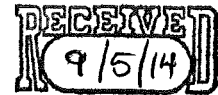


Agricultural Competitiveness White Paper Submission - IP700  
Soils for Life  
Submitted 9 May 2014



8 May 2014

Agricultural Competitiveness Taskforce  
Department of the Prime Minister and Cabinet  
PO Box 6500  
CANBERRA ACT 2600

Attention: Mr Paul Morris

Dear Sir,

A handwritten signature in black ink that reads "Paul".

Attached as per my recent conversation with you is a submission prepared by my not for profit non governmental organisation Soils For Life of which I am Chairman. The submission is in response to the Agricultural Competitiveness Issues Paper released by the Minister for Agriculture on 6 February 2014.

The submission, including answers to appropriate questions, is self explanatory, but in the broad, outlines the work of Soils For Life in promoting leading regenerative landscape management practice in agriculture and grazing enterprises throughout Australia. Its strength lies in proven practice of sustainable landscape management involving 19 farming and grazing case studies in which each has come from a degraded landscape condition to one that is now economically, socially and environmentally sustainable. Soils For Life is looking to roll out further case studies in the coming 12 months to more fully cover the whole of the Australian agricultural landscape.

In making this submission, it should be noted that we are essentially dealing with proven best practice to "fix the paddock". What I see missing from the current issues paper and the general debate on agriculture, is an overarching national policy on how Australia should be managing its total landscape including rivers, flood plains, wet lands, soil and bio diversity. As a second attachment to this submission, I have therefore highlighted a suggested policy outline which will provide the basis of a separate report to the Prime Minister as the National Advocate for Soil Health.

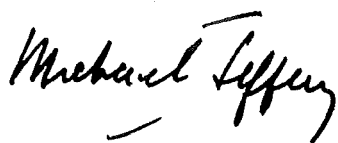
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2.

In broad terms it suggests a "light on the hill" aim or objective to "restore and maintain an Australian landscape that is fit for purpose". Through that aim, the attachment then outlines suggested policy components.

I wish you well with the development of the Green and White Papers.

Yours sincerely,

A handwritten signature in black ink that reads "Michael Jeffery". The signature is written in a cursive style with a prominent flourish at the end of the name.

(Michael Jeffery)  
National Advocate for Soil Health  
Chairman, Soils For Life

Attachments:

1. Soils For Life Submission to the Agriculture White Paper
2. Suggested policy drivers for a national landscape regeneration plan

## SOILS FOR LIFE SUBMISSION TO THE AGRICULTURE WHITE PAPER

### INTRODUCTION

Soils for Life is a small not-for-profit NGO promoting leading regenerative landscape management practices on agricultural enterprises. This submission outlines key content we believe needs to be included in the Agriculture White Paper and provides short answers to selected questions for consideration from the Issues Paper.

### INCLUSION OF LAND MANAGEMENT PRACTICES IN THE AGRICULTURE WHITE PAPER

The Agriculture White Paper needs to include greater emphasis on the management of the natural resource base upon which all agricultural production depends: soil, water and biodiversity. Effective and integrated management of these free resources delivers beneficial ecosystem services and regenerates the natural resources base, enabling sustained, quality agricultural production. Many current land management practices are increasing landscape degradation. Farmers must be made aware of the consequences of landscape degradation and be encouraged and supported to adopt practices which invest in the regeneration of our natural assets.

The application of regenerative landscape management practices, such as those documented in the Soils for Life Report *Innovations for Regenerative Landscape Management*<sup>1</sup>, provide a solution to landscape degradation and can be applied across all agricultural enterprises. These practices enable farmers and land managers to reduce input costs, enhance the natural resource-base, optimise available land for production, extend production longevity and build landscapes more resilient to the impacts of a changing climate, such as drought or flood, as well as pests and disease. Each of these outcomes contributes to agricultural competitiveness.

Fundamental to these regenerative practices is an understanding of and appropriate management of soil health. The importance of soil health to agricultural production has recently been recognised in The National Soil Research, Development and Extension Strategy *Securing Australia's Soil for profitable industries and healthy landscapes*. (National Soil R,D & E Strategy) As farmers are directly responsible for the management of over 50% of Australia's land mass<sup>2</sup>, recognising soil management in the Agriculture White Paper also presents a significant opportunity to align with the implementation of this strategy and reap the benefits that healthy soils provide.

