SAND OVER RED CLAY

General Description: Thin sandy surface soil sharply overlying a coarsely structured red clayey subsoil with abundant soft to rubbly carbonate at depth

Landform: Gently undulating dunefield

Substrate: Coarsely structured red

mottled Hindmarsh Clay

Vegetation: Mallee

Type Site: Site No.: CL030 1:50,000 mapsheet: 6628-4 (Gawler)

Hundred: Mudla Wirra Easting: 288100 Section: 842 Northing: 6178750

Sampling date: 23/12/96 Annual rainfall: 435 mm average

Very low dune, 3% slope. Firm surface.

Soil Description:

Depth (cm) Description

0-10 Reddish brown soft loamy sand with weak platy

structure. Sharp to:

10-23 Red hard fine sandy medium clay with moderate

coarse prismatic structure breaking to subangular

blocky. Clear to:

23-65 Yellowish red firm very highly calcareous fine

sandy light clay with 2-10% carbonate nodules.

Diffuse to:

65-110 Reddish yellow hard very highly calcareous

massive fine sandy clay loam with 10-20% carbonate nodules (20-50% between 80 and 100

cm). Diffuse to:

Yellowish red and greyish brown hard highly

calcareous massive sandy clay. Diffuse to:

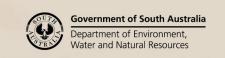
170-200 Yellowish red, red and light grey medium clay

with strong blocky structure and 20-50% soft

carbonate.

Classification: Sodic, Supracalcic, Red Chromosol; medium, non-gravelly, sandy / clayey, deep







Summary of Properties

Drainage: Moderately well drained. Water will perch on the clayey subsoil for up to a week

following prolonged rain.

Fertility: Natural fertility is moderately low due to the low clay content of the surface soil. Test

results indicate that copper and zinc levels in plant tissue should be checked as soil levels are low. Values for other nutrient elements are satisfactory. Organic carbon

levels are normal for a sandy soil.

pH: Surface pH in the pit is alkaline, but slightly acidic in the paddock sample. Soil is

strongly alkaline with depth.

Rooting depth: 110 cm in pit, but few roots below 65 cm.

Barriers to root growth:

Physical: The hard, poorly structured clay subsoil prevents satisfactory root development. A

weak plough pan in the surface layer will also restrict good early root growth.

Chemical: Toxic levels of boron from 110 cm and very high pH and sodicity from 65 cm will

severely retard root development.

Waterholding capacity: Approximately 80 mm in rootzone.

Seedling emergence: Good.

Workability: Good.

Erosion Potential:

Water: Moderately low - soil is highly erodible, but slope is short and gentle.

Wind: Moderate due to the sandy surface.

Laboratory Data

Depth cm	pH H ₂ O	pH CaC1 ₂							nents n	ng/kg	CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP				
							8				Cu	Fe	Mn	Zn	(),6	Ca	Mg	Na	K	
Paddock	6.4	5.5	0	0.07	-	0.91	54	364	4.6	0.8	0.70	87	27	1.6	6.7	3.8	1.1	0.10	0.75	1.5
0-10	8.0	7.0	0	0.08	-	0.75	51	323	5.0	1.0	1.1	56	22	2.1	6.8	3.1	1.0	0.10	0.73	1.5
10-23	7.3	6.7	0	0.09	-	0.48	10	370	4.4	1.1	1.4	31	50	1.3	20.8	11.9	3.6	0.31	1.1	1.5
23-65	8.8	7.9	22	0.14	-	0.29	4	184	5.1	2.2	0.92	3.2	2.0	2.1	13.6	10.1	4.7	0.38	0.51	2.8
65-110	9.5	8.1	31	0.52	-	0.16	1	368	17	8.8	0.36	1.8	1.2	2.1	12.9	3.3	5.7	4.2	0.92	32.5
110-170	9.5	8.2	30	1.26	-	0.14	1	406	130	16	0.31	2.9	1.3	1.9	10.7	1.8	4.3	5.6	0.97	52.2
170-200	9.1	8.4	20	1.65	-	0.11	1	547	181	20	0.28	6.1	3.0	2.0	16.9	1.7	7.2	7.7	1.4	45.3

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



