Landcare Research
Manaaki Whenua

# SOIL REPORT

Environment Canterbury

Report generated: 5-Jun-2013 from http://smap.landcareresearch.co.nz

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.

## Hororata very stony silt loam, bouldery phase (Lism_2.1)

**Family: Lismore*f***

### Key physical properties

| | | |
|---|---|---|
| **Texture** | | Silty Loam |
| **Topsoil clay range** | | 15 - 25 % |
| **Depth class (diggability)** | | Shallow (20 - 40 cm) |
| **Potential rooting depth** | | Unlimited |
| **Rooting barrier** | | No significant barrier within 1 m |
| **Topsoil stoniness** | | Moderately stony |
| **Depth to stony layer class** | | Shallow |
| **Drainage class** | | Well drained |
| **Aeration in root zone** | | Unlimited |
| **Permeability profile** | | Moderate Over Rapid |
| **Depth to slowly permeable horizon** | | No slowly permeable horizon |
| **Permeability of slowest horizon** | | Moderate (4 - 72 mm/h) |
| **Profile total available water** | (0 - 100cm) | Moderate to low (74 mm) |
| **Profile readily available water** | (0 - 100cm) | |
| **Topsoil available water** | (0 - 30cm) | Moderate (42 mm) |
| **Topsoil readily available water** | (0 - 30cm) | |
| **Dry bulk density, topsoil** | | 1.09 (g/cm3) |
| **Dry bulk density, subsoil** | | 1.53 (g/cm3) |
| **Depth to hard rock** | | No hard rock within 1 m |
| **Depth to soft rock** | | No soft rock within 1 m |
| **Structural vulnerability** | | Moderate (0.52) |

### About this publication

- This information sheet describes the *typical average properties* of the specified soil.
- For further information on individual soils, contact Landcare Research New Zealand Ltd: www.landcareresearch.co.nz
- Advice should be sought from soil and land use experts before making decisions on individual farms and paddocks.
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## Hororata very stony silt loam, bouldery phase (Lism_2.1) — Family: Lismore*f*

### Key chemical properties

| | |
|---|---|
| **Topsoil P retention** | Medium (43%) |

### Additional factors to consider in choice of crop and irrigation management practices

| | |
|---|---|
| **Water logging vulnerability** | Very low |
| **Drought vulnerability - if not irrigated** | Moderate |
| **Soil erosivity** | Moderate |

### Additional information

| | |
|---|---|
| **Soil classification** | Pallic Firm Brown Soils |
| **Family** | Lismore*f* |
| **Sibling number** | 2 |
| **Profile texture group** | Silty |
| **Soil profile material** | Rounded stony soil |
| **Rock class of stones/rocks** | From Hard Sandstone Rock |
| **Rock origin of fine earth** | From Hard Sandstone Rock |
| **Parent material origin** | Alluvium |

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

| Functional Horizon | Thickness | Stones | Clay | Sand |
|---|---|---|---|---|
| Stony Loamy Weak | 12 - 25 cm | 10 - 35 % | 15 - 25 % | 5 - 40 % |
| Stony Loamy Fine Slightly Firm | 0 - 25 cm | 20 - 35 % | 12 - 25 % | 5 - 40 % |
| Very Stony Loamy Compact | 15 - 25 cm | 35 - 60 % | 8 - 20 % | 10 - 60 % |
| Very Stony Loamy Loose | 0 - 25 cm | 50 - 70 % | 5 - 15 % | 20 - 70 % |
| Very Stony Sandy Loose | 40 - 55 cm | 50 - 75 % | 1 - 4 % | 85 - 95 % |

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## Ashwick very stony silt loam (Balm_10.2)

**Family: Balmoral*f***

### Key physical properties

| | | |
|---|---|---|
| **Texture** | | Silty Loam |
| **Topsoil clay range** | | 15 - 25 % |
| **Depth class (diggability)** | | Very Shallow (5 - 10 cm) |
| **Potential rooting depth** | | 60 - 100 (cm) |
| **Rooting barrier** | | Extremely gravelly |
| **Topsoil stoniness** | | Very stony |
| **Depth to stony layer class** | | Shallow |
| **Drainage class** | | Well drained |
| **Aeration in root zone** | | Unlimited |
| **Permeability profile** | | Moderate Over Rapid |
| **Depth to slowly permeable horizon** | | No slowly permeable horizon |
| **Permeability of slowest horizon** | | Moderate (4 - 72 mm/h) |
| **Profile total available water** | (0 - 100cm) | Low (49 mm) |
| **Profile readily available water** | (0 - 100cm) | |
| **Topsoil available water** | (0 - 30cm) | Moderate (32 mm) |
| **Topsoil readily available water** | (0 - 30cm) | |
| **Dry bulk density, topsoil** | | 1.09 (g/cm3) |
| **Dry bulk density, subsoil** | | 1.42 (g/cm3) |
| **Depth to hard rock** | | No hard rock within 1 m |
| **Depth to soft rock** | | No soft rock within 1 m |
| **Structural vulnerability** | | Moderate (0.55) |

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## Ashwick very stony silt loam (Balm_10.2) — Family: Balmoral*f*