Promoting the adoption of regenerative practices in the Agriculture White Paper will also align with the White Paper on Developing Northern Australia, in which massive regeneration and production increase opportunities lie.

Australia's future agricultural competitiveness would greatly benefit from the inclusion of content on landscape management practices in the Agriculture White Paper.

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<sup>1</sup> 2012, *Innovations for Regenerative Landscape Management: Case studies of regenerative land management in practice*, Soils for Life Program, Canberra. Available at [www.soilsforlife.org.au/resources.html](http://www.soilsforlife.org.au/resources.html)

<sup>2</sup> Commonwealth of Australia 2014, *Agricultural Competitiveness Issues Paper*, Canberra, February, pp 2

## SUMMARY DESCRIPTION OF REGENERATIVE LANDSCAPE MANAGEMENT PRACTICES

Regenerative landscape management practices are usually based on the integrated management of soil, water and biodiversity. Practitioners can be summarised as those that apply a combination of the below:

- Actively managing the physical, biological and chemical structure of the soil to optimise soil health
  - For example, through enhancing organic matter content, applying biological soil conditioners, fostering biological growth, testing for and responding to nutrient availability (beyond just N, P, and K);
- Actively maximising rainfall infiltration and retention in waterways, floodplains and soils
  - For example, by slowing the flow of water across the landscape with leaky weirs or swales, restoring wetlands, reconnecting floodplains, increasing soil organic carbon levels (of which each gram can hold up to 8 grams of water), maintaining high levels of groundcover (>90%) to minimise evaporation;
- Actively encouraging flora and fauna biodiversity
  - For example, encouraging pasture species diversity (with a focus on perennial species to maintain groundcover), incorporating trees and understory plants throughout their enterprise (for habitat as well as shelter), covercropping and crop rotations, minimising bio-cide use;
- Minimising off-farm and synthetic inputs
  - For example, measuring for, monitoring and targeting fertiliser use and prioritising use of organic products, integrating enterprises, using grazing management and animal impact as farm tools (in place of ploughing, sowing, fertilising), recycling and composting on-farm organic wastes (e.g., dairy effluent);
- Observing, measuring and responding to the impact of decisions and actions on the landscape
  - For example, through grazing management planning, fixed-point photographs, transect monitoring, soil tests, infiltration tests, groundcover tests.

Farmers applying these practices tend to take a holistic approach to farm management, developing ecological literacy and caring first and foremost for the natural resources that underlie production. Many of these practices are not 'new' but old methods of production – those that align with natural cycles and processes to maximise land and ecosystem functioning – delivering natural weed and pest control, nutrient density, clean water, and minimal run-off. Regenerative farmers are also often dedicated to education and constant learning, being flexible in their approach to production enabling them to better adapt to variations in climate or the market.

Much conventional farming practice today has isolated management of natural resources and could benefit from a more holistic approach to land management. While many regenerative practices have previously been considered 'fringe', increasing numbers of farmers are incorporating elements into their farm management. There is no requirement for farmers to adopt fully organic practices to reap the benefits of working with natural processes.

Government strategy needs to promote that there are many acceptable farming practices which optimise both environmental and production benefits, that managing these elements is not mutually exclusive.

Further information on regenerative landscape management and documented case studies of these practices are contained in the Soils for Life Report *Innovations for Regenerative Landscape Management*, available at [www.soilsforlife.org.au/resources.html](http://www.soilsforlife.org.au/resources.html)

## RESPONSES TO SELECTED QUESTIONS FOR CONSIDERATION

### 1. ENSURING FOOD SECURITY IN AUSTRALIA AND GLOBALLY

**What opportunities exist to expand agricultural production in Australia and how can we take advantage of them.**

Agricultural production in Australia can be expanded through the use of land management practices that optimise land availability and function. By focusing on building soil health, degraded lands (e.g., low-fertility, eroded or salt-affected) can be made productive, production rates can be increased (e.g., through planned rotational grazing management to increase ground cover and carrying capacity, increasing soil fertility and biology under crops, vertical stacking of enterprises) and growing seasons can be extended (e.g., through greater water infiltration and retention and plant uptake).

