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This information sheet describes the typical average properties of the specified soil to a depth of 1 metre, and should not be the primary source of data when making land use decisions on individual farms and paddocks.

## Kainuif

## Podzolic Yellow Ultic Soil

Kainu\_2a.1 (100% of the mapunit at location (5824058, 1800925), Confidence: Medium)

### Key physical properties

Depth class (diggability)	Deep (> 1 m)
Texture profile	Silty Loam Over Clay
Potential rooting depth	Unlimited
Rooting barrier	No significant barrier within 1 m
Topsoil stoniness	Stoneless
Topsoil clay range	20 - 35 %
Drainage class	Moderately well drained
Aeration in root zone	Moderately limited
Permeability profile	Moderate Over Slow
Depth to slowly permeable horizon	35 - 60 (cm)
Permeability of slowest horizon	Slow (< 4 mm/h)
Profile available water	(0 - 100cm or root barrier) Moderate to high (140 mm)
	(0 - 60cm or root barrier) Very high (115 mm)
	(0 - 30cm or root barrier) High (69 mm)
Dry bulk density, topsoil	1.22 g/cm <sup>3</sup>
Dry bulk density, subsoil	1.42 g/cm <sup>3</sup>
Depth to hard rock	No hard rock within 1 m
Depth to soft rock	No soft rock within 1 m
Depth to stony layer class	No significant stony layer within 1 m

### Key chemical properties

Topsoil P retention	Medium (32%)
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### About this publication

- This information sheet describes the *typical average properties* of the specified soil to a depth of 1 metre.
- For further information on individual soils, contact Landcare Research New Zealand Ltd: [www.landcareresearch.co.nz](http://www.landcareresearch.co.nz)
- Advice should be sought from soil and land use experts before making decisions on individual farms and paddocks.
- The information has been derived from numerous sources. It may not be complete, correct or up to date.
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- Landcare Research shall not be liable on any legal basis (including without limitation negligence) and expressly excludes all liability for loss or damage howsoever and whenever caused to a user of this factsheet.



### Additional factors to consider in choice of management practices

Vulnerability classes relate to soil properties only and do not take into account climate or management

#### Soil structure integrity

Structural vulnerability	Moderate (0.55)
Pugging vulnerability	not available yet

#### Water management

Water logging vulnerability	Moderate
Drought vulnerability - if not irrigated	Low
Bypass flow	High
Hydrological soil group	C
Irrigability	Rolling land with slight drainage/permeability restrictions and soils with high to very high PAW

#### Contaminant management

N leaching vulnerability	Medium
P leaching vulnerability	not available yet
Bypass flow	High
Dairy effluent (FDE) risk category	C
Relative Runoff Potential	Low

### Additional information

Soil classification	Podzolic Yellow Ultic Soils
Family	Kainuif
Sibling number	2
Profile texture group	Silty
Soil profile material	Tephric soil
Rock class of stones/rocks	Not Applicable
Rock origin of fine earth	From Rhyolitic And Andesite Rock
Parent material origin	Tephra

#### Characteristics of functional horizons in order from top to base of profile:

Functional Horizon	Thickness	Stones	Clay*	Sand*
Loamy Weak, Acidic Tephric	10 - 20 cm	0 %	20 - 35 %	10 - 20 %
Loamy Weak, Acidic Tephric	20 - 50 cm	0 %	25 - 35 %	8 - 18 %
Clayey Fine Firm, Acidic Tephric	40 - 60 cm	0 %	65 - 85 %	1 - 6 %

\* clay and sand percent values are for the mineral fines (excludes stones). Silt = 100 - (clay + sand)

## Soil information for OVERSEER

The following information can be entered in the OVERSEER® Nutrient Budget model. This information is derived from the S-map soil properties which are matched to the most appropriate OVERSEER categories. Please read the notes below for further information.

### Soil description page

1. Select **Link to S-map**
2. Under S-map sibling data enter the S-map name/ref: **Kainu\_2a.1**

### Considerations when using Smap soil properties in OVERSEER

- The soil water values are estimated using a regression model based on soil order, parent rock, soil functional horizon information (stone content, soil density class), as well as texture (field estimates of sand, silt and clay percentages). The model is based on laboratory - measured water content data held in the National Soils Database and other Landcare Research datasets. Most of this data comes from soils under long-term pasture and may vary from land under arable use, irrigation, etc.
- Each value is an estimate of the water content of the whole soil within the target depth range or to the depth of the root barrier (if this occurs above the base of the target depth). Where soil layers contain stones, the soil water content has been decreased according to the stone content.
- S-map only contains information on soils to a depth of 100 cm. The soil water estimates in the > 60 cm depth category assume that the bottom functional horizon that extends to 100 cm, continues down to a depth of 150cm. Where it is known by the user that there is an impermeable layer or non-fractured bedrock between 100 and 150 cm, this depth should be entered into OVERSEER. Where there is a change in the soil profile characteristics below 100 cm, the user should be aware that the values provided on this factsheet for the > 60 cm depth category will not reflect this change. For example, the presence of gravels at 120 cm would usually result in lower soil water estimates in the > 60 cm depth category. Note though that this assumption only impacts on a cropping block, as OVERSEER uses soil data from just the top 60 cm in pastoral blocks.
- OVERSEER requires the soil water values to be non-zero integers (even though zero is a valid value below a root barrier), and the wilting point value must be less than the field capacity value which must be less than the saturation value. The S-map water content estimates supplied by the S-map web service have been rounded to integers and may be assigned minimal values to meet these OVERSEER requirements. These modifications will result in a slightly less accurate estimate of Available Water to 60 cm (labelled PAW in OVERSEER) than that provided on the first page of this factsheet, but this is not expected to lead to any significant difference in outputs from OVERSEER.

