

SANDY LOAM OVER BROWN MOTTLED CLAY

General Description: *Thick brown gritty sandy loam abruptly overlying a brown, grey and red mottled poorly structured clay, becoming sandier with depth*

Landform: Alluvial fans.

Substrate: Medium textured alluvium with variable quartzite fragments.

Vegetation:



| | | | | |
|-------------------|----------------|-----------|--------------------|------------------|
| Type Site: | Site No.: | CL045 | 1:50,000 mapsheet: | 6628-1 (Barossa) |
| | Hundred: | Moorooroo | Easting: | 314520 |
| | Section: | 656 | Northing: | 6175990 |
| | Sampling date: | 29/11/04 | Annual rainfall: | 530 mm average |

Lower slope of alluvial fan, 5% slope. Soft surface with no stones.

Soil Description:

| <i>Depth (cm)</i> | <i>Description</i> |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0-15 | Dark brown soft massive loamy sand. Clear to: |
| 15-35 | Reddish brown soft massive light sandy loam. Gradual to: |
| 35-55 | Light reddish brown friable massive coarse sandy loam with 2-10% quartzite gravel (6-20 mm). Abrupt to: |
| 55-85 | Yellowish brown, greyish brown and yellowish red mottled hard medium clay with weak coarse prismatic structure, breaking to moderate medium polyhedral. Gradual to: |
| 85-130 | Red, strong brown and brown mottled firm light medium clay with weak coarse prismatic structure, breaking to weak medium subangular blocky. Diffuse to: |
| 130-190 | Reddish brown and brown friable sandy clay loam with weak subangular blocky structure and 10-20% quartzite cobbles (60-200 mm). |



Classification: Eutrophic, Mottled-Subnatric, Brown Sodosol; thick, non-gravelly, sandy / clayey, deep



Summary of Properties

Drainage: Moderately well drained. Water perches on top of the clay subsoil for a week or so at a time following heavy or prolonged rainfall.

Fertility: Inherent fertility is moderately low, as indicated by the exchangeable cation data. Organic matter provides a significant proportion of nutrient retention capacity in the surface, due to low clay content. Apart from a possible zinc deficiency, concentrations of all tested nutrient elements are satisfactory.

pH: Slightly acidic at the surface, slightly alkaline with depth.

Rooting depth: 130 cm in pit.

Barriers to root growth:

Physical: The coarsely structured clay subsoil does not prevent root growth, but it restricts uniform distribution, leading to inefficient water use.

Chemical: Marginally high salinity and sodicity from 130 cm are the only chemical barriers.

Waterholding capacity: (Estimates for potential rootzone of irrigated crops)

Total available: 155 mm

Readily available: 75 mm

Seedling emergence: Satisfactory.

Workability: The sandy surface is easily worked over a range of moisture conditions.

Erosion Potential:

Water: Moderate, due to slope.

Wind: Moderately 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 | 6.5 | 5.7 | 0 | 0.062 | 0.55 | 1.19 | 94 | 371 | 6 | 4.4 | 0.6 | 7.97 | 191 | 91.6 | 3.33 | 6.2 | 4.17 | 1.00 | 0.12 | 0.90 | 1.9 |
| 15-35 | 7.1 | 6.2 | 0 | 0.038 | 0.59 | 0.20 | 45 | 266 | 9 | 2.2 | 0.3 | 2.46 | 103 | 126 | 0.70 | 3.5 | 2.15 | 0.61 | 0.08 | 0.64 | 2.3 |
| 35-55 | 7.3 | 6.5 | 0 | 0.027 | 0.46 | 0.11 | 29 | 259 | 4 | 1.9 | 0.3 | 1.32 | 90 | 105 | 0.31 | 3.1 | 1.76 | 0.65 | 0.15 | 0.54 | 4.8 |
| 55-85 | 7.5 | 6.5 | 0 | 0.065 | 0.49 | 0.25 | 2 | 235 | 24 | 24.5 | 0.9 | 1.61 | 44 | 38.4 | 0.35 | 18.7 | 8.43 | 8.39 | 1.24 | 0.64 | 6.6 |
| 85-130 | 7.5 | 6.5 | 0 | 0.118 | 1.16 | 0.15 | 2 | 157 | 72 | 23.4 | 0.8 | 1.84 | 46 | 49.8 | 0.09 | 8.9 | 3.76 | 3.92 | 0.91 | 0.31 | 10.2 |
| 130-190 | 7.7 | 6.7 | 0 | 0.164 | 2.08 | 0.12 | 2 | 135 | 130 | 20.9 | 0.8 | 1.85 | 62 | 111 | 0.08 | 12.8 | 6.03 | 4.83 | 1.64 | 0.32 | 12.8 |

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](#)

