

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.
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Soil name: **Aparima**

Overview

Aparima soils occupy about 14,700 ha on high terraces in the Otautau/Nightcaps district in the Aparima river valley. They are formed in deep loess deposits derived from tuffaceous greywacke rock. They have heavy silt loam textures and are imperfectly drained, with a dense fragipan between 60 and 90cm depth which restricts water drainage. They respond well to mole and tile drainage and are used for intensive sheep, dairy and deer production, with some cropping. Regular summer rainfall occurs, though inland soils may be seasonally dry.

Physical properties

Aparima soils have a slightly deep rooting depth that is restricted by the fragipan at 60–90cm depth. The depth of the fragipan means the Pukemutu soils typically have moderately high to high plant available water. The soils are imperfectly drained with slow permability through the fragipan. Textures are heavy silt loams but tend towards silty clays in the lower subsoil. Topsoil clay content is 20–30%, and stone-free.



Aparima profile

Fertility properties

Topsoil organic matter levels are 4–9%; P-retention values 25–35% and pH values moderate. Cation exchange values are moderate and base saturation low without lime application. Available cations are usually low with magnesium levels moderate. Reserves of phosphate are low with increasing sulphate sulphur levels down the profile. Micronutrient levels are generally adequate although boron responses in brassicas and molybdenum responses in legumes can occur.

Associated and similar soils

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

- Makarewa: Gley soil with clayey textures on the floodplain.
- Mossburn: poorly drained soil, due to water perching on a fragipan. Occurs on fans flanking the hills.
- Ohai: poorly drained soil with a degraded fragipan; formed from mixed loess and mudstone, and has clayey textures throughout.
- Woodlands: imperfectly drained Brown soil without a fragipan.

Some soils that have similar properties to Aparima soils are:

- Waianiwa: same soil, should be correlated into the Aparima series. Waianiwa series was defined and published prior to the investigation of the Aparima map units. Occurs on high terraces east of the Aparima River.
- Pukemutu: poorly drained equivalent of the Aparima soil.
- Woodlands: imperfectly drained Brown soil without a fragipan.

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 imperfect drainage and medium P-retention.
Nutrient leaching	moderate	These soils have a moderate vulnerability to leaching to groundwater. This rating reflects the imperfect drainage, slow subsoil permeability and moderate water holding capacity.
Topsoil erodibility by water	slight	Due to the moderate clay and organic matter content, topsoil erodibility in 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	moderate	These soils have a moderate vulnerability to waterlogging during wet periods. This rating reflects the imperfect 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.

ApU1 (Aparima undulating deep)

Versatility evaluation for soil ApU1		
Landuse	Versatility rating	Main limitation
Non-arable horticulture	Moderate	Risk of short term waterlogging after heavy rain; restricted rooting depth
Arable	Moderate	Inadequate aeration during wet periods; vulnerability to structural compaction.
Intensive pasture	Moderate	Inadequate aeration during wet periods; vulnerability to structural compaction.
Forestry	Moderate	Restricted rooting depth; vulnerability to sustained waterlogging.

ApR1 (Aparima rolling deep)

Versatility evaluation for soil ApR1		
Landuse	Versatility rating	Main limitation
Non-arable horticulture	Moderate	Short term waterlogging risk after heavy rain; restricted rooting depth
Arable	Limited	Rolling slope
Intensive pasture	Moderate	Inadequate aeration during wet periods; vulnerability to structural compaction.
Forestry	Moderate	Restricted rooting depth; vulnerability to sustained waterlogging

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 minimal 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 depth and moisture condition can be of benefit.

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