

Sustainable Wool Production Self-Assessment Workbook



Tasmania
November 2005

i-merino
intelligent production – intelligent fabric



A range of Environmental Self Assessment packages have been used as a basis for this workbook. The principle source was *Environmental Self-Assessment Workbook* by: Ridley, A, Seymour, E, Huhn, KJ, and Morrison, G (2005). Department of Primary Industries, Rutherglen, Victoria.

Please contact them if you wish to use or adapt this document (ph. 02 6030 4500).

This version was modified by John Noonan for the Sustainable Merino Wool Farming Practice Certification Pilot Project

Self-Assessment Workbook

How to Use This Section

This workbook has been designed so it can be used for 2 options:

- Part a) as a stand-alone introductory guide to increase your awareness of environmental issues on the farm
- Parts a) and b) used together can be the first steps towards a formal Environmental Review, which is an essential part of a full Environmental Management System (EMS).

If you decide to progress towards EMS, then the first step is to assess the major impacts of your farming activities on the environment or taking a "snap-shot" of the impact of your current management practices on the environment, as part of an Environmental Review. The *Self-Assessment Workbook* will allow you to more easily develop an Environmental Review and then an EMS for your farm.

The *Self-Assessment Workbook* covers 15 areas of farm management:

- | | | |
|--|------------------------------------|--------------------------|
| 1. Land capability & property planning | 2. Business and financial planning | 3. Human Resources |
| 4. Soil management | 5. Cropping | 6. Livestock and pasture |
| 7. Weeds and pests management | 8. Chemical management | 9. Water management |
| 10. Legislation and catchment priorities | 11. Landscape and biodiversity | 12. Waste and pollution |
| 13. Energy management | 14. Greenhouse and air quality | 15. Climate and weather |

How do you fill out and score the workbook sections?

Each SECTION is divided into a number of Aspects. For example, the *Soil Management* section has Aspects such as *Stubble Management, Grazing Management etc.* Under each Aspect is a list of practices in which you are asked to rate your current management or understanding. To keep the questions simple, we use the word 'I' or 'my' in place of 'we' or 'our' – although we do encourage the whole farm family to have input in answering the questions. Use your own judgement to rate yourself using the following scoring system:

Score	What does this score mean?
1	I do not use this practice at all on my farm
2	I have only just started to gain knowledge and plan to implement this practice
3	I partially understand and implement this practice
4	I understand and implement this practice but there is still room for improvement
5	I fully understand and implement this practice

If the statement is not applicable, you are asked to put a cross in the box indicated. 'Not applicable' means the question is not directly relevant to your farm eg. you won't need to answer irrigation questions if you are a dryland farm. We encourage you to answer all relevant questions – even if they make you feel uncomfortable. After you have finished rating yourself, add up your total score and write this in the scoring table in each section. You also need to fill in the box to say how many questions you have answered from that section (not all statements will be relevant to you). Calculate your overall score as a percentage for that section and you are then able to see areas in which you are doing well in or areas where you could improve. You are also asked to list areas that you would like to work on. These areas can help develop an action plan as part of the next level of EMS.

Glossary: There is a glossary of terms located at the end of the Self-Assessment Workbook for clarification of terms.

1. Land capability and property planning

Practice*	Rating					N/A
	1	2	3	4	5	
Score 1 indicates 'I don't use this practice', score 2 'I have started to plan for this practice', score 3 'I partially understand and implement this practice', score 4 'I implement this practice but there is still room for improvement', and score 5 'I fully understand and implement this practice'.						
Aspect : Property development and planning						
1. I have prepared a property plan (see Glossary) based on aerial photos or maps that identify the land classes, degraded areas, remnant vegetation, natural waterbodies and drainage lines.						
2. I have a written farm environmental policy, which is given to any employee working on my farm.						
3. The location of all property infrastructure has been assessed in relation to potential environmental impacts.						
4. The location of future infrastructure takes into account potential environmental impacts.						
5. I have a financial plan and budget for progressively implementing my property plan.						
6. My property plan is reviewed regularly with farming partners.						
7. Land classes are managed differently where appropriate.						
8. My cropping and grazing activities are carried out to land capability guidelines.						
9. My paddock rotation plan takes into account the different capabilities of soil types.						
Sub-total :						

Your score for this section

Divide your score by the total number of questions answered and then multiply by 20 to give you an overall %

Score:

Divide by: _____

X 20 = %

No. questions answered:

Example: Score of 57/15 questions answered X 20 = 76%

Areas I would like to work on are:

2. Business, financial planning, quality of life and communication

Practice Score 1 indicates 'I don't use this practice', score 2 'I have started to plan for this practice', score 3 'I partially understand and implement this practice', score 4 'I implement this practice but there is still room for improvement'; and score 5 'I fully understand and implement this practice'.	Rating					N/A
	1	2	3	4	5	
Aspect : Business Planning						
1. I have a documented business plan.						
2. The business plan is reviewed on a regular basis with farming partners.						
3. My business plan contains performance indicators.						
4. My business plan has considers the strengths, weaknesses, opportunities and threats to the farm business.						
5. My business plan is used by all farming partners.						
6. The goals and responsibilities of each farming partner are clearly understood by all.						
7. The goals and responsibilities of each farming partner are reviewed and re-negotiated as circumstances change.						
8. All farming partners have an up to date will(s).						
9. My farm business has a documented succession plan.						
Aspect : Dispute Resolution						
10. I seek professional advice if issues become too complex for farming partners or myself to deal with.						
11. Where disagreements between partners arise, we meet to resolve the problems.						
Aspect : Financial Management						
12. I prepare and follow a financial budget each year.						
13. I keep comprehensive and accessible financial records.						

Aspect : Business Risk Management/ Business Health						
14. Farming partner(s) and I reach a common strategy for financial risk management.						
15. I have adequate public liability insurance.						
16. I have a property insurance policy that covers all major structures (eg. sheds, silos).						
17. Life insurance policies have a 'second to die' clause, which provides assets to my spouse and provides funds to pay for fees taxes and debts.						
18. I have a farm capital asset replacement strategy that is financially sound and fully costed.						
19. If my debt level is higher than desirable, I have a clear strategy to work towards reducing it.						
20. Return on capital %. Score 1- less than (<) 2, score 2 for 2, score 3 for 3-4, score 4 for 5-6, score 5- greater then (>) 6.						
21. Change in Net Worth (annual) %. Score 1- <4, score 2 for 4-5, score 3 for 6-8, score 4 for 9-10, score 5- >10.						
22. Farm Profit \$. Score 1- <0, score 2 for <30 000, score 3 for <60 000, score 4 for <90 000, score 5- >90 000.						
23. Production (Dollar water use efficiency) Cropping[^] , \$/ha/c 100mm rainfall. Score 1- <80, score 2 for 80-90, score 3 for 91-110, score 4 for 111-120, score 5- >120. [^] more than 80% of farm income comes from crops						
24. Production (Dollar water use efficiency) Mixed cropping and grazing[^] , \$/ha/c 100mm rainfall. Score 1- <50, score 2 for 50-60, score 3 for 61-75, score 4 for 76-90, score 5 >90. [^] more than 20% of farm income comes from livestock						
25. Farm input costs. % of farm income. Score 1- <40, score 2 for 40-37, score 3 for 36-34, score 4 for 33-30, score 5 >30.						
26. Machinery costs. % of farm income. Score 1- >30, score 2 for 30-27, score 3 for 26-24, score 4 for 23-20, score 5 <20.						

