Reduce emissions, increase efficiency

A checklist guide

LANDSCAPE SOUTH AUSTRALIA NORTHERN AND YORKE

Introduction

All farming systems produce greenhouse gases, including:

- **Methane:** from animal digestion, respiration, manure stockpiles, and effluent ponds
- **Nitrous Oxide:** from fertilisers and animal manure
- **Carbon Dioxide:** from fossil fuel-based electricity and liquid gas

Emissions are grouped into three categories:

Scope 1: Direct (on-farm) emissions

Emissions resulting from farming operations on individual farms. This includes methane from livestock and manure management, as well as nitrous oxide from fertiliser use.

Scope 2: Indirect (off-farm) electricity emissions

Electricity purchased by the business for heating/cooling, lighting, irrigation and refrigeration.

Scope 3: Indirect (on-farm) supply chain emissions

Emissions resulting from other businesses that the farm uses. This includes emissions created from transporting products and livestock, waste removal and emissions created from goods and services purchased by the farming business.

Scope 1 and 2 emissions come from farming operations and are the most manageable for reducing on-farm emissions.

Reducing these greenhouse gas emissions is becoming increasingly important for the agriculture sector, and may also provide productivity and profitability benefits to primary producers.

There are also on-farm opportunities for storing carbon — also called sequestering carbon — which means capturing and removing carbon dioxide from the atmosphere and storing it in 'carbon sinks': vegetation and soil.

Implementing on-farm emission reduction actions can lead to:

- Enhanced efficiency, productivity and improved profit
- Reduced electricity and input costs
- Carbon storage opportunities

The guide and self assessment tool has been developed for primary producers to:

- Identify areas in their business which they can focus on
- Select practical activities to be implemented immediately on-farm
- Make a plan to address medium and long term activities

All activities are designed to be practical and achievable to implement.

Implement a whole-farm emission reduction plan

1. **Understand:** Understand the different greenhouse gases and how they are generated.
2. **Calculate:** Calculate and identify your main sources of emissions using an industry-specific **carbon calculator**.
3. **Identify:** Use this guide to identify areas you can look at to not only reduce your emissions, but also improve your efficiency.
4. **Plan:** Identify areas for immediate action, and then consider the medium to long term actions which can be implemented over time. Write your plan down and include timelines.
5. **Implement:** Implement your plan in a staged approach.
6. **Review:** Continue to review the plan and emissions calculation over time, and keep up to date with new technologies and opportunities that will continue to arise.

Final Plan

This is to be used as a guide to encourage thought ideas on different activities that can be implemented. It is not an exhaustive list and can be added to in the notes section at the end.

How to use the guide

The guide provides a self assessment tool to identify areas for action within your business. It focuses on areas that can provide efficiency gains. Actions can be implemented immediately (now - 1 yr), in the medium term (2-3 yrs) or the longer term (5 yrs). To use this guide:

- Work through the self-assessment tool
- Identify actions which you can implement
- Identify when the action will occur: short, medium or long term
- Complete your plan by listing the actions you plan to implement on the final page

General modules

Industry specific modules

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1. Home, workplace and building emission reduction

Energy costs, specifically electricity costs, are increasing. Identifying and addressing energy use at home, in the workplace and buildings can lower costs, increase efficiency, and reduce emissions.

This can be achieved by integrating renewable energy sources, enhancing machinery efficiency, and improving home energy efficiency.

