SAND OVER COARSELY STRUCTURED GREY BROWN CLAY

General Description: *Medium thickness sand with a bleached A2 layer over a coarsely structured dispersive brown or grey mottled clay, calcareous with depth*

Landform: Level plain.

Substrate: Calcareous clay lagoonal sediment of the Padthaway Formation.

Vegetation:

Type Site: Site No.: SE017

1:50,000 sheet:	6924-2 (Lucindale)	Hundred:	Joyce
Annual rainfall:	600 mm	Sampling date:	13/05/94
Landform:	Plain, 0% slope		
Surface:	Soft with no stones. Water table at 135 cm.		

Soil Description:

Depth (cm)	*Description*
0-15	Very dark brown soft massive loamy fine sand. Abrupt to:
15-22	Light brownish grey soft single grain fine sand. Sharp to:
22-43	Dark greyish brown, brown and yellowish brown mottled very hard heavy clay with strong coarse columnar structure. Gradual to:
43-65	Dark greyish brown and dark yellowish brown very hard calcareous heavy clay with strong coarse prismatic structure and 10-20% carbonate concretions (20-200 mm). Gradual to:
65-85	Yellowish brown and olive grey very hard massive calcareous heavy clay with 20-50% carbonate concretions (60-200 mm). Diffuse to:
85-165	Light grey firm (wet) massive heavy clay with water table at 135 cm.

Classification: Supracalcic, Mottled-Hypernatric, Grey Sodosol; medium, non-gravelly, sandy / clayey, moderate

Summary of Properties

Drainage Poorly drained. The dispersive clay subsoil perches water for weeks at a time following heavy or prolonged rainfall, while the water table impedes deep drainage. At least the lower part of the profile can be saturated for several months.

Fertility Inherent fertility is moderately low as indicated by the exchangeable cation data. The sandy surface has limited nutrient retention capacity which relies on organic matter. Phosphorus, potassium and copper are deficient. There is higher nutrient storage capacity in the subsoil.

pH Slightly alkaline at the surface, alkaline with depth.

Rooting depth 43 cm in the pit.

Barriers to root growth

Physical: The dispersive clay subsoil restricts most activity to the outsides of the aggregates.

Chemical: High sodicity in the subsoil limits deeper root growth. Low fertility at the sampling site is probably the major contributor to poor root development.

Water holding capacity Approximately 75 mm in the potential root zone.

Seedling emergence: Surface water repellence and a tendency to compaction reduce emergence percentages.

Workability: The surface soil is easily worked.

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 (DTPA)				CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
											Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
Paddock	8.1	7.5	0.1	0.26	2.51	2.0	5	63	-	2.0	0.1	22	0.7	0.3	7.1	4.8	1.7	1.18	0.18	16.6
0-15	8.1	7.7	0.1	0.23	2.23	2.4	6	39	-	1.4	0.3	28	0.5	0.5	8.1	5.9	1.5	1.38	0.10	16.4
15-22	8.2	7.2	<0.1	0.09	1.49	0.4	<4	30	-	0.6	<0.1	15	0.1	0.1	3.0	2.0	0.5	0.46	0.05	na
22-43	8.9	8.2	1.2	0.48	2.31	0.4	4	234	-	5.5	0.1	27	<0.1	0.2	15.0	7.1	3.3	4.48	0.71	29.9
43-65	8.9	8.2	19.2	0.83	3.25	1.0	4	407	-	9.8	0.1	24	<0.1	0.2	26.2	10.5	6.8	7.80	1.47	29.8
65-85	9.1	8.0	59.9	0.60	3.73	0.1	<4	245	-	4.0	0.2	10	0.1	0.2	13.0	5.0	3.7	4.26	0.74	32.8
85-125	8.8	7.9	34.4	0.52	1.97	0.3	<4	306	-	3.8	0.1	9	0.1	0.2	18.1	7.5	5.4	4.16	0.94	23.0
125-165	9.0	8.0	47.6	0.33	1.84	0.1	<4	152	-	1.3	<0.1	6	0.2	0.2	8.4	3.9	2.7	1.60	0.42	19.0

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