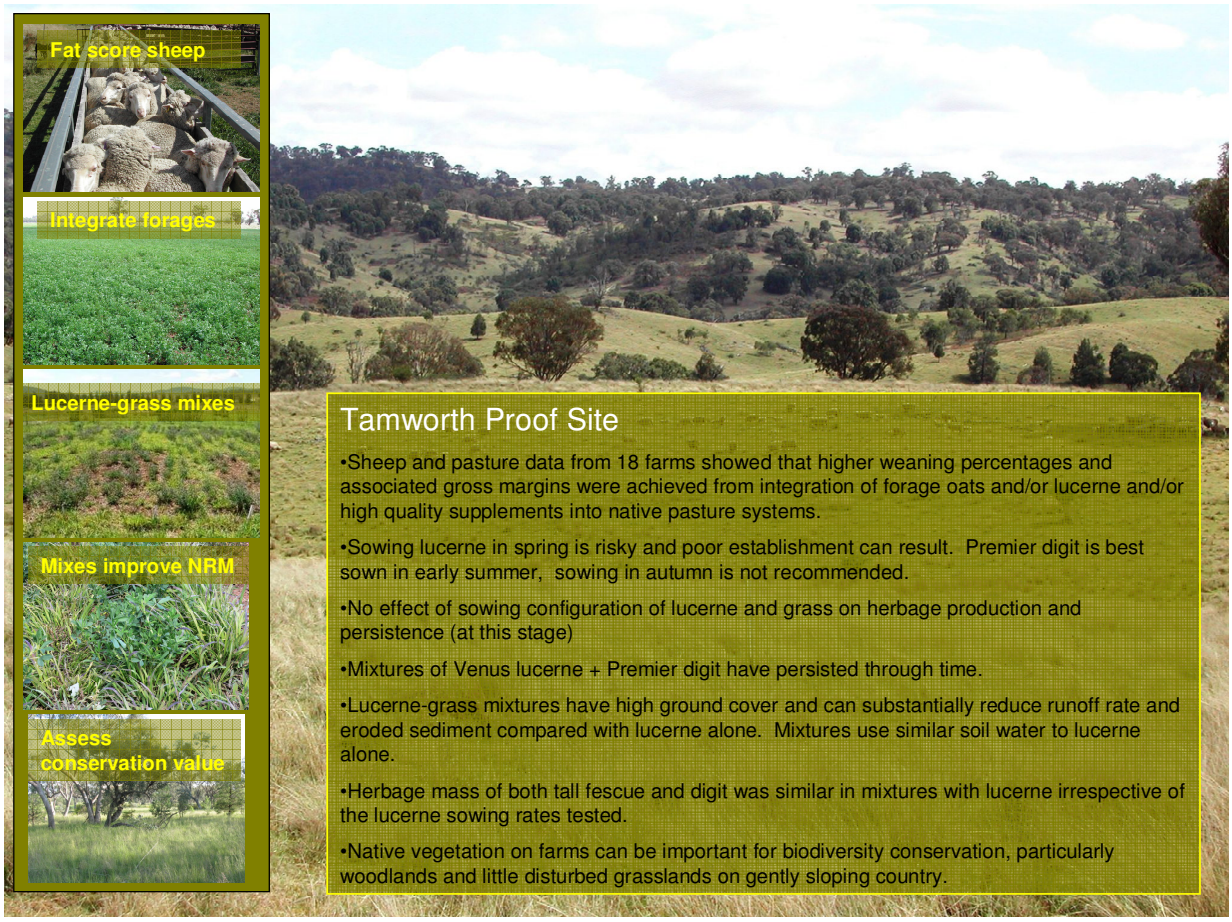
High reproductive rates (>120% weaning percentage) achieved with good genetics and meeting lifetime ewe management condition targets on native pastures compared to district average 80-90%

Trend of higher microlaena and lower annual in high phosphorus compared to low. Wallaby grass consistent, annuals increased in low P (against expected)

Negative gross margins due to destocking and supp feeding in drought years (2008-09). Positive gross margin in good year but capital P not factored in.

Higher stocking rates in 2011 expected to significantly add to the story

No difference in gross margins from grazing treatments



Tamworth Proof Site

- Sheep and pasture data from 18 farms showed that higher weaning percentages and associated gross margins were achieved from integration of forage oats and/or lucerne and/or high quality supplements into native pasture systems.
- Sowing lucerne in spring is risky and poor establishment can result. Premier digit is best sown in early summer, sowing in autumn is not recommended.
- No effect of sowing configuration of lucerne and grass on herbage production and persistence (at this stage)
- Mixtures of Venus lucerne + Premier digit have persisted through time.
- Lucerne-grass mixtures have high ground cover and can substantially reduce runoff rate and eroded sediment compared with lucerne alone. Mixtures use similar soil water to lucerne alone.
- Herbage mass of both tall fescue and digit was similar in mixtures with lucerne irrespective of the lucerne sowing rates tested.
- Native vegetation on farms can be important for biodiversity conservation, particularly woodlands and little disturbed grasslands on gently sloping country.

The next phase: Regional packages – making national research relevant

After seven years of national research investment, EverGraze is embracing an important question in its extension and adoption strategy: how to make national research outputs relevant to regional farming systems.

The approach: to develop regionally relevant information packages in six regions of southern Australia to accelerate adoption of research outputs.

Unique farming systems:

Every farm, however, is unique in terms of its goals, soils, landscape, enterprise setup and existing practices. For farmers to make sense of the options available they need to understand:

1. the cost and potential impact of each option compared to other competing investment options
2. the potential fit of the options into their existing management philosophy
3. other changes necessary to realise the potential benefit of investment.

Regions can be also described in terms of the status of environmental issues to be addressed (landscape, soil, climate) and the effect of these issues on enterprise performance and management.

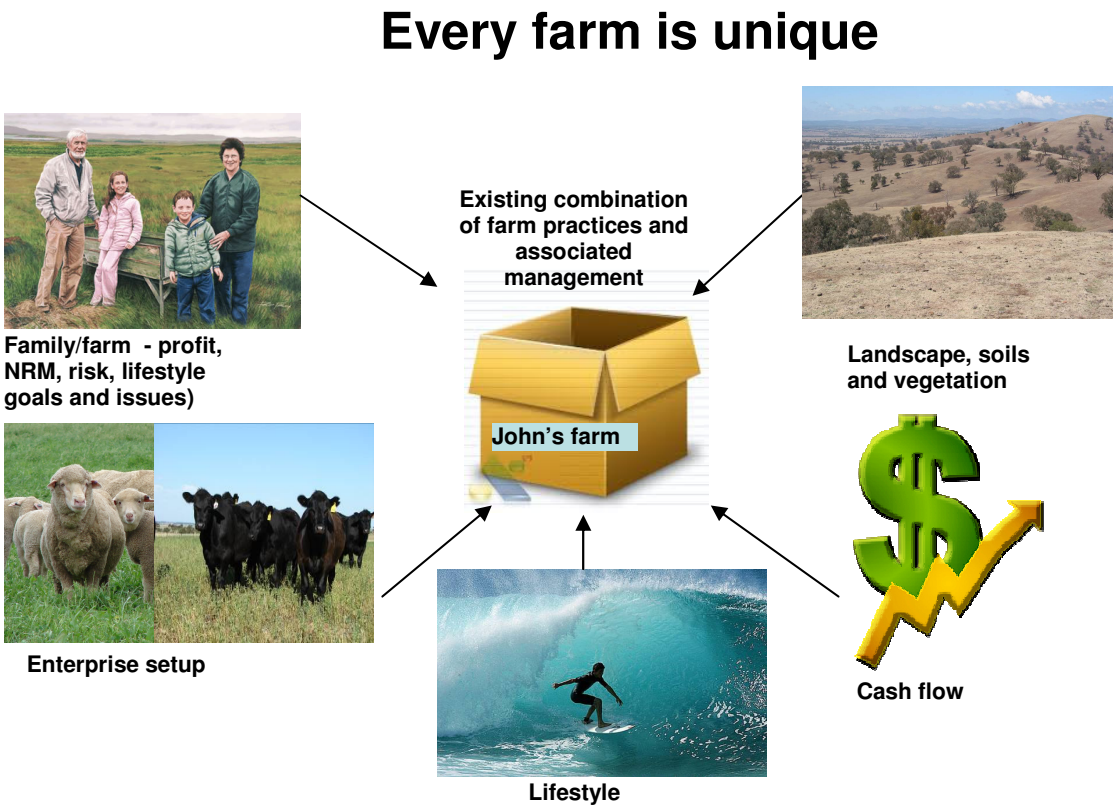


Figure 3: Unique Farming Systems

The Regional Package Approach

Developing, implementing and continuously improving regional packages to target the unique regional needs involves:

1. A website that supports advisers and farmers by providing strategic and tactical options relevant to the local context, linked to relevant information notes, tools and training.

2. Website – regionally relevant options linked to information notes, tools and training
3. Regional advisory groups comprising farmers, advisers and scientists which assist in adapting the research to their local farm systems

With the regional context defined, new practices (e.g. plant varieties or grazing strategies) can easily be integrated into regional packages as they are developed.

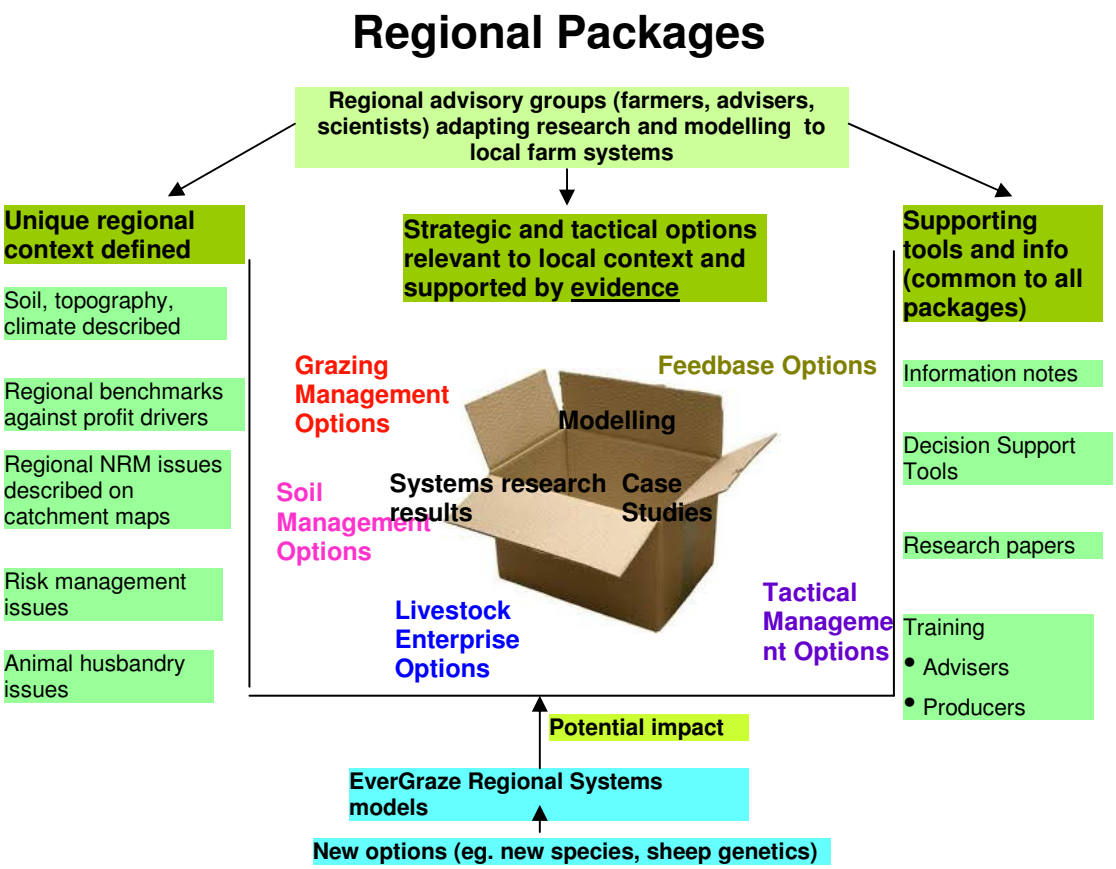


Figure 4: Regional Packages

By focusing on communicating how research outputs are relevant to local farming systems, utilising local input, regional packages have capacity to change the way RD&E is conducted, accelerating the achievement of industry and environmental benefits.

