

ACIDIC LOAMY SAND OVER BROWN CLAY ON ROCK

General Description: *Thick sandy surface overlying a yellow and grey mottled clay forming in quartzitic rock*

- Landform:** Slopes of undulating to rolling low hills.
- Substrate:** Quartzite or quartzitic metasandstone
- Vegetation:** Blue gum (*Euc. leucoxylon*) woodland



- Type Site:** Site No.: CH099
Hundred: Onkaparinga
Section: 5263
Sampling date: 06/09/96
- 1:50,000 mapsheet: 6628-2 (Onkaparinga)
Easting: 309250
Northing: 6130600
Annual rainfall: 810 mm average

Lower slope of undulating low hills, 10% gradient.

Soil Description:

| Depth (cm) | Description |
|------------|--|
| 0-15 | Dark greyish brown soft loamy sand. Diffuse to: |
| 15-30 | Greyish brown soft loamy sand. Abrupt to: |
| 30-48 | Light grey (bleached) soft loamy sand with 2-10% sandstone gravel. Abrupt to: |
| 48-75 | Yellowish brown, greyish brown and grey mottled medium heavy clay with strong coarse blocky structure. Clear to: |
| 75-100 | Yellowish brown, greyish brown and red mottled medium heavy clay with strong coarse blocky structure and 20-50% sandstone gravel. Abrupt to: |
| 100- | Hard metamorphosed sandstone. |



Classification: Bleached-Mottled, Eutrophic, Brown Chromosol; thick, non-gravelly, sandy / clayey, deep



Summary of Properties

Drainage: Imperfect. The clayey subsoil "perches" water, saturating the bleached layer and the top of the clay for weeks at a time following prolonged rainfall.

Fertility: Natural fertility is low due to the low clay content of the surface soil. Nutrient retention capacity is dependent on satisfactory levels of organic matter. Test data indicate deficiencies of magnesium, manganese and potassium.

pH: Neutral at the surface, acidic with depth.

Rooting depth: Few roots below 75 cm in pit - overall growth is weak.

Barriers to root growth:

Physical: Hard clay subsoil creates a physical barrier, due to its hardness and tendency to waterlogging.

Chemical: There are no chemical barriers.

Waterholding capacity: Approx. 100 mm total available, and 50 mm readily available.

Surface condition: Firm surface, easily worked.

Erosion Potential:

Water: High, due to slope and high soil erodibility.

Wind: Moderate due to the sandy surface.

Laboratory Data

| Depth cm | pH H ₂ O | pH CaCl ₂ | CO ₃ % | EC1:5 dS/m | ECe dS/m | Org.C % | Avail. P mg/kg | Avail. K mg/kg | SO ₄ mg/kg | Boron mg/kg | Trace Elements mg/kg (EDTA) | | | | CEC cmol (+)/kg | Exchangeable Cations cmol(+)/kg | | | | ESP | Ext Al mg/kg |
|-------------|------------------------|-------------------------|----------------------|---------------|-------------|------------|----------------------|----------------------|--------------------------|----------------|--------------------------------|-----|------|------|-----------------------|------------------------------------|------|------|------|-----|--------------------|
| | | | | | | | | | | | Cu | Fe | Mn | Zn | | Ca | Mg | Na | K | | |
| Row | 7.0 | 6.2 | 0 | 0.06 | 0.43 | 1.28 | 95 | 121 | 7.0 | 0.8 | 10.6 | 280 | 15.8 | 3.71 | 6.5 | 6.45 | 0.91 | 0.07 | 0.31 | 1.0 | 3.6 |
| 0-15 | 6.9 | 6.0 | 0 | 0.05 | 0.29 | 0.93 | 133 | 153 | 4.1 | 0.8 | - | - | - | - | 4.7 | 4.32 | 0.42 | 0.04 | 0.23 | 0.9 | 3.2 |
| 15-30 | 6.3 | 5.3 | 0 | 0.03 | 0.20 | 0.82 | 82 | 151 | 2.8 | 0.7 | - | - | - | - | 3.6 | 2.41 | 0.31 | 0.05 | 0.30 | na | 8.7 |
| 30-48 | 6.2 | 5.2 | 0 | 0.02 | 0.21 | 0.09 | 7 | 85 | 3.0 | 0.3 | - | - | - | - | 1.1 | 0.51 | 0.10 | 0.05 | 0.14 | na | 5.3 |
| 48-75 | 5.5 | 4.6 | 0 | 0.09 | 0.41 | 0.35 | 2 | 168 | 35.2 | 0.9 | - | - | - | - | 10.4 | 6.12 | 1.89 | 0.33 | 0.42 | 3.2 | 28.8 |
| 75-100 | 5.7 | 5.0 | 0 | 0.12 | 0.60 | 0.25 | 3 | 182 | 52.6 | 6.7 | - | - | - | - | 12.6 | 6.15 | 4.79 | 0.39 | 0.47 | 3.1 | 6.0 |

Note: Row sample taken from 20 soil cores (0-15 cm) from along the planting lines.

CEC (cation exchange 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](#)