27. Labour costs (includes all labour). % of farm income. Score 1- >25, score 2 for 25-22, score 3 for 21-18, score 4 for 17-15, score 5 <15.						
28. Financing costs. % of farm income. Score 1- <12, score 2 for 12-10, score 3 for 9-7, score 4 for 6-5, score 5 >5.						
Sub-total :						

Your score for this section

Divide your score by the total number of questions answered and then multiply by 20 to give you an overall %

Score:

Divide by: _____

No. questions answered:

X 20 = %

Example: Score of 57/15 questions answered X 20 = 76%

Areas I would like to work on are:

3. Human resources management

Practice Score 1 indicates 'I don't use this practice', score 2 'I have started to plan for this practice', score 3 'I partially understand and implement this practice', score 4 'I implement this practice but there is still room for improvement'; and score 5 'I fully understand and implement this practice'.	Rating					N/A
	1	2	3	4	5	
Aspect : Maintaining workplace conditions						
1. I keep up to date on all employer and employee issues (including casual employees), keeping information for reference.						
Aspect : Communication & Well Being						
2. I give clear verbal and/or written instructions to employees/family members/partners for each job (this includes casual employees).						
3. We discuss roles and explain the responsibility of each team member (including casuals).						
4. I am committed to a balanced lifestyle with designated times for families, annual holidays and social events.						
Aspect : Staff Training and communication						
5. I assess employee's training needs regularly and in consultation with the employee (including casuals).						
6. I encourage long-term employees to do off-farm training.						
7. I regularly conduct on-farm training formal and informal with employees (including casual employees).						
Aspect : Consideration of legal requirements						
8. I keep up to date with occupational health and safety issues and requirements.						
9. I comply with occupational health and safety guidelines for all aspects of farm work for employees, family members and myself.						
10. I keep up to date records on employee incidents (including casuals).						
11. All areas of the farm and farm activities presenting a potential danger have been identified (including hazards for children, machinery, silos, tools, farm dams, chemicals).						

12. Hazards risks are minimised (eg. guards on machinery, storage for dangerous equipment/chemicals).						
13. I have an emergency action plan for all identified to minimise the risk of accidents.						
14. I have death/disability cover for myself/partners/employees.						
15. One or more of the main farming partners is trained in first aid/CPR.						
16. First aid kits, with emergency numbers are located in vehicles and areas where rapid treatment may be needed.						
17. Communication equipment is maintained and accessible for use in case of an emergency.						
18. I have an annual medical check-up, including blood pressure, skin cancer check and encourage employees to do the same.						
Sub-total :						

Your score for this section

Divide your score by the total number of questions answered and then multiply by 20 to give you an overall %

Score:

Divide by: **X 20 =** %

No. questions answered:

Example: Score of 57/15 questions answered X 20 = 76%

Areas I would like to work on are:

4. Soil management

Practice Score 1 indicates 'I don't use this practice', score 2 'I have started to plan for this practice', score 3 'I partially understand and implement this practice', score 4 'I implement this practice but there is still room for improvement', and score 5 'I fully understand and implement this practice'.	Rating					Cross if doesn't apply
	1	2	3	4	5	
Aspect : Fertiliser and soil ameliorant (glossary)– application and management						
1. I conduct soil tests on my cropping country regularly (at least every 2 years).						
2. I conduct soil tests on my grazing country regularly (at least every 4 years).						
3. I am aware of sub-soil limitations on my farm (ie. boron, acidity, sodicity).						
4. I tissue test when undiagnosed nutrient problems occur.						
5. I apply fertilisers to replace nutrient removal.						
6. I store fertiliser on a sealed pad and undercover.						
7. I do not fertilise along watercourses or near any free standing water.						
8. I avoid or minimise use of ammonium based nitrogen fertilisers (sulphate of ammonia, MAP, DAP, ammonium nitrate).						
9. I use deep N testing to make decisions about post-sowing crop fertiliser requirements.						
10. On heavier soils I pre-spread or drill nitrogen fertilisers.						
11. On sandy soils I split nitrogen applications to allow better nitrogen efficiency through less leaching.						
12. I monitor sub-soil pH to make decisions about lime requirements.						
13. I monitor surface soil pH to make decisions about lime requirements.						
14. I have a documented and budgeted liming program according to my soil acidity limitations and acid sensitive crops and pastures that I wish to keep growing.						
15. I use lime to balance the acidifying effect of crop and livestock production; lime replacement is considered a fixed cost of production.						
16. I use high quality fine lime to increase the value of neutralising equivalents from money spent on lime.						

17. I have tested the productive areas of my farm for sodicity over the past 5 years.						
18. Sodic areas of my farm have been ameliorated with gypsum.						
Aspect : Tillage and trafficability						
19. I understand the changes in soil structure on my farm ie. through observation, monitoring and recording.						
20. I assess soils for the development of hard pans.						
21. I am reducing traffic across paddocks and using wider tyres or tracks on machinery if possible.						
22. On clay soils I use tyned implements to avoid compacting and development of plough pans.						
23. I am aware that cropping and working at right angles to destructive winds reduces the damage due to wind erosion.						
24. On fragile soil types I use herbicides for fire breaks rather than cultivation.						
25. If I have to cultivate where the slope exceeds 1%, I cultivate on the contour.						
26. When sowing I check for specific soil conditions (eg. I avoid dry sowing where possible).						
27. I try not to work non-wetting sands when it is dry.						
28. For non-wetting sands I use furrow sowing to allow better water penetration in the furrow.						
29. Production areas of my farm are monitored for waterlogging.						
30. Organic matter levels are measured at least every 5 years.						
Aspect : Property development and planning						
31. Areas susceptible to soil erosion are identified on my farm map and managed for protection.						
32. Roads are constructed using techniques to minimise erosion.						
33. I have considered man-made structures (diversion banks, dams) to alter water run-off to reduce erosion. I have sought professional advice on this.						