Success in achieving milestones

6.1	**Final Report**	100%
Description: The objectives of the project are stated below, together with statements of achievement. The operational plan for 2010-11 to finalise deliverables against these objectives was developed, received and accepted by MLA in 2010 and is also reported against below.		
Measure of success *(for this milestone)**:*** 1. Description of achievement of objectives and integration activities 2. Report on Operational Plan to June 2011 against success measures, received and accepted by MLA 3. 6 site integration completed and report against objectives		

Achievements:

1. Description of achievement of objectives and integration activities (see above)

Objective 1: Develop the current knowledge from EverGraze production systems, derived during drought years and, validate, then further integrate to design new high rainfall zone production systems. These systems will aim to achieve an increase in profitability by 50% reflected through an increase in productivity from increased weaning percentage or pasture utilisation and or / a decrease in cost of production, relative to 2005, while concurrently delivering a significant improvement on and off farm NRM outcomes simultaneously with productivity improvements. This will be achieved through a farming systems approach that matches plant and land capability and further improves livestock performance through increased stocking rates, weaning percentages and pasture utilisation. Demonstration of the profit and NRM outcomes will be achieved by whole farm financial, biophysical modelling, with regional producer verification.

- EverGraze designed and tested farming systems in six regions of the high rainfall zone of temperate Australia which achieved up to 50 per cent increased profits and reduced risk while addressing dryland salinity, erosion, soil health, acidity and biodiversity.
- A summary of the farming systems and key messages is provided in the Executive Summary. More detail is provided in Appendix 6.4.16 (results synthesis) and in the Site reports in Attachments 6.4.1-6.4.7.
- The experimental profitability outcome compared to benchmarks varied depending on site, season and system (see Appendix 6.4.16 for detail). The most profitable EverGraze farming systems achieved persistent perennials; higher stocking rates; higher weaning percentages (conception and survival); reduced supplementary feeding costs; improved feed availability across the seasons; and flexibility for varying seasons and market scenarios.
- EverGraze farming systems demonstrated reduced recharge by >50% at farm and catchment scale
    - Summer active perennials were the key to reducing recharge at Hamilton
    - Recharge outcomes were an interaction between plant species and grazing pressure at Wagga
    - Drought conditions limited response at Albany
    - CAT modelling indicated that when placed in the right part of the landscape, EverGraze farming systems met recharge objectives without effecting water supply (6.5)
- Integration and subsequent recommendations of Proof Site experiment outcomes across the sites was achieved via synthesis of results (Appendix 6.4.16) and modelling through the Tactical Management Regimes sub-project. Systems were varied according to combinations of pastures, livestock systems and stocking rates and tested under a range of different market, climate and management scenarios (Appendix 6.4.8).

Objective 2: Support on farm, catchment and industry decision making through the development of information and tools pertaining to tactical management points, integration of native and improved systems and assessment of current and future impact of livestock in the high rainfall zone.

- 48 conference papers (12 in 2010-11), 12 research papers accepted, 3 submitted, 12 awaiting submission (6.7)
- 21 EverGraze Exchanges/Actions (3 in 2010-11) and 35 case studies (11 in 2010-11) on the EverGraze website (6.7)
- Two decision support tools developed and downloaded by 3300 in 2010-11
- EverGraze principles and practices from Improved Proof Sites applied to development and analysis (through GrassGro and CAT modelling) of strategic plans for three farms in southwest Victoria, south coast WA and southern slopes NSW through the EverFarm pilot (case study publications drafted) (6.4). EverFarm strategic decisions process successfully piloted and applied to re-development of Whole Farm Grazing Strategies training program (6.8)
- Development and integration of capacity for research, development and extension in five states across southern Australia.

- 186 researchers, extension staff, other service providers and lead farmers directly engaged and working on EverGraze as part of the project team, Supporting Site project or governance (6.8)
- One PhD and two masters graduated (6.6).

Objective 3: Target improved management over 500,000 ha in the HRZ and have principles and practices adopted from EverGraze on 3,600 farms by June 2011 through engagement with the MLA - AWI Supporting Sites project.

- 3700 made changes to the feedbase and management practices as a result of engagement in EverGraze activities, exceeding the target of 3600. To 2010, it was estimated that changes to the feedbase and grazing management covered 180,000 ha (6.9)
- >50 demonstration sites (25 continuing in 2010-12) and an associated coordinators network managed across Southern Australia (6.8)
- Over 4000 subscribers to the EverGraze database (including 3131 producers, 421 agency staff, 445 advisers and 106 other) receive 4 issues of EverGraze Update each year (6.8).
- 1500+ hits on the website every month
- >14000 engaged in EverGraze activities (6.8)

Objective 4: Integrate the 6 Proof Sites via post experimental modelling and devise a project research and delivery plan from 2011 to 2014 with support from regional EverGraze groups and organisations.

- Synthesis of Proof Site results across 6 sites drafted for inclusion in the EverGraze Package (Appendix 6.4.16)
- Post-experimental optimisation modelling completed for Improved sites demonstrating significant profitability potential for EverGraze systems under a range of season and management scenarios (Appendix 6.4.1-6.4.3).
- EverGraze Package concept and delivery model for 2011-14 developed and tested with FFI CRC Adoption Team, National Advisory Committee, EverGraze Project Research and Extension Teams, EverGraze Regional Groups, EverGraze Coordinators Networks (6.1 & 6.3)
- Research, Development and Extension proposal and industry use plan content developed and accepted by FFI CRC, AWI and MLA for the 2011-14 Delivery Phase (6.3)
- Gaps in Regional Packages identified and modelling work proposed by ERG's for 2011-14 (6.3)
- EverGraze Package concept and delivery model developed as the key for making national farming systems research outcomes relevant to local farmers (6.3)
- Industry Use Plan for the EverGraze Farming System developed for implementation in 2011-14
- Monitoring and evaluation protocol and infrastructure designed to deal with farming systems R, D &E (6.9)

2. Report on Operational Plan to June 2011 against success measures, received and accepted by MLA

- The 2010-11 Operational Plan is provided in Appendix 6.1.1
- A project report card is provided in Appendix 6.1.2
- A report against outputs in the 2010-11 Implementation Plan is provided below

Project Governance and leadership

NAC meetings Team meeting ERG meetings Project leadership confirmed	**100% complete** **Section 6.2**

Project steering committee formed In-kind contributions confirmed for the next phase	

Harvest year – Improved sites

	Hamilton	***Wagga***	***Albany***	***Overall***
Detailed farming system analysis *Output: Report*	Appendix 6.4.1 100% completed	Appendix 6.4.2 90% completed	Appendix 6.4.3 90% completed	95%
Tactical Management Regimes *Report: one farming system to value chain plan and methodology (note, this output changed. See Appendix 6.4.8 for details)*	95% completed Appendix 6.4.11 Further model validation needed	90% completed Appendix 6.4.10 Further model validation needed	90% completed Appendix 6.4.11 Further model validation needed	90% Exchange to be completed
Spatial analysis of the impact of livestock systems	100% completed Appendix 6.5.2	100% completed Appendix 6.5.2	100% completed Appendix 6.5.3	95% Exchange to be completed
Water balance (runoff, deep drainage, recharge) impacts	100% completed Appendix 6.5.2	100% completed Appendix 6.5.2	100% completed Appendix 6.5.3	95% Exchange to be completed
Contribution to understanding of GxE interactions in selection of ewes and livestock performance measurement	Despite this being discussed by both FFI CRC and Sheep CRC parties no relationship was established and this output has not been produced. There have been recent developments in this area which may result in future delivery against this success measure.			
EverFarm *EverFarm piloted in the region*	100% completed Appendix 6.4.9	100% completed Appendix 6.4.10	100% completed	100%
Three scientific journal publications	3 submitted Appendix 6.7.1	5 papers Appendix 6.7.1	1 draft Appendix 6.7.1	100% (av)
EverGraze Exchanges (Section 6.7) Output: At least 4 EverGraze Exchanges/Actions	New farming systems to achieve profit and NRM (70% complete – 3 separate exchanges will be drafted out of reports in this milestone for Regional Packages) Spatial placement of perennials (First draft complete) Lamb survival (90% complete – final editing underway) Ovulation (100% complete) Shrubs placement to increase NRM benefits (100% complete) Strategic decisions in farming systems management (50% complete – will be drafted out of EverFarm outcomes for Whole Farm Grazing Strategies manual)			90%
EverGraze extension and M&E Output: contribution to change target 3600 producers by 2011	100% 6.8.4	100% 6.8.6	100% 6.8.7	100%
Parameter sets and data Output: Data legacy from EverGraze	Complete but further validation required	Complete but further validation required	Complete but further validation required	95%

Consolidation Year – Native Sites

	Albury Wodonga	***Orange***	***Tamworth***	***Overall***
Building an understanding of the farming system	Appendix 6.4.4, 6.4.5	Appendix 6.4.6 100% completed	Appendix 6.4.7 100% completed	95%

Output: Progress reports	90% completed (Holbrook report to be finalised)			
Draft scientific journal publications *Output: One journal publication*	Nil Appendix 6.7.1	Nil 6.7.1	3 Appendix 6.7.1	100% (av)
EverGraze Exchanges (Section 6.7) *Output: At least 1 EverGraze Exchange*	New farming systems to achieve profit and NRM (70% complete – 3 separate exchanges will be drafted out of reports in this milestone for Regional Packages)			80%
EverGraze extension and M&E (contribution of Proof Site team) *Output: Contribution to change target 3600 producers by 2011*	100% 6.8.4	100% 6.8.6	100% 6.8.7	100%

Development

Tactical Management Regimes

	Hamilton	***Wagga***	***Albany***	***Overall***
Develop Critical Control Points *Output: Report on Critical Control points on EverGraze Farming Systems in 3 different regions* Note, the scope of this output changed as the project progressed (see Appendix 6.4.8)	95% completed Appendix 6.4.9 Further model validation needed	95% completed Appendix 6.4.10 Further model validation needed	95% completed Appendix 6.4.11 Further model validation needed	95% Exchange to be completed
EverGraze Guidelines *Output: EverGraze Exchange on Critical control points*	80% complete – Exchange to be drafted out of Appendix 6.4.8			

Tactical Management Regimes

	Hamilton	***Wagga***	***Albany***	***Overall***
EverFarm design and implementation Output: Report on the three case studies including knowledge gaps	100% complete Appendix 6.4.9	100% complete Appendix 6.4.9	80% complete Appendix 6.4.9	95% complete
EverFarm – evaluation and recommendation Output: EverFarm evaluation report	100% Appendix 6.8.8			
EverGraze Guidelines Output: EverGraze Exchange – EverFarm Case Studies	90% Draft complete Appendix 6.4.9	90% Draft complete Appendix 6.4.9	40% Waiting on modelling report Appendix 6.4.9	80%Note. It is likely that one overall exchange on the process will become the strategic decisions exchange. Case study Exchanges are drafted

Communications (see Appendix 6.8.1)

EverGraze Update	4 per year	100% complete
EverGraze Exchanges	As stated above in Proof Site reports	80% complete (substituted by other work reported in Appendix 6.8.1)
EverGraze website	Quarterly reports	100% complete
Planning	Strategically plan EverGraze Campaign	100% complete
Media	Coordinate flyers, advertising and media articles for EverGraze Campaign	100% complete
Team support	Assist regional partners	100% complete
Reporting	Quarterly report web stats, monthly report, progress and communications outputs	100% complete

Extension (Section 6.8)

	National (Section 6.8. Impact report 6.9.2)	***Victoria***	***NSW***	***WA***
Awareness Activities	100% Coordination across all regions (100%)	100% Delivery support and coordination of Supporting Site field days and the Chiltern and Hamilton Proof Site field days.	100% 5 major field days (Panuara, Willow Tree, Tamworth, Gwabegar, Bingara) At least 1 activity in SNSW	100% At least one activity
Communication activities	100% Manage Communication contract (Gill Fry) Contribution to EverGraze Exchanges/Actions, Updates, Website, media	100% Contribution to EverGraze Exchanges/Actions, Updates, Website, media	80% (most has occurred through Proof Site teams) Contribution to EverGraze Exchanges/Actions, Updates, Website, media	100% Contribution to EverGraze Exchanges/Actions, Updates, Website, media (case studies)
Extension messages	**90%** (some integration and synthesis yet to occur) Development of national extension messages and their integration into appropriate delivery programs	**100%** Support Proof Site result synthesis (Albury Wodonga and Hamilton) and lead the development of regional extension messages Work with the National Extension Leader to incorporate extension messages into appropriate delivery programs in Victoria.	**100%** Support Proof Site result synthesis (Wagga and Holbrook) and lead the development of regional extension messages Work with the National Extension Leader to incorporate extension messages into appropriate delivery programs in NSW	**100%** Support Proof Site result synthesis and lead development of regional extension messages. Work with the National Extension Leader to incorporate extension messages into appropriate delivery programs in WA
Development activities	**100%** Management of EverFarm Pilot contract (Geoff Saul)	**100%** Contribute to the EverFarm pilot in Hamilton and its evaluation Participate in the development of Tactical Management	**70%** Contribute to the EverFarm pilot in Wagga and its evaluation (completed by CSU) Participate in the development of	**100%** Contribute to the EverFarm pilot in WA and its evaluation Participate in the development of Tactical Management Regimes for WA