1.1. Understand your energy consumption		N/A	To do	In progress	Completed
Conduct an energy audit	Identify inefficiencies and potential areas for renewable energy integration.				
Understand your energy bills, usage and costs	Look at your electricity bills. Ensure you understand the different components including: • Rates and charges (tariff) • Supply charge • Electricity usage • Comparison of your daily usage with others in your area **How to Read your Bill (Australian Government)**				
	Compare your yearly bills to track changes in your energy usage.				
Consider strategies to reduce electricity costs	Consider strategies to: • Lower energy consumption • Move high energy usage to off-peak hours				
	Compare your bills to other offers available. **Energy Made Easy (Australian Government)**				

1.2. Equipment and infrastructure efficiency		N/A	To do	In progress	Completed
Understand where energy is being used	Make a list of energy usage for your different equipment and infrastructure. Start with high energy usage areas. Use: • Calculate Running Costs (SA Government) • Audit your Business Energy Use (SA Government)				
	Develop a long-term plan to replace inefficient equipment.				
	Consider installing solar panels or small wind turbines to generate renewable energy and offset electricity costs.				
Maintenance Schedule	Develop a maintenance schedule for all machinery, equipment, and vehicles. Ensure they are maintained correctly.				
Electrification of all diesel powered machinery	Convert all diesel- and petrol-powered machinery, such as pumps, to electric equivalents which can be powered by mains electricity or on-site solar.				

1.3. Improve home, workplace and buildings energy efficiency		N/A	To do	In progress	Completed
Determine areas of high energy usage	Perform home and workplace energy audits. • Home Energy Audit (SA Government) • Business Energy Audit (SA Government)				
Encourage energy saving habits	Encourage turning off lights and equipment when not in use among employees and household members.				

Improve energy efficiency	Insulate buildings, storage areas, and heating and cooling pipes.				
	Apply light-colored, heat-reflective paint on roofs and walls.				
	Consider using renewable electricity options, such as solar panels and batteries.				
	Consider efficient home heating, such as split systems.				
	Install blinds and curtains to retain or prevent heat.				
	Seal gaps under windows and doors to avoid drafts.				
Lighting	Use efficient lighting like LEDs and install sensors to turn off lights when not needed. Maximise natural light and ventilation.				
Waste and recycling	Create a list of the primary waste products produced by homes and businesses.				
	Identify ways to reduce waste.				
	Identify and research potential recycling options for the waste.				
1.4. Longer term opportunities		N/A	To do	In progress	Completed
Invest in Advanced Technologies	Explore smart grids, energy storage systems, and electric vehicles to further reduce carbon footprints.				
Regularly Review Energy Usage	Monitor energy consumption and stay informed about emerging technologies to ensure the energy management plan remains effective and up-to-date.				

2. Farm planning, natural capital and storing carbon

Farm planning and implementing natural capital strategies on your farm can bring numerous benefits, enhancing productivity, environmental health and carbon storage.

Revegetating degraded or unproductive sections of your farm, including waterways, can not only capture and store carbon but also provide long-term productivity benefits. By recognising and investing in your farm's natural capital, you can create a resilient and sustainable farming system that supports biodiversity and boosts overall farm efficiency.

2.1. Farm Planning		N/A	To do	In progress	Completed
Understand your farm's natural capital	Develop a farm plan to identify different areas of natural capital and create management areas on the property. Include a farm map. **Protect your Farm's Natural Assets (Making More From Sheep)**				
Protect and manage existing native vegetation	Fence off and protect patches of native vegetation from grazing. Prevent unnecessary native vegetation clearance.				
	Fence off areas or place tree guards around individual paddock trees/shrubs.				
	Encourage native vegetation to establish by guarding naturally seeding plants.				
	Control declared and invasive pest plants and animals.				

2.2. Long term opportunities		N/A	To do	In progress	Completed
Reintroduce native vegetation	Identify areas for revegetation within your farm plan. Consider: • Riparian areas • Extending existing areas of native vegetation • Steeper crests • Rocky areas • Degraded, unproductive or erosion prone areas • Along paddock boundaries to enhance road reserves				
	Establish revegetation areas • Identify native species which match the site conditions - ensure species are locally endemic and that a range of species are planted • Ensure site preparations are done correctly including fencing and weed control • Ensure correct timing of planting **Revegetation Guide (Hills and Fleurieu Landscape Board)**				
Farm Dams	Fence off farm dams to prevent stock access. Provide alternative water sources through water reticulation, header tanks, solar pumps and troughs.				
Carbon Farming	Consider opportunities to participate in carbon markets by growing trees and other vegetation. **Carbon farming (Northern and Yorke Landscape Board)**				
	Consider opportunities to participate in carbon markets by increasing soil organic carbon. **Carbon farming (Northern and Yorke Landscape Board)**				

3. Healthy soils and storing carbon

Increasing soil carbon enhances plant growth but maintaining it is crucial as it's easily lost. Management options aim to improve soil structure, reduce carbon and nitrogen losses, and build organic matter. Better soil condition helps plants access nutrients, retain moisture, and minimise nitrogen loss.