34. I have strategically placed windbreaks throughout my farm to reduce the effects of wind erosion.						
35. I am rehabilitating and revegetating eroded and steeply sloped areas of my farm.						
Aspect: Stubble management						
36. I avoid burning stubbles where practical.						
37. I use management strategies (such as heavy stocking, incorporating stubble) to reduce stubble loads.						
38. I have a plan to reduce stubble burning within my farming system.						
39. When cropping sand plain soils I actively manage stubbles so that sowing in one pass is possible (minimum to zero till).						
40. I am careful not to over graze stubble.						
Aspect : Grazing management						
41. I maintain groundcover (dead or living plant material) of at least 70% (Eastern Australia or 50% in WA) at all times of the year on both crop and pastures to minimise soil erosion.						
42. I manage my grazing regime carefully in drought periods to minimise damage to the environment.						
43. I have stock containment areas on my farm.						
Aspect : Managing water use and salinity						
44. I regularly (every 5 years) use soil tests to check for increases in salt to help make decisions about management.						
45. I can recognise visual signs of salinity such as salt-tolerant species vegetation loss and visible salt.						
46. Areas of my farm affected by salinity are managed appropriately (eg. fenced out).						
47. I maintain cover on salt affected land by choosing productive saline plants (ie. saltbush, salt tolerant pasture species, trees for production purposes).						
Sub-total :						

Your score for this section

Divide your score by the total number of questions answered and then multiply by 20 to give you an overall %

Score:

Divide by: _____

X 20 = %

No. questions answered:

Example: Score of 57/15 questions answered X 20 = 76%

Areas I would like to work on are:

5. Cropping management

Practice Score 1 indicates 'I don't use this practice', score 2 'I have started to plan for this practice', score 3 'I partially understand and implement this practice', score 4 'I implement this practice but there is still room for improvement'; and score 5 'I fully understand and implement this practice'.	Rating					Cross if doesn't apply
	1	2	3	4	5	
Aspect : Crop and pasture weed, pest and disease management						
1. I have a clearly defined crop rotation strategy to optimise agronomic and economic return.						
2. I inspect crops and pastures at key stages to make pest management decisions.						
3. Crops are regularly monitored for new weed species before they become a problem.						
4. I monitor a range of pests and their lifecycle development so that I can use IPM techniques.						
5. I do not apply chemicals until the critical threshold for pest damage to crops or pasture has been exceeded.						
6. I use non-chemical methods to control pests where appropriate (note that in some situations this may increase soil structure damage so it is not always appropriate).						
7. I rotate crops so that I can rotate modes of action of chemical groups and plan which chemicals I am going to use (eg. Logran [®] on wheat).						
8. I keep records of specialist advice I receive about chemicals.						
9. I manage crop diseases using cultural methods (resistant varieties, rotations, certified seed etc).						
10. I keep clearly documented, long term records of all chemical groups I have used each year on a paddock by paddock basis.						
Aspect : Fertiliser and soil ameliorant application and management						
11. I inspect crops at different growth stages (eg. TOPCROP monitoring) to assess their nutritional requirements.						
12. I aim to increase organic matter levels by including good legume based pastures in the cropping rotation.						

Aspect : Managing water use, salinity and run-off						
13. I use water use efficiency (WUE) calculations as an indicator of good crop management.						
14. I sow as early as practical to reduce the risk of water and nutrient loss and to optimise crop growth.						
15. On fragile soils I seed at low speed.						
16. I maintain adequate groundcover on grazed paddocks that are going into crop.						
Sub-total :						

Your score for this section

Divide your score by the total number of questions answered and then multiply by 20 to give you an overall %

Score:

Divide by:

X 20 = %

No. questions answered:

Example: Score of 57/15 questions answered X 20 = 76%

Areas I would like to work on are:

6. Livestock and pasture management

Practice Score 1 indicates 'I don't use this practice', score 2 'I have started to plan for this practice', score 3 'I partially understand and implement this practice', score 4 'I implement this practice but there is still room for improvement'; and score 5 'I fully understand and implement this practice'.	Rating					Cross if doesn't apply
	1	2	3	4	5	
Aspect : Adhering to QA requirements & stock traceability						
1. I am a certified SQF or accredited Cattlecare/Flockcare or other Code of Practice scheme producer (score 1 = no, scores 2-4 indicate you are part way through implementation, score 5 = fully accredited).						
2. I have records on livestock from purchase or birth to point of sale.						
3. We have a stock identification system, which ensures permanent individual or mob identification.						
4. We ensure that all single stock that are treated with chemicals with withholding periods are positively identified for the duration of withholding period.						
5. We retain vendor declarations.						
6. We complete and sign consignment documentation for all stock leaving the property.						
Aspect: Agricultural and veterinary chemical application						
7. I use livestock as a key management tool to reduce the need for chemicals in my cropping enterprise.						
8. I rotate chemical groups used in/on livestock to minimise resistance problems.						
9. I am actively using management to reduce chemical usage in my livestock enterprise.						
10. I keep records of AgVet chemicals used and stored on the farm.						
11. I undertake and record stocktakes of AgVet Chemicals						
Aspect: Animal health management						
12. Wherever possible, I use paddock rotation management to minimise parasite infection in livestock.						

13. All farm staff are trained in the handling and welfare of livestock.						
14. Water is supplied to most of my paddocks through troughs or tanks to ensure good quality.						
15. I use shelterbelts to provide shelter and protection to livestock.						
16. Farm employees are trained to recognise signs of ill health and the onset of disease in stock.						
Aspect: Animal welfare						
17. Animal husbandry practices, treatments and interventions are undertaken in accordance with the relevant Code of Practice for a species.						
18. I mules to protect the welfare of the sheep, I have exhausted all other management practices including time of shearing, crutching and breeding.						
19. A trained and competent mulesing operator or a certified / registered mulesing contractor complies with the relevant Code of Practice recommended by the Australian Veterinary Association.						
20. I humanly destroy animals in accordance with the relevant Code of Practice.						
Aspect: Crop and pasture weed management						
21. I only purchase supplementary feed/fodder from reputable sources to minimise risks of contamination (weeds, pesticide residues).						
22. I declare all contaminated material that I sell from the farm.						
Aspect : Pasture Establishment						
23. I always sow down pastures following crops (either through undersowing the last crop or direct drilling).						
24. I always sow a perennial component in the pasture mixture.						
25. The density of desirable species (grass/legume) is generally good in first year pastures.						
26. My lightest soils always have lucerne sown in the pasture phase.						
Aspect : Grazing management						

