

NATURAL RESOURCE MONITORING TOOLS FOR WOOLGROWERS

Quickchecks



Healthy Land... Healthy Wool
Growing Business

LandWater & Wool
Shaping the future

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QUICKCHECKS: HEALTHY LAND ... HEALTHY WOOL GROWING BUSINESS

NATURAL RESOURCE MONITORING TOOLS FOR WOOLGROWERS

Quickchecks is an NRM Monitoring tool for woolgrowers. It is designed to be used as part of a facilitated group, or by individual producers. It can also be of value to farmers with other enterprises.

The manual contains six NRM modules that can be selected for monitoring:

- 1. GRAZING PADDOCKS** – this module looks at 16 key measures of pasture health and is a practical way to measure and compare different paddocks.
- 2. SOIL HEALTH** – 12 measures of soil health including chemical, biological and structural aspects are examined in this module.
- 3. WOODY VEGETATION** – this module looks at 11 measures of the health of woody vegetation and can be used on both existing and revegetated areas.
- 4. WATERCOURSE AREAS** – 4 key measures of watercourse health are examined in this module which are useful for stream and creek regeneration works.
- 5. BIRDS** – bird counts in targeted areas are covered in this module, which can be a useful way to track population changes over time.
- 6. PADDOCK PRODUCTION** – this module measures carrying capacity over the year in DSE days/ha and DSE days/ha/100 mm rain. This allows you to relate paddock production to issues such as ground cover and soil health.

Quickchecks has been designed for woolgrowers who are interested in:

- Examining the current condition of their land.
- Tracking the changes which occur over time on their land.
- Improving land health from whatever the starting point.
- Using this valuable information as part of their normal decision making to ultimately improve their business performance.

Outcomes from Quickchecks:

- 1.** To assist woolgrowers to better understand the health of their land in order to manage it for their family's long-term wealth and to pass it on in better condition.
- 2.** To monitor current land health and to relate this to the individual woolgrowers Farm Landscape Goal, to identify areas for improvement.
- 3.** To help woolgrowers monitor trends in land health over time, and relate these to day to day management decisions.
- 4.** To create healthier land, within a business and family farm context.

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SECTION 1

QUICKCHECKS AT A GLANCE

This section includes:

- An introduction to Quickchecks and what it means for the farm business; and
 - A table summarising the steps involved in using Quickchecks.
-

SECTION 1 QUICKCHECKS AT A GLANCE

*“This program is practical,
straight forward and logical”*

*“Quickchecks are practical
and user friendly”*

Woolgrowers, Western Australia

Quickchecks provides the tools to measure the health of your pastures (including ground cover), soils, woody vegetation, farm watercourses, paddock production levels and birds. They are a quick and easy way for woolgrowers to measure what is going well on their land and to clearly identify any issues that may need action – only 3-4 hours is needed.

Quickchecks recognizes that scientific rigor needs to be balanced with practical time constraints and the skill level available. It has been designed to be a starting point, accessible to a large number of woolgrowers. If you need more detail or information, the last section of Quickchecks points to the next step.

This manual promotes the concept that land monitoring can be used to check progress towards your own individual Farm Landscape Goal. As each farm is different, you design your own monitoring program, relevant to your own interests and needs.

Working out your own long term view of the farm landscape (through formation of a Goal), deciding what to monitor, where, how and when are important decisions covered in this manual.

The monitoring contained in Quickchecks therefore can be used to positively impact on land management decisions, and over time, business performance.

Quickchecks has been developed in conjunction with 35 woolgrowers in New South Wales, Victoria and Western Australia and incorporates principles that are widely applicable. The approach is quick, practical and gives important and useful information, which can be used to shape your management decisions.

If you are interested in the health of your land, and long term profitability, then Quickchecks is for you!

*“The Quickchecks program
is good as we are monitoring
for our reasons, not
someone else’s”*

Woolgrowers, Western Australia



SECTION 1 QUICKCHECKS AT A GLANCE

The table below summarises the steps involved with using Quickchecks and making monitoring relevant to your farm business.

STEP:	OUTCOMES:	PAGE NO.
Step 1:	Record your expectations of Quickchecks.	11
Step 2:	Read through 'Why monitor?', which may help you in the next step of formation of a Farm Landscape Goal.	12
Step 3:	Understand the GROW model and how it can be used to improve business performance and the important role of the Farm Landscape Goal. The GROW model is used to move past the "so what" phase to identify issues and development of an action plan.	20
Step 4:	Form your own Farm Landscape Goal.	22
Step 5:	Work out what it is you want to monitor and design your own Quickchecks monitoring program, relevant to your farm business.	23
Step 6:	Decide on a monitoring strategy, around knowing where to monitor and when, and which is relevant to your own farm business.	26
Step 7:	Use Quickchecks on the farm to gain valuable information on the condition of your farm Resource Base.	31
Step 8:	Use the results of Quickchecks to improve your business performance, and the important role of trends over time.	47
Step 9:	Review other topics to monitor and links to more information.	53
Step 10:	Scan the explanation of terms used.	56

SECTION 2 GETTING STARTED



This section includes:

- A summary of the main features of Quickchecks - namely that it is quick, flexible and individualised, and directly relates to business management & decision making; and
 - A box to fill in your expectations about how Quickchecks will benefit the farm business.
-

SECTION 2 GETTING STARTED

Key Points:

- Quickchecks can become part of normal business decision making and can provide opportunities to improve business performance.
- Quickchecks are practical and can provide quality information about farm landscape health.
- Your own customized monitoring approach is created around the issues important to you.

Quickchecks has been developed to help woolgrowers determine the health of their land. They will clearly help identify what is going well and issues that may need attention.

The strength of Quickchecks is that each woolgrower can design their own monitoring approach, relevant to their own Farm Landscape Goal, through selecting the Quickcheck topics of interest and importance to them.

Why use Quickchecks?

The land and its health is a key part of the overall business resource base and can have direct links into farm profit. For example, many woolgrowers have found increasing ground cover has led to less water run off and greater pasture production (and also less weed problems). Others have found improving the amount of perennial grasses have improved stock performance through creating a more consistent feed supply over the year.

Woolgrowers have many resources to manage such as money, people, stock, machinery and land. Many woolgrowers regularly check the performance of these resources, particularly money, as part of normal business management.

Quickchecks will allow you to add land health to this list.

It makes good sense to be able to quickly measure the condition of your important land resource and to track changes over time. Quickchecks may be an opportunity to enhance business performance, by identifying any land based issues, looking at options and making improvements. Likewise identifying the land based decisions which are working well may give confidence to expand their application over greater areas of the farm.

SECTION 2 GETTING STARTED

Quick on time – 3-4 hours is all that is needed:

Quickchecks recognise that your time is valuable. The good news is that not much time is needed. Three to four hours twice per year is enough.

If after using Quickchecks more detail is required, or additional indicators need to be added, Section 8 - Follow Up in this manual has a list of useful website and products that will point you to the next step.

Quickchecks are a good starting point that can be added to over time.

Individual paddock/site, or the whole farm... you choose!

Some woolgrowers have used Quickchecks on a few specific areas (or whole paddocks) of their farms (for example using the Quickchecks for Woody vegetation or Quickchecks for Birds). Others have used the approach to give a broader view of farm health, by selecting many sites or paddocks across the whole farm (this approach can work well for the Quickchecks for Soil health or Quickchecks for Grazed paddocks).

Either approach can be useful. You select which best suits you. This flexible approach is based around meeting the individual needs of each woolgrower for quality land health information.

What to measure?

Quickchecks will give you the ability to design your own individual monitoring approach, based around what is of interest or importance to you. The approach is driven by the development of your own Farm Landscape Goal and selection, from a range of Quickchecks topics, those which best suit you.

Quickchecks has also been designed to be relevant to many of the regional NRM targets. Many of the Quickchecks have a direct relationship to Catchment Management Authority (CMA) or NRM regional targets, and can be of use in monitoring the outcomes from CMA activities or incentives, either on an individual farm or at a sub Catchment level (groups of farms).

“There are lots of choices to suit individual properties, so Quickchecks will be applicable to almost any situation”

Woolgrower, Northern NSW

The Quickchecks approach starts with a minimum number of sites and emphasizes the importance of adding more detail, topics and complexity as the need for this becomes obvious.

It's your farm: Quickchecks helps you choose what approach suits you the best.

SECTION 2 GETTING STARTED

Summary features of Quickchecks:

Quick (3-4 hours)	<p>Depending on which topics are chosen to make an individual monitoring program, we suggest 3-4 hours is needed preferably twice per year.</p> <p>Quickchecks has been designed to be a starting point and can be added to over time if greater detail or complexity is needed.</p>
Useful information	<p>Quickchecks information can be useful in determining why some grazing areas are more productive than other areas. Examining the characteristics of higher and lower performing grazing areas can give practical management information which directly links to business performance.</p> <p>The information can also clearly identify aspects of the overall resource base which are going well, and to identify areas which might need some action. Soil Health, Birds, Woody Vegetation/Revegetation areas, Water courses and Grazed areas can all be monitored using Quickchecks. The information from the program can have practical outcomes for wool growing businesses.</p> <p>Used over time, progress towards each woolgrower's Farm Landscape Goal can be tracked to make sure management is on track. If not, changes can be made early.</p> <p>If a new production technique or management tool is being trialed, Quickchecks can be an effective way to measure the outcomes of the change, and give confidence in the expansion of the decision.</p> <p>Some woolgrowers are using Quickchecks to monitor grazing management changes, while others are monitoring soil health as a result of fertiliser treatments.</p>
Are not prescriptive	<p>A great strength of the Quickchecks approach is that it is based around each individual woolgrowers own Farm Landscape Goal.</p> <p>Quickchecks does not attempt to tell woolgrowers what their land should look like, or how they should manage it, using a one size fits all approach.</p> <p>It's your farm, and Quickchecks does not tell you how to run it!</p>

SECTION 2 GETTING STARTED

Individualised	<p>Each woolgrower can select from the full list of Quickchecks topics which are of most interest and importance to them.</p> <p>An individualised monitoring approach can be created, based around what is important to them, now and into the future.</p>
Directly relate to business management and decision making	<p>The land and its health is a key part of the overall business resource base and can have direct links into business performance. It makes good business sense to track how this key resource is performing over time.</p> <p>Quickchecks are a time efficient approach to do this.</p>

“Quickchecks are quick, informative and all encompassing”

Woolgrower, Central West NSW

After reading the introductory pages, record your expectations of Quickchecks and how it could benefit your business.

