



# Sustainable Agriculture Finance Initiative (SAFI)

## Phase One Guidance for Sustainable Agriculture Finance for Crops (perennials and non-perennials)

*(July 2021)*

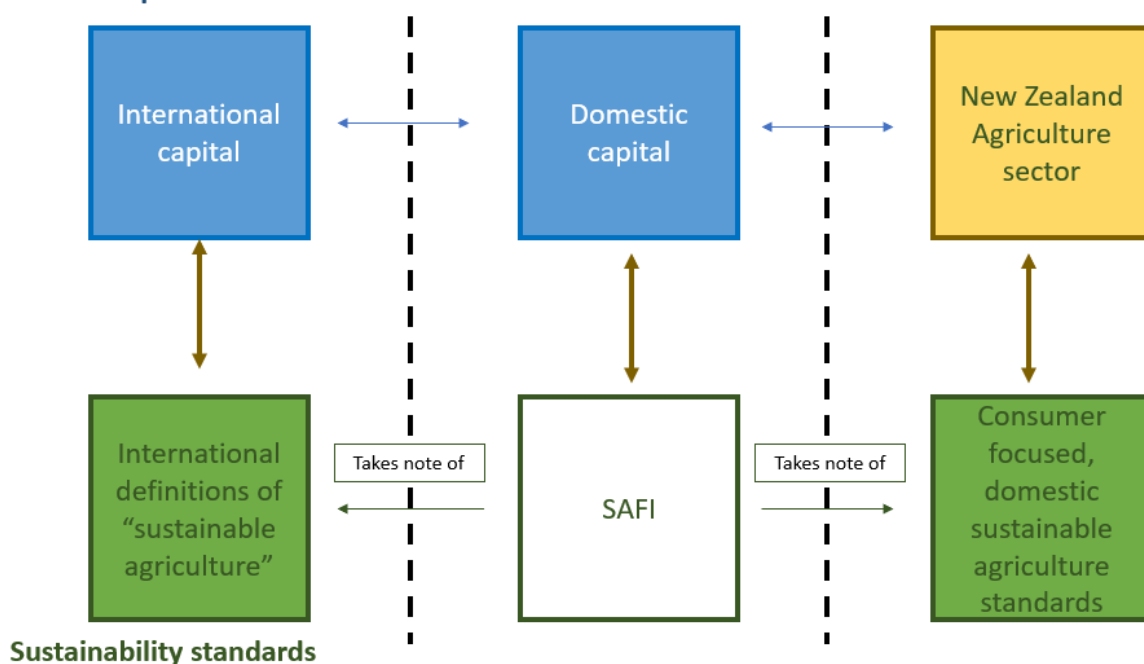
### What is SAFI?

The Sustainable Agriculture Finance Initiative (SAFI) was established to accelerate further investment and support for sustainable agriculture in Aotearoa New Zealand. The initiative is led by a Steering Group made up of the major banks in Aotearoa New Zealand – ANZ, ASB, BNZ, Westpac, and Rabobank – along with [The Aotearoa Circle](#) and the Ministry for Primary Industries, with secretariat services provided by EY.

### Phase One: Guidance

SAFI has developed guidance for sustainable agriculture finance that takes note of emerging international frameworks as well as existing good farming practice standards used by Aotearoa New Zealand growers and farmers. The SAFI guidance is a living document that is open-source and voluntary. It provides guidance on sustainable agriculture risks and opportunities and can be used to improve understanding of domestic and international best practice and different types of sustainable agriculture solutions. This includes practices to reduce emissions, improve long-term resilience and deliver more sustainable outcomes in terms of water, waste, pollution and ecosystems.

#### Flow of capital





## Drivers

The SAFI guidance is ultimately a tool for the finance sector to guide decision-making so that environmental and social factors are integrated to improve sustainability outcomes and avoid negative impacts both now and over the long-term. The SAFI guidance can be used by the finance sector to improve the flow of sustainable finance to Aotearoa New Zealand's agriculture sector.<sup>1</sup>

During the development of the SAFI guidance, the growing range of sustainable agriculture standards already used by Aotearoa New Zealand farmers and growers were taken note of, along with the emerging international frameworks for sustainable agriculture finance.

## Next Steps and Phase Two

This guidance will be reviewed by the end of 2021. In the interim, the financial sector can use the SAFI guidance to improve understanding of how sustainable finance can support investment in sustainable agriculture, both internally and with customers and may test its practical application to contribute feedback to SAFI prior to the next review. Phase Two of SAFI will provide a final guidance standard that can be used on a voluntary basis.

Toitū Tahua – the Centre for Sustainable Finance – is the home of the SAFI Guidance and responsible for its review and updating.

## Sustainability Aspects

The Sustainability Aspects currently included in the SAFI guidance are listed in the table below.

Environmental aspects	Social aspects (minimum safeguards)
Climate Change Mitigation	Labour Rights
Climate Change Adaptation	Animal Health and Welfare
Sustainable use and protection of water	Health & Safety
Circular economy, waste prevention and recycling	
Pollution prevention and control	
Healthy Ecosystems	

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<sup>1</sup> Internationally, the pace of development of green standards and labels, taxonomies of sustainable investments and corporate disclosures of environmental risks is increasing. As a result, during the development of the SAFI guidance several other sustainability standards were considered, including the EU "taxonomy", a leading classification system which establishes a list of environmentally sustainable economic activities. The EU taxonomy is supported by recent EU Regulation which sets the EU taxonomy as a key pillar of the EU's sustainable finance climate change agenda and the EU's Green Deal. The taxonomy regulation amends disclosure regulation in the EU to require financial market participants and large corporates to disclose information on how, and to what extent, their products, investments and businesses are aligned with the taxonomy. The EU Taxonomy Climate Delegated Act, under the EU Taxonomy Regulation, delivers the first set of technical criteria for defining activities that contribute substantially to climate change mitigation and adaptation. Agriculture is not included in the first Delegated Act; however, a complementary Delegated Act will be adopted later in 2021 on agriculture and until such time, the proposed text for the agriculture sector was reviewed during the development of the SAFI guidance.

