

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 mapsheet:	7025-3 (Mundulla)
	Hundred:	Wirrega	Easting:	470850
	Section:	9	Northing:	5982650
	Sampling date:	21/09/2004	Annual rainfall:	500 mm average

Lower slope of very gently undulating plain, 100 m from water course. Hard setting surface with no stones.

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
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.
- Waterholding capacity:** Approximately 90 mm in potential rootzone.
- 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 cm	pH H ₂ O	pH CaCl ₂	CO ₃ %	EC 1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	Cl mg/kg	SO ₄ -S mg/kg	Boron mg/kg	Trace Elements mg/kg (EDTA)				Sum cations cmol (+)/kg	Exchangeable Cations cmol(+)/kg				Est. 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.

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