By improving agricultural practices we can reduce these losses, improve productivity and save money.

Enhancing soil carbon levels improves productivity, water retention capacity, and nutrient cycling. These processes not only reduce costs but also positively impacts natural resource management.

3.1. Get to know your soils		N/A	To do	In progress	Completed
Soil Testing	Create an annual soil testing plan for your property. Include: • Physical: structure, compaction, drainage • Chemical: pH, salinity, toxicities/deficiencies • Biological: macro and micro-organisms **Soil Test Kit info**				
	Develop a plan to address the constraints. • Manage crop/pasture/ grazing rotation • Soil amendment application				

Soil Amendments	Complete a nutrient balance budget. Include rainfall, soil moisture and rainfall forecasts. Match with the demands of the crop or pasture.				
	Know the quality of products to ensure cost/benefit for your business. Consider the emissions required to create the amendments.				
	Consider lime application - improve the efficiency of lime by using precision application. Consider lime alternatives.				
Manage soil water infiltration and retention	Utilise soil test results to inform the application of appropriate soil amendments to improve water infiltration and retention. Consider supplying gypsum on sodic soils to maintain/improve soil structure.				
Soil organic carbon	Develop a soil organic carbon testing plan: • Select representative paddocks • Distribute testing areas over time				
	Quantify your soil carbon storage and sequestration for future opportunities. Include areas under production and areas of native vegetation.				
Crop/ Pasture Rotations	Plan crop and pasture rotations carefully. Consider: • Planting more perennial grasses or legumes to stabilise soil carbon and manage erosion risk • Growing a greater diversity of improved pasture species, particularly legumes, to extend the growing season				
Encourage Dung Beetles	Dung Beetles will bury manure, improve soil structure and build soil carbon. **Dung beetles (MLA)**				

3.2. Manage soil resource		N/A	To do	In progress	Completed
Prevent soil compaction and the loss of carbon and nutrients	Use direct drill, minimum conservation techniques and controlled traffic techniques.				
	Avoid burning crop residuals and retain ground cover.				
	Cultivate soils at an appropriate moisture content (e.g. too wet it will smear, too dry it will drift).				
Maintain ground cover above 70%	Avoid bare fallows.				
	Retain stubble after harvest to retain ground cover.				
	Create crop rotations that include different phases to ensure soil stability. Consider using longer term crops or pasture phases in paddocks which require soil stabilisation.				
	Manage grazing of stubbles to prevent overgrazing. **Grazing modern stubbles (MLA)**				
Implement Precision Ag to help manage soils	Use GIS technology to store, visualise, analyse and interpret geographic data, soil test results and soil properties.				
	Use variable rate technology to apply seed and fertiliser or a soil ameliorant at variable rates across paddocks.				
Minimise tractor passes over paddocks to cut diesel use and emissions	Use minimum/low/no till practices.				
	Combine operations into one pass over a paddock.				
	Utilise grazing for weed control options.				

3A. Nitrogen use efficiency

Nitrogen is essential for plant growth. Crops and pastures often benefit from more soil nitrogen, which is usually added through fertilisers. Nitrous oxide, a significant greenhouse gas, comes from these fertilisers and is a major source of emissions on farms.

Improving nitrogen use efficiency boosts productivity and profitability and helps reduce nitrous oxide, ammonia volatilisation, and nitrate leaching.