		Regimes for Hamilton Contribute to an "EverGraze Package" for Northeast, Southwest and Gippsland (ongoing).	Tactical Management Regimes (completed by CSU) Contribute to an "EverGraze Package" for SNSW, NNSW, CNSW (ongoing, slightly behind)	Contribute to an "EverGraze Package" for WA (ongoing).
Training products (Appendix 6.8.9)	**100%** ▪ Development , piloting, reviewing and delivery of two training programs ▪ Investigate potential delivery of two training programs in NSW, SA, WA	**100%** ▪ Pilot delivery of training programs in NE Victoria and Southern NSW (5 groups) ▪ Review pilots and modify training programs for future delivery in Victoria. ▪ Delivery of revised training programs – at least 1 group in each of South West and North East Victoria	**70%** Review new training programs to determine suitability for delivery in SNSW. If suitable, pilot delivery of training programs in SNSW (Piloted in Holbrook only 2010) Investigate opportunities for development of further training programs using messages from the Proof Sites (integrated into Whole Farm Grazing Strategies)	**100%** Review new training programs to determine suitability for delivery in WA.
Activities	**100%** Coordination of extension teams across NSW and Victoria Incorporation of EverGraze messages into Supporting Site network activities and training plans (25 sites Vic, NSW, SA)	**100%** Ensure that EverGraze messages are delivered through training plans and field days for 20 Supporting Sites across NE, Gippsland and SW Delivery of EverGraze outcomes to next users Engagement and delivery through group networks (BWBL and BetterBeef)	**100%** Work through the EverGraze process with 3 NSW ERG's and 6 key producer groups, 2 in each region (February 2011). Construct a training plan for the 6 groups based on the EverGraze process and pasture skills audit (April 2011). Use the pasture skills audit as a benchmark survey	**100%** Deliver the EverFarm Pilot
Planning	**100%** Engage with participating agencies and complete operational plan for 2010-2011 by 30th November 2010 Participate in the writing team for the National RD&E strategy 2011-2014 Work with the FFI CRC Agribusiness manager, the Adoption Team and participants across NSW, Vic, SA and	**100%** Submit an operational plan to the National Extension Leader Attend a national planning meeting and contribute to the development of the 2011-2014 National Extension Plan.	**100%** Submit an operational plan to the National Extension Leader for 2010-2011 Attend a national planning meeting and contribute to the development of the 2011-2014 National Extension Plan.	**100%** Submit an operational plan to the National Extension Leader for 2010-2011 Attend a national planning meeting and contribute to the development of the 2011-2014 National Extension Plan.

	WA to develop the 2011-2014 National Extension Plan			

Monitoring and Evaluation (Section 6.9)

Participation data	Entered for activities, collated and reported	100%
EverFarm evaluation	Report completed (Appendix 6.8.8)	100%
New approaches to M&E	Evaluation plan completed for the next phase and piloted this phase (Appendix 6.9.3)	100%
EverGraze evaluation	Impact report completed (Appendix 6.9.2)	100%

6.2	**Governance and coordination**	100% Completed

Description:

EverGraze is governed through a National Advisory Committee (NAC) with producer and investor stakeholder representatives. This group has established terms of reference and meet at least twice per year to advise on project decisions at a strategic and national level. The NAC provides strong advocacy for EverGraze over the last three years.

Measure of success *(for this milestone)**:***

1. NAC meeting conducted, Final ERG and NAC meetings with evaluation and professional closure
2. Recommendations provided from these committees on future directions (post 2011)

Achievements:

1. NAC meeting conducted, Final ERG and NAC meetings with evaluation and professional closure

- The project has been through a challenging 12 months, with governance and leadership heavily focussed on securing direction and resources for the 2011-14 period.
- At the October NAC meeting, a new governance structure was agreed to with research, development and extension components of the project operating under a single contract for all project partners, reporting to the CEO of FFI CRC. With this came changes to the NAC membership with the new Program Leader, Michael Friend now representing FFI CRC.
- Kate Sargeant was appointed EverGraze Extension Leader in September 2010, working alongside Project Leader and EverGraze Research Leader, Angela Avery. The closer alignment of research and extension leadership, and program leadership resulted in significant benefits in the planning phases of the project.
- After the October NAC meeting, Chris Mirams informed the NAC that he would be stepping down as Chair. A process was then led by the FFI CEO with advice from project leadership to appoint a new member, Vicky Geddes. Chris stayed on as Chair for the April meeting to help the project to avoid further disruption on the point of project submissions in May/June. Chris will also attend the October 2011 meeting in Albany where a new Chair will be appointed.
- The uncertainty around funding and project direction has been unsettling for the project team and the ERG's. The Project Leader has needed to respond to two letters from ERG's in NSW to restore confidence in the future role of the ERG's, support for extension in their regions and the direction of the project.
- With certainty of the project continuing, there was no need to close the NAC or ERG's. Instead, discussion papers were written for both, recommending that the membership be reviewed and that the groups consider playing a significant role in advising on development of the legacy products - Regional Packages and training programs. ERG's at the native sites would also continue to advise the direction of the research and at improved sites the direction of modelling. The ERG paper is provided in Appendix 6.2.3. Feedback was received from the NAC and all ERGs indicating that they were enthusiastic to continue as a group and embrace the new direction. The Terms of Reference for both levels of governance have been modified (Appendix 6.1.1 and 6.2.2) in response to this and will be tabled at the next meetings.
- A further change to the project occurred in late June with Angela Avery stepping down as Project Leader. Angela's considerable input into the project over the past seven years meant that her departure left a considerable hole to fill. The CRC responded to this appointing Kate Sargeant as Project Leader (in addition to EverGraze Extension Leader) and Paul Sanford as EverGraze Research Leader (in addition to Albany Proof Site Leader). Additional administrative support has been provided to the leadership team to enable Kate and Paul to perform these additional roles. These arrangements are working out well.

2. Recommendations provided from these committees on future directions (post 2011)

- NAC meetings were conducted in October 2010 and April 2011. Both meetings were critical in advising on the strategic direction of the project in the next phase. There have also been several out-of-session decisions made by email and phone conference. Some of the outcomes included:
    - Endorsement and shaping of the EverGraze Package concept as the key output from the project
    - Development of the EverGraze Principles
    - Decision on the balance of research and extension in 2011-14

    - Recommendations to support extension in WA. This effort has resulted in significant support from DAFWA
    - Recommendations for the construction of EverGraze extension strategies
    - Endorsement of the approach to research developed in the February team meeting
    - Decision to close Holbrook Proof Site and a recommendation to expand Chiltern into a farming systems experiment
- EverGraze Regional Groups each met three times for the year.
- A discussion paper requesting input and feedback on the EverGraze Regional Package concept was prepared for ERG's by the EverGraze Extension Leader in October 2010. ERG's were requested to synthesise key messages from the Proof Sites against regional issues and present these in a paper at the February team meeting. The groups responded well to the concept of the Packages, and the prepared papers were helpful in identifying research gaps and key messages from the Sites for development of project proposals.
- A set of three discussion papers were prepared for ERG's in May 2011. These included a summary of the project proposal submission to AWI and FFI CRC requesting urgent feedback for incorporation into the proposal; a paper on the EverGraze Package and training programs requesting feedback; and a paper on the future role of the ERG's. These papers were presented by Kate Sargeant at the Albury Wodonga and Albany ERG's, and by site leaders or extension coordinators at the other sites. In general, they were well received and considerable feedback was provided. There were concerns expressed from Orange and Tamworth (mentioned above). These concerns related to uncertainty for extension support in those regions, and lack of feedback from project leadership on how advice from the groups had been utilised in the project proposals. The Project Leader has provided response to these concerns.
- A key recommendation that will be taken forward into the next phase is that the extension coordinators in each region will take greater responsibility for utilising the ERG's in strategic development of the EverGraze Packages and training programs.

6.3	**Research delivery**	100%
Description: A key activity for EverGraze was to undertake planning for the next phase. An endorsed discussion tabled at the June 2010 NAC mandated this activity. The need for this was also articulated in the FFI CRC operating plan. The process involved the formation of a Steering Committee, project planning, workshops, a team meeting, pre-experimental modelling, writing and negotiating multiple proposals.		
Measure of success *(for this milestone)**:*** Proposal developed for 2011-2014 including RD&E priorities and focus		

Achievements:

1. **Proposal developed for 2011-2014 including RD&E priorities and focus**

EverGraze has undertaken an extensive review and planning process over the past 12 months which has resulted in Delivery Phase of EverGraze in 2011-14.

The environment under which the project has been developed has been highly dynamic with a number of areas changing. CRC reviews, the National RD&E framework, MLA and AWI planning were continually shaping this environment. A summary of the steps that were taken in the development of the proposal are provided below.

- An EverGraze RD&E discussion paper was formed with input from Proof Site teams, workshops with the FFI CRC adoption team and National Advisory Committee and the project development Steering Committee. This was finalised and distributed to a range of people for comment including producers, consultants, agencies and funders.
- Comments were incorporated into pre-reading workshop material. A workshop was convened on the 23rd of November. This was followed up by a meeting the next day to brief a consultant (Russell Patterson) in order to develop the AWI investment prospectus.
- An AWI investment prospectus (Appendix 6.3.1) was drafted and submitted on the 10th of January and feedback was received on the 19th of January.
- The EverGraze team was requested to align research outcomes to key messages and to use this analysis to identify any additional gaps. These were reviewed and further discussed at the team meeting in February. There was agreement from all Proof Site Leaders that a priority should be given to finishing the native pasture work.
- The project team was informed that any EverGraze funding from MLA would come through the Feedbase Investment Plan (plan being developed under the National RD&E framework). EverGraze was required to submit a 3-page application into this process. The MLA Feedbase Investment Plan call for projects was made on the 18th of February with project ideas to be submitted on the 18th of March.
- The EverGraze project development steering committee re-convened on the 10th of March to work through the direction the plans were taking and to consider what was to be proposed for the MLA Feedbase Investment Plan.
- The project team submitted the EverGraze project idea to the Grazing and Production Systems priority area on time (Appendix 6.3.2).
- FFI CRC budgets were revealed in early April. These represented a decrease in funding and identified the need to increase extension in the final phase of the project. The Project Leaders have been working with the FFI CRC, MLA and AWI as well as the NAC to try to get the best outcome possible.
- A full proposal including the basis of an Industry Use Plan component was submitted on time to FFI CRC and AWI on the 23rd of June. Parts A and B of this submission can be found in Appendix 6.3.3 and 6.3.4. The time involved in preparing the level of detail required for the FFI CRC submission was significant. However, as a result of the process we have been through, for the first time, EverGraze project outputs have been clearly defined against measures of expected practice change and impact. The FFI CRC Project Evaluation Committee considered the EverGraze proposal to be thorough and focussed and recommended only minor changes.
- In response to the FFI CRC submission, EverGraze has received signoff by project partners MLA, AWI and FFI CRC. An additional $200k above the “Base Case” project submission has been provided by AWI. At this stage, the project team is discussing allocation of extra funding to finalise project activity (particularly modelling and economic analysis) and securing project transition in a third year (2013-14).
- The base case proposal is made up of the following components:

  Component 1- Driving the outputs and achieving farming system change (extension)

  1. Delivery and further development of the "EverGraze Package"

2. Training Programs (including online delivery through EverTrain if funded): Pastures for Place and Purpose and Whole Farm Grazing Strategies
3. Coordinated Supporting Site network (coordinators and their producers groups)
4. Activities targeting next users
5. Targeted awareness of the EverGraze Package
6. Communications
7. Innovative evaluation strategy

Component 2- Assessing farming system risk, return and environmental impact (research and development)

1. Validation of farming system models using EverGraze Proof Site data on improved and native sites
2. Adding to the Regional Packages using biophysical and economic farming system models to investigate combinations of plants, animals, and enterprises, overlaid by annual management for improving profit, natural resource management and minimising uncertainty of production and profit in each region.
3. The CRC submitted a proposal to the National Climate Change Adaptation Research Facility (NCCARF) which includes a component investigating the consequences of predicted climate change on EverGraze systems. If successful this will add significantly to EverGraze outputs over the next 2 years

Component 3 – Efficient use of farming system resources (research and development)

1. Orange farming system research site – final year data collection to develop messages around interactions between the landscape and the grazing system.
2. Chiltern farming system research site – final year data collection to complete the story around fertiliser and grazing system effects on native pastures; determining the value of an improved pasture component (lucerne) on the meat quality and turnoff weights in lamb finishing systems.
3. Perennial pasture combinations in Northern NSW – finalising messages from component work on lucerne and tropical grass mixtures, lucerne mixtures, sowing time experiments, and a hydrology of mixtures experiment. Modelling work will also be undertaken to determine the change in species composition over time in lucerne/grass mixtures under a range of climate scenarios.
4. New species and combinations - species and cultivars developed by FFI CRC will be integrated into farming system models to determine their potential impact on profit, NRM and risk.

