LOAM OVER RED CLAY ON WEATHERING ROCK

General Description: *Medium thickness hard loam over a well structured red clay, calcareous at depth, grading to weathering basement rock*

Landform: Slopes of rises and low hills

Substrate: Weathering fine grained basement rock with fine carbonate leached into fissures

Vegetation:

Type Site: Site No.: CL002

1:50,000 sheet:	6629-1 (Riverton)	Hundred:	Gilbert
Annual rainfall:	500 mm	Sampling date:	09/03/92
Landform:	Upper slope of undulating rise, 4% slope		
Surface:	Hard setting, no stones		

Soil Description:

Depth (cm)	*Description*
0-16	Dark reddish brown hard massive loam. Abrupt to:
16-60	Dark reddish brown firm light clay with strong polyhedral structure. Clear to:
60-92	Light brown very highly calcareous weakly structured light clay with 20-50% soft carbonate segregations and siltstone fragments. Gradual to:
92-127	Light brown highly calcareous massive silty loam (decomposing siltstone) with hard fragments. Gradual to:
127-150	Weathering siltstone with minor soft carbonate in fissures.

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

Summary of Properties

Drainage: Well drained. Although the clayey subsoil prevents free drainage, the soil is unlikely to remain wet for more than a day or two following heavy or prolonged rainfall.

Fertility: Natural fertility is high, as indicated by the exchangeable cation data. Both surface and subsoil have favourable nutrient retention capacities, due to high organic matter, and clay contents respectively. Phosphorus levels are just adequate, and zinc may be marginally deficient. Concentrations of other tested nutrient elements are satisfactory.

pH: Neutral at the surface, strongly alkaline in the deep subsoil.

Rooting depth: 100 cm in pit, but few roots below 60 cm.

Barriers to root growth:

Physical: Apart from a slight restriction caused by the poorly structured surface soil, there are no physical barriers above the basement rock, which is deeper than the rootzone of annual crop and pasture plants.

Chemical: High pH from 60 cm, and very high pH from 90 cm restrict root growth. Manganese may become toxic if soil acidifies. Boron and soluble salt levels are low.

Water holding capacity: Approximately 90 mm in rootzone.

Seedling emergence: Fair to good, depending on organic matter levels.

Workability: Fair to good. Moisture range for effective working is boosted by the high organic matter levels.

Erosion Potential

Water: Moderately low. Soil is erodible, but upper slopes are not particularly vulnerable.

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	
Paddock	7.2	6.5	2.1	0.11	-	1.82	30	920	-	-	1.7	16	16	0.45	17.0	16.5	3.51	0.18	2.13	1.1
0-16	8.0	7.2	1.6	0.12	0.6	1.51	14	670	-	-	1.6	6.8	12	0.24	17.9	16.2	2.63	0.13	1.63	0.7
16-60	8.2	7.4	2.4	0.12	0.4	0.80	5	230	-	1.1	1.6	5.8	12	0.11	15.8	16.0	2.68	0.23	0.62	1.5
60-92	9.2	8.1	45.5	0.16	1.0	0.35	4	110	-	1.4	0.74	3.5	1.9	0.11	5.5	5.72	3.11	0.54	0.14	9.8
92-127	9.6	8.4	35.6	0.12	0.6	0.19	1	65	-	0.6	0.42	2.1	1.3	0.08	2.2	2.28	1.72	0.33	0.03	na

Note: Paddock sample bulked from cores (0-15 cm) taken 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.