

CALCAREOUS SANDY LOAM

General Description: *Calcareous sandy loam to sandy clay loam, more clayey and calcareous with depth overlying a rubbly carbonate layer which grades to softer clayey carbonate*

Landform: Slopes of gently undulating rises

Substrate: Sandstone or associated clayey weathering materials capped by Class III B or C carbonate

Vegetation: Mallee scrub



Type Site: Site No.: CU040

1:50,000 sheet: 6532-2 (Booleroo) Hundred: Booleroo
 Annual rainfall: 375 mm Sampling date: 06/06/94
 Landform: Upper slope (2% gradient) of a gently undulating rise
 Surface: Firm, with 20-50% cover of calcrete fragments

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-10	Dark reddish brown highly calcareous light sandy clay loam with weak coarse structure and 2-10% calcrete nodules. Clear to:
10-23	Dark reddish brown highly calcareous sandy clay loam with weak coarse structure and 2-10% calcrete nodules. Abrupt to:
23-35	Brown very highly calcareous massive heavy sandy clay loam with more than 50% calcrete nodules to 60 mm (Class III C carbonate layer). Clear to:
35-65	Pink very highly calcareous sandy light clay with 2-10% calcrete nodules. Gradual to:
65-95	Reddish yellow massive very highly calcareous sandy light clay with 20-50% sandstone fragments. Gradual to:
95-150	Weak sandstone with pockets of yellowish red highly calcareous medium clay with strong blocky structure and 2-10% soft carbonate.



Classification: Hypervescent, Regolithic, Lithocalcic Calcarosol; medium, gravelly, loamy / clayey, deep

Summary of Properties

Drainage	The soil is well drained and is unlikely to remain wet for more than a day or so after rain.
Fertility	The soil has a high nutrient storage capacity but the high carbonate content and pH restrict availability of phosphorus and trace elements. Organic carbon levels are high (as is often the case with calcareous soils). Note that high organic carbon between 10 cm and 35 cm is due to remains of an old mallee root.
pH	Alkaline at the surface, strongly alkaline with depth.
Rooting depth	95 cm in pit but there are few roots below 65 cm.
Barriers to root growth	
Physical:	There are no apparent physical barriers.
Chemical:	High boron (more than 15 mg/kg), moderate salinity (more than 8 dS/m, ECe), high sodicity (ESP more than 30) and high pH (more than 9.2 in water) in the subsoil combine to restrict root development below 65 cm.
Water holding capacity	125 mm, but no more than 100 mm is effectively available due to low root densities below 65 cm.
Seedling emergence	Good.
Workability	Good.
Erosion Potential	
Water:	Low.
Wind:	Low.

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	
Paddock	8.6	8.0	13.2	0.11	0.51	1.7	31	220	-	1.7	0.5	3	5.9	0.9	15.8	15.3	1.4	0.16	0.65	1.0
0-10	8.6	8.0	11.1	0.12	0.68	1.8	38	393	-	2.4	0.5	3	5.4	1.6	18.7	15.2	1.7	0.23	1.15	1.2
10-23	8.5	8.0	9.4	0.23	1.94	2.8	7	192	-	3.8	0.4	5	3.2	0.7	17.7	10.6	1.6	0.45	0.34	2.5
23-35	9.1	8.4	27.3	1.27	6.70	2.8	7	74	-	16.1	0.5	10	1.5	0.6	22.1	12.5	8.4	5.5	0.27	25.0
35-65	9.7	9.0	46.0	1.73	9.17	1.2	5	117	-	17.5	0.3	3	0.4	0.4	9.6	1.9	4.8	5.5	0.28	57.1
65-95	9.6	8.9	36.9	1.40	8.61	0.1	<4	169	-	14.3	0.2	2	0.3	0.3	11.0	2.3	5.3	5.5	0.51	50.3
95-150	9.5	8.8	2.3	1.22	6.62	0.1	<4	255	-	16.7	0.2	1	0.2	0.3	14.8	2.3	5.8	7.0	0.69	47.6

Note: Paddock sample bulked from cores (0-10 cm) taken around the pit.

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.