Component 4 – Demonstrating environmental outcomes of profitable systems

- The project will use modelling supported by data to further assess farming systems designed in Components 2 to 4 to assess the soil (sediment loss) and water impacts of livestock production systems promoted by EverGraze at a regional scale.

Component 5 – Project implementation and integration

- The current governance and project leadership framework will remain intact.

Additional project proposals and securing in-kind commitment for extension

- In addition to the Base Case project submission, proposals have been developed for AWI for EverGraze course development and delivery to next users and end users through EverTrain (Appendix 6.3.5); and for Caring for Our Country for the expansion of the Supporting Site network and delivery of training to producer groups (Appendix 5.3.6). To date, positive feedback has been received from AWI and we are currently preparing to resubmit this proposal. No feedback has been received from Caring for Our Country to date.
- The EverTrain and Caring for Our Country project proposals have been important for securing in-

kind extension support, particularly from NSW and WA. Success of these proposals will also allow for continued delivery into SA.

- The EverGraze Extension Coordinator has worked in partnership with FFI CRC to secure in-kind commitment from WA and NSW for extension throughout the past 12 months. This has resulted in the greatest ever commitment from DAFWA (1.5 FTE) and growing interest and commitment from DPI NSW as priorities are beginning to align.
- Three meetings have been held with the NSW DPI extension team in addition to a meeting with senior NSW DPI personnel and the FFI CEO. These meetings are resulting in growing understanding of what is achievable in development and delivery in the state, and potential for increasing support for the project.
- The EverGraze Extension Coordinator has also spent time in Albany with the Regional Extension Coordinator, the Site Leader and the ERG to assist with development of extension plans for that region, which is demonstrating great promise for a growing level of activity.
- Success of the EverTrain proposal is key to securing the necessary capacity and capability building of service providers for delivery of EverGraze outputs in the short and long term. Capacity building in the area of farming systems extension is a key priority for participating agencies and this is particularly evident in DPI Vic. A narrative provided by Warren Straw (Meat and Wool Services Branch Director, DPI Vic) highlights the importance of this area (Appendix 6.9.2).

Industry Use Plan Development

- A full Industry Use Plan for the EverGraze System (including EverGraze, Tropical Pastures, New Temperate Perennials, Lotus, and Tedera) is currently being developed by the EverGraze Project Leader with support from the FFI Agribusiness Director and the Adoption Team and will be submitted to the CRC on the 30th of September.

6.4	**Design new farming systems**	90% Completed

Description: EverGraze undertakes farming systems research, development and extension. Farming systems RD&E solves problems (i) *by* investigating the components and linkages, and risks, uncertainties and dynamics, of operating farm systems over time, (ii) *by* building understandings and explanations of the interactions and interdependencies of farmers, farms, agriculture, markets, natural environments and social systems, and (iii) *by* imagining, analysing and contemplating alternative futures for farm systems and their operators

Measure of success *(for this milestone)**:***

New farming systems (Proof Site Research, TMR and EverFarm)

1. New farming systems construction based on integration of native pasture and improved perennials that further increase profit from perennials and improve NRM outcomes above 2008 systems.
2. Strategic and tactical management plans developed for EverGraze farming systems based on a benchmarking approach and the incorporation of research findings
3. Principles to inform producers about the spatial arrangement of vegetation for production and NRM benefits described
4. Tactical management regimes for up to 3 different farm to market value changes that account for profit, risk and natural resource objectives completed and reported
5. EverGraze Package to support change on farm developed and delivered to 3,000 producers

Achievements:

1. **New farming systems construction based on integration of native pasture and improved perennials that further increase profit from perennials, and improve NRM outcomes above 2008 systems.**

- The EverGraze Regional Packages will be the place to integrate evidence from physical data collection with current and future biophysical and economic modelling (including outcomes from EverFarm and Tactical Management Strategies) across the seven Proof Sites as well as other research conducted locally in each region.
- A number of activities have occurred over the past 12 months in an attempt to synthesise research outputs for the development of EverGraze Regional Packages. At the EverGraze team meeting held in February 2011, it became evident that before messages could be truly synthesised and aligned to evidence, further economic and biophysical analysis was required to first align local research outcomes and recommended practices to measures of impact. This has been achieved and reported on in site reports (Appendix 6.4.1-7) which provide recommendations for the design and management of farming systems in a regional context, and detailed descriptions of those that were tested in each region.
- The site reports provide measures of impact of feedbase (pasture system), livestock system, grazing management and livestock management/animal husbandry practices at the system and component levels for productivity, economic, environmental, risk management and lifestyle pros and cons. Issues relating to integration of the practices into whole of farm management have also been identified. These reports will form the basis for Exchanges that will be developed for the EverGraze Regional Packages. Exchanges for the Improved Sites will be developed in two steps - a first edition with biophysical analysis and economic modelling to date, and a second edition with further modelling work from the next phase incorporated. The first step Exchanges for the native sites will be produced for the June 2012 milestone.
- Key Principles and Guidelines synthesise recommendations from the regional reports for the design of farming systems to address key issues common to all regions. A first draft of these is provided in Appendix 6.4.16. Our next step will be to review reports for each region to further develop the Guidelines and synthesise evidence (from the sites, Tactical Management Regimes and EverFarm) for the development of an EverGraze Exchange on strategic decisions. This will sit at the forefront of the EverGraze Package.
- Synthesis of site outcomes as well as evidence from other local research will also be used for development of Regional Packages.

Proof Site Progress (full reports in Appendix 6.4.1-6.4.7)

- It is noted that there is variance in the level of detailed analysis and reporting on each of the Proof Sites. A summary of the status of these reports and timelines for further development are provided below.

Improved Proof Sites

- With the bulk of the field work completed these Proof Sites have shifted their focus to data analysis, scientific publication, modelling and the development of extension material including the EverGraze Package. In the last 8 months all of the sites have undertaken simulation modelling using GrassGro, further economic analysis including MIDAS and explored a broad range of tactical options as part of the Tactical Management Regimes activity. In addition they have made valuable contributions to EverFarm.
- The modelling work done to date has highlighted the need to better validate GrassGro before any further analysis is commenced. Once validation is completed in the next 6 to 12 months GrassGro can be used to generate the biophysical data required to inform the planned cost/benefit analysis of EverGraze livestock systems. All three sites also have a number of farm systems questions they plan to tackle in the next 2 years. A more rigorous approach to modelling, integration across sites and possible across-site publications will be tackled at the October 2011 research meeting.
- The work done by the improved sites this year, as evidenced in their site reports, is sufficient to allow the extension teams to commence building the respective EverGraze Packages. In the next

2 years the research teams will continue to refine this information as they conduct further analysis, modelling and publication of Proof Site results.

Native Proof Sites

- Field experimentation continues at the Orange and Chiltern Proof Sites. Recent findings at Orange include higher pasture growth rates in the 20 paddock treatment compared to the single paddock, similar groundcover across all treatments, ewe liveweight and condition score highest in the 1 paddock treatment, most lamb sold from the 20 paddock system and highest gross margin from the 20 paddock treatment largely due to a higher stocking rate.
- At Chiltern analysis of the pasture data to date reveals there are no significant differences in herbage mass, groundcover, percent green or botanical composition between fertiliser and grazing treatments. Lamb production across set stocked and rotationally grazed is also similar. It is however too early to draw definite conclusions other than the site has shown it is possible to produce prime lamb on native pastures. Further evidence of progress for these sites is contained in the site reports.
- The Holbrook site has been decommissioned and the final data analysis and scientific publication commenced. Preliminary analysis suggests that the integrated system plus fertiliser running ewes on both native and phalaris pasture is more profitable than the separate flocks treatment running wethers on native pasture and ewes on phalaris. The economic outcome however is sensitive to the ratio between wool and lamb prices.
- The team at Tamworth has been documenting its farm survey work in a series of conference papers. Their work on 'Plant diversity in agricultural landscapes' is being published as journal papers and will form the basis of Mr Schultz soon to be submitted PhD thesis. This work has also been used to develop a producer tool to assess on-farm grassy woodland. The component work at Tamworth investigating the agronomy of lucerne-grass mixtures continues. Interesting findings to date are that lucerne-grass mixtures provided greater accumulated herbage mass compared with grass alone, but less than or equal with lucerne alone. Lucerne-grass mixtures use a similar amount of water to pure lucerne stands.
- Much of the future work at Orange, Chiltern and Tamworth will involve ongoing field experimentation. Given that the majority of these investigations are tackling components within a native pasture system the challenge in the next 2 years is to determine the impact these components may have on the profit and NRM outcomes of the whole farm system. While all of the native sites have done some economic analysis none have validated a biophysical model with the aim of simulating a whole farming system including profitability. The native sites will develop a plan to use the SGS Pasture Model at the research meeting in October 2011 with the aim of undertaking in the next 3 years systems analysis similar to that of the improved sites. The evidence to start planning EverGraze Packages for the native sites is contained in their respective site reports.

2. Strategic and tactical management plans developed for EverGraze farming systems based on a benchmarking approach and the incorporation of research findings

- The EverFarm project used a workshop and whole-of-farm system modelling approach to apply EverGraze principles to the development of strategic plans for farm changes that would achieve profit, environmental, risk and NRM objectives. Outcomes from the EverFarm process are reported in section 6.8. Individual reports for Hamilton, Wagga and an interim report for Albany are in Appendix 6.4.9, 6.4.10 and 6.4.11 respectively
- The outcomes of the Tactical Management Regimes project are presented below. This project did not focus on the development of "plans" as such, but more on providing evidence to support a range of different management decisions that could be implemented within Proof Site systems. This is reported below.

3. Principles to inform producers about the spatial arrangement of vegetation for production and NRM benefits described

- All the Proof Sites are at various stages with respect to developing evidence to support principles for the spatial arrangement of vegetation at both the farm and catchment scale. A summary for each site is presented below;
- Albany – The proportion of a farm to be planted to perennials for optimum production has been

extensively assessed (Appendix 6.4.3) and some preliminary recharge numbers around this proportion simulated (6.4.14). The site has a good understanding of the soils suitable for particular plant species. A preliminary assessment of the impact of EverGraze systems on catchment hydrology has been documented (refer to Appendix 6.5.3) however further work is required to complete this analysis and integrate it with the farm scale findings.

- Hamilton – This site has completed the most comprehensive analysis at both the farm and catchment scale (refer to Appendix 6.4.1, 6.5.1 and 6.5.2) and provides detailed recommendations on the spatial placement of perennials. This has formed the basis of a draft EverGraze Exchange on the Spatial Arrangement of Perennials for productivity and environmental benefit. This will be published in the coming months. No further work is envisaged other than to progress findings to an EverGraze Exchange and the EverGraze Package.
- Wagga – Considerable analysis has been undertaken to determine the optimum proportion of the farm that should be planted to lucerne for production goals (refer to Appendix 6.4.2). The team also has a good understanding of which soils are best suited to particular species. The impact of EverGraze systems on catchment hydrology has been assessed (refer to Appendix 6.5.1 and 6.5.2) and the integration of farm and catchment scale findings was considered as part of the EverFarm activity (refer to Appendix 6.4.10). Further work is required on integration.
- Tamworth – The relationship between soil type and suitable species is understood at this site as well as the hydrology at a paddock scale. However they have not assessed the spatial arrangement of vegetation at the farm scale and the impact of EverGraze systems on catchment hydrology has not been looked at other than as part of the pre-experimental modelling.
- Holbrook/Chiltern – Neither of these sites has looked specifically at the spatial arrangement of vegetation at the farm scale to date. However both have a good historical understanding of the influence of topography and soil type on vegetation for example native verses improved. The impact of EverGraze type systems has been assessed for these sites at the catchment level (refer to Appendix 6.5.1 and 6.5.2). It is the intension of the project team to look further into the use and proportion of lucerne and phalaris in native pasture systems.
- Orange – Other than an historical understanding of the arrangement of vegetation on the landscape this site has not examined this question yet at either the farm or catchment scale other than a small amount of work done as part of the pre-experimental modelling.
- A very early draft of an EverGraze Exchange has been written which will cover the spatial placement of perennials. This Exchange is based on the Hamilton system and will be progressed to publication within the next couple of months. A decision will be made at the September extension team meeting as to whether spatial arrangement Exchanges will be developed at regional or national level.

