

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: **Braxton**

Overview

Braxton soils occupy about 19,300 ha on intermediate terraces adjacent to the Aparima River and Waiau Valley. They are formed in a mixture of fine alluvium and loess that is derived from tuffaceous greywacke and volcanic rocks of the Takitimu Mountains. These soils are deep to moderately deep, poorly drained, and have silty clay to heavy silt loam textures. They are used for sheep, deer and dairy production with some cropping. Climate is cool temperate with regular summer rain.

Physical properties

Braxton 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. Mottles occur in all horizons – another indication of poor drainage. Texture varies between heavy silt loam and silty clay in the subsoil, and silt loam topsoil clay content is 22–30%. The soils are typically stone-free, although the moderately deep phase will have gravel between 45 and 90cm depth.



Braxton profile

Fertility properties

Topsoil organic matter levels range from 7 to 10%; P-retentions 30–60%, with moderate pH values (5.5–6.2) that change little down the profile. Cation exchange values are moderate and base saturation values high. Available magnesium and potassium are low. Reserve phosphorus values are low. Micro-nutrient levels are generally adequate, although boron responses in brassicas and molybdenum responses in legumes are likely.

Associated and similar soils

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

- Glenelg: well drained, shallow stony soil
- Pukemutu: poorly drained soil due to water perching on subsoil fragipan
- Drummond: Well drained, moderately deep to deep soil

Some soils that have similar properties to Braxton soils are:

- Sobig: occur on high terraces; moderately deep to deep soils that are poorly drained due to water perching on clay-bound gravel
- Glenure: occur on terraces and downlands in northern Southland; consistently have silty textures
- Dipton: occur on intermediate terraces, shallow soils that are poorly drained due to water perching on clay bound gravel
- Makarewa: occur on floodplains

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. |
| Nutrient leaching | slight | These soils have a slight vulnerability to leaching to groundwater. This rating reflects the poor drainage, high water-holding capacity and slow subsoil permeability. |
| Topsoil erodibility by water | slight | Due to the moderate 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.

BxU1 (Braxton undulating deep)

BxU2 (Braxton undulating moderately deep)

BxR1 (Braxton rolling deep)

| Versatility evaluation for soil BxU1, BxU2, BxR1 | | |
|--|--------------------|--|
| Landuse | Versatility rating | Main limitation |
| Non-arable horticulture | Limited | Inadequate aeration during wet periods; risk of short-term waterlogging after heavy rainfall. |
| Arable | Limited | Inadequate aeration during wet periods; risk of short-term water logging after heavy rainfall. |
| Intensive pasture | Moderate | Inadequate aeration during wet periods; risk of short-term waterlogging after heavy rainfall. |
| Forestry | Limited | Inadequate aeration during wet periods; vulnerability to sustained waterlogging. |

Management practices that may improve soil versatility

- Careful management after heavy rainfall and wet periods will reduce the impact of short-term waterlogging. Intensive stocking, cultivation and 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 condition and depth can be of benefit.