

LOAM OVER POORLY STRUCTURED BROWN CLAY

General Description: *Thin to medium sandy loam to loam surface soil, overlying a brown, yellow and grey mottled heavy clay subsoil, calcareous with depth*

Landform: Flats on the margins of the Tatiara, or in swales between sand hills

Substrate: Alluvial (possibly lake bed) clays, calcified by fine carbonates, blown in and leached through the soil.

Vegetation:



Type Site:	Site No.:	SE004	1:50,000 mapsheet:	7025-3 (Mundulla)
	Hundred:	Wirrega	Easting:	471700
	Section:	91	Northing:	5972150
	Sampling date:	10/12/1991	Annual rainfall:	515 mm average

Flat, 0% slope. Hard setting surface.

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-8	Dark brown massive loam. Clear to:
8-15	Pinkish white massive fine sandy loam. Abrupt to:
15-35	Dark greyish brown, yellowish brown and orange mottled medium heavy clay with strong coarse prismatic structure. Gradual to:
35-60	Yellowish brown, dark brown and red mottled medium heavy clay with strong coarse prismatic structure. Gradual to:
60-120	Pale brown and brown highly calcareous medium clay with 25%-50% soft carbonate segregations.



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



Summary of Properties

Drainage: Imperfect due to slowly permeable clay subsoil. Soil may remain wet for several weeks.

Fertility: Natural fertility is high, except for the leached 8-15 cm layer. The soil has a satisfactory capacity to store and release nutrients and there is no evidence from the data that there are any deficiencies.

pH: Acidic at the surface, strongly alkaline with depth.

Rooting depth: 60 cm in pit.

Barriers to root growth:

Physical: The poorly structured surface soil and the hard sodic clay subsoil restrict root growth. Waterlogging in the leached layer (8-15 cm) and subsequent rapid drying affects root growth and extension into the subsoil.

Chemical: The Class I carbonate layer typically inhibits root growth.

Waterholding capacity: 85 mm in rootzone (moderate), but effective availability is reduced by waterlogging and poor root distribution in the subsoil.

Seedling emergence: Fair, due to the tendency of the surface to set hard and to waterlog.

Workability: Fair, due to the narrow moisture range for effective working. Soil is prone to shattering if too dry and puddling if too wet.

Erosion Potential:

Water: Low.

Wind: Low.

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	
0-8	6.0	5.7	0	0.11	0.9	1.9	45	265	-	1.3	0.3	253	4.7	0.6	10.2	7.4	1.2	0.27	0.49	2.6
8-15	6.7	5.5	0	0.09	0.7	0.5	15	132	-	0.8	0.2	92.9	3.4	0.2	4.3	4.9	1.0	0.34	0.20	7.9
15-35	7.8	7.1	<0.1	0.18	1.1	0.5	<4	295	-	7.4	0.3	34.2	2.3	0.2	25.8	9.1	11.2	4.09	0.75	15.9
35-60	9.2	8.7	0.8	0.64	2.2	0.3	<4	379	-	14.8	0.3	12.8	1.3	0.1	27.6	6.2	12.8	7.34	0.87	26.6
60-120	9.6	8.7	29.3	1.01	6.0	<0.1	<4	341	-	9.9	0.3	3.1	0.6	0.1	19.9	3.2	8.4	7.88	0.57	39.6

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](#)

