

## IRONSTONE GRAVELLY SANDY LOAM OVER RED CLAY

(Ironstone gravelly red brown earth)

**General Description:** *Ironstone gravelly sandy loam to loamy sand over a red well structured clay with variable ironstone, calcareous with depth*

**Landform:** Gently undulating plain.

**Substrate:** Tertiary clay.

### Vegetation:

<b>Type Site:</b>	Site No.:	EL003	1:50,000 mapsheet:	6029-2 (Koppio)
	Hundred:	Mortlock	Easting:	569300
	Section:	35	Northing:	6198750
	Sampling date:	24/03/1992	Annual rainfall:	455 mm average

Gentle slope of 2-3%. Firm surface with no stones.

### Soil Description:

Depth (cm)	Description
0-11	Dark greyish brown soft sandy loam with weak subangular blocky structure and 10-20% ironstone concretions. Clear to:
11-15	Brown firm massive loamy sand with 10-20% ironstone concretions. Sharp to:
15-33	Reddish brown very hard medium clay with fine angular blocky structure and 2-10% ironstone concretions. Clear to:
33-43	Orange very hard highly calcareous medium clay with fine subangular blocky structure and 10-20% ironstone fragments. Diffuse to:
43-70	Reddish yellow very hard very highly calcareous medium clay with fine subangular blocky structure and 20-50% ironstone fragments. Diffuse to:
70-170	Reddish yellow very hard very highly calcareous medium clay with fine subangular blocky structure and more than 50% ironstone fragments. Clear to:
170-195	Yellowish brown mottled very hard medium clay with more than 50% ironstone fragments.



**Classification:** Ferric-Sodic, Hypercalcic, Red Chromosol; medium, gravelly, loamy / clayey, very deep



## Summary of Properties

- Drainage:** Moderately well drained. Soil rarely remains wet for more than a week at a time.
- Fertility:** Inherent fertility is moderately low as indicated by the exchangeable cation data. Low clay content in the surface layers, and abundance of phosphate fixing ironstone are the main factors limiting nutrient retention and supply capacity.
- pH:** Slightly acidic at the surface, strongly alkaline with depth.
- Rooting depth:** 43 cm in pit.
- Barriers to root growth:**
- Physical:** The hard clayey subsoil restricts root densities.
  - Chemical:** High sodicity and pH from 70 cm prevent deeper root growth. Very high carbonate levels from 43 cm may restrict root growth below this depth.
- Waterholding capacity:** Approximately 50 mm in the rootzone.
- Seedling emergence:** Fair to satisfactory, depending on condition of surface.
- Workability:** Firm surface is easily worked, but ironstone abrades equipment.
- Erosion Potential:**
- Water:** Low.
  - Wind:** Low.

## Laboratory Data

Depth cm	pH H <sub>2</sub> O	pH CaCl <sub>2</sub>	CO <sub>3</sub> %	EC1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	SO <sub>4</sub> 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	
0-11	6.5	5.9	0	0.12	0.8	-	-	-	11	1.2	0.4	38.3	6.3	1.7	7.9	6.1	1.6	0.29	0.55	4
11-15	6.8	6.1	0	0.06	0.8	-	-	-	6.9	0.9	0.2	31.7	4.5	0.6	6.4	5.4	1.4	0.24	0.22	4
15-33	8.1	7.4	3	0.26	0.8	-	-	-	26	2.7	0.2	20.7	1.5	0.3	34.8	25.2	6.7	1.59	1.16	5
33-43	9.0	8.1	30	0.24	1.0	-	-	-	19	1.5	0.3	13.8	2.0	0.2	21.2	17.2	4.4	1.27	0.77	6
43-70	9.0	8.1	52	0.32	1.0	-	-	-	25	1.5	0.4	17.0	2.5	0.3	18.4	12.5	4.2	1.73	0.72	9
70-170	9.7	8.4	47	0.58	4.9	-	-	-	32	3.2	0.3	5.4	1.1	0.2	10.6	3.7	4.6	2.83	0.59	27
170-195	9.4	8.3	-	0.45	-	-	-	-	66	19.2	0.1	5.9	1.0	0.1	8.7	1.4	3.5	4.24	1.01	29

**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

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

