

From research to practice change – achieving adoption through regionally packaged technology and farm systems

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Abstract. The rate and extent of adoption of grazing systems technology is limited by the relevance of recommendations and the complexity of integrating new practices into farming systems. This paper describes how, through development of regional information packages, a national project is enhancing adoption of the outputs from research investment. Every farm has unique goals, soils, landscape, enterprise setup and existing practices. When making investment decisions, farmers consider the cost and potential impact of each option compared to other competing options, the fit into their existing management philosophy and other changes necessary to realise the potential benefit. Overlaying this, farmers consider whether the innovation applies to their region, and commonly cite lack of regional applicability as a reason not to adopt. We argue that development of regional packages is a powerful means of targeting the needs unique to each region. Such packages can include recommendations from whole-farm system experiments, modelling and case studies which tell the full story around profit, risk, natural resource management and lifestyle impacts of change options, and adviser training for supporting farmer adoption decision processes. By focusing on communicating how research outputs are relevant to local farming systems, utilising local input, regional packages have the capacity to change the way R,D & E is conducted and delivered, accelerating delivery of industry and environmental benefits.

Keywords: EverGraze, capability, extension, web, collaboration, communication.

Introduction

Developing sustainable communities through grasslands science in Australia requires widespread adoption of feedbase and grazing systems technology, creating farm systems which are more productive, profitable and resilient to climate variability, whilst maintaining soil and water resources in the long term. The rate and extent of adoption of grazing systems innovation to achieve these outcomes is limited by the relevance of research based recommendations and the management centric complexity of integrating new practices into farming systems. Achieving practice change on-farm is challenging. Every farm has unique physical attributes including soils, landscape and environment. Similarly, every farmer has a somewhat personal management approach highlighted by specific goals, lifestyle choices, enterprise setup and existing practices. When making investment decisions, farmers consider the cost and potential impact of each option compared to other competing options or current methods, the fit into their existing management philosophy and other changes necessary to realise any potential benefit. Overlaying this, farmers consider whether innovations are relevant to their region, and commonly cite lack of regional applicability as a reason not to adopt.

Meanwhile Australian research, development and

extension (R, D & E) services are also complex, comprising many stakeholders including state and federal government agencies, local natural resource management (NRM) boards, industry research and development corporations (RDCs), universities, retailers, private and public sector advisers and farmers. Such multiple contexts of R, D & E present challenges in providing consistent messages toward achieving the farm practice change that all of these stakeholders seek. Evidence gathered during the past two years (QualDATA 2012a, 2012b) suggests that EverGraze may well be on the way to achieving such consistency. This paper briefly describes how a national farming systems- based project has overcome variability in stakeholder interest and investment across geographical (and agency) boundaries to develop regionally relevant packages of farm practice focused information with large scale positive industry and environmental impacts.

The EverGraze Story

EverGraze is a national R, D & E project that broadly speaking aims to significantly increase profitability of livestock enterprises and at the same time reduce ground water recharge and soil loss by water and wind. Commencing in 2003, EverGraze incorporated support from various state government agencies, RDCs, universities, NRM boards, community groups and farmers

to achieve its aims. Through combining findings from large scale research sites with biophysical modelling, input from regional advisory groups, and data collected from research and demonstration sites, EverGraze has been able to develop regionally relevant extension messages which quantify the productivity, economic, environment, risk and lifestyle impacts of implementing changes on farm. And using a range of extension methods the project has engaged over

15,000 farmers and advisors and achieved practice change on more than 4000 farms and 200,000ha, with measured increases in productivity and profitability, resulting in a return on funds invested of 5:1 (QualDATA, 2012a; Agrtrans Research, 2012)

Developing meaningful messages – the EverGraze model

There are four key elements within the EverGraze model which have led to the development and delivery of meaningful messages for farmers, namely; a farming systems mindset on implementation; a set of guiding principles; a local input/context and evidence approach; and close collaborative development between researchers and public/private sector advisers nationally.

A farming systems mindset

Traditional agricultural research aims to achieve improvements to production and/or the environment through advancements in farm ‘component’ technology such as development of pasture species, agronomy, grazing techniques or improved animal genetics. Findings from these studies often find their way into best practice recommendations on the basis of parameters such as improved pasture growth. However, such recommendations frequently fail to provide evidence of the practicality of integrating the technology into farm management, or the potential cost, profit, risk and/or environmental impact on farm businesses.

Recognising this, EverGraze set out to achieve its goals by developing farming systems which integrated combinations of strategically placed perennial pastures (improved and native), high performance livestock genotypes, animal and pasture management, and mixtures of enterprises - both meat and wool. Six research teams across southern Australia designed and tested the new farming systems on large scale research sites. Teams included experts in soil science; agronomy; environmental science; hydrology; animal production; ecology; farming systems; and biophysical, environmental and economic modelling. Measurement of soil, water, pasture and livestock inputs and outputs enabled performance of the systems to be measured and modelled to determine the impact on farm business profit, return on investment, risk/variability in costs and returns, and environmental indicators such as ground cover, perenniality and ground-water recharge.

Principles – a guide for R, D & E

The R, D & E approach to EverGraze is underpinned by a set of three principles. The principles provide a consistent framework and guide for how practices were investigated

through research, key messages were determined, practices were implemented on farm and how adoption and other success were measured.

