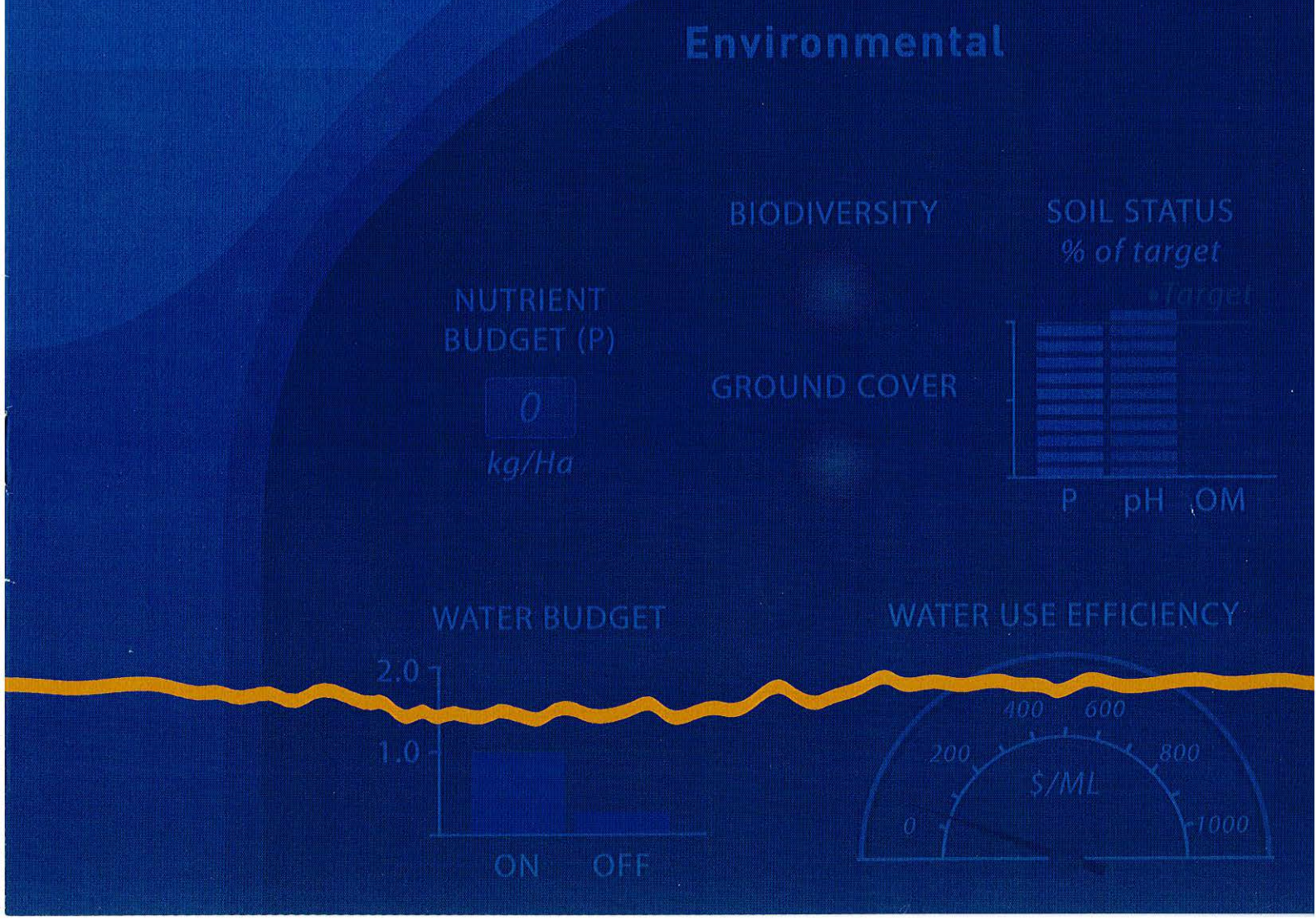
Australian Government
Land & Water Australia

A Farm Sustainability Dashboard

Making Sustainability Meaningful

Sage Farmer Group

July 2007



Land & Water Australia wanted to understand what 'sustainability' meant to leading producers and how it could be measured. So Land & Water Australia formed the 'Sage Farmer Group' and asked some vital questions ...

- What does sustainability mean to Australian farmers producing different sorts of food and fibre in various regions across Australia?
- Would the issues be the same for a vegetable grower as they are for a cattle producer or a cotton farmer?
- Could a 'dashboard' of key indicators be developed that made sense to farmers in these different commodities and regions?
- Would the dashboard, or the process of populating the dashboard, be of value to producers?

