SANDY LOAM OVER RED CLAY

General Description: *Hard setting sandy loam over a red clay, calcareous with depth grading to alluvium*

Landform: Low level flats in landscape of undulating low hills.

Substrate: Medium grained alluvium capped by fine windblown carbonate.

Vegetation:

Type Site: Site No.: MO045

1:50,000 sheet:	6727-4 (Monarto)	Hundred:	Freeling
Annual rainfall:	400 mm	Sampling date:	1976
Landform:	Flat		
Surface:	Hard setting with no stones		

Soil Description:

Depth (cm)	*Description*
0-14	Reddish brown hard massive sandy loam with 10-20% quartz gravel (2-6 mm). Sharp to:
14-29	Dusky red hard sandy light clay with moderate angular blocky structure. Clear to:
29-44	Reddish yellow massive very highly calcareous loam with more than 50% soft to semi hard carbonate segregations. Gradual to:
44-60	Yellowish red massive very highly calcareous sandy clay loam with more than 50% fine carbonate segregations. Clear to:
60-85	Yellowish red massive hard highly calcareous sandy light clay with 20-50% quartz gravel (6-20 mm) and 10-20% fine carbonate segregations. Clear to:
85-95	Grey massive soft clayey sand with 10-20% fine carbonate segregations. Clear to:
95-170	Red and dark greyish brown mottled massive hard loam with 2-10% fine carbonate segregations. Diffuse to:
170-200	Greyish brown and yellowish brown massive hard loam with 2-10% fine carbonate segregations.

Classification: Hypercalcic, Subnatric, Red Sodosol; medium, gravelly, loamy / clayey, moderate

Summary of Properties

Drainage: Moderately well drained. The soil may remain wet for up to a week following heavy or prolonged rainfall.

Fertility: Inherent fertility is moderately high, as indicated by the exchangeable cation data. Clay content is sufficiently high that there is adequate nutrient retention. Apart from nitrogen and phosphorus, zinc is the most likely deficiency.

pH: Slightly acidic at the surface, strongly alkaline with depth.

Rooting depth: Not recorded. Estimate 85 cm in pit with few roots below 60 cm

Barriers to root growth:

Physical: The semi hard carbonate layer restricts root growth to a variable extent.

Chemical: High sodicity / alkalinity in the deep subsoil prevents deeper root growth.

Water holding capacity: Approximately 90 mm in the potential root zone.

Seedling emergence: Fair due to hard setting surface.

Workability: Fair due to hard setting 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	Coarse sand %	Fine sand %	Silt %	Clay %	pH H_2O	CO_3 %	EC 1:5 dS/m	Cl mg/kg	CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
										Ca	Mg	Na	K	
0-14	31	50	4	18	6.5	0	0.11	64	10	5.8	1.1	0.19	1.8	2
14-29	23	40	5	32	8.3	0	0.09	88	16	8.1	3.5	1.3	0.91	8
29-44	23	30	10	16	9.3	-	0.26	180	-	-	-	-	-	-
44-60	8	51	14	18	9.5	20	0.24	126	10	5.6	3.5	1.6	0.45	16
60-85	-	-	-	-	9.9	-	0.25	114	-	-	-	-	-	-
85-95	-	-	-	-	10.0	-	0.31	126	-	-	-	-	-	-
95-170	-	-	-	-	9.9	4	0.50	356	10	2.0	4.2	3.6	0.80	36
170-200	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Note: 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.