

CALCAREOUS LOAM

General Description: *Calcareous loam overlying rubbly carbonate at shallow depth, becoming softer with depth and grading to highly weathered basement rock*

Landform: Rises

Substrate: Highly weathered fine grained basement rock with abundant soft carbonate and sporadic gypsum in cleavages

Vegetation:



Type Site: Site No.: CU056

1:50,000 sheet: 6533-3 (Quorn) Hundred: Pichi Richi
 Annual rainfall: 325 mm Sampling date: 17/11/95
 Landform: Upper slope of an undulating rise, 3% slope
 Surface: Firm with 2-10% siltstone and calcrete fragments

Soil Description:

Depth (cm)	Description
0-8	Dark brown highly calcareous weakly structured loam with 10-20% siltstone fragments. Abrupt to:
8-15	Reddish brown highly calcareous soft massive clay loam with 20-50% siltstone and calcrete fragments. Abrupt to:
15-25	Platy calcrete with reddish brown very highly calcareous loam and 20-50% siltstone fragments between the plates. Abrupt to:
25-80	Massive moderately strong calcrete pan with 20-50% siltstone fragments. Gradual to:
80-135	Light red massive very highly calcareous coarse sandy clay loam with 20-50% siltstone fragments. Gradual to:
135-160	Soft highly calcareous weathering siltstone with 10-20% soft and crystalline gypsum in fissures. Clear to:
160-180	Partially weathered siltstone.



Classification: Gypsic, Paralithic, Lithocalcic Calcarosol; medium, gravelly, loamy / clay loamy, deep

Summary of Properties

Drainage	Rapidly drained. This soil is unlikely to remain wet for more than a few hours after rain.
Fertility	Good nutrient retention capacity (indicated by the CEC and favourable organic carbon), and all nutrient elements are well supplied. Surface carbonate content is not high enough to cause serious fixation of phosphorus and trace elements - a common problem on calcareous loams.
pH	Alkaline at the surface, strongly alkaline with depth.
Rooting depth	Strong root growth to 25 cm, and moderate to 135 cm.
Barriers to root growth	
Physical:	The main physical limitation is the calcrete layer. Where it is a continuous sheet it forms a root barrier, but where rubbly, roots grow well.
Chemical:	High subsoil pH and sodicity, and marginal salinity and boron levels.
Water holding capacity	Approximately 65 mm (moderately low) in root zone.
Seedling emergence:	Good.
Workability	Good.
Erosion Potential	
Water:	Moderately low.
Wind:	Moderately low - surface soil will powder if 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	8.1	7.6	1.7	0.26	1.30	1.4	30	905	13	2.1	1.2	10	15	1.6	23.8	15.33	4.19	0.70	2.53	2.9
0-8	8.2	7.7	5.6	0.25	1.38	2.5	54	1110	64	2.1	-	-	-	-	24.1	19.45	2.36	0.07	3.09	0.3
8-15	8.4	7.9	7.6	0.21	1.28	2.0	29	829	15	1.9	-	-	-	-	23.9	19.51	2.76	0.08	2.39	0.3
15-25	8.6	8.0	33.0	0.18	0.77	1.4	19	410	16	2.1	-	-	-	-	18.8	16.60	3.37	0.24	1.11	1.3
25-80	8.9	8.2	37.4	0.60	2.87	0.8	6	140	88	3.0	-	-	-	-	15.8	9.88	5.16	3.46	0.17	21.9
80-135	9.5	8.7	18.1	1.11	5.90	0.4	5	143	175	13.7	-	-	-	-	23.9	9.22	7.05	11.99	0.35	50.1
135-160	8.2	8.0	0.2	3.26	7.11	<0.1	7	151	7100	9.2	-	-	-	-	10.9	10.18	2.89	4.09	0.25	37.5
160-180	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Note: Paddock sample bulked from 20 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.