The Sage Farmer Group represents a range of agricultural commodities and regions across Australia. The Group operated as a 'think tank' and was named after the venue where they first met. The members were nominated through a range of industry networks, including Rural R&D Corporations.

Over a period of 18 months and 4 meetings, the 12 farmers that made up the Sage Farmer Group developed a 'Sustainability Dashboard' to highlight factors that are most critical to the ongoing sustainability of a primary production enterprise.

The Sage Farmers found the process of developing a dashboard instructive. Most of all they found that applying the dashboard to their own enterprise made them think differently about their business – and what was important in the longer term. Compiling data for the dashboard required deep thought about different aspects of sustainability and how it applied to their business.

Sustainability is a journey; and the Sustainability Dashboard is offered as a tool to help primary producers contemplate their progress while on that journey.

THE SUSTAINABILITY DASHBOARD

The Dashboard was developed with input from:

- Ideas and challenges from the Sage Farmer Group (both individually and collectively) regarding the environmental, social and economic issues important to them when considering the sustainability of their operations,
- An examination of other potentially relevant monitoring tools, benchmarks and indicators that are available locally, or internationally, and
- Correspondence with agribusiness and natural resource management consultants.

A 'triple-bottom-line' approach was adopted for the Dashboard and each theme was explored in a number of dimensions as summarised in the table opposite. Of note are some interesting analogies between the environmental and social indicators with those of finance and business management, for example:

Environmental

- Resource Stocks – Balance Sheet (or Stock-take).
- Input Efficiency – Cash Flow and Budget.
- Management Actions – Operations Audit.

Social

- Family – Board Meeting.
- Staff – Staff Meeting.
- Community and Industry – Shareholders Meeting.

SUSTAINABILITY – DOES SCALE MATTER?

The Sage Farmers used three field visits and workshops to explore their thinking on sustainability. During these sessions the Sage farmers shared their business structures, business ethos and experiences to identify commonalities, differences and key learnings about sustainability.

The visits were hosted by a Sage Farmer and were held in the Huon Valley Tasmania where farm to catchment issues were explored from top of catchment to estuary; the River Murray in South Australia exploring regional and district production and NRM issues; and finally Toowoomba Queensland where irrigation and intensive horticulture were considered.

These field visits were accompanied by workshops which focussed on the components needed for the Dashboard, based on what had been learnt from the business and NRM issues explored. Broader industry and global circumstances which influence farm business sustainability were also considered which included changing markets, lower-cost suppliers, energy costs and climate change and what they meant for the future of Australian agriculture. Other questions debated included – would land be used to produce food, fibre, energy, ecosystem services or lifestyles – or all of these? One of the conclusions reached by the group was that Australian farmers may need to increasingly concentrate on being low cost producers of high value products; and that high standards of technical skill and environmental care would be part of that.

When developing the financial 'dials' for the Dashboard, there was an observation that, if there is increased variability in seasons as a result of climate change, there may need to be a re-evaluation of some risk management indicators. Larger capital reserves, more flexible production, or alternative business strategies may be required to manage (and exploit) such variability.

The Sustainability Dashboard is a software application that can be used by farmers to generate a visual report of key indicators of the condition of their land and associated business. The visual, like the one featured on pages 4 and 5 of this brochure, is produced after answering a series of questions about farm and business condition.

Environmental	Social	Financial
Resource Stocks or Condition, e.g. • Quality and quantity of soil, vegetation and water resources	*Family, e.g.* • 'Happiness Meter' – personal and family, balanced lifestyle	*Profit Indicators, e.g.* • Gross margins
Input Efficiency or Mass Balances, e.g. • Water use efficiency	*Community and Industry, e.g.* • Supportive community	*Production Efficiency, e.g.* • Return on assets managed
Management Actions, e.g. • Whole farm planning	*Staff, e.g.* • Staff responsibility and capability	*Business Indicators, e.g.* • Interest coverage ratio

A number of criteria were built into the Dashboard:

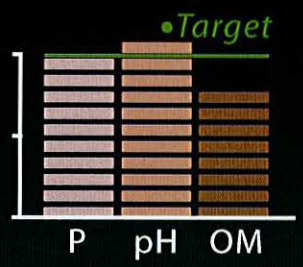
- It needed to be as simple as possible; showing only the most critical and insightful information (ie not too many dials).
- Where possible, a standard Dashboard would be used (with dials consistent between different enterprises and commodities) – though with modification to suit different industries and individual situations, if needed.
- Where-ever possible, existing data-sets and monitoring tools would be used to provide information for the dials – with a preference for those that came with relevant benchmark data and industry or regional targets.