### Key chemical properties

| | |
|---|---|
| **Topsoil P retention** | Medium (36%) |

### Additional factors to consider in choice of crop and irrigation management practices

| | |
|---|---|
| **Water logging vulnerability** | Very low |
| **Drought vulnerability - if not irrigated** | High |
| **Soil erosivity** | Moderate |

### Additional information

| | |
|---|---|
| **Soil classification** | Acidic Orthic Brown Soils |
| **Family** | Balmoral*f* |
| **Sibling number** | 10 |
| **Profile texture group** | Silty |
| **Soil profile material** | Rounded stony soil |
| **Rock class of stones/rocks** | From Hard Sandstone Rock |
| **Rock origin of fine earth** | From Hard Sandstone Rock |
| **Parent material origin** | Alluvium |

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

| Functional Horizon | Thickness | Stones | Clay | Sand |
|---|---|---|---|---|
| Very Stony Loamy Loose | 6 - 30 cm | 35 - 60 % | 15 - 25 % | 5 - 30 % |
| Very Stony Loamy Loose | 6 - 17 cm | 40 - 70 % | 8 - 20 % | 15 - 60 % |
| Very Stony Sandy Loose | 30 - 75 cm | 60 - 70 % | 2 - 5 % | 80 - 95 % |
| Extremely Stony Sandy | 0 - 40 cm | 70 - 90 % | 1 - 3 % | 85 - 95 % |

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# S-map Soil Report

Report generated: 26-Feb-2013 from http://smap.landcareresearch.co.nz

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## Ruapuna*f*

Ruap4z (60% of the mapunit at location (5201873, 1512871), Confidence: Medium)

S-map ref: Ruap_10.1

### Key physical properties

| | | |
|---|---|---|
| **Depth class (diggability)** | | Very Shallow (> 1 m) |
| **Texture profile** | | Silty Loam |
| **Potential rooting depth** | | Unlimited |
| **Rooting barrier** | | No significant barrier within 1 m |
| **Topsoil stoniness** | | Very stony |
| **Topsoil clay range** | | 15 - 25 % |
| **Drainage class** | | Well drained |
| **Aeration in root zone** | | Unlimited |
| **Permeability profile** | | Moderate Over Rapid |
| **Depth to slowly permeable horizon** | | No slowly permeable horizon |
| **Permeability of slowest horizon** | | Moderate (4 - 72 mm/h) |
| **Profile total available water** | (0 - 100cm) | Moderate to low (68 mm) |
| **Top 60 cm available water** | (0 - 60cm) | Low (54 mm) |
| **Top 30 cm available water** | (0 - 30cm) | Moderate (37 mm) |
| **Dry bulk density, topsoil** | | 1.09 (g/cm3) |
| **Dry bulk density, subsoil** | | 1.42 (g/cm3) |
| **Depth to hard rock** | | No hard rock within 1 m |
| **Depth to soft rock** | | No soft rock within 1 m |

### Key chemical properties

| | |
|---|---|
| **Topsoil P retention** | Medium (43%) |

### Overseer values

| | |
|---|---|
| **Soil Order** | Brown |
| **Sand parent material** | |
| **Topsoil soil texture** | |
| **Depth** | |

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## Ruapunaf

Ruap4z (60% of the mapunit at location (5201873, 1512871), Confidence: Medium)

S-map ref: Ruap_10.1

### 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***

| | |
|---|---|
| **Erodibility of soil material** | Moderate |
| **Vulnerability to rill and slip erosion** | not available yet |
| **Structural vulnerability** | Moderate (0.52) |
| **Pugging vulnerability** | not available yet |

***Water management***

| | |
|---|---|
| **Water logging vulnerability** | Very Low |
| **Drought vulnerability - if not irrigated** | Moderate |
| **Bypass flow** | Medium |
| **Hydrological soil group** | A |
| **Irrigability** | Flat to very gently undulating land with good drainage/permeability and soils with low PAW |

***Contaminant management***

| | |
|---|---|
| **N leaching vulnerability** | Very High |
| **P leaching vulnerability** | not available yet |
| **Runoff potential** | Very Low |
| **Bypass flow** | Medium |
| **Dairy effluent (FDE) risk category:** | D |

### Additional information

| | |
|---|---|
| **Soil classification** | Acidic Firm Brown Soils |
| **Family** | Ruapuna*f* |
| **Sibling number** | 10 |
| **Dominant texture 0 - 60 cm** | Silty |
| **Soil profile material** | Rounded stony soil |
| **Rock class of stones/rocks** | From Hard Sandstone Rock |
| **Rock origin of fine earth** | From Hard Sandstone Rock |
| **Parent material origin** | Alluvium |

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

| Functional Horizon | Thickness | Stones | Clay | Sand |
|---|---|---|---|---|
| Very Stony Loamy Compact | 12 - 20 cm | 20 - 45 % | 15 - 25 % | 5 - 30 % |
| Very Stony Loamy Loose | 20 - 35 cm | 40 - 60 % | 15 - 20 % | 5 - 40 % |
| Very Stony Sandy Compact | 0 - 30 cm | 50 - 70 % | 3 - 10 % | 70 - 90 % |
| Very Stony Sandy Loose | 40 - 60 cm | 50 - 75 % | 1 - 4 % | 80 - 95 % |