27. I visually assess the amount of green feed on offer to maximise pasture growth and water use.						
28. I use rotational grazing for all pastures where appropriate.						
29. The overall stocking rate for my property is based on land type and pasture quality.						
30. Stocking rates are flexible, not fixed. Rates are determined according to class of stock, season, available feed and total grazing pressure.						
31. I control weeds in pastures with grazing management (rarely use chemical control).						
32. I measure the amount of feed on offer and calculate the number of available grazing days.						
33. I ensure that there are an adequate number of watering points per DSE and that they are strategically placed so that stock do not degrade susceptible soil types.						
34. Grazing areas are spelled in response to the condition of the land or season.						
35. I use spray grazing in pastures prior to returning to crop to reduce weed seed banks.						
Sub-total :						

Your score for this section

Divide your score by the total number of questions answered and then multiply by 20 to give you an overall %

Score:

No. questions answered:

X 20 = %

Divide by:

Areas I would like to work on are:

7. Weed and pest animal management

Practice Score 1 indicates 'I don't use this practice', score 2 'I have started to plan for this practice', score 3 'I partially understand and implement this practice', score 4 'I implement this practice but there is still room for improvement'; and score 5 'I fully understand and implement this practice'.	Rating					N/A
	1	2	3	4	5	
Aspect: Consideration of legal requirements						
1. I am aware of the range of declared, important and noxious weeds in my area.						
2. I carry out a weed control program for the farm and neighbouring roadsides in accordance with relevant legislation.						
3. I carry out a pest animal control program in accordance with the requirements of legislation.						
4. I obtain permits as when controlling fauna and pest species						
Aspect : Crop and pasture weeds management						
5. I work with my neighbours, other groups and local authorities to control weeds on a coordinated basis where possible.						
6. I follow a plan to manage weeds on my farm.						
7. I monitor roadsides, tree lines, paddocks and confinement areas for the appearance of invading environmental weeds and keep records of the types of weeds present.						
8. I prevent weed seed set where possible as a part of my weed management plan.						
9. When burning to remove weed seeds from a paddock, I do so to maintain adequate groundcover and reduce the effects of wind erosion (ie. Hot burn).						
10. I rotate chemical groups to reduce the possibility of developing resistance.						
11. I am aware of the "double knock strategy" and use it when necessary (ie. Spray Glyphosate followed by Sprayseed).						

12. Where possible I use alternative options to protect non-target organisms (eg. Manual removal of weeds).						
13. I am careful not to buy stock from areas known to be infested with weeds.						
14. I observe a stock withholding period in a specified area on my property whenever buying in livestock and feeding bought in fodder.						
15. I am aware of the weed seed status of any fodder or grain bought onto my farm.						
16. I try to reduce the spread of weeds across the farm from bought in goods (including fertilisers, gravel and machinery).						
17. I clean down machinery to ensure weeds are not spread to other areas.						
18. I try to reduce the chance of visiting vehicles spreading weeds onto the property.						
Aspect : Crop and pasture pest management						
19. I rotate crops and pastures as part of my integrated pest management (IPM) strategy (see glossary).						
20. I include non-cropping phases in rotation such as green manuring or hay cutting and do not allow weed seed set.						
21. I use high seeding rates and narrow row spacings to decrease competition from weeds.						
22. I frequently monitor crop or pasture weed species and base herbicide rates on field observations.						
23. For highly erosion prone areas I control summer weeds with herbicide rather than cultivation.						
24. I practice “crop topping” – the topping of pulses after pulse seed has matured – to prevent some weeds from setting seed.						
25. To reduce herbicide resistance, I use non-chemical methods of weed control in rotation with chemicals (cultivation- spraying) and/or in combination with chemical controls (eg spray-grazing).						
Aspect : Animal pest management						
26. I am a responsible owner of animals that can become pests (ie. de-sex domestic dogs and cats, lock dogs and cats up at night).						

27. I work with my neighbours, other groups and local authorities to control pest animals on a coordinated basis where possible.						
28. I monitor the farm for pest animals, particularly known dens and warrens and potential harbour areas.						
29. I employ a range of pest animal control methods such as poisoning, shooting and trapping.						
30. I seek advice from the controlling bodies (eg state government agency) and assess options for managing problem native fauna and, as a last resort, obtain a permit to cull a specified number of animals.						
31. I effectively restrict access of native fauna to stock feeds and watering points.						
Sub-total :						

Your score for this section

Divide your score by the total number of questions answered and then multiply by 20 to give you an overall %

Score:

Divide by:

X 20 = %

No. questions answered:

Example: Score of 57/15 questions answered X 20 = 76%

Areas I would like to work on are:

8. Chemical Management

Practice Score 1 indicates 'I don't use this practice', score 2 'I have started to plan for this practice', score 3 'I partially understand and implement this practice', score 4 'I implement this practice but there is still room for improvement'; and score 5 'I fully understand and implement this practice'.	Rating					N/A
	1	2	3	4	5	
Aspect : Agricultural and veterinary chemical storage						
1. I have a designated chemical storage shed that is locked and well away from children, animals and dwellings.						
2. The chemical storage area meets ChemCert standards eg. is well ventilated, away from water courses, has a concrete bunded floor and has a spill kit available on site.						
3. Warning and dangerous goods signs are placed on the outside of the chemical shed, and protective safety clothing and respirators are available and used.						
4. A fire extinguisher approved for chemical fires is readily available.						
5. I have considered all OH&S aspects of the chemicals I use, including the need for first aid facilities, which may include a chemical shower and eye wash station.						
6. Different chemical groups are stored separately and appropriate signage is posted for all chemical categories.						
7. Chemicals are securely stored in their original containers with labels intact and no tears, holes or weak seams.						
8. I keep an inventory (see glossary) of all chemicals purchased, including date of purchase, place of purchase, batch numbers and expiry dates.						
9. A copy of this chemical inventory is kept in the chemical shed and away from the storage area.						
10. I keep records of specialist advice I receive about chemicals.						
11. I check all chemicals on receipt and return any damaged or leaking containers to the supplier.						
12. I carry out a stock take of stored chemicals every 6 months to assess container condition and expiry dates.						

