

CLAY LOAM OVER RED CLAY

General Description: *Red brown sandy clay loam over a red clay, calcareous with depth, grading to coarse grained alluvium*

Landform: Murray River flats.

Substrate: Coarse textured river deposits (Monoman Formation).

Vegetation:



Type Site:

Site No.:	MR007	1:50,000 mapsheet:	7029-4 (Renmark)
Hundred:	Out of Hundreds	Easting:	473550
Location:	Renmark Irrigation Area	Northing:	6215600
Sampling date:	27/09/2004	Annual rainfall:	255 mm average

Murray River flat. Hard setting surface with no stones.

Soil Description:

Depth (cm)	Description
0-12	Reddish brown hard massive light fine sandy clay loam. Clear to:
12-22	Reddish brown hard massive fine sandy clay loam. Abrupt to:
22-35	Yellowish red firm medium clay with moderate subangular blocky structure. Clear to:
35-50	Brown firm massive very highly calcareous light medium clay. Clear to:
50-75	Brown, light brownish grey and yellowish red mottled hard very highly calcareous medium heavy clay, with coarse subangular (breaking to fine polyhedral) structure and 2-10% fine carbonate segregations. Gradual to:
75-105	Pale yellow and yellowish brown soft massive clayey fine sand with occasional carbonate nodules. Gradual to:
105-150	Pale yellow, brownish yellow and light yellowish brown mottled firm massive light silty loam.



Classification: Haplic, Calcic, Red Chromosol; medium, non-gravelly, clay loamy / clayey, moderate



Summary of Properties

Drainage: Moderately well drained. The soil rarely remains wet for more than a week following heavy or prolonged rainfall (or irrigation). The coarse textured substrate layers assist deep drainage.

Fertility: Inherent fertility is moderately high, as indicated by the clay content and the exchangeable cation data. Levels of all tested nutrient elements are satisfactory.

pH: Alkaline throughout.

Rooting depth: 150 cm in pit, but most growth is in the upper 50 cm.

Barriers to root growth:

Physical: The heavy clay layer between 50 and 75 cm restricts root growth to some extent, but does not prevent it.

Chemical: Slightly elevated salinity from 35 cm may affect root growth.

Waterholding capacity: (Estimates for potential rootzone of irrigated crops)

Total available: 120 mm

Readily available: 60 mm

Seedling emergence: Fair, due to the tendency of the surface soil to set hard.

Workability: Fair to satisfactory. If worked too dry the soil shatters; if worked too wet, it is prone to puddling.

Erosion Potential:

Water: Low.

Wind: Low.

Laboratory Data

Depth cm	pH H ₂ O	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 mg/kg	Boron mg/kg	Trace Elements mg/kg (EDTA)				Sum cations cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
												Cu	Fe	Zn	Mn		Ca	Mg	Na	K	
0-12	7.9	7.1	0	0.122	0.61	1.33	77	528	33	9.9	1.1	30.8	101	9.24	323	18.5	13.2	3.41	0.48	1.42	2.6
12-22	7.9	7.1	0	0.095	0.41	0.76	69	584	16	21	0.5	22.5	92	6.11	335	16.8	10.9	4.07	0.48	1.31	2.9
22-35	7.6	7.1	0	0.252	1.41	0.32	41	411	42	119	0.4	5.13	64	1.24	353	21.5	13.1	6.94	0.35	1.06	1.6
35-50	8.1	7.5	3	0.425	2.51	0.23	23	305	150	260	0.3	2.88	17	0.8	84.6	26.6	17.4	8.32	0.15	0.81	0.6
50-75	8.4	7.8	6	0.415	2.46	0.14	11	208	146	197	0.4	1.46	11	0.64	18.8	25.3	17.7	6.53	0.55	0.55	2.2
75-105	8.7	7.8	1	0.194	1.66	0.09	8	152	91	54	0.3	1.44	27	0.63	147	13.3	8.99	3.32	0.61	0.39	4.6
105-150	8.5	7.7	1	0.206	1.98	0.12	15	240	129	57	0.5	4.39	40	1.72	321	14.8	9.38	4.12	0.75	0.55	5.0

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](#)

