

SANDY LOAM OVER SODIC GREY CLAY

General Description: *Sandy loam surface soil, paler coloured and gravelly at base, overlying yellow brown, grey brown and red mottled clay subsoil, grading to micaceous sandstone or schist*

Landform: Slopes of undulating to rolling low hills of the north eastern Mt. Lofty Ranges

Substrate: Micaceous sandstone or mica schist of the Backstairs Passage Formation

Vegetation: Red gum woodland

| | | | | |
|-------------------|----------------|-----------|--------------------|-------------------|
| Type Site: | Site No.: | CH036 | 1:50,000 mapsheet: | 6728-4 (Angaston) |
| | Hundred: | Moorooroo | Easting: | 325500 |
| | Section: | 881 | Northing: | 6167150 |
| | Sampling date: | 11/12/92 | Annual rainfall: | 645 mm average |



Upper slope of undulating low hills, slope 8%. Firm surface with 2% metasandstone outcrop.

Soil Description:

| Depth (cm) | Description |
|------------|--|
| 0-10 | Very dark grey soft sandy loam with weak granular structure. Gradual to: |
| 10-35 | Very dark grey soft massive loamy sand. Clear to: |
| 35-55 | White massive clayey sand with brown mottles and 10% quartz gravel. Clear to: |
| 55-80 | Dark greyish brown, dark yellowish brown and red mottled heavy clay with strong polyhedral structure, and dark brown coatings on surfaces of the aggregates. Diffuse to: |
| 80-100 | Dark yellowish brown, dark greyish brown and orange mottled silty light clay, with strong polyhedral structure. Clear to: |
| 100-135 | Weathering micaceous sandstone. |



Classification: Magnesian, Mottled-Subnatric, Grey Sodosol; thick, non-gravelly, loamy / clayey, deep



Summary of Properties

| | |
|---------------------------------|---|
| Drainage: | Moderately well to imperfectly drained. The soil may remain wet for a week to several weeks. |
| Fertility: | Moderate natural fertility. Exchangeable cations are marginally deficient in the surface soil, although in satisfactory proportions. However in the subsoil, the exchange complex is dominated by magnesium and sodium, with calcium levels extremely low. Copper, manganese and boron also appear to be deficient. |
| pH: | Acidic throughout. Lime is required for pH correction. |
| Rooting depth: | 100 cm in pit. Few roots below 35 cm. |
| Barriers to root growth: | |
| Physical: | Sodic clay subsoil and associated temporary waterlogging affect root penetration. |
| Chemical: | Fertility is marginal. Magnesium and sodium saturation of the clay reduce subsoil fertility and may reduce root growth. |
| Waterholding capacity: | 110 mm in rootzone (high), but up to half may be effectively unavailable due to poor root distribution. |
| Seedling emergence: | Good, provided that organic matter levels are not depleted. |
| Workability: | Good. |
| Erosion Potential: | |
| Water: | Moderate (8% slope). |
| 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 mg/kg | Boron mg/kg | Trace Elements mg/kg (EDTA) | | | | CEC cmol (+)/kg | Exchangeable Cations cmol(+)/kg | | | | ESP |
|----------|---------------------|----------------------|-------------------|------------|----------|---------|----------------|----------------|-----------------------|-------------|-----------------------------|-----|------|------|-----------------|---------------------------------|------|------|------|------|
| | | | | | | | | | | | Cu | Fe | Mn | Zn | | Ca | Mg | Na | K | |
| Paddock | 5.6 | 5.1 | 0 | 0.06 | - | 1.5 | 26 | 330 | - | 0.4 | 0.31 | 308 | 9.78 | 2.25 | 5.3 | 3.74 | 0.96 | 0.13 | 0.33 | 2.5 |
| 0-10 | 5.5 | 4.8 | 0 | 0.03 | 0.13 | 1.3 | 18 | 200 | - | 0.4 | - | - | - | - | 4.7 | 2.99 | 0.92 | 0.16 | 0.22 | 3.4 |
| 10-35 | 5.7 | 4.9 | 0 | 0.03 | 0.11 | 0.50 | 10 | 310 | - | 0.3 | - | - | - | - | 3.5 | 2.18 | 0.99 | 0.13 | 0.23 | 3.7 |
| 35-55 | 6.2 | 5.5 | 0 | 0.03 | 0.13 | 0.06 | 4 | 630 | - | 0.1 | - | - | - | - | 2.4 | 0.98 | 1.31 | 0.18 | 0.12 | 7.5 |
| 55-80 | 5.7 | 4.8 | 0 | 0.11 | 0.30 | 0.31 | <2 | 590 | - | 0.8 | - | - | - | - | 20.2 | 0.47 | 16.6 | 2.44 | 0.71 | 12.1 |
| 80-100 | 5.9 | 4.8 | 0 | 0.11 | 0.35 | 0.18 | <2 | 450 | - | 0.3 | - | - | - | - | 16.9 | 0.33 | 15.9 | 3.85 | 0.55 | 22.8 |
| 100-135 | 6.2 | 4.9 | 0 | 0.06 | 0.42 | <0.01 | <2 | 330 | - | 0.1 | - | - | - | - | 5.6 | 0.14 | 5.07 | 2.44 | 0.13 | 43.6 |

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.

Further information: [DEWNR Soil and Land Program](#)

