BLEACHED SAND OVER POORLY STRUCTURED CLAY

General Description: *Brown loamy fine sand over bleached loamy sand on mottled brown clay*

Landform: Gently undulating plain with low rises.

Substrate: Mottled clays and marls of the Padthaway formation

Vegetation: -

Type Site:

Site No.:	SE087	1:50,000 mapsheet:	7022-4 (Kalangadoo)
Hundred:	Grey	Easting:	469640
Section:	14	Northing:	5845950
Sampling date:	29/09/2004	Annual rainfall:	730 mm average

Crest of low rise.

Soil Description:

Depth (cm)	*Description*
0-25	Dark brown single grain loamy fine sand. Abundant roots. Diffuse change to:
25-53	Light brown (bleached) single grain fine sand. Roots common. Sharp change to:
53-58	Yellowish brown with dark yellowish brown mottles massive loamy fine sand. Sharp change to:
58-85	Brown and dark brown mottled heavy clay with weak 20-50 mm prismatic breaking to moderate polyhedral structure. Up to 2% ironstone gravels. Gradual change to:
85-125	Brown and red mottled massive heavy clay.

Classification: Eutrophic, Mottled-Subnatric, Brown Sodosol; thick, non-gravelly, sandy / clayey, deep

Summary of Properties

Drainage: Imperfectly to poorly drained. A seasonal perched watertable forms on top of the heavy clay subsoil, causing saturation for weeks to months during most winters.

Fertility: Inherent fertility is low, as indicated by the exchangeable cation data. Cation concentrations are low in the surface (where nutrients are mostly required) and only moderate in the subsoil, where root densities are low. Phosphorus and potassium levels are low, S is marginal. Trace copper, zinc and manganese are low.

pH: Moderately acidic in surface, grading to neutral in the deep subsoil.

Rooting depth: 53 cm in sampling pit.

Barriers to root growth:

Physical: Dense poorly structured clay subsoil restricts root growth.

Chemical: High ESP from 85 cm is toxic to plant roots

Waterholding capacity: Approximately 75 mm.

Seedling emergence: Satisfactory.

Workability: Soils tend to be boggy for some time as the subsurface horizons dry only slowly after saturation.

Erosion Potential:

Water: Low

Wind: Moderate

Laboratory Data

Depth cm	pH H_2O	pH $CaCl_2$	CO_3 %	EC 1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	Cl mg/kg	SO_4-S mg/kg	Boron mg/kg	Trace Elements mg/kg (EDTA)				Sum cations cmol (+)/kg	Exchangeable Cations cmol(+)/kg				Est. ESP
												Cu	Fe	Zn	Mn		Ca	Mg	Na	K	
0-25	5.7	4.6	0	0.05	0.34	1.8	16	75	19	8.0	0.7	0.2	337	0.3	9.2	3.3	2.4	0.6	0.1	0.2	3.0
25-53	5.8	4.6	0	0.02	0.17	0.2	6	44	9	5.5	0.3	0.2	85	<.05	1.5	0.7	0.4	0.1	0.1	0.1	n.a.
53-58	6.5	5.3	0	0.03	0.32	0.2	4	51	7	6.6	0.2	0.3	75	0.1	3.5	4.0	2.1	1.4	0.3	0.1	6.9
58-85	6.8	5.6	0	0.05	0.33	0.3	6	121	14	11	0.9	0.2	50	0.1	1.9	13.1	5.3	6.4	1.1	0.3	8.0
85-125	7.0	5.9	0	0.07	0.44	0.2	2	114	28	31	1.1	0.2	29	0.1	3.4	13.5	4.9	7.1	1.4	0.3	10.0

Note: Sum of cations, in a neutral to alkaline soil, approximates the CEC (cation exchange capacity), 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, in this case estimated by the sum of cations.

Further information: DEWNR Soil and Land Program