

DEEP CARBONATE SAND (Haslam soil)

General Description: *Very thick yellowish brown sand to loamy sand, dominantly carbonate*

Landform: Gently undulating dunefield.

Substrate: Highly calcareous sand (Class IV carbonate) over rubbly (Class III B/C) carbonate.

Vegetation:



Type Site: Site No.: EF024

1:50,000 sheet: 5533-4 (Nunong)

Hundred: Keith

Annual rainfall: 310 mm

Sampling date: 25/10/88

Landform: Midslope of dune, 3% slope

Surface: Loose with no stones

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-8	Brown loose highly calcareous loamy sand. Abrupt to:
8-20	Yellowish brown soft highly calcareous loamy sand. Clear to:
20-50	Yellowish brown soft very highly calcareous loamy sand. Clear to:
50-80	Brownish yellow soft very highly calcareous loamy sand. Gradual to:
80-115	Brownish yellow soft very highly calcareous loamy sand. Diffuse to:
115-150	Brownish yellow soft very highly calcareous loamy sand (Class IV carbonate). Clear to:
150-180	Very pale brown friable very highly calcareous light sandy loam with more than 50% calcrete concretions. Abrupt to:
180-	Rubbly calcrete pan.



Classification: Shelly Calcarosol; non-gravelly, sandy / sandy, deep

Summary of Properties

Drainage	Rapidly drained. The soil never remains wet for more than a few hours.
Fertility	Inherent fertility is very low, as indicated by the exchangeable cation data. Retention capacity is poor due to lack of clay, and capacity to fix P, Zn, Cu and Mn is high. Phosphorus applications are required regularly and levels are satisfactory at the sampling site. Zinc and copper concentrations are low. Organic carbon levels are adequate.
pH	Alkaline at the surface, strongly alkaline with depth.
Rooting depth	80 cm in pit, but few roots below 50 cm.
Barriers to root growth	
Physical:	There are no physical barriers.
Chemical:	High pH from 50 cm, combined with very low nutrient retention capacity restricts root growth.
Water holding capacity	Approximately 25 mm in the root zone.
Seedling emergence:	Satisfactory.
Workability:	Loose surface is easily worked.
Erosion Potential	
Water:	Low.
Wind:	Moderate to 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 -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	
0-8	8.4	7.5	86	0.28	2.35	1.20	25	-	-	2.6	0.18	4.76	4.13	0.23	4.5	6.06	1.16	0.11	0.33	2.4
8-20	8.7	7.8	85	0.22	1.47	0.64	10	-	-	3.3	0.13	3.84	2.32	0.11	3.3	4.37	1.43	0.13	0.29	3.9
20-50	9.0	8.1	87	0.20	1.76	0.51	6	-	-	4.5	0.10	2.33	1.35	0.06	3.0	3.74	2.04	0.35	0.27	na
50-80	9.4	8.4	89	0.18	1.18	0.10	4	-	-	3.9	0.05	0.61	0.48	0.04	1.5	1.32	1.55	0.33	0.36	na
80-115	9.6	8.5	91	0.13	0.88	<0.1	3	-	-	2.2	0.07	0.62	0.27	0.04	1.2	1.06	1.04	0.32	0.27	na
115-150	9.5	8.5	90	0.14	0.94	<0.1	<2	-	-	2.6	0.07	0.84	0.40	0.06	1.2	0.95	1.05	0.29	0.29	na
150-180	9.7	8.4	88	0.30	2.35	<0.1	4	-	-	6.0	0.08	0.91	0.63	0.06	1.7	0.84	1.91	0.83	0.46	na

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