## Coverage

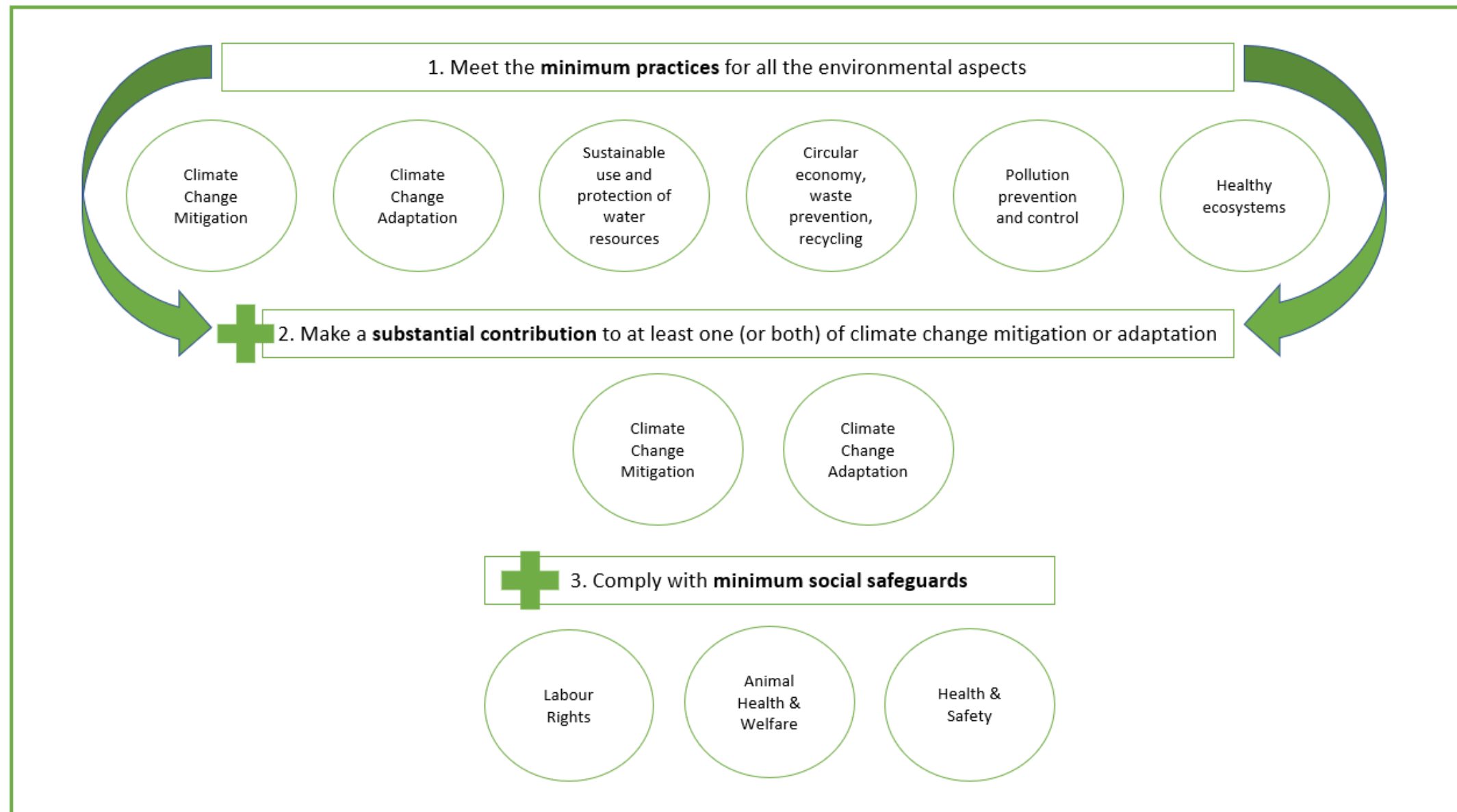
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The SAFI guidance takes note of the approach of international frameworks, including the EU Taxonomy, where a farm is required to meet the minimum practices (Do No Significant Harm – DNSH – principle) for each environmental aspect, comply with social safeguards and make a substantial contribution to at least one (or both) of climate change mitigation or adaptation.

The pathway map below, shows the key steps within the SAFI guidance.



## Step 1: Guidance on Minimum Practices (Do No Significant Harm Principle)

### Step 1: SAFI Guidance

#### 1. Climate Change Mitigation

1. Develop a Farm Environment Plan (FEP) as a living document. Use the FEP as a tool identify on-farm environmental risks and implement programmes to manage those risks.
2. Minimise land management under tillage (including on slopes) and time that soil is bare: living root maintained in the soil for as much of the year as possible in order to prevent soil erosion and carbon losses from soils, and maintain soil health and agricultural productivity.
3. Protect high carbon stock land (as applicable):
  - Permanent grassland is maintained unless converting low-producing permanent grassland to vegetation or crops;
  - Wetland and peatland appropriately protected.
  - Continuously native/diversely forested areas, namely land spanning more than one hectare, are not converted.

#### 2. Climate Change Adaptation

1. Obtain an aerial photo of the farm(s) and prepare a farm map as part of Farm Environment Plan
  2. Understand the likely future climatic and extreme events scenarios for the farm and the risks and opportunities this creates for the farm (including biophysical characteristics, farming system and infrastructure)
- The physical climate risks that are material to the activity may be identified (from those listed in the climate-related hazards table see Appendix A) by performing a robust climate risk and vulnerability assessment. The assessment should be proportionate to the scale of the activity and its expected lifespan and may consider some or all of the following the following environmental aspects:
- ability of farming systems to adapt to a changing climate;
  - impact of climate change on water quantity, water quality and water ecosystems, including water storage
  - impact on habitats and species e.g. through conversion of areas, intensification of existing pastoral land, and invasive alien species;
  - the effects of a potential reduction of shade/vegetation provision.
3. Develop a plan to implement adaptation solutions to reduce material physical climate risks to the farming activity. These adaptation solutions do not adversely affect the adaptation efforts or the level of resilience to physical climate risks of other people, of nature, of assets and of other economic activities and are consistent with local, sectoral, regional or national adaptation efforts.

#### 3. Sustainable use and protection of water

1. Develop a water use and protection plan within the Farm Environment Plan to identify and address environmental degradation risks related to preserving water quality and avoiding water stress (including indicating how irrigation and the application of nutrients and effluent will be managed and how water health is monitored).
2. Use Farm Environment Plan farm map(s) to identify waterways and wetlands that should have stock excluded (if applicable) and develop a riparian management plan to protect waterways.
3. Comply with relevant legislation, regulations and regional councils' rules and plans in relation to the use and protection of water resources, including those related to stock exclusion and environmental standards for freshwater.

#### 4. Transition to a circular economy, waste prevention and recycling

1. Non-natural waste materials generated in the course of growing of perennial or non-perennial crops, including used protected cultivation films, unused agrochemicals or fertilisers, packaging or net wraps are collected by certified waste management operator and recycled (by using agricultural plastics recycling initiatives where available) or disposed, if hazardous or otherwise not recyclable. Natural (organic) materials and other suitable wastes (which may include pesticide washings) are used for agricultural benefit.
2. Record how farm offal pits and rubbish pits (if applicable) will be managed in Farm Environment Plan.
3. Comply with relevant legislation, regulation and regional council plans and rules in relation to waste prevention and recycling.

