

CLAY LOAM OVER CALCAREOUS CLAY ON CALCRETE

General Description: *Medium thickness sandy clay loam over highly calcareous grey clay on calcreted limestone or semi hard carbonate*

Landform: Level plains

Substrate: Calcreted limestone or calcareous clayey sand to sandy clay of the Padthaway Formation.

Vegetation:



Type Site:	Site No.:	SE156B	1:50,000 mapsheet:	6924-1 (Marcollat)
	Hundred:	Marcollat	Easting:	448860
	Section:	20	Northing:	5955200
	Sampling date:	02/04/2008	Annual rainfall:	545 mm average

Level plain. Firm surface with 2-10% calcrete stones (6-60 mm). Irrigated phalaris.

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-10	Black soft massive sandy clay loam. Clear to:
10-25	Very dark grey soft massive very highly calcareous clay loam, sandy. Gradual to:
25-40	Dark grey soft very highly calcareous sandy light clay with weak medium polyhedral structure. Abrupt to:
40-65	Nodular calcrete, nodules 6->60 mm. Mostly moderately to strongly cemented. Diffuse to:
65-90	Calcreted limestone comprising more than 50% nodules larger than 60 mm, and moderately to strongly cemented limestone.



Classification: Epibasic, Petrocalcic, Calcic Calcarosol; medium, slightly gravelly, clay loamy / clayey, shallow



Summary of Properties

Drainage:	Moderately well drained. Parts of the profile may remain saturated for up to a week following heavy or prolonged rainfall.
Fertility:	Inherent fertility is moderately high, as indicated by the exchangeable cation data. This is due to the clay content (around 25%) and high organic matter levels of the surface layer. No nutrient deficiencies are apparent from the laboratory data, although high carbonate concentrations at shallow depth reduce the capacity for subsurface nutrient supply.
pH:	Alkaline at the surface, and increasingly alkaline with depth.
Rooting depth:	90 cm in sampling pit, but few roots below 65 cm.
Barriers to root growth:	
Physical:	The cemented carbonate layers from 40 cm impose a significant barrier to root growth; particularly from 65 cm. Roots are common in the 40-65 cm layer.
Chemical:	There are no apparent chemical barriers. Elevated salinity / chloride and exchangeable sodium in the surface layer are caused by irrigation water
Waterholding capacity:	(Estimates for potential rootzone of irrigated crops) Total available: 70 mm (above carbonate) Readily available: 30 mm (above carbonate)
Seedling emergence:	Satisfactory.
Workability:	Good.
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	7.8	7.3	0	0.39	3.05	458	3.24	21	33	434	18.7	-	1.6	0.52	15	3.1	1.08	21.4	14.5	3.80	1.90	1.18	8.9
10-25	9.0	8.2	12	0.18	1.41	128	1.19	-	5	182	8.7	538	-	-	-	-	-	21.6	16.4	3.51	1.19	0.56	5.5
25-40	8.9	8.1	27	0.27	2.48	251	1.33	-	5	180	14.3	493	-	-	-	-	-	22.2	16.7	3.49	1.45	0.53	6.5
40-65	9.1	8.1	59	0.16	1.02	99	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
65-90	9.1	8.1	51	0.18	1.29	96	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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](#)