4. Tactical management regimes for up to 3 different farm to market value changes that account for profit, risk and natural resource objectives completed and reported

<u>Tactical Management Regimes</u>

- The EverGraze Tactical Management Regimes (TMR) project led by Geoff Saul was conducted by Proof Site teams at Hamilton, Wagga Wagga and Albany. A summary of outcomes of the project is provided in Attachment 6.4.8. Full (draft) reports on the individual sites are provided in 6.4.9, 6.4.10 and 6.4.11. Outcomes of the project have also been incorporated into individual Proof Site reports in Appendices 6.4.2, 6.4.3 and 6.4.3.
- The TMR project used GrassGro to evaluate the impact of perennials over a greater range of seasons, in different livestock production systems and with alternative management to that captured within the Proof Site experimental period.
- The TMR modelling work was undertaken by Lisa Warn (Hamilton), Susan Robertson (Wagga Wagga) and Paul Sanford (Albany). Some of the key outcomes are highlighted below.

Albany:
Pasture systems

- Pasture systems that comprise of between 25 and 50% perennials are more profitable than those based entirely on annual pastures.
- Perennials increased average gross margins by between $17 to $20 per ha
- The system comprising of 50% perennials was the most robust in dry seasons.

Risk and seasonal variability

- Perennial pastures were less risky and less effected by variable seasonal conditions than annuals
- Stocking rates above the optimum level (6.5 DSE/ha) were subject to increasing costs in dry seasons due to increased supplementary feeding, while reducing stocking rates to 5.2 only had a minor impact on gross margins

Livestock system

- Ewe lamb systems ($294-$320/ha) were more profitable than cattle systems (-$85/ha) in a 25% perennial pasture system
- Dual purpose or self replacing merino systems were slightly more profitable($20-30/ha) than prime lamb focussed systems
- Moving to later lambing (July to August) reduced gross margin due to higher supplementary feeding costs.

Wagga Wagga:
Modelling issues

- There were some issues with the pasture growth pattern for the phalaris which may have impacted on the results below. This will be addressed in the coming months as GrassGro undergoes further validation at the sites.

Pasture systems

- Effect of proportion of lucerne on profitability of September merino x terminal system:
    - No difference in gross margins between systems with 20% and 40% lucerne if lambs were sold at weaning
    - 40% lucerne produced higher gross margin that 20% if lambs retained until February (and higher than if lambs were sold at weaning with 40% lucerne)

Seasonal and market variability/risk

- The proportion of lucerne in the system had relatively little effect on the reduction in GM in dry autumns or springs. All systems experienced a decline in GM of 9-20%. (This finding is in contrast to site results which were more profitable under 40% lucerne in both dry and wet years)
- Self-replacing merinos lambing in September with progeny sold at 15 months were quite profitable but overall returns were greatly influenced by the price received for sale stock varying from $228 - $310/ha.

Livestock systems

- September lambing clearly more profitable than July lambing systems ($176/ha with July lambing or $290/ha if September lambing)
- Merino systems more profitable than composite systems and all ewe-lamb systems more profitable than cattle systems (beef cattle systems provided only 30% of the GM of any of the sheep systems).

Allocation of summer feed

- Using the green feed in summer to flush ewes prior to joining is the most effective way to use the

feed and sufficient should be on hand in most years to satisfy requirements. While green feed could be used for lambs, the amount available will not be sufficient in many years and quality may not be adequate to sustain high growth rates required (Note that these values assume that the lucerne is available as required without significant losses from leaf drop or senescence).

Hamilton

Pasture system

- Relatively little impact of pasture type (between the Ryegrass and Triple systems) on profitability of the different livestock system at standard stocking rates and lambing times.
    - Supplementary feeding costs lower for the Triple system
    - Gross margins less variable for Ryegrass system

Seasonal variability

- Gross Margin of the Triple pasture system was less variable than that from the PRG system due to lower supplementary feeding costs in dry years.

Livestock systems

- Potential to run higher stocking rates than used at the Proof Site (18 DSE/ha vs. 16 DSE/ha) with relatively little increase in variability of GM
- Composite ewe systems slightly more profitable ($57/ha, 6%) than dual purpose or self replacing merino systems.
- Self-replacing Merino ewe systems with hoggets sold at 15 months had a GM 25% lower than the Merino Terminal system.
- Livestock system outcomes in contrast to Albany and Wagga which needs to be further explored.

Allocation of summer feed

- Further analysis is required for this section of the report. However, the information provided suggests that the Triple system provides adequate green feed to flush ewes in 3 out of 4 years whereas for PRG systems it is only available about 1 year in 4.

Tactical Management Regimes Implications

- The results from the TMR expand the results from the Proof Sites to a wider range of seasonal conditions, stocking rates, lambing times, livestock enterprises and management options. As such the TMR results give greater confidence in the applicability of the Proof Site results over a longer period of time and under different management.
- A major benefit of the modelling is to provide information on year to year variability and the level of risk of a particular livestock system. This allows producers to balance average gross margins with variability in tough years.
- The Tactical Management Regimes project has provided excellent starting point for further modelling work to be carried out for the development of the EverGraze Regional Packages in the next phase. It has also begun the process of using modelling to extrapolate messages both within and between sites.
- It is noted that there are differences in the conclusions drawn between the sites in the suitability of livestock and pasture options. This further highlights the need to keep EverGraze recommendations regionally specific in the Packages.

Recommendations addressed in the next phase

- The TMR project coordinator made a number of recommendations throughout the report. These are addressed below:
    - Gaps in the individual reports will be addressed in the coming weeks as data analysis is finalised.
    - GrassGro will be further validated against site data over the next 6 months to improve the fit between field data and simulated values. The scenarios tested will then be reassessed to ensure the messages are valid.
    - Once GrassGro is properly validated, additional scenarios such as interactions between pasture type and lambing time will then be addressed as part of the next phase.

- An 8 page EverGraze Exchange summarising the TMR results will be prepared once the regional reports are finalised. This will be in addition to outcomes from the project being incorporated into Proof Site Exchanges in the EverGraze Package.
- The potential to develop a simple spreadsheet to determine the best use of green feed in summer will be investigated as part of Package development.

5. EverGraze Package to support change on farm developed and delivered to 3,000 producers

- The "EverGraze Package" has been re-defined in this phase and will form the cornerstone of delivery in the next phase. A full description of the Package is provided on Page 10 of the Part A FFI CRC project proposal in Appendix 6.3.3. The development of Regional Packages for Southern Slopes NSW, southwest Victoria and South Coast WA will be delivered by June 2012. Packages for Central Tablelands NSW, northeast Victoria and northern NSW will be delivered in December 2012. A draft framework is presented in the Part A of the FFI CRC project proposal (Appendix 6.3.3). Proof Site reports together with Tactical Management Regimes and EverFarm outputs have provided a solid start for Package development.
- The EverGraze Regional Package concept has been rigorously tested and refined through a number of steps engaging the FFI CRC Adoption Team, the NAC, ERG's, regional Proof Site and extension teams, the Supporting Site coordinators network, and the BESTWOOL-BESTLAMB coordinators network.
- An initial list of resources to be included in the Package is provided in Attachment 6.4.15. It is critical that practices promoted in each Regional package are supported by evidence. Key research papers and literature reviews will therefore also be included.
- The final framework, proposed content of Regional Packages and delivery mechanisms will be outputs of the September 2011 national extension team meeting.

6.5	**Improved farm to catchment modelling**	100% complete

Description:

One of the unique features of EverGraze is the farm to catchment scale modelling. For each pilot catchment, the catchment model will be used to estimate the likely impacts of landscape and land management change on catchment water yield, sediment loss, saltload and area of salinisation – subject to availability of data layers. It is the 50% reduction in recharge at the catchment scale that will be the ultimate test of whether particular animal production system are to be of benefit in reducing recharge

Measure of success *(for this milestone)**:***

1. Farm to catchment models improved
2. The impact of EverGraze farming systems on water (run-off and recharge) under current and future climatic scenarios for the 6 regions completed with recommendations to industry
3. Development of critical soil and pasture parameter sets (lucerne, chicory, kikuyu and tall fescue) completed
4. Model linkages and capacity to address whole farm system and NRM questions in the grazing industries

Achievements:

1. Farm to catchment models improved

- Farm to catchment models have been developed for all Proof Sites

2. The impact of EverGraze farming systems on water (run-off and recharge) under current and future climatic scenarios for the 6 regions completed with recommendations to industry

- CAT was used to model the potential effect of EverGraze farming systems implemented on the 6 catchments and this was reported in the 2010 final report (Appendix 6.5.1).
- CATplus models have been used to predict the impact of EverGraze principles applied to landscapes in the Wannan and Tarcutta catchments in further detail. The final CATplus report on these two catchments is provided in Appendix 6.5.2. A summary of the key findings is provided below.
- More detail and the relevance to impact of Proof Site practices within regions are also provided by in the site reports in Appendices 6.4.2-7.

<u>Tarcutta</u>

At Tarcutta, EverGraze systems based on the Wagga Proof Site (lucerne, phalaris and fescue) were applied to three separate regions (upper, mid and lower) of the catchment. The report made recommendations as follows:

- Adoption of NRM solutions in the upper parts of the catchment has high impact on flow reduction.
- As this impact is negative, increase in perenniality is not recommended, unless there is an indication of soil degradation due to waterlogging or soil erosion. In such a case, the solutions should be restricted to the specific location.
- Type of impact seems to correlate with the geology:
    a. Granite: (Westbrook), which has higher base flow during the dryer part of the season: impact of flow reduction concerns mainly downstream water users through reduction of catchment yield.
    b. Metasediments (Humula), which has steeper recession and lower base flow in summer: impact of flow reduction concerns local water users in summer, especially during droughts, and all the water users (local and downstream) outside these critical periods through reduction of the catchment water yield.
- Probability of high adoption rates of EverGraze solutions in these upper parts of the catchment is low, especially upstream of Humula. Increase in perenniality due to forestry expansion upstream of Humula, in combination with the 2000-2009 drought caused deepening of watertable, reduction in spring numbers, drying of the creeks, especially in summer, and impacted locally water supply. This generated water-supply related concerns among local population.
- NRM solutions in the lower parts of catchment (NW of the highway) have very small impact on the

stream flow.

- Benefits in: (1) recharge reduction, (2) prevention of waterlogging and salinity (3) soil health and (4) productivity are large.
- Probability of adoption of EverGraze solutions in these areas, where the solutions are not only truly needed, but necessary is very high. Lots of landholders are actively involved in Landcare. Experience with shallow and rising water tables, waterlogging, salinity and soil erosion, generated:
    a. 4-5% increase in native tree-cover since 1978 in the lower parts of the catchment, and
    b. Sacrificial paddocks where stock is removed during droughts for feed, to maintain good plant cover and prevent soil erosion and degradation on their properties.
- NRM solutions in the mid parts of catchment (SE the highway, downstream of Humula and Westbrook) can have a considerable impact on the stream flow and water yield. Flatter portions of this area have very low perenniality and in spite of lower rainfall, an estimated 10% of this section has problems with erosion, waterlogging and salinity, especially during prolonged wetter climatic spells. High adoption rates of EverGraze solutions are recommended locally, within the boundary of these areas that have problems. High adoption rates outside these areas, and especially in the higher rainfall bands, are more likely to have a negative impact on water yield and are therefore not recommended.

Wannan

- The report indicated that there would be a significant impact on recharge if EverGraze farming systems were adopted across 100% of the catchment. Adding woody perennials to the system would enhance this effect.
- Adoption of EverGraze farming systems would have minimal effect on stream flows and farm dam levels in the majority of the catchment but would increase the risk and length of time farm dams would be dry in dry years, particularly around the Cavendish area. This effect is only evident under 100% adoption. There would be little effect under a 50% adoption rate.

Use of CATPlus in EverFarm

- CATPlus was used to model NRM outcomes, specifically recharge, runoff and erosion, from the EverFarm properties under current practice and a range of future scenarios. For both the Hamilton and Holbrook EverFarm sites, modelling was conducted for both the farm and surrounding catchment. Whilst modelling of the Albany EverFarm site was restricted to the property due to data and time constraints.
- The CATPlus model was validated against a combination of soil water and plant production data from the EverGraze sites in Hamilton and Wagga Wagga. The results were also cross-validated with the GrassGro models developed for each EverFarm site to ensure that the story provided by GrassGro and CATPlus were developed from a consistent base of pasture production.
- Results of the above study are reported with EverFarm in Appendices 6.4.8-11

3. Development of critical soil and pasture parameter sets (lucerne, chicory, kikuyu and tall fescue) completed

- It was confirmed at the April NAC meeting that soil parameter sets were not required in this project.
- Pasture parameter sets are complete for improved pastures and will be complete with the natives with the finalisation of sites. Clarity has been sort from FFI CRC regarding sharing of data. We have suggested the use of a data/parameter sharing agreement.

4. Model linkages and capacity to address whole farm system and NRM questions in the grazing industries

We have demonstrated how SGS and GrassGro can be linked to CAT and we are exploring options to link with other models like Dairymod to include nutrients.