#### 5. Pollution prevention and control

1. Ensure that nutrients (fertilisers) and plant protection products (including pesticides and herbicides) are targeted in their application (regarding time and area treated) and are delivered at appropriate levels (with preference to sustainable biological, physical or other non-chemical methods if possible) and with appropriate equipment and techniques to reduce risk and impacts of pesticide use on human health and the environment (e.g. water and air pollution) and the loss of excess nutrients.
2. Use only of plant protection products with active substances that ensure high protection of human and animal health (if applicable) and the environment. If hazardous agrichemicals in use, users complete a course or training on the use of agrichemicals.
3. Nitrogen applications are to be based on a balance between: (a) the expected nitrogen requirements of the crops; (b) the nitrogen supply to the crops from the soil and from fertilisation.
4. In zones affected by nitrogen pollution and waters which could be affected by pollution, nitrogen applications are consistent with good agricultural practice and take into account the characteristics of the vulnerable zone concerned, in particular:
  - soil conditions, soil type and slope;
  - climatic conditions, rainfall and irrigation;
  - land use and agricultural practices, including crop rotation systems.
5. Comply with relevant legislation, regulation and regional council plans and rules in relation to pollution prevention and control.

#### 6. Protection of Healthy Eco-systems

1. Ensure the protection of soils, particularly over winter, to prevent erosion and run-off into water courses/bodies and to maintain soil organic matter.
2. Farm activities do not lead to the disturbance, capture or killing of legally protected species or the deterioration of legally protected habitats.
3. Farm activities do not lead to the conversion, fragmentation or unsustainable intensification of high-nature-value land, wetlands, forests, or other areas of high-biodiversity value in New Zealand.
4. Farm activities conducted in or near biodiversity-sensitive or protected areas (of conservation importance or concern) do not lead to the deterioration of natural habitats and the habitats of species and/or disturbance of species within protected areas; or contravene existing management plans or conservation objectives. Activities conducted in such areas are carried out in accordance with the conclusions of an appropriate assessment, where applicable, and necessary mitigation measures have been implemented accordingly.
5. Where farm activities involve the cultivation of novel non-native or invasive alien species, their cultivation complies with any applicable rules regarding the risk, monitoring and safeguards.
6. Use Farm Environment Plan farm map(s) to map all land features and physical resources and identify ecosystem features that need protection such as wetlands, native planting or habitat and other areas of high biodiversity value. Include a biodiversity plan within the Farm Environment Plan which identifies opportunities to protect, restore and regenerative (native) flora and fauna species.
7. Comply with relevant legislation, regulation and regional council plans and rules in relation to biodiversity and protection of ecosystems.

## Step 2: Substantial Contribution Guidance

The substantial contribution element of the SAFI guidance involves a farmer or grower making a substantial contribution to both or at least one of climate change mitigation OR adaptation.

Option 1	Substantial contribution pathways for climate change mitigation (baseline practices plus either Pathway 1 or Pathway 2):	
	Baseline Practices for Climate Change Mitigation Substantial Contribution	
Climate Change Mitigation	<b>1. Protect non-agricultural land with high carbon stock from land use change</b>  Livestock production is not undertaken on land with high carbon stock, namely land that currently has any one the following statuses (or had such a status in the base year of 2008): <ul style="list-style-type: none"> <li>Wetlands, namely land that is covered with or saturated by water permanently or for a significant part of the year.</li> <li>Continuously native/diversely forested areas, namely land spanning more than one hectare to ensure resilience and biodiversity outcomes.</li> <li>Peatland, unless evidence is provided that the cultivation and harvesting of that raw material does not involve drainage of previously undrained soil.</li> </ul>	
	<b>2. Emissions Plan: Use a greenhouse gas module in the Farm Environment Farm to understand farm greenhouse gas emissions and sources and identify opportunities to reduce them and capture carbon.</b>  The module should set out the farm's strategy to contribute substantially to climate change mitigation by both reducing GHG emissions and strengthening land carbon sinks (or, in case of saturation, maintaining land carbon stocks). <ol style="list-style-type: none"> <li>describes the farm's biophysical environment and growing system including information on land use change;</li> <li>measures the farm's climate baseline, i.e. its average annual performance in terms of GHG emissions and carbon sequestration (using an appropriate and approved system for farm-level accounting*)</li> <li>identifies the management practices with the highest potential to contribute substantially to climate change mitigation (including opportunities to reduce GHG emissions and capture carbon) and quantifies this potential contribution.</li> <li>identifies the management practices that ensure the compliance with the minimum requirement criteria set out in Step 1, where applicable.</li> </ol> <p>*A list of tools for calculating farm emissions is provided on the He Waka Eke Noa website at <a href="https://hewakaekenoa.nz/tools">https://hewakaekenoa.nz/tools</a></p> <p>*Minimum information to record for the calculation of farm emissions includes:</p> <ul style="list-style-type: none"> <li>Livestock numbers by stock type, either using monthly values or, for simple tools, a weighted annual average</li> <li>Amount of synthetic N fertiliser applied annually.</li> </ul> <p>Additional information that can support a more detailed understanding of farm emissions and reduction opportunities includes:</p> <ul style="list-style-type: none"> <li>Farm total and effective area</li> <li>Farm topography (slope)</li> <li>Livestock class, age, number, and movements</li> <li>N fertiliser or lime applications including product type, rate and timing</li> <li>Crop residues</li> <li>Production data such as milk solids, liveweight or crop yield</li> <li>Woody vegetation planting records.</li> </ul>	
	Pathway 1: Outcome Pathway	Pathway 2: Essential Land Management Practice
	1. Reduction in GHG emissions (gCO <sub>2</sub> e) in line with the Climate Change Response (Zero Carbon) Amendment Act 2019 and prevailing government regulations.	2. To demonstrate that its activities contribute substantially to climate change mitigation and based on the information presented in the Farm Environment Plan, the farm consistently deploys all of the essential management practices (see management practices below), except those that are clearly not applicable to that farm: <ul style="list-style-type: none"> <li>Crop management (only applicable to growing of non-perennial crops)</li> <li>Soil management</li> <li>Nutrient management</li> <li>High-diversity landscape features</li> <li>Energy Use</li> </ul>
Option 2	Substantial contribution pathway for climate change adaptation	
Climate Change Adaptation	<b>1. Understand the likely future climatic and extreme events scenarios for the farm and the risks and opportunities this creates for the farm</b> (including biophysical characteristics, farming system and infrastructure) (as per minimum requirement). <ul style="list-style-type: none"> <li>The physical climate risks that are material to the activity may be identified (from those listed in the climate-related hazards table see Appendix A) by performing a robust climate risk and vulnerability assessment. The assessment should be proportionate to the scale of the activity and its expected lifespan.</li> </ul> <b>2. Assess and implement strategies to increase the farms resilience including understanding the benefits of these to the wider business.</b> <ul style="list-style-type: none"> <li>Strategies to increase climate change resilience will differ for each farm, however they will likely contain a mixture of the following approaches: Increased monitoring and awareness to identify and manage impacts; Actions to reduce specific exposure to likely impacts; Contingency planning; and/or Income diversification.</li> <li>Physical and non-physical solutions ('adaptation solutions') should be implemented - to the extent possible and on a best effort basis - to reduce the most important physical climate risks that are material to the farm.</li> </ul> <b>3. Monitor and adapt adaptation approach over time.</b>  The adaptation solutions implemented on the farm should: <ol style="list-style-type: none"> <li>not adversely affect the adaptation efforts or the level of resilience to physical climate risks of other people, of nature, of assets and of other economic activities;</li> <li>favour nature-based solutions or rely on blue or green infrastructure to the extent possible;</li> </ol>	



- c) be consistent with local, sectoral, regional or national adaptation efforts;  
d) be monitored and measured.