These results have been documented in *Innovations for Regenerative Landscape Management*<sup>3</sup> including the following case studies:

**Prospect Pastoral Co, WA Wheatbelt:** production of quality grain and cereal crops and sheep wool and meat in regions of salt-affected low fertility sandy soils with as little as 100mm rainfall in the growing season by encouraging active soil biology;

**Lana, NSW Northern Tablelands:** livestock carrying capacity increased from 8,000 to 20,000 DSE, including through reduced rainfall and drought through Holistic Management and planned rotational grazing;

**Winona, NSW Central Highlands:** Pasture cropping allowing crops, wool and sheep meat to be produced off the same land through the introduction of pasture cropping, also resulting in measured soil carbon increases of 203% in 10 years.

Weather and climate will always be variable – perhaps more so now. We must maximise resilience and flexibility in the agricultural system by restoring natural systems and processes to first maintain agricultural production before it can be further expanded. Caution must be taken with emphasis on short term production increase at the expense of long term capacity.

To take advantage of these opportunities, Government policy and funding needs to support education, training and application of regenerative landscape management.

Farmers and land managers need to be educated on ecological literacy, the value of soil health and the integrated regenerative landscape management techniques that can be applied in order for them to reap the benefits.

Aligned with the National Soil R,D & E Strategy, wider adoption and research on regenerative practices would also deliver knowledge and results which could be exported and shared globally.

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<sup>3</sup> 2012, *Innovations for Regenerative Landscape Management: Case studies of regenerative land management in practice*, Soils for Life Program, Canberra. Available at [www.soilsforlife.org.au/resources.html](http://www.soilsforlife.org.au/resources.html)

## **2. FARMER DECISIONS FOR IMPROVING FARM GATE RETURNS**

### **What are the drivers and constraints to farmers adopting alternative business structures, innovations or practices that will assist them in improving farm gate returns?**

Research undertaken as part of the Soils for Life program is showing that major impediments to adopting innovative practices include:

- lack of basic agricultural knowledge,
- lack of skills and confidence to trial/adopt new practices,
- overcoming limitations and paradigms in conventional agricultural training
- lack of funding – or financial support for innovative practices (conventional practices preferred by financial institutions/grants),
- concerns regarding how long it may take for benefits to be obtained,
- failure to include spouses/partners/farm team in decision making process,
- perceived risk, particularly without a ‘guarantee’ for financial returns,
- social pressure against trying something new, and, in some cases,
- regulatory restrictions.

Soils for Life research also suggests that there are a number of drivers for farmers to adopt alternative business structures. The one most likely to be a key driver in each case, depends on individual experience. Significant key drivers identified by our research are:

- potential for better financial return on investment based on concrete evidence); hitting ‘rock-bottom’, i.e. no other choice due to financial, health or environmental reasons; and
- natural curiosity in trying new or different things, exploring innovations or best practice.

### **What tools, skills and advice do farmers need to effectively adapt and respond to the risks they face?**

Farmers need a broad range of knowledge and skills to enable informed and proactive decision-making in the management of their farms. These include:

- Awareness and understanding of the value of soil and natural assets in a language that farmers understand.
- The confidence to look at alternatives to conventional methods.
- Ecological literacy (understanding natural systems) and the ability to monitor and measure the impact of practices changes.
- Tailored advice on applying regenerative practices on their own landscape.
- Unbiased agronomy and soil testing advice (i.e., not influenced by particular product sales).
- Education, training, support, ongoing mentoring (almost essential in getting adoption of new practices).
- Better use of existing infrastructure (e.g., LLS, CMA, Landcare) to coordinate support and deliver clear messages. The National Soil R,D & E Strategy may also contribute to this.

### **What alternative actions or measures by governments, farmers or others would result in improved financial performance at the farm gate?**

Farmers need to be educated and empowered to undertake informed decisions and know that they can actively manage more elements of their production. Improving and building the natural resource base through regenerative landscape management practices would make farmers less subject to seasonal weather variations and even out profit/loss peaks and troughs, improving financial performance at the farm gate.

Improved ecological systems delivered through regenerative practices lead to reduced input costs, such as in terms of fossil fuels, herbicide, fungicide, pesticide and animal health products.

Improved food quality produced through sustainable, regenerative methods can attract premium prices and contributes positively to the general health of consumers.