3A.1. Match nitrogen supply to crop / pasture demand		N/A	To do	In progress	Completed
Right Rate: **Use the right rate of fertiliser**	Soil or plant tissue testing to assess plant available nitrogen supply.				
	Soil test to ensure there are no other limiting factors to plant access to nutrients (e.g. soils that have inherent limitations to plant growth are unlikely to result in higher productivity).				
	Calibrate fertiliser application equipment so you know the rate of Nitrogen (N) application and ensure uniformity of application across the field.				
	Set realistic crop yield goals or yield expectations and grain protein targets to determine rates of N fertiliser required. Consider: historical yield averages, crop variety, fallow soil moisture, growing season rainfall and market signals. **Crop Yield Calculator (CSIRO)**				

Right Rate: **Avoid high application rates of nitrogen**	Do not exceed the recommended rates of fertiliser.				
	Use split applications of fertiliser throughout the growing season.				
Right Time: **Time fertiliser application to minimise nitrogen loss**	Avoid applying nitrogen fertiliser to warm (>10°C) waterlogged soils.				
	Avoid tillage under wet conditions.				
	Consult weekly weather forecasts to identify risks of soil saturation (eg. do not apply before a large rainfall event).				
Right Product: **Use the right product for your property**	Obtain fertiliser product analysis to understand the nutrient content of the product you are using.				
	Understand and make allowances for nitrogen release characteristics which can change due to application method, local climatic factors and product type (ie manure, composts).				
	Provide as much N from organic matter mineralisation as practical and profitable (e.g. green manure, pulse crops, recycled organic matter - composts, crop residues, bio-solids - and manures). **Composts and manures (Northern and Yorke Landscape Board)** Consider other options with advice from your local agronomist.				
	Investigate the use of products that reduce emissions. Chemical inhibitors can be added to fertiliser which reduce nitrate leaching and ammonium volatilisation.				

Right Place: **Correct fertiliser placement**	Apply fertiliser to the root zone or where there is a reasonable expectation that follow up rainfall will carry fertiliser into the main root zone.				
	Where urea is surface applied and not manually incorporated, consider local research recommendations about loss potential, consider the local weather forecast or use of a urease inhibitor.				
	Incorporate controlled or slow release N fertiliser products.				
Plan your crop rotations	Grow multi-species nitrogen-fixing legumes (such as clover) with other crop varieties.				
	Grow high nitrogen use crops after legume-based pastures.				
	Select crop species and varieties that are genetically able to make the most advantage of the N availability.				
	Increase pasture phases- implement additional pasture phases to increase soil carbon and mineralisation of N for subsequent crops.				
Fertiliser Storage	Store fertiliser in a manner which protects it from rain. **Investing in Fertiliser Storage Infrastructure (GRDC)**				
	Ensure any spills of fertiliser are cleaned up immediately.				
	Ensure employees who apply fertiliser are trained adequately.				

4. Livestock (sheep and cattle)

There are methods to enhance livestock performance and efficiency while minimizing emissions.

Methane is the main greenhouse gas from grazing animals like cattle, sheep, and goats. These animals have microbes in their rumen that produce methane when digesting feed. Belched methane represents energy lost from your production system that might otherwise be converted to the milk, meat or fibre that generates income.

Farmers can reduce their emissions and enhance productivity by implementing practices that optimise herd and feed management, improve feed efficiency, and enhance feedbase management.

4.1. Herd/flock management		N/A	To do	In progress	Completed
Maximise the proportion of young and growing stock	Develop a herd/flock structure plan.				
	Identify the highest and lowest performing herd/flock and rank accordingly.				
	Consider ranks in terms of productivity, rather than just age.				
Optimise reproduction performance in the herd/ flock.	Manage according to cow/ewe nutritional requirements and ensure good body condition and health. **Lifetime ewe course (AWI)** **Condition scoring cattle (MLA)** **Condition scoring sheep (MLA)** **Ration development (AWI)**				
	Stimulate ovulation pre-joining ('flush') using high protein feeds such as legumes.				
	Implement a tight joining period.				
	Join at a younger age (and suitable weight).				

