

SANDY LOAM OVER GREY DISPERSIVE CLAY

General Description: *Medium thickness hard sandy loam to sandy clay loam with a paler coloured or bleached A2 layer, over a grey or brown coarsely structured dispersive clay, calcareous with depth*

Landform: Level plain.

Substrate: Calcareous clay (marl) with carbonate capping (Padthaway Formation).

Vegetation:



Type Site: Site No.: SE021

1:50,000 sheet: 6923-1 (Conmurra)

Hundred: Conmurra

Annual rainfall: 650 mm

Sampling date: 16/06/94

Landform: Flat plain, 0% slope

Surface: Hard setting with no stones

Soil Description:

Depth (cm)	Description
0-10	Very dark grey friable fine sandy loam with weak coarse prismatic structure. Diffuse to:
10-20	Grey friable massive fine sandy clay loam. Sharp to:
20-30	Dark grey hard slightly calcareous heavy clay with strong coarse prismatic breaking to fine polyhedral structure. Abrupt to:
30-70	Grey firm moderately calcareous medium clay with strong coarse prismatic breaking to polyhedral structure and 20-50% fine carbonate segregations. Clear to:
70-100	Light grey hard massive calcareous clay (marl). Gradual to:
100-140	Light olive grey, light olive brown and white friable calcareous massive sandy medium heavy clay.



Classification: Hypercalcic, Mesonatric, Grey Sodosol; medium, non-gravelly, loamy / clayey, deep

Summary of Properties

Drainage Imperfectly drained. The dispersive clayey subsoil perches water for several weeks at a time following heavy or prolonged rainfall.

Fertility Inherent fertility is moderate, as indicated by the exchangeable cation data. Surface nutrient retention capacity is very high, largely due to very high organic matter content. However, the calcium to magnesium ratio is very low, as are phosphorus concentrations.

pH Alkaline at the surface, strongly alkaline with depth.

Rooting depth 100 cm in pit, but few roots below 30 cm.

Barriers to root growth

Physical: The hard dispersive subsoil clay restricts root growth (most are confined to the surfaces of the coarse aggregates), thereby reducing water use efficiency.

Chemical: High pH and sodicity from 30 cm impede root growth. Salinity is also moderately high at depth.

Water holding capacity Approximately 70 mm in the root zone.

Seedling emergence: Fair, due to the tendency for the surface soil to become compacted.

Workability: The compact surface soil can be difficult to work unless moisture conditions are ideal.

Erosion Potential

Water: Low.

Wind: Low.

Laboratory Data

Depth cm	pH H ₂ O	pH CaCl 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	8.0	7.2	0.1	0.25	1.24	3.6	8	427	8.4	2.5	-	-	-	-	23.2	7.60	12.04	1.00	1.46	4.3
0-10	7.6	7.0	0.1	0.21	0.81	4.3	6	423	7.2	2.3	-	-	-	-	20.2	7.13	10.19	0.33	1.22	1.6
10-20	8.4	7.7	<0.1	0.18	0.78	0.8	2	207	4.3	1.1	-	-	-	-	9.1	3.31	4.61	0.19	0.54	2.1
20-30	8.5	7.9	1.3	0.47	1.67	0.8	2	766	13.9	1.6	-	-	-	-	35.7	10.79	22.61	2.28	2.32	6.4
30-70	9.4	8.5	46.4	0.67	5.06	0.6	2	529	68.8	1.0	-	-	-	-	16.0	3.10	10.72	4.01	1.04	25.1
70-100	9.5	8.4	54.3	0.56	4.90	1.3	2	261	44.2	1.0	-	-	-	-	8.2	2.37	5.92	2.72	0.74	33.2
100-140	9.1	8.6	40.7	1.34	14.33	0.3	2	284	123	1.0	-	-	-	-	9.4	1.92	6.61	3.68	0.75	39.1

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