

GYPSEOUS CALCAREOUS LOAM

General Description: *Calcareous sandy loam grading to a calcareous sandy clay loam with abundant soft or crystalline gypsum throughout*

Landform: Flat low lying plain with occasional lunettes

Substrate: Gypsum rich clayey sand.

Vegetation: Mallee (Euc. socialis and Euc. diversifolia)



Type Site: Site No.: MM109

1:50,000 sheet: 6827-3 (Moorlands)

Hundred: Coolinong

Annual rainfall: 385 mm

Sampling date: 01/04/93

Landform: Crest of lunette

Surface: Soft with no stones

Soil Description:

Depth (cm)	Description
0-9	Very dark grey soft calcareous sandy loam. Abrupt to:
9-15	Dark greyish brown soft highly calcareous light sandy clay loam. Abrupt to:
15-46	Pale brown highly calcareous massive sandy clay loam. Diffuse to:
46-65	Yellowish brown highly calcareous massive heavy sandy clay loam. Diffuse to:
65-120	Brown highly calcareous massive sandy clay loam. Sharp to:
120-200	Brownish yellow highly calcareous massive clayey sand. Gypsum crystals occur throughout – fine at the surface, coarse at base.



Classification: Hypergypsic Calcarosol; non-gravelly, loamy / clay loamy, deep

Summary of Properties

Drainage	Well drained. Soil never remains wet for more than a few days.
Fertility	Inherent fertility is moderately low as indicated by the exchangeable cation data. Nutrient retention capacity is moderate at the surface, but very low from 15 cm. Phosphorus applications are needed regularly. Nitrogen is usually low because of poor legume pastures. Copper and zinc are required from time to time. Organic carbon levels are satisfactory.
pH	Alkaline throughout.
Rooting depth	15 cm in pit.
Barriers to root growth	
Physical:	There are no physical barriers.
Chemical:	Low nutrient retention capacity from 15 cm. High gypsum content creates sufficient osmotic pressure to prevent water uptake (ie salt effect), so root growth is retarded.
Water holding capacity	20 mm in root zone.
Seedling emergence:	Moderate limitation due to salinity.
Workability:	Soft surface is easily worked, but may become slippery when wet.
Erosion Potential	
Water:	Low.
Wind:	Low to moderately 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	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	7.8	7.8	1	2.40	9.99	1.3	23	330	4.7	0.24	2.8	10	0.33	10.7	14.25	0.18	0.01	0.32	0.09
0-9	7.8	7.8	1	2.88	14.70	1.4	31	350	6.6	0.26	2.5	12	0.51	8.7	12.19	0.13	0.03	0.28	0.3
9-15	8.3	8.2	4	3.31	16.50	0.9	35	260	15	0.28	1.7	5.8	0.23	7.1	9.57	0.28	0.04	0.23	0.6
15-46	8.7	8.6	6	3.28	16.3	0.3	95?	190	8.9	0.19	0.75	1.2	<0.06	2.0	6.49	0.25	0.10	0.10	na
46-65	8.6	8.5	4	3.35	18.9	0.2	161?	240	5.4	0.20	1.1	1.4	<0.06	2.5	6.79	0.29	0.09	0.13	na
65-120	8.6	8.5	6	3.18	16.9	0.2	118?	190	3.3	0.18	0.89	1.0	0.07	2.5	6.46	0.23	0.05	0.02	na
120-200	8.5	8.4	5	2.50	9.78	<0.1	14?	210	3.2	0.16	1.1	0.43	<0.06	3.1	6.75	0.26	0.02	0.10	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.