SANDY LOAM OVER RED CLAY

General Description: *Hard sandy loam over a well structured red clay, calcareous with depth*

Landform: Plain

Substrate: Alluvial silty clay loam with windblown carbonates in the upper sections

Vegetation:

Type Site:

Site No.:	CL057	1:50,000 mapsheet:	6628-4 (Gawler)
Hundred:	Munno Para	Easting:	278220
Section:	3051	Northing:	6159960
Sampling date:	24/10/2008	Annual rainfall:	440 mm average

Level plain. Hard setting surface with minor quartz pebbles and grit.

Soil Description:

Depth (cm)	*Description*
0-12	Dark reddish brown (5YR3/3) hard massive sandy loam with 2-10% quartz gravel (to 6mm). Gradual to:
12-25	Dark reddish brown (5YR3/4) firm massive sandy loam with 2-10% quartz gravel (to 6 mm). Clear to:
25-42	Red (2.5YR4/6) hard light medium clay with weak coarse subangular structure, breaking to strong medium subangular blocky. Clear to:
42-65	Reddish yellow (5YR6/8) and reddish brown (5YR4/4) firm very highly calcareous weakly structured fine sandy light clay with more than 50% fine carbonate segregations and 10-20% carbonate nodules (6-20 mm). Diffuse to:
65-90	Reddish yellow (5YR6/8) and reddish brown (5YR4/4) firm moderately calcareous fine sandy light clay with 20-50% carbonate nodules (6-20 mm) and 20-50% fine carbonate segregations. Diffuse to:
90-130	Strong brown (7.5YR4/6) and brown (5YR4/4) friable silty clay loam with moderate fine subangular blocky structure and 20-50% carbonate nodules (20-60 mm).

Classification: Haplic, Supracalcic, Red Chromosol; medium, slightly gravelly, loamy / clayey, deep

Summary of Properties

Drainage: Moderately well drained. Water may pond on the hard, sealing surface, and the subsoil clay will perch water after heavy or prolonged rainfall, but no part of the profile is likely to remain wet for more than a few days.

Fertility: Inherent fertility is moderate, as indicated by the exchangeable cation data. The sandy loam surface has adequate nutrient retention capacity, which would be improved with higher levels of organic matter. Test data indicate that there are no nutrient deficiencies. These data should not be considered as indicative of similar soils in the district, due to the uncertain history of the site.

pH: Alkaline throughout (surface alkalinity at least partly due to carbonate contamination).

Rooting depth: 90 cm in pit, but few roots below 65 cm.

Barriers to root growth:

Physical: There are no significant physical barriers.

Chemical: Elevated salinity / chloride levels from 42 cm affect root growth of sensitive species.

Waterholding capacity: (Estimates for potential rootzone of irrigated crops)
Total available: 100 mm
Readily available: 45 mm

Seedling emergence: Fair due to hard setting, sealing surface.

Workability: Fair. Surface soil tends to shatter if worked too dry, and puddle if worked too wet.

Erosion Potential:

Water: Low.

Wind: Low.

Laboratory Data

Depth cm	pH H_2O	pH $CaCl_2$	CO_3 %	EC1:5 dS/m	ECe dS/m	Cl mg/kg	Org.C %	Avail. P mg/kg	Avail. K mg/kg	SO_4-S mg/kg	Boron mg/kg	Trace Elements mg/kg (EDTA)				Sum cations cmol (+)/kg	Exchangeable Cations cmol(+)/kg				Est. ESP
												Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
0-12	8.4	7.5	1.4	0.18	0.79	12	1.58	319	1373	10.6	1.4	7.26	124	69.0	12.9	8.1	5.80	1.30	0.08	0.93	1.0
12-25	8.4	7.6	1.1	0.19	0.66	33	1.29	280	454	18.7	1.2	7.61	122	66.8	11.8	8.6	6.37	1.53	0.11	0.61	1.3
25-42	8.4	7.7	0	0.33	2.85	212	0.75	120	687	61.4	3.3	3.85	42	94.5	1.84	12.4	7.47	3.08	0.53	1.35	4.3
42-65	8.6	8.0	5.0	0.73	4.89	541	0.45	15	510	170	4.2	1.25	9	8.05	0.82	18.4	14.7	2.44	0.34	0.92	1.9
65-90	8.7	8.1	11.9	0.69	4.40	539	0.34	4	536	101	4.7	0.97	9	8.36	0.75	14.9	11.3	2.56	0.26	0.71	1.8
90-130	8.7	8.1	3.2	0.48	2.42	345	0.31	2	609	49	5.7	1.34	20	42.2	0.85	11.8	6.80	3.92	0.20	0.87	1.7

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.

Soil results are from a single point sample and are indicative only. They may not reflect the general condition of the rest of the paddock. Also, plant responses relating to nutrition measurements can vary between soil types and plant species, so values are indicative only.

Further information: DEWNR Soil and Land Program