

This Technical Data 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. Advise 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: Riverton

Overview

Riverton soils occupy about 2,600 ha on young active sand dunes along the southern coast between Orepuki and Curio Bay. They are formed into coastal dunes of wind blown sand. These soils have a deep potential rooting depth, moderate plant available water, with excessive drainage and have sandy textures throughout. Present use is limited to pastoral grazing with sheep and cattle where these soils are adjacent to better soils. Large areas are used for reserve and recreation. Climate is cool with prevailing southerly wind. Regular rainfall occurs but with rapid drainage soils are often dry.

Soil classification

NZ Soil Classification (NZSC): Typic Sandy Recent; stoneless; sandy

Previous NZ Genetic Classification: Strongly leached yellow-brown sand

Classification explanation

The NZSC of Riverton soils differs from the previous classification, because the soil profile shows little subsoil development, which is characteristic of Recent soils rather than Brown soils. The soils are formed in deep, stonefree sands. There are significant areas of active dunes that have little topsoil development, and should be classified as Raw soils

Soil phases and variants

Identified units in the Riverton soils are:

- Riverton undulating deep (RvU1): has no gravel within 90cm depth; occurs on slopes of 0–7°
- Riverton rolling deep (RvR1): has no gravel within 90cm depth; occurs on slopes of 7–15°
- Riverton hilly deep (RvH1): has no gravel within 90cm depth; occurs on slopes of 15–25°

The soil properties described in this Technical Data Sheet are based on the most common phase, Riverton undulating deep (RvU1). Values for other phases and variants can be taken as being similar. Where they differ significantly they are recorded with a separate versatility rating, e.g., Riverton hilly deep (RvH1).

Associated soils

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

- Invercargill: very poorly drained soils, formed in deep peat

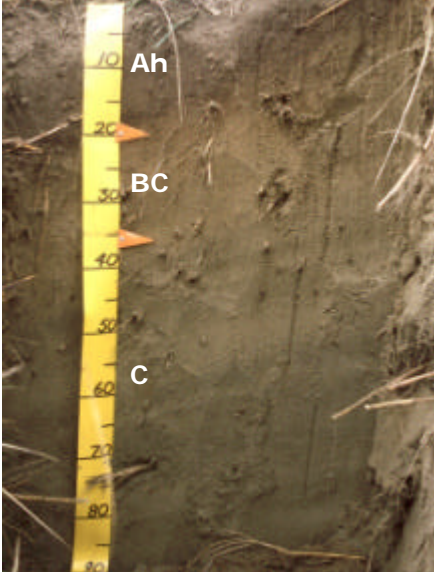
Similar soils

Some soils that have similar properties to Riverton soils are:

- Otatara: occur on more stable older dunes and have greater subsoil development
- Otaitai: poorly drained sandy soil, formed in interdune hollows

Typical profile features

The following is a 'generic' or composite profile description representing the most common combination of characteristics for this soil type. The actual profiles for which descriptions and data are available are listed at the end of this Technical Data Sheet.

Riverton profile	Horizon	Depth (cm)	Description
	Ah	0–20	Greyish brown loamy sand; weak soil strength; weakly developed very fine to medium polyhedral structure; abundant roots
	BC	20–35	Light yellow sand; weak soil strength; single grain structure; abundant roots
	C	35–90+	Dull orange sand; weak soil strength; single grain structure; common roots

Key profile features

Riverton topsoils are about 10–20cm deep with weakly developed soil structure. Subsoils are structureless, unconsolidated sand.

Typical physical properties

Note: values in *Italics* are estimates

Horizon	Depth (cm)	Bulk density	Permeability	Texture	Gravel content
Ah	0–20	Moderate – High	<i>Rapid</i>	Loamy sand	Gravel free
BC	20–35	Moderate – High	<i>Rapid</i>	Sand	Gravel free
C	35–90+	Moderate – High	<i>Rapid</i>	Sand	Gravel free

Profile drainage: Well

Plant readily available water: *Moderate*

Potential rooting depth: Deep

Rooting restriction: No major restriction, but excessive drainage may limit the moisture status of the subsoil.

