

THICK SAND OVER SANDY CLAY (Shallow Lowan soil)

General Description: *Thick sand with a bleached A2 layer over a weakly structured yellow sandy clay loam to sandy clay, calcareous with depth*

Landform: Stony flats with low sandhills.

Substrate: Windblown Molineaux Sand overlying medium to fine grained highly calcareous Woorinen Formation deposits.

Vegetation: Mallee



Type Site: Site No.: EC088

1:50,000 sheet:	6030-1 (Palkagee)	Hundred:	Cowan
Annual rainfall:	400 mm	Sampling date:	10/11/93
Landform:	Crest of low sandhill on very gently undulating plain		
Surface:	Loose with no stones		

Soil Description:

Depth (cm)	Description
0-20	Greyish brown loose loamy sand. Clear to:
20-55	Light grey (bleached) soft sand. Abrupt to:
55-60	Light yellowish brown firm sandy light clay with weak fine subangular blocky structure. Clear to:
60-80	Light yellowish brown, red and yellow firm sandy clay with moderate fine angular blocky structure. Clear to:
80-93	Light yellowish brown, red and grey firm moderately calcareous light clay with moderate fine angular blocky structure. Gradual to:
93-150	Very pale brown hard highly calcareous light clay with moderate fine angular blocky structure.



Classification: Bleached, Calcic, Yellow Chromosol; thick, non-gravelly, sandy / clayey, 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 data, and low clay and organic matter levels in the topsoil. Regular phosphorus applications are essential - levels are low at sampling site. Nitrogen status depends on legume component of pastures and cropping history. Deficiencies of zinc and copper are likely from time to time, and manganese deficiency may be a problem in some crops. Concentrations of all three are marginal at this site.
pH	Neutral at the surface, alkaline with depth.
Rooting depth	80 cm in pit, but few roots below 20 cm.
Barriers to root growth	
Physical:	The sandy clay subsoil reduces root densities but does not prevent root growth.
Chemical:	There are no chemical barriers. Low nutrient status and retention characteristics are probably constraining root development.
Water holding capacity	100 mm in the potential root zone (to about 100 cm), but only about 30 mm in the actual root zone (ie up to 70 mm water is not used).
Seedling emergence:	Satisfactory except in dry years when water repellence may reduce establishment.
Workability:	Loose surface is easily worked.
Erosion Potential	
Water:	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 -S 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	
0-20	6.5	6.3	0	0.04	0.21	0.4	17	49	-	0.1	0.2	13	0.5	0.2	2.0	3.0	0.6	0.09	0.10	na
20-55	7.1	6.9	<0.1	0.04	0.39	0.1	12	50	-	<0.1	0.1	5	<0.1	0.2	1.4	2.0	0.3	0.10	0.11	na
55-60	7.3	6.8	<0.1	0.07	0.33	0.2	7	231	-	1.9	0.1	18	0.1	0.2	9.5	5.2	4.5	0.33	0.81	3.5
60-80	7.8	7.4	<0.1	0.10	0.40	0.1	6	321	-	3.5	0.1	7	0.4	0.2	12.2	5.4	5.3	0.39	1.00	3.2
80-93	8.6	8.2	2.6	0.15	0.37	0.1	<4	381	-	6.7	0.1	7	0.1	0.1	14.2	7.5	6.2	0.41	1.27	2.9
93-150	8.8	8.3	16.4	0.14	0.41	0.3	<4	215	-	4.7	0.2	4	0.2	0.1	11.7	7.3	5.0	0.32	0.95	2.7

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.