

DEEP SAND

General Description: *Deep non calcareous red sand overlying a red clayey subsoil with soft to hard carbonate at depth*

Landform: Upper slopes and crests of sand dunes

Substrate: Variable soft to hard dune core carbonate

Vegetation: Mallee scrub, commonly *E.incrassata*



Type Site:	Site No.:	CM066	1:50,000 mapsheet:	6529-1 (Balaklava)
	Hundred:	Hall	Easting:	268200
	Section:	275	Northing:	6228550
	Sampling date:	23/08/95	Annual rainfall:	400 mm average

Upper slope of moderate sand hill. Loose surface, 6% slope.

Soil Description:

(110 cm of layered sand over a buried sand over clay soil)

<i>Depth (cm)</i>	<i>Description</i>
0-30	Brown loose sand. Abrupt to:
30-35	Reddish yellow loose sand. Abrupt to:
35-50	Yellowish red loose sand. Clear to:
50-75	Orange loose sand.
75-87	Yellowish red soft loamy sand. Abrupt to:
87-100	Red soft loamy sand. Clear to:
100-110	Dark reddish brown firm massive clayey sand. Clear to:

110-155	Red soft loamy sand. Clear to:
155-185	Red and light brown mottled highly calcareous weakly blocky sandy light clay with 2-10% soft carbonate segregations. Clear to:
185-205	Orange massive very highly calcareous sandy clay loam with more than 50% soft carbonate segregations.



Watertable at 200 cm, EC 1,940 dS/m

Classification: Calcareous, Arenic, Red-Orthic Tenosol; thick, non-gravelly, sandy / sandy, deep.



Summary of Properties

Drainage: Rapidly drained. The sandy soil is never saturated, but a deep clay layer prevents deep drainage (water table at 200 cm - August 1995).

Fertility: Natural fertility is low due to the low clay and organic matter contents. Low nutrient retention capacity means that this soil must be fertilized "little but often". Phosphorus is high at sampling site, but tissue analyses are required to determine levels of other nutrients. Deficiencies of calcium, magnesium, sulphur and trace elements are possible.

pH: Slightly alkaline at the surface, strongly alkaline with depth.

Rooting depth: 85 cm in pit, but few roots below 50 cm.

Barriers to root growth:

Physical: No physical barriers.

Chemical: Low fertility and high likelihood of root disease problems are the main barriers.

Waterholding capacity: Approximately 120 mm in potential rootzone (ie the sandy layers above the clay), but nearer 50 mm in the actual rootzone.

Seedling emergence: Good, except in non wetting patches.

Workability: Good

Erosion Potential: High wind erosion potential.

Laboratory Data

Depth cm	pH H ₂ O	pH CaCl ₂	CO ₃ %	EC1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	SO ₄ 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	7.7	7.4	0	0.08	0.43	0.4	33	195	5	0.8	0.21	-	3.06	0.54	3.4	2.79	0.59	0.10	0.32	na
0-30	6.8	6.3	0	0.03	0.15	0.4	33	177	3	0.6	-	-	-	-	3.0	2.83	0.51	0.11	0.39	na
30-35	8.8	8.2	0	0.05	0.16	0.1	13	108	5	0.4	-	-	-	-	1.8	1.94	0.35	0.07	0.19	na
35-50	8.9	8.2	0	0.06	0.21	0.1	14	210	5	0.6	-	-	-	-	3.0	3.06	0.44	0.09	0.33	na
50-75	9.0	8.3	0.2	0.06	0.23	0.1	6	169	6	0.6	-	-	-	-	2.9	2.80	0.43	0.10	0.30	na
75-87	8.7	8.1	0	0.06	0.40	0.1	5	170	6	0.5	-	-	-	-	3.9	3.63	0.50	0.08	0.32	na
87-100	8.6	7.9	0	0.05	0.38	0.1	<4	168	8	0.4	-	-	-	-	3.9	3.96	0.57	0.10	0.33	na
100-110	8.4	7.8	0	0.07	0.41	0.1	<4	236	6	0.6	-	-	-	-	7.1	6.62	1.05	0.10	0.50	1.4
110-155	8.7	8.1	0.2	0.09	0.65	0.1	<4	99	7	0.6	-	-	-	-	5.4	4.59	1.38	0.08	0.21	1.5
155-185	8.9	8.2	2.4	0.12	0.48	<0.1	<4	232	1	3.0	-	-	-	-	10.3	7.07	3.52	0.50	0.68	4.9
185-205	9.2	8.1	32.7	0.16	0.59	0.1	<4	270	2	3.7	-	-	-	-	8.8	5.71	3.60	0.79	0.76	9.0

Note: Paddock sample bulked from 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.

Further information: [DEWNR Soil and Land Program](#)

