

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 sheet: 6530-1 (Koolunga) Hundred: Koolunga
 Annual rainfall: 400 mm Sampling date: 18/08/95
 Landform: Upper slope of an undulating rise, slope 4%
 Surface: Firm 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.
Water holding capacity	Approximately 80 mm in root zone (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 -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	8.2	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.