SANDY LOAM OVER DISPERSIVE SANDY CLAY LOAM

General Description: *Firm sandy loam over a coarsely structured brown sandy clay loam, calcareous from shallow depth*

Landform: Very gently undulating plains with 30-60% low to moderate parallel sandhills.

Substrate: Red and grey mottled heavy clay with coarse lenticular structure.

Vegetation: Mallee.

Type Site:

Site No.:	MM122	1:50,000 mapsheet:	6927-1 (Kulkami)
Hundred:	Bews	Easting:	448280
Section:	13	Northing:	6102570
Sampling date:	21/05/1996	Annual rainfall:	340 mm average

Lower dune slope. Firm surface with no stones.

Soil Description:

Depth (cm)	*Description*
0-11	Dark brown firm massive sandy loam. Abrupt to:
11-21	Yellowish brown massive clayey sand. Sharp to:
21-27	Light yellowish brown very hard sandy clay loam. Clear to:
27-63	Light brown hard massive very highly calcareous sandy clay loam with 10-20% carbonate fragments (20-60 mm). Clear to:
63-90	Orange very hard very highly calcareous medium clay. Gradual to:
90-150	Yellowish red, light brownish grey and yellowish brown mottled very hard heavy clay. Gradual to:
150-200	Yellowish red, light brownish grey and orange mottled very hard heavy clay.

Classification: Hypercalcic, Mesonatric, Yellow Sodosol; medium, non-gravelly, loamy / clayey, moderate

Summary of Properties

Drainage: Moderately well drained. Soil may remain wet for up to a week following heavy or prolonged rainfall, due to perching on top of the clayey subsoil.

Fertility: Inherent fertility is moderately low, as indicated by the exchangeable cation data. Regular phosphorus applications are essential (P levels are high at sampling site). Nitrogen concentrations depend on pasture legume status and cropping history. Zinc and copper deficiencies can be expected (both are marginal at sampling site). Manganese may be required by lupins. Organic carbon levels are adequate.

pH: Neutral to slightly alkaline at the surface, strongly alkaline with depth.

Rooting depth: 63 cm in pit.

Barriers to root growth:

Physical: The hard dense sandy clay loam subsoil restricts strong uniform growth.

Chemical: High pH from 27 cm, and high boron and sodicity from 63 cm impede deeper root growth.

Waterholding capacity: Approximately 75 mm in the rootzone.

Seedling emergence: Satisfactory.

Workability: Firm surface is easily worked.

Erosion Potential:

Water: Low.

Wind: Moderately low.

Laboratory Data

Depth cm	pH H_2O	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	7.1	6.7	<0.1	0.11	0.99	1.1	43	493	6	1.9	0.19	11	4.08	0.46	10.5	7.67	2.00	0.14	1.24	1.4
0-11	7.6	7.2	0.1	0.14	1.38	1.1	34	394	6	1.5	-	-	-	-	8.7	5.37	1.33	0.06	0.88	0.7
11-21	7.2	6.6	<0.1	0.03	0.40	0.2	12	156	2	0.4	-	-	-	-	2.4	1.57	0.40	0.08	0.28	3.4
21-27	8.0	7.3	<0.1	0.08	0.50	0.2	8	360	2	3.0	-	-	-	-	14.2	6.62	4.74	0.58	0.89	4.1
27-63	9.6	8.5	23.7	0.30	1.07	0.2	7	371	5	10.4	-	-	-	-	15.1	3.80	6.92	2.86	0.90	19.0
63-90	9.8	8.8	19.5	0.64	1.81	0.1	<4	502	15	15.6	-	-	-	-	17.6	2.11	9.03	7.31	1.41	41.6
90-150	9.7	9.1	0.4	0.96	2.33	0.1	<4	670	76	24.0	-	-	-	-	24.1	1.22	10.51	12.29	2.17	51.0
150-200	8.5	7.9	<0.1	1.06	3.01	0.1	<4	580	141	19.7	-	-	-	-	23.4	0.65	8.99	13.21	1.71	56.5

Note: Paddock sample bulked from 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.

Further information: DEWNR Soil and Land Program