

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.:	SE161A	1:50,000 mapsheet:	7023-2 (Penola)
	Hundred:	Comaum	Easting:	485830
	Section:	471	Northing:	5869360
	Sampling date:	27/02/2008	Annual rainfall:	655 mm average

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

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-10	Dark reddish brown friable light clay with strong fine polyhedral structure. Clear to:
10-20	Dark reddish brown hard light clay with weak to moderate medium polyhedral structure. Gradual to:
20-40	Dark reddish brown hard medium clay with weak coarse polyhedral structure. Gradual to:
40-60	Dark reddish brown hard light clay with weak coarse polyhedral structure. Gradual to:
60-80	Dark reddish brown hard light clay with weak coarse polyhedral structure. Sharp to:
80-90	Hard calcrete with 2-10% manganiferous segregations.



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 at the surface (either due to applied lime or road dust contamination), acidic with depth, and then grading back to neutral above the calcrete.
Rooting depth:	80 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. This is more significant in dry vineyards than where irrigation is used.
Chemical:	There are no chemical limitations.
Waterholding capacity:	Approximately 145 mm in the potential rootzone.
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	7.6	6.7	0	0.16	0.43	15	3.41	18	98	581	9.9	-	1.6	3.56	155	19.1	4.34	21.8	18.0	2.23	0.13	1.47	0.6	
10-20	6.5	5.7	0	0.05	0.19	8	1.50	-	30	313	4.6	769	-	-	-	-	-	12.1	9.84	1.39	0.14	0.72	1.2	
20-40	5.8	4.8	0	0.03	0.11	12	1.12	-	11	219	6.6	583	-	-	-	-	-	10.5	8.38	1.32	0.17	0.59	1.6	
40-60	6.1	5.1	0	0.03	0.10	12	0.93	-	8	164	6.4	655	-	-	-	-	-	13.7	10.9	2.04	0.23	0.56	1.7	
60-80	6.8	5.8	0	0.03	0.15	14	0.72	-	6	136	8.2	977	-	-	-	-	-	15.7	13.0	2.03	0.23	0.41	1.5	
80-90	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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](#)

