

## DEEP CALCAREOUS SANDY LOAM (Bookabie soil)

**General Description:** *Calcareous sandy clay loam becoming more clayey and calcareous with depth*

**Landform:** Very gentle slopes with low sandhills.

**Substrate:** Very highly calcareous medium to fine grained windblown Woorinen Formation sediments overlying granite.

**Vegetation:** Mallee.



**Type Site:** Site No.: EC079

1:50,000 sheet: 5932-3 (Minnipa)

Annual rainfall: 350 mm

Sampling date: 30/03/93

Landform: Upper slope of gently undulating rise, 3% slope

Surface: Firm with no stones

### Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-10	Very dark greyish brown friable highly calcareous sandy clay loam with moderate fine polyhedral structure. Clear to:
10-50	Strong brown friable very highly calcareous sandy clay loam with weak fine subangular blocky structure. Gradual to:
50-73	Brown soft massive very highly calcareous sandy loam with minor carbonate concretions. Gradual to:
73-130	Strong brown friable massive very highly calcareous light clay with minor ironstone concretions. Abrupt to:
130-150	Strong brown friable very highly calcareous light clay with 20-50% carbonate concretions.



**Classification:** Endohypersodic, Regolithic, Hypercalcic Calcarosol; medium, non-gravelly, clay loamy / clayey, deep

## Summary of Properties

<b>Drainage</b>	Rapidly drained. The soil rarely remains wet for more than a few hours.
<b>Fertility</b>	Inherent fertility is moderately low. Regular phosphorus applications are necessary, as the calcareous surface soil tends to tie up phosphate. Nitrogen levels depend on legume content of pastures and cropping history. Deficiencies of copper and zinc may occur from time to time, but levels at sampling site are satisfactory. Phosphorus levels are low, and organic carbon concentrations are marginal.
<b>pH</b>	Alkaline at the surface, strongly alkaline with depth.
<b>Rooting depth</b>	130 cm in pit, but few roots below 50 cm.
<b>Barriers to root growth</b>	
<b>Physical:</b>	There are no physical barriers.
<b>Chemical:</b>	High pH from 50 cm, and high sodicity and boron concentrations from 73 cm restrict deeper root growth.
<b>Water holding capacity</b>	Approximately 100 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>	Moderately 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> -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	8.5	8.0	8	0.14	0.72	1.0	16	600	-	1.9	0.34	-	5.00	0.59	14.1	10.99	1.43	0.05	1.63	0.4
10-50	8.9	8.1	22	0.19	1.06	0.5	2	240	-	2.5	0.50	-	1.60	0.25	13.8	8.86	3.23	0.37	0.69	2.7
50-73	9.5	8.5	37	0.81	5.88	-	<2	210	-	11	0.28	-	0.56	0.24	10.8	3.09	5.54	2.66	0.56	24.6
73-130	9.8	8.7	35	1.09	8.51	-	<2	340	-	34	0.61	-	0.41	0.33	10.7	1.31	5.00	4.61	0.92	43.1
130-150	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

**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.