13. I have Material Safety Data Sheet (MSDS) forms available for all chemicals on farm.						
Aspect : Agricultural and veterinary chemical transportation and handling						
14. I ensure all fuels, chemicals, fertilisers and other hazardous goods are transported in accordance with relevant laws.						
15. Chemicals are secured during transport, are isolated from driver and passenger, and are not transported with animal or human foodstuffs.						
Aspect : Agricultural and veterinary chemical application						
16. I am aware of other alternative methods of control before using chemicals.						
17. When required, I notify all neighbours of my intention to use chemical eg. Fox bait, aerial spraying.						
18. "Best Practice" for chemical application is used at all times, (including monitoring of weather conditions, recommended rates, records of application etc).						
19. All application equipment is well maintained and calibrated prior to each period of use.						
20. I take all appropriate measures to reduce spray drift.						
21. All personnel applying or handling chemicals have ChemCert accreditation.						
22. I always use pesticides in accordance with the label.						
23. If using atrazine I adhere to industry guidelines.						
24. I only mix as much chemical as I need for the job.						
25. Chemical containers are triple rinsed and rinsate added to sprayer tank for immediate use or disposal on paddocks where chemical used.						
26. I have a check valve fitted to the water supply hose to prevent back syphoning.						
27. I do not spray chemicals around waterways or near free standing water.						
28. I use wash down bays when cleaning spray equipment.						
29. Wherever possible recyclable or returnable containers are used eg. Enviro-drums.						
Sub-total :						

Your score for this section

Divide your score by the total number of questions answered and then multiply by 20 to give you an overall %

Score:

Divide by:

X 20 = %

**No. questions
answered:**

Areas I would like to work on are:

9. Water management

Practice Score 1 indicates 'I don't use this practice', score 2 'I have started to plan for this practice', score 3 'I partially understand and implement this practice', score 4 'I implement this practice but there is still room for improvement'; and score 5 'I fully understand and implement this practice'.	Rating					N/A
	1	2	3	4	5	
Aspect : Property development and planning						
1. I design paddock layout to suit the natural drainage pathways in the catchment.						
2. I am aware that some water structures (ie. bores) may require abandonment in future and this is integrated into my whole farm plan.						
3. I manage the borders of wetlands and waterways with buffer strips of native vegetation or pastures at least 30 m wide.						
Aspect : Managing water use and salinity						
4. I have calculated the amount of farm under effective perennial vegetation eg. Remnant vegetation, lucerne (called perennality, see glossary).						
5. I calculate the amount of water lost (leakiness) from different soils and perennials and annual crops and pastures.						
6. I calculate and record the water use efficiency of crops and pastures based on seasonal rainfall supply and overall production per unit area for each paddock as a benchmark of farm performance.						
7. I maximise crop and pasture production, which ensures maximum water use by the plant, to minimise winter recharge.						
8. I plant perennial trees and shrubs on unproductive soils (ie. eroded soils, deep sands).						
9. I plant trees and shrubs to use excess water.						
10. If I drain waterlogged soils, I make sure that excess water does not leave my farm.						
11. If I alter drainage I am aware of my legal obligations.						

12. When planting trees I use natives where I do not have economic tree crop options.						
Aspect: Managing riparian areas						
13. I maintain the health of drainage lines by excluding stock and maintaining good native vegetative cover.						
14. I do not crop through intermittent designated drainage lines.						
Aspect : Stock watering						
15. I have a strategy to maintain stock water supplies in the event of a severe drought.						
16. Livestock do not have direct access to water on natural drainage lines – troughs are used to supply water away from these areas.						
17. I have a program to check and maintain stock water supplies and delivery systems for leaks to ensure maximum water use efficiency.						
18. Stock and domestic water is checked for salinity, nutrients and chemicals, at least annually.						
Aspect : Irrigation						
19. An irrigation drainage management plan has been developed, including soil texture, structure, infiltration rate, available water capacity, and timing relative to weather and crop needs.						
20. I am using a water management plan to improve the use of rainfall on my farm.						
21. I use an accredited irrigation system design.						
22. Irrigation supply and drainage water is regularly monitored for salinity, sodicity, turbidity, nutrients and chemicals when appropriate.						
23. I minimise water wastage by monitoring soil moisture and accurately scheduling irrigation applications to reduce raising the watertable.						
24. I regularly monitor ground water levels.						
25. A tail water recycling scheme is in place where appropriate.						
26. There is adequate tail water storage capacity in the system.						

27. I monitor my water use on the basis of units of production and financial return per megalitre and I have a process in place to continually improve my irrigation efficiency.						
28. I use good agronomy and soil management principles to maintain crop residues as groundcover to reduce evaporation.						
29. I take care to prevent drainage water from entering natural waterbodies or waterways.						
30. I match irrigation technology to the soil type to reduce water losses.						
31. Artesian bores are licensed and are capped or 'plumbed in'.						
32. I comply with irrigation regulation and codes of practice (eg. Land and Water Management Plans).						
Sub-total :						

Your score for this section

Divide your score by the total number of questions answered and then multiply by 20 to give you an overall %

Score:

Divide by:

X 20 = %

No. questions answered:

Example: Score of 57/15 questions answered X 20 = 76%

Areas I would like to work on are:

10. Recognition of relevant legislation, Codes of Practice and catchment priorities

Practice Score 1 indicates 'I don't use this practice', score 2 'I have started to plan for this practice', score 3 'I partially understand and implement this practice', score 4 'I implement this practice but there is still room for improvement'; and score 5 'I fully understand and implement this practice'.	Rating					N/A
	1	2	3	4	5	
Aspect : Consideration of legal requirements						
1. I am aware of legislation and regulations relevant to my property and agricultural activities eg. OH&S Act						
2. I am aware of Industry Codes of Practice that relate to my agricultural activities eg. Code of Practice for Chemical Application, Animal Welfare.						
3. I am aware of cultural and heritage issues in my area and the legislation that covers them (ie. Native Title Act).						
Aspect : Consideration of catchment requirements						
4. I am aware that there are regional catchment planning processes through my local catchment management authority.						
5. I am familiar with the regional natural resource management (NRM) priorities and strategies relevant to my area.						
6. I have considered the range of regional and local NRM priorities as part of my property planning and management.						
7. I am familiar with the local Landcare or sub-catchment groups issues and priorities that are relevant to my property.						
Sub-total :						

Your score for this section

Divide your score by the total number of questions answered and then multiply by 20 to give you an overall %

Score:

Divide by: _____

No. questions answered:

X 20 = %

Example: Score of 57/15 questions answered X 20 = 76%

Areas I would like to work on are:

