SANDY LOAM OVER SODIC BROWN CLAY

General Description: *Massive grey sandy loam with a bleached subsurface layer, over a brown mottled coarsely structured clay, calcareous with depth*

Landform: Gently undulating plains

Substrate: Tertiary age clay

Vegetation: Eucalyptus camaldulensis woodland

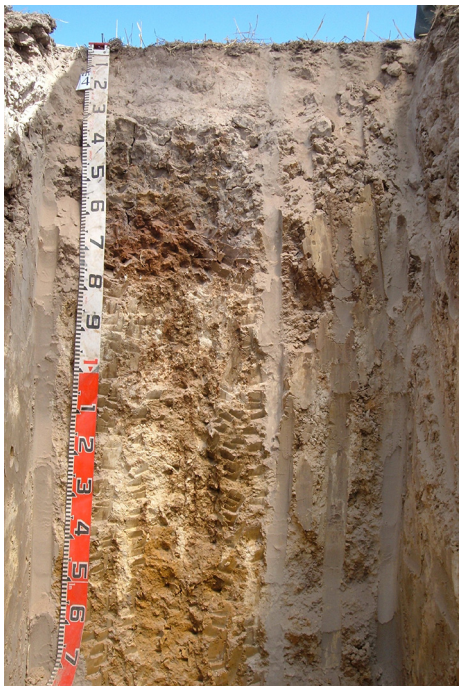
Type Site:

Site No.:	SE158A	1:50,000 mapsheet:	7024-2 (Hynam)
Hundred:	Jessie	Easting:	484720
Section:	430	Northing:	5916510
Sampling date:	12/02/2008	Annual rainfall:	570 mm average

Gently inclined rise, 0.5% slope. Firm surface with no stones. Non irrigated pasture.

Soil Description:

Depth (cm)	*Description*
0-10	Dark greyish brown massive light sandy clay loam. Clear to:
10-20	Brown massive sandy loam. Gradual to:
20-27	Pale brown (bleached when dry) massive sandy loam. Sharp to:
27-50	Dark greyish brown and strong brown mottled light medium clay with strong coarse columnar structure, breaking to moderate coarse subangular blocky. Gradual to:
50-80	Strong brown medium clay with moderate coarse prismatic structure, breaking to moderate coarse subangular blocky. Clear to:
80-110	Light yellowish brown highly calcareous light clay with weak coarse prismatic structure, and more than 50% soft carbonate segregations. Diffuse to:
110-160	Dark yellowish brown and brownish yellow mottled highly calcareous medium clay with weak coarse subangular blocky structure and 20-50% soft carbonate segregations.



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

Summary of Properties

Drainage: Imperfectly drained. Water can perch on top of the subsoil clay for up to several weeks following heavy or prolonged rainfall.

Fertility: Inherent fertility is low, as indicated by the exchangeable cation data. This is due to the relatively low clay content and strong acidity of the surface layers. The bleached subsurface has negligible nutrient retention capacity. However, laboratory data indicate adequate levels of all tested nutrient elements.

pH: Acidic to strongly acidic at the surface, neutral in the upper subsoil, and strongly alkaline in the deep subsoil.

Rooting depth: 150 cm in sampling pit, but few roots below 80 cm.

Barriers to root growth:

Physical: The subsoil clay layer imposes a moderate restriction on root growth, mainly by confining many roots to the faces of coarse aggregates.

Chemical: Aluminium toxicity ($CaCl_2$ extractable Al in 0-10 cm layer is 2.6 mg/kg) affects sensitive species, and overall fertility is reduced by low pH. Effective rootzone depth is limited to 80 cm by high pH and sodicity.

Waterholding capacity: Approximately 120 mm in the potential rootzone.

Seedling emergence: Fair to satisfactory. Tendency to seal over can reduce establishment percentage.

Workability: Fair. Surface tends to shatter if worked too dry, and puddle if worked too wet.

Erosion Potential:

Water: Low.

Wind: Low.

Laboratory Data

Depth cm	pH H_2O	pH $CaCl_2$	CO_3 %	EC1:5 dS/m	ECe dS/m	Cl mg/kg	Org.C %	NO_3+ NH_4 mg/kg	Avail. P mg/kg	Avail. K mg/kg	SO_4-S mg/kg	React Fe mg/kg	Boron mg/kg	Trace Elements mg/kg (DTPA)				Sum cations cmol (+)/kg	Exchangeable Cations cmol(+)/kg				Est. ESP
														Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
0-10	5.7	4.7	0	0.07	0.53	19	2.16	15	36	151	7.4	443	0.8	0.51	173	6.95	1.86	2.8	1.67	0.42	0.36	0.34	na
10-20	5.2	4.3	0	0.06	0.72	44	0.90	-	44	47	6.5	537	-	-	-	-	-	2.1	1.50	0.27	0.22	0.04	na
20-27	6.0	5.0	0	0.05	0.64	26	0.39	-	19	26	2.6	201	-	-	-	-	-	0.9	0.61	0.13	0.14	0.03	na
27-50	7.5	6.5	0	0.31	1.46	176	0.54	-	3	227	18.1	930	-	-	-	-	-	25.7	6.88	11.8	6.29	0.64	24.5
50-80	9.1	8.2	0	0.54	1.86	279	0.41	-	2	260	44.5	746	-	-	-	-	-	28.4	7.65	11.7	8.34	0.71	29.4
80-110	9.5	8.6	2.9	0.60	2.22	351	0.08	-	2	209	65.5	390	-	-	-	-	-	25.6	8.07	9.22	7.68	0.53	30.0
110-150	9.0	8.1	22.1	0.53	2.64	393	0.12	-	2	160	70.5	370	-	-	-	-	-	24.4	9.44	8.54	5.91	0.42	24.2

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