Record how Quickchecks could benefit your business

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SECTION 3

WHY MONITOR?

This section includes information on what's important to monitor on-farm and why. Topics covered are:

- The importance of ground cover;
 - Farm water and mineral cycles;
 - Soil and plant health;
 - Perenniality and pasture production;
 - Woody vegetation; and
 - Watercourses.
-

SECTION 3 WHY MONITOR?

“Thank you so much for your contribution to the business with Quickchecks. It was a really good one and left us all feeling positive and keen for the next bits”

Woolgrowers, Western Australia

Many farms have a range of vegetation types including native and sown pastures, crops, native bush, scattered trees and vegetation along watercourses. On any property, different tracts of land will have different potential for both production and conservation.

Quickchecks can help you to monitor the health of the soils, watercourse, pastures and native bush land (woody vegetation) on your property. They can also help you relate your findings to the production levels being achieved. This can help you to decide what you need to do to keep your farm profitable and sustainable over time.

Apart from impacting on profit, having healthy land, water and vegetation can also contribute to a feeling of wellbeing and pride for woolgrowers and have a positive impact on neighboring farms and at Catchment level.

Monitoring the health of the landscape has helped many woolgrowers to evaluate the sustainability of land and water management decisions. Monitoring can alert you to any changes in the resource base that may need action. It can also alert you to areas

of improvement that you may be able to expand across larger areas of your farm.

Through monitoring, many woolgrowers have discovered areas of high conservation significance on parts of their farm, which they have decided to manage differently.

Measuring the health of your farm landscape can seem daunting, but there are some simple measures included in Quickchecks that can help along the way. Some of the key indicators of farm health are described below with examples of their links to the farm business.

They set out what is important to manage on the farm, and why.

The importance of groundcover:

Figure 1 on page 14 shows that having adequate groundcover is essential for effective water (1a) and mineral (1b) cycles.

When the soil surface is covered most rain can enter the soil where it falls. Once in the soil, organic matter, including living and dead plants, can store up to four times their weight in water. This stored water is released slowly through plants (transpiration), or through rivers, springs and aquifers that collect what the plants do not use (deep drainage or lateral flow).

When soil is exposed (low groundcover) and biological activity (worms, soil microbes, etc) reduced, water can run off, taking with it valuable topsoil and nutrients. What little may soak in is released rapidly from evaporation from the bare soil surface. This process then draws more moisture back up through the soil surface, much like a wick in an old oil lamp.

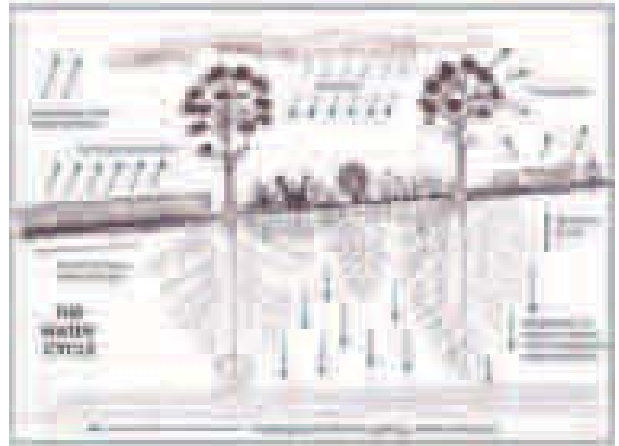
SECTION 3 WHY MONITOR?

An effective mineral cycle also requires a covered and biologically active soil. When effective, many nutrients continually cycle between living plants, living animals and living soil. When the soil surface is not covered and biological activity low, nutrients can be lost to wind and water erosion. This essentially means the farm is losing a vital resource, and this ultimately costs money.

Both soil surface cover and condition are important indicators of the health of your farm's water cycle. We measure these in Quickchecks. Quickchecks can also give you a guide to the effectiveness of your mineral cycle by examining the level of ground cover, perennial plants present, insect activity above and below ground and plant root depth (some key soil health characteristics).

Figure 1: Water and mineral cycles are fundamental processes that are important to all farms, wherever they are. Healthy soils and good ground cover help make these cycles effective on your farm.

a) The farm water cycle



b) The farm mineral cycle



SECTION 3 WHY MONITOR?

Soil health:

The concept of soil health is of interest to many woolgrowers.

A healthy soil can support higher plant production, stocking rates, animal performance and hence overall business performance. When plants are growing in healthy soil with good mineral and water cycles, they can harvest large amounts of sunlight energy. This can be used to grow more leaf or root matter, produce seed or can be stored below the ground in roots.

Research in some Australian pastures has shown that for every one sheep grazing above ground, there can be the equivalent weight of four "sheep" grazing below, in the form of soil microbes (Prograzier Summer 2000 edition p9).

Just a single spoonful of healthy soil can contain many millions of microscopic organisms that perform vital functions in the root zone. Beneficial organisms such as bacteria, fungi, nematodes and protozoa perform seven key functions in the soil food web:

1. They break down crop residues and manure to make them more available to feed other "good" soil organisms;
2. They store up nutrients in their bodies and minimise leaching;
3. They recycle nutrients, eg, the protozoa that feed on bacteria cause nitrogen and some phosphorus to be released at a steady rate to crops all season long;

4. Healthy soils with a wide range of microbes often contain species that can kill or suppress root rotting fungi and nematodes that attack roots;
5. Contain certain hormones that regulate and/or stimulate plant growth and development;
6. Well structured soils rely on the gums produced by certain bacteria that stick clay, silt and sand together, and the physical binding of soil aggregates by certain species of beneficial fungi;
7. Some types of microbes "eat" herbicide and pesticide molecules, cleaning up various forms of pollution.

Soil science is not only about physics and chemistry. Some of the soils most interesting bits are alive and below the ground!

The energy stored below ground can become an important component of soil health, and food for the soil bugs. Above ground, energy is combined with available nutrients and water that creates feed for animals, which are then turned into saleable products (*see Figure 2: the flow of energy through a farm landscape on page 16*).

The interaction between both above and below ground is an important component to soil health.

SECTION 3 WHY MONITOR?

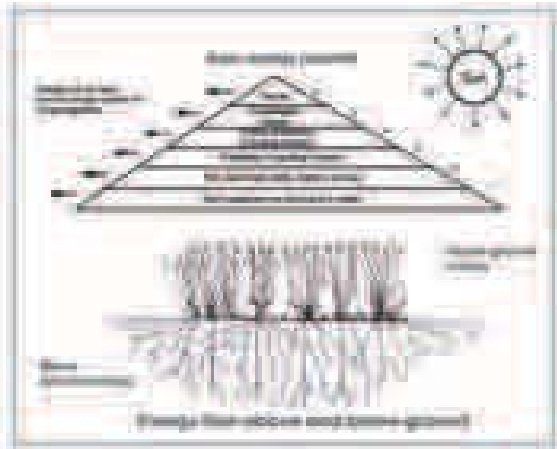


Figure 2: The flow of energy through a farm landscape.

By managing the soil structure, nutrients and biology in the soil, woolgrowers can maintain or improve soil health, hence plant and animal production.

Key aspects to maintain and improve soil health include maintaining ground cover, improving soil organic matter, managing water and nutrients cycles and managing animal production levels to keep soil covered and plants healthy.

Woolgrowers are well aware of the impact of compaction on soil health and this is also an important component of soil physical health.

As Figure 3 shows, grazing management can have a large influence on what happens below ground. In this example, the larger plants were allowed a planned recovery period from grazing, and hence were able to develop their leaf area and root mass. The plants in this paddock have been allowed to recover from grazing (rested) to allow for greater root development, as part of a whole farm grazing plan.



Figure 3: This photo shows that plants need time to recover from grazing (Photo: Dr Christine Jones).

When grazing removes most of a plant's leaves, the energy to produce new leaves is drawn from the plant's root reserves. If these plants are continually grazed with no recovery, their root systems eventually decline (as on the left in the picture above).

With poor root systems, plants quickly succumb to stresses such as dry periods, pest and disease attack, and are easily pulled out by the grazing animal.

Planned rotational grazing that gives plants and their root systems time to recover from grazing can change the shape of perennial pasture plants from the plant on the left side of Figure 3 to the plant in the middle or to the right.

Just as it is possible to improve soil and plant health through good management, the converse is true. Quickchecks will pick up any early changes over time to aid in management decisions.

SECTION 3 WHY MONITOR?

Perenniality and pasture production:

Quickchecks measures the number and distance between perennial plants. Compared with annuals, perennial pastures have the potential to increase water use and reduce recharge, provide ground cover over summer-autumns and reduce erosion and result in more stable pasture production over the year.

Perennial vegetation can help keep water tables down, thus helping with the management of salinity and water logging.

Working towards increasing perenniality can reduce water or nutrient runoff from your farm. This will save money by decreasing costs, as well as having a positive impact on Catchment health.

Quickchecks will help you measure and track changes in the perenniality of your land, through helping you monitor the average distance to perennial plants on the sites you choose. As well the Paddock Performance measures will allow you to compare the grazing days produced from different areas.

Many woolgrowers have found significant difference in animal production between annual and perennial pastures, with perennial pasture making important contributions to the whole farm carrying capacity over the full year.

