

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: Colac

Overview

Colac soils occupy about 3,100 ha on floodplains, basins and low marine terraces between Colac Bay and Orepuke. They are organic soils formed into peat overlying silty loess and some fine alluvium. The soils have very poor drainage and extreme acidity that severely restricts the growth of most crops. Many peat swamps are only developed around the edges, with areas of deeper peat partially or not developed. Fringe areas that are partially developed are used for pastoral grazing by sheep and beef cattle. Climate is cool with regular rain and a prevailing south west to west wind.



Colac profile

Physical properties

Colac soils typically have no topsoil, although developed peats under pasture do show 10–30cm of peaty textured topsoil development. The profile as a whole is dominated by dark coloured moderately to strongly decomposed organic material. Tree roots and branches are also commonly buried throughout the soil.

Fertility properties

Topsoil organic matter levels are extremely high at 50–90%; P-retention values variable but are generally very low. pH values are very low (< 5.0). Deeper horizon pH values fall as low as pH 4.0. Cation exchange values are very high and base saturation values low. Available and reserve levels of major and micronutrients are very low except for magnesium and sodium.

Associated and similar soils

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

- Waihoaka: strongly leached Podzol formed into deep loess
- Te Waewae: moderately well to imperfectly drained Brown soil formed into deep loess
- Riverton: recent sand dunes

Some soils that have similar properties to Colac soils are:

- Invercargill: very similar to Colac soils, occurs on more inland locations and overlies alluvium rather than loess
- Otanonomo: weakly decomposed peat, formed on raised bogs

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 very high organic matter levels.
Nutrient leaching	slight	These soils have a slight vulnerability to leaching to groundwater. This rating reflects the very poor drainage and good water-holding capacity.
Topsoil erodibility by water	minimal	Due to the very high organic matter levels, the topsoil erodibility of these soils is minimal. Erodibility is highly dependent on management, particularly when there is no vegetation cover.
Organic matter loss	minimal	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 very 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.

Colac undulating deep (CoU1)

Versatility evaluation for soil CoU1		
Landuse	Versatility rating	Main limitation
Non-arable horticulture	Unsuitable	Inadequate aeration
Arable	Unsuitable	Inadequate aeration
Intensive pasture	Limited	Inadequate aeration; subsoil acidity
Forestry	Unsuitable	Inadequate aeration

Management practices that may improve soil versatility

- Ditches to allow water drainage. Subsurface mole and tile drains are unsuitable because of variable sinking of land over time and lack of soil structure to retain mole drains.
- Liming to raise soil pH, and adequate fertiliser.