

## RUBBLY CALCAREOUS SANDY LOAM ON CLAY

**General Description:** *Calcareous sandy loam over a very highly calcareous sandy clay loam with abundant rubble from shallow depth, overlying clayey substrate within 120 cm.*

**Landform:** Gently undulating dunefield of low to moderate parallel sandhills.

**Substrate:** Very highly calcareous sandy clay loam to light clay, overlying Hindmarsh Clay (at 165 cm).

**Vegetation:** Mallee.



**Type Site:** Site No.: CM005

|                  |   |                |          |
|------------------|---|----------------|----------|
| 1:50,000 sheet:  | 6530-4 (Mundoora)                             | Hundred:       | Wokurna  |
| Annual rainfall: | 350 mm  | Sampling date: | 11/02/92 |
| Landform:        | Rise, 4% slope                                |                |          |
| Surface:         | Soft with 20-50% surface calcrete (20-200 mm) |                |          |

### Soil Description:

| Depth (cm) | Description  |
|------------|--|
| 0-12       | Dark reddish brown firm highly calcareous fine sandy loam. Abrupt to:  |
| 12-21      | Reddish brown friable very highly calcareous fine sandy clay loam with 20-50% carbonate nodules. Clear to:   |
| 21-60      | Calcrete rubble. Gradual to:   |
| 60-100     | Reddish yellow soft very highly calcareous sandy clay loam with more than 50% carbonate nodules. Gradual to: |
| 100-130    | Reddish yellow friable massive very highly calcareous sandy clay loam. Gradual to:                           |
| 130-165    | Yellowish red friable massive very highly calcareous light medium clay. Diffuse to:                          |
| 165-195    | Red firm medium clay with strong coarse angular blocky structure.  |



**Classification:** Hypervescent, Regolithic, Lithocalcic Calcarosol; medium, moderately gravelly, loamy / clay loamy, moderate

## Summary of Properties

|                                |  |
|--------------------------------|--|
| <b>Drainage</b>                | Moderately well to well drained. Soil never remains wet for more than a week.  |
| <b>Fertility</b>               | Inherent fertility is moderate, as indicated by the exchangeable cation data. All measured nutrient elements are well supplied at the sampling site, with the possible exception of zinc. Organic carbon levels are high. High concentrations of fine earth carbonate to the surface tie up trace elements and phosphorus. |
| <b>pH</b>                      | Alkaline at the surface, strongly alkaline with depth.   |
| <b>Rooting depth</b>           | 60 cm in pit.  |
| <b>Barriers to root growth</b> |  |
| <b>Physical:</b>               | The rubble reduces rooting volume and therefore water use efficiency. The rubble layer is dense in places - restricts root growth.   |
| <b>Chemical:</b>               | High pH and sodicity prevent root growth below the main rubble later (i.e. 60 cm). Boron levels are high and soil is slightly saline at depth.   |
| <b>Water holding capacity</b>  | Approximately 30 mm in rootzone.   |
| <b>Seedling emergence:</b>     | Good, although heavy surface stone may reduce establishment.   |
| <b>Workability:</b>            | Fair. Interference by stones.  |
| <b>Erosion Potential</b>       |  |
| <b>Water:</b>                  | Low.   |
| <b>Wind:</b>                   | Moderately low to low.   |

## Laboratory Data

| Depth<br>cm | pH<br>H <sub>2</sub> O | pH<br>CaCl <sub>2</sub> | CO <sub>3</sub><br>% | EC1:5<br>dS/m | ECe<br>dS/m | Org.C<br>% | Avail.<br>P<br>mg/kg | Avail.<br>K<br>mg/kg | SO <sub>4</sub> -S<br>mg/kg | Boron<br>mg/kg | Trace Elements mg/kg<br>(DTPA) |     |     |      | CEC<br>cmol<br>(+)/kg | Exchangeable Cations<br>cmol(+)/kg |      |       |      | ESP  |
|-------------|------------------------|-------------------------|----------------------|---------------|-------------|------------|----------------------|----------------------|-----------------------------|----------------|--------------------------------|-----|-----|------|-----------------------|------------------------------------|------|-------|------|------|
|             |                        |                         |                      |               |             |            |                      |                      |                             |                | Cu                             | Fe  | Mn  | Zn   |                       | Ca                                 | Mg   | Na    | K    |      |
| Paddock     | 8.7                    | 7.8                     | 8.0                  | 0.15          | 1.0         | 1.49       | 49                   | 290                  | -                           | -              | 0.44                           | 3.7 | 1.9 | 0.43 | 14.3                  | 15.53                              | 2.08 | 0.13  | 0.82 | 1.0  |
| 0-12        | 8.4                    | 7.8                     | 10.9                 | 0.18          | 1.4         | 1.58       | 65                   | 340                  | -                           | -              | 0.53                           | 4.0 | 2.3 | 0.49 | 14.1                  | 15.38                              | 1.91 | 0.17  | 0.87 | 1.2  |
| 12-21       | 8.7                    | 7.9                     | 7.3                  | 0.15          | 0.8         | 0.63       | 4                    | 90                   | -                           | 2.4            | 0.59                           | 6.1 | 1.2 | 0.12 | 17.1                  | 16.82                              | 3.27 | 0.60  | 0.29 | 3.5  |
| 21-60       | -                      | -                       | -                    | -             | -           | -          | -                    | -                    | -                           | -              | -                              | -   | -   | -    | -                     | -                                  | -    | -     | -    | -    |
| 60-100      | 9.9                    | 8.9                     | 73.2                 | 0.70          | 7.5         | 0.22       | 1                    | 100                  | -                           | 7.1            | 0.49                           | 1.2 | 0.5 | 0.10 | 5.6                   | 0.48                               | 4.80 | 2.71  | 0.29 | 48.4 |
| 100-130     | 9.9                    | 8.8                     | 65.7                 | 0.77          | 7.7         | 0.17       | 1                    | 140                  | -                           | 6.5            | 0.31                           | 0.9 | 0.5 | 0.08 | 6.3                   | 0.64                               | 4.47 | 3.56  | 0.39 | 56.5 |
| 130-165     | 10.0                   | 8.8                     | 55.4                 | 0.79          | 5.7         | 0.13       | 1                    | 220                  | -                           | -              | 0.33                           | 1.5 | 0.6 | 0.09 | 8.3                   | 0.76                               | 4.83 | 4.86  | 0.61 | 58.6 |
| 165-195     | 9.4                    | 8.4                     | 0.9                  | 0.85          | 3.3         | 0.07       | 1                    | 450                  | -                           | 23.1           | 0.62                           | 3.2 | 1.2 | 0.08 | 19.9                  | 1.29                               | 9.08 | 12.42 | 1.34 | 62.4 |

**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.