

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.

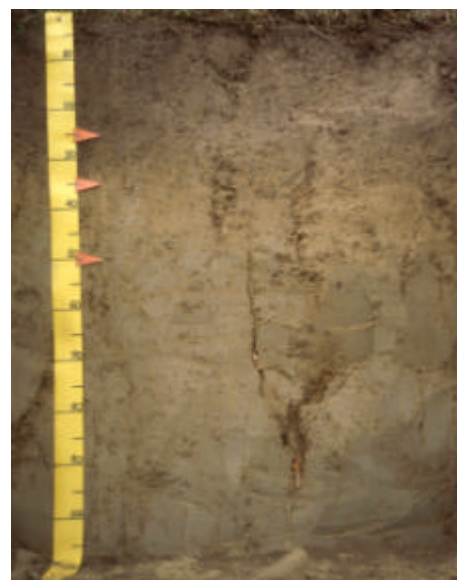
Soil name: **Waikaka**

Overview

Waikaka soils occupy about 5,800 ha on the downlands of eastern Southland and south Otago, typically on rolling and hilly land grading between the downlands and the hill country. They are formed in wind deposited loess derived from greywacke and schist rocks. Waikaka soils are moderately well drained and have a deep rooting depth, high water-holding capacity, and have silt loam textures with P-retention between 20 and 60%. They are used for pastoral farming with sheep beef and dairy cattle, and some cropping. Climate is cool temperate with regular rainfall. soils seldom dry out.

Physical properties

Waikaka soils have a deep rooting depth and high plant available water, meaning there is no significant physical barrier to root growth. The soils are well drained but the compact subsoil is slowly permeable and may cause short-term waterlogging after heavy rainfall. Texture is silt loam in all horizons, with topsoil clay content of 20–30%. Waikaka soils are typically stone free.



Waikaka profile

Fertility properties

Topsoil organic matter values range from 6 to 9%, P-retention values 20–60% and pH values moderate (mid 5s). Cation exchange values are moderate and base saturation values low. Available calcium is low, with magnesium and potassium levels moderate. Soil reserve phosphorus levels are low. Micronutrient levels are generally adequate although molybdenum responses in legumes and boron responses in brassicas can be expected.

Associated and similar soils

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

- Arthurton: imperfectly drained equivalent of the Waikaka soil
- Waikoikoi: moderately deep to deep; poorly drained due to fragipan
- Wendon: shallow soils on greywacke bedrock

Some soils that have similar properties to Waikaka soils are:

- Crookston: occurs on terraces and fans across northern Southland and west Otago; typically has paler colours throughout the profile and P-retention of 20–40%
- Clinton: similar soil occurring on fans and terraces near Clinton
- Tuturau: similar soil but has loamy silt subsoil textures; formed in near-source loess adjacent to the Mataura River, between Mataura and Waimahaka
- Waikiwi: Brown soil on high terraces of the Southland plain; has P-retention of 60–80%

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	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 good drainage, moderate clay, organic matter and P-retention values.
Nutrient leaching	moderate	These soils have a moderate vulnerability to leaching to groundwater. This rating reflects the good drainage, which is offset by 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	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).
Waterlogging	slight	These soils have a slight vulnerability to waterlogging during wet periods. This rating reflects the good drainage, but slowly permeable subsoil. The hilly phase is likely to have nil vulnerability.

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.

WxR1 (Waikaka rolling deep)

Versatility evaluation for soil WxR1		
Landuse	Versatility rating	Main limitation
Non-arable horticulture	Moderate	Risk of short-term waterlogging after heavy rain; rolling slopes
Arable	Limited	Rolling slopes
Intensive pasture	Moderate	Vulnerability of topsoil to structural degradation by cultivation and compaction; vulnerability to leaching to groundwater.
Forestry	High	Few limitations

WxU1 (Waikaka undulating deep)

Versatility evaluation for soil WxU1		
Landuse	Versatility rating	Main limitation
Non-arable horticulture	Moderate	Risk of short-term waterlogging after heavy rain
Arable	Limited	Vulnerability of topsoil to structural degradation by cultivation and compaction; risk of short-term waterlogging after heavy rain
Intensive pasture	Moderate	Vulnerability of topsoil to structural degradation by cultivation and compaction; vulnerability to leaching to groundwater.
Forestry	High	Few limitations

WxH1 (Waikaka hilly deep): due to hilly slopes, this phase is unsuitable for non-arable horticulture and arable landuse, of limited versatility for intensive pasture and moderate for forestry.

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 period of short-term waterlogging.

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