

SAND OVER COARSELY STRUCTURED CLAY

General Description: *Grey brown topsoil with a bleached subsurface layer over a coarsely structured brown sandy clay, calcareous with depth*

Landform: Pediments and lower slopes

Substrate: Tertiary age clayey sands to sandy clays, mantled by windblown carbonates.

Vegetation:

Type Site:	Site No.:	EE202	1:50,000 mapsheet:	6130-1 (Rudall)
	Hundred:	Yadnarie	Easting:	630550
	Section:	381	Northing:	6278000
	Sampling date:	17/09/2001	Annual rainfall:	385 mm average

Midslope of a gently inclined pediment. Loose surface with no stones and 3% slope.

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-10	Greyish brown loose single grain loamy sand. Clear to:
10-18	Pale brown (bleached) soft single grain loamy sand with 2-10% quartz gravel (6-20 mm). Sharp to:
18-45	Strong brown hard dispersive sandy medium clay with strong very coarse columnar structure. Gradual to:
45-70	Strong brown hard massive sandy light clay with 2-20% fine carbonate segregations. Gradual to:
70-100	Hard massive very highly calcareous sandy light clay with more than 50% fine carbonate segregations.



Classification: Hypercalcic, Mesonatric, Brown Sodosol; medium, non-gravelly, sandy / clayey, moderate



Summary of Properties

- Drainage:** Imperfectly drained. Water perches on top of the dispersive subsoil, causing saturation for up to several weeks following heavy or prolonged rainfall.
- Fertility:** Inherent fertility is low as indicated by the exchangeable cation data. Phosphorus levels are satisfactory, but potassium and copper are low. Organic carbon levels are consistent with sandy soils in this rainfall.
- pH:** Slightly acidic at the surface, strongly alkaline with depth.
- Rooting depth:** 70 cm in the pit, but few roots below 45 cm.
- Barriers to root growth:**
- Physical:** The hard, coarsely structured dispersive subsoil restricts root proliferation – most roots are confined to the cracks between the aggregates.
- Chemical:** High pH / sodicity from 45 cm severely restricts deeper root growth.
- Waterholding capacity:** Approximately 55 mm in the rootzone.
- Seedling emergence:** Satisfactory except where surface is water repellent.
- Workability:** Sandy surface is easily worked.
- Erosion Potential:**
- Water:** Moderate. Although the slope is gentle, loose surface soils over slowly permeable subsoils are highly erodible.
- Wind:** Moderate due to the low coherence of the surface soil.

Laboratory Data

Depth cm	pH H ₂ O	pH CaCl ₂	CO ₃ %	EC 1:5 dS/m	Org.C %	NO ₃ mg/kg	Avail. P mg/kg	Avail. K mg/kg	SO ₄ mg/kg	Boron mg/kg	Trace Elements mg/kg (DTPA)				Sum of cations cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
											Cu	Fe	Zn	Mn		Ca	Mg	Na	K	
0-10	6.2	5.5	nd	0.03	0.79	5	36	67	1.7	0.6	0.09	43.3	3.04	2.91	2.5	1.63	0.56	0.12	0.15	na
10-18	7.2	6.9	nd	0.06	0.22	3	22	43	1.5	0.6	0.03	21.9	1.38	0.67	2.5	1.64	0.50	0.25	0.11	na
18-45	9.0	8.1	nd	0.23	0.27	2	4	263	3.7	2.8	0.09	10.7	1.10	0.20	13.3	5.66	4.48	2.52	0.67	18.9
45-70	9.6	9.0	nd	0.60	0.09	2	1	422	47.5	7.8	0.30	3.7	2.41	0.20	18.6	5.60	6.34	5.55	1.06	29.9
70-100	9.7	8.8	nd	0.67	0.15	2	1	382	67.5	7.8	0.23	3.2	1.66	0.20	18.2	6.42	5.15	5.66	0.92	31.2

Note: Sum of cations in neutral to alkaline soils is an approximation of cation exchange capacity (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 sum of cations.

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

