

GRADATIONAL RED CLAY LOAM

General Description: *Clay loam grading to a red or brown well structured clay, calcareous from shallow depth*

Landform: Alluvial plain.

Substrate: Gravelly alluvial clay, mantled by secondary carbonates.

Vegetation: Chenopod shrubland of *Maireana brevifolia* and *M. pyramidata*.



Type Site: Site No.: CU011

1:50,000 sheet: 6732-2 (Pitcairn)

Hundred:

Out of Hundreds

Annual rainfall: 270 mm

Sampling date:

26/10/93

Landform: Flat, 0% slope

Surface: Hard setting and scalded with no stones

Soil Description:

Depth (cm)	Description
0-1	Reddish brown friable fine sandy clay loam with platy structure. Abrupt to:
1-5	Light reddish brown friable massive fine sandy clay loam. Sharp to:
5-10	Yellowish red friable light clay with strong polyhedral structure. Gradual to:
10-40	Strong brown friable massive very highly calcareous light clay with 20-50% fine carbonate segregations. Gradual to:
40-70	Red firm massive highly calcareous medium clay with 2-10% fine carbonate segregations and 10-20% gravel (20-60 mm). Diffuse to:
70-150	Red firm slightly calcareous massive medium clay with 20-50% calcrete fragments (60-200 mm).



Classification: Sodic, Hypercalcic, Brown Dermosol; thin, non-gravelly, clay loamy / clayey, moderate

Summary of Properties

Drainage	Imperfectly drained. Soil may remain wet for several weeks following heavy or prolonged rainfall.
Fertility	Inherent fertility is high, as indicated by the exchangeable cation data. Levels of all tested nutrient elements are generally satisfactory by agricultural standards, although zinc and phosphorus are marginally deficient. Low organic carbon levels suggest poor nitrogen status. Nutrient requirements of chenopods are not known.
pH	Alkaline at the surface, strongly alkaline with depth.
Rooting depth	80 cm in pit, although most root growth is in the upper 5 cm.
Barriers to root growth	
Physical:	There are no apparent physical barriers.
Chemical:	High pH from 10 cm and high sodicity from 40 cm limit the root growth of agricultural plants.
Water holding capacity	Approximately 40 mm in potential root zone. Perennial shrubs with deeper root system will access more water.
Seedling emergence:	Fair. Sealing surface impedes establishment.
Workability:	Fair to good. Poor structure and sodicity causes soil to shatter when dry and puddle if worked too wet.
Erosion Potential	
Water:	Moderately low, although soil is very highly erodible.
Wind:	Moderately 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 -S 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	
0-1	8.1	7.6	0.1	0.18	1.0	0.52	16	843	-	0.8	1.5	5.7	15.0	0.4	16.6	8.2	3.4	1.20	1.57	7
1-5	8.4	7.9	0.1	0.37	3.6	0.29	15	718	-	1.1	1.32	3.4	7.6	0.2	16.5	8.7	3.6	1.71	1.42	10
5-10	8.5	7.9	0.1	0.61	5.0	0.34	13	506	-	1.4	1.4	3.2	5.5	0.2	21.1	9.7	5.4	2.04	1.38	10
10-40	9.6	8.4	23.1	0.29	1.1	0.05	8	129	-	3.2	1.1	5.0	2.0	0.3	11.0	4.5	4.6	2.17	0.39	20
40-70	9.7	8.5	16.5	0.59	4.2	0.05	12	299	-	7.0	1.5	4.9	2.0	0.3	18.2	6.1	8.2	5.39	0.78	30
70-110	9.2	8.3	8.2	0.66	4.3	0.02	14	297	-	11.4	1.2	5.9	1.8	0.5	24.9	7.4	8.8	5.68	1.04	23
110-150	8.8	8.3	7.6	0.93	7.2	0.04	12	319	-	11.0	0.8	6.3	1.7	0.5	25.1	8.4	8.2	5.23	1.13	21

Note: 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.