# CALCAREOUS SANDY CLAY LOAM
(Wiabuna soil)

***General Description:*** *Calcareous sandy clay loam to clay loam grading to a very highly calcareous light clay merging with heavy clay at depth*

**Landform:** Gently undulating rises.

**Substrate:** Coarsely structured heavy clay (Hindmarsh Clay equivalent).

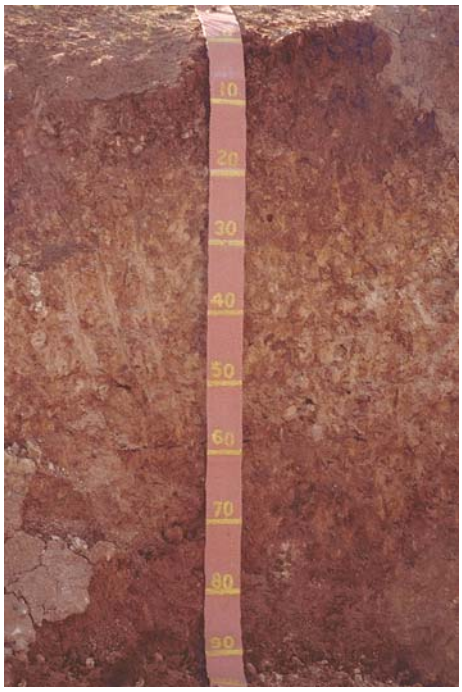
**Vegetation:** Mallee

**Type Site:** Site No.: EE051

| | | | |
|---|---|---|---|
| 1:50,000 sheet: | 6131-1 (Kimba) | Hundred: | Cortlinye |
| Annual rainfall: | 350 mm | Sampling date: | 17/03/89 |
| Landform: | Slope of gentle rise | | |
| Surface: | Firm with no stones | | |

**Soil Description:**

| *Depth (cm)* | *Description* |
|---|---|
| 0-6 | Highly calcareous reddish brown light sandy clay loam. Clear to: |
| 6-20 | Highly calcareous brown sandy clay loam. Clear to: |
| 20-35 | Very highly calcareous orange light clay. Gradual to: |
| 35-65 | Very highly calcareous orange medium clay. Gradual to: |
| 65-110 | Slightly calcareous red coarsely structured medium clay. |




**Classification:** Epihypersodic, Regolithic, Hypercalcic Calcarosol; medium, non-gravelly, loamy / clayey, moderate

## *Summary of Properties*

**Drainage** Moderately well drained. The clayey substrate prevents free drainage and the soil may remain wet for up to a week following heavy or prolonged rainfall.

**Fertility** Natural fertility is moderate as indicated by the exchangeable cation data. The relatively high clay content allows good nutrient retention capacity, but moderate carbonate levels reduce availability of phosphate and some trace elements. Zinc and possibly copper deficiencies can be expected, along with nitrogen and phosphorus.

**pH** Alkaline at the surface, strongly alkaline with depth.

**Rooting depth** 65 cm, but few roots below 35 cm in pit.

**Barriers to root growth**

**Physical:** The clayey substrate is hard and coarsely structured, confining roots to the surfaces of the aggregates.

**Chemical:** High pH, sodicity and boron concentrations from 35 cm. Salinity is also elevated from this depth.

**Water holding capacity** Approximately 65 mm in the root zone.

**Seedling emergence:** Satisfactory.

**Workability:** Firm surface is easily worked.

**Erosion Potential**

**Water:** Moderately low.

**Wind:** Low.

## *Laboratory Data*

| Depth cm | pH $H_2O$ | pH $CaC1_2$ | $CO_3$ % | EC1:5 dS/m | ECe dS/m | Org.C % | Avail. P mg/kg | Avail. K mg/kg | $SO_4$-S 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 | |
| 0-6 | 8.6 | 8.0 | 6 | 0.26 | 1.66 | - | - | - | - | 3.08 | 1.69 | 6 | 19.1 | 0.28 | 19.0 | ? | 2.80 | 0.28 | 1.10 | 1 |
| 6-20 | 8.7 | 8.1 | 14 | 0.32 | 2.35 | - | - | - | - | 3.45 | 1.74 | 6 | 11.7 | 0.10 | 16.0 | ? | 3.60 | 0.37 | 0.67 | 2 |
| 20-35 | 9.2 | 8.4 | 27 | 0.64 | 5.37 | - | - | - | - | 9.06 | 1.87 | 9 | 6.57 | 0.11 | 16.0 | ? | 6.90 | 1.60 | 0.60 | 10 |
| 35-65 | 9.7 | 8.8 | 21 | 1.14 | 8.23 | - | - | - | - | 40.5 | 1.79 | 10 | 2.01 | 0.13 | 22.0 | ? | 12.00 | 7.20 | 1.50 | 33 |
| 65-110 | 9.2 | 8.1 | 2 | 1.70 | 11.76 | - | - | - | - | 67.0 | 1.55 | 12 | 3.34 | 0.11 | 29.0 | ? | 15.00 | 9.99 | 2.40 | 34 |

**Note**: 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.

* Exchangeable calcium (Ca) values not presented because the laboratory procedure used was inappropriate for calcareous samples.