

GRADATIONAL LOAM OVER CLAY ON WEATHERED ROCK

General Description: *Medium thickness brown loam over pinkish clay loam grading to red or orange well structured clay over weathering fine grained basement rock*

Landform: Rolling low hills

Substrate: Weathered micaceous siltstone

Vegetation: Eucalyptus oblique forest.
Current land use - viticulture



| | | | | |
|-------------------|----------------|-------------|--------------------|----------------------|
| Type Site: | Site No.: | CH175A | 1:50,000 mapsheet: | 6628-2 (Onkaparinga) |
| | Hundred: | Onkaparinga | Easting: | 302260 |
| | Section: | | Northing: | 6136600 |
| | Sampling date: | 09/12/2012 | Annual rainfall: | 920 mm average |

Midslope of low hill, 15% slope. Elevation is 520 m, with SW aspect. Firm surface with 2% quartzite stones to 2 cm. This section of vineyard has no added compost.

Soil Description:

| <i>Depth (cm)</i> | <i>Description</i> |
|-------------------|--|
| 0-12 | Dark reddish brown friable loam with strong granular structure. Clear to: |
| 12-33 | Dark reddish brown firm clay loam with moderate granular structure. Clear to: |
| 33-50 | Reddish brown firm light clay with strong subangular blocky structure and up to 10% weathering rock fragments. Gradual to: |
| 50-90 | Reddish brown firm medium clay with strong subangular blocky structure and up to 10% weathering rock fragments. Clear to: |
| 90-120 | Weathering micaceous siltstone, yellowish brown in colour, with texture of silty light clay. |



Classification: Haplic, Eutrophic, Red Dermosol; medium, slightly gravelly, loamy / clayey, deep



Summary of Properties

- Drainage:** Moderately well drained. No part of the profile is likely to remain wet for more than a week or so at a time.
- Fertility:** Inherent fertility is moderate, as indicated by the exchangeable cation data. CEC of 10 cmol(+)/kg in deep subsoil indicates that the soil's clay minerals can satisfactorily retain nutrient elements. Retention capacity in the surface is high due to organic carbon levels. Phosphorus levels are satisfactory, with good P holding capacity. Boron is marginally low in subsoil, copper levels are very high, zinc is high. Elevated magnesium under dripper.
- pH:** Neutral at the surface, slightly acidic with depth.
- Rooting depth:** Good root growth to 50 cm, some roots to 90 cm.
- Barriers to root growth:**
- Physical:** There are no apparent physical barriers.
- Chemical:** There are no apparent chemical barriers, other than slightly elevated salinity at the surface, and mild sodicity (ESP > 6), in subsoil.
- Waterholding capacity:** Approximately 110 mm (total) in potential rootzone (upper 90 cm), with readily available capacity (RAW) of approximately 45 mm.
- Seedling emergence:** Good.
- Workability:** The surface soil is readily worked.
- Erosion Potential:**
- Water:** Moderately high due to land slope. Perennial crop with good ground cover minimises hazard.
- Wind:** Low.

Laboratory Data

| Depth cm | pH H ₂ O | pH CaCl ₂ | Ext. Al mg/kg | EC 1:5 dS/m | Cl mg/kg | Org.C % | NO ₃ mg/kg | Avail. P mg/kg | PBI | Avail. K mg/kg | SO ₄ -S mg/kg | Boron mg/kg | Trace Elements mg/kg (DTPA) | | | | CEC cmol (+)/kg | Exchangeable Cations cmol(+)/kg | | | | ESP | |
|-----------------|------------------------|-------------------------|---------------------|----------------|-------------|------------|--------------------------|----------------------|-----|----------------------|-----------------------------|----------------|--------------------------------|------|------|------|-----------------------|------------------------------------|------|------|-----|-----|--|
| | | | | | | | | | | | | | Cu | Fe | Mn | Zn | | Ca | Mg | Na | K | | |
| Under Drip | 7.8 | 7.0 | - | 0.28 | 139 | 4.54 | 38 | 38 | 202 | 267 | 18.3 | 1.0 | 52.3 | 50.3 | 18.4 | 23.1 | 31 | 22 | 6.87 | 1.44 | 0.7 | 5 | |
| Between Drip | 7.4 | 7.0 | - | 0.26 | 89 | 4.36 | 54 | 62 | 184 | 505 | 10.8 | 1.1 | 45.9 | 45.8 | 13.9 | 22.5 | 29 | 25 | 2.57 | 0.22 | 1.2 | 1 | |
| Mid Row | 7.3 | 6.9 | - | 0.20 | 74 | 4.72 | 36 | 19 | 169 | 377 | 9.2 | 1.2 | 25.2 | 47.5 | 14.5 | 8.36 | 32 | 28 | 2.21 | 0.18 | 0.9 | 1 | |
| | | | | | | | | | | | | | | | | | | | | | | | |
| 0-12 | 7.3 | 6.9 | 0.66 | 0.33 | 128 | 4.07 | 50 | 42 | 143 | 214 | 16 | 0.7 | 36.8 | 111 | 37.1 | 6.30 | 27 | 22 | 3.82 | 1.05 | 0.6 | 4 | |
| 12-33 | 7.1 | 6.3 | 0.26 | 0.21 | - | 3.54 | 15 | 16 | 190 | 118 | 12 | 0.3 | 13.6 | 46.9 | 4.67 | 1.84 | 15 | 12 | 2.24 | 1.28 | 0.3 | 8 | |
| 33-50 | 6.7 | 5.8 | <0.20 | 0.08 | - | 1.06 | 2 | 11 | 163 | 110 | 5.4 | 0.3 | 2.3 | 30.5 | 1.44 | 0.75 | 7 | 3.4 | 2.96 | 0.48 | 0.3 | 7 | |
| 50-90 | 6.5 | 5.6 | 0.21 | 0.06 | - | 0.82 | 2 | 22 | - | 68 | 8.3 | 0.4 | 1.28 | 15.1 | 0.15 | 0.67 | 10 | 3.5 | 5.65 | 0.48 | 0.2 | 5 | |

Note: Trace elements in 0-12cm layer analysed using EDTA.

CEC (exchangeable cation capacity) is a measure of the soil's capacity to store and release major nutrient elements.

ESP (exchangeable sodium percentage) is derived by dividing the exchangeable sodium value by the CEC.

Further information: [DEWNR Soil and Land Program](#)

