

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: **Mclvor**

Overview

Mclvor soils occupy about 950 ha on hill country in the Blackmount district of western Southland. They are formed in a thin layer of loess overlying limestone bedrock, or gravelly limestone colluvium on steeper slopes. Mclvor soils are well drained, with a shallow rooting depth and low water-holding capacity that is limited by the gravelliness and bedrock that occurs within 45cm depth. The Mclvor soils are the same as the Kauana soils, and should be correlated as Kauana soils. They are used for pastoral grazing with sheep and beef cattle. Climate is cool temperate with regular rainfall.

Physical properties

Mclvor soils have a shallow rooting depth, restricted by the gravelliness and bedrock in the subsoil, and low plant available water. These soils are well drained, with good aeration and permeability throughout the soil. Textures are typically heavy silt loam to silty clay, but does vary according to the proportion of loess in the soil. The topsoil clay content is 35–45%. The soils are gravelly throughout, and typically have at least 35% gravel and/or bedrock within 45cm depth.



Mclvor profile

Fertility properties

Topsoil organic matter levels are variable (7–14%); P-retention values 30–40% and pH high (6–7%). Cation exchange and base saturation are very high due to the limestone influence. Available calcium, magnesium and potassium values are all high. Reserve phosphorus values are low and micronutrient levels generally adequate.

Associated and similar soils

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

- Te Mara: moderately deep to deep, imperfectly drained soil formed into mixed loess and fine colluvium from limestone.
- Mangapiri: deep, poorly drained clayey soil formed into fine colluvium from siltstone and mudstone

Some soils that have similar properties to Mclvor soils are:

- Kauana: shallow soil onto limestone in the Monowai area. The Mclvor series should be correlated into the Kauana series
- Mandeville: shallow soil forming onto tuffaceous sandstone bedrock
- Kaihiku: shallow soil forming into gravelly tuffaceous sandstone colluvium

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 good drainage and high clay content.
Nutrient leaching	very severe	These soils have a very severe vulnerability to leaching to groundwater. This rating reflects the good drainage and permeability, and low water-holding capacity.
Topsoil erodibility by water	minimal	Due to the high organic matter and clay content, topsoil erodibility in these soils is slight. Erodibility is highly dependent on management, particularly when there is no vegetation cover.
Organic matter loss	moderate	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 and permeability. The hilly and steep phases will 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.

MiS3 (Mclvor steep shallow) and MiH3 (Mclvor hilly shallow)

Versatility evaluation for soil MiS3, MiH3

Landuse	Versatility rating	Main limitation
Non-arable horticulture	Unsuitable	Hilly and steep slopes
Arable	Unsuitable	Hilly and steep slopes
Intensive pasture	Limited	Hilly and steep slopes; restricted rooting depth
Forestry	Unsuitable	Shallow rock depth

MiS2 (Mclvor steep moderately deep)

Versatility evaluation for soil MiS2

Landuse	Versatility rating	Main limitation
Non-arable horticulture	Unsuitable	Steep slopes
Arable	Unsuitable	Steep slopes
Intensive pasture	Limited	Vulnerability to leaching to groundwater; steep slopes
Forestry	Limited	Steep slopes; restricted rooting depth.

MiU3 (Mclvor undulating shallow)

Versatility evaluation for soil MiU3

Landuse	Versatility rating	Main limitation
Non-arable horticulture	Limited	Vulnerability to leaching to groundwater; restricted rooting depth
Arable	Limited	Vulnerability to leaching to groundwater; restricted rooting depth
Intensive pasture	Limited	Vulnerability to leaching to groundwater; restricted rooting depth
Forestry	Unsuitable	Shallow rock depth

Management practices that may improve soil versatility

- Management of nutrient applications that minimise leaching losses