LOAMY SAND OVER BROWN AND RED MOTTLED CLAY

General Description: *Thick loamy sand with a bleached and sandier subsurface layer, abruptly overlying a brown and red mottled coarsely structured clay, weakly calcareous with depth*

Landform: Ancient alluvial plains.

Substrate: Fine to medium grained alluvial sediments.

Vegetation:

Type Site: Site No.: CL041

1:50,000 sheet:	6729-3 (Truro)	Hundred:	Moorooroo
Annual rainfall:	510 mm	Sampling date:	29/11/04
Landform:	Flat plain, 0% slope		
Surface:	Soft with no stones		

Soil Description:

Depth (cm)	*Description*
0-15	Brown soft single grain loamy sand. Clear to:
15-35	Pink (bleached) soft single grain sand. Abrupt to:
35-65	Yellowish brown, brown and red mottled very hard medium clay with moderate coarse prismatic structure, breaking to strong medium polyhedral. Clear to:
65-90	Red, brown and strong brown mottled very hard medium clay with moderate coarse prismatic structure, breaking to strong medium polyhedral. Diffuse to:
90-125	Red, brown and strong brown mottled hard medium clay with strong medium polyhedral structure and 2-10% soft manganese segregations. Diffuse to:
125-170	Dark yellowish brown, strong brown and yellowish red mottled firm slightly calcareous fine sandy light clay with weak polyhedral structure and 2-10% fine carbonate segregations.

Classification: Bleached-Sodic, Hypocalcic, Brown Chromosol; thick, non-gravelly, sandy / clayey, very deep

Summary of Properties

Drainage: Moderately well drained. Water perches on top of the subsoil clay for periods of up to a week following heavy or prolonged rainfall.

Fertility: Inherent fertility is low, as indicated by the exchangeable cation data. Most of the surface soil's nutrient retention capacity is provided by organic matter. However, subsoil reserves of calcium, magnesium and potassium are high. Data at test site indicate deficiencies of phosphorus, zinc and manganese.

pH: Alkaline throughout. High surface values possibly due to past clay spreading or liming.

Rooting depth: 140 cm in pit, but few roots below 90 cm.

Barriers to root growth:

Physical: The hard clay subsoil prevents uniform root distribution.

Chemical: There are no apparent chemical barriers.

Water holding capacity: (Estimates for potential root zone of irrigated crops)

Total available: 135 mm
Readily available: 60 mm

Seedling emergence: Satisfactory.

Workability: The sandy surface is easily worked over a range of moisture conditions.

Erosion Potential

Water: Low.

Wind: Moderately low.

Laboratory Data

Depth cm	pH H_2O	pH $CaC1_2$	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-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	
0-15	8.0	7.4	0	0.046	0.40	0.64	16	181	2	3.9	0.5	9.34	71	16.1	1.92	4.1	3.18	0.39	0.04	0.47	1.0
15-35	7.8	7.1	0	0.026	0.38	0.14	9	230	2	1.5	0.2	2.33	46	11.9	0.45	1.7	0.90	0.15	0.04	0.58	na
35-65	7.8	6.8	0	0.047	0.45	0.36	3	568	15	6.8	0.9	2.39	37	11.6	0.61	17.5	9.02	6.34	0.63	1.48	3.6
65-90	7.8	6.8	0	0.059	0.33	0.21	2	412	27	15.9	1.6	1.14	25	12.4	0.33	15.5	7.09	6.41	0.91	1.04	5.9
90-125	8.1	7.2	0	0.075	0.56	0.15	6	322	39	10.9	2.0	1.74	28	44.7	0.48	16.3	7.63	6.83	1.01	0.81	6.2
125-170	8.3	7.4	0.3	0.090	0.67	0.13	2	289	42	8.7	1.8	1.53	34	75.2	0.39	12.6	6.60	4.61	0.76	0.61	6.0

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.