You will be able to measure these impacts on your own farm with Quickchecks.

Woody Vegetation:

Patches and corridors of native bush, as well as mature isolated trees, are often found on farms. They are part of bush culture and Australia's natural heritage, and for many people on the land contribute to the quality of rural life.

Woody vegetation is important for providing shade and shelter for sheep. It can also reduce their energy requirements, and hence the amount of pasture they require.

Woody vegetation provides habitat for native plants and animals, which in turn can provide productive benefits such as pest control and increased land value.

Studies have shown that natural shelter can improve the survivability of lambs, and at today's prices this can make an important contribution to farm profit.

The shape, size and linkages of patches of woody vegetation on your farm and beyond will influence the type of native animals you'll find. Corridors can help wildlife move to all parts of the property. Revegetated areas also provide important habitat for native animals, especially birds.

Keeping track of the condition of the woody vegetation on your farm using Quickchecks will help ensure that production benefits can be gained in the short term, but also that it will be there for future generations to enjoy.

SECTION 3 WHY MONITOR?

Watercourses:

At least three-quarters of all wool growing properties have frontage to a waterway.

Sheep need access to good quality water. Riparian pastures are often highly productive with good quality feed. Watercourses provide important habitat for native plants and animals, both on land and in the water, and can be enjoyable places to relax.

Riparian lands and watercourses can have many uses and values. It is possible that some of the functions of well-managed riparian land, like carbon storage, water infiltration and salinity control, may in the future form part of the farm's production system and be valued and traded as part of an 'ecosystem services' market.

Watercourses can also pose a range of management challenges such as insecure boundaries and flooding. As a result, woolgrowers have strong financial and environmental reasons for understanding and managing the Watercourse and adjacent (riparian) lands on their farm to reduce the frequency and extent of flooding.

The Watercourse checklist included as part of the Quickchecks approach has been developed specifically for woolgrowers and can help you to better understand and manage these important areas of your farm.

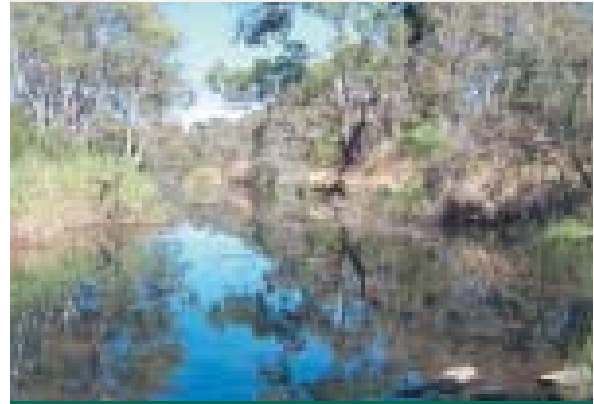


Photo courtesy Land, Water & Wool: Are my waterways in good condition? A checklist for assessing river, stream or creek health on farms.

SECTION 4

IMPROVING BUSINESS PERFORMANCE

This section includes information on:

- The GROW model (Goal, Reality, Options and Written Action) that helps land managers move past the 'so what' phase and identify issues of importance;
 - Developing a Farm Landscape Goal; and
 - Selecting topics to monitor.
-

SECTION 4 IMPROVING BUSINESS PERFORMANCE

Key Points:

- Quickchecks help land managers monitor the condition of their land in relation to their own Farm Landscape Goal.
- A well formed view describing the desired long term farm landscape is essential (and written down).
- The GROW model is used to move past the “so what” phase to identify issues and development of an action plan.
- Quickchecks are realistic; you don’t have to monitor everything! Work out the key topics to monitor (around your areas of interest or importance) and choose the Quickchecks topics related to these.
- Add more topics and complexity later, if you want (see Section 8 - Follow Up).

“The GROW Model is designed to ensure action towards the Farm Landscape Goal”

Woolgrower, Victoria

Quickchecks has been designed to create practical outcomes for woolgrowers. The approach has been designed to answer the question *“Are we on track/off track in relation to our own Farm Landscape Goal?”*

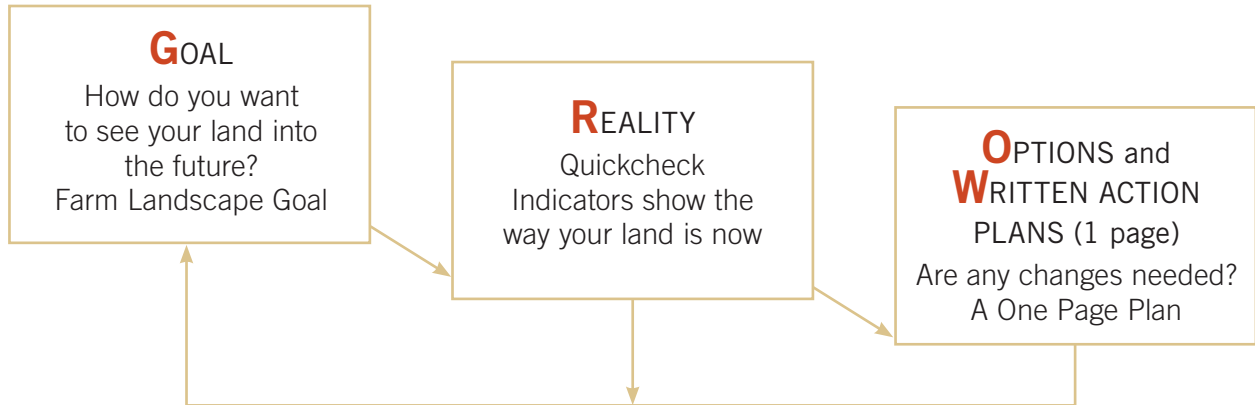
If we are on track, that’s great! If not, what can we do?

This approach means that we are just not monitoring, *we are now checking progress towards your own individually defined Landscape Goal.*

It also means that the managers of the resources have a shared view of the future Farm Landscape (a goal).

SECTION 4 IMPROVING BUSINESS PERFORMANCE

The Quickchecks approach: land condition monitoring as part of normal business management



Are we on track to create the farm landscape goal?

Changes over time are important!

To help make sense of the information gathered, the *GROW* approach is used.

STEPS:	WHAT DOES THIS MEAN?
1. G OAL (the where)	How will your farm landscape look (long term) as a consequence of your good management? What is it you are trying to create (describe this)? We call this the Farm Landscape Goal.
2. R EALITY	Choosing the appropriate Quickchecks topics (from one to all) to identify things going well and any issues in relation to the Farm Landscape Goal.
3. O PTIONS	Suggestions/options are considered and choices made.
4. W RITE IT DOWN (1 page Action Plan)	Commit to action (action planning) make steps specific, define timing and identify how to overcome possible obstacles. Next year, around the same time, check the progress that has been made by repeating the Quickchecks and comparing with last year and the Goal.

The first step in the GROW approach is for the farm decision makers to write down how they would like to see their farm look, into the future. If you are the sole decision maker, then you would complete this yourself.

This can be a quite difficult step for some, but it is important. Remember Quickchecks measures progress towards this goal, so it is an integral part of the approach.

You may like to contact your local regional NRM body (such as a Catchment Management Authority) as they have access to information that can help you to develop your own Goal. They have their own targets across a range of NRM issues for your Catchment which might help you to think about your own farm targets and how they might link with regional targets (where appropriate). The website www.nrm.gov.au is a good place to start.

SECTION 4 IMPROVING BUSINESS PERFORMANCE

Forming a Farm Landscape Goal:

Here are some prompt questions to help you with this (If you work as a family or in a group, please complete as individuals and then share):

1. Decide on how long can you see yourselves managing the land (eg 20 years). Agree on a timeframe.

Thinking long term is important when managing the land. While some decisions can create immediate and obvious benefits, other decisions may take some time to show benefits. Thinking long term is therefore important to ensure the long term impacts of decisions are considered and tracked.

2. If you were to walk across your land at the end of this timeframe, what would it look like?

Think of things like ground cover, species growing, and life above and below the soil, animals supported, water, soil condition, trees, birds etc.....Please add in any issues and aspects important to you. Be as specific as you can, include a farm map if it helps. At this point you may like to refer to the next section for some ideas and options.

If you are completing this as a family or group, try to complete the step as individuals and then talk as a family/group about what you have all written:

- What do you have in common? · Are there any differences and why?

After you have discussed and agreed on your individual responses, please write down a combined response:

Our Farm Landscape Goal is:

SECTION 4 IMPROVING BUSINESS PERFORMANCE

Using the Farm Landscape goal to work out what to monitor:

One of the strengths of Quickchecks is that it doesn't have to take a lot of time.

It also recognises that woolgrowers may have different interests and priorities in relation to their own Farm Landscape Goal.

Looking at your Goal, what do you think are the key areas of the Goal to the performance of the whole farm and the business? List these below, as these are important areas to monitor through Quickchecks. As an example, some woolgrowers consider a diverse mix of pasture species as important, others ground cover.

Do you have any special interest areas that may not be covered in the above? If there are, then list these. As an example, some woolgrowers are particularly interested in birds, others in soil health.

SECTION 4 IMPROVING BUSINESS PERFORMANCE

Now look at the Quickchecks topic areas listed on Page 25. You may like to select topics to monitor which are either important to the business performance, or of interest to individuals within the business.

You may like to list the Quickcheck topic areas below, which will make up your individual monitoring plan, checking progress towards your Farm Landscape Goal.

Area of importance/interest to you (see page 23)	Quickchecks topics which will monitor these (page 25)

If you have important areas in your goal, or interests which are not covered by Quickchecks, then you may like to consult the section in the manual on additional tools, to add in any further monitoring topics (see page 53).

After the Farm Landscape Goal has been determined and the monitoring undertaken, the final step in the GROW approach is to write down a one page action plan. This will allow you to identify specific steps, timing and how to overcome possible obstacles in the future. Action planning is also important when following up the results of your monitoring. This aspect of planning is covered in detail in Section 7 - Using the Results.

