

LOAMY SAND OVER HARD CLAY ON ROCK

General Description: *Loamy sand sharply overlying a coarsely structured brown, grey or red clay, calcareous with depth, grading to weathering basement rock*

Landform: Undulating rises.

Substrate: Weathering gneiss, mantled by fine carbonate.

Vegetation:



Type Site: Site No.: MO008

1:50,000 sheet: 6727-4 (Monarto) Hundred: Mobilong
 Annual rainfall: 350 mm Sampling date: 1976
 Landform: Upper slope of undulating rise, 3% slope
 Surface: Hard setting with minor gneiss and quartzite stone

Soil Description:

Depth (cm)	Description
0-7	Dark greyish brown firm massive loamy sand with quartz gravel (2-6mm). Clear to:
7-14	Brown hard heavy clay with strong coarse prismatic structure. Sharp to:
14-24	Brown and light olive brown mottled hard medium clay with strong prismatic structure and 10-20% fine carbonate. Clear to:
24-34	Yellowish brown firm calcareous clay loam with strong prismatic structure and 20-50% fine carbonate. Clear to:
34-44	Brownish yellow hard massive calcareous clay loam with 20-50% fine carbonate. Gradual to:
44-65	Reddish yellow firm massive calcareous loam with 20-50% fine carbonate. Diffuse to:
65-85	Pale yellow calcareous silty clay loam. Diffuse to:
85-100	Weathering gneiss with a fine carbonate matrix. Clear to:
100-140	Weathered gneiss.



Classification: Sodic, Hypercalcic, Brown Chromosol; thin, slightly gravelly, sandy / clayey, moderate

Summary of Properties

Drainage: Moderately well to imperfectly drained. Water perches on top of the clayey subsoil, so the upper profile may remain saturated for a week and sometimes longer following heavy or prolonged rainfall.

Fertility: Inherent fertility is moderately low, as indicated by the exchangeable cation data. Nutrient retention capacity of the surface soil is poor due to low clay content, but reserves of macro nutrients in the shallow subsoil are high. Nitrogen and phosphorus are widely deficient. Trace element deficiencies (zinc, copper and manganese) may also occur.

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

Rooting depth: Not recorded. Estimate 35 cm in pit.

Barriers to root growth:

Physical: The coarsely structured clayey subsoil impedes root growth and prevents even distribution patterns.

Chemical: High pH restricts root growth below about 40 cm.

Water holding capacity: Approximately 50 mm in the root zone.

Seedling emergence: Satisfactory.

Workability: The soft surface is easily worked.

Erosion Potential

Water: Moderate.

Wind: Moderately low.

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	
0-7	42	46	2	6	8.1	0.2	0.13	<50	6	3.8	1.0	0.09	0.54	1.4
14-24	22	13	2	42	8.8	14	0.17	66	34	22.6	8.0	1.3	1.7	3.9
44-65	17	10	2	28	9.6	38	0.30	98	19	8.2	7.4	2.4	0.83	12.8

Note: CEC (cation exchange capacity) is a measure of the soil's capacity to store and release major nutrient elements. CEC is estimated at this site from the exchangeable cation data.

ESP (exchangeable sodium percentage) is derived by dividing the exchangeable sodium value by the CEC.