5. Development of critical soil and pasture parameter sets (lucerne, chicory, kikuyu and tall fescue) completed

- It was confirmed at the April NAC meeting that soil parameter sets were not required in this project.
- Pasture parameter sets are complete for lucerne, kikuyu, tall fescue, tall wheat grass, phalaris, perennial ryegrass, annual ryegrass improved pastures and a C3 native (microlaena) and a C4 native (redgrass) which have been run for each of the low input Proof Site catchments.

6. Model linkages and capacity to address whole farm system and NRM questions in the grazing industries

- We have demonstrated how SGS and GrassGro can be linked to CAT. This was utilised in the EverFarm work. We are exploring options to link with other models like Dairymod to include nutrients.

6.6	**Researcher Capacity**	60% Completed

Description:

One of the outcomes of CRCs in general is the development of new research capability through PhD and Masters students. EverGraze as a project has provided the basis from which students can undertake training.

Measure of success *(for this milestone)**:***

Research capacity: At least three PhD students with submitted thesis or nearing submission

Achievements:

- PhD and Masters students associated with EverGraze include:
  - Margaret Raeside (PhD – submitted and awarded): Ecology and management of summer active tall fescue in Western District
  - John Broster (PhD): Design and characteristics of shelter belts and their influence on the survival of new born lamb
  - Tom Jackson (PhD): The effect of environmental variability on the productivity of agricultural enterprises
  - Meredith Mitchell (PhD): The ecology of Microlaena stipoides in grazing systems
  - Felicity Cox (PhD): Developing a method for measuring the quality of pasture consumed
  - Claire Lewis (Masters submitted): Evaluation of novel perennial pasture systems for livestock producers in the high rainfall zone of south west Victoria
  - Mr Nick Schultz (PhD – to be submitted in September 2011): Plant diversity in agricultural landscapes of the North-West Slopes of New South Wales
  - Kate Sargeant (Masters - submitted): Using market research for the development and baseline evaluation of the extension strategy for EverGraze – a northeast Victoria pilot study.
  - Catherine Gulliver (PhD): Improving the Reproductive efficiency in ewes; manipulating pre- and post-conception nutrition to increase ovulation rates and alter sex ratio of offspring.

Two PhD theses and two Masters thesis have either been submitted or nearing submission.

6.7	**Products**	100%

Description:

To achieve on farm practice change targets EverGraze has a range of products and services on offer to producers in the high-rainfall zone of temperate Australia. Products generally support the increase of awareness and knowledge stages of practice change. Products included the Website, EverGraze Actions and Exchanges, EverGraze Update, case studies, decision support tools, media placements, posters, conference proceedings, and scientific publications.

Measure of success *(for this milestone)**:***

1. Spatial analysis of the impact of livestock systems on key natural resources determined, with an emphasis on water report
2. At least eight research papers submitted (whole of project)
3. Website maintained
4. At least 15 EverGraze Actions/Exchanges developed, to support practice change on 3,600 farms aligned to the principles of a farming system approach to achieve production increases through stocking rate, weaning percentage and pasture utilisation simultaneously with NRM improvement.

Achievements:

1. **Spatial analysis of the impact of livestock systems on key natural resources determined, with an emphasis on water report**

- Spatial analysis of the impact of livestock systems on key natural resources has been reported for the 6 catchments in Appendix 6.5.1. A more detailed analysis was completed for Tarcutta and Wannan (Appendix 6.5.2). An EverGraze Exchange has been drafted on the Spatial Arrangement of Perennials but further synthesis work is required before this can be published (see section 6.4 and 6.5 for further detail).

2. **At least eight research papers submitted (whole of project)**

- The following papers have been developed:

Accepted (n=6)

- Boschma SP, Lodge GM, Harden S (2010) Seedling competition of lucerne in mixtures with temperate and tropical pasture species. *Crop & Pasture Science* **61**, 411-419.
- Broster JC, Dehaan RL, Swain DL, Friend MA (2010). Ewe and lamb contact at lambing is influenced by both shelter type and birth number. *Animal*, **4**(5), 796-803.
- Friend MA, Robertson S, Masters D, Avery A (2007). EverGraze – a project to achieve profit and environmental outcomes in the Australian grazing industries. *Journal of Animal and Feed Sciences* **16 suppl. 2**, 70-75.
- King, B.J., Robertson, S.M., Wilkins, J.F. and Friend M.A. (2010). Short term grazing of lucerne and chicory increases ovulation rate in synchronised Merino ewes. *Animal Reproduction Science*, **121**, 242-248.
- Robertson SM, Friend MA, King, BJ (2008) Mild congenital goitre increases lamb mortality in southern New South Wales. *Australian Journal of Experimental Agriculture* **48**, 995-998
- Robertson, S.M., King, B.J., Broster, J.C and Friend M.A. (2011, in press). Survival of twin lambs is increased with shrubs, *Animal Production Science*

Submitted (n=9)

- Raeside, M, Friend, M, Behrendt, R and Lawson, A (2010) Grazing summer-active tall fescue at the three leaf stage creates a vigorous and resilient tiller population. *Crop and Pasture Science*
- Raeside M.C., Friend M.A., Behrendt R, Lawson A.R. and Clark S.G. (2011) Nitrogen management for tall fescue (*Lolium arundinaceum* syn. *Festuca arundinacea* Schreb.) during winter in south eastern Australia. *Journal of Agronomy and Crop Science*.
- Raeside M.C., Friend M.A., Behrendt R., Lawson A.R. and Clark S.G. (2011) Evaluation of tall fescue (*Lolium arundinaceum* syn. *Festuca arundinacea* Schreb.) as forage for sheep in the temperate high rainfall zone of south eastern Australia. *Grass and Forage Science*.
- Schultz NL, Reid NC, Lodge GM, Hunter J (2010) Determinants of composition of native vegetation on the North-West Slopes of New South Wales. Paper prepared for submission to Cunninghamia.
- Broster, J.C., Dehaan, R.L., Swain, D.L., King, B.J. and Friend, M.A. Ewe movement at lambing is influenced by both shelter type and birth number.
- Broster, J. C., Robertson, S.M., Dehaan, D. L., King, B. J. & Friend, M. A. Evaluating seasonal risk and the potential for shelter to reduce newborn lamb mortality using GrassGro®.
- Gulliver C, Friend MA, King BK, Wilkins JF and Clayton EH. Increasing the proportion of female lambs by feeding ewes a diet high in omega-6 fatty acids prior to and following conception
- Gulliver C, Friend MA, King BK, and Clayton EH. Role of omega-3 in reproduction of sheep and cattle
- Gulliver C, Friend MA, King BK, Wilkins JF and Clayton EH Increased prostaglandin response to oxytocin in ewes fed a diet high in omega-6 fatty acids

Conference papers (recent) (n=21)

- Dr Ralph Behrendt and John Young. EverGraze®: Pastures for Purpose. (2010). *Proceedings of the 51st Annual Conference of the Grassland Society of Southern Australia Inc. 2010. 97-108.*
- Badgery W.B, Millar, G.D, Mitchell, D. and Michalk D.L. (2011) Phosphorus Gradient due to Landscape in Variable Native Pastures. *Proceedings of IX International Rangeland Congress* p 309.
- Badgery W.B, Millar, G.D, Mitchell, D., Cranney P., Priest S. (2010) Predicting pasture production from November temperatures. *Proceedings of the 25th Annual Conference of The Grassland Society of NSW* p 108-111.
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Awaiting submission / draft (n=12)

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- Robertson, S.M., King, B.J. and Friend, M.A. The effect of condition score on the ovulatory response to flushing in Merino ewes.
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- Robertson SM, Broster JC, King BJ, Friend MA. Influence of ram birth weight ASBV on the incidence of dystocia in Merino ewes.
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3. **Website maintained**

The website is updated by Gill Fry on a weekly basis and less frequently by the EverGraze Research and Extension teams. Appendix 6.8.1 provides web statistics.

It is noted that in the last 12 month period, there was an average of more than 1500 unique visits to the EverGraze website each month. The total downloads of EverGraze tools were 3,298 and fact sheets were 1,595 which indicates that this information is sought and valued as a way of distance engagement.

Further development has taken place on the EverGraze tools. The Pasture Improvement Calculator is now capable of comparing annual/short term pastures with perennials (will be released on the website within the next couple of weeks). The Feed Budget Rotation Planner has new functions to make it easier to use. We are also about to release a paddock recording sheet as part of the planner. Both tools were demonstrated at the MLA Forum in Melbourne in February and posters were prepared. A YouTube video has been prepared for one of the calculators within the tool and can be found at http://www.youtube.com/watch?v=NanMR1fzCRo. More of these videos are currently under development.

In the next phase, the website will be redeveloped with interactive functions and expanded to cater for the EverGraze Regional Packages.

EverGraze Updates have been produced quarterly as per the schedule. For each issue 1,300 copies have been printed and sent out from Rutherglen. A further 3,500 have been emailed to those participants in the database with email addresses. On average, there are over 900 downloads of each EverGraze Update in a 12 month period. There are always less downloads of the December issue due to the busy time of year. For this reason, the project will only produce 3 Updates per year to save on costs in 2011-13.

4. **At least 15 EverGraze Actions/Exchanges developed, to support practice change on 3,600 farms aligned to the principles of a farming system approach to achieve production increases through stocking rate, weaning percentage and pasture utilisation simultaneously with NRM improvement.**

- To date, EverGraze has produced 5 EverGraze Exchanges, 13 EverGraze Actions, 1 native pasture FOO booklet, 3 regional native ID brochures, 8 posters, 34 case studies and two decision support tools. These are all available on the EverGraze website.
- The following list provides EverGraze Actions and Exchanges for 2010-2011 and their progress:

1. EverGraze Exchange - photo booklet estimating feed availability - native perennial pastures – completed. Awaiting minor modification before printing.
2. EverGraze Exchange - new farming systems to achieve profit and NRM – Will be replaced by 7 EverGraze Exchanges within the EverGraze Package describing the farming systems and their impact for each Proof Site (3 by December 2011, 7 by June 2012)
3. EverGraze Exchange – spatial placement of perennials – drafted by Kirsten Barlow. Further input from team required to get to print.
4. EverGraze Exchange – perennial shrubs placement to increase NRM benefits – completed
5. EverGraze Exchange – ovulation – completed
6. EverGraze Exchange – lamb survival – drafted by Wagga team (currently getting further input from Hamilton team. Will be complete end September)
7. EverGraze Exchange – strategic decisions in farming system management – will be carried forward for delivery in November 2011 as the headline publication for the EverGraze Package and will incorporate key learnings from EverFarm
8. EverGraze Exchange – critical control points for lamb production in the HRZ – drafted as output from Tactical Management Regimes (Geoff Saul contract)

9. EverGraze Exchange – EverFarm Case Studies (Albany, Hamilton, Wagga) – Drafted in this report. Will be reviewed and published by December 2011.

6.8	**Extension, adoption and training**	100%

Description:

EverGraze has a target of improved management over 500,000 ha and have principles and practices adopted from EverGraze on 3,000 farms by June 2011. The EverGraze adoption strategy aims to increase awareness, skills and knowledge of producers and next users to influence practice change. Engagement for awareness occurs through the communication strategy and field days. Knowledge and skill development occurs through integration of EverGraze principles, practices and use of EverGraze products in existing training and network programs in each state. The Supporting Site network allows producer groups to address specific issues identified in the region through on-farm demonstration and training. New training programs have also been developed to deal with implementation of grazing and pasture management plans on a whole-farm scale.

Measure of success *(for this milestone)**:***

1. Implementation of the communication and adoption strategy
2. 6,500 people on the EverGraze database; 300 next users active with EverGraze
3. Articles for Feedback and Prograzier reporting outcomes from the EverGraze investment and results from EverGraze
4. “EverGraze month” planned for Spring 2011.
5. Recommendations on funding for further work or closure of Supporting Sites network provided
6. EverFarm pilot completed and evaluated in 3 regions with recommendations for further implementation of EverGraze training module piloted via EverTrain

Achievements:

1. Implementation of the communication and adoption strategy

Communications (full report Appendix 6.8.1)

- Gill Fry was contracted to deliver the communications function for the project including managing the website, client database, publications, production of the EverGraze Update newsletter (4 issues), development of media releases, producing flyers for field days and sitting on the Future Farm committee for FFI CRC.
- The Communications Strategy 2008 to 2011 has been completed. All tasks within the Communications Strategy were delivered and many additional tasks were also achieved beyond the original strategy such as development of EverGraze templates, case studies, maps and posters and work for the Grasslands conferences.