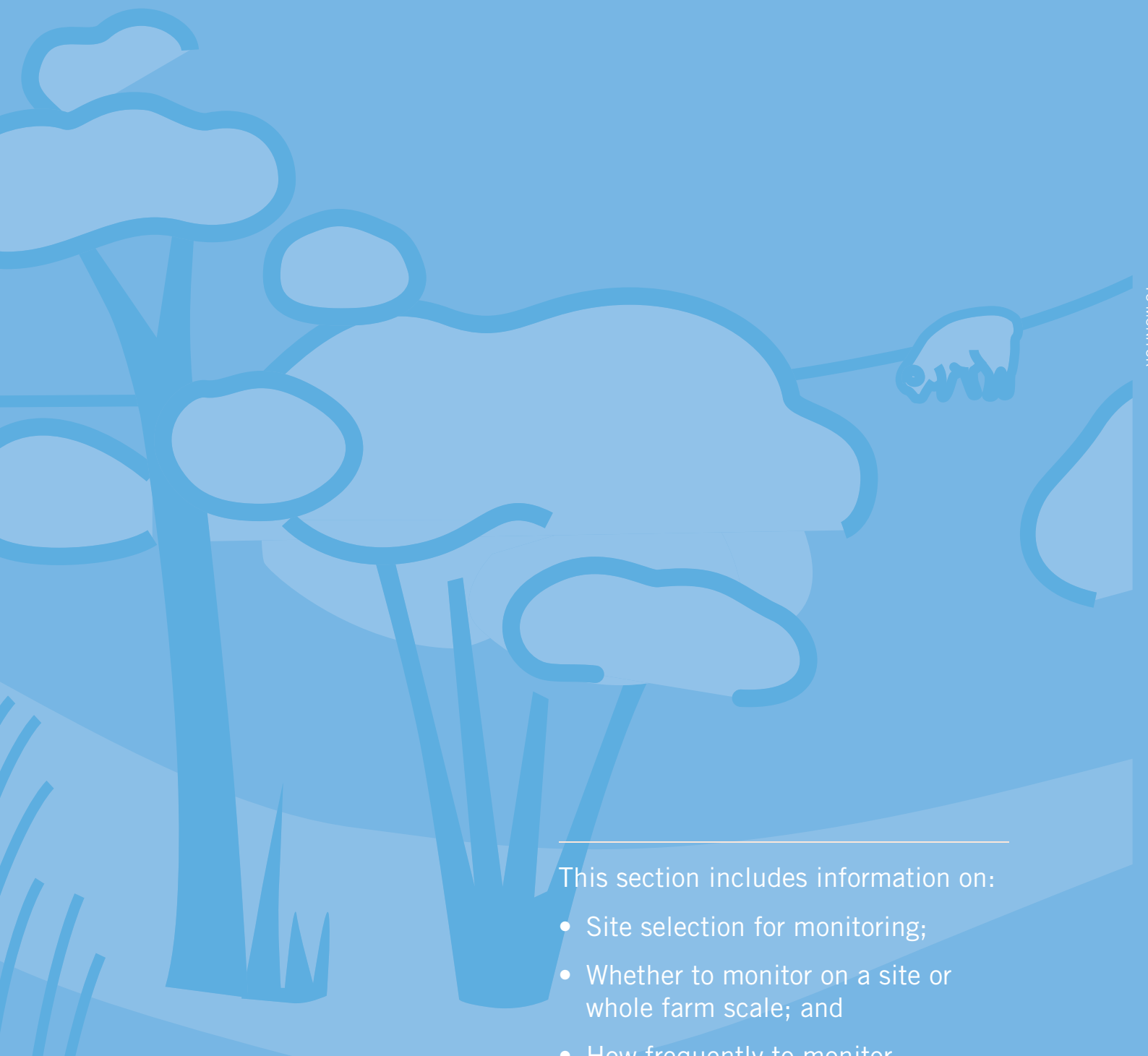
SECTION 4 IMPROVING BUSINESS PERFORMANCE

You can chose from the following Quickchecks topics:

<p>1. Quickchecks for Grazing paddocks</p>	<p>This module looks at 16 key measures of pasture health and is a practical way to measure and compare the health of different paddocks.</p>
<p>2. Quickchecks for Soil health</p>	<p>This module looks at 12 measures of soil health, including chemical, biological and structural aspects, and also looks at some below ground issues.</p>
<p>3. Quickchecks for Woody vegetation</p>	<p>This module looks at 11 measures of health of woody vegetation areas, which can be used for both existing and revegetated areas on the farm.</p>
<p>4. Quickchecks for Watercourse areas</p>	<p>This module looks at 4 key measures of watercourse health and can be useful for stream and creek regeneration works.</p>
<p>5. Quickchecks for Birds</p>	<p>This module looks at bird counts in targeted areas and can be a useful way to track population changes if used over time.</p>
<p>6. Quickchecks for Paddock production</p>	<p>This module measures carrying capacity over the year in DSE days/ha and DSE days/ha/100 mm rain. This can allow you to compare production from paddocks and relate this to issues such as ground cover, species and soil health.</p>

SECTION 5

WHEN AND WHERE TO MONITOR



This section includes information on:

- Site selection for monitoring;
 - Whether to monitor on a site or whole farm scale; and
 - How frequently to monitor.
-

SECTION 5 WHEN AND WHERE TO MONITOR

Key points:

- Design a monitoring strategy that suits the issue. If it's a whole farm issue, pick at least three sites across the whole farm or more if you have the time.
- If it's a localised issue on a defined part of the farm, pick an area which is representative of the issue.
- Try to monitor when the issue is at its best and worst, so you can tell how your management is impacting at both important phases.
- Develop trends over time to monitor long-term impacts (commit to implementing the strategy over time).

The Quickchecks approach is to start with a minimum number of sites and emphasizes the importance of adding more detail, topics and complexity as the need for this becomes obvious.

Fitting in with these principles we suggest the following approach to designing the monitoring strategy:

Suggested Quickchecks site selection strategy (feel free to modify to better suit your situation):

There are two main approaches to be considered when selecting monitoring sites.

Whole Farm Issue:

If an issue impacts the whole farm, such as looking at the health and condition of all grazing paddocks across the whole farm, then you may like to consider using a small number of representative sites across the farm. Choosing sites that are typical of “good”, “average” and “not as good” in relation to your Farm Landscape Goal is suggested.

If you want to add more sites, please feel free! If you don't have time to do a full Quickchecks monitor on additional sites, photos alone on additional sites will help.

The contrasts between these sites and the changes over time can be powerful learning and very important information for business decision making.

It is important to identify these sites and come back to the same areas each monitoring event.

Localised Issue:

If the issue has relevance to a specific area of the farm, for example a revegetation area along a watercourse, then using the “good”, “average” and “not as good” approach is also suggested, but contained within this area.

SECTION 5 WHEN AND WHERE TO MONITOR

Regardless of which approach you use, it is important to identify these sites and come back to the same areas each time you monitor.

Quickchecks will provide you with a good measurement of current land condition, but does not indicate in which direction it is moving, either towards or away from your Farm Landscape Goal. It is important that that information over a number of years is collected so you can clearly see trends over time. This also helps to smooth out seasonal fluctuations.

Experience with Quickchecks indicates it is better to use a small number of sites (3-4) monitored regularly, than to use a large number of sites, and not be able to regularly monitor these.

We suggest that additional sites can be added later if required.

Below is a table that can help you with site selection for whole farm issues:

Issue to be monitored:

Quickchecks topic to be used:

Suggested criteria for issues relevant across the whole farm:	Paddock name/area in the paddock selected to monitor:
SITE 1: Typical higher than average in relation to goal	
SITE 2: Typical lower than average in relation to goal	
SITE 3: Typical mid rating in relation to goal	

Please feel free to add additional sites if required, the above is the minimum suggested.

SECTION 5 WHEN AND WHERE TO MONITOR

Below is a table that can help you with site selection for local or *specific* issues:

Issue to be monitored:

Quickchecks topic/s to be used:

Priority Issue:	Paddock name/area in the paddock selected to monitor:

Returning to the same site, where possible with the same people, for each monitoring event is important to reduce the variation associated with monitoring.

If you have a farm map, you may like to identify the monitoring sites on the map.

Once you have selected which strategy to use, work out how often you need to monitor.

“Keeping everything simple and quick is the key to success of this concept”

Woolgrower, Northern NSW

SECTION 5 WHEN AND WHERE TO MONITOR

Suggested Quickchecks monitoring frequency strategy.

How often to monitor is a difficult question to answer for all situations.

The Quickcheck principles help guide the answer to this question. There are no hard and fast rules, but we hope the guidelines below are useful to give you effective information on which to base management decisions.

- We suggest that as a minimum each site be monitored when the issue targeted is at its weakest and strongest. For example, in winter rainfall/Mediterranean areas, monitoring pasture health in late autumn before the break (often at its weakest) and in mid spring (at strongest) over a number of years will give good information on which to base management decisions.
- For summer rainfall areas a Spring and Autumn monitoring may also be used - the Autumn monitoring may show when conditions are better than Spring.
- Seasonal variations can modify the above but experience has shown that the twice per year/stronger and weaker approach is fairly robust over time.



Quickchecks once or twice per year can be a whole of family activity!

If there is value in monitoring more frequently than we suggest, then by all means do so! When you have decided when you will be monitoring, we suggest that you write these dates in your calendar or diary.

It is important to establish trends over time, so don't commit to a program that will be too demanding on time. It is most important that the same sites continue to be monitored at approximately the same time each year, to establish trends.

Remember all information will help you understand what decisions worked well, and create opportunities for you to further improve the health of your farmland.

