

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: **Honeywood**

Overview

Honeywood soils occupy about 700 ha on remnant high terraces in the Mossburn/Castlerock district of northern Southland. They are formed into a thin layer of loess overlying moderately to strongly weathered gravelly alluvium derived from dominantly greywacke rocks. Soils are imperfectly drained, shallow to moderately deep, and have moderate plant available water. Present use is pastoral farming with sheep and beef cattle and some cropping. Climate is temperate with cold winters and occasionally dry summers when soils can be dry.

Soil classification

NZ Soil Classification (NZSC):

Mottled-acidic Firm Brown; rounded-stoney, hard sandstone; clayey.

Previous NZ Genetic Classification:

Weak to moderately gleyed yellow-grey earth.

Classification explanation

Honeywood soils have been reclassified from the previous classification based the soil properties being more similar to Brown soils than Pallic soils. This is reflected in the lack of firm subsoil, and P-retention of greater than 30% throughout the profile. Honeywood soils typically have a pH of less than 5.5 in the subsoil, gravels occur within 45cm depth, and they have silty clay textures.

Soil phases and variants

Identified units in the Honeywood soils are:

- Honeywood undulating shallow (HjU3): has gravel within 45cm depth; occurs on slopes of 0–7°
- Honeywood undulating moderately deep (HjU2): has gravel between 45 and 90cm depth; occurs on slopes of 0–7°

The soil properties described in this Technical Data Sheet are based on the most common phase, Honeywood undulating shallow (HjU3). Values for other phases and variants can be taken as being similar. Where they differ significantly they are recorded with a separate versatility rating.

Associated soils

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

- Dipton: poorly drained shallow soil on a terrace
- Glenure: poorly drained deep to moderately deep soil on terraces and downlands

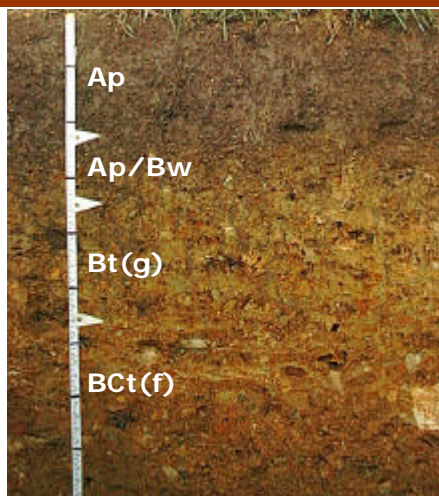
Similar soils

Some soils that have similar properties to Honeywood soils are:

- Kaweku: occurs on similar surfaces in the Waimea Plain; are well drained with silt loam topsoil textures
- Benio: on older terraces; generally more leached and gravels are strongly weathered
- Wairaki: occur on high terraces from the Takitimu Mountains
- Oreti: occur on intermediate terraces; gravels only slightly weathered with a cemented pan

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.

Honeywood profile	Horizon	Depth (cm)	Description
	Ap	0–23	Greyish yellow-brown slightly gravelly silty clay; firm soil strength; moderately developed coarse blocky and medium polyhedral structure; gravels moderately weathered and rounded; abundant roots.
	Ap/Bw	23–35	Dull yellow-orange moderately gravelly silty clay; few bright brown mottles; many wormcasts; slightly firm soil strength; moderately developed medium polyhedral structure; gravels subrounded and highly weathered; many roots.
	Bt(g)	35–56	Greyish yellow-brown very gravelly silty clay; common dull yellow-orange and few orange mottles; few wormcasts; slightly firm soil strength; moderately developed fine to coarse blocky structure; gravels subrounded and highly weathered; many roots.
	BCt(f)	56–90+	Orange very gravelly silty clay; few dull yellow-orange mottles; slightly firm soil strength; massive structure; gravels subrounded and highly weathered; few roots.

Key profile features

Honeywood topsoils are about 23–26cm deep with a moderately developed structure. Subsoils also have a moderately developed structure that grades to a massive structure below 50cm depth. Gravel occurs throughout the soil, and is typically moderately to highly weathered. Clay has accumulated in the subsoil, resulting in clayey textures. Roots generally become restricted in the lower subsoil.

Typical physical properties

Note: values in *Italics* are estimates

Horizon	Depth (cm)	Bulk density	Permeability	Texture	Gravel content
Ap	0–23	High	<i>Moderate</i>	Silty clay	Slightly gravelly
Ap/Bw	23–35	Moderate–high	<i>Moderate</i>	Silty clay	Moderately gravelly
Bt(g)	35–56	Moderate–high	<i>Moderate</i>	Silty clay	Very gravelly
BC(f)	56–90+	Moderate–high	<i>Slow</i>	Silty clay	Very gravelly

Profile drainage:	Imperfect
Plant readily available water:	<i>Moderate</i>
Potential rooting depth:	Moderately deep
Rooting restriction:	Subsoil gravels in shallow phases

Key physical properties

Honeywood soils have a moderately deep rooting depth (60–90cm) and a moderate plant available water content. The soils are imperfectly drained, with a slowly permeable subsoil that may cause aeration limitations during wet periods. Textures are silty clays, with a topsoil clay content of about 35–45%. Gravel can occur throughout the profile.

Typical chemical properties

Horizon	Depth (cm)	pH	P retention	CEC	BS	Ca	Mg	K	Na
Ap	0–23	Moderate	Moderate	Moderate	High	High	Moderate	Moderate	Low
Ap/Bw	23–35	Moderate	Moderate	Moderate	Moderate	Moderate	Very low	Very low	Low
Bt(g)	35–56	Moderate	Moderate	Moderate	Low	Low	Low	Very low	Low
Bt(f)	56–90+	Moderate	Moderate	Moderate	Low	Low	Moderate	Very low	Low

Key chemical properties

Topsoil organic matter values are about 8%; P-retention 30–50% and topsoil pH moderate (high 5s). Subsoil Ph values are low (low5s). Cation exchange values are moderate with base saturation levels high, grading to low in the subsoil. Available calcium values are high with magnesium and potassium values moderate. Soil reserve phosphorus levels are low. Micrinutrient levels are generally 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	moderate	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, offset by the moderate to high clay content.
Nutrient leaching	severe	These soils have a slight vulnerability to leaching to groundwater. This rating reflects the moderate water holding capacity, offset by the imperfect drainage and slowly permeable subsoil.
Topsoil erodibility by water	slight	Due to the moderate to high clay content, 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	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 for Honeywood 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.

HjU3 (Honeywood undulating shallow)

HjU2 (Honeywood undulating moderately deep)

Versatility evaluation for soil HjU3,HjU2		
Landuse	Versatility rating	Main limitation
Non-arable horticulture	Moderate	Inadequate aeration during wet periods; risk of short-term waterlogging after heavy rainfall
Arable	Moderate	Inadequate aeration during wet periods; risk of short-term waterlogging after heavy rainfall
Intensive pasture	Moderate	Inadequate aeration during wet periods; vulnerability to leaching to groundwater.
Forestry	Moderate	Vulnerability to sustained waterlogging; restricted rooting depth for moderately deep phase.

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 use should be minimised during these periods.

Soil profiles available for Honeywood soils

Soil symbol	Profile ID	Topoclimate map sheet	Profile description available	Physical data available	Chemical data available	Profile photo available
HjU2	FT15	15	✓	✓	✓	✓
HjU3	159/75/36	43	✓			

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