

DEEP GRADATIONAL CALCAREOUS LOAMY SAND

General Description: *Calcareous loamy sand to sandy loam becoming more clayey and calcareous at depth, and with variable rubble*

Landform: Undulating plains with sandhills.

Substrate: Very highly calcareous coarse to medium grained Woorinen Formation deposits.

Vegetation:



Type Site: Site No.: CY037

1:50,000 sheet: 6430-2 (Alford)
 Annual rainfall: 360 mm
 Landform: Dune slope of 4%
 Surface: Loose with no stones

Hundred: Wiltunga
 Sampling date: 12/03/96

Soil Description:

Depth (cm)	Description
0-15	Brown loose moderately calcareous loamy sand. Clear to:
15-38	Dark brown soft highly calcareous loamy sand. Clear to:
38-73	Strong brown hard massive very highly calcareous sandy loam. Clear to:
73-87	Brownish yellow friable massive very highly calcareous light sandy clay loam with 10-20% calcrete fragments (20-60 mm). Clear to:
87-140	Brown soft massive very highly calcareous sandy loam. Gradual to:
140-160	Strong brown friable massive very highly calcareous sandy clay loam.



Classification: Ceteric, Regolithic, Hypercalcic Calcarosol; thick, non-gravelly, sandy / loamy, deep

Summary of Properties

Drainage	Rapidly drained. The soil is never wet for more than a few hours.
Fertility	Inherent fertility is low, as indicated by the exchangeable cation data. Low surface clay and organic matter levels restrict nutrient retention capacity. Sulphur, copper, zinc and phosphorus levels are all marginal. Availability of trace elements is further reduced by fine carbonates in the subsoil.
pH	Alkaline throughout.
Rooting depth	Not recorded. Potential root zone depth is 150 cm.
Barriers to root growth	
Physical	There are no physical barriers.
Chemical	There are no toxicity barriers - poor root distribution is likely to be the result of low nutrient status and retention capacity, combined with reduced nutrient availability in the highly calcareous subsoil.
Water holding capacity	Approximately 150 mm in the potential root zone, but 90 mm is probably more realistic (assume roots to 87 cm).
Seedling emergence	Good.
Workability	Good.
Erosion Potential	
Water	Low.
Wind:	Moderate to moderately high. Surface cover needs to be maintained to prevent erosion.

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	8.7	8.1	1.2	0.09	0.67	0.4	20	254	5	1.2	0.17	3	2.71	0.56	3.5	3.52	0.50	0.11	0.46	3.0
0-15	8.6	8.0	1.2	0.09	0.65	0.7	27	266	5	1.4	-	-	-	-	4.3	3.99	0.47	0.04	0.52	0.8
15-38	8.7	8.1	1.9	0.08	0.41	0.6	9	255	4	1.6	-	-	-	-	4.7	4.42	0.51	0.05	0.51	1.1
38-73	8.9	8.1	8.8	0.09	0.35	0.2	<4	290	4	1.4	-	-	-	-	6.0	4.88	0.90	0.06	0.67	1.1
73-87	8.8	8.1	12.1	0.10	0.61	0.2	<4	158	5	1.4	-	-	-	-	5.0	4.05	1.16	0.04	0.38	0.8
87-140	9.0	8.2	7.1	0.09	0.47	0.2	<4	117	4	1.4	-	-	-	-	5.2	3.53	2.38	0.13	0.27	2.5
140-160	9.2	8.3	11.5	0.10	0.49	0.2	<4	206	7	2.4	-	-	-	-	5.0	2.18	3.32	0.20	0.48	4.0

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