Minimise young stock losses	Manage livestock nutritional requirements. Provide shelter for stock e.g. shelterbelts.				
Remove unproductive reproducing stock	Identify breeding females that are performing and those who are passengers. e.g. Record dry/'did not rear' animals.				
	Perform a pre-joining checklist to remove breeders with poor udders, lame feet and broken mouths/teeth.				
Bull/ Ram Selection and breeding- achieve increased reproduction rates and shorter finishing times	Ensure bulls/rams are physically sound and fertility tested.				
	Utilise Breeding Values when selecting breeding rams or bulls. Include productivity traits such as growth rate, reproduction, feed conversion/feed intake (only in beef cattle) and disease resistance. **Sheep Genetics - Australian Sheep Breeding Values (Sheep Genetics)** **Estimated Breeding Values (Future Beef)**				
4.2. Improve feed efficiency		**N/A**	**To do**	**In progress**	**Completed**
Match pasture growth with stocking rate	Optimise grazing management through • Identifying feed gaps • Understanding pasture growth stages • Developing a stocking rate plan **Feed Demand Calculator (MLA)** **Stocking Rate Calculator (MLA)**				

Implement supplementary feeding for times of low pasture availability	Consider supplementary feeding options: • Grazing fodder crops • Silage and hay • Feed pellets • Dry licks				
	Develop supplementary feeding plan, consider: • Sourcing alternative feeds • Livestock nutritional requirements (including pregnancy status) • Feeding systems, look for options that reduce spillage • Area for feeding (eg containment area/sacrifice paddock) **Containment areas (Northern and Yorke Landscape Board)** **DPI Drought and Supplementary Feed Calculator (NSW Government)**				
Finish young stock in feedlots on high quality diets to reduce finishing times	Develop a plan for finishing stock: • Speak with stock agent to determine market requirements • Source and cost high quality diets (source your own or premade pellets) • Develop feedlot area • Set weight ranges and target growth rates **Market focused lamb and sheep production (Making More From Sheep)**				
Consider quality of livestock feed	Use feed testing to understand: • Pasture quality • Hay/silage/grain quality **Silage and hay feed test figures (MLA)**				

4.3. Feedbase management		N/A	To do	In progress	Completed
Maintain ground cover above 80%	Prevent bare ground from overgrazing.				
Improve the quality of pastures	Investigate new pasture varieties to meet livestock demands. Consider: • Soil type • Plant growth stages • Rainfall • Pasture quality				
Utilise rotational grazing rather than set stocking management	Manage paddock rotation to distribute animal manure and urine, reduce compaction from hoof traffic, promote pasture production and reduce non-desirable species.				

4.4. Longer term opportunities		N/A	To do	In progress	Completed
Investigate methane supressing legumes	Consider Leucaena/Biserrula. **Legumes Hub (MLA)**				
	Lickblocks: use nitrate supplements as a replacement for urea.				
	Grapemarc: can reduce methane to a modest extent (10-15%) MLA.				
Reduce wasted livestock energy expenditure	Ensure easy access to water. Consider installing additional water infrastructure (troughs, solar pumps, header tanks, pipes). **Beef Water Calculator (DPI Victoria)** **Sheep Water Calculator (DPI Victoria)**				
	Improve efficiency for moving stock between paddocks and yards, consider the use of laneways and new gates.				

4A. Dairy and intensive livestock

In addition to livestock component above.

Livestock manure (dung and urine) contains a high concentration of nitrogen. This must be managed correctly to reduce nitrogen loss and emissions.

Manure can be applied to pastures and crops to improve growth while reducing environmental harm. This ensures effective nitrogen use and supports sustainable farming practices.

