

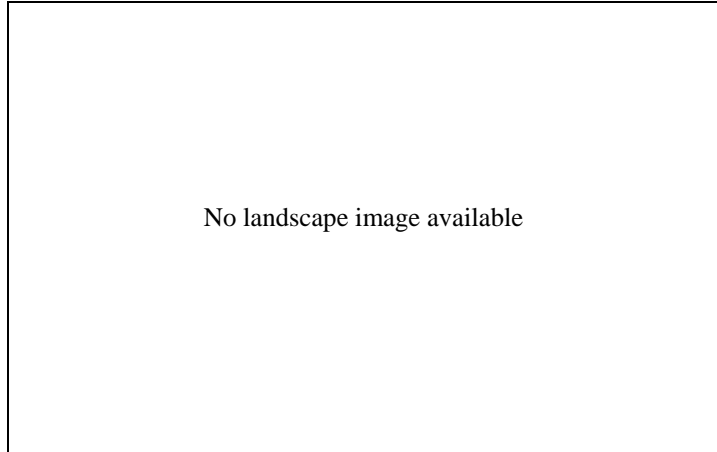
LOAM OVER DISPERSIVE RED CLAY (Kimba soil)

General Description: *Hard sandy loam over a coarsely structured dispersive red clay, calcareous with depth*

Landform: Gently undulating rises and flats.

Substrate: Coarsely structured heavy clay (Hindmarsh Clay equivalent).

Vegetation: Mallee.



Type Site: Site No.: EE052

1:50,000 sheet: 6131-1 (Kimba)

Hundred: Solomon

Annual rainfall: 340 mm

Sampling date: 13/11/91

Landform: Flat plain, 0% slope

Surface: Hard setting with no stones

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-12	Dark reddish brown firm slightly calcareous fine sandy loam with moderate fine angular blocky structure. Abrupt to:
12-30	Red friable highly calcareous light clay with strong subangular blocky structure. Clear to:
30-60	Red very highly calcareous firm light medium clay with moderate subangular blocky structure. Gradual to:
60-110	Red moderately calcareous light clay with moderate subangular blocky structure. Clear to:
110-150	Red and grey mottled moderately calcareous medium clay with strong coarse columnar structure and 2-10% ironstone concretions and 2-10% quartz grit and gravel.



Classification: Hypercalcic, Subnatric, Red Sodosol; medium, non-gravelly, loamy / clayey, deep

Summary of Properties

Drainage Moderately well drained. Water perches on top of the dispersive clayey subsoil for up to a week following heavy or prolonged rainfall.

Fertility Natural fertility is moderate, as indicated by the exchangeable cation data. Nutrient retention capacity is high. Regular phosphorus applications are essential. Nitrogen levels depend on legume status of pastures and cropping history. Risk of deficiencies of other elements is low.

pH Slightly alkaline at the surface, strongly alkaline with depth.

Rooting depth 110 cm in pit, but few roots below 60 cm.

Barriers to root growth

Physical: The hard dispersive clay subsoil prevents optimum root growth.

Chemical: High sodicity and pH (possibly high boron as well - not measured) from 30 cm diminish root densities.

Water holding capacity Approximately 90 mm in the root zone.

Seedling emergence: Fair to satisfactory, depending on the degree of surface sealing.

Workability: Fair. Soil tends to shatter if worked too dry, and puddle if worked too wet.

Erosion Potential

Water: Moderately low to moderate, depending on slope.

Wind: Moderately low to 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	
0-12	7.7	7.5	3	0.1	1.2	0.81	11	-	-	2.8	1.0	15.0	16.0	1.1	21.9	16.7	3.6	0.33	2.75	2
12-30	8.2	7.7	5	0.2	0.9	0.72	3.6	-	-	3.9	2.2	17.0	11.0	0.40	23.2	16.6	6.7	1.44	2.06	6
30-60	9.3	8.3	25	1.2	7.2	0.20	4.0	-	-	18.6	2.8	8.0	4.2	0.27	19.5	4.3	8.5	8.08	2.06	41
60-110	9.2	8.3	33	1.4	9.1	0.15	3.8	-	-	26.4	1.2	7.7	3.6	0.12	14.0	2.9	6.2	6.20	1.32	44
110-150	9.3	8.3	24	0.9	7.4	0.10	3.5	-	-	19.6	0.49	7.0	2.9	0.07	10.4	2.3	5.0	4.83	0.88	46

Note: 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