

SHALLOW CALCAREOUS LOAM

General Description: *Greyish brown powdery calcareous loam, becoming more silty with depth and grading to weathering calcareous siltstone bedrock within one metre*

Landform: Upper slopes of undulating to rolling rises and low hills

Substrate: Calcareous siltstone, mantled by soft or sometimes rubbly secondary carbonate

Vegetation:



Type Site: Site No.: CU024

1:50,000 sheet: 6631-3 (Bundaleer)	Hundred: Belalie
Annual rainfall: 475 mm	Sampling date: 25/02/93
Landform: Upper slope, undulating rise, 5% slope	
Surface: Firm with minor calcrete fragments	

Soil Description:

Depth (cm)	Description
0-10	Dark brown soft highly calcareous loam with moderate granular structure and 2-10% calcrete fragments. Clear change to:
10-25	Brown soft massive highly calcareous loam with 2-10% siltstone fragments. Gradual change to:
25-40	Light grey soft massive very highly calcareous silty loam with 2-10% siltstone fragments. Gradual change to:
40-60	Light grey soft massive very highly calcareous silty loam. Gradual change to:
60-85	Greyish brown moderately calcareous weathering siltstone.



Classification: Hypervescent, Paralithic, Hypercalcic Calcarosol; medium, slightly gravelly, loamy / silty, moderate

Summary of Properties

Drainage The soil is well to rapidly drained, not having any restricting layers, and is unlikely to remain wet for any significant time.

Fertility The soil has low to moderate inherent fertility, but most of its nutrient retention capacity is associated with the organic matter, as indicated by the correlation between the organic carbon and CEC values. Maintenance of high organic matter levels is very important on these soils. Phosphorus and trace elements (except perhaps iron) are adequate at type site. Note that zinc and manganese deficiencies are more likely on these alkaline soils.

pH Mildly alkaline at the surface, grading to strongly alkaline with depth.

Rooting depth 85 cm in pit, but very few roots below 60 cm.

Barriers to root growth

Physical: Shallow depth to rock.

Chemical: Low nutrient availability caused by high pH.

Water holding capacity 80 mm in root zone (moderate).

Seedling emergence Good

Workability Good, although excessive cultivation will readily pulverize this soil.

Erosion Potential

Water: Moderate, due to the 5% slope. Erodibility is moderate, due to the satisfactory surface condition, but excessive cultivation will cause the surface to seal, increasing erosion hazard.

Wind: Moderately low. The soil becomes powdery after excessive cultivation or grazing, and is readily blown.

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	7.5	7.3	0.20	1.41	2.7	29	612	-	3.2	0.6	6	15.4	1.4	12.7	11.87	0.94	0.05	1.07	0.4
0-10	8.2	7.6	9.3	0.16	0.98	2.3	27	446	-	3.0	0.6	5	11.6	0.5	12.3	11.27	0.95	0.05	0.71	0.4
10-25	8.5	7.8	23.4	0.12	0.60	1.1	7	708	-	2.4	0.6	4	3.5	0.1	4.4	5.88	0.57	0.23	0.08	5.2
25-40	9.0	8.0	26.9	0.11	0.58	0.6	6	139	-	1.4	0.2	2	2.1	0.2	1.9	1.26	0.18	0.27	<0.1	na
40-60	9.2	8.2	22.7	0.13	0.67	0.5	<4	182	-	1.3	0.2	2	1.9	0.3	1.8	1.01	0.19	0.37	<0.1	na
60-85	9.6	8.3	20.4	0.22	1.25	0.2	<4	153	-	1.0	0.1	1	1.3	0.9	0.7	0.39	0.34	0.63	0.03	na

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.