GRADATIONAL CLAY LOAM

General Description: *Red brown medium to fine textured, well structured surface soil, grading to a friable clay subsoil overlying rubbly carbonate*

Landform: Slopes of undulating rises

Substrate: Variable alluvium mantled by variable, usually rubbly carbonate (Class III A, B or C)

Vegetation: Blue gum woodland

Type Site:

Site No.	CU043	1:50,000 mapsheet:	6532-3 (Melrose)
Hundred:	Wongyarra	Easting:	239650
Section:	Pt. 100	Northing:	6361500
Sampling date:	06/06/1994	Annual rainfall:	450 mm average

Upper slope of a weakly dissected pediment. Firm surface with minor quartz gravel. Slope is 3%.

Soil Description:

Depth (cm)	*Description*
0-12	Dark reddish brown light clay with moderate granular structure. Clear to:
12-27	Dark reddish brown heavy clay with strong fine polyhedral structure. Abrupt to:
27-45	Reddish brown very highly calcareous massive light clay with 20-50% carbonate nodules (Class III B carbonate). Clear to:
45-75	Orange very highly calcareous massive light clay with 10-20% carbonate nodules (Class III A carbonate). Clear to:
75-130	Greyish brown, red and dark brown massive moderately calcareous light sandy clay loam with 20-50% quartzite gravel.

Classification: Haplic, Supracalcic, Red Dermosol; medium, non-gravelly, clayey / clayey, moderate

Summary of Properties

Drainage: The soil is well drained and is unlikely to remain wet for more than a day or so following rain.

Fertility: The soil has a high level of natural fertility (high CEC dominated by calcium). Organic carbon (and therefore total nitrogen) is high. There are no deficiencies indicated by the data, although phosphorus levels are marginal.

pH: Acidic at the surface, alkaline with depth.

Rooting depth: 120 cm in pit.

Barriers to root growth:

Physical: There are no apparent barriers to root development. The soil is well structured and has no hard pans.

Chemical: Salt, boron and sodicity levels are low and the pH is not excessively high.

Waterholding capacity: Approximately 140 mm.

Seedling emergence: Good provided that surface organic matter levels are maintained.

Workability: Good, although the soil may tend to be sticky when wet.

Erosion Potential:

Water: Moderately low.

Wind: Low.

Laboratory Data

Depth cm	pH H_2O	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	5.6	5.3	0	0.17	0.96	2.5	26	388	-	1.6	1.0	41	31.7	1.9	20.3	14.2	2.8	0.20	1.27	1.0
0-12	5.7	5.3	0	0.09	0.37	2.3	33	272	-	1.3	1.0	36	19.1	1.7	19.3	13.4	2.3	0.16	0.79	0.8
12-27	7.8	7.5	0.3	0.15	0.50	1.1	5	146	-	1.1	0.7	9	5.6	0.5	26.1	21.0	2.3	0.20	0.54	0.8
27-45	8.6	7.9	45.2	0.12	0.45	0.9	4	90	-	0.7	0.5	5	1.9	0.2	13.3	11.6	1.4	0.22	0.26	1.7
45-75	8.6	7.9	40.7	0.13	0.59	0.2	<4	97	-	0.9	0.4	4	1.0	0.2	15.6	12.7	2.6	0.22	0.25	1.4
75-130	8.8	8.2	13.8	0.17	0.72	0.2	<4	114	-	0.8	0.2	2	0.2	0.2	24.0	13.3	7.9	1.57	0.33	6.5

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