SANDY LOAM OVER RED SANDY CLAY LOAM

General Description: *Soft sandy loam to loamy sand over a red sandy clay loam, becoming more clayey and calcareous with depth*

Landform: Gently undulating rises overlain by low longitudinal dunes.

Substrate: Medium textured Tertiary? sediments mantled by fine carbonates.

Vegetation: Mallee.

Type Site:

Site No.:	MR006	1:50,000 mapsheet:	7029-3 (Loxton)
Hundred:	Out of Hundreds	Easting:	461650
Location:	Berri Irrigation Area	Northing:	6208300
Sampling date:	27/09/2004	Annual rainfall:	255 mm average

Lower slope of gently undulating rise, 1% slope. Soft surface with no stones.

Soil Description:

Depth (cm)	*Description*
0-10	Dark reddish brown soft single grain light sandy loam. Clear to:
10-20	Red friable single grain loamy sand. Abrupt to:
20-40	Red friable massive sandy clay loam. Gradual to:
40-55	Red friable massive very highly calcareous sandy clay loam with 10-20% fine carbonate segregations. Gradual to:
55-100	Yellowish red friable massive very highly calcareous sandy light clay with 20-50% fine carbonate segregations. Diffuse to:
100-135	Red firm massive very highly calcareous sandy clay loam (buried subsoil of older soil profile). Gradual to:
135-165	Red with occasional white mottles firm highly calcareous sandy light clay with weak coarse subangular blocky structure and 10-20% fine carbonate segregations.

Classification: Haplic, Hypercalcic, Red Chromosol; medium, non-gravelly, sandy / clayey, deep

Summary of Properties

Drainage: Moderately well to well drained. The soil is unlikely to remain wet for more than a few days following heavy or prolonged rainfall (or irrigation).

Fertility: Inherent fertility is moderate, as indicated by the exchangeable cation data. Concentrations of all tested nutrient elements are satisfactory.

pH: Alkaline throughout.

Rooting depth: 135 cm in pit, but few roots below 55 cm.

Barriers to root growth:

Physical: There are no apparent physical barriers.

Chemical: Root growth tends to be poor in clayey Class IIIA carbonate layers (55-100 cm).

Waterholding capacity: (Estimates for potential rootzone of irrigated crops)
Total available: 100 mm
Readily available: 55 mm

Seedling emergence: Good.

Workability: The light surface soil is easily worked over a range of moisture conditions, although dry working pre-disposes the surface soil to wind erosion.

Erosion Potential:

Water: Low.

Wind: Moderately low.

Laboratory Data

Depth cm	pH H_2O	pH $CaCl_2$	CO_3 %	EC 1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	Cl mg/kg	SO_4 mg/kg	Boron mg/kg	Trace Elements mg/kg (EDTA)				Sum cations cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
												Cu	Fe	Zn	Mn		Ca	Mg	Na	K	
0-10	8.0	7.1	1	0.13	0.47	1.76	68	395	10	30	1.1	51.3	105	20.6	58.7	13.4	9.39	2.88	0.10	1.06	0.8
10-20	8.4	7.5	1	0.11	0.34	0.37	45	239	9	8	0.5	16.4	58	9.16	38.0	7.7	5.85	1.05	0.15	0.62	2.0
20-40	8.4	7.5	1	0.14	0.56	0.26	55	280	22	18	0.5	9.26	56	2.61	50.0	12.4	8.38	2.92	0.36	0.73	2.9
40-55	8.6	7.7	6	0.25	2.17	0.27	63	288	124	47	0.6	2.19	18	0.29	7.54	18.9	12.7	5.12	0.33	0.77	1.7
55-100	8.6	7.9	13	0.39	2.49	0.17	7	373	169	123	1.1	1.31	8	0.08	2.16	20.8	13.8	6.00	0.29	0.73	1.4
100-135	8.7	7.9	9	0.37	2.74	0.12	6	182	137	126	1.1	1.06	8	0.19	2.52	17.8	11.6	5.31	0.42	0.51	2.3
135-165	8.7	7.9	7	0.28	2.48	0.27	19	229	155	81	1.4	2.42	8	1.10	4.64	16.6	10.2	5.42	0.43	0.6	2.6

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