SECTION 6

DOING THE MONITORING

This section includes information on:

- The equipment and recording sheets needed to monitor each of the NRM topics;
 - How to do the monitoring;
 - Images of ground cover, canopy cover and waterway condition to help with monitoring; and
 - The comparative feed requirements of sheep.
-

SECTION 6 DOING THE MONITORING

Working out the long term view of the landscape, what to monitor, where and when are important issues to decide on to ensure that any monitoring is directed towards checking progress towards the Farm Landscape Goal.

In this section the actual monitoring approach will be outlined, the results of which can be compared to your Farm Landscape Goal allowing areas performing well, and opportunities for change to be clearly identified.

From pages 23-30 your individual monitoring program has been identified.

This section outlines how to use each of the Quickchecks topics. A copy of the recording sheets can be found in the Appendix. For each of the Quickchecks apart from Watercourse areas (No. 4) a recording sheet will be needed. These are also available to be printed from the Land, Water & Wool Website (www.landwaterwool.gov.au) so that you don't have to photocopy multiple sheets.

“The time involved doesn't need to be huge to ensure you get some good results and see movement towards the Farm Landscape Goal”

Woolgrower, Central West NSW

Quickchecks 1:

Grazed paddock monitoring

What you will need:

- A camera
- A clearly identifiable (findable) dart to throw to take measurements (a small Philips head screwdriver will work OK)
- The Quickchecks grazed paddock recording sheet/s and a pencil

1. Decide on the area where monitoring is to take place (large area or special area/site of the paddock, see page 27).
2. Identify two fixed points a distance apart that you can monitor between (points which are likely to remain constant over a long period of time) and clearly write on the recording sheet details of the starting point, the direction of monitoring and the end point, so you can start and finish at the same area each time you monitor.
3. Monitoring will take place in a straight line between the two fixed points you have chosen.
4. Take a photo at the start of the monitoring with the starting fixed point behind you and looking towards the end fixed point. Half way along the straight line, take a photo of the soil surface, and then at the end fixed point, a photo back towards your starting point (three photos in total).



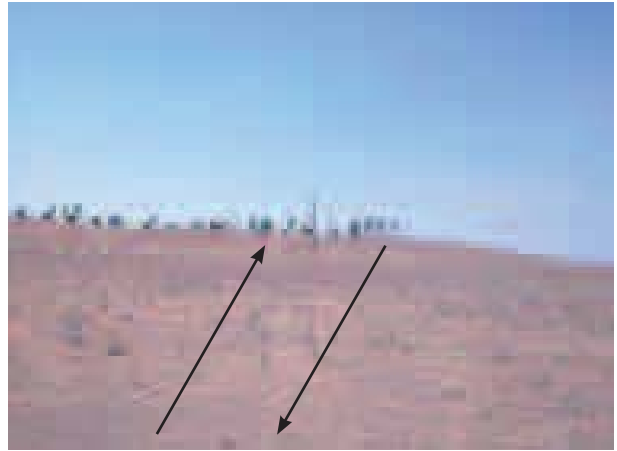
5. Decide on a set number of paces between each individual data collection point. We suggest a minimum of 50 individual points be used. Aim to have a minimum of 25 points to get you to the end point and 25 on the return, so that all up you have completed a minimum of 50 points.

6. A monitoring point consists of a random drop of the dart (don't select the "best" spots to drop the dart!).

The guidelines on the monitoring sheet will ask you a series of basic observations related to what you see around the dart. All that is required is ticking appropriate boxes, or some simple measurements.

Quickchecks 1: Grazed paddock monitoring

An example of a fixed point transect. In this example 25 points were selected up the slope and 25 back down the slope, 20m adjacent to the power line. Fixed points can be any two objects in the landscape which are easily identified.



Another example of a fixed point transect. In this example the start of the transect was an identifiable rock outcrop, with the transect down the slope between the two trees (where the Ute is parked).



“The program gives us great documentation of the health of our land (photos, notes, etc; all contained in one file) and has given us a starting point for all future decisions we make towards our landscape goal”

Woolgrower, Southern NSW

Quickchecks 1: Grazed paddock monitoring

Ground cover is a good measure of land health

The following examples show ranges in ground cover for both improved pastures and native pastures over Spring and Autumn. Many regions have produced their own specific photo guides and plant identification booklets. These can be a great help when using Quickchecks and well worth sourcing for your local government department and regional organisations.

1. Clover/grass examples

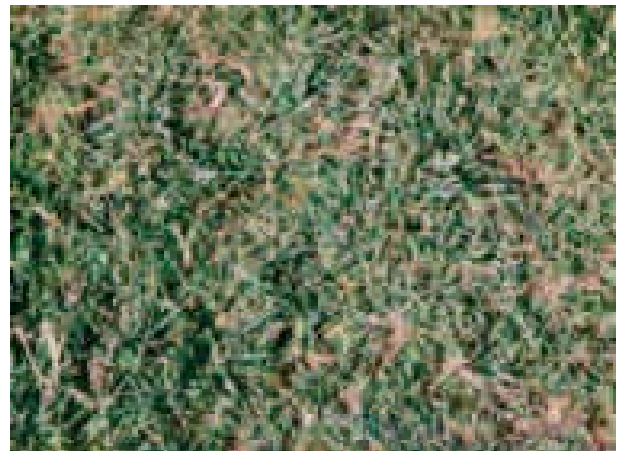
90% ground cover.

This early spring example is a mixed legume/grass pasture.



80% groundcover.

This early spring example is from a mixed legume/grass pasture. Some bare soil exists between plants. If grazing management allows, these bare areas may rapidly recover.



25% groundcover.

This autumn example is from a mixed grass/legume pasture continuously grazed through very dry conditions.

Ground cover is at an unacceptable level. Pasture will struggle to recover and the land is susceptible to erosion.



Quickchecks 1: Grazed paddock monitoring

Ground cover is a good measure of land health

2. Native pastures:

100% groundcover

This example from a native pasture in summer has 100% ground cover. Note the summer growing microlena (desirable native perennial grass) establishing through the mat of dead annual grasses. Ground cover can create a healthy environment for desirable plants to establish.



75% groundcover

This example from a native pasture in early summer has some bare soil between the perennial grasses.



25% groundcover

This autumn example is from a native pasture which has been continuously grazed over summer, through very dry conditions.

Ground cover is unacceptable and the land susceptible to erosion.



Quickchecks 2: Soil health monitoring

What you will need:

- A camera
- The Quickchecks Soil health recording sheet/s and a pencil
- Two small containers (eg margarine containers) and 1 litre of rainwater
- A commercial soil test kit (if you want to complete a chemical analysis)

1. Decide on the area in which monitoring is to take place (large area or special area/site of the paddock, see page 27).
2. Identify two fixed points a distance apart that you can monitor between (points which are likely to remain constant over a long period of time) and clearly write on the recording sheet details of the starting point, the direction of monitoring and the end point, so you can start and finish at the same area each time you monitor.
3. Monitoring will take place in a straight line between the two fixed points you have chosen.
4. Take a photo at the start of the monitoring with the starting fixed point behind you and looking towards the end fixed point. Half way along the straight line, take a photo of the soil surface, and then at the end fixed point, a photo back towards your starting point (three photos in total).



5. For Soil Health, only three sites along this straight line will be examined. If you can identify these sites along the straight line between the fixed points (eg at a given number of paces) and come back to this area each time, you will be able to get a good guide as to the changes that are occurring.
6. Think through the best location of these three sites. For example, if you are monitoring down a slope, you may like to have one site on the upper slope, one about the break of slope and one on the flat. You can decide on the location of the sites, based on what combination of sites will give you the best information.
7. At each of the three sites, pick a sample area 1m x 1m:
 - At each 1m x 1m, take a photo of the soil surface, a spadeful of soil and the hole after the soil was removed (three photos in total)
 - Make an assessment of the ground cover (estimate in % covered)
 - Do you see evidence of insect life on the soil surface, such as worm castings? (you may have to scratch around for this!)

Quickchecks 2: Soil health monitoring

- Dig one spadeful of soil, is there evidence of earthworms? Can you count any? (record number)
 - How does the soil smell? (describe in your own words)
 - In the spadeful of soil, did the soil form clumps (aggregates) and hold together? (yes/no)
 - From the spadeful of soil, take a handful of soil from half a spade depth. Place a number of small samples (pinch full) into the margarine container of water and watch what happens. If the soil falls apart, this is called 'slaking'. (yes/no)
 - Continue to watch the soil for 5 mins. If there is any muddiness in the water from the soil, this is called 'dispersion'. (yes/no)
 - Look at the spade hole at 40 cm depth. Can you detect any plant roots? (yes/no)
 - Can you detect any barrier to plant roots (hard pan; change in soil profile; etc)?
- 8.** If required you can incorporate a commercial soil test into the above, and if so, follow the instructions provided.



Placing soil into water can give a good guide to its stability. The soil on the left has dispersed when wet, while the sample on the right remains stable when wet.



Digging a hole to look for root depth and life below the soil is an important aspect of the Soil Health module of Quickchecks.



A well aggregated soil forms into clumps and allows for drainage and aeration, even when wet.



Earthworm casts on the soil surface can be monitored, particularly after rainfall.

Quickchecks 3: Woody vegetation monitoring

What you will need:

- A camera
- The Quickchecks Woody vegetation recording sheet/s and a pencil

Decide on the location in which monitoring is to take place (see page 27).

Within this area, pick a representative area to monitor approximately 100 m x 100 m and keep details on this location so that you can return to this area for the next monitoring period.

At two corners of this area take a photo towards the diagonal corner (2 photos in total), so that you have a good record across the site.

In this area, how many large trees (greater than 5m) can you count in total?

Is there evidence of habitat (larger fallen trees, logs, hollows) yes/no?

