

This Soil 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.

Topoclimate Southland Soil Information Sheet

No. 6

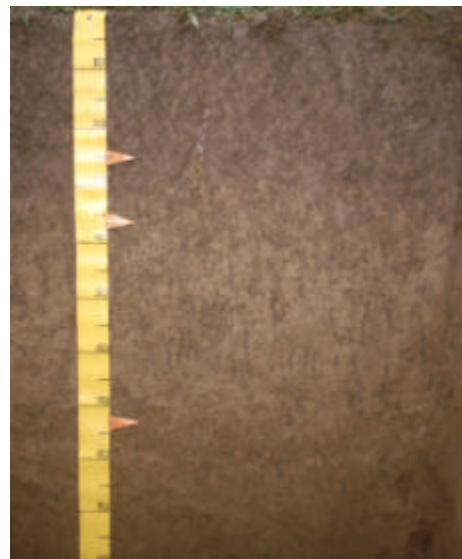
Soil name: **Drummond**

Overview

Drummond soils occupy about 3,400 ha on low to intermediate terraces in the Aparima and lower Waiau river valleys. They are formed in moderately deep to deep fine alluvium derived from tuffaceous greywacke and volcanic rocks. The soils are well drained, with good potential rooting depth and natural fertility. Drummond soils are highly versatile for a wide range of land uses. Regular summer rainfall occurs, though soils in more inland areas may be seasonally drier.

Physical properties

Drummond soils have deep potential rooting depth, with no major rooting restriction. The soils are well drained, have good aeration, and high plant available water. Textures are generally silty clay to heavy silt loam, with topsoil clay content of 35–40%. The moderately deep phase will have gravels below 45cm depth, resulting in less rooting depth and available water.



Drummond profile

Fertility properties

Topsoil organic matter levels are 8–11%; P-retention values 40–70%; pH values usually above 5.7 in all horizons; cation exchange values and base saturation medium to high. Natural levels of phosphorus, potassium and magnesium are moderate, with responses to P and K occurring in intensive farming operations. Micro nutrient levels are generally adequate.

Associated and similar soils

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

- Glenelg soils: shallow with gravels at less than 45 cm depth.
- Tuatapere soils: don't have clayey texture and occur on younger land surfaces.
- Braxton soils: poorly drained soils.

Some soils that have similar properties to Drummond soils are:

- Papatotara soils: similar land surface in the lower Waiau valley, but have higher P-retention (80%+), and silty to loamy textures.
- Otahuti soils: were previously mapped as Drummond soils, but separated because subsoil properties have little volcanic influence.
- McGaw soils: were previously mapped as Drummond soils, but separated because of imperfect drainage and less volcanic influence.

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	Minimal	These soils have a minimal vulnerability to structural degradation by long-term cultivation, or compaction by heavy stocking and vehicles. This rating reflects the good drainage and silty clay texture.
Nutrient leaching	Moderate	These soils have a moderate vulnerability to leaching to groundwater. This reflects the high total available water.
Topsoil erodibility by water	Minimal	Due to the silty clay texture, the topsoil erodibility of these soils is minimal. 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	Slight	These soils have a slight vulnerability to waterlogging during wet periods. This rating reflects the good drainage and moderate 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.

DdU1 (Drummond undulating deep)

Versatility evaluation for soil DdU1		
Landuse	Versatility rating	Main limitation
Non-arable horticulture	High	No major limitation
Arable farming	High	No major limitation
Semi-intensive pasture	Moderate	Potential leaching of nutrients to groundwater
Forestry	High	No major limitation

DdU2 (Drummond undulating moderately deep)

Versatility evaluation for soil DdU2		
Landuse	Versatility rating	Main limitation
Non-arable horticulture	Moderate	Potential root depth may be limited by gravels below 45 cm depth
Arable farming	High	No major limitation
Semi-intensive pasture	Moderate	Potential leaching of nutrients to groundwater
Forestry	High	Potential root depth may be limited by gravels below 45 cm depth

Management practices that may improve soil versatility

- Management of nutrient applications to minimise leaching losses, e.g. avoiding very high rates in a single application and not applying very soluble fertilisers in wet conditions.
- Clayey textures in topsoil may be limiting for cultivation or harvesting of root crops during wet conditions.