SHALLOW RED CLAY LOAM ON CALCRETED LIMESTONE

General Description: *Crumbly red sub-plastic clay loam to light clay, grading to a well structured red clay overlying calcreted limestone within 50 cm*

Landform: Slightly elevated flat plain.

Substrate: Calcreted limestones and calcarenites of ancient coastal deposits (Padthaway and Bridgewater Formations).

Vegetation:

Type Site:

Site No.:	SE132	1:50,000 mapsheet:	7023-2 (Penola)
Hundred:	Comaum	Easting:	484970
Section:	454	Northing:	5874240
Sampling date:	22/11/07	Annual rainfall:	640 mm average

Elevated plain. Firm surface with no stones.

Soil Description:

Depth (cm)	*Description*
0-15	Dark reddish brown friable clay loam to light medium clay (sub-plastic) with strong fine polyhedral structure. Gradual to:
15-30	Dark reddish brown friable light medium clay with strong fine polyhedral structure. Sharp to:
30-60	Hard pan of laminar and nodular calcrete cemented by colloidal calcite and including about 5% pockets of infill clay (as above). Diffuse to:
60-120	Pan of calcrete fragments (150 mm x 50 mm) in a semi-hard highly calcareous matrix.

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

Summary of Properties

Drainage: Well drained. The soil rarely remains saturated for more than a day or so following heavy or prolonged rainfall.

Fertility: Inherent fertility is high, as indicated by the exchangeable cation data. Phosphorus and possibly zinc levels are marginal, but concentrations of other tested nutrients are adequate.

pH: Slightly alkaline at the surface and subsoil, alkaline in the calcareous substrate.

Rooting depth: Most root growth is in the upper 30 cm of the soil (above the calcrete), but some roots penetrate fissures in the calcrete to 60 cm.

Barriers to root growth:

Physical: The carbonate pan from 30 restricts deeper root growth, which is confined to fractures.

Chemical: There are no chemical constraints.

Waterholding capacity: Approximately 60 mm in the rootzone (above the calcrete).

Seedling emergence: Satisfactory.

Workability: Satisfactory.

Erosion Potential:

Water: Low.

Wind: Low.

Laboratory Data

Depth cm	pH H_2O	pH $CaCl_2$	CO_3 %	EC 1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	Cl mg/kg	SO_4-S 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	
0-15	7.8	7.0	0.42	0.22	1.22	2.27	21	336	119	11.5	1.4	7.21	18	22.1	1.57	23.6	19.0	3.07	0.76	0.86	3.2
15-30	7.9	7.0	0.24	0.11	0.61	1.53	10	104	58	6.6	1.3	0.92	7	14.8	0.41	19.6	15.9	2.55	0.91	0.33	4.6
30-60 *	8.9	7.9	-	0.09	0.52	-	-	-	32	-	-	-	-	-	-	-	-	-	-	-	-
30-60 #	8.8	7.8	25.6	0.13	0.61	0.26	3	103	36	4.6	1.4	0.23	4	4.21	1.25	18.3	15.5	1.27	1.19	0.31	6.5
60-120	8.9	7.9	-	0.08	0.32	-	-	-	15	-	-	-	-	-	-	-	-	-	-	-	-

Note: * Carbonate component of 30-60 cm layer
Clay infills of 30-60 cm layer

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