

CLAY LOAM OVER DISPERSIVE RED CLAY

General Description: *Hard setting reddish brown sandy loam to clay loam overlying a strongly structured dark reddish brown clayey subsoil with soft calcareous segregations at depth, forming in fine grained alluvium*

- Landform:** Lower slopes, plains and valley floors between basement rock hills
- Substrate:** Fine grained alluvium (Pooraka Formation), mantled by soft carbonate
- Vegetation:** Blue gum - peppermint box woodland



Type Site:	Site No.:	CM055	1:50,000 mapsheet:	6630-1 (Burra)
	Hundred:	Kingston	Easting:	303400
	Section:	64	Northing:	6282950
	Sampling date:	02/08/94	Annual rainfall:	440 mm average

Level plain, with a hard setting surface and a slope of 1%.

Soil Description:

Depth (cm)	Description
0-10	Reddish brown hard setting silty clay loam with weak granular structure. Abrupt to:
10-23	Yellowish red massive silty clay loam. Clear to:
23-35	Light reddish brown massive clay loam. Sharp to:
35-55	Red medium heavy clay with strong very coarse prismatic breaking to angular blocky structure. Clear to:
55-83	Red medium heavy clay with coarse angular blocky structure. Clear to:
83-145	Red and brown mottled medium clay with strong angular blocky structure and 2 - 10% soft and nodular (Class I) carbonate.



Classification: Calcic, Subnatric, Red Sodosol; thick, non-gravelly, clay loamy / clayey, deep.



Summary of Properties

- Drainage:** Moderate. The thick, sodic clay subsoil has restricted permeability and will hold up water for a week or so after rain.
- Fertility:** Natural fertility is high. Measured nutrient elements are adequate, but zinc may be marginally deficient. Organic carbon and therefore nitrogen reserves are high.
- pH:** Slightly acidic at the surface, alkaline with depth. Note that the field measurement of surface pH was 5.5 (ie acidic).
- Rooting depth:** Strong root growth to 80 cm, very few roots below this depth.
- Barriers to root growth:**
- Physical:** The tight clay subsoil restricts root proliferation.
 - Chemical:** High salt and exchangeable sodium levels from 55 cm.
- Waterholding capacity:** Approximately 120 mm in rootzone, but high salt levels will affect the uptake of this water from depth.
- Seedling emergence:** Fair to good, depending on seasonal conditions (surface sealing is a potential problem for crops).
- Workability:** Fair. Narrow moisture range and a tendency to set down hard affect workability.
- Erosion Potential:**
- Water:** Low.
 - Wind:** 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	7.4	6.5	0	0.13	0.71	2.2	31	665	9.6	1.8	-	-	-	-	11.9	5.10	1.98	0.05	1.48	0.4
0-10	6.3	5.4	0	0.07	0.35	2.5	59	660	7.8	2.1	-	-	-	-	12.0	5.44	1.86	0.08	1.33	0.7
10-23	6.5	5.5	0	0.05	0.30	0.7	15	382	5.7	0.9	-	-	-	-	6.8	3.16	1.04	0.11	0.56	1.6
23-35	7.6	6.8	0	0.05	0.67	0.4	5	279	3.2	1.5	-	-	-	-	6.3	3.43	1.61	0.25	0.35	4.0
35-55	7.9	7.0	0	0.35	3.10	0.5	3	535	10.6	6.5	-	-	-	-	22.2	6.96	11.1	2.33	2.03	10.5
55-83	8.6	8.2	0.2	1.56	9.37	0.2	4	558	137	12	-	-	-	-	20.6	4.03	12.0	5.16	1.36	25.0
83-145	8.6	8.2	5.5	2.02	11.72	0.3	9	450	206	7.8	-	-	-	-	17.3	4.23	11.0	4.41	1.04	25.5

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](#)

