

SANDY LOAM OVER POORLY STRUCTURED BROWN CLAY

General Description: *Medium thickness loamy sand to sandy loam with a compact bleached subsurface layer, overlying a red, brown and yellow mottled tough clay, calcareous with depth.*

Landform: Gently undulating low rises

Substrate: Heavy clay with soft carbonate (lime) accumulations

Vegetation: Eucalyptus leucoxylon (blue gum) woodland



Type Site:	Site No.:	SE015	1:50,000 mapsheet:	7025-3 (Mundulla)
	Hundred:	Wirrega	Easting:	472450
	Section:	595	Northing:	5976450
	Sampling date:	17/03/1993	Annual rainfall:	505 mm average

Lower slope of low rise, adjacent to swampy flat. Firm surface, with 6% slope.

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-15	Dark reddish brown massive light sandy loam. Clear to:
15-23	Pinkish grey massive light sandy loam. Sharp to:
23-45	Red, brown and orange mottled very firm heavy clay with strong coarse columnar structure. Gradual to:
45-55	Orange and dark brown mottled firm medium clay with strong coarse prismatic structure. Clear to:
55-85	Dark brown and pale yellow firm highly calcareous medium clay with strong coarse prismatic structure (Class I carbonate layer). Diffuse to:
85-120	Pale olive and yellowish brown mottled very firm heavy clay with strong very coarse prismatic structure and soft calcareous segregations.



Classification: Hypercalcic, Mottled-Mesonatric, Brown Sodosol; medium, non-gravelly, loamy/clayey, deep



Summary of Properties

- Drainage:** Imperfect due to slowly permeable subsoil. Water lies on top of the clay layer, saturating the lower part of the topsoil for weeks at a time during winter.
- Fertility:** Moderately high inherent fertility, as indicated by the CEC value of the subsoil which has a reasonable capacity to store and release major plant nutrients. The light topsoil however has a much lower capacity, with most nutrient storage attributable to the organic matter. At the type site (not a farmed paddock), phosphorus is very low (natural levels), and subsoil zinc is also low.
- pH:** Mildly acidic at the surface, becoming strongly alkaline with depth.
- Rooting depth:** 55 cm in pit (native grass roots).
- Barriers to root growth:**
- Physical:** The tough clay subsoil impedes root development. The bleached subsurface layer when saturated in winter restricts root growth, and forms a physical barrier when it becomes hard and dense on drying in spring time.
 - Chemical:** The Class I carbonate layer (from 55 cm) impedes root growth. Subsoil zinc deficiency may also be a problem. Low levels of other nutrients are readily corrected by fertilizer applications.
- Waterholding capacity:** 75 mm in rootzone (moderate), but a portion of this is effectively unavailable due to sub-optimal root densities.
- Seedling emergence:** Fair to good depending on the condition of the surface. Reduced organic matter levels will cause the surface to set hard, restricting seedling emergence.
- Workability:** Fair to good, depending on organic matter levels. Excessive cultivation or stock trampling will destroy organic matter and induce a hard setting condition.
- Erosion Potential:**
- Water:** Moderately low to moderate, depending on the slope. The soil is highly erodible, so even gentle slopes are susceptible.
 - Wind:** Moderately low, depending on the degree to which the surface has been pulverized.

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	
0-15	6.3	6.0	0	0.08	0.54	2.2	5	341	-	1.2	0.2	33	3.9	0.3	10.8	8.07	1.59	0.12	0.57	7.1
15-23	5.9	5.1	0	0.02	0.17	0.3	3	238	-	0.4	0.1	27	0.3	0.1	3.2	2.53	0.80	0.11	0.25	na
23-45	6.7	5.9	0	0.11	0.46	0.7	<4	1026	-	3.9	0.4	28	0.6	0.1	31.1	13.1	12.2	1.79	2.73	20.9
45-55	8.3	7.8	1	0.39	1.36	0.5	<4	1290	-	7.9	0.4	11	1.7	0.1	36.8	12.7	15.3	3.06	3.14	24.8
55-85	8.9	8.1	27	0.42	2.17	0.4	<4	921	-	8.5	0.4	7	0.7	0.3	23.9	7.74	11.9	2.62	1.98	25.6
85-120	9.2	8.4	19	0.65	2.84	0.3	<4	701	-	12.1	0.3	6	0.5	0.3	22.7	4.21	13.7	4.63	1.68	39.9

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.

Further information: [DEWNR Soil and Land Program](#)

