

CALCAREOUS CLAY LOAM

General Description: *Calcareous loam to clay loam grading to clay with rubbly carbonate at shallow depth overlying red clay with abundant basement rock fragments*

Landform: Slopes of undulating rises

Substrate: Red blocky clay formed from the weathering of quartzitic basement rocks

Vegetation: Mallee woodland



Type Site:	Site No.:	CM060	1:50,000 mapsheet:	6530-1 (Koolunga)
	Hundred:	Koolunga	Easting:	253300
	Section:	220	Northing:	6285750
	Sampling date:	18/08/95	Annual rainfall:	460 mm average

Upper slope of an undulating rise, slope 4%. Firm surface with 10-20% calcrete fragments.

Soil Description:

Depth (cm)	Description
0-10	Dark reddish brown highly calcareous clay loam with moderate granular structure and 2-10% calcrete fragments. Abrupt to:
10-20	Dark reddish brown highly calcareous light medium clay with moderate polyhedral structure and 2-10% calcrete fragments. Clear to:
20-40	Brown very highly calcareous massive clay loam with 20-50% carbonate nodules to 2 cm. Diffuse to:
40-70	Brown very highly calcareous massive light clay with 10-20% carbonate nodules to 2 cm, and 10-20% sandstone fragments. Diffuse to:
70-110	Orange very highly calcareous massive light medium clay with 20-50% sandstone fragments. Diffuse to:
110-160	Dark red firm moderately calcareous medium clay with strong coarse blocky structure and 20-50% sandstone fragments.



Classification: Endohypersodic, Regolithic, Supracalcic Calcarosol; medium, gravelly, clay loamy/clayey, deep



Summary of Properties

Drainage:	Well drained. The soil is unlikely to remain wet for more than a day.
Fertility:	The soil's natural fertility is moderately high (high CEC and calcium saturation), although the moderate surface carbonate reduces nutrient availability. All elements except sulphur are well supplied, but there is a satisfactory level organic carbon which provides a reserve of sulphur as well as nitrogen. The very high calcium levels are inducing a marginal magnesium deficiency.
pH:	Alkaline at the surface, strongly alkaline with depth.
Rooting depth:	110 cm in pit, but few roots below 70 cm.
Barriers to root growth:	
Physical:	There are no physical barriers above the underlying clay.
Chemical:	Very high pH and exchangeable sodium (sodicity) from 70 cm prevent significant deeper root development.
Waterholding capacity:	Approximately 80 mm in rootzone (moderate).
Seedling emergence:	Good
Workability:	Good except where stone cover is heavy
Erosion Potential:	
Water:	Moderately low
Wind:	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	SO ₄ 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	8.2	7.8	5.7	0.12	0.47	1.6	29	501	8	2.4	0.56	-	5.98	1.40	27.8	24.93	2.37	0.23	1.64	0.8
0-10	8.1	7.8	2.6	0.13	0.56	2.2	47	605	6	2.0	-	-	-	-	27.2	25.47	2.33	0.19	1.84	0.7
10-20	8.3	7.9	8.2	0.12	0.36	1.1	10	267	6	1.7	-	-	-	-	26.1	26.12	2.51	0.21	0.90	0.8
20-40	8.4	7.9	33.4	0.12	0.33	0.9	8	103	8	1.8	-	-	-	-	18.9	19.06	2.36	0.26	0.40	1.4
40-70	8.6	8.0	45.1	0.11	0.36	0.7	7	118	8	2.4	-	-	-	-	12.9	11.38	3.66	0.42	0.28	3.3
70-110	9.6	8.4	48.0	0.40	0.73	0.3	4	154	20	11.9	-	-	-	-	16.2	4.69	11.02	5.05	0.51	31.2
110-160	9.8	9.0	1.5	0.54	0.86	0.0	4	190	15	21.8	-	-	-	-	19.9	3.18	9.62	8.84	0.59	44.4

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.

Further information: [DEWNR Soil and Land Program](#)

