

## SANDY RED GRADATIONAL SOIL

**General Description:** *Thick loamy sand over a hard light sandy clay loam becoming more clayey with depth*

**Landform:** Very gently undulating plains.

**Substrate:** Red and brown strongly structured clay (buried subsoil of older soil)

**Vegetation:**



<b>Type Site:</b>	Site No.:	CL036	1:50,000 mapsheet:	6628-4 (Gawler)
	Hundred:	Port Adelaide	Easting:	275700
	Section:	176	Northing:	6161750
	Sampling date:	27/04/99	Annual rainfall:	425 mm average

Flat with soft surface and no stones

### Soil Description:

Depth (cm)	Description
0-15	Soft single grained reddish brown loamy sand. Abrupt to:
15-35	Soft massive yellowish red loamy sand. Abrupt to:
35-60	Red hard light sandy clay loam with weak coarse prismatic structure. Gradual to:
60-85	Red hard sandy clay loam with weak coarse prismatic structure. Abrupt to:
85-150	Red and dark brown mottled moderately calcareous medium clay with strong angular blocky structure and 10-20% soft and nodular calcareous segregations.



**Classification:** Sodic, Eutrophic, Red Kandosol; medium, non-gravelly, sandy / clay loamy, moderate



## Summary of Properties

- Drainage:** The soil is well drained. No part of the profile is likely to remain saturated for more than a day or so.
- Fertility:** Inherent fertility is low, as indicated by the exchangeable cation data. The sandy surface soil has low nutrient retention capacity, and calcium, magnesium, copper and zinc are all deficient. Organic carbon levels are very low.
- pH:** Neutral at the surface, alkaline with depth.
- Rooting depth:** Good root growth to 85 cm in pit, but very few roots below.
- Barriers to root growth:**
- Physical:** Subsoil is poorly structured and hard, but is not considered a major restriction. At 35 cm depth, it is unlikely to affect root development of annual crops.
- Chemical:** There are no apparent chemical barriers.
- Waterholding capacity:** Approximate values of total and readily available water are: 145 mm and 80 mm for hardy crops (eg vines), with a potential root depth of 110 cm 110 mm and 60 mm for more sensitive crops (eg almonds) with a potential root depth of 70 cm.
- Seedling emergence:** No limitation.
- Workability:** Soft surface is easily worked over a wide range of moisture conditions.
- Erosion Potential:**
- Water:** Low (flat terrain).
- Wind:** Moderately low.

## Laboratory Data

Depth cm	pH H <sub>2</sub> O	pH CaCl <sub>2</sub>	CO <sub>3</sub> %	EC1:5 dS/m	Cl mg/kg	Org.C %	Avail. P mg/kg	Avail. K mg/kg	SO <sub>4</sub> 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	7.2	6.4	0	0.24	-	0.46	98	333	49	15.1	-	-	-	-	3.8	1.98	0.77	0.51	0.65	na
0-15	7.0	6.3	0	0.41	198	0.39	75	335	176	2.1	2.0	69	14.4	3.7	4.7	2.60	0.52	0.51	0.60	na
15-35	7.0	6.7	0	0.44	254	0.26	37	306	162	2.0	0.84	66	10.6	2.0	4.0	3.12	0.97	0.43	0.62	na
35-60	7.2	6.8	0	0.35	163	0.15	3	413	130	3.5	0.68	30	9.7	1.2	8.2	6.08	1.58	1.20	0.91	14.6
60-85	8.2	7.6	0.2	0.38	-	0.20	2	584	119	1.7	-	-	-	-	14.7	7.99	3.63	1.53	1.41	10.4
85-150	8.7	8.0	7.6	0.29	-	0.18	5	707	82	4.2	-	-	-	-	14.9	6.58	5.92	1.26	1.61	8.5

**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.

**Further information:** [DEWNR Soil and Land Program](#)

