SANDY LOAM OVER POORLY STRUCTURED DARK CLAY

General Description: *Dark brown sandy loam to clay loam overlying a black silty clay to medium clay with strong blocky structure, becoming yellowish mottled and usually weakly calcareous with depth*

Landform: Old alluvial flats of the Angas Bremer flood plains

Substrate: Alluvial clay

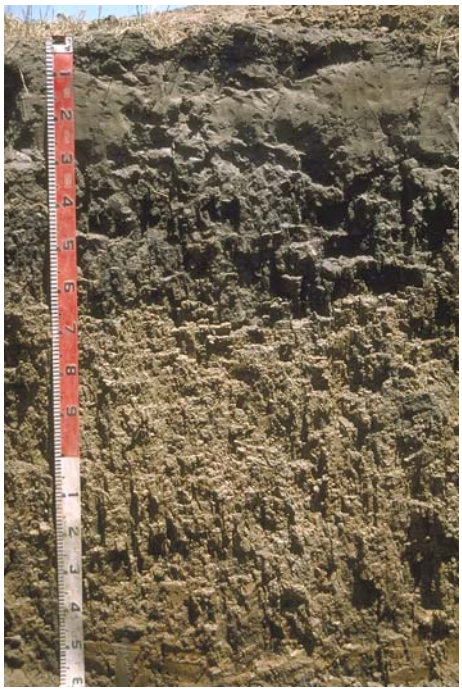
Vegetation:

Type Site: Site No.: CH049

1:50,000 sheet:	6727-3 (Alexandrina)	Hundred:	Bremer
Annual rainfall:	400 mm	Sampling date:	18/08/93
Landform:	Flat plain, elevation 15m, 0% slope		
Surface:	Hard setting with no stones		

Soil Description:

Depth (cm)	*Description*
0-10	Dark brown massive hard setting fine sandy loam. Abrupt to:
10-20	Very dark grey massive hard fine sandy loam. Clear to:
20-40	Very dark grey hard fine sandy clay with weak coarse prismatic structure. Clear to:
40-70	Dark brown and greyish brown mottled hard medium heavy clay with strong medium angular blocky structure. Diffuse to:
70-110	Grey brown, yellow brown and orange mottled firm medium heavy clay with strong angular blocky structure. Gradual to:
110-180	Greyish brown and red mottled firm medium heavy clay with strong coarse prismatic structure.



Classification: Eutrophic, Mottled-Mesonatric, Brown Sodosol; medium, non-gravelly, loamy / clayey, very deep

Summary of Properties

Drainage The soil is moderately well to imperfectly drained, due to its dispersive, sodic subsoil clay. The upper part of the soil may remain wet for a week to several weeks.

Fertility Inherent fertility is moderately high, as indicated by the exchangeable cation data. The soil is well supplied with all essential nutrients.

pH Neutral at the surface, alkaline with depth.

Rooting depth There are many roots (old lucerne plants) to 110 cm, and a few roots to 180 cm.

Barriers to root growth

Physical: Roots in the subsoil are largely restricted to the surfaces of the aggregates - few penetrate due to the high density of the clay. The hard, massive surface soil and temporary perched water tables also affect root proliferation to some extent.

Chemical: Mild salinity and moderate sodicity from 40 cm are not sufficient to affect broadacre crops and pastures, but will restrict root growth in horticultural crops. Salt and sodium accumulation can be expected under irrigation.

Water holding capacity More than 150 mm in rootzone, but not all of this will be available due to uneven root distribution patterns.

Seedling emergence The surface soil is slightly dispersive and has a high proportion of fine sand and silt, making it prone to hard setting and sealing. This affects emergence unless high organic matter levels are maintained and/or gypsum is applied.

Workability Without high organic matter levels and/or gypsum, this soil is prone to damage during cultivation, as it has a narrow moisture range for effective working.

Erosion Potential

Water: Low.

Wind: Low.

Laboratory Data

Depth cm	pH H_2O	pH $CaC1_2$	$CaCO_3$ %	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	
Paddock	7.5	7.1	0	0.22	1.31	2.7	95	458	-	2.4	1.0	39	10.4	2.1	13.9	8.91	3.48	1.06	0.94	7.6
0-10	7.6	7.2	0	0.17	0.90	2.1	124	409	-	2.0	0.8	44	6.1	2.2	10.4	6.70	2.58	1.13	0.79	10.9
10-20	7.6	7.1	0	0.19	1.56	0.9	86	411	-	1.2	0.6	17	3.6	0.3	8.8	5.24	2.11	0.74	0.75	8.4
20-40	7.8	7.4	0.1	0.27	2.02	0.6	48	485	-	2.3	1.4	20	3.2	0.1	14.4	8.15	4.22	1.34	1.05	9.3
40-70	8.4	7.8	0.1	0.43	2.30	0.5	15	559	-	3.3	1.2	16	3.7	0.2	23.0	10.44	6.11	4.48	1.42	19.5
70-110	8.3	7.8	0.1	0.56	2.83	0.3	11	466	-	3.6	1.0	16	3.3	0.1	20.7	9.02	5.31	5.20	0.91	25.1
110-180	8.0	7.6	<0.1	0.95	5.15	0.3	10	459	-	2.0	1.5	18	4.3	0.2	19.9	9.11	5.77	4.95	0.76	24.9

Note: Paddock sample bulked from 20 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.