

GRADATIONAL CLAY LOAM

General Description: *Thick dark brown clay loam grading to a brown or red well structured clay, becoming yellowish or greyer and sometimes weakly calcareous with depth*

Landform: Alluvial flats of the lower reaches of the Bremer River

Substrate: Variable sandy and silty alluvial sediments

Vegetation: Red gum and blue gum woodland



Type Site: Site No.: CH052

1:50,000 sheet: 6727-3 (Alexandrina)
 Annual rainfall: 400 mm
 Landform: Alluvial flat, 0% slope
 Surface: Firm with no stones

Hundred: Freeling
 Sampling date: 18/08/93

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-25	Black clay loam with strong granular structure. Clear to:
25-40	Very dark grey massive silty clay loam. Clear to:
40-60	Yellowish red and dark brown light medium clay with moderate coarse angular blocky structure. Gradual to:
60-85	Yellowish red and brown fine sandy light clay with weak coarse blocky structure. Gradual to:
85-180	Brown and yellowish red soft interbedded river sediments ranging from clayey fine sand to fine sandy loam.



Classification: Melanic-Sodic, Eutrophic, Red Dermosol; thick, non-gravelly, clay loamy / clayey, moderate

Summary of Properties

Drainage	The soil is moderately well drained and is unlikely to remain wet for more than a week or so.
Fertility	The soil has moderately high natural fertility. Organic carbon and phosphorus levels are high.
pH	Neutral throughout.
Rooting depth	180 cm in the pit.
Barriers to root growth	
Physical:	There are no apparent physical barriers.
Chemical:	There are no apparent chemical barriers, although sodicity is developing in the subsoil.
Water holding capacity	Over 200 mm (very high), but not all is available due to uneven root distribution. Readily available water capacity for irrigated crops is about 120 mm.
Seedling emergence	Good.
Workability	Good, provided that organic carbon levels are maintained to preserve structure.
Erosion Potential	
Water:	Low.
Wind:	Low.

Laboratory Data

Depth cm	pH H ₂ O	pH CaCl ₂	CaCO 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	
Row	6.8	6.4	0	0.19	1.53	2.0	49	494	-	2.3	8.2	113	28.0	16.6	16.5	13.29	5.43	1.05	1.19	6.4
0-25	7.2	6.6	0	0.16	1.07	1.9	18	490	-	2.2	6.3	57	24.3	11.3	20.4	14.11	6.39	1.65	1.17	8.1
25-40	7.3	6.5	<0.1	0.11	0.86	0.7	6	299	-	1.4	3.0	28	15.2	0.3	10.3	5.21	3.18	1.15	0.60	11.2
40-60	7.3	6.5	<0.1	0.11	0.82	0.4	<4	306	-	1.7	1.9	22	13.0	0.1	11.7	5.59	3.89	1.27	0.70	10.9
60-85	7.3	6.5	<0.1	0.10	0.74	0.2	<4	273	-	1.5	1.2	14	4.6	0.1	9.5	4.27	3.44	1.00	0.56	10.5
85-180	7.1	6.4	0	0.08	0.75	0.1	<4	218	-	0.9	0.9	9	4.8	0.1	5.1	2.23	2.46	0.65	0.39	12.7

Note: Row sample bulked from 20 cores (0-10 cm) taken from along the rows 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.