

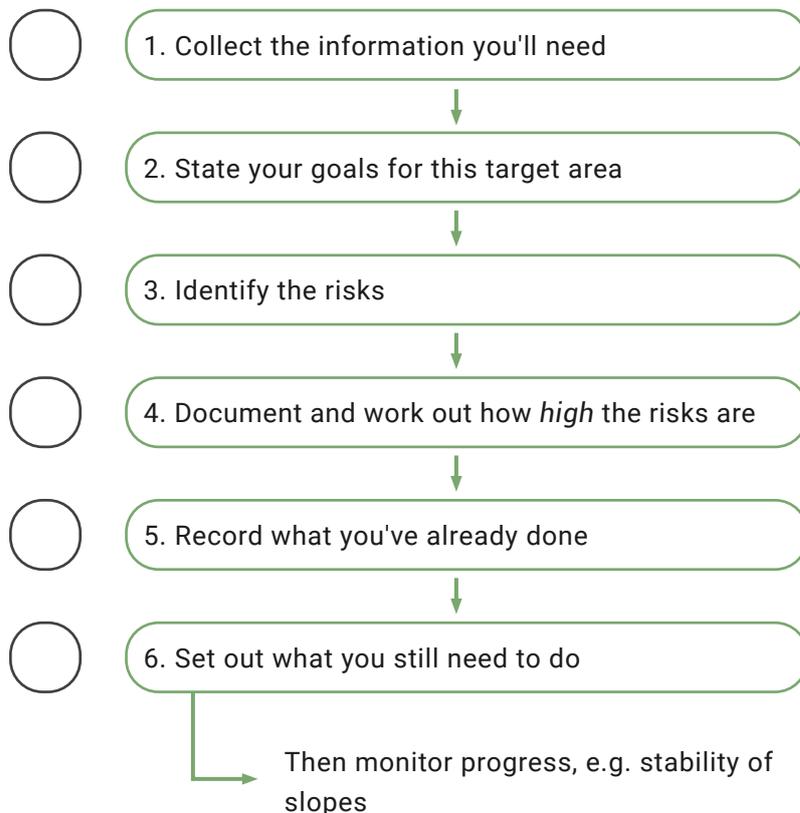
ACTION PLAN: PREVENTING SOIL EROSION WITH TREE PLANTING



01 What information will I need?

- Farm map and risk assessment
- Farm soil map to identify vulnerable soil types
- Local council rules on tree planting/forestry
- Deer Industry Environmental Management Code of Practice p27 for planning soil conservation

Tick these off as you go



There's a template to fill these in at the end of the document



02 Goals

Start by setting simple overall goals on soil erosion. **Here are some examples:**

My goals for preventing erosion with tree planting are:

1. I want to stabilise soils in my steeper erosion-prone paddocks

2. I want to plant more trees and earn carbon credits

3. I want to provide deer with better shade and shelter.



Go to the template at the end of this document to fill in your goals and the other parts of your Action Plan.





03 What are the risks from erosion?

As well as contaminating waterways with sediment and phosphorus, erosion is a waste of your precious topsoil. Areas such as the Gisborne region and West Coast are especially erosion prone but it is a risk in all regions and all on land classes.



DID YOU KNOW...

The costs of erosion
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- Total losses associated with soil erosion/landslides cost NZ \$250–\$300m/year.
- Agricultural production loss through soil erosion costs an estimated \$57m/year.
- NZ loses 84 million tonnes of soils into waterways each year from pasturelands.



- When topsoil is lost through erosion, soil is degraded, pasture productivity drops and more fertiliser is needed to supply nutrients.
- There are big “downstream” costs from soil loss, e.g. to aquatic environments.

Benefits of erosion control
.....

Taking steps to minimise soil loss through erosion and retain topsoil will:

- directly save you money through better pasture productivity
- reduce costs from repairing erosion damage, clearing out waterways etc
- improve natural habitats on your farm – terrestrial and aquatic – by stopping sediment from getting into waterways.

Benefits of erosion control cont.

Soil conservation work through tree planting:

- could qualify for carbon credits if criteria are met (see page 7).



Established Lombardy poplar plantings on this steep Hawke's Bay property have stabilised slopes and protected soils, also creating a great environment for deer.

- prevents soil loss
- provides shade, shelter (and perhaps fodder) for deer
- suits the natural preference of deer for dwelling in forest margins
- promotes biodiversity



04 How high are the risks from erosion?

Record the risks from soil erosion. **We've started with examples below.** Tailor this to your situation using the template at the end. See the "Risk Assessment" module for how to assess level of risk:

| Activity/location examples | Risk assessment | Comment (<i>make a note of anything specific to your place</i>) |
|--|-----------------|--|
| <i>Slumping and sediment loss on grazed Class 6 land</i> | ○ ● ○ | <i>Stocking rates are an issue</i> |
| <i>Heavy soils over papa on slopes</i> | ○ ○ ● | <i>Planting poplars to stabilise; council provides poles</i> |
| <i>Tunnel gully erosion (holes forming up the hill)</i> | ● ○ ○ | <i>Occurring on several steep slopes on the property and easily lose fawns in them</i> |



