

SHALLOW CALCAREOUS SANDY LOAM ON CALCRETE

General Description: *Calcareous rubbly sandy loam to light sandy clay loam becoming more clayey at depth with variable rubble throughout, overlying hard calcrete*

Landform: Undulating rises overlain by rounded sandhills.

Substrate: Calcrete grading to highly calcareous sandy loam overlying Blanchetown Clay.

Vegetation: Mallee



Type Site: Site No.: MM146

1:50,000 sheet: 6927 - 3 (Jabuk)

Hundred:

Price

Annual rainfall: 400 mm

Sampling date:

25/02/99

Landform: Rise

Surface: Soft with up to 20% calcrete stones

Soil Description:

Depth (cm)	Description
0-12	Dark greyish brown soft moderately calcareous sandy loam with weak subangular blocky structure. Clear to:
12-20	Brown soft massive moderately calcareous sandy clay loam. Clear to:
20-50	Brown soft massive very highly calcareous sandy clay loam with more than 50% carbonate nodules. Abrupt to:
50-75	Sheet calcrete. Clear to:
75-165	Pink soft massive very highly calcareous sandy loam. Gradual to:
165-190	Light brown soft very highly calcareous light clay with weak subangular blocky structure and 2-10% fine carbonate segregations.



Classification: Endohypersodic, Petrocalcic, Lithocalcic Calcarosol; medium, slightly gravelly, loamy / clay loamy, moderate

Summary of Properties

Drainage	Well drained. Soil never remains saturated for more than a few days.
Fertility	Inherent fertility is moderate, according to the exchangeable cation data. Regular phosphorus applications are necessary (levels are good at sampling site). Nitrogen levels depend on cropping history and legume status of pastures. Zinc and copper may be needed (both are marginally deficient at the sampling site). Manganese may be deficient where surface soil is highly calcareous. Organic carbon level is satisfactory.
pH	Alkaline at the surface, strongly alkaline with depth.
Rooting depth	Not recorded. Estimate 50 cm in pit.
Barriers to root growth	
Physical:	The calcrete pan is a severe limitation, and the rubble above it restricts water holding capacity.
Chemical:	High pH and sodicity from 75 cm prevent deeper root growth, even if some roots penetrate the calcrete.
Water holding capacity	Approximately 40 mm in root zone.
Seedling emergence:	Slight limitation due to stoniness (although sampling site is stone free).
Workability:	Firm surface is easily worked, but stones (usually present) abrade implements and stone is continually brought to the surface.
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	8.0	7.4	1.3	0.15	2.2	1.21	29	475	-	1.3	0.2	-	3.4	0.4	13.0	10.4	1.8	< 0.1	1.4	0.8
0-12	8.3	7.7	0.9	0.13	1.2	1.19	31	348	-	1.5	0.2	-	2.6	0.4	9.7	8.5	1.4	< 0.1	0.80	1.0
12-20	8.0	7.5	0.4	0.13	1.2	0.45	9	280	-	1.1	0.2	-	2.0	0.2	14.3	10.4	1.9	< 0.1	1.0	0.7
20-50	8.4	7.8	12	0.17	1.1	0.50	3	224	-	1.3	0.2	-	0.8	0.2	19.4	15.0	3.5	0.18	0.69	1.2
50-75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
75-165	9.6	8.3	53	0.52	5.0	0.19	1	543	-	5.5	0.4	-	0.7	0.2	14.3	1.8	3.5	8.1	1.5	56.6
165-190	9.5	8.5	41	1.15	7.4	0.15	2	548	-	6.9	0.3	-	0.7	0.1	20.0	1.1	6.6	10.2	1.9	51.0

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.