

RUBBLY CALCAREOUS SANDY LOAM

General Description: *Calcareous sandy loam grading to a rubble layer and with increasing clay content at depth*

Landform: Undulating plains.

Substrate: Coarsely structured red and grey Tertiary (Hindmarsh) Clay, mantled by Woorinen Formation carbonates.

Vegetation:



Type Site: Site No.: CY038

1:50,000 sheet:	6430-2 (Alford)	Hundred:	Wiltunga
Annual rainfall:	360 mm	Sampling date:	12/03/96
Landform:	Flat		
Surface:	Hard setting with minor calcrete stones (20-60 mm)		

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-5	Dark brown friable highly calcareous fine sandy loam with weak granular structure. Abrupt to:
5-11	Dark brown hard cloddy highly calcareous fine sandy loam (plough pan). Abrupt to:
11-23	Dark brown firm massive very highly calcareous clay loam. Clear to:
23-38	Brown friable massive very highly calcareous clay loam with more than 50% carbonate nodules (20-60 mm). Clear to:
38-68	Brown friable very highly calcareous light clay with 50-90% carbonate nodules and fragments (20-200 mm). Gradual to:
68-115	Strong brown friable massive very highly calcareous light medium clay. Gradual to:
115-155	Yellowish red very hard moderately calcareous medium clay with moderate coarse subangular blocky structure.



Classification: Endohypersodic, Regolithic, Lithocalcic Calcarosol; medium, non-gravelly, loamy/clayey, deep

Summary of Properties

Drainage	Moderately well to well drained. The soil may remain wet for up to a week following heavy or prolonged rainfall.
Fertility	Inherent fertility is moderate, as indicated by the exchangeable cation data. However, low surface organic matter and phosphorus levels reduce productive potential. High amounts of fine carbonate in the subsoil reduce availability of trace elements.
pH	Alkaline at the surface, strongly alkaline with depth.
Rooting depth	75 cm in pit.
Barriers to root growth	
Physical	Cloddy structure in the subsurface (5-11 cm) creates a sub-optimal environment for root growth.
Chemical	High sodicity, pH and boron concentrations from 68 cm restrict deeper root growth.
Water holding capacity	Approximately 60 mm (moderately low) in rootzone.
Seedling emergence	Fair to good. Organic matter levels need to be maintained to preserve surface structure.
Workability	Good.
Erosion Potential	
Water	Low.
Wind	Low.

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	
Paddock	8.5	8.0	4.0	0.12	0.89	1.0	18	337	6	2.4	0.39	4	4.51	0.72	8.7	7.68	1.03	0.08	0.82	0.9
0-5	8.3	7.8	4.9	0.13	0.83	1.8	44	577	8	3.3	-	-	-	-	14.2	11.08	1.41	0.15	1.53	1.0
5-11	8.4	7.9	5.7	0.15	1.05	1.3	18	380	8	2.8	-	-	-	-	12.0	10.13	1.21	0.10	1.03	0.8
11-23	8.5	8.0	26.9	0.15	0.61	1.7	5	300	8	4.3	-	-	-	-	16.5	16.03	2.51	0.23	0.80	1.4
23-38	9.1	8.5	34.9	0.28	1.31	0.9	5	116	33	10.5	-	-	-	-	15.7	7.17	9.65	1.29	0.33	8.2
38-68	9.4	8.7	38.4	0.36	1.96	0.5	6	186	31	15.6	-	-	-	-	11.9	2.35	10.47	2.01	0.50	16.9
68-115	9.9	8.6	59.8	0.64	3.43	0.1	<4	298	76	19.9	-	-	-	-	7.9	0.98	4.49	4.18	0.81	52.6
115-155	9.7	8.8	25.5	0.82	2.26	<0.1	<4	495	96	33.9	-	-	-	-	16.4	1.69	6.64	8.23	1.33	50.3

Note: Paddock sample bulked from 20 cores (0-10 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