SANDY LOAM OVER POORLY STRUCTURED BROWN CLAY

General Description: *Grey sandy loam with a strongly bleached A2 horizon over a brown and grey mottled coarsely structured clay*

Landform: Lower slopes, outwash fans and flats.

Substrate: Alluvial clay

Vegetation: Red gum woodland

Type Site: Site No.: CH116

1:50,000 sheet:	6627-4 (Noarlunga)	Hundred:	Kuitpo
Annual rainfall:	650 mm	Sampling date:	04/03/97
Landform:	Alluvial fan, 2% slope		
Surface:	Soft with no stones		

Soil Description:

Depth (cm)	*Description*
0-19	Dark greyish brown firm massive fine sandy loam. Sharp to:
19-42	White massive fine sandy loam with brown mottles. Clear to:
42-70	Greyish brown, yellowish brown and red mottled medium clay with strong coarse blocky breaking to fine polyhedral structure and 2-10% soft iron and manganese segregations. Gradual to:
70-100	Dark brown, olive and red mottled medium clay with strong coarse blocky breaking to fine polyhedral structure and 2-10% iron segregations. Clear to:
100-140	Olive, dark brown and dark greyish brown mottled heavy clay with 10-20% soft iron and manganese segregations.

Classification: Eutrophic, Mottled-Subnatric, Grey Sodosol; thick, non-gravelly, loamy / clayey, very deep

Summary of Properties

Drainage Imperfectly drained. Water will "perch" on top of the clay for several weeks after prolonged rain. However the depth of topsoil should be sufficient to prevent a perched water table becoming a problem, provided irrigation management is sound.

Fertility Natural fertility is moderately low. Test data indicate that magnesium levels are low and potassium is marginal. High calcium and sulphate levels indicate recent gypsum application which has disturbed the calcium : magnesium ratio. Magnesium levels nevertheless are very low.

pH Neutral throughout.

Rooting depth Vine roots are unlikely to penetrate more than 20 cm into the subsoil. At this site, this means a potential root zone depth of 62 cm.

Barriers to root growth

Physical: The hard clay subsoil prevents optimum root distribution.

Chemical: Salt accumulation due to the lack of deep drainage must be monitored. The concentration in the surface compared with lower in the profile is probably due to gypsum.

Water holding capacity Approximately 75 mm total available, 35 mm readily available in root zone.

Seedling emergence: Good.

Workability: These soils are highly prone to compaction.

Erosion Potential

Water: Low.

Wind: Moderately low.

Laboratory Data

Depth cm	pH H_2O	pH $CaC1_2$	CO_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 (EDTA)				CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
											Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
Row	6.4	6.0	0	0.58	-	1.1	54	97	189	1.0	2.4	130	132	7.5	4.3	10.4	0.4	0.20	0.15	4.7
0-19	6.8	6.3	0	0.28	-	1.7	54	119	143	1.3	3.4	190	212	6.9	7.2	7.3	0.7	0.29	0.17	4.0
19-42	7.2	6.5	0	0.06	-	0.2	2	69	15	0.4	0.6	44	124	0.6	1.5	1.7	0.3	0.14	0.09	na
42-70	7.5	6.6	0	0.10	-	0.1	2	155	46	1.0	0.9	43	89	1.0	9.0	5.5	3.0	0.63	0.32	7.0
70-100	7.7	6.7	0	0.12	-	0.1	2	165	55	0.8	0.8	35	16	1.0	10.6	4.2	4.3	0.98	0.31	9.2
100-140	6.8	5.9	0	0.35	-	0.2	2	262	159	0.8	2.6	68	89	1.1	20.3	5.3	10.2	3.50	0.60	17.2

Note: Row sample bulked from 20 cores (0-10 cm) taken along planting lines near 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.