Adoption strategy

- At a national level, 2010-11 was a year of development, working to secure investment and in-kind commitment from the agencies for delivery of the next phase, initiating development of products that could be delivered beyond the life of the project while maintaining momentum in delivery of communications and delivery.
- Key achievements of the extension team this year include completion of the EverFarm pilots, piloting of two accredited training programs with 52 producers, delivery to 1635 participants at field days and workshops and over 2700 participants at external presentations (many of these by the Proof Site teams).
- The Supporting Site project is strengthening in Victoria and at two sites in NSW and one in SA, with regional coordinators now taking a more proactive role in managing coordinators as a network. Some strong groups in Murmungee, Euroa and Ararat in Victoria, and Holbrook in NSW highlight the value of ongoing support in achieving practice change and impact. These sites also stand out in their successful demonstration of practices and measuring impact at the farm scale which is important for validation and future building of the EverGraze Package. Momentum is also building in WA where there is strong advocacy for the EverGraze Package and its delivery.
- Uncertainty over funding and the late appointment of Kate Sargeant into the role of EverGraze Extension Leader caused some loss of momentum in delivery. This was particularly the case in NSW where a new delivery team was appointed and the AWI Supporting Sites contract finished.
- Development of the EverGraze Package concept and corresponding decision process has changed the dynamics of the project team, bringing research and extension closer together for development and delivery of project outputs. Proof Site teams have worked to present the full story of their research outcomes – aligning practices to regional issues and providing evidence to support profit, environmental, risk management impact and considerations for integrating practices into whole of farm management. As we move from awareness to practice change, the extension team is becoming more focussed on using these outputs to assist farmers through a problem-cause-solution-outcome decision process. As the analysis of outputs strengthens and the portfolio of evidence to support decisions grows, this process is becoming easier.
- Capacity and capability of service providers has been identified as the biggest issue for achieving adoption of EverGraze outputs. The extension team is therefore focussed on strategies to address this area. One such strategy is delivery through EverTrain to next users and future deliverers. Details are provided in 6.8.5.

Victoria (SW full report Appendix 6.8.4, NE full report Appendix 6.8.5)

- There is now a total of 18 DPI Vic staff engaged and working on EverGraze extension. An additional 10 private consultants and Landcare staff are engaged as Supporting Site coordinators. The breakdown is provided in Appendix 6.8.2. Advances have been made towards building capability of the EverGraze project team in Victoria. A number of staff meetings and training activities have taken place over the past 12 months in addition to upskilling staff through their work on Supporting Sites. DPI Vic has identified farming systems extension as a key capability deficit and intends to significantly increase the focus of skill development in this area for the next phase. Development and delivery of Whole Farm Grazing Strategies through EverTrain will be important for this.
- There has been a high level of EverGraze activity in northeast and southwest Victoria. Gippsland has been less active but is developing a strategy for higher engagement in the next phase.

- Engagement of next users has predominately occurred through the Supporting Site and BESTWOOL-BESTLAMB networks. Workshops were held for Supporting Site coordinators in the southwest (20 participants) and northeast (7 participants) in February. The aim was to increase awareness of how the EverGraze project functions, communication, evaluation and how the team/network functions in the future. Activities were also run at the workshop to build skills and knowledge in the use of tools and training products, understanding EverGraze Proof Site outcomes and applying EverGraze principles to whole of farm management. A key outcome of these workshops was the establishment of regular regional Supporting Site coordinators phone hook-ups. These are working to bring the network closer together, ensure that EverGraze outcomes are delivered through the groups, coordinators are learning from each other, and the site achievements and interesting observations are communicated throughout the national network.
- The Supporting Site network in Victoria has conducted a total of 56 events engaging 967 producers and 142 next users over the past 12 months. Practice change and impact outcomes have been recorded in the impact report.
- A key achievement for Victoria was the delivery of the pilot training programs in 2010. These are reported later.
- Anita Morant has been very active in working with the Hamilton Proof Site team and ERG for the development of Proof Site key messages, conducting state-wide meetings to build a delivery network, and assisting the EverGraze Extension Leader with development of the next phase. She also successfully coordinated EverFarm in Hamilton.
- In the northeast, producer groups at Murmungee and Euroa are making significant impacts within and outside their groups through training and demonstration of EverGraze principles put into practice at farm scale. Funds were also obtained to support the Goulburn Broken grazing strategies project which has engaged an additional 6 DPI staff members and so far one producer group into the EverGraze. This group intends to complete Whole Farm Grazing Strategies.
- Looking forward, the Victorian extension team intends to focus on the development of key Package components which will improve engagement and capacity building of next users. Finalising the development of Whole Farm Grazing Strategies is also a key priority. A number of issues relating to adoption of EverGraze practices and potential strategies for overcoming these have been identified by the southwest team and ERG. Anita Morant intends to investigate putting some of these solutions in to practice in 2012.

New South Wales (full report Appendix 6.8.6)

- NSW DPI were engaged under a subcontract to DPI Vic to conduct extension activities aligned to the national strategy and assist with development and planning activities for the next phase. Activity in the northern and Central Tablelands regions was led by Lester McCormick (Tamworth DPI) while activity on the Southern Slopes was led by Nigel Philips (DPI Wagga). The EverFarm project in Holbrook was coordinated by Alison Southwell, Charles Sturt University, with some input from Phil Graham (DPI Yass) as a participant. The outputs from EverFarm are reported in Appendix 6.4.10.
- A delivery plan was developed for NSW based on the national strategy and issues identified from market research, predominately in northern NSW.
- A decision process based on EverGraze principles was piloted with all ERG's and two groups in NSW (Bundarra, and Uralla in the north, and Goolma in the Central Tablelands). The outcomes from these discussions formed the basis for the issues to be addressed in the EverGraze Regional Packages. Other group activities included conducting pasture skills audits, a needs analysis workshop and establishment of two demonstration sites.
- 22 members of Holbrook Landcare group completed the Whole Farm Grazing Strategies pilot and have continued to meet as a group with Tim Ekberg as a facilitator. This has been extremely successful. 11 of those who have continued to meet are reported to have made changes impacting over 6000 ha. Full report and evaluation provided in Appendix 6.8.9.
- The Tamworth Proof Site team delivered findings and key messages at a series of 5 major field day activities, attracting 192 next and end users, held at experimental sites, farm walks at a Supporting Site and inspections of producer sites from 2-5 November 2010. Two external presentations were also given on site outcomes.
- The Orange Proof Site field day was held in October 2010 with 79 in attendance. The Proof Site has been visited by 8 groups (total 43 participants) since June 2010 and Warwick Badgery has

given 7 external presentations on site results.

- There were no open field days held at either Wagga or Holbrook Proof Sites this year. Michael Friend and Susan Robinson have delivered in total 8 external presentations since June last year to a total of 368 participants.
- The NSW extension team has had some contribution towards development of project proposals. Three meetings have been held with the EverGraze Extension Leader to develop common understanding and strategies for NSW to deliver within the national framework.
- A key issue has been uncertainty around the capacity of the NSW EverGraze extension team to produce outputs and meet delivery targets within the base case project budget. This has also caused concern to ERG's, particularly in Orange. Some progress has been made towards overcoming this issue with at least 1 FTE confirmed for 2011-13 and a new EverGraze Regional Coordinator in Orange.
- Deb Slinger has worked closely with Kate Sargeant for the development of the AWI EverTrain bid which is led by NSW DPI. This linkage has initiated an important relationship with Phil Graham and the livestock team who are deliverers of Prograze Plus in NSW. This team will be important for delivery of Whole Farm Grazing Strategies through EverTrain in the state. It is inevitable that there will be limited capacity within the extension team for delivery in 2011-14, which means that a focus on upskilling of next users will be critical in achieving targets.

Western Australia (full report Appendix 6.8.7)

- DAFWA was subcontracted by DPI Vic to coordinate the EverFarm project and develop a framework for the EverGraze Package and delivery strategy for South Coast WA. Ron Master was appointed Regional Extension Coordinator in October 2011 and has worked collaboratively with the National EverGraze Extension Leader to develop a strategy suitable for WA. Ron has also been successful in building capacity to deliver in the state to 1.5 FTE's. This is a significant development in the project and promises large potential for the project to exceed impact targets in the state.
- The majority of work in WA has focused on EverFarm and early development work of the program. In particular, the ERG has been extremely important in participating in activities to guide development work for the Package and extension strategy. The Albany ERG is an enthusiastic group and there is a feeling of anticipation for the delivery phase within the region.
- Some ongoing extension has occurred as part of Paul Sanford's Proof Site work. This has mainly been as a guest speaker at workshops held by other groups.
- Discussions have started with the local regional NRM body. These occurred with Kate Sargeant's visit to the South Coast and a meeting with the CEO and land/biodiversity facilitator for South Coast NRM. This has initiated what should be a good working relationship. The aim will be to provide training and support to their staff and possibly work with them to deliver satellite sites through the existing network of groups. Ron Master will present at their next land and biodiversity reference group in October, which will pave the way for further activities.
- Ron has also been liaising with DAFWA to secure staff support for the program. He will have solid links with projects within the Beef and Farming Systems area and can now see dual delivery in a number of areas.

2. 6,500 people on the EverGraze database; 300 next users active with EverGraze

- There are now 4164 subscribers on the database. There are 1846 from Victoria;1472 from NSW; 322 from WA; 279 From South Australia; 90 from Tasmania; 24 from ACT; 22 from Queensland; 3 from New Zealand; I from USA; 106 address details not supplied – only email. Although the 4164 falls shy of 6,500, it is recognised that EverGraze is no longer striving to increase the number of people engaged, but more to achieve practice change among those already engaged.
- Between the EverGraze team, Supporting Site coordinators and governance, there are a total of 186 next users and lead farmers directly engaged and working on EverGraze. The current project team structure is provided in Attachment 6.8.2. The EverGraze team contacts list is provided in Attachment 6.8.3.
- In the last 12 months, 395 NRM advisors, 462 private consultants, 399 agency staff, 79 Landmark staff and 48 students (total 1383) have been engaged in EverGraze activities.

3. Articles for Feedback and Prograzier reporting outcomes from the EverGraze investment and results from EverGraze

- An article was published in Feedback Magazine in November highlighting the 2010 survey results and setting the direction for the future of EverGraze. A breakout box was written on the Feed Budget Rotation Planner.
- In May 2011, a case study on Douguld McKay was run in Feedback on his experience in the Whole Farm Grazing Strategies training program with a breakout on the Feed Budget Rotation Planner
- The following articles were written for Prograzier
    - Improving lamb survival with shelter belts, Wagga Proof Site, Winter 2010.
    - Green feed boosts ovulation rates, Wagga Proof Site, September 2010.
    - Native pastures prove their value, Chris Mirams case study, Autumn 2011-09-04
    - Pasture establishment methods edited by Kate Sargeant and Lester McCormick (winter 2011)

4. "EverGraze month" planned for spring 2011. Recommendations on funding for further work or closure of Supporting Sites network provided

- A full extension strategy including new targets for each region for 2011-14 have been developed and are presented in the FFI CRC Part B project proposal (Appendix 6.3.4). Additional proposals have been developed for EverTrain (Appendix 6.3.5) and Caring for Our Country to expand the Supporting Site network (Appendix 6.3.6).
- The Caring for Our Country Supporting Sites project will continue for the current 25 sites to June 2012. Activities around these sites will continue to that point. We hope that if they don't continue through the new Supporting Sites project, groups will enrol in accredited training or become BESTWOOL-BESTLAMB or BetterBeef groups so that they can continue to engage in the project.
- Development of operational plans within the national framework and to achieve regional targets is underway for each region. The extension team is meeting on the 20th and 21st of July to finalise these plans and development of the Regional Packages and Whole Farm Grazing Strategies.
- A major "final" field day is planned for Hamilton in November. We are currently scoping the possibility of running similar events in the other regions at this time.

5. EverFarm pilot completed and evaluated in 3 regions with recommendations for further implementation of EverGraze training module piloted via EverTrain

EverFarm (full report 6.8.8)
EverFarm was a Pilot process used at Hamilton, Wagga Wagga and Albany with two objectives;

1. Assess changes to livestock, pastures and management, based on the principles and practices developed in EverGraze, on profitability, environmental and risk management outcomes of a commercial farm
2. Develop a process for future use with producers to encourage adoption of EverGraze information on farms

In each region, a team of 8-12 people composed of producers, private consultants, extension staff and the property owner worked over 3 workshops to identify the changes required and then determine the most worthwhile options on each case study farm. EverFarm then used GrassGro and CATPlus models to the assess impacts of these changes on productivity, profitability, NRM outcomes, risk, social issues etc.

Detailed reports from Hamilton and Wagga EverFarm pilots have been completed and are provided in Appendix 6.4.9 and 6.4.10 respectively. A draft report from Albany is available in Appendix 6.4.11 but further modelling is required at this site before the results can be finalised.

At all sites, the key strategic change recommended by the EverFarm process was the need to increase stocking rates to current benchmarks for the regions. This was expected to be achieved by correcting nutrient deficiencies and improving the temperate perennial pasture base. A small

additional improvement in overall profitability and NRM outcomes was achieved at Hamilton and Wagga if about 25% of the farms were sown to lucerne. There was also an indication that when lucerne was used on part of the farm, that variability (risk) in gross margins was lower than when all winter active pasture species were used. The use of lucerne reduced recharge at all sites compared to winter active perennials and there were also small reductions in runoff.

