

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: **Kakapo**

Overview

Kakapo soils occupy about 100 ha in hollows and depressions on glacial moraine surfaces of the Te Anau basin. Significant areas of this soil also occur as complexes with the Te Anau soils. They are formed into moderately deep silty loess overlying glacial moraine. The soils are poorly drained, with a slightly deep rooting depth and high plant available water capacity. Present use is pastoral grazing with sheep, deer and beef cattle. Climate is cold in the winter with moderate temperatures over the summer when soils are occasionally seasonally dry.

Physical properties

Kakapo soils have a slightly deep rooting depth and high plant available water that is limited to the underlying glacial moraine gravels. The soils are poorly drained due to the slow permeability of the lower subsoil. Textures are silt loam in the topsoil and loamy silts in the subsoil. Topsoil clay content is about 24%. Gravel content increases with depth.



Kakapo profile

Fertility properties

Topsoil organic matter levels are about 14%; P-retention 40–80% and pH moderate (mid 5s). Cation exchange levels are moderate and base saturation low. Topsoil available calcium and potassium levels are moderate to high and magnesium levels low. Subsoil available cations are all very low. Soil reserve phosphorus levels are low. Micronutrient levels are generally adequate.

Associated and similar soils

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

- Te Anau: well drained shallow soil formed on glacial moraines
- Excelsior: well drained soil formed in moderately deep to deep loess with a fragipan
- Otanomomo: very poorly drained soil, formed in deep peat

Some soils that have similar properties to Kakapo soils are:

- Otahu: poorly drained soil formed in moderately deep to deep loess with a fragipan

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 content and P-retention values.
Nutrient leaching	slight	These soils have a slight vulnerability to leaching to groundwater. This rating reflects the poor drainage, high water-holding capacity and slow permeability.
Topsoil erodibility by water	slight	Due to the high 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	severe	These soils have a severe vulnerability to waterlogging during wet periods. This rating reflects the poor drainage and slow permeability.

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.

KaU2 (Kakapo undulating moderately deep)

KaR2 (Kakapo rolling moderately deep)

Versatility evaluation for soil KaU2, KaR2		
Landuse	Versatility rating	Main limitation
Non-arable horticulture	Limited	Inadequate aeration during wet periods; risk of short-term waterlogging after heavy rain.
Arable	Limited	Inadequate aeration during wet periods; risk of short-term waterlogging after heavy rain.
Intensive pasture	Limited	Risk of short-term waterlogging after heavy rain.
Forestry	Limited	Inadequate aeration during wet periods; restricted rooting depth

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 should be minimised during these periods.
- Drainage with open ditches and tiles can be of considerable benefit.