

HARD SANDY LOAM OVER DISPERSIVE RED CLAY (Loamy flat soil)

General Description: *Hard loamy surface soil overlying a red strongly structured clayey subsoil with soft carbonate at depth*

Landform: Depressions and flats

Substrate: Alluvial clay, mantled by soft carbonate

Vegetation: Bladder saltbush and pearl bluebush shrubland



Type Site: Site No.: CM070

1:50,000 sheet: 6831-3

Annual rainfall: 215 mm

Landform: Flat, 0% slope

Surface: Hard setting with no stones

Hundred:

Out of Hundreds

Sampling date:

06/10/95

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-13	Reddish brown firm massive slightly calcareous light sandy clay loam. Abrupt to:
13-15	Pink (dry) firm massive slightly calcareous light sandy clay loam. Abrupt to:
15-35	Dark reddish brown firm medium clay with strong coarse prismatic structure, breaking to subangular blocky. Abrupt to:
35-65	Reddish brown hard highly calcareous light medium clay with coarse prismatic structure and 10-20% soft carbonate. Gradual to:
65-105	Brown and olive mottled hard highly calcareous medium clay with strong coarse prismatic structure and 10-20% soft carbonate. Gradual to:
105-120	Yellowish brown and light grey mottled very hard calcareous sandy clay with moderate coarse blocky structure.



Classification: Calcic, Subnatric, Red Sodosol; medium, non-gravelly, loamy / clayey, deep

Summary of Properties

Drainage Moderately well drained. The sodic and dispersive B horizon clay will not allow free movement of water, causing a perched water table to develop for a week or so following heavy rain. Runoff into the flat will accentuate the water perching situation.

Fertility Natural fertility is moderately high as indicated by the exchangeable cation data.

pH Alkaline to strongly alkaline throughout.

Rooting depth 105 cm in pit, but few roots below 65 cm.

Barriers to root growth

Physical: Hard dispersive clay subsoil clogs up preventing good root distribution.

Chemical: High boron (from 35 cm) and marginal salinity, pH and sodicity (from 65 cm) affect root growth in some species.

Water holding capacity Approximately 90 mm in root zone, although not all is available in lower profile. This is offset by the soil's topographic position - lower slope areas collect additional water from surrounding higher ground.

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

Erosion Potential

Water: Low due to the flatness of the land.

Wind: Moderately low - pulverizing by stock will create an erosion hazard.

Laboratory Data

Depth cm	pH H ₂ O	pH CaCl 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		
0-13	8.6	8.1	0.2	0.09	0.38	0.4	5	424	4	1.0	-	-	-	-	9.2	6.15	2.25	0.16	1.05	1.7	
13-15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15-35	9.1	8.3	0.5	0.22	0.79	0.3	<4	434	6	2.3	-	-	-	-	27.3	10.2	12.1	2.94	1.61	10.8	
35-65	9.0	8.4	13.5	0.62	3.83	0.2	<4	347	18	6.5	-	-	-	-	21.5	6.66	11.7	3.70	1.22	17.2	
65-105	9.0	8.5	13.6	1.30	7.56	0.1	<4	314	128	31.3	-	-	-	-	16.5	4.82	9.36	4.01	0.95	24.3	
105-120	8.8	8.5	1.0	1.50	7.37	0.1	<4	227	269	31.4	-	-	-	-	12.8	3.68	6.95	3.30	0.52	25.8	

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.