05 Actions to protect against soil erosion

Write down (a) what you've already done to protect your soils against erosion and then (b) what you have got planned. Link these back to your goals and risk assessment (above). Include timing and who's responsible. **Here are some examples.** Record your own completed actions and planned actions in the template at the end.

| Goal | Risk identified | Risk level | Action | Measure and monitor | Date initiated | Who |
|---|--|------------|---|--|----------------|-------------------------------------|
| Use trees to stabilise and protect erosion-prone slopes | Large-scale soil erosion through slipping and slumping | | Plant poplar or willow poles to stabilise at-risk areas | GPS located points where 150 poles planted per year | 2013 | Me, farm staff, council, adviser |
| Use trees to stabilise and protect erosion-prone slopes | Large-scale soil erosion on Class 7/8 land | | Retire high-risk areas (LUC class 8 and class 7e) and do conservation planting | Visual inspection: High-risk areas planted in pines or native trees | 2010 | Me, farm staff, adviser, contractor |
| Use strong, healthy pastures to protect soils | Sheet erosion off lower slopes in high rainfall | | Maintain high pasture covers and low stocking pressure in at-risk areas | Stocking rates and feed budgeting | 2019 | Me, farm staff |
| Reduce gully erosion spreading further | Tunnels forming on steeper hills | | Plant out those paddocks in trees or investigate willow or poplar planting in the gully at risk | Map and photo erosion and take photos and keep invoices of trees planted | 2023 | Me and contractor |



HANDY HINTS

Protecting new trees
.....

Protecting new tree plantings from deer is challenging. Steel reinforcing mesh secured with a waratah, or hurricane netting around rammed posts can work but for large numbers of trees, spiky tree protectors like this can be a lot more practical and cost effective, needing only one waratah or post. (Photo: Tree Guards NZ)



Funding
.....

You may be able to get funding through the [Hill Country Erosion Programme](#). For further information, including regional programmes.

Enquire about this or other funding through your regional council. Also check with your council about any rules covering tree planting.

Applications for funding under the [One Billion Trees fund](#) have closed but the programme is continuing until 2028 for projects that have been approved.





The Emissions Trading Scheme (ETS)

Qualifying stands of trees can be entered into the ETS and generate carbon credits if they meet the “forest land” definition. It’s a complex area that you are best to get expert advice on, but in general trees can qualify if they are:

- Post-1989 plantings
- An area greater than 1ha
- No more than 15m between mature canopies on the area edge
- No more than 23m between newly planted poles on the area edge
- Potential for at least 30% canopy cover
- An area with an average minimum width of 30m
- Species that can reach over 5m
- Not fruit or nut trees.

Check out the current status of He Waka Eka Noa’s farm scheme alternative to the ETS. The recommendation to government was to include smaller areas – 0.25ha in the onfarm scheme and a great range of tree and shrub types.



FOR FURTHER INFORMATION

Deer Fact: [Trees for deer](#)

NZ Landcare Trust information sheet on soil erosion: www.landcareresearch.co.nz/discover-our-research/land/erosion-and-sediment/

DairyNZ information on tree planting: www.dairynz.co.nz/environment/on-farm-actions/land-management/planting-trees

TEMPLATE: SOIL EROSION

Fill out your Action Plan for Soil Erosion here.



02 Goals

My goals for Soil Erosion are:



03 How high are the risks from soil erosion?

See the "Risk Assessment" module for how to assess level of risk:

| Activity/location | Risk assessment (low/medium/high) | Comment (make a note of anything specific to your place) |
|-------------------|--------------------------------------|--|
| | ○ ○ ○ | |
| | ○ ○ ○ | |
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| | ○ ○ ○ | |
| | ○ ○ ○ | |



Actions: What I've already done to protect against Soil Erosion

Write down what you've already done to protect against Soil Erosion. Link it back to your goals and risk assessment (above). Include timing and who's responsible.

| Goal | Risk identified | Risk level | Action | Measure and monitor | Date initiated | Who |
|------|-----------------|------------|--------|---------------------|----------------|-----|
| | | ○ ○ ○ | | | | |
| | | ○ ○ ○ | | | | |
| | | ○ ○ ○ | | | | |
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| | | ○ ○ ○ | | | | |
| | | ○ ○ ○ | | | | |
| | | ○ ○ ○ | | | | |



Actions: How I will protect against Soil Erosion

Write down what you've still got planned to protect against Soil Erosion. Link it back to your goals and risk assessment (above). Include timing and who's responsible.

| Goal | Risk identified | Risk level | Action | Measure and monitor | Date initiated | Who |
|------|-----------------|------------|--------|---------------------|----------------|-----|
| | | ○ ○ ○ | | | | |
| | | ○ ○ ○ | | | | |
| | | ○ ○ ○ | | | | |
| | | ○ ○ ○ | | | | |
| | | ○ ○ ○ | | | | |
| | | ○ ○ ○ | | | | |
| | | ○ ○ ○ | | | | |

When you've completed this template, save this document onto your computer. You can amend it later if you need to.

Low

Medium

High