

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: **Waimahaka**

Overview

Waimahaka soils occupy about 1500 ha on rolling hills east of the lower Matura valley, in the Fortrose/Otara districts of southern Southland. They are formed in near-source wind deposited loess derived from greywacke and schist rock. Waimahaka soils are moderately well drained, have a deep rooting depth and high water-holding capacity, and have light silt loam to loamy silt textures with P-retentions of 60–85%. Present use is pastoral farming with sheep and beef cattle and some dairying. Climate is cool. With exposure to the prevailing south to west wind, regular rainfall occurs and soils seldom dry out.

Physical properties

Waimahaka soils have a deep rooting depth and high plant-available water, meaning there is no significant physical barrier to root growth. The soils are moderately well to well drained and have good aeration. The slow permeability of the lower subsoil may cause short-term waterlogging after heavy rainfall. Texture is light silt loam in the topsoil and loamy silt in the subsoil, with topsoil clay content of 20–25%. Waimahaka soils are typically stone free.

No
profile photo
available

Waimahaka profile

Fertility properties

Topsoil organic matter content is 10–16%; P-retention 60–85% and pH moderate to low (low 5s). Cation exchange is moderate and base saturation low. Available calcium and potassium levels are low with magnesium levels moderate. Soil reserve phosphorus levels are low. Micronutrient levels are generally adequate.

Associated and similar soils

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

- Fortrose: imperfectly drained equivalent of the Waimahaka
- Waipapa: occurs in a complex with Fortrose series, but is more leached and has podzolised properties, with P-retention of greater than 85% and thin iron pans.
- Chaslands: occurs on hilly to rolling land in more distant source loess; has imperfect drainage and heavy silt loam texture throughout the profile.

Some soils that have similar properties to Waimahaka soils are:

- Tuturau: occurs on similar landforms north of Waimahaka; is less weathered in subsoil, with P-retention of 25–60%, and is not associated with soils that have podzolised properties
- Tokonui: occurs on hilly to rolling land in more distant source loess; has yellow-brown colours and heavy silt loam texture throughout the profile
- Waikiwi: occurs on high terraces of the Southland plain; has yellow-brown colours and heavy silt loam subsoils 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 high organic matter and P-retention and well drained nature of the soil.
Nutrient leaching	moderate	These soils have a moderate vulnerability to leaching to groundwater. This rating reflects the high water-holding capacity, but is offset by the good profile drainage.
Topsoil erodibility by water	moderate	Due to the light silt loam texture, topsoil erodibility in these soils is moderate. 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	slight	These soils have a slight vulnerability to waterlogging during wet periods. This rating reflects the well drained nature of the soil.

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.

YmU1 (Waimahaka undulating deep)

Versatility evaluation for soil YmU1		
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	Few limitations

YmR1 (Waimahaka rolling deep): as above, but limited versatility for arable landuse due to rolling slopes.

YmH1 (Waimahaka hilly deep)

Versatility evaluation for soil YmH1		
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 traffic use should be minimised during these periods.
- Installation and maintenance of subsurface mole and tile drains will reduce the severity of short-term water logging.