

## CLAY LOAM OVER REDDISH BROWN CLAY ON LIMESTONE

**General Description:** *Slightly alkaline, clay loam over reddish brown clay on limestone.*

**Landform:** Plain.

**Substrate:** Gambier Limestone.

**Vegetation:** Irrigated permanent pasture.



<b>Type Site:</b>	Site No.:	SE168	1:50,000 mapsheet:	7022-3 (Schank)
	Hundred:	Kongorong	Easting:	464100
	Section:	555	Northing:	5804100
	Sampling date:	23/11/10	Annual rainfall:	755 mm average

Flat (0%). Hard surface. Some worm activity is evident to 85 cm.

### Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0–15	Hard, black, fine sandy to silty clay loam with weak, fine subangular blocky structure.
15–38	Dark brown, light fine sandy clay loam with weak, fine subangular blocky structure, clear to:
38–85	Reddish brown, very slightly dispersive, light medium clay with weak subangular blocky structure breaking to moderate, fine polyhedral structure showing evidence of stress cutans.
85–86	Very dark brown, light medium clay with moderate, fine polyhedral structure.
86–90	Uncemented Gambier Limestone that textures as light sandy loam.
90–150	Weakly cemented Gambier Limestone that textures as loamy sand.
150–160	Moderately cemented Gambier Limestone.



**Classification:** Haplic, Eutrophic, Red Dermosol; medium, non-gravelly, clay loamy / clayey, moderate.



## Summary of Properties

- Drainage:** Soil profile is moderately well drained.
- Fertility:** Inherent fertility within the soil profile is high, as indicated by the sum of cations. Surface soil phosphorus levels are very high. Surface soil organic carbon levels are good; while subsoil carbon levels are high. However, boron levels are on the cusp of being marginal.
- pH:** Soil profile pH is within the neutral range (slightly alkaline); soil profile horizons are non-calcareous.
- Rooting depth:** Most root growth is in the upper 38 cm, with a few roots extending to 86 cm.
- Barriers to root growth:**
- Physical:** The subsoil presents a slight physical impediments to drainage or root growth; while the limestone substrate is a barrier to roots.
- Chemical:** There are no chemical toxicity barriers to root growth in the soil profile. However, few subsoil roots could be due to nutrient limitations (e.g. zinc).
- Waterholding capacity:** 110 mm in the potential rootzone for crop and pasture plants.  
Approximately [(0.15x200) + (0.23x160) + (0.47x180x0.5)]  
This variable is owing to variation in soil depth over short distances.
- Seedling emergence:** There are no significant limitations to seedling emergence.
- Workability:** No limitation.
- 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> %	EC 1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	Cl mg/kg	SO <sub>4</sub> mg/kg	Boron mg/kg	Al CaCl <sub>2</sub> mg/kg	Trace Elements mg/kg (DTPA)				Sum cations cmol (+)/kg	Exchangeable Cations cmol(+)/kg					Est. ESP
													Cu	Fe	Mn	Zn		Ca	Mg	Na	K	Al	
Paddock	7.6	6.8	0.48	0.289	1.29	3.98	214	300	121.8	23.7	1.00	<0.2	1.73	200	9.22	4.70	22.9	18.3	3.48	0.48	0.58	0.0	2.1
0–15	7.8	6.8	0.61	0.258	1.23	4.68	271	141	93.9	31.1	1.06	<0.2	1.87	218	13.0	5.01	24.3	19.9	3.60	0.52	0.36	0.0	2.1
15–38	7.7	6.7	0.26	0.131	0.29	1.09	12	327	21.8	6.5	0.55	<0.2	0.50	75.8	0.85	0.11	11.8	8.71	1.92	0.28	0.84	0.0	2.4
38–85	7.4	6.4	0.59	0.147	0.46	1.37	3	320	13.3	13.7	0.70	<0.2	0.45	43.7	0.15	0.06	23.5	16.3	5.42	1.00	0.76	0.0	4.3
86–90	8.4	7.4	94.08	0.077	0.35	0.09	3	25	10.6	11.7	0.16	<0.2	0.41	1.08	0.31	0.09	7.41	6.90	0.29	0.16	0.06	0.0	2.2
150–160	8.4	7.4	94.08	0.077	0.43	0.08	<2	<15	31.0	8.0	0.11	<0.2	0.27	<1.0	0.11	0.49	7.66	7.30	0.22	0.11	0.03	0.0	1.4

**Note:** Paddock sample bulked from 20 cores (0–10 cm) taken around the pit.

Sum of cations approximates the CEC (cation exchange capacity), 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, in this case estimated by the sum of cations.

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