## Step 3: Social Aspects – Guidance on Minimum Safeguards

Social Aspects	SAFI Guidance
Labour Rights	1. Comply with Aotearoa New Zealand legislation regarding human rights, health and safety, employment relations, immigration and holidays.
Animal Health and Welfare (if applicable)	<ol style="list-style-type: none"> <li>1. Comply with the Animal Welfare Act 1999 and relevant animal welfare codes and regulations issued under the Animal Welfare Act, including providing for the physical health and behavioural needs of animals in your care and care for animals under the five freedoms ((aa) proper and sufficient food: (ab) proper and sufficient water: (b) adequate shelter: (c) opportunity to display normal patterns of behaviour:(d) physical handling in a manner which minimises the likelihood of unreasonable or unnecessary pain or distress: (e) protection from, and rapid diagnosis of, any significant injury or disease.)</li> <li>2. Use an animal health plan, reviewed annually in consultation with a qualified veterinarian, to better plan and manage animal health.</li> <li>3. Ensure that all animals have access to adequate shade and shelter.</li> <li>4. Farm staff receive sufficient training to implement animal health policies and care for animals.</li> </ol> <p>Access codes of welfare at <a href="http://www.mpi.govt.nz/welfarecodes">www.mpi.govt.nz/welfarecodes</a></p>
Health & Safety	<ol style="list-style-type: none"> <li>1. Comply with all relevant Health and Safety legislation and regulation.</li> <li>2. Have a health and safety plan which identifies hazards, risks and controls.</li> <li>3. Develop and implement a framework for health and safety competencies (such as licenses and training, including certification from a course or training on the use of agrichemicals if hazardous agrichemicals in use).</li> <li>4. Develop a workplace inspection programme to confirm key controls in place.</li> </ol>

## \*Climate Mitigation - Substantial Contribution Pathway 2: Management Practices

Management Category	SAFI Guidance
Crop management (only applicable to growing of non-perennial crops)	<ol style="list-style-type: none"> <li>1. The farm puts in place on arable land an appropriate crop rotation system (for up to five crops including at least one legume or a green manure), taking into account the agronomic crop succession requirements specific to each crops grown and climatic conditions, in order to break weed and disease cycles, build up soil fertility and soil organic matter, reduce external input uses (including pesticides, chemical fertilisers) and associated N<sub>2</sub>O emissions and to increase soil carbon sequestration.</li> <li>2. Cover and catch crops are sown using a locally appropriate species mixture. The living plant coverage of the farm is targeted at 75% (at least) and bare soil is avoided.</li> </ol>
Soil management	<ol style="list-style-type: none"> <li>1. The Farm Environment Plan describes practices deployed in perennial and non-perennial crop production aiming to avoid soil compaction, water logging, soil erosion and loss of soil organic matter.</li> <li>2. The following practices are not used: <ol style="list-style-type: none"> <li>a) practices that disturb organic soils;</li> <li>b) artificially lowering water tables on organic soils;</li> <li>c) mechanical weeding with inversion tillage between rows;</li> <li>d) burning of crop residues, except where an exemption has been granted for plant health reasons.</li> </ol> </li> <li>3. Good soil management practices are in place, including some or all of the following (as applicable): <ol style="list-style-type: none"> <li>a) practices avoiding or minimising compaction from the use of heavy machinery</li> <li>b) weeding techniques to conserve moisture and reduce soil disturbance to minimum, which may include mowing of plant cover between the rows</li> <li>c) establishing inter-row or between row soil coverage, which may include mulching, grass cover, growing of green manure crops, taking into account local climatic conditions, in order to improve soil moisture and fertility.</li> <li>d) practices aimed at minimising soil erosion, which may include selection of appropriate crop and crop rotation, increased surface coverage (cover crops, catch crops, mulching), strip cropping, contour planting, intercropping, riparian buffers, tillage (reduced tillage, no-tillage), terraces, grassed waterways, vegetated buffer strips, windbreaks;</li> <li>e) practices aiming to increase soil organic matter, which may include managing crop residues, increase organic inputs (applying animal manure, using composts, mulches, cover crops, green manure, digestate from anaerobic digestion plants);</li> <li>f) management practices protecting peatlands from nutrient leaching and decline in organic matter, which may include decreasing water losses, increasing water supply, enlarging water storage with hollows, active water management, paludiculture on wet/rewetted peatlands;</li> <li>g) limiting tillage operations with preference to minimum or non-inversion tillage.</li> </ol> </li> </ol> <p>Note: Organic Soils are formed in the partly decomposed remains of wetland plants (peat) or forest litter. Some mineral material may be present, but the soil is dominated by organic matter (Manaaki Whenua - Landcare Research).</p>
Nutrient management	<ol style="list-style-type: none"> <li>1. The Farm Environment Plan describes practices performed in perennial and non-perennial crop production aiming at minimising emissions and leaching of excess nutrients to surface and groundwater bodies and nutrient losses to air.</li> <li>2. Good nutrient management practices are in place to significantly reduce nutrient losses and the use of fertilisers. Relevant practices in this category may include some or all of the following (as applicable): <ol style="list-style-type: none"> <li>a) implementing a crop fertilisation management plan (which may be established with the help of guidelines and software) aiming to improve nutrient use efficiency and minimise nutrient surpluses at plantation/orchards level. The crop fertilisation management plan is based on: <ol style="list-style-type: none"> <li>(i) systematic and periodic soil testing to determine, maintain and restore optimum pH range and appropriate nutrient levels in soil, in particular at times prior to establishing new plantation/orchards;</li> <li>(ii) regular assessment of the balance of nutrient supply through plant parts and leaves diagnostics;</li> </ol> </li> <li>b) fertilisation management aims at providing the necessary macro-nutrient and essential micronutrients efficiently throughout the growing seasons in accordance with the crop consumption, taking into consideration the species and varieties, expected yield and performed soil/leaf analysis as appropriate;</li> <li>c) application of appropriate fertilisation techniques, which avoids leaching of nutrients, which may include irrigation by drip, micro sprinklers, or micro-jets, enabling fertilisation that delivers the nutrient directly to the rooting system;</li> <li>d) maintaining grass cover or green cover/manure in row spacing in order to improve soil organic matter;</li> <li>e) in medium- and high-input farms, low-emission nutrient storage and application technologies, which may include cooling of liquid manure, covering manure stores, or slurry acidification, slurry injection, band spreading, incorporating manure in the soil as soon as possible on the day of application to field, fertiliser spreaders with low coefficient of variation, injection.</li> </ol> </li> </ol>
High-diversity landscape features	<ol style="list-style-type: none"> <li>1. The farm covers a proportion of agriculture area with, or converts low productivity land (e.g. along field edges and riparian margins) into, high diversity landscape features (including native vegetation where possible) or with non-productive landscape features to protect against soil erosion and contribute to carbon sequestration.</li> </ol>

