

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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Soil name: **Glenure**

Overview

Glenure soils occupy about 4,100 ha on terraces and fans in northern, eastern and southern Southland and west Otago. They are formed into moderately deep to deep loess derived from greywacke and schist rock. They are deep, silty, poorly drained soils without a fragipan. At present they are used for pastoral grazing with sheep, dairy and deer with some cropping. Climate varies because of the widespread location of this soil with regular rain in most areas. More inland soils may dry out during dry summers.

Physical properties

Glenure soils have a deep rooting depth and high available soil water, although the rooting depth may be limited by poor aeration during wet periods due to the poor drainage and slow subsoil permeability. Textures are silt loam to loamy silt, and the topsoil clay content is 22–30%. The soils are typically stone-free, although the moderately deep phase will have gravel between 45 and 90cm depth. The gravels in the moderately deep phase may reduce the rooting depth and plant available water.



Glenure profile

Fertility properties

Topsoil organic matter levels are 5–7%; P-retention values 20–40% and pH levels moderate, with typically the upper subsoil moderately acidic (mid–low 5s). Cation exchange levels are moderate to high in the topsoil but low in the subsoil. Available calcium values are moderate with magnesium and potassium levels low. Reserve phosphorus levels are low. Micronutrient levels are generally adequate although boron responses in brassicas and molybdenum responses in legumes can be expected.

Associated and similar soils

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

- Jacobstown: poorly drained soil formed in alluvium; on floodplains with high groundwater
- Arthurton: Imperfectly drained Brown soil, that is associated with Pallic soils of northern Southland and west Otago.
- Benio: shallow soil formed in old weathered gravely alluvium

Some soils that have similar properties to Glenure soils are:

- Sobig: moderately deep, poorly drained soil due to water perching on clay bound gravels
- Dipton: shallow, poorly drained soil due to water perching on clay bound gravels
- Waikoikoi: deep, poorly drained, perch-gley soil due to a fragipan
- Athol: deep, poorly drained, perched-gley soil with a degraded 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	severe	These soils have a severe vulnerability to structural degradation by long-term cultivation, or compaction by heavy stocking and vehicles. This rating reflects the poor drainage, low clay, and P-retention.
Nutrient leaching	slight	These soils have a slight vulnerability to leaching to groundwater. This rating reflects the slow subsoil permeability and high water-holding capacity.
Topsoil erodibility by water	moderate	Due to the low clay and organic matter content, topsoil erodibility in these soils is moderate. 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	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.

GnU1 (Glenure undulating deep) and GnU2 (Glenure undulating moderately deep)

Versatility evaluation for soil GnU1, GnU2		
Landuse	Versatility rating	Main limitation
Non-arable horticulture	Limited	Inadequate aeration during wet periods; vulnerability to topsoil structural degradation by cultivation and compaction.
Arable	Limited	Inadequate aeration during wet periods; vulnerability to topsoil structural degradation by cultivation and compaction.
Intensive pasture	Limited	Vulnerability to topsoil structural degradation by cultivation and compaction; risk of short-term waterlogging after heavy rain.
Forestry	Limited	Inadequate aeration during wet periods; vulnerability to sustained water logging

GnR1 (Glenure rolling deep) and GnR2 (Glenure rolling moderately deep): as above, but rolling slopes replaces vulnerability to structural degradation as a main limitation for arable landuse.

GnH2 (Glenure hilly moderately deep)

Versatility evaluation for soil GnH2		
Landuse	Versatility rating	Main limitation
Non-arable horticulture	Unsuitable	Hilly slopes
Arable	Unsuitable	Hilly slopes
Intensive pasture	Limited	Risk of short-term waterlogging after heavy rain; hilly slopes
Forestry	Limited	Inadequate aeration during wet periods

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.
- Installation and maintenance of subsurface mole and tile drains will reduce the risk of short-term waterlogging.
- If compaction occurs, aeration at the correct moisture condition and depth can be of benefit.

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