LOAM OVER DARK CLAY ON CALCIFIED ROCK

General Description: *Medium thickness hard loam to clay loam over a strongly structured dark coloured clay, highly calcareous at depth, forming in weathering basement rock within 100 cm.*

Landform: Undulating rises and low hills.

Substrate: Schists and phyllites, mantled by fine carbonates.

Vegetation:

Type Site: Site No.: MO003

1:50,000 sheet:	6727-4 (Monarto)	Hundred:	Monarto
Annual rainfall:	375 mm	Sampling date:	1976
Landform:	Midslope of undulating rise, 4% slope		
Surface:	Hard setting with no stones		

Soil Description:

Depth (cm)	*Description*
0-20	Dark reddish brown hard loam with weak subangular blocky structure and 2-10% quartz gravel. Sharp to:
20-29	Black hard medium clay with strong prismatic structure. Sharp to:
29-35	Black hard medium clay with strong prismatic structure, 10-20% fine carbonate and 2-10% schist gravel (6-20 mm). Clear to:
35-40	Very pale brown massive firm highly calcareous sandy clay loam with 2-10% schist gravel (6-20 mm). Clear to:
40-60	Pink hard massive loam with 20-50% fine carbonate and 20-50% schist gravel (carbonate in highly weathered rock). Abrupt to:
60-100	Weathering schist with 10-20% calcareous segregations.

Classification: Sodic, Hypercalcic, Black Chromosol; medium, slightly gravelly, loamy / clayey, moderate

Summary of Properties

Drainage: Well drained. Water perches temporarily on subsoil clay, but profile is rarely saturated for more than a few days following heavy or prolonged rainfall.

Fertility: Inherent fertility is high, as indicated by the exchangeable cation data. Both topsoil and subsoil have good nutrient retention characteristics - only nitrogen and phosphorus are required on a regular basis.

pH: Neutral at the surface, alkaline with depth.

Rooting depth: Not recorded. Estimate 40 cm in pit.

Barriers to root growth:

Physical: The coarsely structured clay impedes root growth to some extent, as does the parent rock when hardness increases at depth.

Chemical: High carbonate content in lower subsoil restricts root growth.

Water holding capacity: Approximately 60 mm in the root zone.

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

Workability: Fair. Surface soil tends to puddle when wet and set hard when dry. Surface stone affects cultivation in places.

Erosion Potential

Water: Moderate low to moderately high, depending on degree of slope.

Wind: Low.

Laboratory Data

Depth cm	Coarse sand %	Fine sand %	Silt %	Clay %	pH H_20	CO_3 %	EC 1:5 dS/m	Cl mg/kg	CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
										Ca	Mg	Na	K	
0-20	11	49	11	25	7.2	0	0.07	<50	26	14.0	3.6	0.33	1.8	1.3
20-29	11	39	12	34	7.5	0	<0.06	<50	37	19.0	4.3	0.49	1.2	1.3
35-40	9	24	3	21	9.1	40	0.15	80	18	13.0	3.5	1.1	0.34	6.1

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.