

THICK SAND OVER BROWN MOTTLED CLAY

General Description: *Loamy sand to sandy clay loam surface soil sharply overlying yellow, brown and red mottled clay*

Landform: Slopes of undulating to rolling rises and low hills.

Substrate: Sandy clays and sandstones of Permian glacial valleys

Vegetation: Blue gum woodland



Type Site: Site No.: CH102

1:50,000 sheet:	6526-4 (Cape Jervis)	Hundred:	Yankalilla
Annual rainfall:	750 mm	Sampling date:	17/10/96
Landform:	Midslope of undulating low hills, 12% slope		
Surface:	Firm with no stones		

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-12	Dark greyish brown soft single grain light sandy loam. Clear to:
12-27	Brown, dark grey and pale brown speckled soft single grain loamy sand. Clear to:
27-45	Light grey and yellowish brown mottled soft single grain loamy sand with 2-10% quartz gravel. Abrupt to:
45-65	Yellowish brown, grey and red mottled firm heavy clay with strong coarse blocky structure. Clear to:
65-95	Yellowish brown, white, brown and red mottled firm fine sandy light clay with moderate coarse blocky structure. Clear to:
95-110	White, brownish yellow, brown and reddish yellow mottled friable fine sandy light clay with weak very coarse blocky structure.



Classification: Bleached-Mottled, Eutrophic, Brown Chromosol; thick, non-gravelly, sandy / clayey, moderate

Summary of Properties

Drainage	Imperfect. Water will "perch" on top of the impermeable clay subsoil, saturating the bleached layer for weeks at a time.
Fertility	Moderately low natural fertility due to the low clay content of the surface soil. Phosphorus, magnesium, copper and zinc levels are low; other measured elements are satisfactory. Organic carbon levels are high at this site.
pH	Acidic throughout, strongly so at base of profile. Dolomite is required to correct problem.
Rooting depth	95 cm in pit, but few roots below 65 cm.
Barriers to root growth	
Physical:	The hard subsoil clay causes uneven root distribution patterns, thus affecting water and nutrient uptake.
Chemical:	There are no chemical barriers.
Water holding capacity	Approximately 70 mm in root zone.
Seedling emergence:	Good, although water repellence is a problem in some years.
Workability:	Good.
Erosion Potential	
Water:	High. The slope is moderate, but the soil is highly erodible due to the low strength of the sandy surface.
Wind:	Moderate. The sandy surface is easily disturbed.

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 (EDTA)				CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
											Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
Paddock	6.0	5.3	0	0.08	0.50	3.3	16	244	21	1.2	0.7	362	52	3.0	10.9	6.98	0.95	0.20	0.46	1.8
0-12	5.8	5.0	0	0.05	0.32	2.8	12	196	13	0.9	-	-	-	-	9.4	6.18	0.73	0.23	0.40	2.5
12-27	6.1	5.4	0	0.04	0.19	2.9	7	87	10	0.5	-	-	-	-	11.4	8.81	0.57	0.22	0.16	1.9
27-45	6.8	6.3	0	0.03	0.14	0.3	<4	33	8	0.2	-	-	-	-	1.9	1.39	0.14	0.11	0.05	5.9
45-65	6.6	5.9	0	0.06	0.12	0.6	<4	110	11	1.3	-	-	-	-	12.0	6.61	3.48	0.33	0.31	2.7
65-95	5.9	5.2	0	0.07	0.28	0.3	<4	83	23	1.3	-	-	-	-	8.3	2.73	3.51	0.31	0.22	3.7
95-110	4.8	4.2	0	0.07	0.30	0.2	<4	42	26	1.0	-	-	-	-	5.0	0.93	2.03	0.22	0.07	4.3

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.