

HIGHLY CALCAREOUS LOAMY SAND (Haslam / Wookata soil)

General Description: *Highly calcareous loamy sand becoming slightly more clayey and very highly calcareous with variable rubbly carbonate at depth*

Landform: Low rises with sand spreads.

Substrate: Very highly calcareous windblown sand over finer grained Woorinen Formation sediments

Vegetation: Mallee.

Type Site: Site No.: EC081

1:50,000 sheet:	5931-1 (Palabie)	Hundred:	Palabie
Annual rainfall:	325 mm	Sampling date:	31/3/93
Landform:	Upper slope of low rise, 3% slope		
Surface:	Loose with no stones		

Soil Description:

Depth (cm)	Description
0-10	Brown soft very highly calcareous light sandy loam. Gradual to:
10-30	Light brown soft very highly calcareous loamy sand with 10-20% carbonate concretions. Gradual to:
30-50	Light brown soft very highly calcareous loamy sand with 2-10% carbonate concretions. Clear to:
50-64	Light brown soft very highly calcareous loamy fine sand with 20-50% carbonate concretions (20-60 mm). Clear to:
64-92	Pink soft very highly calcareous sandy loam with minor carbonate concretions. Gradual to:
92-150	Pink soft very highly calcareous sandy clay loam with 2-10% carbonate concretions (2-20 mm).



Classification: Hypervescent, Regolithic, Supracalcic Calcarosol; medium, non-gravelly, sandy / loamy, deep

Summary of Properties

Drainage	Rapidly drained. The soil never remains wet for more than a few hours.
Fertility	Inherent fertility is low. High carbonate content to the surface reduces availability of phosphorus and trace elements, and low clay content restricts nutrient retention capacity. Regular phosphate applications are necessary - levels are high at sampling site. Nitrogen status depends on legume content of pastures and cropping history. Copper, zinc and manganese deficiencies may be expected from time to time - copper levels are low at sampling site. Organic carbon concentrations are high.
pH	Alkaline at the surface, strongly alkaline with depth.
Rooting depth	30 cm in pit.
Barriers to root growth	
Physical:	There are no physical barriers.
Chemical:	High pH and high sodicity from 64 cm limit deeper root growth, but low nutrient status and retention capacity below the upper 10 cm is limiting root depth.
Water holding capacity	Approximately 50 mm in the potential root zone.
Seedling emergence:	Satisfactory, although surface soil is water repellent in some seasons, reducing establishment.
Workability:	Loose surface is easily worked.
Erosion Potential	
Water:	Low.
Wind:	Moderate to moderately high.

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 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	
0-10	8.6	8.1	14	0.11	0.61	1.0	45	250	-	1.6	0.18	1.9	3.70	1.00	7.5	6.14	0.78	0.08	0.57	1.1
10-30	8.9	8.2	26	0.10	0.38	0.5	3	270	-	2.0	0.24	1.4	1.40	0.26	6.3	5.80	1.14	0.10	0.65	1.6
30-50	9.0	8.3	34	0.12	0.44	-	3	240	-	1.4	0.22	1.0	0.67	0.25	6.4	4.20	2.11	0.15	0.58	2.3
50-64	9.4	8.6	38	0.17	0.67	-	3	130	-	4.2	0.16	1.2	0.41	0.43	6.1	2.23	4.06	0.60	0.25	9.8
64-92	9.8	8.6	34	0.28	1.40	-	<2	180	-	12	0.19	1.5	0.47	0.39	5.1	0.99	3.34	1.47	0.43	28.8
92-150	9.9	8.5	32	0.54	4.93	-	<2	230	-	12	0.21	1.4	0.50	0.65	5.0	0.94	2.29	1.91	0.57	38.2

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.