

SAND OVER RED SANDY CLAY LOAM

General Description: *Sand to loamy sand over a red massive sandy clay loam with rubbly carbonate at relatively shallow depth*

Landform: Slopes of undulating rises

Substrate: Blanchetown Clay capped by medium to fine grained Woorinen Formation carbonates.

Vegetation: Mallee



Type Site: Site No.: MM017

| | | | |
|------------------|---------------------------------|----------------|----------|
| 1:50,000 sheet: | 6827-1 (Karoonda) | Hundred: | Hooper |
| Annual rainfall: | 360 mm | Sampling date: | 07/10/91 |
| Landform: | Slope of an undulating rise, 3% | | |
| Surface: | Soft with no stone | | |

Soil Description:

| <i>Depth (cm)</i> | <i>Description</i> |
|-------------------|---|
| 0-9 | Greyish brown soft loamy sand. Abrupt to: |
| 9-14 | Brown soft loamy sand. Abrupt to: |
| 14-22 | Yellowish brown soft loamy sand. Abrupt to: |
| 22-29 | Orange and yellow massive sandy clay loam. Clear to: |
| 29-41 | Brown very highly calcareous fine sandy clay loam with more than 50% carbonate nodules (6-20 mm). Gradual to: |
| 41-102 | Light brown very highly calcareous light clay with 2-10% carbonate nodules. Diffuse to: |
| 102-173 | Orange and olive mottled medium clay with coarse blocky structure and 10-20% fine carbonate segregations. Diffuse to: |
| 173-190 | Orange and grey mottled heavy clay with coarse blocky structure. |



Classification: Sodic, Lithocalcic, Brown Chromosol; medium, non-gravelly, sandy / clay loamy, deep

Summary of Properties

| | |
|--------------------------------|--|
| Drainage | Well drained. Soil is never saturated for more than a few days. |
| Fertility | Inherent fertility is moderately low, according to the exchangeable cation data. Low clay content and very low organic carbon limit nutrient retention capacity. Copper and phosphorus are deficient at the sampling site. |
| pH | Neutral at the surface, strongly alkaline with depth. |
| Rooting depth | 80 cm in pit. |
| Barriers to root growth | |
| Physical: | No apparent physical barriers. |
| Chemical: | High pH and possibly high boron from 70 cm restrict root growth. |
| Water holding capacity | 100 mm in root zone. |
| Seedling emergence: | Satisfactory, although water repellence is a problem in dry openings. |
| Workability: | Loose / soft surface is easily worked. |
| Erosion Potential | |
| Water: | Moderately low due to the slope. |
| Wind: | Moderately low to moderate. |

Laboratory Data

| Depth cm | pH H ₂ O | pH CaCl ₂ | CO ₃ % | EC1:5 dS/m | ECe dS/m | Org.C % | Avail. P mg/kg | Avail. K 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 | |
| Paddock | 6.9 | 6.2 | 1 | 0.07 | 0.61 | 0.1 | 18 | 170 | - | <0.05 | 11 | 6.8 | 1.1 | 4.8 | 3.9 | 0.74 | <0.10 | 0.50 | 2.1 |
| 0-9 | 7.3 | 6.5 | 2 | 0.06 | 0.63 | <0.1 | 20 | 150 | - | 0.07 | 12 | 8.2 | 2.2 | 5.1 | 4.2 | 0.85 | <0.10 | 0.43 | 2.0 |
| 9-14 | 7.3 | 6.5 | 5 | 0.04 | 0.24 | <0.1 | 8 | 110 | - | <0.05 | 7.6 | 5.0 | 0.13 | 3.3 | 2.6 | 0.58 | <0.10 | 0.39 | 3.0 |
| 14-22 | 7.7 | 6.9 | 2 | 0.03 | 0.27 | 0.3 | 5 | 150 | - | 0.07 | 6.2 | 2.0 | <0.06 | 4.4 | 3.5 | 0.78 | <0.10 | 0.49 | 2.3 |
| 22-29 | 8.5 | 7.6 | 1 | 0.08 | 0.29 | 0.2 | 4 | 250 | - | 0.08 | 9.0 | 0.89 | 0.08 | 6.5 | 5.3 | 1.1 | <0.10 | 0.72 | 1.5 |
| 29-41 | 8.9 | 8.0 | 28 | 0.12 | 0.35 | <0.1 | 6 | 220 | - | 0.18 | 9.2 | 1.1 | 0.07 | 12.0 | 9.9 | 2.5 | 0.12 | 0.75 | 1.0 |
| 41-70 | 9.2 | 8.3 | 37 | 0.12 | 0.28 | 0.5 | 3 | 220 | - | 0.17 | 3.6 | 0.41 | <0.06 | 14.0 | 7.9 | 6.5 | 0.32 | 0.78 | 2.3 |
| 70-102 | 9.7 | 8.5 | 32 | 0.23 | 0.65 | 0.3 | 3 | 320 | - | 0.22 | 2.7 | 0.34 | <0.06 | 15.0 | 3.0 | 10.9 | 1.5 | 1.1 | 9.9 |
| 102-173 | 9.7 | 8.4 | 13 | 0.36 | 0.78 | 0.1 | 3 | 380 | - | 0.14 | 5.1 | 0.20 | <0.06 | 16.0 | 2.2 | 10.9 | 3.2 | 1.2 | 20.3 |
| 173-190 | 9.6 | 8.2 | 2 | 0.38 | 1.06 | <0.1 | 3 | 340 | - | 0.17 | 4.5 | 0.16 | <0.06 | 18.0 | 4.8 | 9.9 | 3.8 | 1.3 | 21.1 |

* Estimated values

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

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.