

This Information Sheet describes the *typical average properties* of the specified soil. It is essentially a summary of information obtained from one or more profiles of this soil that were examined and described during the Topoclimate survey or previous surveys. It has been prepared in good faith by trained staff within time and budgetary limits. However, no responsibility or liability can be taken for the accuracy of the information and interpretations. Advice should be sought from soil and landuse experts before making landuse decisions on individual farms and paddocks. The characteristics of the soil at a specific location may differ in some details from those described here.  
No warranties are expressed or implied unless stated.

## Soil name: **Te Waewae**

### Overview

Te Waewae soils occupy about 7,300 ha on old exposed coastal marine high terraces west of Riverton. They are formed in deep wind blown loess. Te Waewae soils are moderately well to imperfectly drained, have a deep rooting depth, very high water-holding capacity and silt loam textures. Present use is pastoral farming with sheep, beef cattle and some dairying. Climate is cool, with the area exposed to the prevailing southwest wind. Rainfall is regular and high (1200–1400mm/annum).

### Physical properties

Te Waewae soils have a deep rooting depth and very high plant available water, meaning there is no significant physical barrier to root growth. The soils are moderately well to imperfectly drained and the compact subsoil is slowly permeable, which may cause short-term waterlogging after heavy rainfall. Texture is silt loam in all horizons, with topsoil clay content of 20–25%. Te Waewae soils are typically stone free.



*Te Waewae profile*

### Fertility properties

Topsoil organic matter levels are about 7–9%, P-retention 50–75% and pH moderate (high 5s). Cation exchange is moderate and base saturation very low. Available calcium and potassium levels are low and magnesium moderate. Soil reserve phosphorus is low. Micronutrient levels are generally adequate.

### Associated and similar soils

Some soils that commonly occur in association with Te Waewae soils are:

- Colac: very poorly drained soil formed in deep peat
- Orepuke: shallow well drained soil formed onto Gabbroic bedrock
- Waihoaka: Podzol formed in deep loess along the flanks of the Longwood Range

Some soils that have similar properties to Te Waewae soils are:

- Waikiwi: very similar soil profile; occur on high terraces of the Southland Plains; consistently well drained
- Waimatuku: have a similar soil profile and occur on the high terraces of the Southland Plain west of the Waimatuku stream. They have a distinct subsoil fragipan.
- Edendale: have a similar soil profile and occur on intermediate terraces in the lower Mataura and Oreti River valleys; consistently well drained
- Lyoncross: occur on high to intermediate terraces of the lower Waiau Valley; subsoil is well structured to 90cm depth, and P-retention is 35–50%,
- Pourakino: occur on the flanks of the Pourakino Valley; paler colours; P-retention 70–85% throughout the profile

## Sustainable management indicators

**Note:** the vulnerability ratings given in the table below are generalised and should not be taken as absolutes for this soil type in all situations. The actual risk depends on the environmental and management conditions prevailing at a particular place and time. Specialist advice should be sought before making management decisions that may have environmental impacts. Where vulnerability ratings of Moderate to Very severe are indicated, advice may be sought from Environment Southland or a farm management consultant.

Vulnerability factor	Rating	Vulnerability compared to other Southland soils
Structural compaction	slight	These soils have a slight vulnerability to structural degradation by long-term cultivation, or compaction by heavy stocking and vehicles. This rating reflects the good drainage, and the topsoil clay and P-retention content.
Nutrient leaching	moderate	These soils have a moderate vulnerability to leaching to groundwater. This rating reflects the high water-holding capacity and slow subsoil permeability.
Topsoil erodibility by water	slight	Due to the moderate clay and organic matter content, topsoil erodibility in these soils is slight. Erodibility is highly dependent on management, particularly when there is no vegetation cover.
Organic matter loss	minimal	Vulnerability to long-term decline in soil organic matter levels is partly dependent on soil properties and highly dependent on management practices (e.g., crop residue management and cultivation practices).
Waterlogging	moderate	These soils have a moderate vulnerability to waterlogging during wet periods. This rating reflects the good drainage, but slowly permeable subsoil.

## General landuse versatility ratings

**Note:** The versatility ratings in the table below are indicative of the major limitations for semi-intensive to intensive land use. These ratings differ from those used in the past in that sustainability factors are incorporated in the classification. Refer to the Topoclimate district soil map or property soil map to determine which of the soil symbols listed below are applicable, then check the versatility ratings for that symbol in the appropriate table.

### TbU1 (Te Waewae undulating deep)

Versatility evaluation for soil TbU1		
Landuse	Versatility rating	Main limitation
Non-arable horticulture	Moderate	Risk of short-term waterlogging after heavy rain
Arable	Moderate	Risk of short-term waterlogging after heavy rain
Intensive pasture	Moderate	Vulnerability to leaching to groundwater; risk of short-term waterlogging after heavy rain
Forestry	High	No major limitation

### TbR1 (Te Waewae rolling deep)

Versatility evaluation for soil TbR1		
Landuse	Versatility rating	Main limitation
Non-arable horticulture	Moderate	Risk of short-term waterlogging after heavy rain
Arable	Moderate	Rolling slopes; risk of short-term waterlogging after heavy rain
Intensive pasture	Moderate	Vulnerability to leaching to groundwater; rolling slopes
Forestry	High	No major limitation

### TbH1 (Te Waewae hilly deep)

Versatility evaluation for soil TbH1		
Landuse	Versatility rating	Main limitation
Non-arable horticulture	Unsuitable	Hilly slopes
Arable	Unsuitable	Hilly slopes
Intensive pasture	Limited	Hilly slopes
Forestry	Moderate	Hilly slopes

### Management practices that may improve soil versatility

- Careful management after heavy rain and wet periods will reduce the impact of short-term waterlogging. Intensive stocking, cultivation and heavy vehicular use should be minimised during these periods.
- Careful management of fertiliser nutrient applications to avoid leaching losses

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