

LOAMY SAND OVER POORLY STRUCTURED SANDY CLAY

General Description: *Loamy sand over a coarsely structured dispersive brown or red sandy clay, calcareous from shallow depth.*

Landform: Gently undulating plain with low (< 15 m) parallel dunes.

Substrate: Coarse to medium textured highly calcareous windblown deposits (Wiabuna Formation).

Vegetation:



Type Site: Site No.: EE205
 1:50,000 sheet: 6130-1 (Rudall) Hundred: Yadnarie
 Annual rainfall: 340 mm Sampling date: 17/09/01
 Landform: Slope of low dune, 2% slope
 Surface: Soft with no stones

Soil Description:

| <i>Depth (cm)</i> | <i>Description</i> |
|-------------------|---|
| 0-6 | Brown soft single grain light sandy loam. Sharp to: |
| 6-16 | Yellowish brown and yellowish red firm sandy medium clay with weak very coarse columnar structure. Abrupt to: |
| 16-30 | Yellowish brown, reddish yellow and yellowish red firm massive very highly calcareous sandy light clay with 10-20% fine carbonate segregations. Clear to: |
| 30-50 | Yellowish red, yellow and reddish yellow firm massive highly calcareous clay loam. Clear to: |
| 50-90 | Strong brown firm massive very highly calcareous light sandy clay loam. Gradual to: |
| 90-120 | Reddish yellow and red firm massive very highly calcareous light sandy clay loam with 20-50% semi-hard carbonate fragments. |



Classification: Calcic, Mesonatric, Brown Sodosol; thin, non-gravelly, loamy / clayey, moderate

Summary of Properties

- Drainage:** Moderately well drained. Water is likely to perch on top of the dispersive clayey subsoil for up to a week following heavy or prolonged rainfall.
- Fertility:** Inherent fertility is moderate, as indicated by the exchangeable cation data. The surface soil would normally be expected to have low nutrient retention capacity, but at this site, subsoil clay at shallow depth is brought to the surface, augmenting nutrient holding capacity. All tested elements, with the possible exception of sulphur, are in adequate supply at this site, but copper and zinc deficiencies would be expected from time to time. Organic carbon levels are favourable.
- pH:** Alkaline at the surface, strongly alkaline with depth.
- Rooting depth:** 50 cm in the pit, but few roots below 30 cm.
- Barriers to root growth:**
- Physical:** The coarsely structured dispersive subsoil restricts (but does not prevent) root growth.
 - Chemical:** High pH / sodicity from 30 cm adversely affects root growth.
- Water holding capacity:** Approximately 50 mm in the root zone.
- Seedling emergence:** Satisfactory.
- Workability:** The sandy surface is easily worked.
- Erosion Potential**
- Water:** Low.
 - Wind:** Moderately low to moderate.

Laboratory Data

| Depth cm | pH H ₂ O | pH CaCl ₂ | CO ₃ % | EC 1:5 dS/m | Org.C % | NO ₃ mg/kg | Avail. P mg/kg | Avail. K mg/kg | SO ₄ mg/kg | Boron mg/kg | Trace Elements mg/kg (DTPA) | | | | Sum of cations cmol (+)/kg | Exchangeable Cations cmol(+)/kg | | | | ESP |
|-------------|------------------------|-------------------------|----------------------|----------------|------------|--------------------------|----------------------|----------------------|--------------------------|----------------|--------------------------------|-----|------|------|-------------------------------------|------------------------------------|------|------|------|------|
| | | | | | | | | | | | Cu | Fe | Zn | Mn | | Ca | Mg | Na | K | |
| 0-6 | 8.3 | 7.8 | nd | 0.11 | 1.41 | 9 | 59 | 464 | 3.2 | 2.7 | 0.21 | 5.4 | 0.91 | 1.66 | 12.7 | 9.33 | 2.02 | 0.19 | 1.13 | 1.5 |
| 6-16 | 9.1 | 8.5 | nd | 0.16 | 0.37 | 3 | 5 | 457 | 2.7 | 3.7 | 0.17 | 7.4 | 0.07 | 0.45 | 16.3 | 8.62 | 5.07 | 1.43 | 1.21 | 8.8 |
| 16-30 | 9.5 | 8.9 | nd | 0.52 | 0.31 | 5 | 3 | 424 | 11.4 | 6.9 | 0.30 | 7.0 | 0.14 | 0.51 | 18.9 | 7.90 | 5.79 | 4.12 | 1.05 | 21.8 |
| 30-50 | 9.8 | 9.1 | nd | 1.03 | 0.23 | 4 | 2 | 514 | 79.5 | 9.7 | 0.52 | 6.5 | 0.47 | 0.54 | 21.9 | 5.98 | 6.18 | 8.40 | 1.33 | 38.4 |
| 50-90 | 9.5 | 8.9 | nd | 1.17 | 0.14 | 2 | 2 | 426 | 170 | 7.9 | 0.27 | 3.1 | 0.46 | 0.49 | 23.2 | 6.91 | 5.98 | 9.28 | 1.03 | 40.0 |

Note: Sum of cations in neutral to alkaline soils is an approximation of 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 sum of cations.