

THICK SAND OVER RED SANDY CLAY LOAM

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

Landform: Undulating rises.

Substrate: Weathering basement rock (Kanmantoo Group schist at this site), mantled by fine carbonate.

Vegetation:



Type Site: Site No.: MO040

1:50,000 sheet:	6727-4 (Monarto)	Hundred:	Monarto
Annual rainfall:	350 mm	Sampling date:	1976
Landform:	Upper slope of undulating rise, 5% slope		
Surface:	Soft with occasional schist stones		

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-19	Yellowish red loose single grain loamy sand. Sharp to:
19-64	Dark reddish brown massive soft loamy sand with minor schist gravel. Sharp to:
64-78	Reddish brown hard moderately calcareous sandy clay loam with weak coarse prismatic structure. Clear to:
78-140	Weathering schist with 20-50% fine carbonate segregations of loamy texture.



Classification: Hypercalcic, Subnatric, Red Sodosol; very thick, non-gravelly, sandy / clay loamy, deep

Summary of Properties

- Drainage:** Well drained. The soil never remains wet for more than a day or so following heavy or prolonged rainfall.
- Fertility:** Inherent fertility is low, as indicated by the exchangeable cation and clay percentage data. Nutrient retention near the surface is dependent on organic matter. Apart from nitrogen and phosphorus, deficiencies of zinc, copper and possibly manganese are the most likely.
- pH:** Neutral at the surface, strongly alkaline with depth.
- Rooting depth:** Not recorded. Estimate 100 cm in pit, but few roots below 80 cm.

Barriers to root growth:

Physical: There are no physical barriers – basement rock is usually too deep to affect agricultural plants.

Chemical: There are no chemical barriers apart from low fertility.

Water holding capacity: Approximately 70 mm in the root zone.

Seedling emergence: Satisfactory except in seasons when water repellence is a problem.

Workability: Loose surface is easily worked.

Erosion Potential

Water: Low except where water repellent.

Wind: High.

Laboratory Data

Depth cm	Coarse sand %	Fine sand %	Silt %	Clay %	pH H ₂ O	CO ₃ %	EC 1:5 dS/m	Cl mg/kg	CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
										Ca	Mg	Na	K	
0-19	36	55	8	2	6.9	0	0.07	80	6	2.7	0.57	0.14	0.41	2.3
19-64	34	55	10	2	8.7	0.1	0.08	<50	6	3.1	0.57	0.15	0.36	2.5
64-78	37	36	4	26	8.9	3.9	0.32	356	17	8.0	5.3	1.1	1.7	6.5
78-140	5	36	13	8	9.5	36	0.40	372	9	4.4	4.0	1.3	0.64	14.4

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.