

HARD SANDY LOAM OVER RED CLAY ON ROCK

General Description: *Medium thickness hard sandy loam over a coarsely structured red clay, highly calcareous at depth, grading to weathering basement rock*

Landform: Slopes of undulating rises

Substrate: Weathering medium to fine grained basement rock, mantled by soft carbonate

Vegetation:



Type Site:	Site No.:	CL006	1:50,000 mapsheet:	6629-2 (Kapunda)
	Hundred:	Nuriootpa	Easting:	300400
	Section:	1606	Northing:	6181350
	Sampling date:	10/03/92	Annual rainfall:	480 mm average

Lower slope of undulating rise, 2% slope. Hard setting surface.

Soil Description:

Depth (cm)	Description
0-15	Hard massive reddish brown sandy loam. Sharp to:
15-28	Firm dark reddish brown medium clay with strong angular blocky structure. Clear to:
28-36	Very highly calcareous massive pink light clay (about 50% fine carbonate). Clear to:
36-160	Very highly calcareous decomposing slate. Diffuse to:
160-180	Weathering slate.



Classification: Hypercalcic, Subnatric, Red Sodosol; medium, non-gravelly, loamy / clayey, very deep



Summary of Properties

Drainage: Well drained. The subsoil clay perches water for a day or so after heavy or prolonged rainfall.

Fertility: Natural fertility is moderate. The relatively low clay and organic matter contents of the surface soil restrict nutrient retention capacity, but the clayey subsoil, although thin, has good retention capacity. All measured nutrient elements are in adequate supply.

pH: Acidic at the surface, strongly alkaline in the subsoil.

Rooting depth: 36 cm in pit, with few roots below 28 cm.

Barriers to root growth:

Physical: Apart from the hardness of the surface and upper subsoil, there are no physical barriers to root growth.

Chemical: Very high pH from 36 cm inhibits root growth.

Waterholding capacity: Approximately 45 mm in the rootzone (moderately low).

Seedling emergence: Fair, due to hard setting surface. Gypsum and / or improved organic matter status will help.

Workability: Fair. The moisture range for effective working is narrow.

Erosion Potential:

Water: Moderately low. The soil is erodible, but the slope is slight.

Wind: Low.

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	6.1	5.0	1.0	0.05	-	0.90	39	130	-	-	0.55	48	8.3	0.72	5.0	3.33	1.02	0.17	0.57	3.4
0-15	6.8	5.8	1.4	0.05	-	0.75	29	170	-	1.3	0.61	30	9.5	0.55	3.9	3.33	0.94	0.07	0.52	1.8
15-28	8.6	7.7	9.0	0.24	-	0.74	6	200	-	-	0.93	4.1	2.0	0.10	18.0	11.9	5.79	1.15	0.67	6.4
28-36	9.0	8.2	40.1	0.60	4.5	0.52	5	100	-	8.1	0.61	2.2	0.9	0.08	7.7	5.96	5.09	1.58	0.30	20.5
36-160	9.7	8.6	21.9	0.62	4.7	0.16	2	65	-	2.9	0.30	1.9	0.3	0.08	3.9	2.09	4.12	2.18	0.15	na

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](#)

