

RED CRACKING CLAY

General Description: *Reddish brown well structured clay, with strong coarse subsoil structure and variable fine lime*

Landform: Flat to gently undulating upper slopes and crests.

Substrate: Heavy clays, possibly Pleistocene lake bed sediments, occurring as residual deposits following dissection of the surrounding country.

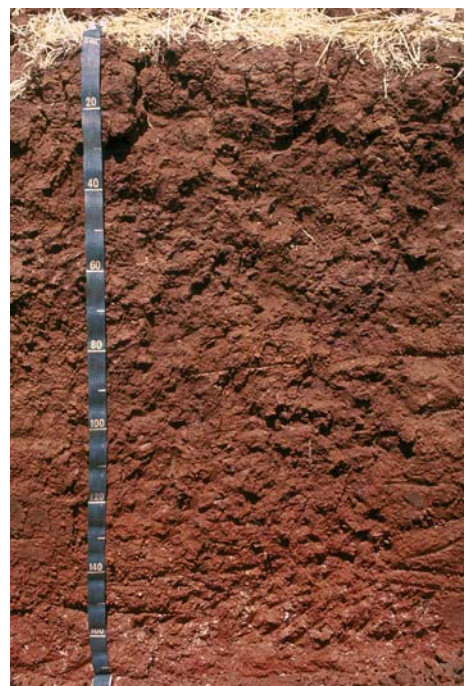
Vegetation:



Type Site: Site No.: CU003
 1:50,000 sheet: 6531-2 (Gladstone) Hundred: Narridy
 Annual rainfall: 425 mm Sampling date: 21/02/92
 Landform: Upper slope of gently undulating rise, 2% slope
 Surface: Self-mulching and seasonally cracking with no stones

Soil Description:

Depth (cm)	Description
0-10	Reddish brown highly calcareous medium clay with strong granular structure. Clear to:
10-25	Reddish brown highly calcareous hard medium heavy clay with coarse prismatic structure. Clear to:
25-50	Yellowish red highly calcareous heavy clay with strong coarse blocky structure. Diffuse to:
50-90	Yellowish red highly calcareous heavy clay with moderate subangular blocky structure. Diffuse to:
90-130	As for 50-90 cm layer. Gradual to:
130-175	Red highly calcareous medium heavy clay, with moderate subangular blocky structure and 10-20% soft gypsum segregations.



Classification: Epicalcareous-Epihypersodic, Self-mulching, Red Vertosol; non-gravelly, medium fine / very fine, deep

Summary of Properties

Drainage	Moderately well to imperfect. Soil may remain wet for a week to several weeks.
Fertility	Soil has a very high nutrient retention capacity, as indicated by high exchangeable cation values. Organic carbon levels are marginal, suggesting low nitrogen reserves. These soils are prone to zinc deficiency.
pH	Alkaline in the surface; strongly alkaline from 10 cm. Reduced availability of trace elements can be expected at these pH levels.
Rooting depth	130 cm at type site, but low density below 50 cm.
Barriers to root growth	
Physical:	High clay strength due to high exchangeable sodium (Na) at low moisture contents may affect root growth.
Chemical:	Very high levels of boron from 50 cm (15 mg/kg is toxic), and high exchangeable sodium (Na) may restrict root development. Salinity is high from 130 cm, but this is beyond the root zone.
Water holding capacity	200 mm in rootzone (high), although plants may be unable to extract it because of poor root development.
Workability	Good, provided self-mulching surface is maintained through organic matter returns to the soil. Soil becomes boggy and inaccessible after prolonged rainfall.
Seedling establishment	Good, due to well structured surface.
Erosion potential	
Water:	Low, due to low slope and high stability of soil.
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 -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	8.8	7.8	6.0	0.16	-	0.94	27	460	-	-	0.89	3.2	4.1	0.23	-	-	-	-	-	-
0-10	8.6	7.8	6.0	0.15	0.5	1.00	38	520	-	-	0.92	2.9	2.7	0.26	41.8	29.4	4.94	0.88	1.91	2.1
10-25	9.1	7.8	8.9	0.16	0.4	0.48	3	180	-	-	0.90	2.3	0.9	0.09	36.7	25.1	5.85	2.41	1.11	6.6
25-50	9.4	8.2	10.1	0.52	1.1	0.34	3	190	-	14.6	1.17	4.0	1.0	0.06	38.1	15.7	7.82	9.91	1.08	26
50-90	9.4	8.5	8.0	0.97	2.6	0.26	2	240	-	48.0	1.14	3.7	0.6	0.07	39.7	12.5	8.58	15.4	1.35	39
90-130	9.3	8.5	6.8	1.18	3.2	0.16	7	260	-	44.4	0.79	3.0	0.3	0.06	39.7	12.6	8.17	17.2	1.26	43
130-175	8.2	8.1	4.1	3.64	9.4	0.11	6	190	-	29.7	0.56	2.0	0.1	0.07	41.3	15.0	7.64	18.0	0.92	43

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.