

## DEEP CALCAREOUS LOAMY SAND

**General Description:** *Very thick soft loamy sand becoming highly calcareous and slightly more clayey with depth*

**Landform:** Gently undulating dunefield

**Substrate:** Windblown Molineaux Sand and associated fine carbonate

**Vegetation:**



|                   |                |            |                    |                 |
|-------------------|----------------|------------|--------------------|-----------------|
| <b>Type Site:</b> | Site No.:      | MM164      | 1:50,000 mapsheet: | 6929-3 (Holder) |
|                   | Hundred:       | Holder     | Easting:           | 410700          |
|                   | Section:       | 25         | Northing:          | 6205310         |
|                   | Sampling date: | 15/06/2007 | Annual rainfall:   | 265 mm average  |

Lower slope (1%) of gently sloping dune. Soft surface with no stones.

### Soil Description:

| Depth (cm) | Description                                                                                                          |
|------------|----------------------------------------------------------------------------------------------------------------------|
| 0-10       | Brown (7.5YR4/4) soft single grain moderately calcareous light loamy sand. Clear to:                                 |
| 10-35      | Yellowish red (5YR4/6) soft single grain highly calcareous light loamy sand. Gradual to:                             |
| 35-50      | Reddish yellow (5YR6/8) soft single grain moderately calcareous light loamy sand. Clear to:                          |
| 50-80      | Yellowish red (5YR5/8) friable massive highly calcareous sandy loam. Diffuse to:                                     |
| 80-100     | Reddish yellow (5YR6/8) friable massive highly calcareous sandy loam with more than 50% calcrete fragments to 20 mm. |
| 100-       | Calcrete.                                                                                                            |



**Classification:** Endohypersodic, Regolithic, Hypercalcic Calcarosol; very thick, non-gravelly, sandy / loamy, deep



## Summary of Properties

**Drainage:** Rapidly drained. No part of the profile is likely to remain saturated for more than a few hours following heavy or prolonged rainfall.

**Fertility:** Inherent fertility is moderately low, as indicated by the exchangeable cation data (high exchangeable calcium values are questionable). Low capacity to retain and supply nutrients is due to low clay content. Test data indicate deficiencies of phosphorus and copper. Magnesium levels also appear low.

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

**Rooting depth:** 80 cm at the sampling site, but very few roots deeper than 50 cm.

### Barriers to root growth:

**Physical:** Light textured soil with no natural root growth restrictions, but compaction can develop over time.

**Chemical:** There are no apparent chemical constraints (at least in the upper 80 cm) apart from low fertility. Boron concentration, pH and sodicity may become limiting from 80 cm.

**Waterholding capacity:** Approximately 50 mm (moderately low) in the potential rootzone.

**Seedling emergence:** Potentially patchy in water repellence seasons.

**Workability:** Satisfactory.

### Erosion Potential:

**Water:** Low.

**Wind:** Moderate high due to the thick sandy surface soil.

## Laboratory Data

| Depth<br>cm | pH<br>H <sub>2</sub> O | pH<br>CaCl <sub>2</sub> | CO <sub>3</sub><br>% | EC<br>1:5<br>dS/m | ECe<br>dS/m | Org.C<br>% | Avail.<br>P<br>mg/kg | Avail.<br>K<br>mg/kg | Cl<br>mg/kg | SO <sub>4</sub> -S<br>mg/kg | Boron<br>mg/kg | React<br>Fe<br>mg/kg | Trace Elements mg/kg<br>(EDTA) |    |      |      | Sum<br>cations<br>cmol<br>(+)/kg | Exchangeable Cations<br>cmol(+)/kg |      |      |      | Est.<br>ESP |
|-------------|------------------------|-------------------------|----------------------|-------------------|-------------|------------|----------------------|----------------------|-------------|-----------------------------|----------------|----------------------|--------------------------------|----|------|------|----------------------------------|------------------------------------|------|------|------|-------------|
|             |                        |                         |                      |                   |             |            |                      |                      |             |                             |                |                      | Cu                             | Fe | Mn   | Zn   |                                  | Ca                                 | Mg   | Na   | K    |             |
| 0-10        | 8.6                    | 7.9                     | 2                    | 0.12              | 0.65        | 0.77       | 9                    | 310                  | 4           | 7.5                         | 3.8            | 355                  | 0.27                           | 77 | 35.6 | 3.42 | 11.8                             | 10.1                               | 0.81 | 0.04 | 0.79 | 0.3         |
| 10-35       | 8.7                    | 8.2                     | 3                    | 0.13              | 0.61        | 0.45       | 4                    | 184                  | 3           | 4.8                         | 2.0            | 429                  | 0.42                           | 14 | 3.76 | 0.29 | 11.8                             | 10.2                               | 1.16 | 0.04 | 0.49 | 0.3         |
| 35-50       | 8.8                    | 8.4                     | 3                    | 0.11              | 0.54        | 0.15       | 2                    | 136                  | 3           | 3.8                         | 1.9            | 315                  | 0.34                           | 9  | 1.75 | 0.76 | 9.9                              | 7.54                               | 1.94 | 0.07 | 0.31 | 0.7         |
| 50-80       | 9.3                    | 8.5                     | 1                    | 0.22              | 1.10        | 0.20       | 5                    | 512                  | 13          | 4.2                         | 7.0            | 412                  | 0.35                           | 11 | 1.18 | 0.63 | 15.0                             | 7.27                               | 4.46 | 1.91 | 1.33 | 12.8        |
| 80-100      | 9.6                    | 8.3                     | 25                   | 0.41              | 2.35        | 0.18       | 4                    | 881                  | 18          | 6.1                         | 15.0           | 382                  | 0.40                           | 15 | 0.60 | 0.30 | 20.2                             | 7.35                               | 4.89 | 5.70 | 2.23 | 28.3        |

**Note:** Sum of cations, in a neutral to alkaline soil, 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](#)

