

SAND OVER RED SANDY CLAY

(Shallow Moornaba soil)

General Description: *Thick sand over a red sandy clay loam to sandy clay, calcareous with depth*

Landform: Gentle slopes with low sandhills.

Substrate: Tertiary clayey sands, sandy clays and clays.

Vegetation:



Type Site:	Site No.:	EE068	1:50,000 mapsheet:	6230-1 (Cowell)
	Hundred:	Minbrie	Easting:	674010
	Section:	122	Northing:	6286040
	Sampling date:	22/1/1993	Annual rainfall:	340 mm average

Lower slope of gently sloping rise, 2% slope. Loose surface with no stones.

Soil Description:

Depth (cm)	Description
0-17	Brown soft loamy sand. Abrupt to:
17-33	Light yellowish brown soft coarse sand. Abrupt to:
33-56	Light reddish brown soft coarse sand with 2-10% quartz gravel. Gradual to:
56-90	Red and grey mottled friable coarse sandy clay with strong fine angular blocky structure and 2-10% quartz gravel. Gradual to:
90-153	Strong brown and grey firm highly calcareous coarse sandy light clay with moderate fine angular blocky structure. Clear to:
153-180	Red and grey mottled hard medium clay with strong fine angular blocky structure and 2-10% carbonate nodules.



Classification: Calcic, Mottled-Hypernatric, Red Sodosol; thick, non-gravelly, sandy / clayey, moderate



Summary of Properties

- Drainage:** Moderately well drained. Soil rarely remains saturated for more than a week following heavy or prolonged rainfall, but substrate clay retards deep drainage.
- Fertility:** Inherent fertility is low, as indicated by the exchangeable cation data, low clay content at the surface, and low organic carbon levels. Regular phosphorus applications are essential - levels are low at the sampling site. Nitrogen concentrations depend on legume component of pastures and cropping history. Copper, zinc and manganese deficiencies are possible - copper levels are low, zinc data are suspect.
- pH:** Neutral at the surface, strongly alkaline with depth.
- Rooting depth:** 56 cm in pit.
- Barriers to root growth:**
- Physical:** Clayey subsoil prevents good root distribution, but does not prevent root growth.
 - Chemical:** High pH and high sodicity from 56 cm, together with low nutrient retention capacity and status in the sandy surface layers prevent deeper root growth.
- Waterholding capacity:** Approximately 35 mm in the sandy soil above the clay.
- Seedling emergence:** Satisfactory, although water repellence may be a problem in dry seasons.
- Workability:** Loose surface is easily worked.
- Erosion Potential:**
- Water:** Moderately low.
 - Wind:** Moderate.

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	
Paddock	-	-	0	-	0.24	0.6	12	110	-	0.6	0.11	15	3.2	0.42	2.8	2.60	0.62	0.16	0.33	5.7
0-17	7.3	7.4	0	0.04	0.44	0.4	11	130	-	0.4	0.21	17	2.3	0.28	3.1	1.84	0.49	0.16	0.25	5.2
17-33	7.4	7.4	0	0.04	0.56	0.1	6	65	-	0.1	0.18	8.8	0.15	0.25	1.8	1.10	0.37	0.21	0.12	11.7
33-56	7.7	7.4	0	0.03	0.52	<0.1	<2	48	-	0.8	0.18	3.5	0.09	0.31	1.8	1.19	0.41	0.24	0.08	13.3
56-90	9.3	8.5	1	0.23	1.15	-	-	-	-	3.2	0.24	21	3.2	<0.1	10.2	3.06	4.47	2.60	0.54	25.5
90-153	9.8	8.6	5	0.34	1.57	-	-	-	-	6.7	0.20	6.9	0.86	0.27	9.3	2.71	3.94	3.41	0.68	36.7
153-180	9.7	8.5	3	0.45	1.74	-	-	-	-	10	0.38	7.6	1.4	0.37	15.6	3.14	5.71	5.93	1.04	38.0

Note: Paddock sample bulked from 20 cores (0-10 cm) taken around the pit.
 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](#)

