

## DEEP SAND (Moornaba soil)

**General Description:** *Deep sand to loamy sand, becoming calcareous and more clayey with depth*

**Landform:** Gently undulating dune field.

**Substrate:** Clayey sand, with fine secondary carbonates.

**Vegetation:** Mallee.



**Type Site:** Site No.: EF012

1:50,000 sheet: 5534-2 (Koonibba)  
Annual rainfall: 320 mm  
Landform: Low dune slope of 2%  
Surface: Loose with no stones

Hundred: Catt  
Sampling date: 17/01/92

### Soil Description:

Depth (cm)	Description
0-10	Dark brown loose loamy sand. Abrupt to:
10-22	Orange soft loamy sand with weak platy structure. Clear to:
22-40	Orange soft loamy sand. Clear to:
40-85	Reddish yellow soft very highly calcareous loamy sand. Gradual to:
85-120	Orange soft very highly calcareous loamy sand with weak subangular blocky structure. Diffuse to:
120-160	Reddish yellow soft very highly calcareous clayey sand with weak subangular blocky structure. Diffuse to:
160-	As above.



**Classification:** Calcareous, Arenic, Brown-Orthic Tenosol; medium, non-gravelly, sandy/ sandy, very deep

### Summary of Properties

<b>Drainage</b>	Rapidly drained. Soil is never wet for more than a few hours.
<b>Fertility</b>	Inherent fertility is low as indicated by the exchangeable cation data. Low clay and organic matter levels provide little nutrient retention capacity. Regular phosphorus applications are essential - levels are satisfactory at sampling site. Nitrogen levels depend on cropping history and medic content of volunteer pastures. Copper and zinc deficiencies may occur - levels are marginal at sampling site.
<b>pH</b>	Alkaline throughout.
<b>Rooting depth</b>	100 cm in pit.
<b>Barriers to root growth</b>	
<b>Physical:</b>	There are no physical barriers.
<b>Chemical:</b>	High pH in deep subsoil limits root growth, but low nutrient storage capacity and status below 10 cm are the main causes of reduced root densities.
<b>Water holding capacity</b>	Approximately 90 mm in the root zone.
<b>Seedling emergence:</b>	Satisfactory, although water repellence may be a problem in some seasons.
<b>Workability:</b>	Loose surface is easily worked.
<b>Erosion Potential</b>	
<b>Water:</b>	Low.
<b>Wind:</b>	Moderate.

### 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> -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	
0-10	8.2	7.8	0	0.1	0.7	0.6	26	150	-	1.8	0.14	4.3	4.1	0.20	5.2	6.0	0.7	0.09	0.41	2
10-22	8.3	8.0	0	0.1	0.3	0.2	<2	92	-	1.0	0.07	2.2	0.66	0.05	3.2	4.0	0.6	0.09	0.28	3
22-40	8.3	7.9	0	0.1	0.2	<0.1	<2	82	-	0.7	0.08	2.1	0.48	0.04	2.5	3.3	0.5	0.10	0.24	na
40-85	8.6	7.9	9	0.1	0.4	-	-	-	-	0.7	0.28	0.8	0.44	0.04	2.3	3.3	1.1	0.15	0.17	na
85-120	8.9	8.3	6	0.1	0.9	-	-	-	-	1.3	0.16	0.7	0.36	0.04	2.9	2.1	2.0	0.39	0.51	na
120-160	9.6	8.1	18	0.3	2.0	-	-	-	-	6.4	0.29	1.5	0.22	0.04	4.7	1.8	2.3	2.23	1.54	47
160+	9.7	8.1	24	0.5	3.7	-	-	-	-	18.6	0.35	2.1	0.23	0.09	4.2	1.2	2.0	2.71	1.46	65

**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