Energy Use	1. The Farm Environment Plan describes how the farm has optimised its energy mix by applying the 'energy efficiency first' principle and energy savings strategies implemented.  Note: Energy efficiency first means considering the potential value of investing in efficiency in all decisions about energy use.
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## Appendix A: Example Classification of Climate-related Risks for Physical Risk Assessments

Climate Related Hazards	Temperature-related	Wind-related	Water-related	Solid mass-related
Chronic	Changing temperature (air, freshwater, marine water)	Changing wind patterns	Changing precipitation patterns and types (rain, hail, snow/ice)	Coastal erosion
	Heat stress		Precipitation or hydrological variability	Soil degradation
	Temperature variability		Ocean acidification	Soil erosion
	Permafrost thawing		Saline intrusion	Solifluction (the gradual movement of wet soil or other material down a slope)
			Sea level rise	
			Water stress	
Acute	Heat wave	Cyclone, hurricane, typhoon	Drought	Avalanche
	Cold wave/frost	Storm (including blizzards, dust and sandstorms)	Heavy precipitation (rain, hail, snow/ice)	Landslide
	Wildfire	Tornado	Flood (coastal, fluvial, pluvial, ground water)	Subsidence
			Glacial lake outburst	



# Sustainable Agriculture Finance Initiative (SAFI)

## Phase One Guidance for Sustainable Agriculture Finance for Livestock

*(June 2021)*

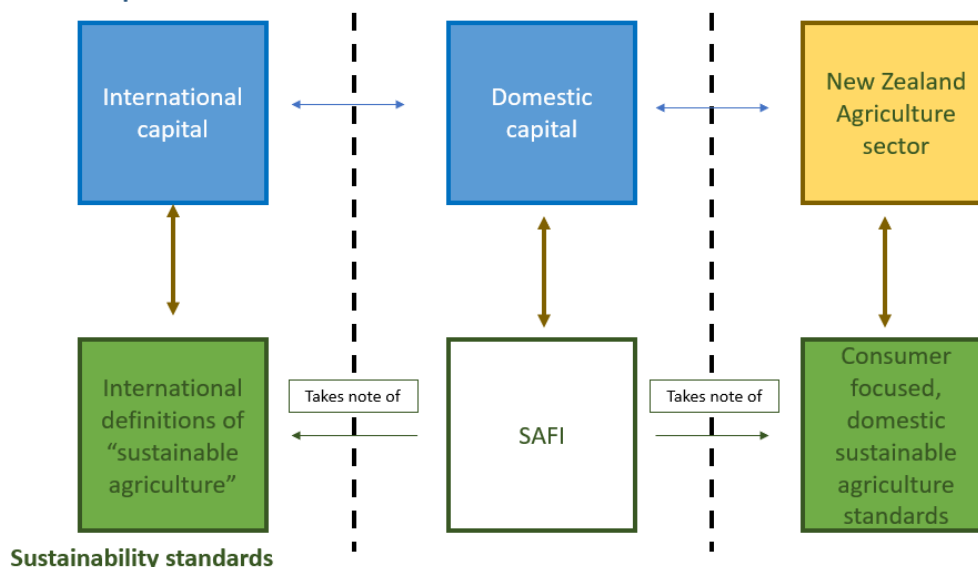
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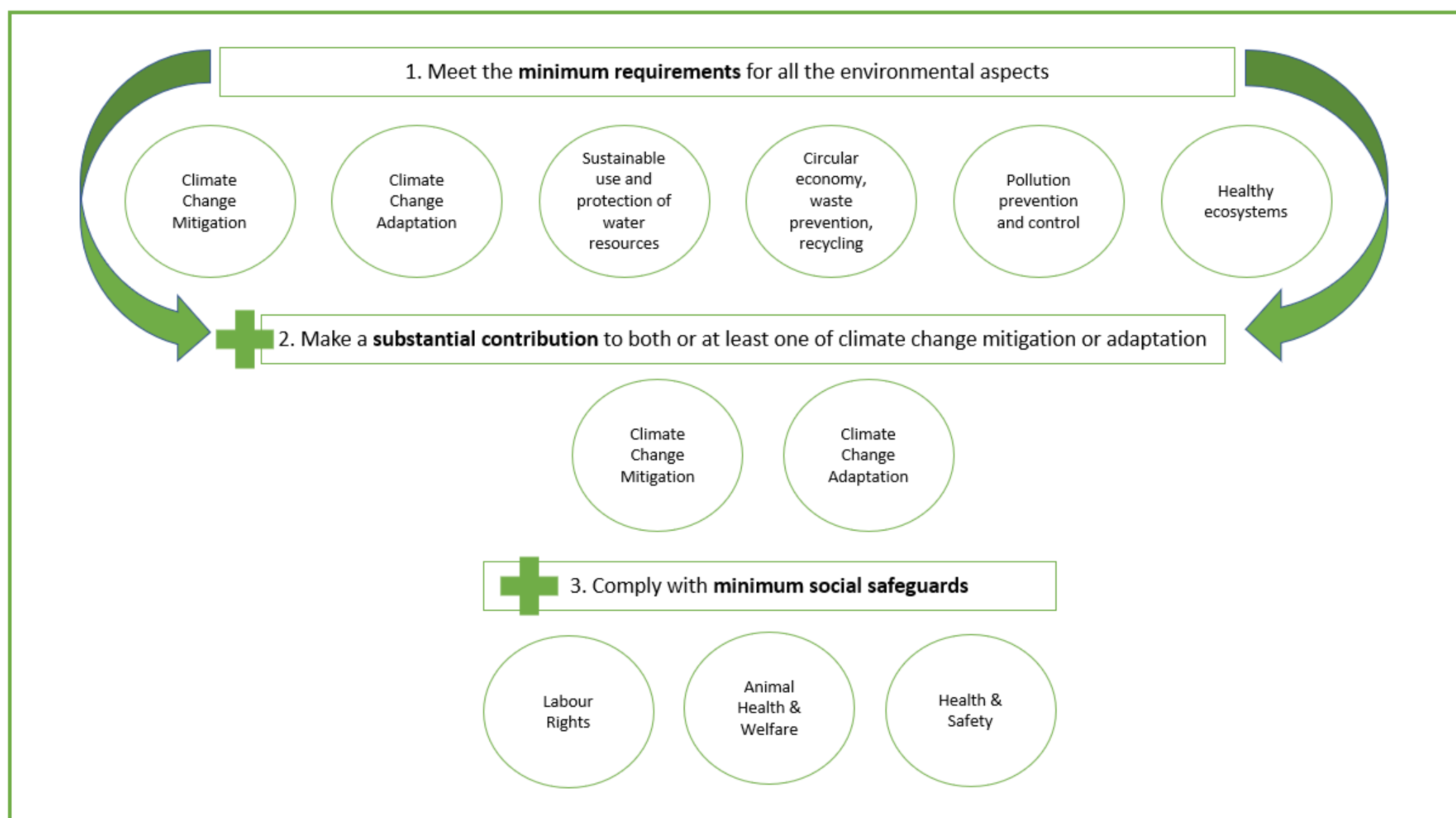
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<div>1. Obtain an aerial photo of the farm(s) and prepare a farm map as part of Farm Environment Plan</div> <div>2. Understand the likely future climatic and extreme events scenarios for the farm and the risks and opportunities this creates for the farm (including biophysical characteristics, farming system and infrastructure)</div> <div>The physical climate risks that are material to the activity may be identified (from those listed in the climate-related hazards table see Appendix A) by performing a robust climate risk and vulnerability assessment. The assessment should be proportionate to the scale of the activity and its expected lifespan and may consider some or all of the following the following environmental aspects:<div><div>▶ ability of farming systems to adapt to a changing climate;</div><div>▶ impact of climate change on water quantity, water quality and water ecosystems, including water storage</div><div>▶ impact on habitats and species e.g. through conversion of areas, intensification of existing pastoral land, and invasive alien species;</div><div>▶ the effects of a potential reduction of shade/vegetation provision.</div></div></div> <div>3. Develop a plan to implement adaptation solutions to reduce material physical climate risks to the farming activity. These adaptation solutions do not adversely affect the adaptation efforts or the level of resilience to physical climate risks of other people, of nature, of assets and of other economic activities and are consistent with local, sectoral, regional or national adaptation efforts.</div>
3. Sustainable use and protection of water
<div>1. Develop a water use and protection plan within the Farm Environment Plan to identify and address environmental degradation risks related to preserving water quality and avoiding water stress (including indicating how irrigation and the application of nutrients and effluent will be managed and how water health is monitored).</div> <div>2. Use Farm Environment Plan farm map(s) to identify waterways and wetlands that should have stock excluded and develop a riparian management plan to protect waterways.</div> <div>3. Comply with relevant legislation, regulations and regional councils' rules and plans in relation to the use and protection of water resources, including those related to stock exclusion and environmental standards for freshwater.</div>
4. Transition to a circular economy, waste prevention and recycling