Positive aspects of EverFarm were;

- Strong group interaction and discussion by team members
- Farm owners welcomed the idea of fresh eyes looking at their farm
- Use of objective information to make decisions
- Provided a non-emotional framework for decision making
- Results reinforced Proof Site results

Limitations of the EverFarm pilot process were;

- GrassGro model was unable to deal with many of the EverGraze systems (split joining, summer active perennial species) so frustrated team members and underestimated potential benefits of strategic changes.
- Need diverse group of producers and consultants etc to ensure that all possible changes are considered. In some situations, it appeared that some options were not discussed (animal genotypes, potential stocking rates).
- It was hard to get sufficient background information on the Case Study Farm.
- Three workshops were not ideal and future systems need to be either shorter or undertaken over 12 months.
- There was a tendency for participants to jump straight into changes/solutions without fully analysing the farm.
- There is a need to better assess the impact of proposed changes on social, lifestyle and risk issues.

Prior to further use of an EverFarm type process, the following is required;

- Decision as to how the process deals with the need for most farms to make basic changes prior to taking on more sophisticated EverGraze information.
- The computer models either need to be adapted to work with the EverGraze systems or not used in EverFarm. The current version of GrassGro promises much but delivers less than satisfactory results. This and frustrated participants. Alternative simple systems (Feed Demand Calculator) may be more suitable for EverFarm.
- The EverFarm process needs to be revamped and streamlined using feedback and ideas from the pilot program

Whole Farm Grazing Strategies and Pastures for Place and Purpose Pilot and Redevelopment (Full report Appendix 6.8.9)

- Pilots were conducted for Whole Farm Grazing Strategies with two groups in Holbrook (southern slopes of NSW) and one group in Strath Creek (central Victoria). Pastures for Place and Purpose was piloted with groups in Euroa and Warrenbayne in northeast Victoria. The Whole Farm Grazing Strategies pilot was developed and delivered by Kate Sargeant and Tim Ekberg. The Pastures for Place and Purpose pilot was developed and delivered by Kate Sargeant, Alison Desmond, John Bowman and Anita Morant. Both courses were aligned to competencies and accredited by Rural Industries Skills Training.
- The two pilots were delivered to a total of 64 producers representing 35,794 ha of land. All participants indicated that they had achieved capacity gains intended to implement plans for management changes. A 2011 review of participants who have continued to meet after completing the Holbrook Whole Farm Grazing Strategies course indicated that 11 participants had made multiple changes to their farming practices over a total of 6560 ha.

EverTrain

- There is a lack of capacity and capability among public and private advisers in their ability to assist producers to make decisions based on whole-of-farm system analysis. This is a key issue that needs addressing before widespread adoption of EverGraze principles and practices can be achieved. It is also significantly limiting the extent to which the training programs can be released due to a lack of deliverers capable of delivering the content.
- In principle support has been received for an AWI proposal for delivery of Whole Farm Grazing Strategies to 150 advisers and 360 producers over the next three years. At least 30 advisers will be trained as deliverers of the program. The program will be offered to producers and advisers in a part online, part face to face format through EverTrain. It will also be offered to producers in the current face-to-face format. Before becoming an accredited deliverer, new deliverers will be required to complete the course online and then co-deliver with an accredited deliverer.

Review and proposed changes

- The two training programs have undergone a significant number of review and redevelopment processes since the pilots were delivered in 2010. This has occurred alongside EverGraze project development processes (including EverFarm) over the last 12 months and has led to a number of proposed changes. There are three key changes to the delivery format.

1. EverGraze will not continue with development of Pastures for Place and Purpose. Whole Farm Grazing Strategies will be the key accredited program for delivery of EverGraze outputs, and will incorporate elements of Pastures for Place and Purpose.
2. "Optional" modules to be delivered online or face to face will be developed from new and/or existing material
3. A second year will be added to Whole Farm Grazing Strategies to support implementation of management plans

- These changes and the proposed new sessions will be confirmed after a focus group to be held in Holbrook on the 8th of September and a national extension team meeting to be held on the 20-21st September.
- A full background, pilot evaluation, new session plans, product development plan (including authorship) and delivery plan and targets for EverGraze and EverTrain are provided in Attachment 6.8.8.

6.9	**Monitoring and evaluation**	100%

Description:

EverGraze has a target of improved management over 500,000 ha and have principles and practices adopted from EverGraze on 3,600 farms by June 2011. A combination of evaluation methods are used to track progress against these KPI's. These include the activity database, client database, pre and post activity feedback sheets, Supporting Site milestone reports, extension milestone reports and the phone survey data.

Measure of success *(for this milestone)**:***

1. Report against success measures and program M&E plan to determine impact including change in KASA and practice change by end users, next users, researchers, committees and managers involved in EverGraze

Report on, and contribution of the project to improved management on over 500,000 ha in the HRZ and have principles and practices attributable to EverGraze on 3,600 farms

Achievements:

1. **Report against success measures and program M&E plan to determine impact including change in KASA and practice change by end users, next users, researchers, committees and managers involved in EverGraze**
2. **Report on, and contribution of the project to improved management on over 500,000 ha in the HRZ and have principles and practices attributable to EverGraze on 3,600 farms**

Summary of practice change outcomes from EverGraze survey conducted in May 2010

- A survey conducted and reported in the June 2010 AWI final report (Appendix 6.9.1) estimated that between 2400 and 4200 producers adopted one or more principles and practices as a direct result of being involved in the EverGraze project. This compares well with the project target of 3,600.
- It is estimated from the survey data that EverGraze participants made changes to 180,000 ha of pasture. This area does not include changes to livestock management.
- Actively managing ground cover, increasing the total area of perennials or establishing a range of perennials to match landscape, feed supply and demand were the most common changes to pasture use and management.
- In the next five years, 60% of EverGraze participants (and 41% of non participants) intend to increase their area of perennials. A high proportion of participants are also planning to plant a greater range of perennials, especially in SW Vic, WA and SA.
- Condition/fat scoring to monitor livestock, boxing mobs to assist with management, implementing rotational grazing, changing enterprise mix and changes to calving/lambing times were the most common changes to livestock management.

Development and implementation of FFI CRC/EverGraze monitoring, evaluation and reporting framework 2011-14

- A key outcome of the FFI CRC third year review process was that more rigorous data collection and project planning processes were recommended to align project outputs with practice change outcomes and corresponding impact. In response to this, all projects in the CRC have been required to develop content for an Industry Use Plan for their farming systems. EverGraze has led the way in this process.
- The Project Leadership has worked in partnership with the FFI CRC Agribusiness Director, FFI CRC Adoption Team, EverGraze Project Team and QualDATA to clearly define the outputs of the project against practice change targets and measures of impact. These are clearly defined in Part's A and B of the EverGraze Project Proposal (Appendix 6.3.3 and 6.3.4).
- The EverGraze Extension Leader has also worked together with QualDATA to refine evaluation methods and develop a reporting framework which includes a central point of data collection and file storage known as YourDATA. This system has the potential to significantly improve the ease and integrity of data collection and collation for EverGraze and the CRC
- The new Evaluation Plan developed for 2011-14 (Appendix 6.9.3) has been aligned to the new targets and was trialled in the latter half of 2010-11. A full report on both the impact for the period and the process for data collection is provided in Appendix 6.9.2. A summary of the outcomes is provided below.
- It is noted that further work is required to refine the data collection and reporting methods for the remainder of the project. Recommendations relating to this are provided throughout the EverGraze Impact Report (Appendix 6.9.2).

Practice change targets 2011-14

- Having achieved the MLA/AWI June 2011 goal in 2010, the project is now focussed on (and is reporting on) a new target, aligned to the FFI CRC business plan to 2014.
- The Future Farm Industries CRC business plan target is to achieve 2400 producers changing practice on farms by June 2014.
- At the October 2010 EverGraze National Advisory Committee meeting, it was agreed that since the project had already exceeded the above target, the 2014 practice change objective (Key Result Area 1) would be redefined as follows:

Key Result Area (KRA) 1:
By 2014, 2400 producers in the high rainfall zone of Southern Australia consciously integrating practices developed and/or promoted by EverGraze into their whole of farm management to achieve

profitability, natural resource management, risk management and lifestyle objectives

- It is noted that to "consciously integrate" is to demonstrably understand the right place, purpose and management of perennials in ***their*** farm system and the potential profit, risk, NRM and lifestyle implications of making changes. This has implications on how the outputs are developed, what we deliver, how we deliver it, what we need to measure and how we need to measure it.
- In the next phase, EverGraze will focus on building the capability of those producers who are information seekers, and are already engaged, providing them with skills, knowledge and decision processes to identify their objectives, analyse their farming systems to identify issues, identify appropriate practices (or combination of practices) to address the issues, understand the likely benefits, risks, lifestyle and management implications (for their unique situation), implement the changes and measure the result. The ability of the farmer to tell the full story around their decisions and the impact on their business will be evaluated alongside the measure of change itself.
- Specific practices that have been identified to achieve the EverGraze objective have been identified as:
    - Changes to the feedbase - selection and establishment of the right combination of perennials for the right place for the right purpose
    - Implementation of grazing strategies for manipulation of pasture composition, persistence, feed supply/demand and ease of management
    - Changes to fertiliser use and soil management
    - Livestock system changes including enterprise selection, lambing/calving times, stocking rates
    - Tactical management of pastures and livestock to improve productivity and profitability

There are other KRAs targeted by EverGraze to complement and support producer targets and direct activities run with producers. These are described below:

KRA 2

Three hundred consultants/extension officers will have the required capacity and use the EverGraze Package, tools and training programs to assist producers to make decisions relating to pasture selection and establishment, grazing strategies, fertiliser use/soil management and livestock system changes and Agribusiness consultants will utilise evidence and information from the EverGraze Package in advising clients on the use and management of products.

KRA 3

Relevant researchers will use EverGraze pasture species parameters for productivity, economic and NRM models, systems research results to model potential benefits of innovations (eg. new species), and use developed knowledge for new ideas/reference.

KRA 4

State agencies will incorporate EverGraze products and research results into the development of policy-based projects (eg. incentive projects) and integrate the Package into extension material and training programs and will consider the capacity needs that must be built to achieve relevant practice change.

<u>Key outcomes from the 2010-11 period</u>

The full impact report for the 2010-11 period is provided in Appendix 6.9.2. This builds on the final impact report presented in June 2010 (Appendix 6.9.1). A summary is provided below.

In the reporting period from June 2010 to August 2011 the following summarises the key data sets:

Engagement

- Presentations and media materials made available to 2,700 +
- Information disseminated to 4,000 + and 1500+ per month who accessed the website
- 1,200 participants of field activities and events
- 435 participants of training, workshops and courses.

Capacity gains (note these conclusions based on incomplete data)

- Estimated direct impact on capacity of those producers who attended the field events and training events (1,635) and 61 next users
- Recorded self assessed changes in understanding and skills of 20% average

Practice change

- Estimated 1,200 people prompted to make changes from participation in EverGraze activities
- Estimated 600 may translate this to a practice change
- Twelve narratives captured examples of a range of relevant practice changes to pastures and livestock management
- Eleven case studies documented details of different changes made on individual farms in different regions
- Six narratives captured examples of consultants and extension staff utilizing EverGraze principles to assist farmers to make decisions
- Three narratives captured examples of CMA's and DPI utilising EverGraze extension to achieve catchment priorities
- One narrative captured commitment of an agency to build capacity and capability of staff and private advisors within the state to deliver whole-of-farm system extension

Impact

- Eleven case studies reported observed and measured impacts on farm as a result of adopting recommended practices. Two had detailed benefit/cost projections. One indicated changes from the better use of perennials of $170/ha over 10 years.
- Four case studies had demonstrated environmental benefits from implementing changes on farm.
- Nine narratives captured evidence of productivity impact from changes, one reported lower input costs and four demonstrated environmental benefits.
- 11 members of Holbrook Landcare group who completed the Whole Farm Grazing Strategies pilot reported change over 6560 ha with a range of productivity, environmental and management benefits identified.

Progress

- Strong contribution to 2014 targets in terms of engagement and impact
- Growing extension capacity in WA and NSW
- Monitoring and Evaluation Reporting improving

Strengths

- Clear practice targets
- Good mix of extension models
- Good reporting of activities

Weaknesses

- Most activity in Victoria
- Gaps and inconsistencies in engagement and impact reporting
- Need to streamline reporting process and YourDATA input forms

In summary the EverGraze Impact report highlights that EverGraze is making substantial progress towards meeting its objectives and the targets set for June 2014. It's rigorous and

focused approach augers well for achieving or exceeding expectations.