Environmental

S

3 BIODIVERSITY

2 SOIL STATUS
% of target



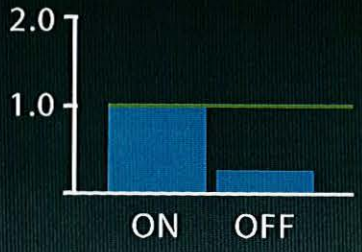
10 PERSONAL BU

5 NUTRIENT BUDGET (P)

0
kg/Ha

1 GROUND COVER

6 WATER BUDGET

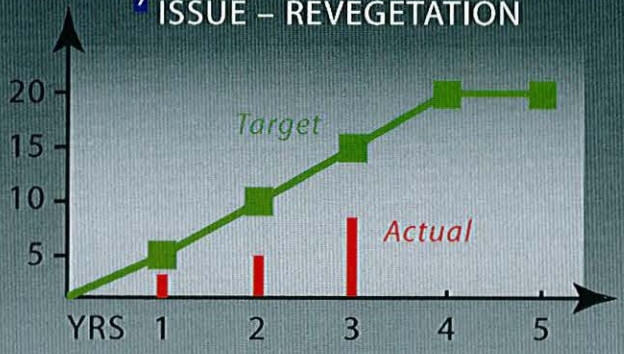


4 WATER USE EFFICIENCY

11 COMMUN

8 PLANNING & PRACTICES

9 ISSUE – REVEGETATION



12 STAFF

0

7 NET GREENHOUSE GAS
t CO_2

3

13 STA
Avera

ty Dashboard

To match the Dashboard dials with the dial descriptions refer to 'Unpacking the Dashboard' on pages 6-7

cial

Financial

INESS HAPPINESS

15 OPERATING PROFIT MARGIN

14 GROSS MARGIN

173

$/Ha/100mm

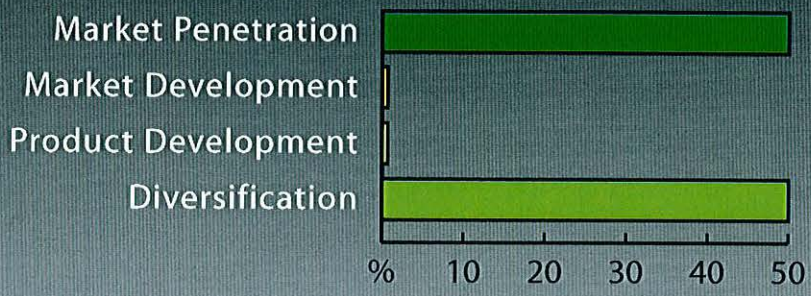
Y HAPPINESS

16 ROAM

18 INTEREST COVERAGE RATIO

APPINESS

19 BUSINESS STRATEGY



EMPLOYMENT

e years employed

11

17 CAPITAL APPRECIATION

% pa

UNPACKING THE DASHBOARD

Environmental

Resource condition, resource-use efficiency and management actions are three useful perspectives when considering the environment in a commercial farming enterprise. Reflection on the ability to maintain ecosystem services (the provision of clean water, sequestration of carbon, or regenerative floods etc.) can add further understanding.

Resource Condition

1 Ground cover (measured as percent of cover at critical times of the year) is a factor of primary importance to the environment and production (e.g. minimizing erosion and subsequent siltation). There are a range of easy to use tools available to help producers assess ground cover, often tailored to State or commodity targets.

2 Soil Status (measured as the percent of your target for Phosphorus, Ph and Organic Matter). Most primary production, and many ecosystem services, ultimately rely on the quality of soils and their ability to grow plants of some kind. Producers can set targets for the quality of their soil (and local or commodity specific guides are available to assist) and monitoring options are readily available.

3 Biodiversity (scored on a scale of 1 to 5 across several indicators). Native biodiversity levels are an important aspect of the environment – both on-farm and in a regional context. The extent of native vegetation (habitat) is a major influence on native biodiversity and is relatively easy to assess. A coarse assessment of the number of species present (and its trend) is used to supplement that information. If riparian lands exist, their condition is also assessed using a standard evaluation measure.