4A.1. Manage animal manure		N/A	To do	In progress	Completed
Manage manure stockpiles	Avoid anaerobic conditions in manure stockpiles.				
Manage storage ponds	Manage storage ponds correctly by ensuring they are maintained regularly. Water can be irrigated onto crops and pastures. **Effluent Pond Management (Dairy Australia)**				
	Investigate new products which can be added to ponds to reduce methane.				
Consider using slurries and manure as fertiliser	Avoid applying to land in wet conditions on waterlogged soils.				
	Test for nitrogen content and apply at a rate based on crop or pasture requirements. **Sludge and Effluent Calculator (Dairy Australia)**				
	Manage the timing of application to match with crop/pasture requirements to replace the need for fertiliser.				

4A.2. Irrigation management		N/A	To do	In progress	Completed
Manage irrigation and soil drainage to avoid waterlogging	Use irrigation scheduling and monitoring. Irrigation Scheduling (Dairy Australia)				
	Monitor soil moisture levels using remote water monitoring technology.				
Apply fertiliser at the right time	Avoid applying urea fertiliser after irrigation in summer as this will increase nitrogen loss to the atmosphere.				
Ensure efficient water output	Perform regular system tests to ensure flow rates match expected outputs.				
	Consider installing variable speed drives onto pumps to match flows to requirements.				
	Replace old pumps to improve water flow rates.				

5. Viticulture

Emissions released from viticulture are primarily through purchased electricity and energy, the use of diesel for tractor, irrigation systems, and the adoption of nitrogen fertilisers.

Changing management to reduce emissions will result in improved efficiency for the business through cost reduction, improved productivity and reduced energy costs.

5.1. .Reduce fuel usage		N/A	To do	In progress	Completed
Electrification of all diesel/ petrol powered infrastructure	Convert all diesel and petrol-powered machinery, such as pumps, frost fans and generators, to electric equivalents which can be powered by mains electricity or on-site solar.				
Reduce tractor passes in the vineyard	Use multiple row spray units.				
	Use minimal/low or no till practices.				
	Combine operations into one pass over a block.				
Explore the use of sheep to control undervine and mid-row growth in winter	Consider: • Fencing required • Neighbours/ contacts with sheep • Water requirements • Additional infrastructure (ie sheep yards) Further information **BIGG**				

5.2. Irrigation management		N/A	To do	In progress	Completed
Schedule irrigation timing and volume based on monitoring devices	Use irrigation scheduling and monitoring. **Irrigation factsheets and resources (DPI Victoria)**				
	Use soil moisture monitoring technology.				
Apply fertiliser at the right time	Avoid applying urea fertiliser after irrigation in summer as this will increase volatilisation (loss to the atmosphere).				
Ensure efficient water output	Perform regular system tests to ensure flow rates match expected outputs.				
	Consider installing variable speed drives onto pumps to match flows to requirements.				
	Replace old pumps to improve water flow rates.				

6. Wine

The main sources of emissions in the wine industry are electricity and fossil fuels (gas and diesel for forklifts and heating). Reducing electricity use, improving energy efficiency, and using renewable energy are crucial to cutting winery emissions.

6.1. Refrigerant use		N/A	To do	In progress	Completed
Ensure efficiency of refrigerant systems to ensure there are no gas leaks	Check equipment regularly to and repair any leaks.				
Improve efficiency of cold rooms	Upgrade cold room equipment to improve efficiency.				
	Check the energy rating of equipment, and when purchasing new equipment choose items with higher energy star ratings.				
	Implement air or drop door curtains and electric openers on cold room doors to reduce loss of chilled air.				
	Improve insulation, including under slab of cold room.				
Building efficiency	Consider the location of wine storage and how shade structures, reflectivity of surfaces, insulation and sealants can create an environment that optimises heat reflection and cold storage.				

6.2. Longer term opportunities		N/A	To do	In progress	Completed
Increase the efficiency of cold storage of wine	Eliminate the use of refrigerants with high levels of CO_2-e, such as Freon.				
	Investigate alternative methods to cold stabilisation to prevent the formation of crystals forming in juice. This could include the use of carboxymethyl cellulose (CMCs), potassium polyaspartate 9, or utilising electrodialysis.				
	Switch to using ammonia, a common-emissions free and cost-effective alternative to many other refrigerants.				

