LOAMY SAND OVER RED SANDY CLAY LOAM

General Description: *Medium to thick sand to loamy sand over a red sandy clay loam, calcareous with depth*

Landform: Gently undulating plains

Substrate: Windblown sands and carbonates overlying a buried sandy loam over calcrete soil.

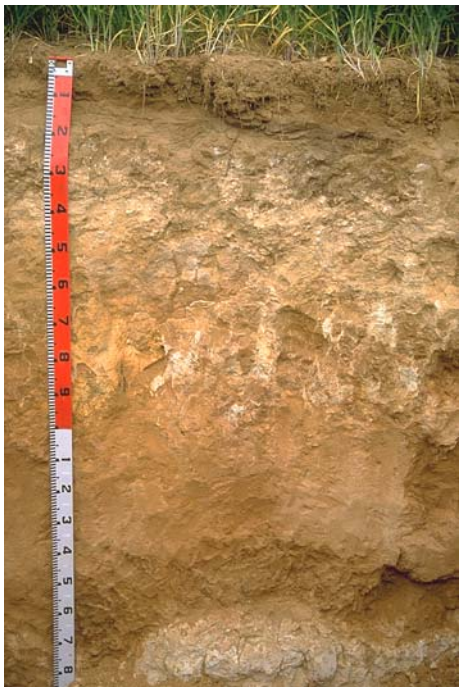
Vegetation: Mallee

Type Site: Site No.: MP004

1:50,000 sheet:	6728-1 (Mannum)	Hundred:	Angas
Annual rainfall:	275 mm	Sampling date:	31/07/92
Landform:	Crest of gently undulating low rise, 1% slope		
Surface:	Soft with 2-10% calcrete stones		

Soil Description:

Depth (cm)	*Description*
0-14	Brown soft loamy sand. Sharp to:
14-19	Brown soft loamy sand. Sharp to:
19-23	Reddish yellow soft loamy sand. Clear to:
23-38	Yellowish red and brown very hard calcareous sandy clay loam with strong coarse columnar structure. Clear to:
38-65	Reddish yellow highly calcareous hard massive sandy loam. Clear to:
65-100	Orange, brown and pink highly calcareous friable sandy loam. Gradual to:
100-140	Orange highly calcareous friable sandy loam. Clear to:
140-165	Orange and brown weakly calcareous sandy loam. Abrupt to:
165-190	Semi hard massive calcrete.



Classification: Calcic, Mottled-Subnatric, Red Sodosol; medium, slightly gravelly, sandy/clay loamy, moderate

Summary of Properties

Drainage Moderately well drained. Water will perch on the sodic subsoil for a few days following heavy or prolonged rainfall.

Fertility Natural fertility is low as indicated by the exchangeable cation data. Phosphorus is extremely low and zinc appears to be marginal at the sampling site. Organic carbon levels are also low. Poor nutrient retention capacity attributable to low clay and organic matter predispose the soil to a range of deficiencies.

pH Neutral at the surface, strongly alkaline with depth.

Rooting depth 42 cm in pit but few roots below 20 cm.

Barriers to root growth

Physical: The sodic subsoil prevents uniform root distribution to some extent.

Chemical: Very high pH and sodicity from 40 cm prevent roots from extending further. Boron levels are also high. Root growth is also constrained by very low phosphorus status.

Water holding capacity Approximately 40 mm in the root zone.

Seedling emergence: Good.

Workability: Good.

Erosion Potential

Water: Low

Wind: Moderate.

Laboratory Data

Depth cm	pH H_2O	pH $CaC1_2$	CO_3 %	EC1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K 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	
Paddock	7.2	6.9	<0.1	0.06	0.21	0.44	<5	280	0.9	0.4	5.5	3.6	0.4	4.2	3.52	0.87	0.17	0.62	4.0
0-14	7.1	6.9	-	0.06	0.30	0.71	<5	260	1.0	0.3	5.8	3.7	0.6	3.9	3.88	0.89	0.15	0.49	3.8
14-19	7.4	7.2	<0.1	0.06	0.27	0.55	<5	240	1.1	0.5	4.7	3.1	0.7	5.3	3.82	0.85	0.14	0.44	2.6
19-23	8.4	7.9	<0.1	0.07	0.29	0.20	<5	170	0.9	0.2	2.5	1.6	0.3	3.3	2.52	0.73	0.23	0.26	7.0
23-38	9.1	8.5	2.5	0.23	0.61	0.23	<5	400	2.8	0.5	9.0	0.5	0.3	12.1	5.96	5.04	1.66	1.01	13.7
38-65	9.9	9.0	17.6	0.63	2.25	0.33	<5	440	15.5	0.9	5.0	0.1	0.3	7.9	1.57	4.84	5.03	1.04	63.7
65-100	9.7	8.9	6.8	1.09	8.17	0.10	<5	400	15.5	0.5	4.1	0.3	0.2	6.9	1.16	3.78	4.38	0.90	63.5
100-140	9.7	8.7	10.6	0.93	10.55	0.01	<5	290	10.6	0.3	2.4	0.2	0.2	3.8	1.09	2.67	2.38	0.57	62.6
140-165	9.7	8.7	2.0	0.73	7.57	0.07	<5	330	9.9	0.2	3.0	0.3	0.2	6.2	0.97	3.10	3.05	0.73	49.2

Note: Paddock sample bulked from 20 cores (0-10 cm) taken around the pit.

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