Resource-use Efficiency

4 Water Use Efficiency (measured as $/Megalitre). Water is a resource that is increasingly under pressure from alternative demands. More emphasis is being placed on the efficiency with which it is used and there are widely accepted means to measure and evaluate water use efficiency – in both dryland and irrigated production systems.

5 Nutrient (P) Budget (yearly indicator of amount of P applied (kg/Ha) minus P taken off as product). Nutrients are another driver of productivity, but inefficient use also has the potential to cause environmental harm (especially in regard to the contamination of water resources). There are a number of commodity or regionally specific tools available to help develop nutrient budgets but they are often difficult to use.

Some nutrients (e.g. nitrogen) are also hard to work with, given their ability to change form and move through the environment in different ways. Phosphorus (P) has been chosen as an indicator of efficiency and a 'back-of-envelope' calculation is used as a means to encourage thinking about the productive efficiency of use and the prospect of 'leakage' of any surplus nutrient to the environment.

6 Water Budget (two indicators to estimate water on to your property versus water leaving your property). Water use efficiency mentioned (see 4) assesses one aspect of water use (from a productivity point of view), but not the ecosystem service implications of that use. The provision of clean water or the maintenance of environmental flows and important flooding regimes are other angles to consider. There are no easily applied measures of water based ecosystem services, so a proxy is proposed. This measure looks at two aspects – 'where you get your water from (rainfall versus rivers, bores etc.)' and 'how much water coming on to your property actually leaves it'. These measures seek to better understand the ecosystem impact of your water use.

7 Greenhouse Gas Emissions (measured as tonnes of greenhouse gas produced (or captured) per property – positive or negative). Greenhouse is a topical matter that many producers are keen to better understand. A number of commodity specific calculators are available that not only provide an estimate of the efficiency of production (in greenhouse terms) but also permit 'what-if' scenario testing – allowing producers to assess the potential impact of changed management practices.

Management Actions

8 Planning & Practices (an aggregated figure to estimate the adequacy of your planning practices). A number of environmental management systems have been developed (often on a commodity basis) to record aspects of management, but the Sage Farmer Group felt there was value in examining higher order activities (like planning) in the first instance. A checklist tests the degree to which different sustainability issues are considered and actively managed.

9 Management Target (comparison of your planned environmental activity versus actual result thus far). Most operations have some sort of environmental program underway. This section of the Dashboard invites producers to nominate their pet program and track how well they are going in achieving their goal – e.g. percentage of the property revegetated; of effluent recycled; or of riparian areas fenced.

Social

Well-being is considered from personal, staff and community perspectives. Few existing measures were found useful for this aspect of the Dashboard so un-weighted composites are used, based on topics considered important through interviews and investigations.

Family

10 Personal Business Happiness (a series of questions/ rankings to indicate how satisfied you are with your business and personal life). Being unsuccessful in finding a suitable generic measure of personal wellbeing in relation to the business of primary production, a composite measure has been developed based on topics noted as important by a range of producers and advisers. Taking time-out from the business, having flexibility and shared goals, and even a health indicator, are included.

Community

11 Community Happiness (a series of questions/ rankings that indicate how well you think your business supports, and is supported by, your neighbours and community). A composite of factors, considered important by farmers and advisors, has been used to provide a measure of stakeholder happiness. The measure includes factors that make the local district attractive and the contributions the enterprise is able to make to the local community, e.g. community attitudes, access to services and employment opportunities.

Staff

12 Staff Happiness (a series of questions/rankings to indicate how satisfied you think your staff are in their roles and their degree of responsibility). A composite of factors indicating the wellbeing of staff is used to give a staff happiness score. The factors were chosen after interviewing farmers and advisors and include topics such as training, delegation and the ease with which vacancies are filled.

13 Staff Longevity (a simple measure of aggregated years that current staff have been employed divided by your number of staff). It is potentially a double edged sword (long serving employees may be a sign of malaise) but several personal and staff well-being factors are influenced by having experienced staff. The longevity measure invites consideration of these factors.

Financial

The financial indicators chosen for the Dashboard concentrate on profitability within the context of resource use and risk management. Aspects of overall profit are considered along with productivity (efficiency) and resilience within a variable operating environment, for example being able to withstand droughts, commodity downturns or interest rate hikes.

Financial Condition

14 Gross Margin (total farm income minus variable cost – then related to area (Ha) and water used (mm)). A driver of overall profit, gross margins are often calculated by producers (and commodity specific examples and benchmark targets are readily available). To enable comparison across commodities the Dashboard looks at gross margins on a per-hectare per-100 mm of water basis. This allows consideration of both dryland and irrigated enterprises.

