

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: **Dacre**

Overview

Dacre soils occupy about 13,200ha on floodplains of minor streams of the Southland plain between the Oreti River and Tokanui. They are formed into fine alluvium from reworked loess. These soils are moderately deep to deep, poorly drained, and have silty textures. They are used in association with adjacent well drained soils for intensive pastoral farming with sheep, dairy and deer. Climate is cool temperate with regular rain, so soils are often wet.

Physical properties

Dacre 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. Texture is typically silt loam and topsoil clay content is 20–30%. The soils are typically stone free, although the moderately deep phase will have gravels between 45–90cm depth.



Dacre profile

Fertility properties

Topsoil organic matter levels are variable and range from 6 to 16%; P-retention values 25–50%; pH values moderate and low in the subsoil. Cation exchange values are moderate, grading to low in the subsoil, while base saturation values are high in the subsoil. Available magnesium and potassium are low, as are soil reserve phosphorus levels. Micro-nutrient levels are generally adequate.

Associated and similar soils

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

- Otanomomo: very poorly drained peat soils
- Otepuni: shallow, poorly drained soil on quartz gravels
- Tisbury: poorly drained gley soil, formed in loess on terraces
- Woodlands: imperfectly drained soil formed in loess on terraces.

Some soils that have similar properties to Dacre soils are:

- Titipua: has over-thickened slightly peaty topsoils
- Jacobstown: has a more developed structure with silty textures
- Caroline: has a cemented ironpan in the subsoil.
- Makarewa: has a clayey subsoil with greater structural development.

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, or compaction by heavy stocking and vehicles. This rating reflects the poor drainage, that is offset by the moderate topsoil organic matter and P-retention levels.
Nutrient leaching	slight	These soils have a slight vulnerability to leaching to groundwater. This rating reflects the high water holding capacity and slow subsoil permeability.
Topsoil erodibility by water	slight	Due to the medium organic matter and clay content, the topsoil erodibility of these soils is slight. 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 poor drainage and slow subsoil 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.

DcU1 (Dacre undulating deep)

DcU2 (Dacre undulating moderately deep)

Versatility evaluation for soil DcU1, DcU2		
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	Moderate	Inadequate aeration during wet periods; risk of short-term waterlogging after heavy rain.
Forestry	Limited	Inadequate aeration during wet periods; potential flood risk.

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 content and depth can be of benefit.