

THICK SAND OVER BROWN CLAY

General Description: *Thick sand to loamy sand with a bleached subsurface layer, over a brown coarsely structured clay*

Landform: Very gently undulating plains

Substrate: Tertiary age sandy clay to clayey sand

Vegetation: Eucalyptus camaldulensis woodland



Type Site:	Site No.:	SE157A	1:50,000 mapsheet:	7024-4 (Keppoch)
	Hundred:	Beamma	Easting:	473700
	Section:	99	Northing:	5944940
	Sampling date:	09/11/2007	Annual rainfall:	540 mm average

Very gently undulating plain. Soft surface with no stones. Non irrigated pasture.

Soil Description:

Depth (cm)	Description
0-13	Very dark greyish brown soft single grain loamy sand. Clear to:
13-30	Brown loose single grain sand. Gradual to:
30-42	Light yellowish brown (bleached when dry) loose single grain sand. Sharp to:
42-60	Yellowish brown and yellowish red friable coarse sandy medium clay with weak very coarse columnar structure. Gradual to:
60-100	Brownish yellow, yellowish red and light grey firm coarse sandy medium clay with weak very coarse prismatic structure. Diffuse to:
100-160	Light grey and yellow firm clay loam, coarse sandy, with weak very coarse prismatic structure, and some sandier pipes.



Classification: Bleached-Mottled, Eutrophic, Brown Kurosol; thick, non-gravelly, sandy / clayey, very deep



Summary of Properties

Drainage: Moderately well to imperfectly drained. Water may perch on top of the subsoil clay for a week or so following heavy or prolonged rainfall.

Fertility: Inherent fertility is low, as indicated by the exchangeable cation data. This is due to the low clay and relatively low organic matter contents of the surface layers. The bleached subsurface sand has negligible nutrient retention capacity. Laboratory data indicate deficiencies of phosphorus and sulphur, and probably copper and zinc. Potassium levels are marginal.

pH: Acidic throughout, and strongly acidic in the subsurface layer, and the upper subsoil.

Rooting depth: 160 cm in sampling pit, but few roots below 100 cm.

Barriers to root growth:

Physical: The subsoil clay layer imposes a moderate restriction on root growth, mainly by confining many roots to the faces of coarse aggregates.

Chemical: Aluminium toxicity may affect sensitive species, and overall fertility is reduced by low pH. Low nutrient availability (associated with acidity and low clay content) is the main chemical impediment to root growth.

Waterholding capacity: Approximately 120 mm in the potential rootzone.

Seedling emergence: Satisfactory to fair, depending on degree of water repellence.

Workability: Sandy surface soils are easily worked.

Erosion Potential:

Water: Low.

Wind: Moderate.

Laboratory Data

Depth cm	pH H ₂ O	pH CaCl ₂	EC1:5 dS/m	ECe dS/m	Cl mg/kg	Org.C %	NO ₃ +NH ₄ mg/kg	Avail. P mg/kg	Avail. K mg/kg	SO ₄ -S mg/kg	React Fe mg/kg	Boron mg/kg	Ext Al mg/kg	Trace Elements mg/kg (EDTA)				Sum cations cmol (+)/kg	Exchangeable Cations cmol(+)/kg				Est. ESP
														Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
0-13	5.5	4.5	0.04	0.42	16	1.20	11	5	128	2.7	123	0.5	2.1	0.29	49	5.77	1.02	3.2	2.28	0.57	0.07	0.3	2.2
13-30	5.4	4.4	0.06	0.27	16	0.26	-	4	54	3.2	83	-	0.06	-	-	-	-	1.2	0.84	0.2	0.07	0.09	na
30-42	5.6	4.9	0.02	0.19	9	0.13	-	4	29	1.3	92	-	0.05	-	-	-	-	0.8	0.52	0.15	0.02	0.08	na
42-60	5.4	4.4	0.03	0.30	11	0.34	-	2	135	4.2	505	-	0.16	-	-	-	-	7.7	3.45	3.61	0.22	0.39	2.9
60-100	5.8	4.9	0.04	0.34	21	0.23	-	5	153	22.5	432	-	0.11	-	-	-	-	6.9	2.48	3.79	0.28	0.37	4.0
100-160	5.9	5.0	0.04	0.32	12	0.09	-	2	90	25.2	177	-	0.09	-	-	-	-	3.8	1.21	2.1	0.22	0.22	5.9

Note: Sum of cations, in a neutral to alkaline soil, approximates the CEC (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 CEC, in this case estimated by the sum of cations.

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