<div>1. Non-natural waste materials generated in the course of livestock farming, including used protected cultivation films, unused agrochemicals or fertilisers, packaging or net wraps are collected by certified waste management operator and recycled (by using agricultural plastics recycling initiatives where available) or disposed, if hazardous or otherwise not recyclable. Natural (organic) materials and other suitable wastes (which may include pesticide washings) are used for agricultural benefit.</div> <div>2. Record how farm offal pits and rubbish pits (if applicable) will be managed in Farm Environment Plan.</div> <div>3. Comply with relevant legislation, regulation and regional council plans and rules in relation to waste prevention and recycling.</div>
5. Pollution prevention and control
<div>1. Ensure that nutrients (fertilisers) and plant protection products (including pesticides and herbicides) are targeted in their application (regarding time and area treated) and are delivered at appropriate levels (with preference to sustainable biological, physical or other non-chemical methods if possible) and with appropriate equipment and techniques to reduce risk and impacts of pesticide use on human health and the environment (e.g. water and air pollution) and the loss of excess nutrients.</div> <div>2. Use only of plant protection products with active substances that ensure high protection of human and animal health and the environment. If hazardous agrichemicals in use, users complete a course or training on the use of agrichemicals.</div> <div>3. Nitrogen applications are to be based on a balance between: (a) the expected nitrogen requirements of the crops; (b) the nitrogen supply to the crops from the soil and from fertilisation.</div> <div>4. In zones affected by nitrogen pollution and waters which could be affected by pollution, nitrogen applications are consistent with good agricultural practice and take into account the characteristics of the vulnerable zone concerned, in particular:<div><div>▶ soil conditions, soil type and slope;</div><div>▶ climatic conditions, rainfall and irrigation;</div><div>▶ land use and agricultural practices, including crop rotation systems.</div></div></div> <div>5. Comply with relevant legislation, regulation and regional council plans and rules in relation to pollution prevention and control.</div>
6. Protection of Healthy Eco-systems
<div>1. Ensure the protection of soils, particularly over winter, to prevent erosion and run-off into water courses/bodies and to maintain soil organic matter.</div> <div>2. Farm activities do not lead to the disturbance, capture or killing of legally protected species or the deterioration of legally protected habitats.</div> <div>3. Farm activities do not lead to the conversion, fragmentation or unsustainable intensification of high-nature-value land, wetlands, forests, or other areas of high-biodiversity value in New Zealand.</div> <div>4. Farm activities conducted in or near biodiversity-sensitive or protected areas (of conservation importance or concern) do not lead to the deterioration of natural habitats and the habitats of species and/or disturbance of species within protected areas; or contravene existing management plans or conservation objectives. Activities conducted in such areas are carried out in accordance with the conclusions of an appropriate assessment, where applicable, and necessary mitigation measures have been implemented accordingly.</div> <div>5. Where farm activities involve the cultivation of novel non-native or invasive alien species, their cultivation complies with any applicable rules regarding the risk, monitoring and safeguards.</div> <div>6. Use Farm Environment Plan farm map(s) to map all land features and physical resources and identify ecosystem features that need protection such as wetlands, native planting or habitat and other areas of high biodiversity value. Include a biodiversity plan within the Farm Environment Plan which identifies opportunities to protect, restore and regenerative (native) flora and fauna species.</div> <div>7. Comply with relevant legislation, regulation and regional council plans and rules in relation to biodiversity and protection of ecosystems.</div>

## Step 2: Substantial Contribution Guidance

The substantial contribution element of the SAFI guidance involves a farmer or grower making a substantial contribution to both or at least one of climate change mitigation OR adaptation.

