

## CALCAREOUS GRADATIONAL SANDY LOAM

**General Description:** *Calcareous loamy sand to sandy loam with significant rubble at shallow depth, grading to a highly calcareous sandy clay loam, with clayey substrate from about 100 cm*

**Landform:** Very gently undulating dunefield

**Substrate:** Pooraka Formation - clayey alluvial sediments with pockets of fine carbonate leached in from above.

**Vegetation:**



<b>Type Site:</b>	Site No.:	CU073	1:50,000 mapsheet:	6531-3 (Crystal Brook)
	Hundred:	Crystal Brook	Easting:	236610
	Section:	260	Northing:	6307860
	Sampling date:	18/09/2007	Annual rainfall:	395 mm average

Swale between low dunes. Soft surface with no stones.

### Soil Description:

Depth (cm)	Description
0-10	Dark brown friable highly calcareous light sandy loam with moderate granular structure. Abrupt to:
10-18	Dark brown firm massive very highly calcareous light sandy clay loam. Abrupt to:
18-32	Brown friable massive very highly calcareous light sandy clay loam with 20-50% carbonate nodules to 20 mm. Clear to:
32-60	Strong brown friable massive very highly calcareous light sandy clay loam with 20-50% carbonate fragments and nodules to 20 mm. Gradual to:
60-80	Strong brown friable massive very highly calcareous sandy clay loam with 10-20% carbonate nodules to 20 mm. Gradual to:
80-100	Reddish yellow friable massive very highly calcareous light sandy clay loam with 10-20% carbonate nodules. Diffuse to:
100-150	Red firm massive highly calcareous light clay.



**Classification:** Endohypersodic, Regolithic, Supracalcic Calcarosol; thick, non-gravelly, loamy/clay loamy, deep



## Summary of Properties

<b>Drainage:</b>	Well drained. No part of the profile is likely to be saturated for more than a day or so at a time following heavy or prolonged rainfall.
<b>Fertility:</b>	Inherent fertility is moderate, as indicated by the exchangeable cation data. Test data indicate that levels of all nutrient elements are adequate.
<b>pH:</b>	Alkaline at the surface, strongly alkaline with depth.
<b>Rooting depth:</b>	80 cm in sampling pit, with an occasional root to 100 cm.
<b>Barriers to root growth:</b>	
<b>Physical:</b>	There are no natural physical barriers, but there is a well developed cultivation pan at 10 cm, with the 10-18 cm layer being root restrictive.
<b>Chemical:</b>	High boron concentration from 80 cm and moderate salinity / chloride below 100 cm restrict water uptake, while high sodicity from 80 cm is potentially toxic. High pH and carbonate content from 60 cm restrict nutrient availability.
<b>Waterholding capacity:</b>	Approximately 100 mm in the potential rootzone, but up to 20 mm of this is effectively unavailable due to uptake constraints.
<b>Seedling emergence:</b>	Satisfactory.
<b>Workability:</b>	Calcareous loamy sands to sandy loams are easily worked over a range of moisture conditions, although dry working causes powdering.
<b>Erosion Potential:</b>	
<b>Water:</b>	Low.
<b>Wind:</b>	Moderately low to moderate

## Laboratory Data

Depth cm	pH H <sub>2</sub> O	pH CaCl <sub>2</sub>	CO <sub>3</sub> %	EC 1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	Cl mg/kg	SO <sub>4</sub> -S mg/kg	Boron mg/kg	React Fe mg/kg	Trace Elements mg/kg (DTPA)				Sum cations cmol (+)/kg	Exchangeable Cations cmol(+)/kg				Est. ESP
													Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
0-10	8.9	8.1	2	0.11	0.59	1.70	35	410	22	3.2	1.6	0	0.66	5.2	6.10	3.77	19.1	16.4	1.58	0.14	0.99	0.7
10-18	8.9	8.0	8	0.09	0.38	1.04	7	234	5	6.0	1.2	0	0.88	5.8	3.05	0.53	20.9	18.7	1.51	0.12	0.59	0.6
18-32	8.9	8.1	17	0.10	0.38	1.09	5	122	5	10.2	1.7	0	1.36	7.4	2.56	0.29	24.1	21.6	1.99	0.18	0.33	0.7
32-60	9.1	8.1	29	0.10	0.62	0.51	3	82	12	4.3	2.0	0	1.00	6.2	1.77	0.24	19.8	16.2	3.09	0.28	0.21	1.4
60-80	9.3	8.3	41	0.23	1.09	0.39	3	72	49	5.3	9.7	0	0.81	4.9	1.07	0.20	17.3	10.1	5.41	1.50	0.23	8.7
80-100	9.6	8.7	53	0.51	3.33	0.26	1	130	237	55.5	17.8	0	0.87	3.8	0.85	0.21	18.5	8.40	5.37	4.33	0.35	23.5
100-150	9.4	8.7	35	0.78	4.72	0.22	2	240	543	103	16.8	0	0.63	4.8	1.30	0.25	21.0	8.04	5.46	6.85	0.66	32.6

**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](#)

