CLAY LOAM OVER DISPERSIVE RED CLAY

General Description: Hard loam to clay loam abruptly overlying a red coarsely structured dispersive clay, weakly calcareous with depth

Landform: Plains

Substrate: Hindmarsh Clay.

Vegetation:

Type Site: Site No.: CL014 1:50,000 mapsheet: 6628-4 (Gawler)

Hundred:Port GawlerEasting:271900Section:462Northing:6170450

Sampling date: 11/06/93 Annual rainfall: 400 mm average

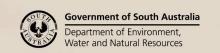
Flat plain, 0% slope. Hard setting surface, no stone. Cereal stubble.

Soil Description:

Depth (cm)	Description
0-10	Dark reddish brown clay loam with moderate granular structure. Abrupt to:
10-30	Dark reddish brown firm medium heavy clay with strong very coarse prismatic structure. Clear to:
30-50	Red firm highly calcareous medium heavy clay with moderate polyhedral structure and 2-10% fine carbonate. Gradual to:
50-75	Red firm moderately calcareous medium heavy clay with weak very coarse prismatic structure. Gradual to:
75-100	Yellowish red moderately calcareous medium clay with moderate subangular blocky structure. Diffuse to:
100-170	Yellowish red moderately calcareous medium clay with moderate coarse subangular blocky structure.



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





Summary of Properties

Drainage: Moderately well drained. The dispersive clay subsoil restricts water movement,

causing water to perch for up to a week following heavy or prolonged rainfall.

Fertility: Natural fertility is high as indicated by the exchangeable cation data. All layers have a

high nutrient retention capacity. Organic carbon level is adequate, and concentrations

of all measured nutrients are satisfactory.

pH: Slightly acidic at the surface, alkaline with depth.

Rooting depth: 100 cm in pit, but few roots below 50 cm.

Barriers to root growth:

Physical: The poorly structured and dispersive subsoil clay prevents uniform root growth.

Roots tend to concentrate on the aggregate faces, without penetrating inside.

Chemical: Very high boron from 10 cm, high sodicity from 30 cm and moderate salinity from 50

cm all reduce potential root growth.

Waterholding capacity: Approximate 150 mm in rootzone, but only about 70 mm is effectively available due

to poor root distribution patterns.

Seedling emergence: Fair, due to hard setting, sealing surface. Gypsum will help.

Workability: Fair, as above.

Erosion Potential:

Water: Low.

Wind: Low.

Laboratory Data

Depth cm	pH H ₂ O	pH CaC1 ₂	CO ₃ %	EC1:5 dS/m	ECe dS/m	Org.C %	P	Avail. K mg/kg	mg/kg	Boron mg/kg	Trace Elements mg/kg (DTPA)			CEC cmol (+)/kg	Exc	ESP				
							8	88			Cu	Fe	Mn	Zn	(),6	Ca	Mg	Na	K	
Paddock	6.1	6.0	0	0.21	1.46	1.7	89	673	-	7.6	1.9	41	42.4	2.4	13.6	7.52	3.00	0.86	1.89	6.3
0-10	6.2	6.0	0	0.19	1.41	1.6	94	703	-	7.6	1.8	24	40.9	2.7	13.8	8.47	2.95	0.65	2.06	4.7
10-30	8.0	7.4	0	0.20	0.63	0.8	20	781	-	43.5	2.6	12	9.7	0.3	28.1	10.8	8.46	3.64	2.73	13.0
30-50	9.0	8.4	7.7	0.76	3.20	0.1	14	603	-	44.0	1.4	6	3.6	0.2	15.7	4.23	7.11	5.20	1.57	33.1
50-75	8.8	8.4	2.3	1.68	6.80	0.1	9	817	-	67.0	1.8	8	2.0	0.2	26.9	5.57	11.9	10.0	2.88	37.3
75-100	8.8	8.5	5.2	1.98	8.38	0.1	9	754	-	52.9	1.8	8	1.7	0.2	25.0	4.51	10.1	9.95	2.42	39.8
100-170	8.8	8.4	6.4	1.75	10.2	0.1	10	686	-	18.7	1.0	8	1.3	0.2	22.4	3.64	8.09	88.4	1.57	39.5

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



