

SHALLOW CALCAREOUS SANDY LOAM

General Description: *Highly calcareous sandy to loamy surface soil, shallow over rubbly or sheet calcrete, grading to sandstone*

Landform: Undulating to rolling low hills, with common outcrops of silcrete and calcrete, and associated surface stones.

Substrate: Calcreted sandstones of Tertiary age.

Vegetation:



Type Site: Site No.: CU002

1:50,000 sheet:	6531-2 (Gladstone)	Hundred:	Narridy
Annual rainfall:	450 mm	Sampling date:	21/02/92
Landform:	Upper slope / crest of undulating low hills, slope 2%		
Surface:	Firm with 20% sandstone, calcrete and quartz stones (up to 6 cm)		

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-13	Dark brown moderately granular very highly calcareous light sandy clay loam with less than 2% fine calcrete nodules. Abrupt to:
13-17	Brown massive very highly calcareous light sandy clay loam with 20-50% fine calcrete nodules. Abrupt to:
17-33	Very pale brown very highly calcareous light clay loam with more than 50% fine calcrete nodules (Class III C carbonate layer). Abrupt to:
33-40	Broken calcrete pan. Clear to:
40-120	Weathering sandstone with abundant fine lime leached in from above.



Classification: Hypervescent, Petrocalcic, Lithocalcic Calcarosol; medium, gravelly, loamy / clay loamy, shallow

Summary of Properties

Drainage	Rapid. Soil never wet for more than a few hours.
Fertility	Fair. Low clay content limits nutrient retention capacity, and high lime content reduces availability of some nutrients. Maintenance of organic carbon levels above 1% is essential.
pH	Alkaline in surface; strongly alkaline with depth.
Rooting depth	33 cm at type site. Limited by calcrete pan and shallow rock.
Barriers to root growth	
Physical:	Hard rock at shallow depth restricts depth to which roots can penetrate.
Chemical:	High alkalinity.
Water holding capacity	50 mm in rootzone (low). Varies depending on amount of rubble and depth to rock.
Workability	Good, except where heavy stone is within cultivation depth, or surface stone cover exceeds 20%. Soil structure is not a problem due to high surface carbonate (CaCO ₃) levels.
Seedling establishment	Good, provided that surface organic matter levels are maintained.
Erosion potential	
Water:	Low, due to gentle slope and high soil infiltration rates.
Wind:	Low, unless heavily overgrazed.

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	8.7	8.0	17.6	0.14	-	1.00	26	270	-	-	0.58	1.5	4.0	0.27	-	-	-	-	-	-
0-13	8.5	7.8	8.7	0.16	1.0	1.31	41	410	-	-	0.59	1.6	7.5	0.44	16.5	11.9	1.36	0.09	1.18	0.5
13-17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
17-33	9.0	8.2	33.5	0.10	0.3	0.56	4	35	-	1.0	0.62	0.6	0.5	0.07	6.7	6.30	1.50	0.10	0.15	1.5
33-40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40-120	9.1	8.4	29.9	0.12	0.4	0.23	2	30	-	0.9	0.21	0.2	0.2	0.01	7.3	4.45	3.85	0.23	0.11	3.2

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.