

## SANDY LOAM OVER GREY BROWN CLAY

**General Description:** *Hard setting sandy to silty loam over a well structured grey brown clay, calcareous with depth.*

**Landform:** Flats of ancient alluvial plains.

**Substrate:** Clayey sediments of Tertiary? age, mantled by fine carbonates.

**Vegetation:** Red gum (*Eucalyptus camaldulensis*) woodland.



**Type Site:** Site No.: SE078

1:50,000 sheet: 7025-3 (Mundulla)      Hundred: Wirrega  
 Annual rainfall: 450 mm      Sampling date: 21/09/04  
 Landform: Lower slope of very gently undulating plain, 100 m from water course  
 Surface: Hard setting with no stones

### Soil Description:

| Depth (cm) | Description   |
|------------|---|
| 0-8        | Dark brown friable massive sandy loam. Abrupt to:   |
| 8-15       | Brown friable massive sandy clay loam. Abrupt to:   |
| 15-40      | Strong brown and dark greyish brown mottled firm medium heavy clay with strong medium polyhedral structure. Gradual to:   |
| 40-65      | Light olive brown, brownish yellow and reddish yellow hard medium heavy clay with strong medium subangular blocky structure. Clear to:                              |
| 65-95      | Light yellowish brown and greyish brown very hard, weakly structured and highly calcareous heavy clay with 10-20% fine carbonate segregations. Gradual to:          |
| 95-125     | Light yellowish brown very hard highly calcareous heavy clay with strong medium angular blocky structure and more than 50% fine carbonate segregations. Gradual to: |
| 125-140    | Pale olive and reddish yellow very hard highly calcareous medium clay with strong coarse angular blocky structure and more than 50% fine carbonate segregations.    |



**Classification:** Hypercalcic, Mottled-Subnatric, Brown Sodosol; thin, non-gravelly, loamy / clayey, deep

## Summary of Properties

- Drainage:** Moderately well drained. Part of the profile remains saturated for a week or so following heavy or prolonged rainfall.
- Fertility:** Inherent fertility is moderately high, as indicated by the exchangeable cation data. Concentrations of all measured nutrient elements are adequate. Gypsum will help increase Ca:Mg ratio of surface soil.
- pH:** Neutral at the surface, strongly alkaline with depth.
- Rooting depth:** 125 cm in pit, but few roots below 65 cm.
- Barriers to root growth:**
- Physical:** The moderate strength of the clay subsoil restricts root densities to some extent.
  - Chemical:** High pH, boron levels and sodicity from 65 cm restrict root densities.
- Water holding capacity:** Approximately 90 mm in potential root zone.
- Seedling emergence:** Fair, due to tendency for surface to seal and set hard if it dries out after initial rains. Surface likely to respond to gypsum application (low Ca:Mg ratio).
- Workability:** Fair. Surface tends to set hard and shatter when too dry, and puddles when wet. Gypsum will help (see above).

## Erosion Potential

- Water:** Low.
- Wind:** Low.

## Laboratory Data

| Depth<br>cm | pH<br>H <sub>2</sub> O | pH<br>CaCl <sub>2</sub> | CO <sub>3</sub><br>% | EC 1:5<br>dS/m | ECe<br>dS/m | Org.C<br>% | Avail.<br>P<br>mg/kg | Avail.<br>K<br>mg/kg | Cl<br>mg/kg | SO <sub>4</sub> -S<br>mg/kg | Boron<br>mg/kg | Trace Elements mg/kg<br>(EDTA) |     |      |      | Sum<br>cations<br>cmol<br>(+)/kg | Exchangeable Cations<br>cmol(+)/kg |      |      |      | Est.<br>ESP |
|-------------|------------------------|-------------------------|----------------------|----------------|-------------|------------|----------------------|----------------------|-------------|-----------------------------|----------------|--------------------------------|-----|------|------|----------------------------------|------------------------------------|------|------|------|-------------|
|             |                        |                         |                      |                |             |            |                      |                      |             |                             |                | Cu                             | Fe  | Zn   | Mn   |                                  | Ca                                 | Mg   | Na   | K    |             |
| 0-8         | 6.8                    | 6.7                     | 0                    | 0.17           | 0.71        | 3.48       | 133                  | 797                  | 26          | 16                          | 1.6            | 2.46                           | 367 | 5.36 | 16.8 | 14.1                             | 8.47                               | 3.11 | 0.49 | 2.03 | 3.4         |
| 8-15        | 6.5                    | 6.1                     | 0                    | 0.20           | 1.16        | 1.64       | 53                   | 806                  | 48          | 19                          | 2.2            | 1.69                           | 250 | 2.08 | 39.7 | 17.2                             | 10.0                               | 4.5  | 0.64 | 2.04 | 3.7         |
| 15-40       | 8.7                    | 7.6                     | 0                    | 0.28           | 1.49        | 0.70       | 13                   | 1184                 | 213         | 22                          | 4.2            | 1.41                           | 87  | 0.51 | 58.7 | 34.0                             | 15.5                               | 12.8 | 2.57 | 3.14 | 7.6         |
| 40-65       | 8.8                    | 8.0                     | 1                    | 0.48           | 2.02        | 0.51       | 8                    | 959                  | 351         | 21                          | 6.2            | 1.35                           | 50  | 0.49 | 58.2 | 31.3                             | 11.7                               | 13.6 | 3.61 | 2.47 | 11.5        |
| 65-95       | 9.3                    | 8.3                     | 28                   | 0.61           | 3.04        | 0.28       | 6                    | 830                  | 408         | 25                          | 9.8            | 0.71                           | 15  | 0.44 | 5.80 | 35.4                             | 11.7                               | 14.9 | 6.69 | 2.18 | 18.9        |
| 95-125      | 9.3                    | 8.4                     | 27                   | 0.63           | 2.79        | 0.20       | 4                    | 778                  | 411         | 34                          | 14.6           | 0.72                           | 15  | 0.44 | 1.12 | 35.1                             | 9.09                               | 14.9 | 9.23 | 1.93 | 26.3        |
| 125-140     | 9.4                    | 8.4                     | 48                   | 0.74           | 3.06        | 0.18       | 6                    | 643                  | 375         | 45                          | 12.1           | 0.41                           | 13  | 0.3  | 1.40 | 30.3                             | 9.52                               | 11.1 | 8.06 | 1.67 | 26.6        |

**Note:** Sum of cations, in a neutral to alkaline soil, approximates the CEC (cation exchange capacity), a measure of the soil's capacity to store and release major nutrient elements.

ESP (exchangeable sodium percentage) is estimated by dividing the exchangeable sodium value by the sum of cations.