

HARD GRADATIONAL RED CLAY

General Description: *Hard clay loam to light clay over a coarsely structured red clay, calcareous with depth*

Landform: Gently undulating rises.

Substrate: Deeply weathered schistose basement rock.

Vegetation: Mallee - broombush.



Type Site:	Site No.:	CY008	1:50,000 mapsheet:	6429-2 (Ardrossan)
	Hundred:	Maitland	Easting:	753800
	Section:	372	Northing:	6193800
	Sampling date:	8/12/1992	Annual rainfall:	465 mm average

Footslope of 1%. Hard setting surface with 2-10% calcrete stones (60-200 mm).

Soil Description:

Depth (cm)	Description
0-6	Dark brown hard massive moderately calcareous fine sandy light clay with minor quartz gravel. Abrupt to:
6-12	Red firm fine sandy medium clay with moderate coarse angular blocky structure and minor quartz gravel. Clear to:
12-32	Red firm medium heavy clay with strong coarse angular blocky structure and 2-10% quartz gravel. Gradual to:
32-50	Yellowish red firm very highly calcareous light medium clay with moderate coarse angular blocky structure and 2-10% quartz gravel. Gradual to:
50-81	Strong brown friable massive very highly calcareous silty light medium clay with 2-10% calcrete fragments (6-20 mm). Diffuse to:
81-140	Strong brown friable massive very highly calcareous light medium clay with 2-10% calcrete fragments (6-20 mm).



Classification: Sodic, Hypercalcic, Red Dermosol; thin, slightly gravelly, clayey / clayey, deep



Summary of Properties

- Drainage:** Moderately well drained. The soil may remain wet for a week or so following heavy or prolonged rainfall.
- Fertility:** The soil's natural capacity to retain nutrients is high as indicated by the exchangeable cation data. Surface fertility relies on organic matter levels which are adequate, and on phosphorus levels which are low at this site. Zinc appears to be deficient.
- pH:** Alkaline throughout (hence medics better suited than clovers).
- Rooting depth:** 50 cm in pit.
- Barriers to root growth:**
- Physical:** The coarsely structured clayey subsoil affects root densities.
 - Chemical:** High sodicity at depth restricts root growth.
- Waterholding capacity:** Approximately 80 mm in rootzone.
- Seedling emergence:** Good to fair. Organic matter levels need to be maintained to preserve soil structure.
- Workability:** Good to fair due to strength of clay. The soil is likely to puddle if worked too wet and shatter if worked too dry.
- Erosion Potential:**
- Water:** Moderately 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	8.0	7.7	6	0.18	0.53	1.5	-	390	-	1.9	1.0	12	4.5	0.24	25.9	23.6	2.15	0.17	1.12	0.7
0-6	8.0	7.6	4	0.18	0.52	1.7	14	410	-	2.2	1.0	11	3.3	0.26	28.5	23.7	2.56	0.28	1.28	1.0
6-12	8.0	7.4	2	0.14	0.32	0.75	3.1	320	-	1.6	1.1	12	3.0	0.11	32.7	27.1	4.05	0.41	0.86	1.3
12-32	8.2	7.7	3	0.21	0.32	0.49	3.1	240	-	1.5	1.8	12	2.0	0.15	39.5	31.9	6.77	1.00	0.80	2.5
32-50	8.7	7.9	26	0.21	0.37	0.46	5.1	210	-	2.2	2.3	7.2	2.1	0.15	33.2	24.9	8.33	1.35	0.64	4.1
50-81	9.1	7.9	39	0.31	0.50	0.27	<2.0	130	-	2.9	1.5	4.0	1.7	0.13	26.8	15.8	9.41	3.52	0.36	13.1
81-140	9.1	8.3	62	0.51	0.70	0.25	5.1	94	-	5.1	0.91	2.1	0.92	0.12	19.8	6.40	8.16	7.61	0.20	38.4

Note: Paddock sample bulked from 20 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](#)