11. Landscape and biodiversity

Practice Score 1 indicates 'I don't use this practice', score 2 'I have started to plan for this practice', score 3 'I partially understand and implement this practice', score 4 'I implement this practice but there is still room for improvement', and score 5 'I fully understand and implement this practice'.	Rating					Cross if doesn't apply
	1	2	3	4	5	
Aspect : Consideration of legal requirements						
1. I am aware that there are a number of legal requirements to protect and manage native plants and animals on my property (eg. local vegetation controls, Regional Native Vegetation Plan, Wildlife Act).						
2. I am aware of the regional performance standards (No Net Loss and Net gain) prepared by my local Catchment Management Authority.						
Aspect : Assessing biodiversity value						
3. Major remnants on my farm have been surveyed for their biodiversity value and habitat quality.						
Aspect : Remnant vegetation protection						
4. Remnant patches are left undisturbed or managed to maintain health of native vegetation (eg. controlled grazing, limited fertiliser application, fencing) when appropriate.						
5. I have management agreements or covenants on significant remnant areas.						
6. I enhance remnant areas by revegetating adjacent areas with species of the same diversity as those that occur in existing high quality remnants in the area (namely shrubs and ground layer plants). I plant wildlife corridors between significant remnant areas.						
7. Pest plants and animals are being controlled on my property.						
8. I recognise that native grasses can be a valuable ecosystem and I have measures in place to conserve quality areas of open grassland if this was part of the original landscape.						
9. I do not allow grazing on native pasture grasses for a period before and after flowering to allow the plants to set seed.						

Aspect : Property development and planning						
10. My farm plan includes measures to protect and enhance remnants.						
11. I have an understanding of how the current farm management practices may impact on native biodiversity						
12. I have identified a range of issues that need to be included in management actions (eg. weed control, soil erosion, fire management, chemical and nutrient spread, vegetation loss, dieback etc)?						
13. I have established targets for managing the native plants on my property.						
14. If my farm has wetlands (permanent or ephemeral) I have developed a management plan to aid in restoration or protection of the wetland and any flora or fauna within it.						
15. My remnant/habitat enhancement has been planned in conjunction with adjacent landholders, local area priorities and local expertise.						
Aspect : Trees, shrubs and native pasture establishment						
16. Species of local origin are used in new plantings wherever possible.						
17. I plant at least 60% shrubs to trees in my plantings.						
18. I plant new areas at appropriate times of the year and use appropriate seeding/planting techniques.						
19. Native vegetation is being managed to improve habitat quality.						
20. I seek advice from experts regarding management of remnants.						
Aspect : Habitat enhancement						
21. Dead trees are left standing and fallen timber and logs are left on the ground.						
22. I aim to represent most habitat features that occur naturally to maximise natural habitat diversity.						

23. I know what native animals live on my property or are found on surrounding properties.						
24. I know what the habitat requirements or territory range is for these animals.						
Sub-total :						

Your score for this section

Divide your score by the total number of questions answered and then multiply by 20 to give you an overall %

Score:

Divide by: _____

X 20 = **%**

No. questions answered:

Example: Score of 57/15 questions answered X 20 = 76%

Areas I would like to work on are:

12. Waste management & pollution prevention

Practice Score 1 indicates 'I don't use this practice', score 2 'I have started to plan for this practice', score 3 'I partially understand and implement this practice', score 4 'I implement this practice but there is still room for improvement'; and score 5 'I fully understand and implement this practice'.	Rating					N/A
	1	2	3	4	5	
Aspect : Consideration of legal requirements						
1. I am aware of the latest legislation regarding pollution prevention, waste storage, handling and disposal as well as pesticide use, relevant to my business.						
2. I do not have any banned pesticides stored on my property.						
3. I obtain required government and authority approvals before commencing any activity that may pollute surface or ground water (ie. piggery or feedlot).						
4. I report any spill or possible source of contamination to the local government authority and take all required actions to clean up.						
5. All animal carcasses are disposed of according to legislative requirements. Animal access and groundwater pollution is avoided.						
6. My effluent disposal method meets State Environment Protection Policy requirements. (ie. in Victoria, no solid or liquid effluent is disposed of within 800m of any potable water supply take off controlled by a Statutory Authority or within 200m of any watercourses supplying potable water or within 100m of any surface waters, rivers, wetlands, channels etc).						
Aspect : Waste recycling						
7. I try to minimise the amount of waste produced on the farm (eg use Enviro-Drums) and reuse materials and equipment where possible.						
8. I have a recycling program in place for recyclable materials used on the property.						
9. I recycle household waste wherever possible.						
10. Used or waste silage wraps are taken to or collected by an approved recycler.						
11. I take old tyres to an approved tyre recycler.						
12. I am aware that many building materials can be recycled at a local facility or reused.						

Aspect : Waste Disposal						
13. I have a written waste management plan.						
14. I dispose of unwanted chemicals according to the label.						
15. I do not dump landfill waste on my property, and do not treat gullies or erosion areas as landfill sites.						
16. I triple rinse chemical containers and disposed of them correctly using designated collection sites or programs.						
17. I take waste oil to a used oil collector or to the local authority collection dump if available.						
18. I take old lead acid batteries to the local tip or to a battery collection service.						
Aspect : Fuel storage						
19. Fuel is stored in steel tanks with a protective coating on a sealed base (ie. Concrete) and fuel is pumped through the top of the tank.						
20. Fuel hoses are fitted with automatic cut-off switch or a hand pump is used.						
21. Overhead petrol tanks with a capacity of 5000 L or more have secondary containment facilities.						
22. Overhead diesel tanks with a capacity of 10,000 L or more have secondary containment facilities.						
23. I visually inspect tanks annually for leaks, corrosion and evidence of leaks or spills.						
Aspect : Effluent disposal, storage and re-use						
24. My effluent disposal method is suited to local conditions (soil type and rainfall) so that no effluent leaves the farm as runoff and deep drainage is minimised.						
25. I maintain my septic system in accordance with local and state legislative requirements.						
26. My effluent ponds have been constructed with impermeable material (clay or liners) to prevent leakage into groundwater.						

