HIGHLY CALCAREOUS SANDY LOAM

(Sandy Wookata soil)

General Description: *Very highly calcareous sandy loam over rubbly carbonate, grading to very highly calcareous coarse-grained windblown sediments*

Landform: Very gently undulating plain.

Substrate: Very highly calcareous windblown sandy deposits (Woorinen Formation).

Vegetation: Mallee.

Type Site:

Site No.:	EW091	1:50,000 mapsheet:	5733-3 (Carawa)
Hundred:	Haslam	Easting:	421860
Section:	44	Northing:	6416950
Sampling date:	24/11/1993	Annual rainfall:	310 mm average

Gently undulating plain, 1% slope. Firm surface with 2-10% calcrete stone (20-60 mm).

Soil Description:

Depth (cm)	*Description*
0-15	Dark brown soft highly calcareous sandy loam. Diffuse to:
15-35	Brown loose very highly calcareous sandy loam. Abrupt to:
35-40	Rubbly Class III C carbonate. Abrupt to:
40-70	Reddish brown loose very highly calcareous loamy sand. Clear to:
70-90	Brown loose very highly calcareous loamy sand with more than 50% carbonate nodules. Abrupt to:
90-150	Brown very highly calcareous sand with 2-10% carbonate concretions. Abrupt to:
150-	Calcrete.

Classification: Supravescent, Regolithic, Lithocalcic Calcarosol; medium, slightly gravelly, loamy / sandy, deep

Summary of Properties

Drainage: Rapidly drained. The soil never remains wet for more than a few hours.

Fertility: Inherent fertility is low, with moderate nutrient retention capacity in the topsoil, decreasing with depth. Regular phosphorus applications are necessary - concentrations at the sampling site are very low. Nitrogen levels depend on legume component of pastures and cropping history. The high carbonate concentrations reduce the availability of manganese, copper and zinc, and deficiencies of all three are likely from time to time - zinc levels are low at the sampling site. Organic carbon concentrations are sub-optimal.

pH: Alkaline at the surface, strongly alkaline at depth.

Rooting depth: 150 cm in pit, but few roots below 90 cm.

Barriers to root growth:

Physical: There are no physical barriers.

Chemical: High pH and sodicity from 70 cm restrict root growth. Low subsoil fertility contributes to the reduction of root densities with depth (within the wetted zone).

Waterholding capacity: Approximately 90 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 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	
0-15	8.5	7.8	64	0.14	0.57	0.95	7.4	380	-	2.1	0.29	1.3	2.6	0.39	9.7	10.76	1.21	0.11	1.00	1.1
15-35	8.6	7.7	70	0.13	0.57	0.62	3.2	170	-	1.6	0.30	2.2	1.1	0.18	6.2	6.81	1.07	0.23	0.55	3.7
40-70	8.8	7.7	72	0.27	2.63	0.25	3.2	280	-	2.0	0.27	1.5	0.75	0.21	5.2	4.01	1.79	0.36	0.74	6.9
70-90	9.6	7.9	79	0.88	9.79	0.13	2.8	450	-	11	0.14	0.80	0.14	0.28	3.7	0.96	2.19	1.64	1.01	44.3
90-150	9.5	7.9	78	0.95	11.36	0.14	2.2	340	-	10	0.12	0.79	0.12	0.19	3.1	0.99	2.03	1.36	0.80	43.9

Note: 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