Key physical properties

Riverton soils potentially have a deep rooting depth and moderate plant available water. The soils are excessively drained due to the rapid permeability of the sand, and may limit the moisture status and effective rooting depth to shallower depths. The soils have excellent aeration. Textures are loamy sands in the topsoil and sand at deeper depths, with a topsoil clay content of <10%. Soils are stoneless.

Typical chemical properties

Horizon	Depth (cm)	pH	P retention	CEC	BS	Ca	Mg	K	Na
Ah	0–20	Moderate	Very low	Very low	High	Very low	Moderate	Very low	Moderate
BC	20–35	High	Very low	Very low	Moderate	Very low	Very low	Very low	Low
C	35–90+	High	Very low	Very low	Very high	Very low	Very low	Very low	Low

Key chemical properties

Topsoil organic matter levels are variable but low (about 3%) and P-retention very low <5%. pH values are moderate (low 6s) in the topsoil but increase to over 7 in the subsoil. Cation exchange levels are very low and base saturation high because of the occurrence of salt. Reserve phosphorus levels are low. Micronutrient levels are adequate.

Vulnerability to environmental degradation

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	very severe	These soils have a very severe vulnerability to structural degradation by long-term cultivation, or compaction by heavy stocking and vehicles. This rating reflects the low organic matter, clay content, and P-retention.
Nutrient leaching	very severe	These soils have a very severe vulnerability to leaching to groundwater. This rating reflects the good drainage and rapid permeability.
Topsoil erodibility by water	severe	Due to the low organic matter and clay content, topsoil erodibility in these soils is severe. Erodibility is highly dependent on management, particularly when there is no vegetation cover.
Organic matter loss	severe	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	nil	These soils have a nil vulnerability to waterlogging during wet periods. This rating reflects the very good drainage.

General landuse versatility ratings for Riverton soils

Note: The versatility ratings in the table below are indicative of the major limitations for semi-intensive to intensive landuse. 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.

RvU1 (Riverton undulating deep)

RvR1 (Riverton rolling deep)

Versatility evaluation for soil RvU1, RvR1		
Landuse	Versatility rating	Main limitation
Non-arable horticulture	Limited	Vulnerability to topsoil structural degradation and compaction; vulnerability to leaching to groundwater
Arable	Limited	Vulnerability to topsoil structural degradation by cultivation and compaction; vulnerability to topsoil erosion by water.
Intensive pasture	Limited	Vulnerability to topsoil structural degradation and compaction; vulnerability to leaching to groundwater
Forestry	Limited	Vulnerability to topsoil structural degradation by cultivation and compaction; vulnerability to topsoil erosion by water.

RvH1 (Riverton hilly deep)

Versatility evaluation for soil RvH1		
Landuse	Versatility rating	Main limitation
Non-arable horticulture	Unsuitable	Hilly slopes
Arable	Unsuitable	Hilly slopes
Intensive pasture	Limited	Vulnerability to topsoil degradation by cultivation and compaction; hilly slopes.
Forestry	Limited	Vulnerability to topsoil structural degradation by cultivation and compaction; vulnerability to topsoil erosion by water.

Management practices that may improve soil versatility

- Careful management to avoid wind erosion and "blowouts" by preventing overgrazing or cultivation.
- Organic matter levels should be carefully maintained and enhanced
- Long-term intensive cultivation should be carefully managed to minimise structural degradation
- Management of nutrient applications that minimise leaching losses

Soil profiles available for Riverton soils

Soil symbol	Profile ID	Topoclimate map sheet	Profile description available	Physical data available	Chemical data available	Profile photo available
RvH1	LT5	41	✓	✓	✓	✓
RvS1	176/75/7	21	✓			

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