

MODERATELY DEEP RED CLAY ON CALCRETE

General Description: Dark reddish brown well structured clay over calcrete deeper than 50 cm

Landform: Very low rises (islands in ancient back lagoons) on flat plains

Substrate: Calcreted limestone of the Padthaway Formation.

Vegetation:

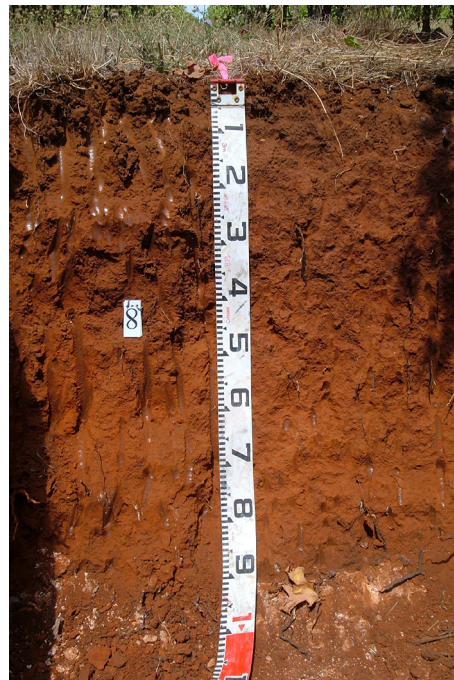


Type Site:	Site No.:	SE161B	1:50,000 mapsheet:	7023-2 (Penola)
	Hundred:	Penola	Easting:	485940
	Section:	498	Northing:	5869220
	Sampling date:	26/02/2008	Annual rainfall:	655 mm average

Slight rise. Firm (inter-row) to hard (row) surface with no stones. Irrigated grape vines.

Soil Description:

Depth (cm)	Description
0-10	Dark reddish brown friable medium clay with moderate fine polyhedral structure. Clear to:
10-20	Dark reddish brown firm light medium clay with moderate fine polyhedral structure. Gradual to:
20-50	Reddish brown firm light clay with weak coarse polyhedral structure. Diffuse to:
50-70	Dark reddish brown firm light clay with weak coarse polyhedral structure. Diffuse to:
70-90	Dark reddish brown firm to hard light medium clay with weak coarse polyhedral structure. Sharp to:
90-100	Hard calcrete.



Classification: Haplic, Petrocalcic, Red Kandosol; medium, non-gravelly, clayey / clayey, moderate



Summary of Properties

- Drainage:** Well drained. The profile is rarely saturated for more than a couple of days at a time.
- Fertility:** Inherent fertility is moderately high, as indicated by the exchangeable cation data. This is due to the high clay and organic matter contents of the surface layers. Laboratory data indicate satisfactory levels of all tested nutrients.
- pH:** Slightly alkaline throughout; more so in the upper layers due to the effects of high pH irrigation water.
- Rooting depth:** 90 cm in sampling pit (calcrete).
- Barriers to root growth:**
- Physical:** There are no significant physical barriers to root growth above the calcrete, depth to which is critical in determining the potential rootzone.
- Chemical:** There are no chemical limitations.
- Waterholding capacity:** (Estimates for potential rootzone of irrigated crops)
 Total available: 160 mm (above calcrete)
 Readily available: 60 mm (above calcrete)
- Seedling emergence:** Satisfactory.
- Workability:** Satisfactory.
- Erosion Potential:**
- Water:** Low.
- Wind:** Low.

Laboratory Data

Depth cm	pH H ₂ O	pH CaCl ₂	CO ₃ %	EC1:5 dS/m	ECe dS/m	Cl mg/kg	Org.C %	NO ₃ + NH ₄ mg/kg	Avail. P mg/kg	Avail. K mg/kg	SO ₄ -S mg/kg	React Fe mg/kg	Boron mg/kg	Trace Elements mg/kg (DTPA)				Sum cations cmol (+)/kg	Exchangeable Cations cmol(+)/kg				Est. ESP	
														Cu	Fe	Mn	Zn		Ca	Mg	Na	K		
0-10	8.2	7.4	0	0.24	0.71	51	3.10	15	59	793	12.1	-	1.7	2.83	96	22.8	2.97	24.5	19.7	2.52	0.32	2.01	4.8	
10-20	8.2	7.3	0	0.05	0.32	15	1.42	-	17	433	5.9	701	-	-	-	-	-	19.2	15.9	1.88	0.31	1.03	3.2	
20-50	8.1	7.1	0	0.04	0.24	16	0.58	-	9	173	5.1	607	-	-	-	-	-	15.5	13.1	1.49	0.46	0.53	2.5	
50-70	7.9	6.9	0	0.05	0.22	21	0.57	-	8	149	7.3	692	-	-	-	-	-	15.0	11.4	2.28	0.87	0.45	3.6	
70-90	7.6	6.6	0	0.09	0.40	46	0.50	-	6	165	14.5	1502	-	-	-	-	-	14.7	10.5	2.39	1.26	0.52	4.2	
90-100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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](#)

