SANDY LOAM OVER RED CLAY

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

Landform: Level plain.

Substrate: Calcareous clay with calcrete segregations and pans (Padthaway Formation).

Vegetation:

Type Site: Site No.: SE040

1:50,000 sheet:	6924-1 (Marcollat)	Hundred:	Parsons
Annual rainfall:	550 mm	Sampling date:	15/09/95
Landform:	Flat plain, 0% slope		
Surface:	Hard setting with no stones		

Soil Description:

Depth (cm)	*Description*
0-15	Dark brown friable massive fine sandy loam. Abrupt to:
15-28	Brown soft massive loamy sand. Sharp to:
28-45	Dark reddish brown firm massive medium clay. Diffuse to:
45-80	Reddish brown firm medium heavy clay with moderate coarse prismatic breaking to subangular blocky structure. Sharp to:
80-85	Yellowish red massive highly calcareous medium clay (uncemented carbonate pan). Abrupt to:
85-120	Yellowish red calcareous medium clay with more than 50% carbonate nodules (60-200 mm).

Classification: Sodic, Lithocalcic, Red Chromosol; medium, non-gravelly, loamy / clayey, deep

Summary of Properties

Drainage Well drained. The soil rarely remains wet for more than a couple of days at a time.

Fertility Inherent fertility is moderate, as indicated by the exchangeable cation data. Nutrient retention capacity of the surface soil is sub optimal due to the low clay content, and relies on organic matter to supplement exchange capacity. Organic carbon levels are low at the sampling site. The subsoil has a very high retention capacity. Concentrations of all measured elements, except phosphorus, are adequate.

pH Neutral at the surface, alkaline with depth.

Rooting depth 120 cm in pit, but few roots below 80 cm.

Barriers to root growth

Physical: The hard carbonate layer at 80 cm restricts deeper root growth.

Chemical: There are no chemical barriers.

Water holding capacity Approximately 125 mm in the root zone.

Seedling emergence: Fair due to hard setting sealing surface.

Workability: Fair. The poorly structured surface soil has a limited moisture range within which it can be effectively cultivated.

Erosion Potential

Water: Low.

Wind: Low.

Laboratory Data

Depth cm	pH H_2O	pH $CaC1_2$	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	
Row	7.9	7.4	<0.1	0.11	0.40	1.1	16	369	5	1.2	4.7	12	8.2	0.95	11.1	7.68	1.99	0.22	0.92	2.0
0-15	6.7	6.2	-	0.07	0.62	1.6	19	423	8	1.2	-	-	-	-	10.1	10.2	1.26	0.10	1.08	1.0
15-28	7.1	6.7	-	0.05	0.22	0.5	8	256	6	0.7	-	-	-	-	5.7	5.04	0.83	<0.1	0.57	na
28-45	7.5	6.9	0.1	0.09	0.15	0.8	<4	551	<1	2.8	-	-	-	-	35.2	22.0	4.52	1.03	2.02	2.9
45-80	7.8	7.0	<0.1	0.10	0.21	0.7	<4	551	9	2.9	-	-	-	-	41.6	26.7	4.88	1.93	2.20	4.6
80-85	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
85-120	8.5	7.9	15.7	0.20	0.37	0.4	<4	616	7	2.9	-	-	-	-	37.6	28.0	4.51	2.32	2.24	6.2

Note: Row sample bulked from 20 cores (0-10 cm) taken from along rows 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