#### **What approaches could be used to encourage improved drought preparedness?**

- Educating farmers that they are not totally subject to drought and variable climate conditions, but can actively manage the landscape to be better prepared, more resilient and speed up recovery time.
- Education and training on regenerative landscape management practices and the benefits they provide to long term landscape function and therefore production.
- Infrastructure and transport to support processing or transport of stock in support of destocking or varying stock numbers related to feed availability.

#### **During drought, what measures are most effective in ensuring long term resilience?**

- De-stocking of the landscape before it is degraded is the most effective measure for long-term resilience.
- Markets (including processing infrastructure) should be designed to better support trading/agistment/ processing to allow for destocking and restocking.
- Drought support should be tied to training in and adoption of regenerative practices that build long term resilience in the landscape.

#### **4. INCREASING THE COMPETITIVENESS OF THE AGRICULTURAL SECTOR AND ITS VALUE CHAINS**

**How can the agriculture sector improve its competitiveness relative to other sectors in the economy? / Which examples of overseas approaches to improving agricultural competitiveness have relevance for Australia?**

Australia has strong potential for value-adding through the quality of food produced through sustainable, environmentally friendly practices. Though outside the scope of the White Paper, the nutritional quality of the food produced through these methods could also warrant a price premium in the market.

Existing local and international experience shows that consumers are willing to pay more for quality produce. There is significant opportunity to develop this niche area of the global market, especially considering growing environmental and health concerns. Our production systems and environment give us the opportunity to compete strongly against other producers of similar products. This approach would benefit from a defined definition and standard for sustainably produced products meeting specified animal welfare standards.



Further investment across the production chain, providing more opportunities to process food in Australia would give more flexibility with stock and crop management depending on environmental conditions to maximise production output and minimise losses (e.g., beef processing before stock lose condition).

## **6. IMPROVING THE COMPETITIVENESS OF INPUTS TO THE SUPPLY CHAIN**

### **How can land, water and other farm inputs be more effectively deployed to better drive agriculture sector productivity, while maintaining or enhancing the natural resource base?**

By having our farmers apply regenerative landscape management practices, as outlined at the beginning of this submission, land, water and other farm inputs will be most effectively deployed to drive agricultural productivity whilst regenerating the natural resource base.

Whilst Australian soils are “mostly very old, strongly weathered, shallow and infertile by world standards<sup>4</sup>”, landscape degradation *can* be reversed and soil health and fertility built. By more holistically addressing soil physical, biological and chemical structures, we can improve the condition of our soils and also significantly reduce investment in synthetic fertiliser inputs. This reduces farm production input costs. Biological and organic supplements can cost substantially less and have stronger long term gains. Farmers need to be informed that conventional fertiliser inputs are not a necessary requirement and there are other substitutes or alternatives available. Farmers need to feel comfortable and informed to investigate alternatives that will suit their production requirements.

Soil quality is the major factor in water use efficiency. It is essential that any investment in water supply is matched with corresponding investment in soil health. For example, this would include returning organic matter to the soil to build water-holding soil organic carbon, maintaining groundcover to the extent possible to minimise evaporation, incorporating deep rooted plants and trees to access moisture from depth, provide shelter to pastures and moderate soil temperature, and using no-till cropping and planned grazing management practices to maximise water use efficiency and continue landscape regeneration.

### **What skills including specialised skills and training, will be required in the future and how can these be delivered and uptake encouraged?**

Skill development/training requirements for farmers and extension officers:

- Ecological literacy;
- Regenerative techniques (e.g., Holistic Management, planned rotational grazing, water course management, composting/compost application);
- Basic understanding of soil structure and interpretation of soil tests; and
- The ability to communicate information needs with R&D bodies.

For agronomists and soil scientists:

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<sup>4</sup> 2014, *The National Soil Research, Development and Extension Strategy, Securing Australia's Soil, For profitable industries and healthy landscapes*, Canberra, pp 1

- An understanding and development of many of the soil-related skills required to support wide adoption of regenerative landscape management are outlined in the National Soil R, D & E Strategy<sup>5</sup>.
- Detailed understanding of soil structure, interpretation of soil tests and balanced, appropriate remediation strategies
- The ability to communicate findings and information in a way that is practical and easy to understand by farmers.

