

RUBBLY CALCAREOUS SANDY LOAM

General Description: *Shallow calcareous sandy loam to loam over rubbly calcrete, grading to softer carbonate in a medium textured matrix*

Landform: Low rises on very gently undulating plains

Substrate: Rubbly calcrete capping very highly calcareous sandy clay loam with variable nodular carbonate (Woorinen Formation)

Vegetation: Mallee scrub



| | | | | |
|-------------------|----------------|---------|--------------------|--------------------|
| Type Site: | Site No.: | CL017 | 1:50,000 mapsheet: | 6729-2 (Sandleton) |
| | Hundred: | Dutton | Easting: | 339150 |
| | Section: | 167 | Northing: | 6195700 |
| | Sampling date: | 16/3/95 | Annual rainfall: | 320 mm average |

Crest of low rise on a plain, 2% slope. Soft surface with 20-50% calcrete stones and cobbles.

Soil Description:

| <i>Depth (cm)</i> | <i>Description</i> |
|-------------------|--|
| 0-23 | Dark brown soft calcareous fine sandy loam with 10-20% calcrete nodules and minor quartz gravel. Sharp to: |
| 23-45 | Rubbly calcrete pan (Class III C carbonate) in a highly calcareous brown loam matrix. Abrupt to: |
| 45-75 | Brown very highly calcareous sandy clay loam with 20-50% calcrete nodules. Clear to: |
| 75-120 | Brown very highly calcareous sandy clay loam with 10-20% calcrete fragments. Clear to: |
| 120-160 | Reddish brown calcareous clay loam with 10-20% calcrete nodules and calcareous tubules. Gradual to: |
| 160-200 | Reddish brown calcareous clay loam with up to 10% calcareous tubules. Gradual to: |



Classification: Epihypersodic, Regolithic, Lithocalcic Calcarosol; medium, moderately gravelly, loamy / clay loamy, deep



Summary of Properties

- Drainage:** Well drained. Soil is never likely to remain wet form more than a day or so.
- Fertility:** Natural fertility is moderate (calcareous soils tie up phosphorus and some trace elements). Phosphorus, potassium and sulphur concentrations are all adequate to high. Lime induced deficiencies of zinc and manganese are possible. Organic carbon levels are high (low biological activity in dry highly calcareous soils).
- pH:** Alkaline at the surface, strongly alkaline from 23 cm.
- Rooting depth:** 75 cm, with a few roots to 120 cm in pit.
- Barriers to root growth:**
- Physical:** Heavy rubble impedes root growth to some extent, and in places forms an impenetrable barrier.
 - Chemical:** High alkalinity (pH_{water} more than 9.2) from 23 cm is the main chemical barrier.
- Waterholding capacity:** Approximately 90 mm in rootzone.
- Seedling emergence:** Good.
- Workability:** Good.
- Erosion Potential:**
- Water:** Moderately low
 - Wind:** Moderately 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 | 8.3 | 7.8 | 2.7 | 0.2 | 1.1 | 2.8 | 35 | 719 | 21 | 3.0 | - | - | - | - | 16.6 | 14.15 | 2.18 | 0.10 | 2.07 | 0.6 |
| 0-10 | 8.3 | 7.8 | 4.5 | 0.2 | 1.1 | 2.4 | 95 | 529 | 19 | 2.1 | - | - | - | - | 15.4 | 13.14 | 2.15 | 0.18 | 1.60 | 1.2 |
| 10-23 | 8.4 | 7.9 | 2.6 | 0.2 | 1.4 | 2.2 | 46 | 508 | 17 | 1.8 | - | - | - | - | 14.8 | 13.68 | 2.21 | 0.15 | 1.67 | 1.0 |
| 23-45 | 9.3 | 8.5 | 18.3 | 0.6 | 3.8 | 1.1 | 14 | 386 | 33 | 5.7 | - | - | - | - | 11.9 | 6.83 | 4.69 | 2.31 | 1.33 | 19.4 |
| 45-75 | 9.9 | 8.6 | 51.4 | 1.0 | 7.1 | 0.1 | 5 | 316 | 89 | 9.9 | - | - | - | - | 7.1 | 1.54 | 3.11 | 3.20 | 0.98 | 45.1 |
| 75-120 | 9.8 | 8.6 | 26.4 | 1.0 | 8.5 | 0.3 | <4 | 410 | 99 | 8.8 | - | - | - | - | 7.8 | 1.78 | 2.69 | 3.76 | 1.22 | 48.2 |
| 120-160 | 9.6 | 8.7 | 10.3 | 1.3 | 9.6 | 0.1 | <4 | 591 | 118 | 17.8 | - | - | - | - | 10.7 | 2.22 | 4.03 | 4.57 | 1.68 | 42.7 |
| 160-200 | 9.6 | 8.7 | 4.0 | 1.2 | 9.5 | 0.1 | <4 | 564 | 104 | 22.0 | - | - | - | - | 10.4 | 1.96 | 3.75 | 4.27 | 1.57 | 41.1 |

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](#)

