

SHALLOW RED CLAY ON CALCRETE

General Description: *Dark reddish brown well structured clay over calcrete shallower 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.:	SE161C	1:50,000 mapsheet:	7023-2 (Penola)
	Hundred:	Comaum	Easting:	485840
	Section:	471	Northing:	5869310
	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:

Depth (cm)	Description
0-10	Dark reddish brown friable light clay with moderate fine polyhedral structure. Clear to:
10-20	Dark reddish brown firm light medium clay with moderate fine polyhedral structure and 10-20% calcrete fragments to 20 mm. Sharp to:
20-40	Mainly hard calcrete, with some softer pockets and minor clay infill. Gradual to:
40-60	Mainly soft carbonate with some hard fragments.



Classification: Haplic, Petrocalcic, Red Dermosol; medium, non-gravelly, clayey / clayey, very shallow



Summary of Properties

Drainage: Rapidly drained. The profile is rarely saturated for more than a couple of hours 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: The soil is slightly alkaline, the carbonate layers are alkaline.

Rooting depth: 20 cm in sampling pit (calcrete).

Barriers to root growth:

Physical: The calcrete is a significant barrier to root growth, although there is generally some fracturing, allowing limited exploration of deeper layers below the calcrete cap. These soils are usually ripped pre-establishment. Variations in depth to the calcrete are more significant in dry vineyards than where irrigation is used.

Chemical: There are no chemical limitations.

Waterholding capacity: Approximately 40 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	7.9	7.2	0	0.18	0.54	5	4.22	21	147	643	10.7	-	1.5	3.87	143	19.2	4.15	29.1	25.6	1.79	0.11	1.63	0.4
10-20	7.8	7.0	0	0.07	0.47	11	2.23	-	44	251	7.1	1060	-	-	-	-	-	21.5	19.7	1.00	0.17	0.64	0.8
20-40	8.9	7.9	-	0.07	0.35	26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40-60	8.6	7.6	-	0.07	0.27	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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](#)

