

LOAM OVER COARSELY STRUCTURED RED CLAY

General Description: *Hardsetting loam over a coarsely structured red clay, calcareous with depth*

Landform: Gently sloping pediments below undulating low hills.

Substrate: Clayey alluvium derived from fine grained basement rocks. Contains fine carbonates leached in from aeolian deposition.

Vegetation: -

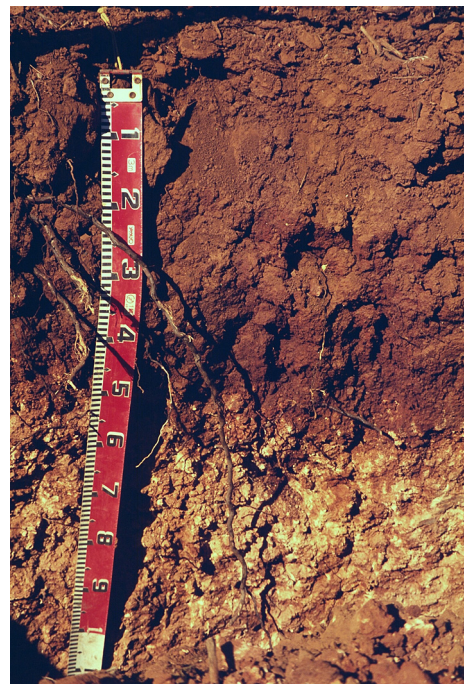


| | | | | |
|-------------------|----------------|-----------|--------------------|------------------|
| Type Site: | Site No.: | CL044C | 1:50,000 mapsheet: | 6628-1 (Barossa) |
| | Hundred: | Nuriootpa | Easting: | 306630 |
| | Section: | 101 | Northing: | 6180150 |
| | Sampling date: | 22/04/08 | Annual rainfall: | 500 mm average |

Lower slope of gently inclined pediment (5% slope). Hardsetting surface with no stones.

Soil Description:

| <i>Depth (cm)</i> | <i>Description</i> |
|-------------------|---|
| 0-15 | Dark reddish brown hard massive loam. Abrupt to: |
| 15-35 | Dark reddish brown very hard medium heavy clay with moderate coarse prismatic, breaking to strong fine angular blocky structure, and 2-10% siltstone fragments to 20 mm. Gradual to: |
| 35-50 | Dark reddish brown very hard medium heavy clay with strong coarse angular blocky, breaking to strong fine angular blocky structure. Clear to: |
| 50-80 | Red hard very highly calcareous medium clay with moderate medium angular blocky structure, 20-50% fine carbonate and 2-10% calcareous nodules to 20 mm. Diffuse to: |
| 80-120 | Reddish brown hard slightly calcareous medium clay with strong fine angular blocky structure and 10-20% fine carbonate segregations. Diffuse to: |
| 120-170 | Reddish brown very hard slightly calcareous medium clay with strong medium angular blocky structure, 10-20% fine and nodular carbonate segregations, and 2-10% weathered siltstone fragments. |



Classification: Hypercalcic, Subnatric, Red Sodosol; medium, non-gravelly, loamy / clayey, deep



Summary of Properties

- Drainage:** Moderately well drained. The clayey subsoil perches water, saturating the lower part of the topsoil for a week or at a time following heavy or prolonged rainfall. This is only likely to affect grape vines in the event of heavy summer rain.
- Fertility:** Inherent fertility is moderately high, as indicated by the exchangeable cation data. Both topsoil and subsoil have ample nutrient retention capacity. Data indicate satisfactory levels of all tested nutrients. Elevated copper and zinc levels in the topsoil are possibly old pesticide residues.
- pH:** Slightly alkaline at the surface (irrigation and/or road dust effect), alkaline with depth. Natural surface pH likely to be neutral, or slightly acidic.
- Rooting depth:** There are some roots to 120 cm, moderate growth between 50 and 80 cm, with most growth in the upper 50 cm.
- Barriers to root growth:**
- Physical:** The coarsely structured subsoil clay prevents uniform proliferation of roots.
 - Chemical:** There are no apparent chemical barriers. Mild sodicity and small peaks in salinity, chloride and boron in the 35-50 cm layer indicate leached salts from irrigation water.
- Waterholding capacity:** (Estimates for potential rootzone of irrigated crops)
 Total available: 130 mm
 Readily available: 60 mm
- Seedling emergence:** Fair due to hard setting sealing surface.
- Workability:** Fair. Surface tends to shatter if worked too dry, and puddle if worked too wet.
- Erosion Potential:**
- Water:** Moderate.
 - Wind:** Low.

Laboratory Data

| Depth cm | pH H ₂ O | pH CaCl ₂ | CO ₃ % | EC 1:5 dS/m | ECe dS/m | Org.C % | Avail. P mg/kg | Avail. K mg/kg | Cl mg/kg | SO ₄ -S mg/kg | Boron mg/kg | Trace Elements mg/kg (EDTA) | | | | Sum cations cmol (+)/kg | Exchangeable Cations cmol(+)/kg | | | | Est. ESP |
|-------------|------------------------|-------------------------|----------------------|----------------|-------------|------------|----------------------|----------------------|-------------|-----------------------------|----------------|--------------------------------|----|------|------|----------------------------------|------------------------------------|------|------|------|-------------|
| | | | | | | | | | | | | Cu | Fe | Mn | Zn | | Ca | Mg | Na | K | |
| 0-15 | 8.1 | 7.2 | 0 | 0.07 | 0.57 | 1.23 | 81 | 489 | 29 | 5.3 | 0.5 | 19.7 | 81 | 264 | 8.49 | 17.2 | 9.72 | 5.40 | 0.83 | 1.20 | 4.8 |
| 15-35 | 7.4 | 6.4 | 0 | 0.09 | 0.59 | 0.91 | 9 | 470 | 98 | 11.3 | 1.1 | 5.31 | 40 | 98.7 | 0.46 | 28.8 | 17.9 | 7.47 | 2.05 | 1.38 | 7.1 |
| 35-50 | 7.3 | 6.5 | 0 | 0.15 | 1.17 | 0.74 | 3 | 405 | 198 | 15.8 | 2.4 | 5.08 | 38 | 90.1 | 0.36 | 31.0 | 18.8 | 9.09 | 1.99 | 1.18 | 6.4 |
| 50-80 | 8.8 | 8.0 | 25.0 | 0.15 | 0.96 | 0.32 | 5 | 352 | 102 | 17.5 | 1.7 | 1.31 | 6 | 7.05 | 0.30 | 24.6 | 17.5 | 5.62 | 0.58 | 0.90 | 2.4 |
| 80-120 | 8.9 | 8.1 | 20.3 | 0.16 | 0.99 | 0.18 | 2 | 461 | 93 | 29.5 | 2.1 | 1.02 | 6 | 3.50 | 0.31 | 22.8 | 15.0 | 6.23 | 0.54 | 1.07 | 2.4 |
| 120-170 | 8.8 | 8.2 | 6.2 | 0.20 | 1.13 | 0.09 | 4 | 640 | 121 | 21.4 | 2.7 | 1.04 | 7 | 6.03 | 0.30 | 23.0 | 11.5 | 9.18 | 0.68 | 1.58 | 3.0 |

Note: Sum of cations, in a neutral to alkaline soil, approximates the CEC (cation exchange capacity), 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, in this case estimated by the sum of cations.

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