At six 1m x 1m sites chosen at random within this area, complete the following assessment:

1. At each of the six sites chosen at random, place the Quickchecks recording sheet onto the soil surface. Estimate the % of the sheet that is shaded. This is the canopy cover %.
2. Are perennial grasses evident? (yes/no)
3. Are desirable shrubs (in relation to your Goal) evident (yes/no)



4. Are desirable forbs evident (yes/no)
5. Are desirable climbers evident (yes/no)
6. Is there sign of insect life at the soil surface? (yes/no)
7. Looking at the soil surface condition over the whole 1m x 1m site, how would you describe it:
 - a. Is the surface capped (that is forms a barrier which is hard to break)
 - b. Is the soil surface covered by living and / or dead plant material?
 - c. Is the soil surface covered by moss/ lichen (yes/no)
8. In the site, are there any weeds present (if you know the species include these)?
9. Is there evidence of young woody desirable species establishing (at least knee high)?

Monitoring the composition of treed areas is an important aspect to Quickchecks. Canopy cover and age structures are important measures aspects of land health.

Quickchecks 3: Woody vegetation monitoring

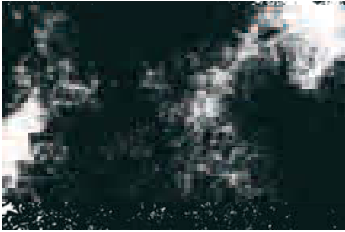
Canopy cover guide

Tall (over 20m)

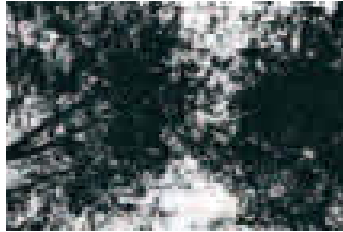
Medium (10 - 20m)

Small (under 10m)

70%



Nothofagus cunninghamii 35m



Acacia dealbata 20m



Melaleuca squarrosa 6m

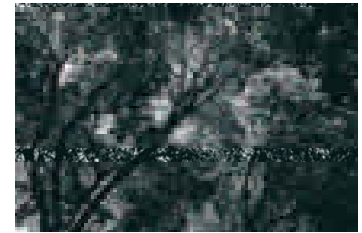
60%



Eucalyptus cypellocarpa 25m

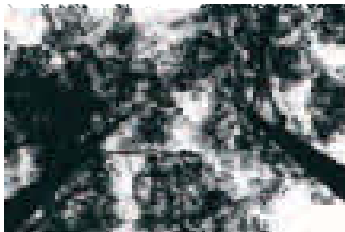


Eucalyptus obliqua 15m

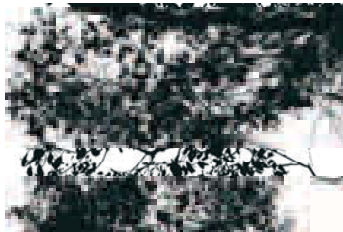


Eucalyptus dives 10m

40%



Eucalyptus viminalis 30m



Eucalyptus ovata 15m



Eucalyptus cephalocarpa 6m

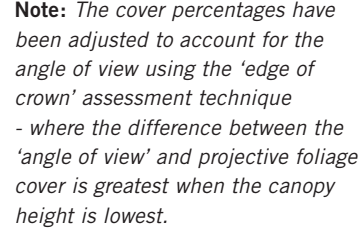
30%



Eucalyptus regnans 35m



Eucalyptus laxiter 20m



25%



Eucalyptus obliqua 20m

20%



Eucalyptus viminalis 20m

Note: The cover percentages have been adjusted to account for the angle of view using the 'edge of crown' assessment technique - where the difference between the 'angle of view' and projective foliage cover is greatest when the canopy height is lowest.

After selecting the appropriate tree height from the images, canopy cover can be determined by eye, or a digital camera can be used so that images can be compared over time. The assessor should stand at the edge of the tree canopy (drip-line) and assess canopy cover by looking up to the apex of the tree.

Canopy cover images are modified from the *Vegetation Quality Assessment Manual* © State of Victoria, Department of Sustainability and Environment 2004.

Quickchecks 4: Watercourse areas

What you will need:

- The Quickchecks Watercourse checklist on the following pages and a pencil

When you walk along your stream or creek bank it is often hard to know what to look at to assess whether your waterway is healthy.

This quick and easy checklist will help you to work out the health of the streams or creeks running through your property by looking at six features we know affect whether a stream is healthy (in good condition).

1. Management of riparian areas
2. Bank erosion
3. Shade and shelter
4. Water quality
5. Wildlife
6. Weeds and pests

The woolgrower checklist on the following pages provides colour coded pictures that you can use to quickly assess the condition of your stream or creek against each of the six features.

It is worth photocopying the checklist that follows so that it can be used on different points on your river, stream or creek.

The three categories of green, yellow and red have been developed to reflect the full spectrum of conditions found along many waterways. Hence they are extremes, and it is likely that your waterway's condition will fall somewhere between these categories



and will vary along its course. Doing the assessment should help prompt ideas about what you want your waterway to look like, and things you can do to achieve that.

GREEN Stream is in good condition and management should aim to maintain it in this state.

YELLOW Stream remains in moderate condition, but some changes in management needed to maintain or enhance it.

RED Stream is in poor condition and will require significant changes to current management to return it to a healthy state.

After using the checklist

Once you have made your assessment of all six features it may be the case that your stream is in good condition for two or three of the features but needs help to improve in other areas.

Take a look at what management options are available to maintain or improve that condition.




To use the checklist ...

... walk along your river, stream or creek bank and at different points assess the six different features of riparian areas. Tick the box underneath the picture and description that best matches your waterway. Once you have made your assessment, use the information provided to help think about some of the opportunities that exist to improve your stream or creek so that it can become 'healthier' and increase its value as a farm asset.

Photocopy this checklist and it can be used at different points of your river, stream or creek.




Increasing production by managing streams and riparian areas as special parts of the farm

MANAGING RIPARIAN AREAS

		
Green (good condition)	Yellow (moderate condition)	Red (poor condition)
<ul style="list-style-type: none"> Off-stream watering system provides clean, uncontaminated water on demand, water points sited to optimise feed utilisation Grazing of riparian areas managed for optimum pasture composition, feed production and feed utilisation, and to minimise parasite loads Riparian areas fenced to control stock access, prevent losses and make mustering easier 	<ul style="list-style-type: none"> Stream used to water stock, but at constructed watering points only, sheep cannot wander along the banks and channel Rotational grazing used in riparian areas, based on assessment of feed available Riparian areas partly fenced or other means used to control timing and duration of stock access 	<ul style="list-style-type: none"> No fencing or other means of controlling stock access to riparian areas and the stream, sheep can use all parts of the stream Riparian areas set-stocked, or stock have full access year round, riparian areas grazed heavily Potential for stock losses from bogging or during flood, mustering difficult from deep channels or when stock have wandered onto neighbouring properties




Bank erosion

BANK EROSION

		
Green (good condition)	Yellow (moderate condition)	Red (poor condition)
<ul style="list-style-type: none"> No obvious areas of active erosion along the channel banks, no stock tracks adjacent to or within the channel 	<ul style="list-style-type: none"> Majority of bank top and sides are well-vegetated, but some signs of bare and actively eroding areas (e.g. stock tracks) 	<ul style="list-style-type: none"> Much of the banks are bare with obvious active erosion, stock tracks prominent




SHADE AND SHELTER

Shade and shelter




		
Green (good condition)	Yellow (moderate condition)	Red (poor condition)
<ul style="list-style-type: none"> • Native riparian vegetation including tall trees retained, sufficiently wide (25–50 metres) for natural regeneration, and replanted where required • Paddock layout and fencing enable riparian areas to be used to provide shelter and shade for newly shorn sheep and at lambing 	<ul style="list-style-type: none"> • Some native riparian vegetation present as a narrow strip, but tree canopy and ground cover reduced (compared with an ungrazed site), little regeneration, and replanting required to fill gaps • Native riparian vegetation of limited use for shade and shelter (narrow and contains gaps) 	<ul style="list-style-type: none"> • Most native riparian vegetation cleared, lost from old age, or by damage. No tall vegetation (above 5 metres) present • Lack of regeneration of native plants due to continuous grazing pressure, no replanting, grass and weeds dominate • Sheep have no ready access to shelter or shade during extreme weather

WATER QUALITY




Water quality

		
Green (good condition)	Yellow (moderate condition)	Red (poor condition)
<ul style="list-style-type: none"> • Vigorous riparian pasture acts as a filter to prevent contaminants (e.g. soil, nutrients, animal waste) from upslope reaching the stream • Good vegetation cover along the top and sides of stream banks • Stream water appears clear, no evidence of excessive in-stream algal growth • Stock cannot enter stream channel 	<ul style="list-style-type: none"> • Some bare areas in riparian pastures and risk of soil erosion • Vegetative cover along the stream bank is at least 70%, but some bare soil noticeable • Stream water may appear cloudy after rain but clears in a few days • Some in-stream algal growth and plants present • Stock can access only limited parts of the channel 	<ul style="list-style-type: none"> • Significant areas of bare soil visible within riparian pastures and along top and sides of bank • Stream water is often muddy and remains so even without rain • Obvious algal growth along stream edge as a result of excessive light and/or blocking of the channel by excessive growth of reeds • Stock can access the entire channel length putting it at risk of contamination from urine and dung

Wildlife

		
Green (good condition)	Yellow (moderate condition)	Red (poor condition)
<ul style="list-style-type: none"> • Riparian areas vegetated with a mix of native species including trees, shrubs and herbs/grasses, and including old trees (nesting hollows) • Native vegetation wide enough to enable natural regeneration (at least 25–50 metres) • Riparian areas connect to other blocks of native vegetation (without gaps) 	<ul style="list-style-type: none"> • Some native vegetation along stream, but with gaps and/or a limited mix of species and vegetation ages — few old trees • Native vegetation in riparian area less than 25 metres wide in places • Riparian vegetation not directly connected to other blocks of native plants, but gaps less than 100 metres 	<ul style="list-style-type: none"> • Little or no native vegetation remaining, riparian areas dominated by grasses, weeds and introduced plants • Riparian areas heavily grazed and not connected to adjacent native vegetation

Weeds and pest animals

		
Green (good condition)	Yellow (moderate condition)	Red (poor condition)
<ul style="list-style-type: none"> • Vigorous native vegetation in riparian areas at least 25 metres wide • Stock excluded and areas not disturbed by vehicles, fire, etc • Area inspected regularly and weeds removed by hand or spot spraying • Active management applied to prevent pest animals establishing, and to reduce fire risk 	<ul style="list-style-type: none"> • Some gaps present in native vegetation, but replanting used to reduce risk of weed invasion • Access by stock carefully managed to ensure minimal damage from grazing • Some weeds present but numbers controlled by grazing and/or targeted spraying • Active management applied to prevent pest animals establishing, and to reduce fire risk 	<ul style="list-style-type: none"> • Little native vegetation remains and weeds have invaded riparian areas • No control of stock access, heavy grazing and nutrients from urine and dung promote weed growth • Little or no control of weeds or of pest animals. Fire a low risk given lack of flammable vegetation

Quickchecks 5: Birds

What you will need:

- A camera
- The Quickchecks bird recording sheet/s and a pencil

Monitoring bird populations, particularly in revegetated areas, can be easily undertaken with the Quickchecks approach.

