

GRADATIONAL CLAY LOAM

General Description: *Clay loam grading to a red well structured clay over calcreted limestone deeper than 50 cm*

Landform: Level plain with low ridges.

Substrate: Calcreted limestones and clays of the Padthaway Formation.

Vegetation:



Type Site: Site No.: SE010

1:50,000 sheet: 7023-2 (Penola)

Hundred: Comaum

Annual rainfall: 625 mm

Sampling date: 12/10/92

Landform: Flat at foot of low ridge

Surface: Hard with no stones

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-11	Dark brown friable clay loam with moderate fine polyhedral structure. Gradual to:
11-20	Dark brown friable light clay with moderate fine polyhedral structure. Clear to:
20-29	Dark reddish brown with pockets of very dark grey friable light medium clay with strong coarse prismatic breaking to moderate polyhedral structure. Diffuse to:
29-73	Reddish brown and dark reddish brown with pockets of very dark grey firm medium clay with strong coarse prismatic breaking to moderate polyhedral structure. Diffuse to:
73-86	Dark brown and very dark grey firm light medium clay with moderate polyhedral structure. Sharp to:
86-88	Calcrete pan.



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

Summary of Properties

Drainage	Moderately well drained. Coarsely structured clay impedes water movement to the extent that the soil may remain saturated for up to a week following heavy or prolonged rainfall.
Fertility	Natural fertility is moderate to high, as indicated by the exchangeable cation data. Nutrient retention capacity is favourable due to high clay and organic matter contents. Phosphorus levels low at sampling site, but concentrations of other tested elements are satisfactory.
pH	Neutral throughout.
Rooting depth	86 cm in pit.
Barriers to root growth	
Physical:	The calcrete prevents deeper root growth, but the coarsely structured clayey subsoil prevents optimal growth, confining most roots to aggregate surfaces.
Chemical:	There are no chemical barriers.
Water holding capacity	Approximately 130 mm in the rootzone.
Seedling emergence:	Fair to satisfactory depending on the degree of hard setting.
Workability:	Surface is easily worked when well structured, but difficulty increases if it becomes compacted.
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	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	
0-11	6.3	6.3	-	0.093	-	2.0	14	490	-	2.0	3.7	46	6.6	2.0	17.5	10.4	2.0	0.54	1.09	3.1
11-20	6.3	5.7	-	0.093	-	1.5	5.5	450	-	2.2	0.56	36	5.7	0.56	18.0	11.6	2.2	0.75	1.14	4.2
20-29	6.3	5.5	0.5	0.082	-	1.2	4.3	410	-	1.7	0.19	19	2.1	0.41	19.6	12.5	2.1	0.86	1.15	4.4
29-73	6.5	5.9	1.5	0.080	-	0.73	3.4	330	-	1.6	0.26	9.4	0.64	0.26	23.1	16.3	2.9	1.08	1.06	4.7
73-86	7.3	7.0	2.6	0.122	-	0.78	3.1	200	-	1.6	0.12	9.4	6.6	0.28	25.0	18.1	1.4	0.85	0.53	3.4

Note: Paddock sample bulked from 20 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.