Option 1	Substantial contribution pathways for climate change mitigation (baseline practices plus either Pathway 1 or Pathway 2):	
	Baseline Practices for Climate Change Mitigation Substantial Contribution	
Climate Change Mitigation	<p><b>1. Protect non-agricultural land with high carbon stock from land use change</b></p> <p>Perennial and non-perennial crops are not grown on land with high carbon stock, namely land that currently has any one the following statuses (or had such a status in the base year of 2008):</p> <ul style="list-style-type: none"> <li>Wetlands, namely land that is covered with or saturated by water permanently or for a significant part of the year.</li> <li>Continuously native/diversely forested areas, namely land spanning more than one hectare to ensure resilience and biodiversity outcomes.</li> <li>Peatland, unless evidence is provided that the cultivation and harvesting of that raw material does not involve drainage of previously undrained soil.</li> </ul> <p><b>2. Emissions Plan: Use a greenhouse gas module in the Farm Environment Farm to understand farm greenhouse gas emissions and sources and identify opportunities to reduce them and capture carbon.</b></p> <p>The module should set out the farm’s strategy to contribute substantially to climate change mitigation by both reducing GHG emissions and strengthening land carbon sinks (or, in case of saturation, maintaining land carbon stocks).</p> <ol style="list-style-type: none"> <li>describes the farm’s biophysical environment and growing system including information on land use change;</li> <li>measures the farm’s climate baseline, i.e. its average annual performance in terms of GHG emissions and carbon sequestration (using an appropriate and approved system for farm-level accounting*)</li> <li>identifies the management practices with the highest potential to contribute substantially to climate change mitigation (including opportunities to reduce GHG emissions and capture carbon) and quantifies this potential contribution.</li> <li>identifies the management practices that ensure the compliance with the minimum requirement criteria set out in Step 1, where applicable.</li> </ol> <p>*A list of tools for calculating farm emissions is provided on the He Waka Eke Noa website at <a href="https://hewakaekenoa.nz/tools">https://hewakaekenoa.nz/tools</a></p> <p>*Minimum information to record for the calculation of farm emissions includes:</p> <ul style="list-style-type: none"> <li>Livestock numbers by stock type, either using monthly values or, for simple tools, a weighted annual average</li> <li>Amount of synthetic N fertiliser applied annually.</li> </ul> <p>Additional information that can support a more detailed understanding of farm emissions and reduction opportunities includes:</p> <ul style="list-style-type: none"> <li>Farm total and effective area</li> <li>Farm topography (slope)</li> <li>Livestock class, age, number, and movements</li> <li>N fertiliser or lime applications including product type, rate and timing</li> <li>Crop residues</li> <li>Production data such as milk solids, liveweight or crop yield</li> <li>Woody vegetation planting records.</li> </ul> <p><b>3. Emissions Records: Keep records, monitor and review</b></p> <p>The farm keeps a yearly record of its climate performance, including:</p> <ol style="list-style-type: none"> <li>information on the deployment of management practices;</li> <li>information on GHG emissions and removals, that:</li> <li>is based on best available data.</li> </ol>	
	Pathway 1: Outcome Pathway	Pathway 2: Essential Land Management Practice
	<p>1. Reduction in GHG emissions (gCO2e) in line with the Climate Change Response (Zero Carbon) Amendment Act 2019 and prevailing government regulations.</p>	<p>1. To demonstrate that its activities contribute substantially to climate change mitigation and based on the information presented in the Farm Plan, the farm consistently deploys all of the essential management practices (see management practices below), except those that are clearly not applicable to that farm:</p> <ul style="list-style-type: none"> <li>Animal Husbandry: Herd Management</li> <li>Animal Husbandry: Animal Feeding</li> <li>Effluent Management</li> <li>Soil Management</li> <li>Energy Use</li> </ul>
Option 2	Substantial contribution pathway for climate change adaptation	
Climate Change Adaptation	<p><b>1. Understand the likely future climatic and extreme events scenarios for the farm and the risks and opportunities this creates for the farm</b> (including biophysical characteristics, farming system and infrastructure) (as per minimum requirement).</p> <ul style="list-style-type: none"> <li>The physical climate risks that are material to the activity may be identified (from those listed in the climate-related hazards table see Appendix A) by performing a robust climate risk and vulnerability assessment. The assessment should be proportionate to the scale of the activity and its expected lifespan.</li> </ul> <p><b>2. Assess and implement strategies to increase the farms resilience including understanding the benefits of these to the wider business.</b></p> <ul style="list-style-type: none"> <li>Strategies to increase climate change resilience will differ for each farm, however they will likely contain a mixture of the following approaches: Increased monitoring and awareness to identify and manage impacts; Actions to reduce specific exposure to likely impacts; Contingency planning; and/or Income diversification.</li> <li>Physical and non-physical solutions (‘adaptation solutions’) should be implemented - to the extent possible and on a best effort basis - to reduce the most important physical climate risks that are material to the farm.</li> </ul> <p><b>3. Monitor and adapt adaptation approach over time.</b></p> <p>The adaptation solutions implemented on the farm should:</p> <ol style="list-style-type: none"> <li>not adversely affect the adaptation efforts or the level of resilience to physical climate risks of other people, of nature, of assets and of other economic activities;</li> <li>favour nature-based solutions or rely on blue or green infrastructure to the extent possible;</li> <li>be consistent with local, sectoral, regional or national adaptation efforts;</li> <li>be monitored and measured.</li> </ol>	

## Step 3: Social Aspects - Guidance on Minimum Safeguards

Social Aspects	SAFI Guidance
Labour Rights	<ol style="list-style-type: none"> <li>Comply with Aotearoa New Zealand legislation regarding human rights, health and safety, employment relations, immigration and holidays.</li> </ol>
Animal Health and Welfare	<ol style="list-style-type: none"> <li>Comply with the Animal Welfare Act 1999 and relevant animal welfare codes and regulations issued under the Animal Welfare Act, including providing for the physical health and behavioural needs of animals in your care and care for animals under the five freedoms ((aa) proper and sufficient food: (ab) proper and sufficient water: (b) adequate shelter: (c) opportunity to display normal patterns of behaviour:(d) physical handling in a manner which minimises the likelihood of unreasonable or unnecessary pain or distress: (e) protection from, and rapid diagnosis of, any significant injury or disease.)</li> <li>Use an animal health plan, reviewed annually in consultation with a qualified veterinarian, to better plan and manage animal health.</li> <li>Ensure that all animals have access to adequate natural shade and shelter at all times of the year, regardless of where they are, e.g. on winter grazing blocks. Where shade and shelter cannot be provided, a long-term investment plan is in place to improve this.</li> <li>Farm staff receive sufficient training to implement animal health policies and care for animals.</li> </ol> <p>Access codes of welfare at <a href="http://www.mpi.govt.nz/welfarecodes">www.mpi.govt.nz/welfarecodes</a></p>
Health & Safety	<ol style="list-style-type: none"> <li>Comply with all relevant Health and Safety legislation and regulation.</li> <li>Have a health and safety plan which identifies hazards, risks and controls.</li> <li>Develop and implement a framework for health and safety competencies (such as licenses and training, including certification from a course or training on the use of agrichemicals if hazardous agrichemicals in use).</li> <li>Develop a workplace inspection programme to confirm key controls in place.</li> </ol>

