

DEEP CALCAREOUS CLAY LOAM

General Description: *Deep, dark friable clay loam, becoming more clayey and calcareous with depth*

Landform: Alluvial flats

Substrate: Variable alluvium or buried soils. At type site the soil is shallow over a buried rubbly calcareous clay loam.

Vegetation: Blue gum / red gum woodland



| | | | | |
|-------------------|----------------|------------|--------------------|----------------|
| Type Site: | Site No.: | CU014 | 1:50,000 mapsheet: | 6531-1 (Laura) |
| | Hundred: | Booyoolie | Easting: | 249900 |
| | Section: | 245 | Northing: | 6321050 |
| | Sampling date: | 31/08/1992 | Annual rainfall: | 455 mm average |

Lower slope of an undulating rise, 1% slope. Soil surface is firm with no stone.

Soil Description:

| <i>Depth (cm)</i> | <i>Description</i> |
|-------------------|--|
| 0-10 | Dark reddish brown strongly granular moderately calcareous clay loam. Clear to: |
| 10-30 | Reddish brown well structured friable moderately calcareous heavy clay loam. Clear to: |
| 30-75 | Black well structured moderately calcareous clay loam. Diffuse to: |
| 75-90 | Reddish brown highly calcareous light clay with up to 60% rubbly calcrete. Gradual to: |
| 90-140 | Yellowish red and red highly calcareous light clay with 20% rubbly calcrete. |



Classification: Ceteric, Pedal, Hypocalcic Calcarosol; non-gravelly, clay loamy / clay loamy, shallow overlying Endohypersodic, Pedal, Supracalcic Calcarosol; thick, non-gravelly, clay loamy / clayey, deep



Summary of Properties

- Drainage:** Moderately well drained, but high ground watertable keeps lower part of soil wet for extended periods.
- Fertility:** Very high, as indicated by the exchangeable cation data. Organic carbon levels are high and concentrations of nutrient elements other than phosphorus are adequate.
- pH:** Slightly alkaline in surface, grading to alkaline with depth.
- Rooting depth:** 120 cm at type site, although there is very sparse growth below 90 cm.
- Barriers to root growth:**
- Physical:** There are no physical barriers to root growth, due to the excellent structure of the soil.
 - Chemical:** The Class III A carbonate layer from 90 cm restricts root development. The moderately high salinity from 75 cm (caused by the high groundwater table) also affects root growth to some degree.
- Waterholding capacity:** 160 mm in rootzone (very high).
- Seedling emergence:** No restrictions due to the well structured surface.
- Workability:** Good, although surface may become sticky when wet.
- Erosion Potential:**
- Water:** Low.
 - Wind:** Low.

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 | 8.0 | 7.7 | 1.7 | 0.18 | 0.78 | 2.1 | 19 | 1205 | - | 2.9 | 1.0 | 5.8 | 12 | 2.0 | 27.8 | 22.4 | 2.5 | 0.22 | 3.18 | 0.8 |
| 0-10 | 8.0 | 7.7 | 1.7 | 0.19 | 0.86 | 2.0 | 16 | 1220 | - | 3.0 | 1.0 | 5.9 | 13 | 1.8 | 27.6 | 21.9 | 2.4 | 0.23 | 3.30 | 0.8 |
| 10-30 | 8.2 | 7.9 | 1.8 | 0.15 | 0.50 | 1.0 | 5 | 707 | - | 2.1 | 1.3 | 7.0 | 6.1 | 0.7 | 26.8 | 20.2 | 2.8 | 0.27 | 1.95 | 1.0 |
| 30-75 | 8.1 | 7.8 | 0.2 | 0.39 | 2.65 | 1.1 | <5 | 414 | - | 3.8 | 1.1 | 8.7 | 5.7 | 0.2 | 27.9 | 18.6 | 8.2 | 1.49 | 1.44 | 5.3 |
| 75-90 | 8.4 | 8.2 | 18.8 | 1.42 | 9.70 | 0.6 | <5 | 562 | - | 8.5 | 0.9 | 7.7 | 1.9 | 0.2 | 22.1 | 8.2 | 11.7 | 2.88 | 1.77 | 13.0 |
| 90-140 | 8.6 | 8.2 | 55.4 | 1.14 | 9.20 | 0.1 | 8 | 398 | - | 8.3 | 0.5 | 4.9 | 0.8 | 0.2 | 12.6 | 3.3 | 8.0 | 2.04 | 0.99 | 16.2 |

- Note:** Paddock sample bulked from 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](#)