27. I have sufficient effluent storage capacity for all water entering the system (including from plant wash down, plate cooler and roof and yard runoff). It also allows for mechanical breakdowns and prolonged wet periods when it is not possible to irrigate.						
28. I apply effluent to productive areas (crops and pastures) as a nutrient source.						
29. The effluent applied is analysed and spread at calculated rates.						
30. Clean water from the dairy shed roof and plate cooler is reused.						
Sub-total :						

Your score for this section

Divide your score by the total number of questions answered and then multiply by 20 to give you an overall %

Score:
Divide by: _____ **X 20 =** %

No. questions answered:

Example: Score of 57/15 questions answered X 20 = 76%

Areas I would like to work on are:

13. Energy management

Practice Score 1 indicates 'I don't use this practice', score 2 'I have started to plan for this practice', score 3 'I partially understand and implement this practice', score 4 'I implement this practice but there is still room for improvement'; and score 5 'I fully understand and implement this practice'.	Rating					N/A
	1	2	3	4	5	
Aspect : Energy Use						
1. I regularly monitor fuel & oil consumption in my cropping activities with the view of reducing fossil fuel consumption per unit of production.						
2. Where possible, farming operations are conducted to enable more than one operation in one pass to reduce fuel consumption eg. chemical and fertiliser application at planting.						
3. I regularly service all farm equipment and vehicles, and during the service procedure checks are made to ensure that fuel efficiency is maximised.						
4. I have plans to replace equipment powered by fossil fuels with renewable or cleaner energy sources whenever practical (eg wind or solar).						
5. Solar or wind power is used for domestic power and/or water pumping for cattle.						
6. I actively minimise the energy requirements for lighting, heating and cooling in the home and farm buildings.						
7. I always consider energy consumption whenever purchasing new equipment and household appliances.						
8. I reduce losses of fuel through evaporation by positioning fuel tanks in shaded areas.						
9. Farm design and layout minimises vehicle movements and distances travelled.						
10. Energy survey completed and usage monitored and analysed.						
Sub-total :						

Your score for this section

Divide your score by the total number of questions answered and then multiply by 20 to give you an overall %

Score:

Divide by:

X 20 = %

**No. questions
answered:**

Example: Score of 57/15 questions answered X 20 = 76%

Areas I would like to work on are:

14. Greenhouse gas and air quality management

Practice Score 1 indicates 'I don't use this practice', score 2 'I have started to plan for this practice', score 3 'I partially understand and implement this practice', score 4 'I implement this practice but there is still room for improvement'; and score 5 'I fully understand and implement this practice'.	Rating					N/A
	1	2	3	4	5	
Aspect : Property development and planning						
1. My paddock rotation plan takes into account the different capabilities of specific soil types on the farm.						
2. My property plan includes the consideration of revegetation or agro-forestry for creation of carbon sinks where practical.						
3. I actively consider alternative uses of my property that reduce the need for land clearing.						
4. I follow codes of practice and industry guidelines on the placement and operation of intensive agricultural production (eg effluent ponds) to reduce offensive aromas.						
5. I am aware that methods of increasing production may also increase greenhouse emissions and consider this in my farm management.						
Aspect: Stubble management						
6. I generally retain stubbles and do not carry out stubble burning unless it is necessary to control weeds and disease.						
7. I only burn grassland through a strategy which takes into account fire hazard reduction, weed control and improvement in grazing species quality.						
8. I never burn crop residues unless absolutely necessary to enable planting machinery to work through at planting time.						
9. If my planting machinery is unable to handle large volumes of stubble I plan to modify it or replace it to enable planting without burning residues.						
10. I try to incorporate stubble to prevent detrimental air quality effects of burning. Stubble incorporation also reduces nutrient loss, increases moisture-holding capacity and increases organic matter.						

11. When conducting minor clearing operations such as regrowth control I do not burn the cleared vegetation.						
Aspect: Tillage						
12. I do not cultivate soil under dry and windy conditions or leave it exposed to significant erosion by high wind as this particularly increases carbon dioxide emissions.						
13. I am aware that cultivation releases carbon dioxide and nitrous oxide to the atmosphere and I am working towards reducing cultivation in my cropping operation by moving towards zero tillage.						
Aspect: Fertiliser and soil ameliorant application and management						
14. I am aware that nitrous oxide (N ₂ O) is a product of animal dung/urine, use of fertilisers and use of nitrogen (N) fixing plants such as clover.						
15. I use soil tests regularly to make decisions about crop/pasture nutrient requirements.						
16. I apply fertilisers to balance nutrient losses.						
17. I use deep N testing to make decisions about post-sowing crop fertiliser requirements.						
18. I apply more frequent, low dose N fertilisers rather than fewer, large doses to minimise N ₂ O emissions.						
19. I apply N fertilisers during periods of active growth to ensure immediate uptake by plants.						
20. I am aware that denitrification occurs under water-logged conditions and attempt to better manage waterlogged areas (eg. minimise activities that cause compaction).						
21. I assess the N leakiness of my crop/pastures.						
Aspect : Grazing management						
22. I maintain groundcover (dead or living plant material) of at least 70% at all times of the year on both crop and pastures to minimise soil erosion.						
23. I am aware that livestock are a source of greenhouse gas emissions and keep up to date with information in this area.						

24. I employ good animal husbandry practices and provide high quality feed to reduce the number of grazing days (and subsequent methane production) per unit produced.						
Aspect : Waste disposal						
25. For intensive industries (viticulture, dairy, piggery, feedlots) I follow codes of practice and industry guidelines for the handling and secondary use of solid organic wastes such as manure and composting.						
26. I refrain from burning any waste material that may affect air quality (particularly tyres).						
27. I do not burn waste products but dispose of them in designated landfill or bury non-toxic wastes where it is appropriate.						
Aspect : Energy use						
28. I use technology to minimise fossil fuels and where possible, use renewable sources of energy.						
29. I minimise the number of operational passes on my land to reduce the overall consumption of fossil fuels.						
Sub-total :						

Your score for this section

Divide your score by the total number of questions answered and then multiply by 20 to give you an overall %

Score:

Divide by: _____

No. questions answered:

X 20 = %

Example: Score of 57/15 questions answered X 20 = 76%

Areas I would like to work on are:

15. Climate and weather management

Practice Score 1 indicates 'I don't use this practice', score 2 'I have started to plan for this practice', score 3 'I partially understand and implement this practice', score 4 'I implement this practice but there is still room for improvement', and score 5 'I fully understand and implement this practice'.	Rating					N/A
	1	2	3	4	5	
Aspect : Property development and planning						
1. I use available climate data in association with soil and land classes to assist with planning various enterprises (eg. crop species selection).						
2. I use climate forecasts, rainfall records and climate decision support systems in planning management strategies in advance.						
3. I manage my property with the view that there is no guarantee of an "average" or "above average" season.						
Aspect : Grazing management						
4. I plan my grazing management and stocking rates on a conservative basis to better manage a season turning dry.						
5. I maximise the use of rainfall on my property by using tools such as water use efficiency (WUE) of crops in my cropping program, and with strategies to maximise groundcover in both cropping and grazing.						
6. I have a documented drought management plan with a range of strategies, including "trigger" indicators for herd/flock reduction						
7. I conserve fodder in good seasons and purchase/store drought feeding supplements to assist with managing a prolonged dry period.						
8. I have sufficient water storage/supply for stock and domestic use in a 1 in 100 year drought.						
Sub-total :						

Your score for this section

Divide your score by the total number of questions answered and then multiply by 20 to give you an overall %

Score:

Divide by: _____

X 20 = **%**

No. questions answered:

Example: Score of 57/15 questions answered X 20 = 76%

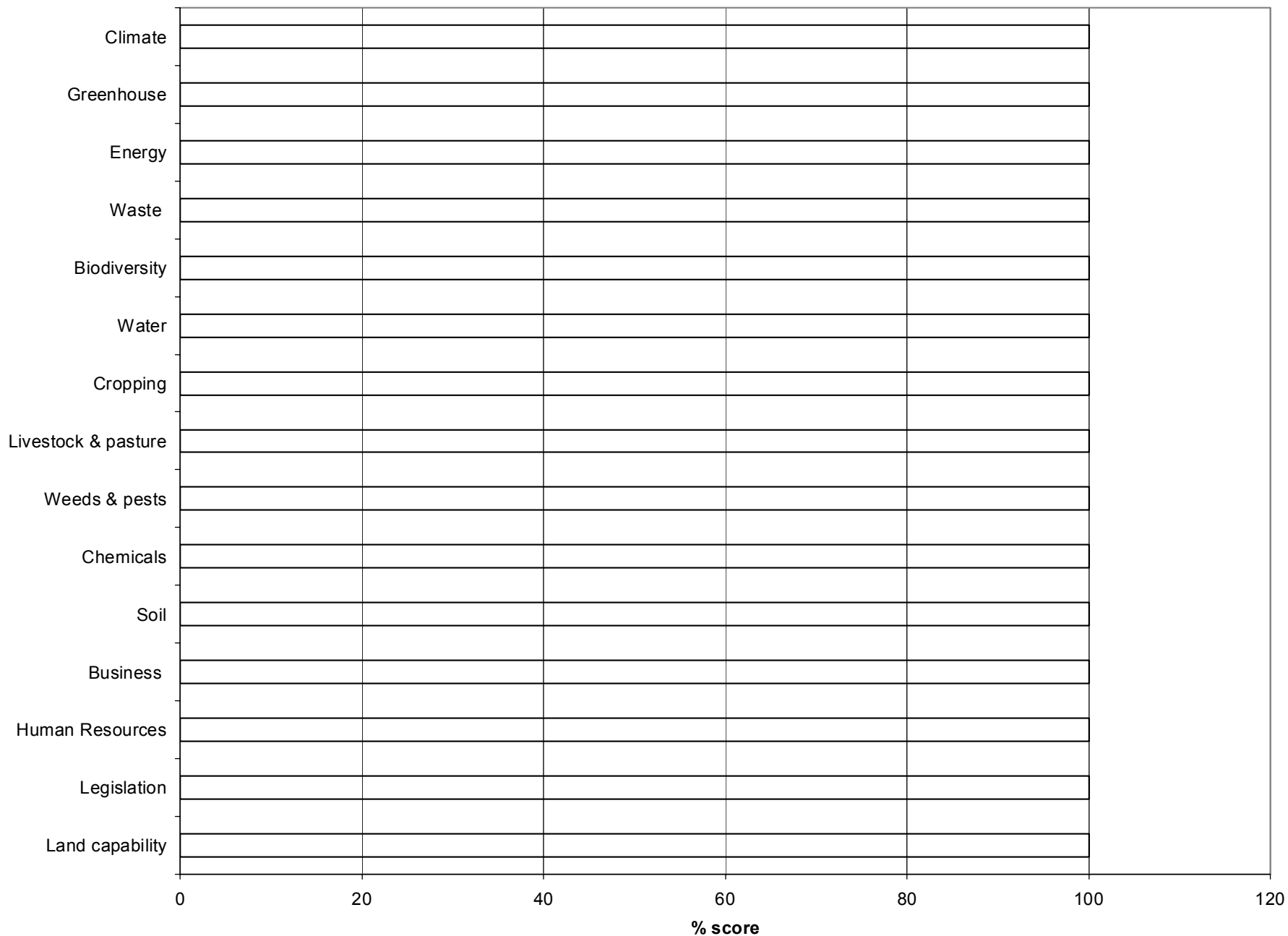
Areas I would like to work on are:

The overall picture – how does my farm management perform in terms of the environment?

Now that you finished rating yourself, you should have a percentage score that you have calculated for each section. Record your scores in the table below.

Section	Your % score
1. Land capability and property planning	
2. Business and financial planning	
3. Human resources	
4. Soil management	
5. Cropping	
6. Livestock and pasture	
7. Weeds and pests	
8. Chemical management	
9. Water management	
10. Legislation and catchment priorities	
11. Landscape and biodiversity	
12. Waste and pollution	
13. Energy management	
14. Greenhouse and air quality	
15. Climate and weather	

An empty graph is included on the next page. To get a good visual representation of your score, colour the bars of the graph in with your scores. You will clearly be able to see the areas in which you scored strongly and the areas in which improvement is needed.



Congratulations, you have now completed a Stage 1 introduction to EMS. It is hoped that this self-assessment workbook has helped you to assess your current farm practices. If you wish to continue to a Stage 2 EMS, please continue onto the next section or contact your local Department extension officer.

Glossary

Ameliorant-	Soil conditioners eg; lime.
Application Efficiency-	Application efficiency refers to the proportion of water that is applied to the land which is used to replenish the soil water.
Business Plan-	A business plan is a financial management plan for the running of the business only.
Distribution Uniformity-	Distribution Uniformity gives an indication of how evenly your sprinklers are operating or overlapping. These figures are expressed in percentages eg. 70% DU or over is regarded as acceptable for a sprinkler system.
Endemic-	Endemic refers to common or indigenous plants to the area in question eg. There are few types of Blue Gum the Sydney and a Tasmanian variety. Planting a blue gum endemic to the areas in Tasmania, you would choose the local Tasmanian Variety.
I and We -	I and we have been used in the Self Assessment Workbook as a term of reference. They are to be regarded as everyone or the relevant persons involved in that particular enterprise/issue.
Integrated Pest Management (IPM)-	Is a management technique which encompasses more than one approach to controlling or eliminating pests. These approaches are usually linked so that each component is reliant on and supports the other.
Inventory-	A detailed list.
Property Plan-	Is a documented plan outlining the future works regarding the actual property. This uses maps etc and may list capital works, revegetation planting's, future building infrastructures etc.
Perennial-	Is a plant that can live for a number of years.
Perenniality-	Is used to describe how much impact a plant type is likely to have on drying out the soil, and hence its ability to reduce leakage.
Sodicity-	A soil containing sufficient exchangeable sodium to adversely affect soil stability, plant growth and land use.
Turbidity-	Turbidity occurs when particles suspended in water restrict the transmission of light and give a cloudy or muddy appearance.