## \*Climate Mitigation - Substantial Contribution Pathway 2: Management Practices

Management Category	SAFI Guidance
Animal Husbandry: Herd Management	<ol style="list-style-type: none"> <li>The Farm Environment Plan describes practices that can reduce the GHG emission footprint of the farm via more efficient herd management.</li> <li>Good herd management practices are used, including some or all of the following (as applicable): <ol style="list-style-type: none"> <li>breed selection adapted to the local conditions and according to the farm type, which may include selection of locally adapted and traditional breeds and strains, more resource-efficient breeds with higher yields with lower GHG intensities;</li> <li>animal health management plan developed with veterinary input is in place to maintain animal health, reduce the incidence of injury and illness, and minimise stock morbidity and mortality;</li> <li>practices optimising herd/flock profile management in order to mitigate methane emissions from enteric fermentation and optimise resource efficiency by increasing productivity, including optimising culling age, increasing longevity of animals by improving animal health, optimising fertility rate where high fertility rates contribute to lower GHG emissions.</li> <li>planning for action that could be taken for animal protection in the case of an adverse event.</li> </ol> </li> </ol>
Animal Husbandry: Animal feeding	<ol style="list-style-type: none"> <li>The Farm Environment Plan describes the practices that can reduce the nitrogen load and associated GHG emissions to the environment through feeding regimes and techniques.</li> <li>Good feeding practices are used, including some or all of the following (as applicable): <ol style="list-style-type: none"> <li>practices that reduce GHG emission through dietary reduction of nitrogen excretion, which may include using high-sugar grasses or maize silage for ruminants, applying phase feeding, using low-protein feeds, such as low-dry-matter alfalfa silage, multiphase feeding with a diet formulation adapted to the specific requirements of the production period, reducing the crude protein content by using a N-balanced diet based on the energy needs and digestible amino acids;</li> <li>dietary practices that reduce methane emissions from enteric fermentation of ruminants, which may include increasing forage digestibility and digestible forage intake; use of authorised feed additives, which reduces methane emissions from enteric fermentation;</li> <li>sustainable procurement of feed - when purchasing feeds with large potential upstream impacts, including indirect land use change, for instance, soya and palm oil based feeds, selecting feeds that are sustainably sourced and certified by a recognised body as being from areas not recently converted from natural habitats.</li> </ol> </li> </ol>
Effluent management	<ol style="list-style-type: none"> <li>The Farm Environment Plan describes the installations and practices performed in livestock production aiming at minimising ammonia (NH3) and methane emissions and leaching of nitrates from livestock manure handling, storage and spreading.</li> <li>Good effluent management practices are used, including some or all of the following (as applicable): <ol style="list-style-type: none"> <li>anaerobic digestion - treat slurries and manures in an on-farm anaerobic digestion system or at an adjacent anaerobic digestion plant to produce biogas that can be captured and used to generate heat and electricity or upgraded to biomethane, displacing fossil fuels; treatment of farm manure off-site in industrial installations;</li> <li>treatment of slurries and manures in an on-farm facility, which may include separation of the on-farm generated slurries or the digestate from on-farm anaerobic digestion into solid and liquid fractions prior to storage and application to agricultural land and use of manure additives reducing the gaseous emissions;</li> <li>appropriate slurry processing and storage systems for slurry or digestate, which may include appropriate slurry storage systems reducing emissions from surface by reducing the surface area/volume ratio, cooling of slurry, minimising stirring of slurry, applying slurry acidification, adequate slurry storage capacity;</li> <li>appropriate solid manure handling and storage to reduce emissions and run-offs, which may include minimising the emitting surface area of manure heap, coverage of manure heap or manure store located away from watercourses, manure heap temporarily stored on paddock prior to spreading are located away from watercourses and the storage site varies from year to year, collection of any potential run-off and diverting into either an on-site liquid slurry system or back into the manure heap;</li> <li>application techniques to reduce ammonia emissions when slurry and solid manure are applied to agricultural soils, which may include injection of slurry below the soil surface, incorporating solid manure into arable soils as soon as possible on the same day of application to paddock, banded spreading on grasslands reducing overall surface spreading;</li> <li>nutrient management practices to reduce significantly nutrient losses and the use of fertilisers. Relevant practices in this category are those that improve nutrient use efficiency and ensure balanced nitrogen fertilisation, such as by using fertilisation plans for the growing season, nitrification inhibitors, enhancing nutrient retention in soils, appropriate timing, spreading rate and care for buffer zones in case of land application and by using variable rate technology and precision farming.</li> </ol> </li> </ol>
Soil management	<ol style="list-style-type: none"> <li>The Farm Environment Plan describes practices that preserve grasslands (either grazed or mowed for hay/silage) jointly managed with livestock production, and avoid soil compaction, water logging, soil erosion and loss of soil organic matter.</li> <li>The following practices are not used: <ol style="list-style-type: none"> <li>practices that disturb organic soils;</li> <li>artificially lowering water tables on organic soils.</li> </ol> </li> <li>Good soil management practices are used, including some or all of the following (as applicable): <ol style="list-style-type: none"> <li>practices that avoid or minimise compaction from the use of heavy machinery;</li> <li>limiting tillage operations with preference to minimum or non-inversion tillage;</li> <li>adjusting stocking density to soil conditions to avoid compaction on wet soils;</li> <li>grassland management practices that make the best possible use of grass areas used for grazing by livestock farms by optimising pasture growth rate and pasture quality as well as its utilisation by livestock, except in extensive grazing systems, while ensuring that average grass cover rates are achieved at critical times of the year, which may include optimum grazing times based on local circumstances and grass height monitoring, implementing rotational and strip grazing, pasture renovation to improve quality.</li> </ol> <p>Note: Organic Soils are formed in the partly decomposed remains of wetland plants (peat) or forest litter. Some mineral material may be present but the soil is dominated by organic matter (Manaaki Whenua - Landcare Research).</p> </li> </ol>
Energy use	<ol style="list-style-type: none"> <li>The Farm Environment Plan describes how the farm has optimised its energy mix by applying the 'energy efficiency first' principle and energy savings strategies implemented.</li> </ol> <p>Note: Energy efficiency first means considering the potential value of investing in efficiency in all decisions about energy use.</p>



# Appendix A: Example Classification of Climate-related Risks for Physical Risk Assessments

Climate Related Hazards	Temperature-related	Wind-related	Water-related	Solid mass-related
Chronic	Changing temperature (air, freshwater, marine water)	Changing wind patterns	Changing precipitation patterns and types (rain, hail, snow/ice)	Coastal erosion
	Heat stress		Precipitation or hydrological variability	Soil degradation
	Temperature variability		Ocean acidification	Soil erosion
	Permafrost thawing		Saline intrusion	Solifluction (the gradual movement of wet soil or other material down a slope)
			Sea level rise	
			Water stress	
Acute	Heat wave	Cyclone, hurricane, typhoon	Drought	Avalanche
	Cold wave/frost	Storm (including blizzards, dust and sandstorms)	Heavy precipitation (rain, hail, snow/ice)	Landslide
	Wildfire	Tornado	Flood (coastal, fluvial, pluvial, ground water)	Subsidence
			Glacial lake outburst	