

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: **Taringatura**

Overview

Taringatura soils occupy about 2,200 ha on hill country in the mid Aparima and Oreti river valleys in central Southland. They also occur on adjacent hilly areas that were outside the Topoclimate survey area. They are formed into greywacke and tuffaceous greywacke bedrock and colluvium that has a thin cover layer of loess. Taringatura soils are well drained, with a moderate water holding capacity and shallow rooting depth that is limited by the gravelliness and bedrock that commonly occurs within 45cm depth. Present use is extensive pastoral grazing with sheep and beef cattle and commercial forestry. Climate is cool temperate with regular rainfall. Northerly slopes are likely to be seasonally dry.

Soil classification

NZ Soil Classification (NZSC):

Acidic Orthic Brown; angular stony, hard sandstone; silty

Previous NZ Genetic Classification:

Strong to very strong upland yellow-brown earths.

Classification explanation

The NZSC of Taringatura soils is consistent with the previous classification. They are moderately leached soils with yellow-brown colours, P-retention of 25–50% and subsoil pH of less than 5.5. Taringatura soils have silt loam textures, and greywacke bedrock or gravelly colluvium typically occurs at less than 45cm depth.

Soil phases and variants

Identified units in the Taringatura soils are:

- Taringature hilly shallow (TnH3): has gravel or bedrock within 45cm depth; occurs on slopes of 15–25°
- Taringatura undulating shallow (TnU3): has gravel or bedrock within 45cm depth; occurs on slopes of 0–7°
- Taringatura rolling shallow (TnR3): has gravel or bedrock within 45cm depth; occurs on slopes of 7–15°
- Taringatura steep shallow (TnS3): has gravel or bedrock within 45cm depth; occurs on slopes of >25°

The soil properties described in this Technical Data Sheet are based on the most common phase, Taringatura hilly shallow (TnH3). 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., Taringatura undulating shallow (TnU3).

Associated soils

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

- Mossburn: moderately deep poorly drained soils with a fragipan; formed in mixed loess and colluvium
- Kaihiku: well drained, weakly leached Melanic soil found predominantly on north facing slopes; formed predominantly in gravelly colluvium

Similar soils

Some soils that have similar properties to Taringatura soils are:

- Wendon: moderately leached Brown soil with greywacke bedrock within 45cm depth
- Tyneholm: moderately leached Brown soil with tuffaceous greywacke bedrock within 45cm depth
- Mandeville: Melanic soil with tuffaceous greywacke bedrock within 45cm depth
- Kaiwera: strongly leached Brown soil, with P-retention >85% and pH values of <5.5 in the subsoil; occur in moister environments, such as shady slopes and/or higher rainfall

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.

Taringatura profile	Horizon	Depth (cm)	Description
	Ap	0–20	Greyish yellow-brown very gravelly silt loam; compact particle packing; moderately developed very fine to medium polyhedral structure; gravels highly weathered and angular; abundant roots
	Ap/Bt	20–50	Bright yellowish brown very gravelly silt loam; many clay coats on ped faces and in pores; compact particle packing; moderately developed very fine to medium polyhedral structure; gravels highly weathered and angular; abundant roots
	R	35–55+	on sandstone
	R	35–55+	on sandstone

Key profile features

Taringatura topsoils are 15–25cm deep and have a moderately developed structure. Subsoils also have moderately developed structure. The subsoil is commonly absent, with just a topsoil overlying the bedrock. Gravel occurs throughout the profile.

Typical physical properties

Note: values in *Italics* are estimates

Horizon	Depth (cm)	Bulk density	Permeability	Texture	Gravel content
Ap	0–20	Moderate	<i>Moderate</i>	Silt loam	Very gravelly
Ap/Bt	20–50	—	<i>Moderate</i>	Silt loam	Very gravelly
R	50+	—	—	—	Extremely gravelly

Profile drainage: Well
Plant readily available water: *Moderate*
Potential rooting depth: Shallow
Rooting restriction: Subsoil gravelliness and/or presence of bedrock

Key physical properties

Taringatura soils have a shallow rooting depth, restricted by the gravelliness and bedrock in the subsoil, and moderate available water. These soils are well drained, with good aeration and permeability throughout the soil. Textures are typically silt loam, with topsoil clay content of 20–30%. The soils are gravelly throughout, and typically have at least 35% gravel within 45cm depth. Bedrock also typically occurs within 45cm depth.

Typical chemical properties

Horizon	Depth (cm)	pH	P retention	CEC	BS	Ca	Mg	K	Na
Ap	0–20	Low	Moderate	Moderate	Low	Low	Moderate	Moderate	Low
Ap/Bt	20–50	Low	Moderate	Moderate	Low	Low	Moderate	Low	Low
R	50+	—	—	—	—	—	—	—	—

Key chemical properties

Topsoil organic matter content is 3.5–6.5%, P-retention 25–50% and pH low to moderate (low–mid 5s). Cation exchange is moderate and base saturation low. Available calcium is low with magnesium and potassium levels moderate. Soil reserves of phosphorus and sulphur are low. Micronutrient levels are generally adequate although molybdenum responses in legumes can be expected.

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	severe	These soils have a severe vulnerability to structural degradation by long-term cultivation, or compaction by heavy stocking and vehicles. This rating reflects the good drainage, offset by 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 moderate water-holding capacity, with good drainage and permeability.
Topsoil erodibility by water	slight	Due to the low-moderate clay and organic matter levels, topsoil erodibility in these soils is slight. Erodibility is highly dependent on management, particularly when there is no vegetation cover.
Organic matter loss	moderate	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	slight	These soils have a slight vulnerability to waterlogging during wet periods. This rating reflects the good drainage. The hilly and steep phases will have nil vulnerability.

General landuse versatility ratings for Taringatura 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.

TnH3 (Taringatura hilly shallow)

TnS3 (Taringatura steep shallow)

Versatility evaluation for soil TnH3, TnS3		
Landuse	Versatility rating	Main limitation
Non-arable horticulture	Unsuitable	Hilly and steep slopes
Arable	Unsuitable	Hilly and steep slopes
Intensive pasture	Limited	Hilly and steep slopes; restricted rooting depth
Forestry	Limited	Restricted rooting depth; steep slopes on steep phases

TnU3 (Taringatura undulating shallow)**TnR3 (Taringatura rolling shallow)**

Versatility evaluation for soil TnU3, TnR3		
Landuse	Versatility rating	Main limitation
Non-arable horticulture	Limited	Vulnerability to leaching to groundwater; restricted rooting depth
Arable	Limited	Restricted rooting depth; vulnerability to leaching to groundwater; rolling slopes on rolling phases.
Intensive pasture	Limited	Vulnerability to leaching to groundwater; restricted rooting depth
Forestry	Limited	Restricted rooting depth.

Management practices that may improve soil versatility

- Careful management of fertiliser nutrient applications to avoid leaching losses.
- Organic matter levels should be carefully maintained and enhanced
- Long-term intensive cultivation should be carefully managed to minimise structural degradation

Soil profiles available for Taringatura soils

Soil symbol	Profile ID	Topoclimate map sheet	Profile description available	Physical data available	Chemical data available	Profile photo available
TnH3	DT 9	37	✓	✓	✓	✓
TnH3	CT17	6	✓	✓	✓	✓
TnR3	DT 8	37	✓	✓	✓	✓
TnS3	DT 10	37	✓	✓		

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