Soil name: Gore

Overview

Gore soils occupy 17,800 ha on the low terraces of the Mataura and Oreti rivers. They are formed in gravelly alluvium containing stones derived from schist and greywacke rock. Gore soils are well drained, with silt loam topsoil texture. Gore soils are stony in both the topsoil and subsoil, which limits the rooting depth and water-holding capacity. They are suitable for pasture and some cropping, being presently used mostly for sheep and dairy production. In northern Southland they can be seasonally dry.

Gore profile

Physical properties

Gore soils have slightly deep rooting depth, with gravels restricting deep rooting. The soils are well drained, with good aeration, and moderate plant available water. Textures are silt loams in the topsoil grading to sandy textures in the subsoil. Topsoil clay content is 20–30%, and typically contains gravels. Subsoils are commonly very to extremely gravelly from 30cm depth.

Fertility properties

Topsoil organic matter levels are 6–8%; P-retention values 30–40%; pH values are moderate and tend to increase down the profile. Cation exchange values are moderate in the topsoil but low in the subsoil, with base saturation following the same pattern. Available cation values for calcium, magnesium, and potassium are very low. Soils respond well to phosphate and potassium fertilisers. Minor nutrient levels are generally adequate.

Associated and similar soils

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

- Mataura: well drained, deep or moderately deep recent soils found on the accumulating floodplain
- Ardlussa: well drained, deep or moderately deep, found on similar landforms as the Gore soils
- Jacobstown: poorly drained due to high groundwater; deep to moderately deep; silty textures.
- Lumsden: poorly drained; gravels within 45cm depth

Some soils that have similar properties to Gore soils are:

- Riversdale: Recent soils on the accumulating floodplain
- Oreti: Brown soil with cemented subsoil pan on intermediate terraces
- Waiau: Recent soil on floodplains and low terraces of the Aparima and Waiau Rivers and their tributaries.

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 and compaction by intensive stocking and vehicles.
Nutrient leaching	Very Severe	These soils have a very severe vulnerability to leaching to groundwater. This reflects the moderate water holding capacity and rapid permeability.
Topsoil erodibility by water	Minimal	Due to the moderate clay and organic matter content, the topsoil erodibility of these soils is minimal. Erodibility is highly dependent on management particulary when there is no vegetation cover.
Organic matter loss	Moderate	Vulnerability to long-term decline in soil organic matter levels is partly dependant on soil properties and highly dependent on management practices (e.g., cultivation practices and crop residue management)
Waterlogging	Nil	These soils have a nil vulnerability to waterlogging during wet periods. This rating reflects the good drainage and rapid 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.

GeU3 (Gore undulating shallow)
GeU3vi (Gore undulating shallow imperfectly drained variant)
GeU3vh (Gore undulating shallow humose subsoil variant)
GeU3b (Gore undulating shallow bouldery phase)

Versatility evaluation for soil GeU3, GeU3vi, GeU3vh, GeU3b		
Landuse	**Versatility rating**	**Main limitation**
Non-arable horticulture	Limited	Rooting depth and vulnerability to leaching to groundwater
Arable	Limited	Vulnerability to leaching to groundwater
Intensive pasture	Limited	Vulnerability to leaching to groundwater
Forestry	Limited	Rooting depth

Management practices that may improve soil versatility

- Long-term cultivation should be carefully managed to minimise structural degradation
- Organic matter levels should be carefully maintained and enhanced
- Management of nutrient applications so as to minimise leaching losses