

SAND OVER SODIC CLAY

General Description: *Medium to thick sand over a coarsely columnar dispersive brown clay, calcareous with depth*

Landform: Level plains and gentle slopes.

Substrate: Tertiary sandy clay to clay

Vegetation:



Type Site: Site No.: CL024
 1:50,000 sheet: 6629-2 (Kapunda) Hundred: Belvidere
 Annual rainfall: 500 mm Sampling date: 01/11/95
 Landform: Very gentle slope of 1.5%
 Surface: Loose with no stones

Soil Description:

Depth (cm)	Description
0-10	Loose pink sand (recent wind deposited layer). Abrupt to:
10-28	Brown and dark brown loose loamy sand. Abrupt to:
28-38	Very pale brown (bleached) with brown mottles loose sand. Sharp to:
38-50	Yellowish brown, light grey and orange mottled hard sandy heavy clay with very coarse columnar structure. Clear to:
50-75	Strong brown, yellowish brown and light grey mottled hard heavy clay with strong coarse blocky structure. Clear to:
75-130	Olive yellow and brownish yellow hard sandy medium clay with coarse prismatic structure and minor fine and nodular carbonate segregations.



Classification: Calcic, Mottled-Mesonatric, Brown Sodosol; thick, non-gravelly, sandy / clayey, deep

Summary of Properties

Drainage: Moderately well drained. Water will perch on the dispersive clay subsoil for up to a week at a time, waterlogging the bleached sand layer. This is a potential problem under irrigation.

Fertility: Natural fertility is low due to the sandy surface (low nutrient retention capacity). Concentrations of measured nutrients at this site are generally marginal.

pH: Neutral at the surface, strongly alkaline with depth.

Rooting depth: Moderate root growth to 75 cm, but few roots in bleached sand layers.

Barriers to root growth:

Physical: The coarsely structured and dispersive clay subsoil restricts full exploitation by confining roots to the spaces between the large aggregates.

Chemical: High pH below 70 cm is the main limitation to deeper root growth.

Water holding capacity: Approximately 70 mm total available water holding capacity in root zone, of which about 40 mm is readily available.

Seedling emergence: Good, except where sand is water repellent.

Workability: Good, although disturbance leads to risk of wind erosion.

Erosion Potential

Water: Moderately low due to very gentle slope.

Wind: Moderate, due to sandy surface.

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	
Row	7.0	6.4	0	0.04	0.35	0.4	46	166	8	0.5	4.2	38	1.7	1.2	2.5	1.91	0.51	0.07	0.23	na
0-10	7.3	6.5	0	0.02	0.21	0.1	22	132	7	0.1	-	-	-	-	1.2	0.78	0.22	0.04	0.14	na
10-28	7.4	6.5	0	0.02	0.22	0.2	16	137	5	0.1	-	-	-	-	1.9	1.04	0.31	0.07	0.14	na
28-38	8.1	6.9	0	0.03	0.35	0.1	6	81	6	0.1	-	-	-	-	1.2	0.55	0.27	0.14	0.04	na
38-50	8.3	6.9	0	0.12	0.29	0.2	<4	137	11	2.6	-	-	-	-	11.4	3.36	4.46	2.38	0.19	20.9
50-75	8.6	7.3	0	0.20	0.74	0.2	<4	168	21	6.4	-	-	-	-	19.9	5.04	9.00	4.45	0.35	22.4
75-130	9.4	8.5	5.1	0.44	1.56	0.1	<4	172	37	7.8	-	-	-	-	13.8	3.85	6.80	3.97	0.35	28.8

Note: Row sample bulked from cores (0-15 cm) taken along rows near 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.