

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.  
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## Topoclimate Southland Soil Information Sheet

No. **102**

**Soil name: Tomoporakau**

### Overview

Tomoporakau soils occupy about 1,400 ha on low terraces and slowly accumulating floodplains of the lower Makarewa and Oreti rivers and Waimatuku stream. They are formed into fine alluvium probably mixed with some loess. They are deep, silty, poorly drained soils with a degraded fragipan that restricts water drainage. Present use is pastoral grazing with sheep, dairy and beef cattle. Climate is cool temperate with regular rainfall throughout the year.

### Physical properties

Tomoporakau soils have a moderately deep to deep rooting depth, depending on the degree to which the fragipan has degraded. The soils are poorly drained with slow permeability in the subsoil, and moderately high waterholding capacity. Textures are heavy silt loams, with topsoil clay content of 25–35%. Soils contain no stones.



*Tomoporakau profile*

### Fertility properties

Topsoil organic matter content is 4–8%; P-retention 30–50% and pH moderate (high 5s). Cation exchange is moderate and base saturation high. Available calcium and magnesium levels are high to moderate and potassium levels low. Soil reserve phosphorus levels are low. Micronutrient levels are generally adequate.

### Associated and similar soils

Some soils that commonly occur in association with Tomoporakau soils are:

- Makarewa: moderately deep to deep poorly drained soil due to a high groundwater table; occurs on floodplains and has clayey textures
- Dacre: moderately deep to deep poorly drained soil due to a high groundwater table; occurs on floodplains and has silty textures
- Tisbury: deep poorly drained soil on terraces, with no perching horizon within 90cm depth
- Edendale: well drained Brown soil formed in deep loess, on intermediate terraces

Some soils that have similar properties to Tomoporakau soils are:

- Northope: moderately deep to deep imperfectly drained equivalent of the Tomoporakau soil
- Pukemutu: deep poorly drained soil with a fragipan
- Athol: equivalent soil formed in loess on terraces and downlands in northern Southland and west Otago

## 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
<b>Structural compaction</b>	moderate	These soils have a moderate vulnerability to structural degradation by long-term cultivation, or compaction by heavy stocking and vehicles. This rating reflects the poor drainage, with moderate clay and P-retention values.
<b>Nutrient leaching</b>	slight	These soils have a slight vulnerability to leaching to groundwater. This rating reflects the poor drainage, slow permeability and moderately high plant available water.
<b>Topsoil erodibility by water</b>	slight	Due to the moderate clay content, topsoil erodibility in these soils is slight. Erodibility is highly dependent on management, particularly when there is no vegetation cover.
<b>Organic matter loss</b>	slight	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).
<b>Waterlogging</b>	severe	These soils have a severe vulnerability to waterlogging during wet periods. This rating reflects the slow permeability of the subsoil and poor drainage.

## 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.

### TmU1: (Tomoporakau undulating deep)

### TmU1vl: (Tomoporakau undulating deep loamy variant)

Versatility evaluation for soil TmU1, TmU1vl		
Landuse	Versatility rating	Main limitation
Non-arable horticulture	Limited	Inadequate aeration during wet periods; vulnerability to sustained waterlogging
Arable	Limited	Inadequate aeration during wet periods; vulnerability to sustained waterlogging
Intensive pasture	Moderate	Inadequate aeration during wet periods; vulnerability of topsoil to structural degradation by cultivation and intensive stocking
Forestry	Limited	Inadequate aeration during wet periods; potential flood risk.

### 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 traffic use should be minimised during these periods.
- Installation and maintenance of subsurface mole and tile drains will reduce the risk of short-term waterlogging.
- If compaction occurs aeration at the correct depth and moisture condition can be of benefit.