

SANDY CLAY LOAM OVER DISPERSIVE RED CLAY

General Description: *Hard setting red brown loamy surface soil overlying a dark reddish brown dispersive clayey subsoil, calcareous with depth*

Landform: Plains, flats and lower slopes.

Substrate: Pleistocene age clay (Hindmarsh Clay equivalent), mantled by soft carbonate.

Vegetation: Open savannah woodland or grassland.



Type Site:	Site No.:	CU013	1:50,000 mapsheet:	6531-1 (Laura)
	Hundred:	Booyoolie.	Easting:	251700
	Section:	234	Northing:	6321500
	Sampling date:	31/08/1992	Annual rainfall:	455 mm average

Lower slope of low rise, 1% slope. Hard setting surface, no stone.

Soil Description:

Depth (cm)	Description
0-10	Reddish brown hard weakly granular sandy clay loam. Clear to:
10-30	Dark reddish brown heavy clay with polyhedral structure. Gradual to:
30-40	Dark red moderately calcareous heavy clay with coarse blocky structure. Gradual to:
40-60	Dark red highly calcareous medium heavy clay with 10% soft carbonate pockets. Gradual to:
60-100	Red highly calcareous medium clay with more than 20% soft carbonate in pockets (Class I carbonate layer).



Classification: Hypercalcic, Subnatric, Red Sodosol; medium, non-gravelly, clay loamy / clayey, deep



Summary of Properties

Drainage:	Imperfect. Soil may remain wet for several weeks.
Fertility:	High natural fertility as indicated by the high CEC values. There are no surface soil deficiencies.
pH:	Slightly acidic to neutral in surface, grading to strongly alkaline in subsoil.
Rooting depth:	80 cm at type site.
Barriers to root growth:	
Physical:	Very firm consistence of the clay subsoil, caused by high exchangeable sodium (ESP more than 25% below 40 cm).
Chemical:	Toxic levels of boron occur below 60 cm (15 mg/kg is critical concentration).
Waterholding capacity:	110 mm in rootzone, but not all is available due to low root density below 30 cm.
Seedling emergence:	Patchy due to tendency of surface to set hard and seal over.
Workability:	Fair due to poorly structured surface which tends to shatter when wet and puddle when dry. Moisture range for effective working is low.
Erosion Potential:	
Water:	Low, although on sloping ground these soils are prone to erosion.
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	6.6	6.2	-	0.10	0.41	1.5	58	751	-	2.2	1.4	33	37	0.7	14.0	10.6	3.8	0.60	1.5	4.3
0-10	7.0	6.7	-	0.11	0.46	1.4	41	1271	-	2.3	1.5	19	30	0.7	16.3	11.0	3.7	0.57	1.5	3.5
10-30	7.8	7.0	-	0.11	0.36	0.8	6	835	-	6.2	1.7	10	9.7	0.3	34.7	19.4	10.1	3.3	2.0	9.5
30-40	8.9	8.2	7.2	0.31	0.60	0.6	<5	616	-	9.3	1.7	7.8	3.5	0.2	32.8	15.2	11.8	6.2	1.9	19
40-60	9.1	8.3	16.7	0.38	0.56	0.4	<5	485	-	14.8	1.3	7.7	2.5	0.2	29.3	10.7	12.0	7.5	1.7	26
60-100	9.3	8.3	24.7	0.54	0.93	0.2	<5	475	-	29.4	0.7	6.6	1.2	<0.1	21.9	6.3	9.2	7.7	1.2	35

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](#)

