

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 sheet: 7025-3 (Mundulla) Hundred: Wirrega
Annual rainfall: 525 mm Sampling date: 10/12/91
Landform: Flat, 0% slope
Surface: Hard setting with no stones

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: Hypercalciic, 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.
Water holding 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 -S 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.