The three EverGraze principles are:

- (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 market options.

Local input and evidence - providing context and making research relevant

Economic and systems analysis has provided evidence that EverGraze systems are resilient to climate variability and can deliver financial and environmental benefits. However, findings reveal that EverGraze practices are location and site condition dependent and that the final mix of recommendations are influenced by existing feedbase, livestock system and grazing management techniques. Recognising this, local evidence from a network of more than 50 on-farm demonstrations and 50 farmer case studies were used to adapt research findings to local environments and quantify the potential benefits in a regional context. Regional advisory groups for each site comprising leading farmers, consultants, extension staff and scientists also played an important role in the interpretation of the biophysical and modelling results.

The regionally relevant messages are then combined with tools and training and used to enable farmers to undertake an analysis of their own system and consciously integrate changes into their whole of farm management, achieving the best benefit for their unique situation.

Collaborative Development

Multi-disciplinary researchers, advisers and farmers have closely collaborated in the development and delivery of the packages. This ensures that ongoing research and recommendations are targeted at the needs of farmers, while being supported by solid science. Collaborative development also plays a key role in building capacity of all industry segments.

Regional packages – making regionally relevant information available

Additional to the expansive and iterative R, D & E process outlined above has been the desire to make the findings and key messages available to as many farmers as possible. Consequently EverGraze is now using a web-based approach (www.evergraze.com.au) to combine regionally relevant information from component and farming systems research, case studies, demonstrations and tools to assist with on-farm decision-making.

Fundamental principles to this key phase of EverGraze delivery were developed through a consultative process,

and form the basis of the website design and development of content, including:

- (1) All content is aligned to EverGraze principles;
- (2) The whole farm message is delivered and considers; profit, environment, risk and lifestyle; how practices fit with existing management, soils, landscapes and enterprise mix; and what other changes need to be made to soil, livestock and pasture species to maximise the benefit of changes.
- (3) Content is supported by evidence via peer-reviewed science, modelling, demonstration and case studies.
- (4) User-friendly, succinct documents are linked to supporting details, enabling use by various audiences.
- (5) The structure of the site provides for expansion into new regions and topic areas, and integration of new information from within and outside EverGraze, as it becomes available.

Regional package pages have been developed for regions according to agro-climatic differences such as climate, soils and vegetation. A regional context describes land use, soils, climate, pastures, livestock systems and benchmarks. It also describes environmental and livestock enterprise issues and opportunities according to market variability, pastures and climate constraints. Research sites, farmer case studies and demonstration sites are geographically represented on an interactive map, enabling effective linkages to research undertaken nationally.

EverGraze research pages provide a description of what was done on the sites, the specific results and achievements, key messages and publications. The key message pages provide the relevant information about the site findings and what they mean to farmers within their designated locality. Findings are contextualised against the research questions concerning regional environment and productivity issues, and integrate results from the sites with case studies and fact sheets to form locally relevant recommendations.

'I want to...' pages within each regional package bring together information from across the site and link to other sites to address the needs of the information-seeking farmer. Examples include 'I want to wean more lambs'; 'increase ground cover'; 'fill the winter feed gap'; 'establish perennials and make them persist'; 'manage variable seasons'; and 'improve production from native pastures'. The pages are succinct documents which address relevant issues and opportunities in a regional and whole farm systems context and are updated as new information becomes available.

On-farm options pages add to the bank of information by providing topic-based fact sheets with links to research pages, tools and training which are likewise referred to throughout the 'I want to...', research and demonstration pages. Content on the site is also accessible via a library search page.

Benefits of the package approach

The EverGraze experience has demonstrated that regional packages provide direct benefits for targeted farmers (QualDATA 2012a). Additionally, the process of

developing and delivering regional packages provides benefits for all levels of R,D & E such as industry and NRM advisers, researchers (including students), government agencies, and industry organisations.

Researchers utilising systems research outcomes and models, supported by industry collaboration, have provided opportunities to develop new project ideas based on evidence of potential economic and environment impact at farm, region and national levels. Systems models and advisory groups are used to determine the potential fit of any emerging technologies, its practical application and impact.

Advisers across industry and environmental disciplines use the packages as a consistent and credible information source to develop extension material, gain access to tools and training, and understand research outcomes to support recommendations.

Farmers use regionally relevant information developed in the packages to identify opportunities and consciously integrate strategic and tactical management changes into their whole of farm management to improve profit, environment and risk management. Opportunities for further training are provided to support longer term benefits.

Government and industry organisations utilise the package model for collaboration in delivery against environment and industry productivity objectives. This helps to overcome the complexities and inconsistencies of resourcing R, D & E across the very large number of agricultural industry stakeholders.

Conclusion

The EverGraze regional packages are changing the way R, D & E is conducted and delivered and have shown potential to more efficiently and effectively deliver industry and environmental benefits by focusing on communicating how research outputs are relevant to local farming systems.

Regional packages, by their design, demand a discipline to provide recommendations in a regional context and with evidence which quantifies the potential impact of change on a whole farm system. The resulting information, when combined with tools, training and advisory support, can help to alleviate the complexities of unique farm systems and improve the capabilities of all stakeholders participating in the regional package development process.

The EverGraze experience has demonstrated that consistencies in development and delivery of information can be achieved through collaboration between organisations and industry sectors, across state boundaries, to integrate the outcomes from national R & D.

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