7. Horticulture

The major emissions produced from horticulture are related to energy usage, cool room efficiency and irrigation management. Implementing management strategies to address these will lower cost of production and improve efficiency.

7.1. Reduce diesel usage		N/A	To do	In progress	Completed
Electrification of all diesel/ petrol powered infrastructure	Convert all diesel- and petrol-powered machinery, such as pumps, to electric equivalents which can be powered by mains electricity or on-site solar.				
Consider diesel usage of vehicles	Limit number of tractor passes across a paddock.				
	Implement practices which reduce fuel usage such as less energy intense tillage (rotary hoe vs strip discs).				
	Implement minimal and zero till.				

7.2. Irrigation management		N/A	To do	In progress	Completed
Schedule irrigation timing and volume based on monitoring devices	Use irrigation scheduling and monitoring. **Irrigation scheduling principles for horticulture crops (DPI NSW)**				
	Use soil moisture monitoring.				

Ensure efficient water output	Perform regular system tests to ensure flow rates match expected outputs.				
	Consider installing variable speed drives onto pumps to match flows to requirements.				
	Replace old pumps to improve water flow rates.				

7.3. Cold room efficiency		N/A	To do	In progress	Completed
Ensure efficiency of refrigerant systems to ensure there are no gas leaks	Check equipment regularly to and repair any leaks.				
Improve efficiency of cold rooms and air conditioners	Upgrade cold room equipment such as compressors with improved energy efficiency.				
	Check the energy rating of equipment, and when purchasing new equipment choose item with higher energy star ratings.				
	Implement air or drop door curtains and electric openers on cold room doors to reduce loss of chilled air.				
	Improve insulation, including under slab of cold room.				

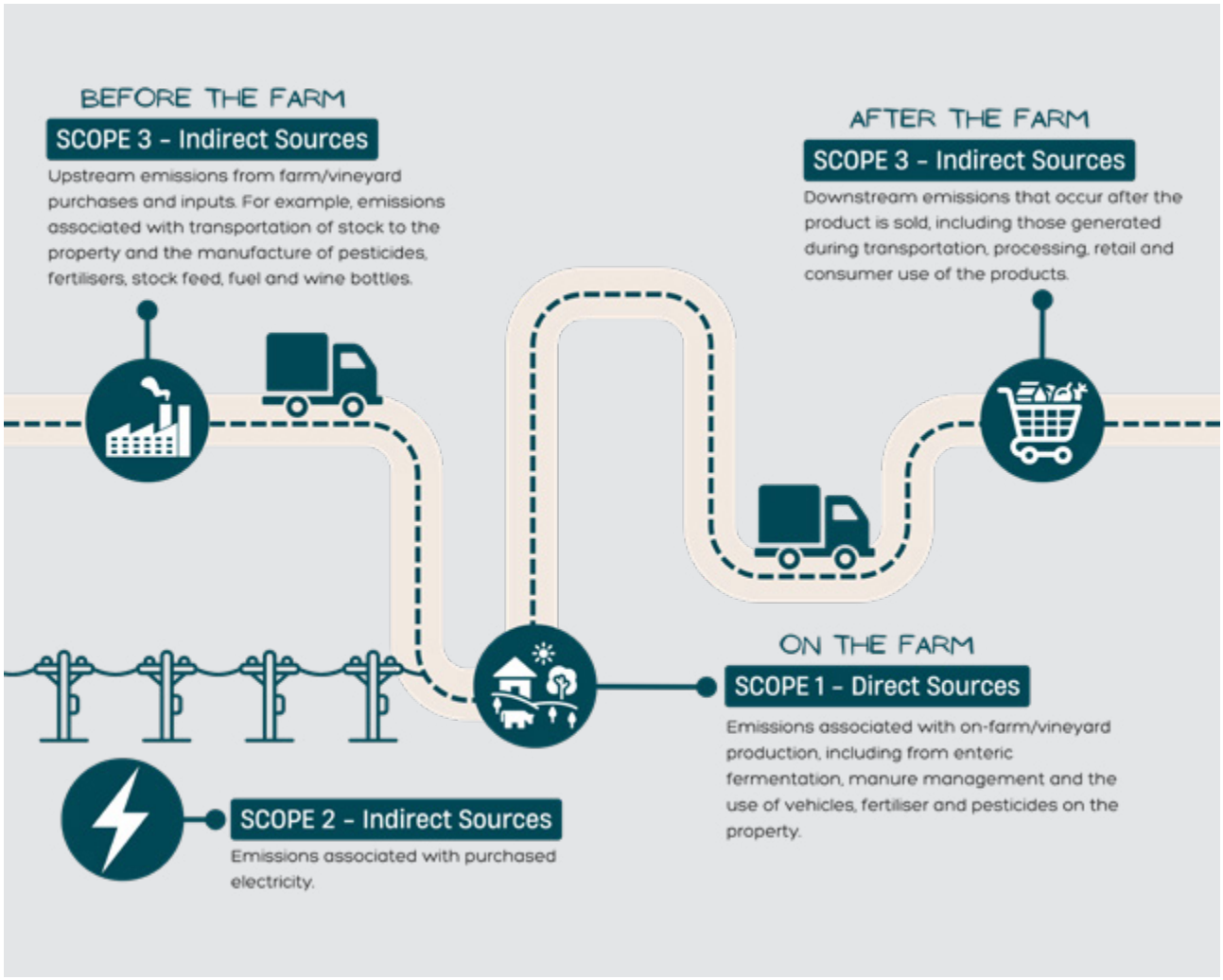
7.4. Longer term opportunities		N/A	To do	In progress	Completed
Consider the use of refrigerant	Eliminate the use of refrigerants with high levels of CO2-e, such as Freon.				
	Switch to using ammonia, a common-emissions free and cost-effective alternative to many other refrigerants.				

