

GRADATIONAL LOAMY SAND

General Description: *Thick soft loamy sand grading to a (rubby) calcareous sandy loam to light sandy clay loam with depth*

Landform: Gently undulating dunefield

Substrate: Woorinen Formation carbonate, variably cemented to nodular or sheet calcrete.

Vegetation:



Type Site:	Site No.:	MM162	1:50,000 mapsheet:	7029-3 (Loxton)
	Hundred:	Gordon	Easting:	471730
	Section:	10	Northing:	6193750
	Sampling date:	15/06/2007	Annual rainfall:	265 mm average

Swale in gently undulating dunefield, 1% slope. Loose to soft surface with no stones.

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-10	Dark reddish brown soft single grain loamy sand. Clear to:
10-25	Reddish brown soft single grain loamy sand. Gradual to:
25-50	Yellowish red soft single grain heavy loamy sand. Clear to:
50-70	Yellowish red soft massive highly calcareous sandy loam. Gradual to:
70-85	Reddish yellow soft massive very highly calcareous heavy sandy loam with more than 50% carbonate nodules (20-200 mm). Abrupt to:
85-120	Sheet calcrete.



Classification: Haplic, Lithocalcic, Red Kandosol; medium, non-gravelly, sandy / loamy, deep



Summary of Properties

Drainage: Well drained. No part of the profile is likely to remain saturated for more than a day or so following heavy or prolonged rainfall.

Fertility: Inherent fertility is moderate, as indicated by the exchangeable cation data. The slightly higher clay content of a loamy sand (compared with a light loamy sand to sand) is sufficient to provide significantly higher nutrient retention capacity. Phosphorus, potassium and sulphur levels are adequate to high. Levels of macro-nutrients (Ca, Mg, K) are adequate. Soil trace element tests are unreliable, but Cu & Zn levels may be marginal.

pH: Alkaline throughout.

Rooting depth: 85 cm in the sampling pit.

Barriers to root growth:

Physical: Light textured soil with no natural root growth restrictions, but compaction can develop over time. Well drained (too well drained in dry seasons), so potential for water to be lost from rootzone. Annual plant roots are unlikely to penetrate the calcrete layer, but deep root systems of perennials exploit cracks and solution voids.

Chemical: There are no apparent chemical constraints. Salinity, pH, boron / chloride concentrations and sodicity are all well within satisfactory limits.

Waterholding capacity: Approximately 85 mm (moderately high) in the potential rootzone.

Seedling emergence: Potentially patchy in water repellence seasons.

Workability: Satisfactory.

Erosion Potential:

Water: Low.

Wind: Moderately low to moderate due to the thick sandy surface soil.

Laboratory Data

Depth cm	pH H ₂ O	pH CaCl ₂	CO ₃ %	EC 1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	Cl mg/kg	SO ₄ -S mg/kg	Boron mg/kg	React Fe mg/kg	Trace Elements mg/kg (EDTA)				Sum cations cmol (+)/kg	Exchangeable Cations cmol(+)/kg				Est. ESP	
													Cu	Fe	Mn	Zn		Ca	Mg	Na	K		
0-10	8.3	7.5	2	0.17	0.74	0.83	21	506	9	5.5	3.8	397	0.70	56	58.4	1.02	11.4	9.00	1.08	0.06	1.27	0.5	
10-25	8.5	8.1	1	0.14	0.64	0.56	6	381	5	4.6	1.5	415	0.88	37	54.8	0.32	12.0	10.0	0.97	0.03	0.97	0.3	
25-50	8.8	7.9	1	0.14	0.78	0.39	4	220	6	4.7	1.5	360	0.89	19	43.2	0.59	11.8	9.93	1.22	0.05	0.55	0.4	
50-70	8.5	8.0	4	0.14	0.80	0.34	6	124	17	5.2	1.8	334	0.43	9	4.37	0.21	14.0	11.4	2.07	0.22	0.30	1.6	
70-85	8.6	8.0	19	0.18	1.19	0.38	8	106	41	15.9	2.3	267	0.58	9	2.83	0.25	16.8	12.8	2.90	0.80	0.30	4.8	
85-120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Note: Sum of cations, in a neutral to alkaline soil, approximates the CEC (cation exchange capacity), 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, in this case estimated by the sum of cations.

Further information: [DEWNR Soil and Land Program](#)