Delivery and encouraging uptake:

- Take advantage of existing extension infrastructure to expose farmers to and train them in regenerative practices.
- Align funding or subsidies with adoption/application of regenerative practices.
- As with the National Soil R,D & E Strategy, the Agriculture White Paper should outline long term priorities to which extension funding and projects align (e.g., on underlying land management practices rather than short term weed eradication programs)
- Increasing awareness of the diversity of functions that healthy soils provide is a great starting point to encourage further investigation into how soil health can be optimised to meet production goals on individual farms.
- Education curricula from primary to tertiary institutions needs to incorporate increasing levels of soil science and ecology to encourage understanding and uptake on future farming enterprises and recognition of the value of these resources in consumers. Our research indicates that farmers and rural workers undertaking adult education would welcome curricula offering modular subject units that could be aggregated, for progressive credentialling, through certificate to diploma and degree.

### **How can rural industries and governments better identify, prioritise and fund research development and extension?**

From the perspective of encouraging the wider adoption of regenerative landscape management practices, pursuing the implementation strategies already outlined in the National Soil R,D & E Strategy would go a long way towards addressing this consideration. The Agriculture White Paper should align with this document.

The role and input of the Advocate for Soil Health also contributes to this item.

### **What irrigation, transport, storage and distribution infrastructure are required to support the food and fibre production systems of the future and how should this be funded?**

- Urban organic waste recycling – adapt existing infrastructure to process urban waste into compost and return nutrients back to agricultural land
- Rural organic waste recycling – transporting excess biomass or processed composted material produced in fertile areas to regions of lower fertility

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<sup>5</sup> 2014, *The National Soil Research, Development and Extension Strategy, Securing Australia's Soil, For profitable industries and healthy landscapes*, Canberra, pp 23-25, 32-34

- Transport, distribution chains and processing to allow for stock movement with feed availability
- Programs to support increased fencing and water provision on grazing properties to facilitate planned rotational grazing

## **7. REDUCING INEFFECTIVE REGULATIONS**

**How well do regulations affecting the industry meet their policy objectives?**

**What opportunities are there to reduce ineffective or inefficient regulation?**

**Which regulations are disproportionate to the risks they are supposed to address?**

- Fundamental to the regulatory regime is that it is reviewed in a holistic manner with a view towards a defined final goal (for example, a landscape that is managed in a regenerative manner to sustain ongoing ecosystem services as well as production requirements), rather than piecemeal approach to amending regulations.
- Agricultural production and environmental management do not have to be mutually exclusive. There is no need to focus on one to the detriment of the other.

## **SUGGESTED POLICY DRIVERS FOR A NATIONAL LANDSCAPE REGENERATION PLAN**

Globally, unprecedented challenges posed by the demands for food and water of a burgeoning global population are arising exacerbated by a reduced and degrading agricultural landscape, water shortages and the impact of climate change. If the Australian agricultural industry is to help meet the challenges competitively then regeneration of our own landscape must be addressed. A national, coordinated and forward thinking policy approach to restoring a landscape that is fit for purpose is urgently required.

The principles underlying regenerative landscape management are consistent across Australia. They are founded on healthy soils, wise water use and conservation and biodiversity of vegetation, all managed in an integrated way.

A national, bi-partisan policy framework to regenerate the health of the Australian landscape, based on a "light on the hill" objective "to restore and maintain an Australian landscape that is fit for purpose" would seem desirable. Such an objective should:

- Recognise soil, water and a diversity of vegetation as three of the nation's key national, natural, strategic assets, to be managed accordingly and in an integrated way;
- Recognise that food and fibre production can be achieved in a sustainable way by using proven, practical methodologies now being implemented by innovative farmers across Australia;
- Reward farmers fairly, not just for their product, but as primary carers of the agricultural landscape;
- Refocus science by asking of it the right questions and develop a common national information, collection, collating analysis and distribution chain;
- Re-engage urban Australia with its rural roots which might well be the most important policy driver;
- Recognise that to develop proper landscape regeneration policy involves inputs not just from agriculture and environment, but education, health, regional development, indigenous, trade and national security and therefore needs to be coordinated at the highest federal/state/territory political levels; and
- Note the potential of a properly managed landscape to draw down CO<sub>2</sub> and sequester carbon.