

THICK SAND OVER CLAY

General Description: *Thick to very thick sand with a bleached A2 layer, over sandy clay to clay, usually calcareous with depth*

Landform: Gently undulating rises and low sandhills.

Substrate: Tertiary sandy clay grading to clayey sand.

Vegetation:



| | | | | |
|-------------------|----------------|------------|--------------------|-------------------|
| Type Site: | Site No.: | CY014 | 1:50,000 mapsheet: | 6428-3 (Minlaton) |
| | Hundred: | Ramsay | Easting: | 743600 |
| | Section: | 149 | Northing: | 6144150 |
| | Sampling date: | 10/12/1992 | Annual rainfall: | 435 mm average |

Midslope of low sandhill, 4% slope. Loose surface with no stones.

Soil Description:

| Depth (cm) | Description |
|------------|---|
| 0-28 | Dark greyish brown loose sand. Abrupt to: |
| 28-70 | Light grey (bleached) loose sand. Sharp to: |
| 70-110 | Red and yellowish red firm dispersive sandy medium clay with weak coarse breaking to medium angular blocky structure. Diffuse to: |
| 110-145 | Brownish yellow, light grey and strong brown mottled friable dispersive massive very highly calcareous sandy light clay. |



Classification: Calcic, Mesonatric, Red Sodosol; very thick, non-gravelly, sandy / clayey, deep



Summary of Properties

- Drainage:** Well drained. Although water perches on the dispersive clayey subsoil, saturation only persists for a few days, and the majority of the thick sandy surface remains aerated.
- Fertility:** The soil's natural capacity to retain nutrients is low in the surface layers and high in the lower layers as indicated by the exchangeable cation data. Due to the low clay content, surface fertility relies on maintaining high organic matter levels; present levels are low at this site. Phosphorus levels are also low. Potassium, zinc, copper and manganese concentrations are marginal.
- pH:** Neutral in surface, alkaline at depth.
- Rooting depth:** Roots to 125 cm in pit.
- Barriers to root growth:**
- Physical:** The dispersive clayey subsoil causes reduction in root densities.
 - Chemical:** Boron concentrations and sodicity are near toxic levels in the subsoil, restricting deeper root growth. Nutrient availability throughout is low, resulting in sub-optimal root densities.
- Waterholding capacity:** Approximately 95 mm in rootzone. There is probably some lateral water movement here.
- Seedling emergence:** Good to fair due to water repellence.
- Workability:** Good.
- Erosion Potential:**
- Water:** Moderate.
 - Wind:** High.

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 (DTPA) | | | | CEC cmol (+)/kg | Exchangeable Cations cmol(+)/kg | | | | ESP |
|-------------|------------------------|-------------------------|----------------------|---------------|-------------|------------|----------------------|----------------------|--------------------------|----------------|--------------------------------|-----|------|------|-----------------------|------------------------------------|------|------|------|------|
| | | | | | | | | | | | Cu | Fe | Mn | Zn | | Ca | Mg | Na | K | |
| Paddock | 6.3 | 6.1 | <1 | 0.03 | 0.17 | 0.39 | 7.8 | 130 | - | 0.4 | 0.06 | 9.3 | 1.1 | 0.32 | 1.8 | 1.80 | 0.28 | 0.07 | 0.07 | 3.9 |
| 0-28 | 6.6 | 6.4 | <1 | 0.03 | 0.19 | 0.30 | 8.9 | 63 | - | 0.3 | 0.05 | 11 | 0.61 | 0.12 | 1.8 | 1.97 | 0.27 | 0.05 | 0.04 | 2.8 |
| 28-70 | 6.9 | 6.6 | <1 | 0.02 | 0.15 | <0.01 | 6.9 | 39 | - | 0.2 | 0.05 | 5.0 | 0.07 | 0.08 | 1.2 | 0.62 | 0.12 | 0.07 | 0.03 | 5.8 |
| 70-110 | 8.7 | 7.9 | 2 | 0.23 | 0.44 | 0.02 | 6.4 | 420 | - | 16.0 | 0.08 | 11 | 0.13 | 0.09 | 18.7 | 9.28 | 4.03 | 3.85 | 1.25 | 20.6 |
| 110-145 | 9.0 | 8.2 | 14 | 0.60 | 1.06 | 0.16 | <2.0 | 560 | - | 16.9 | 0.29 | 25 | 0.34 | 0.10 | 22.0 | 8.21 | 5.38 | 7.46 | 1.45 | 33.9 |

- Note:** Paddock sample bulked from 20 cores (0-10 cm) taken around the pit.
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](#)