Supply Chain/Scope 3 Emissions

It is essential to focus on scope 1 and scope 2 emissions, as these are attainable and more manageable to address. Nonetheless, it is also critical to acknowledge the growing importance of scope 3 emissions, given that markets are increasingly demanding greater transparency.

Understand the Total Emissions from your Supply Chain

- Talk to your suppliers to understand their emissions and the actions they are taking to reduce them
- Ask your key suppliers, or top 5, if they can provide specific emissions factors for their products
- Choose lower carbon suppliers: choose to work with and source products from suppliers who are actively reducing their emissions
- Keep asking questions of suppliers to show your commitment to reducing emissions
- Share your learnings and emissions reduction with others in your region and across your industry



Emission reduction farm plan

Date:

Review date:

Emission level targets	
Current Emission Level Calculate this using an industry-specific **carbon calculator** and compare to the industry averages.	
Target Emission Immediate	
Target Emission Medium	
Target Emission Long Term	

Set your priorities

Prioritise the actions you want to take immediately (now - 1 yr), in the medium term (2 - 3 yrs) and in the longer term (5+ yrs). Consider your:

Current financial situation - Can you afford to do this action right now or do you need to wait a few years?

Current and future value chain demands - Are there actions that you must take straight away to meet value chain demands?

Difficulty/complexity of the action - Does this action require more planning? What are the easy actions you can tick off first?

Time availability - Do you have time to do this action right now?

Property's natural constraints and limitations – Is average rainfall or another factor likely to make this action unfeasible or more difficult?

Current and future climate – Will current climate conditions make the action easier or harder for you now? How will this change with future climate projections?

Current knowledge level and the expertise available to you - Do you need to seek additional help or information to complete this action? Do you know where you can find this?

Immediate actions: Now – 1 year		Due date
1		
2		
3		
4		
5		
Medium term actions: 2 – 3 years		**Due date**
1		
2		
3		
4		
5		
Long term actions: 5+ years		**Due date**
1		
2		
3		
4		
5		

Property specific actions

Activity	To do	In progress	Completed

Notes