

## HIGHLY CALCAREOUS SANDY LOAM (Penong soil)

**General Description:** *Calcareous sandy loam grading to a very highly calcareous sandy clay loam with variable rubble, continuing below 120 cm*

**Landform:** Gently undulating rises.

**Substrate:** Very highly calcareous light sandy clay loam (Woorinen Formation).

**Vegetation:** Spear grass.



**Type Site:** Site No.: EF015

1:50,000 sheet: 5534-3 (Penong)	Hundred: Burgoyne
Annual rainfall: 330 mm	Sampling date: 21/01/92
Landform: Lower slope of very gently undulating rise, 2% slope	
Surface: Firm with no stones	

**Soil Description:**

Depth (cm)	Description
0-8	Reddish brown soft very highly calcareous fine sandy loam with weak granular structure. Clear to:
8-23	Yellowish red soft very highly calcareous light sandy clay loam with weak subangular blocky structure. Abrupt to:
23-30	Weak laminar calcrete with matrix of light sandy clay loam as above. Clear to:
30-47	Yellowish red loose very highly calcareous light sandy clay loam with 20-50% carbonate nodules. Clear to:
47-85	Yellowish red soft very highly calcareous light sandy clay loam with more than 50% carbonate nodules. Gradual to:
85-130	Nodular carbonate pan.



**Classification:** Hypervescent, Regolithic, Lithocalcic Calcarosol; medium, non-gravelly, loamy / loamy, deep

## Summary of Properties

<b>Drainage</b>	Well drained. The soil never remains wet for more than a day or so.
<b>Fertility</b>	Inherent fertility is moderately low as indicated by the exchangeable cation data. Nutrient retention capacity is reasonable, but very high carbonate content ties up some nutrients. Phosphorus applications are needed regularly - levels are high at the sampling site. Nitrogen levels depend on cropping history and on medic content of volunteer pastures. Zinc and copper deficiencies are likely from time to time - zinc levels are marginal at sampling site.
<b>pH</b>	Alkaline at the surface, strongly alkaline with depth.
<b>Rooting depth</b>	85 cm in pit.
<b>Barriers to root growth</b>	
<b>Physical:</b>	The rubbly calcrete layer at 85 cm limits further root growth.
<b>Chemical:</b>	High sodicity from 47 cm restricts root growth to some extent.
<b>Water holding capacity</b>	Approximately 60 mm in the root zone.
<b>Seedling emergence:</b>	Satisfactory.
<b>Workability:</b>	Firm surface is easily worked.
<b>Erosion Potential</b>	
<b>Water:</b>	Low.
<b>Wind:</b>	Moderately low.

## Laboratory Data

Depth cm	pH H <sub>2</sub> O	pH CaCl <sub>2</sub>	CO <sub>3</sub> %	EC1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	SO <sub>4</sub> 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	7.7	28	0.2	0.9	1.1	44	690	-	2.3	0.53	3.3	13	0.35	13.8	11.2	1.7	0.24	2.88	2
8-23	8.4	7.6	39	0.1	0.5	0.5	3	330	-	1.9	0.67	3.2	4.3	0.19	11.4	9.9	1.8	0.42	1.21	4
23-30	8.3	7.5	57	0.2	1.0	0.4	<2	230	-	2.0	0.57	4.6	2.9	0.14	8.0	7.9	2.0	0.58	0.85	7
30-47	8.3	7.5	61	0.2	1.5	-	-	-	-	2.7	0.44	3.1	2.2	0.05	7.0	6.0	2.1	0.69	0.56	10
47-85	9.0	7.7	70	0.4	4.8	-	-	-	-	3.3	0.22	5.6	2.9	0.21	4.8	3.0	2.0	1.48	0.72	31
85-130	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

**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