15 Operating Profit Margin (farm business profit divided by total income) is a measure of how effectively income is converted to profit. A margin of more than 10 percent can be considered a 'good profit'.

Production Efficiency

16 Return on Assets Managed – ROAM (farm business profit divided by value of assets). From a financial perspective, the fundamental measure of efficiency is profit (earnings before interest and taxation – EBIT) as a function of the total assets employed (e.g. land, water and equipment). This is a standard accounting tool.

17 Capital Appreciation (percentage increase in the value of your asset base, per annum, over the last five years – similar to capital gains for stocks). It may not pay any bills, but growing the capital value of an operation can be a worthy business goal; especially toward retirement. Noting the rate of capital appreciation may also help explain changes in ROAM; e.g. rising land values may reduce the return on assets managed.

Business Performance

18 Interest Coverage Ratio (measured as a ratio of Operating Profit (farm business profit) to Interest Payments). A key to ensuring foreclosure doesn't happen is being able to pay debts. Keeping interest payments to less than 1.5 times operating profit is a measure of sustainable business performance.

19 Business Strategy (the percentage of total investment associated with each business strategy – on farm in various forms and off farm). There are a number of, at times innovative, options available to producers to manage business risk. A common measure is to invest off-farm – a form of unrelated diversification. Business strategies may be aggregated into options that variously explore new markets or new products (with diversification doing both). The Dashboard asks producers to assess the balance of their investments and to reflect on how well they suit their situation.

USING THE SUSTAINABILITY DASHBOARD

The Dashboard is very powerful in stimulating a deep assessment of 'sustainability' by producers across most commodities (except possibly for intensive industries such as animal keeping). While the final dashboard readings have been of interest, most value has come from members designing the dashboard, and then in collating information and thinking through the issues.

The Dashboard is not intended to be used as an immediate diagnostic, or problem solving, tool. This is partly because appropriate benchmarks for many of its 'dials' simply do not exist (they aren't recorded widely or may be too variable between agricultural sectors).

However, used as a true Dashboard (monitoring progress and performance), the information provides a snap-shot in time of how a business is going and provides an indication of its strengths and weaknesses. It could be very useful for an individual enterprise to record information over time, tracking variability and any trends.

However, the greatest value of the Dashboard comes from working through it to get the information it requires. Having to search for, or calculate the information required, forces a great deal of thought about the issue being reported. It raises questions about 'why is this important?', 'could I do better?', 'what trade-offs exist if I change?' and 'how do I compare with others?'

Questions like these have been very valuable to individuals. They challenge people's thinking about their business. For some Sage Farmers these considerations have resulted in changes in approach and in the matters they monitor on their properties. The sharing of their experiences and thoughts added further value; highlighting the value of the Dashboard as a prompt for group discussions about 'sustainability' and what it really means to Australian primary producers.

Using the Sustainability Dashboard makes you think about sustainability from different angles and to apply broad concepts to your business.

The Sustainability Dashboard is recommended to groups or individuals wanting to challenge themselves and to help prompt deeper thinking about the sustainability of their operations.

- If you're open to a challenge and interested in 'sustainability', get hold of a copy of the dashboard and have a go at filling it out. Go to **www.lwa.gov.au**
- If you want to spark some interesting discussions – share the experience with a group of producers.

ACKNOWLEDGEMENTS

The Sage Farmers have driven the development of the Dashboard. Their ideas and challenges have shaped its content and their evaluation of prototypes has tailored its design.

Mike Logan (Cotton, Horticulture; Narrabri NSW)
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Ian McClelland (Predominately Grains; Birchip Vic)
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Wendy Erhart (Salad Vegetables, Seedlings; Withcott Qld)
Yvonne Postlethwaite (Predominately Grains; St Arnaud Vic)
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Tony York (Grains, Sheep; Tammin WA)
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Greg Ludvigsen (Pork; Owen SA)

Russell Pattinson (Miracle Dog) and **Peter Day** (Peter R Day Resource Strategies) have managed the development of the Dashboard for the Sage Farmer Group; including consultation with a range of advisers, literature reviews and investigations, and developing options for the Group's consideration. They challenged the Group to consider sustainability from different perspectives and incorporated the Group's ideas into the Dashboard.

Andrew Campbell (Land & Water Australia) initially conceived the idea of the Sage Farmer Group and the Sustainability Dashboard. His driving input, and that of **Anwen Lovett**, provided the 'rallying call' to which the Group responded.

LAND & WATER AUSTRALIA

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