Decide on the location in which monitoring is to take place (see page 27).

Within this larger area, pick a representative area to monitor approximately, 200 m x 200 m and keep details on this location so that you can return to this area for the next monitoring period.

1. At two corners of this area, take a photo towards the diagonal corner (2 photos in total), so that you have a good record across the site.
2. Walk through the area for 20 mins and count the number of birds that you see.
3. Keep a count of desirable and undesirable (in relation to your Goal) that you see in a 20 min period.
4. If you are not sure of the species, use the camera to take photos for later identification.



“Quickchecks makes monitoring meaningful and gives monitoring a purpose and a useful outcome”

Woolgrower, Victoria

Quickchecks 6: Paddock production

What you will need:

- The Quickchecks Paddock production recording sheet/s and a pencil

This Quickchecks is a calculation of how many days grazing has been taken from each grazing paddock over a 12 month period. It relies on the woolgrower having accurate records of paddock size, mob numbers, length of grazing period throughout the year and records to allow dry sheep equivalent (DSE) ratings to be calculated. This manual uses a 50 kg wether as the standard for calculating DSE, others use 45kg. A 50 kg wether maintained at



constant weight has a DSE rating of 1. Animals requiring more feed have a higher rating and animals requiring less feed have a lower rating. The DSE rating of all stock is based on the feed requirement of the animals. The DSE requirements of different sheep are shown in the Table below.

Table: Comparative Feed Requirements of Sheep

Class of stock	DSE at specified liveweights	
	15 kg	25 kg
Weaned lambs:		
Gaining 100 g/day	0.8	1.1
Gaining 200 g/day	1.3	1.7
Mature Sheep:	45 kg	50 kg
Dry ewes, wethers (maintain weight)	0.9	1.0
* Gaining 50g/day	1.2	1.3
* Gaining 100 g/day	1.5	1.6
Pregnant ewes last 6 weeks bearing singles	1.4	1.5
Pregnant ewes last 6 weeks bearing twins	1.8	1.9
Ewes with single lambs at foot	2.4	3.0
Ewes with twin lamb at foot	2.8	3.2

Source: Modified from NSW DPI 'Using DSE's and carrying capacity', February 2005

SECTION 7

USING THE RESULTS

This section includes material on:

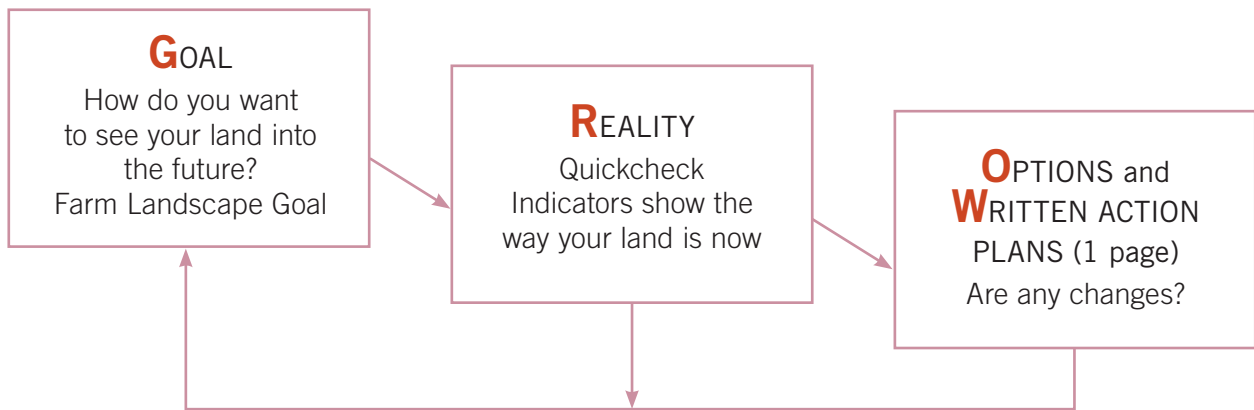
- Checking the monitoring results against the Farm Landscape Goal;
 - How to focus on positives as well as areas of uncertainty; and
 - Action planning (including planning sheets).
-

SECTION 7 USING THE RESULTS

You may remember the diagram below from page 21 of the manual. It is an overall summary of the Quickchecks approach.

At this stage of the approach, a Farm Landscape Goal has been formed and monitoring has taken place to check the current reality. The key next step is to compare the results to your Goal to check which areas of the Farm Landscape are performing well, and to identify opportunities for change.

This approach is made easier when you have some trends over time. We encourage all woolgrowers using the Quickchecks approach to continue to monitor their sites for at least three years, to establish clear trends. This will help to confidently establish any issues so that actions can be taken.



“Quickchecks makes monitoring meaningful and gives monitoring a purpose and a useful outcome”

Woolgrower, Victoria

SECTION 7 USING THE RESULTS

Using the Quickchecks results:

Looking at the monitoring results for each of the Quickchecks topics you have used, you may like to complete the following table:

Quickchecks Monitoring topic	Results which were positive in relation to your Goal	Results which you are not sure of, or are concerned about, in relation to your Goal

Step 1: Focus on the positives:

Once you have completed the above table you might like to focus on the parts of the Farm Landscape that you are positive about. Have there been any management decisions which have led to these conditions?

Can you expand any of these decisions to other parts of your farm?

SECTION 7 USING THE RESULTS

Can you detect any trends over time (this will be made easier if you have a few years of Quickchecks information)?

Step 2: Focus on areas in which you are uncertain, or have concerns about

What do you think is the cause of the conditions that you are concerned about?

SECTION 7 USING THE RESULTS

For any concerns you may have, what options do you have? Which best suits your situation?

Step 3: Action Planning

From the focus on the positives, and the areas that you are concerned about, identify any actions that you might like to take. These actions can be as basic as finding out more information on a particular plant, or something that you are interested in to talking to a local person who has expertise in natural resource management (NRM).

Don't forget that many of the regional NRM bodies have incentive programs that may support any actions you may like to take. Quickchecks may be able to help you to monitor the outcomes from Incentive Funding, or to develop a case to be able to access funding to overcome an identified and documented issue.

Please make sure that your last action is to plan ahead your next monitoring date, to help develop trends over time, and to maximise the value for Quickchecks!

Quickchecks Action Planning Sheets:

Do these actions help move us to the GOAL? Don't forget to monitor, make changes and replan if needed

	Action:	Outcome:	Time:	Who:	Is it done? (Yes/No)
1.					
2.					
3.					
4.					
5.					
6.					
7.					

SECTION 8 FOLLOW-UP

This section includes information on:

- Where to find further information on birds, frogs, rabbits, water quality and watercourses, native vegetation and catchment targets; and
 - Other monitoring tools developed for land managers.
-

SECTION 8 FOLLOW UP

As indicated, Quickchecks has been designed to be a starting point for woolgrowers interested in monitoring the health of their land. Feel free to follow up any of the information below, and include other topics or greater depth into your yearly Quickchecks monitoring program. The Land, Water & Wool website (www.landwaterwool.gov.au) also has information on natural resource management issues such as the sustainable grazing of saline land, as well as further material on native pasture, bushland and waterway management.

