CLAY LOAM OVER BROWN CLAY

General Description: *Calcareous sandy clay loam to clay loam overlying a strongly structured brown mottled clay, highly calcareous with depth*

Landform: Gilgai depression

Substrate: Cracking clay

Vegetation: -

Type Site:

Site No.:	CY042	1:50 000 mapsheet:	6429-3 (Maitland)
Hundred:	Maitland	Easting:	750950
Section:	232N	Northing:	6196550
Sampling date:	06/02/2002	Annual rainfall:	450 mm average

Salinized gilgai plain. Watertable at 160 cm.

Soil Description:

Depth (cm)	*Description*
0 – 1	Dark brown hard and somewhat powdery calcareous clay loam.
1 – 17	Dark brown hard calcareous clay loam with cloddy structure and a few small quartz pebbles.
17 – 23	Bleached light olive brown sandy loam with massive structure.
23 – 42	Light olive brown light medium clay with subangular blocky structure.
42 – 72	Brownish yellow and brown mottled very highly calcareous light medium clay with polyhedral structure.
72 – 95	Pale yellow and brown mottled very highly calcareous light medium clay with polyhedral structure.
95 – 120	Pale yellow and brown mottled very highly calcareous medium clay with polyhedral structure.
120 – 180	Pale yellow and brown mottled very highly calcareous medium clay with polyhedral structure. Watertable at 160 cm.

Classification: Vertic, Effervescent, Brown Sodosol; medium, non-gravelly, clay loamy /clayey, moderate.

Summary of Properties

Drainage: Poor to imperfect drainage. Watertable at 160 cm.

Fertility: High inherent fertility and capacity to retain nutrients.

pH: Alkaline topsoil overlying strongly alkaline subsoil.

Rooting depth: No root growth.

Barriers to root growth:

Physical: Plough pan from 1-17 cm; hard, cloddy, and dispersive. Dispersive subsoil from 23 cm.

Chemical: High salinity levels concentrated in the surface soil inhibit germination and growth.

Waterholding capacity: High.

Seedling emergence: Poor. Coarse structure and dispersiveness cause surface sealing. Organic carbon levels are important for maintaining or improving surface soil structure.

Workability: Fair to poor due to a relatively narrow moisture range for effective working.

Erosion potential:

Water: 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)				Sum of cations cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP (%)
											Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
Paddock	8.4	8.0	5.6	3.8	39.9	1.16	67	323	334	6.8	0.49	12.4	6.93	1.59	37.26	16.42	4.53	15.50	0.81	42
0-1	8.4	8.0	2.6	5.9	70.8	1.23	113	293	540	7.6	0.66	18.7	15.0	2.11	44.17	10.84	5.27	27.35	0.71	62
1-17	8.8	8.2	2.4	3.3	34.6	1.05	89	272	225	5.8	0.48	16.9	4.62	1.34	32.70	10.22	4.60	17.20	0.68	53
17-23	9.6	8.6	2.6	0.50	9.12	0.27	8	123	44.8	3.0	0.20	10.3	1.13	0.08	10.33	4.17	1.95	3.93	0.28	38
23-42	9.2	8.5	1.8	1.97	10.65	0.30	5	306	142	11.0	1.61	26.8	0.96	0.13	43.32	10.75	10.80	20.77	1.00	48
42-72	9.6	8.4	45.9	1.46	9.57	0.27	6	253	120	11.4	0.90	16.5	0.93	0.07	30.34	9.39	7.05	13.29	0.61	44
72-95	9.7	8.5	47.9	1.49	8.88	0.24	3	287	128	10.6	0.60	14.0	0.63	0.08	29.90	9.11	7.25	12.82	0.72	43
95-120	9.7	8.5	37.3	1.35	8.37	0.21	1	290	143	8.7	0.51	13.6	0.95	0.12	31.64	8.86	8.09	13.96	0.73	44
120-180	9.6	8.7	27.2	1.59	7.24	0.15	2	403	160	11.3	0.50	15.7	0.89	0.31	45.38	9.59	13.19	21.58	1.02	48

Note: Paddock sample bulked from cores (0-10 cm) taken around the pit.
ESP (exchangeable sodium percentage) is derived by dividing the exchangeable sodium value by the sum of cations (an estimate of cation exchange capacity).

Further information: DEWNR Soil and Land Program