# HIGHLY CALCAREOUS SANDY LOAM

(Shallow Wookata soil)

***General Description:*** *Very highly calcareous sandy loam with rubbly calcrete at variable depth*

**Landform:** Undulating rises formed on old coastal dunes.

**Substrate:** Calcreted calcareous sand.

**Vegetation:**

**Type Site:**

| | | | |
|---|---|---|---|
| Site No.: | EL035 | 1:50,000 mapsheet: | 5929-1 (Kiana) |
| Hundred: | Kiana | Easting: | 524800 |
| Section: | 21 | Northing: | 6222550 |
| Sampling date: | 12/02/1991 | Annual rainfall: | 455 mm average |

Slope of rise. Soft surface with no stones.

**Soil Description:**

| *Depth (cm)* | *Description* |
|---|---|
| 0-10 | Very dark greyish brown very highly calcareous sandy loam. |
| 10-40 | Brown very highly calcareous sandy loam. |
| 40-60 | Brown very highly calcareous light sandy loam with more than 50% calcrete rubble. |
| 60-70 | Light yellowish brown very highly calcareous light sandy loam. |

**Classification:** Supravescent, Regolithic, Lithocalcic Calcarosol; thick, non-gravelly, loamy / loamy, moderate

## *Summary of Properties*

**Drainage:** Rapidly drained. Soil never remains wet for more than a few hours.

**Fertility:** Inherent fertility is low due to moderately low clay content and very high carbonate content. The carbonate reduces the availability of phosphorus, zinc, manganese and copper. The low clay content is partly offset by high organic carbon levels (typical of calcareous soils) which increase nutrient retention capacity.

**pH:** Alkaline at the surface, strongly alkaline with depth.

**Rooting depth:** Not recorded. Estimate 40 cm in pit.

**Barriers to root growth:**

**Physical:** The rubble layer restricts growth to some extent.

**Chemical:** High pH and salinity above the rubbly layer prevent deep root growth.

**Waterholding capacity:** Approximately 50 mm in the rootzone.

**Seedling emergence:** Satisfactory.

**Workability:** Soft surface is easily worked.

**Erosion Potential:**

**Water:** Low.

**Wind:** Moderate.

## *Laboratory Data*

| Depth cm | pH $H_2O$ | pH $CaCl_2$ | $CO_3$ % | EC1:5 dS/m | ECe dS/m | Org.C % | Avail. P mg/kg | Avail. K mg/kg | $SO_4$ 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 | |
| 0-10 | 8.2 | 7.5 | 63 | 0.7 | 3.3 | 2.86 | 31 | - | - | - | 0.44 | 19.4 | 1.61 | 0.64 | - | - | - | - | - | - |
| 10-40 | 9.0 | 8.3 | 60 | 3.1 | 12.5 | 1.23 | 4 | - | - | - | 0.26 | 25.0 | 1.05 | 0.26 | - | - | - | - | - | - |
| 40-60 | 9.7 | 8.7 | 68 | 4.4 | 16.2 | - | - | - | - | 9.9 | 0.29 | 14.6 | 1.09 | 0.14 | - | - | - | - | - | - |
| 60-70 | 9.8 | 8.7 | 63 | 3.5 | 17.2 | - | - | - | - | 16.3 | 0.26 | 11.9 | 0.64 | 0.17 | - | - | - | - | - | - |

**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