Birds	<p>The Birds Australia website is a great starting point if you are interested in the bird life on your farm. The survey game “remnants” may also be worth playing to see the level of bird life on your farm, and how this compares with other farms. If you are interested go to www.birdsaustralia.com.au</p> <p>There are many regional bird identification guides available that can help determine what species are desirable and undesirable. At the national level, there are several good field guides (see http://basna.birdsaustralia.com.au/birdguides/faq.php). For those looking for something they can put in their pocket - a compact field guide called ‘<i>Field Guide to Australian Birds: Complete Compact Edition</i>’ by Michael Morcombe has recently been reprinted (2006).</p>
Frogs	<p>If you are interested in the frog life on your farm, go to www.frogs.org.au for general information, including information on the Frog Watch program.</p> <p>The site www.frogsaustralia.org.au is another great site and shows you how to monitor frog populations, and even has a data base of frog calls to help you identify species.</p>
Rabbits	<p>If you are interested in monitoring rabbit populations, the Victorian Department of Agriculture Landcare Notes, June 1999 outlines some excellent techniques for monitoring the activity and population of any rabbit populations you may have.</p> <p>This can be downloaded from the site www.dse.vic.gov.au</p>

SECTION 8 FOLLOW UP POINTS

<p>Water Quality</p>	<p>As an example, the NSW DPI runs an excellent water testing service for a small cost, and can test the quality of stream and stock drinking water. Many parameters can be tested. The website http://www.agric.nsw.gov.au/reader/6504 will provide you with some basic information.</p> <p>You may like to contact your own state department of agriculture or regional organisation for more regional information.</p>
<p>Native Vegetation</p>	<p>A comprehensive guide to research and resources on managing native vegetation (both woody vegetation and native pastures) at the property level is available through Greening Australia.</p> <p>See http://www.greeningaustralia.org.au/GA/NAT/TipsAndTools/exchange/Technical+Online+Resources/nativevegetation.htm</p>
<p>Watercourse areas</p>	<p>If you go to www.rivers.gov.au you will find an enormous amount of information on riparian areas and their management, including further monitoring information. In particular, the Rapid of Assessment of Riparian Condition (RARC) is a widely tested tool that incorporates greater monitoring details for watercourses and has been tailored for woolgrowers in different regions.</p>
<p>Catchment targets</p>	<p>Your local regional NRM group, such as Catchment Management Authorities will be able to provide you with local/regional benchmarks, targets and local monitoring programs that may be of interest to you. The website www.nrm.gov.au is a good place to start.</p> <p>Incentive programs may also be available from regional and state organisations to maintain values such as wildlife conservation and increasingly the general health of your farm.</p>
<p>Other monitoring tools for land managers</p>	<p>Quickchecks provides a starting point for land managers interested in monitoring NRM issues on their properties. For those interested in delving deeper, there are other monitoring tools available that contain greater detail than Quickchecks and span a wider range of topics. Two web-based tools that could be of interest are: www.nrm.qld.gov.au/monitoring_guide and www.dpi.vic.gov.au/science/ems</p>

SECTION 9 TERMS USED

In Quickchecks we have tried to steer way from the use of technical language, where we can, but this is not always possible.

To help you we have included the following brief list of terms used and an explanation of their importance.

Annual plants	<p>An annual plant species is one that completes its life cycle in one growing season. It is usually easier to pull an adult annual out of the ground compared to a perennial, which is an easy way to test the difference.</p>
Capped soil	<p>The soil surface is sealed to the extent that rainfall can runoff.</p> <p>This often thick barrier can prevent the establishment from seed of many plants, as well as reducing the effectiveness of the watercycle.</p> <p>The bare surface may be prone to erosion.</p>
Desirable species	<p>In Quickchecks a desirable species is one that you are trying to promote, and which is part of your future Farm Landscape Description.</p>
Dispersion	<p>In dispersible soils, moist or wet clay breaks up into individual clay particles due to a chemical reaction between water and sodium in the clay. These particles can block the soil pores and seal the soil surface. Water and roots may have difficulty penetrating the soil.</p> <p>In a cropping situation Gypsum may be warranted and is often applied to dispersible soils. In a grazing situation, improving soil organic matter and maintaining soil surface coverage can assist.</p>
DSE	<p>In measuring the energy requirements of livestock, the standard animal against which all other animals are compared is a 50 kg wether sheep maintaining a constant weight. By definition, a 50 kg wether has a dry sheep equivalent (DSE) rating of 1, animals requiring more feed have a higher rating, and animals requiring less feed have a lower rating.</p>

SECTION 9 TERMS USED

Ecosystem services	The benefits that humans obtain from ecosystems including clean air and water and the production of food.
Forbs	A forb is a non-woody, broad-leaved plant other than a grass. A good example of a less desirable forb is Patterson’s Curse. There are many desirable forbs that can be colonizers of revegetation areas, such as medics or smaller saltbush species.
Soil aggregates	<p>Soil aggregates are ‘clumps’ of soil particles that are held together by moist clay, organic matter (such as roots), by organic compounds (from bacteria and fungi) and by fungi themselves.</p> <p>These vary in size, and are also made up of particles of varying sizes. Some of these particles fit closely together and some do not and this creates spaces of many different sizes in the soil.</p> <p>These spaces, or pores, within and between soil aggregates are essential for storing air and water, microbes, nutrients and organic matter. Soils with many aggregates are called “well-aggregated”. Such soils are more stable and less susceptible to erosion.</p>
Slaking	<p>Slaking occurs in poorly structured soils when dry soil is wet rapidly.</p> <p>Water moves into the pores and forces air out. The force of the escaping air causes the aggregate to burst and break down into smaller particles. These wash into the soil and block soil pores, and form a crust on the soil surface.</p>

SECTION 10 - APPENDIX RECORDING SHEETS

This Appendix contains recording sheets for five of the six NRM topics covered in the Quickchecks manual: Grazed paddocks, soil health, woody vegetation, birds and paddock production. The recording sheets for waterways can be found in Section 6 - Doing the Monitoring.

Keep these record sheets blank, and photocopy what you need. You'll find that more than one of each sheet will be needed to monitor sites over time.

Quickchecks grazed paddock monitoring page 1 of 2

Date: _____

Paddock ID: _____

Location of transect/sites: _____

Point taken every (paces): _____

Transect Analysis for Production areas

Throw Number	Ground cover At the dart entry point (choose one from these)					Soil surface Condition Describe 15 cm around the dart			Perenniality Find nearest perennial			Age Age of the nearest perennial			Observations		
	Bare Soil	Recent plant material	Composting plant material	Rock	Plant Base	Plant Canopy Above Point (yes/no)	Capped soil surface (greater 50%)	'Covered' soil surface (greater 50%)	Weeds present (yes/no)	Insects present (yes/no)	Type of nearest perennial (grass, shrub, forb, rush)	Name of nearest perennial (if known)	Distance (cm) to it	Seedling		Young	Mature
1																	
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11																	
12																	
13																	
14																	
15																	
16																	
17																	
18																	
19																	
20																	
21																	
22																	
23																	
24																	
25																	
Total																	

Ref: Fixed point photos to be taken of transect
Modified from On Track Paddock Indicators
(Vanguard Business Services)

Ave. distance to perennial cm

Quickchecks grazed paddock monitoring page 2 of 2

Date: _____

Paddock ID: _____

Location of transect/sites: _____

Point taken every (paces): _____

Transect Analysis for Production areas

Throw Number	Ground cover At the dart entry point (choose one from these)					Soil surface Condition Describe 15 cm around the dart			Perenniality Find nearest perennial			Age Age of the nearest perennial			Observations		
	Bare Soil	Recent plant material	Composting plant material	Rock	Plant Base	Plant Canopy Above Point (yes/no)	Capped soil surface (greater 50%)	'Covered' soil surface (greater 50%)	Weeds present (yes/no)	Insects present (yes/no)	Type of nearest perennial (grass, shrub, forb, rush)	Name of nearest perennial (if known)	Distance (cm) to it	Seedling		Young	Mature
26																	
27																	
28																	
29																	
30																	
31																	
32																	
33																	
34																	
35																	
36																	
37																	
38																	
39																	
40																	
41																	
42																	
43																	
44																	
45																	
46																	
47																	
48																	
49																	
50																	
Total																	

Ref: Fixed point photos to be taken of transect
Modified from On Track Paddock Indicators
(Vanguard Business Services)

Ave. distance to perennial cm

Quickchecks soil health monitoring

Date:

Paddock ID:

Location of transect/sites:

Site located every (paces):

Site Number	Ground cover (estimated %)	Living organisms on surface (yes/no)	Evidence of earthworms (No in a spadeful)	Soil smell (you describe)	Aggregation (does the soil clump)	Slaking (in water)	Dispersion (in water)	Presence of roots to 40 cm (yes/no)	Any barriers to roots growth 40 cm (yes/no)	Use a commercial soil test	Comments/Observations
1											
2											
3											
Ave											

Ref:

Fixed point photos to be taken
Three sites per paddock
Results averaged
Commercial soil test used for chemical characteristics

Soil health, 2005, NSW DPI, Greg Reid and Justine Cox
Australian Collective Land Evaluation program, Newsletter on Soil Health, August 1999
Soil Pak, NSW DPI 2004
Early warning coplands monitoring, Centre for Holistic Management, USA 2002.

Quickchecks woody vegetation monitoring

Date:

Paddock Area/ID:

Location of transect/sites:

Point taken every (paces):

	Trees greater 5m present (total no)																							
	Canopy cover (est %)																							
	Perennial Grasses present (yes/no)																							
	Shrubs present (yes/no)																							
	Forbs present (yes/no)																							
	Capped soil surface (greater 50%) (yes/no)																							
	'Covered' soil surface (living or dead plant material) greater 50% (yes/no)																							
	'Covered' soil surface (moss lichen) yes/no																							
	Weeds present (yes/no)																							
	Habitat present (larger logs, fallen trees) (yes/no)																							
	Insects present on soil surface (yes/no)																							
	Evidence of establishing desirable tree species (yes/no)																							
	(OPTIONAL) Total birds counted in 20 mins, walking through the plot																							
	Comments/Observations																							
1																								
2																								
3																								
4																								
5																								
6																								
Ave																								

Fixed point photos to be taken

Ref:

Modified from Vegetation and Habitat Quality self assessment. Environmental Management in Agriculture

D=Desirable

U=Undesirable

Quickchecks bird monitoring

Date: _____

Paddock Area/ID: _____

Local/description of site: (200m x 200m) _____

List bird species names (where possible)	
Desirable for you	Undesirable for you
Birds counted in 20 mins, walking through the plot	Birds counted in 20 mins, walking through the plot
<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>

Total counted

Ref: Birds on Farms

Quickchecks paddock production measure

Paddock name: _____

Period of measure (which year): From: _____ To: _____

Paddock size (ha): _____

Rain in 12 month period (mm): _____

Grazing event: throughout year	Mob/Herd size (hd)	DSE Rating of stock (DSE/Hd)	Approx DSE for mob (total DSE)	Date in	Date out	Days in paddock (no days)	DSE days to date	Cumulative DSE days
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
Totals								

DSE Days/ha (total DSE days/number ha)

DSE Days/ha/100 mm rain (DSE days/ha divided by each 100mm rain received)

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