

CALCAREOUS LOAM

General Description: *Loamy surface becoming more clayey and calcareous with depth grading to a clay subsoil with abundant soft carbonate*

Landform: Outwash fans.

Substrate: Alluvial clay mantled by soft carbonate.

Vegetation:



Type Site: Site No.: CU059

| | | | |
|------------------|------------------------------------|----------------|----------|
| 1:50,000 sheet: | 6532-3 (Melrose) | Hundred: | Baroota |
| Annual rainfall: | 315 mm | Sampling date: | 07/05/96 |
| Landform: | Very gently inclined fan, 1% slope | | |
| Surface: | Firm with 2-10% quartzite stones | | |

Soil Description:

| <i>Depth (cm)</i> | <i>Description</i> |
|-------------------|--|
| 0-11 | Red brown hard weakly structured loam with 2-10% quartzite gravel. Abrupt to: |
| 11-30 | Dark reddish brown highly calcareous clay loam with strong polyhedral structure, 2-10% quartzite gravel and 2-10% nodular carbonate. Gradual to: |
| 30-55 | Dark reddish brown very highly calcareous light clay with strong polyhedral structure, 2-10% quartzite gravel and 2-10% nodular carbonate. Gradual to: |
| 55-100 | Red very highly calcareous medium clay with strong blocky structure and 2-10% quartzite gravel. Diffuse to: |
| 100-140 | Red highly calcareous medium clay with strong blocky structure and 2-10% quartzite gravel. |



Classification: Epibasic, Pedal, Hypercalcic Calcarosol; thick, slightly gravelly, loamy / clayey, deep

Summary of Properties

| | |
|--------------------------------|--|
| Drainage | Well drained. The soil is never likely to be saturated for more than a day or so after prolonged rain. |
| Fertility | Natural fertility is high, as indicated by the exchangeable cation data. Phosphorus, potassium, calcium and magnesium are all adequate. Subsurface sulphur is low and should be monitored with tissue tests. Organic carbon level is satisfactory. |
| pH | Alkaline at the surface, strongly alkaline with depth. |
| Rooting depth | Few roots below 55 cm. |
| Barriers to root growth | |
| Physical: | There are no apparent physical barriers. |
| Chemical: | Very high pH and sodicity (high exchangeable sodium) from 55 cm limit root growth. |
| Water holding capacity | Approximately 90 mm in root zone. |
| Seedling emergence: | Good (not hard setting). Decline in organic matter levels may lead to development of hard setting and sealing condition. |
| Workability: | Good (as above). Stone cover in places may interfere with tillage and abrade tynes. |
| Erosion Potential | |
| Water: | Low |
| Wind: | Low |

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 | SO ₄ -S 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 | 8.3 | 7.7 | 0.3 | 0.16 | 1.08 | 1.1 | 20 | 621 | 7 | 2.0 | 0.87 | 8 | 15.1 | 2.23 | 22.1 | 14.99 | 3.49 | 0.72 | 2.06 | 3.2 |
| 0-11 | 8.3 | 7.8 | 0.7 | 0.16 | 1.04 | 1.2 | 23 | 756 | 7 | 1.7 | - | - | - | - | 23.4 | 17.36 | 3.61 | 0.50 | 2.42 | 2.1 |
| 11-30 | 8.8 | 7.9 | 10.5 | 0.12 | 0.42 | 0.8 | 5 | 303 | 1 | 1.9 | - | - | - | - | 23.8 | 18.80 | 4.26 | 0.75 | 1.06 | 3.1 |
| 30-55 | 8.9 | 8.1 | 15.7 | 0.17 | 0.39 | 0.4 | 5 | 242 | 1 | 1.9 | - | - | - | - | 21.8 | 15.61 | 6.19 | 1.77 | 0.85 | 8.1 |
| 55-100 | 9.6 | 8.5 | 25.0 | 0.41 | 0.92 | 0.5 | <4 | 221 | 9 | 12.1 | - | - | - | - | 17.3 | 6.62 | 7.43 | 5.70 | 0.73 | 32.9 |
| 100-140 | 9.1 | 8.4 | 22.4 | 1.46 | 8.85 | 0.1 | 9 | 203 | 194 | 20.2 | - | - | - | - | 19.9 | 6.11 | 6.68 | 8.83 | 0.67 | 44.4 |

Note: Paddock sample bulked from 20 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.