

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.

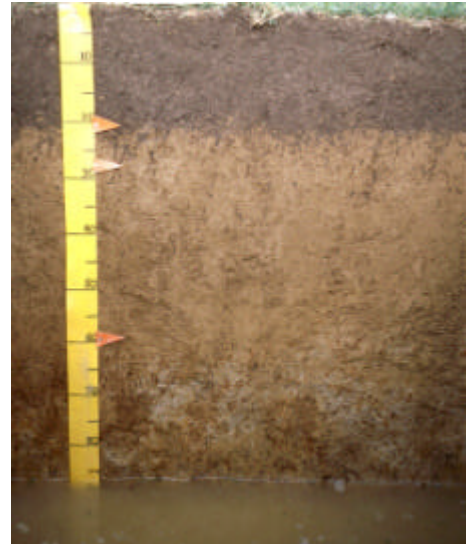
Soil name: **Niagara**

Overview

Niagara soils occupy about 1700 ha on the floodplains and low terraces of the Waikawa and Tokanui rivers in southern Southland. They are formed in deep to moderately deep fine alluvium from tuffaceous greywacke. Niagara soils are imperfectly drained and have deep rooting depth, moderately high plant available water and heavy silt loam to silty clay texture. They are high-producing soils currently used for intensive sheep, deer and some dairy production. Climate is cool temperate with regular rain. Soils rarely dry out.

Physical properties

Niagara soils have a deep rooting depth, moderately high plant available water, and no major restriction to root growth. Topsoils are moderately well aerated which decreases down the profile, together with the profile permeability. Horizon texture is typically heavy silt loam to silty clay, typically with contrasting layers within the profile. Topsoil clay content is 35–45%. The deep phase are stoneless, with the moderately deep phase having gravel below 45cm depth.



Niagara profile

Fertility properties

Topsoil organic matter levels are 6–10%; P-retention 50–75% and pH moderate (mid to high 5s). Subsoil pH is often < 5.5. Cation exchange and base saturation are moderate, with available calcium and magnesium levels moderate to high. Potassium levels are very low. Soil reserves of phosphorus are low. Micronutrient levels are generally adequate.

Associated and similar soils

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

- Jacobstown: poorly drained Gley soils due to a high groundwater table; are slowly accumulating with a structured subsoil
- Dacre: poorly drained Gley soils due to a high groundwater table; are moderately accumulating with little structural development in the subsoil
- Otanomomo: very poorly drained soil formed into peat

Some soils that have similar properties to Niagara soils are:

- Nithdale : moderately well to well drained equivalent of the Niagara soil;
- Hedgehope: occurs as levees on the Hedgehope, Makarewa and Otapiri streams; typically has silty textures with no clayey horizons
- Oughton: moderately well to imperfectly drained soil occurring on low terraces of the Mataura River between Mataura and Wyndham; has clayey textures throughout the profile
- Chaslands: formed in loess on rolling downlands and hilly land; has a firm subsoil

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 imperfect drainage which is offset by the high clay content and P-retention.
Nutrient leaching	slight	These soils have a slight vulnerability to leaching to groundwater. This rating reflects the moderately high water-holding capacity, imperfect drainage and slow subsoil permeability. Moderately deep phases are likely to have a moderate to severe vulnerability.
Topsoil erodibility by water	minimal	Due to the high clay and organic matter content, topsoil erodibility in 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	moderate	These soils have a moderate vulnerability to waterlogging during wet periods. This rating reflects the imperfect drainage and slow 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.

NgU1 (Niagara undulating deep)

NgU2 (Niagara undulating moderately deep)

Versatility evaluation for soil NgU1, NgU2		
Landuse	Versatility rating	Main limitation
Non-arable horticulture	Moderate	Inadequate aeration during wet periods; potential flood risk
Arable	Moderate	Inadequate aeration during wet periods; risk of short-term waterlogging after heavy rain.
Intensive pasture	Moderate	Inadequate aeration during wet periods; vulnerability to leaching to groundwater
Forestry	Limited	Potential flood risk

Management practices that may improve soil versatility

- Careful management after heavy rain or 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 improve aeration and reduce the risk of short-term waterlogging.