

ACIDIC GRADATIONAL SANDY LOAM ON ROCK

General Description: *Gravelly loamy surface soil, grading to a silty subsoil with abundant fragments of the underlying schist or micaceous sandstone bedrock.*

Landform: Slopes of rocky, undulating to rolling low hills of the north-eastern Mount Lofty Ranges

Substrate: Sandy schist or micaceous sandstone of the Kanmantoo Group

Vegetation: Blue gum - sheoak woodland



Type Site: Site No.: CH030

1:50,000 sheet: 6728-3 (Tepko)

Hundred: Tungkillo

Annual rainfall: 625 mm

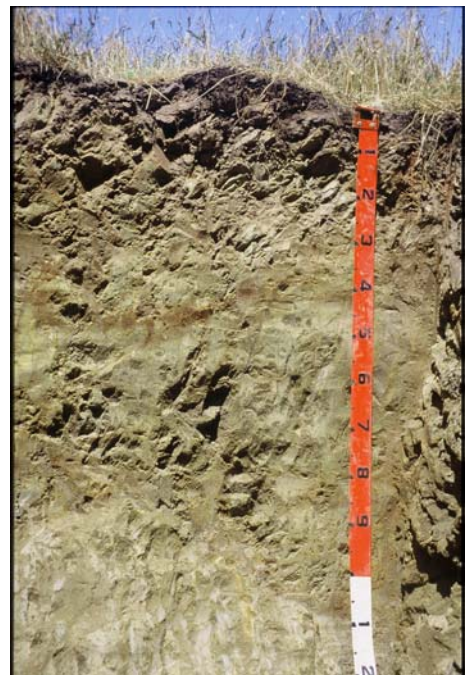
Sampling date: 12/01/93

Landform: Midslope of undulating low hills, slope 7%

Surface: Firm surface with 10% metasandstone rocks and outcrop

Soil Description:

| Depth (cm) | Description |
|------------|---|
| 0-10 | Very dark brown massive fine sandy loam, with 20% quartz and metasandstone fragments. Clear to: |
| 10-25 | Very pale brown massive fine sandy loam, with 50% metasandstone fragments. Diffuse to: |
| 25-45 | Dark brown, yellowish brown and dark red silty clay loam with weak structure and 50% metasandstone fragments. Diffuse to: |
| 45-100 | Soft, grey silty loam. Diffuse to: |
| 100-130 | Weathering micaceous sandstone. |



Classification: Acidic-Sodic, Mesotrophic, Brown Kandosol; medium, moderately gravelly, loamy / silty, moderate

Summary of Properties

| | |
|--------------------------------|---|
| Drainage | Well drained. Soil is unlikely to remain wet for more than a few days. |
| Fertility | Low natural fertility, as indicated by the low cation exchange capacities in all layers except the surface, where the high organic matter levels help maintain some nutrient retention capability. Low pH further reduces fertility. Calcium, magnesium, phosphorus and copper levels are marginal. |
| pH | Acidic to strongly acidic throughout. Lime is required for correction. |
| Rooting depth | 80 cm in pit, but few roots below 45 cm. |
| Barriers to root growth | |
| Physical: | No apparent physical limitations. |
| Chemical: | Low nutrient retention capacity and acidity inhibit root growth. |
| Water holding capacity | 50 mm in pit (moderately low). These soils are associated with shallower soils with lower water holding capacities. Because of this, these soils contribute to recharge of groundwater (and hence salinization). |
| Seedling emergence | Good. |
| Workability | Good to poor, depending on degree of rock and stone coverage, which can be extensive. |
| Erosion Potential | |
| Water: | Moderate. |
| Wind: | Low. |

Laboratory Data

| Depth cm | pH H ₂ O | pH CaCl ₂ | CaCO 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 (EDTA) | | | | CEC cmol (+)/kg | Exchangeable Cations cmol(+)/kg | | | | ESP |
|-------------|------------------------|-------------------------|------------------------|---------------|-------------|------------|----------------------|----------------------|-----------------------------|----------------|--------------------------------|-----|------|-----|-----------------------|------------------------------------|------|------|------|-----|
| | | | | | | | | | | | Cu | Fe | Mn | Zn | | Ca | Mg | Na | K | |
| Paddock | 4.9 | 4.5 | 0 | 0.10 | 0.43 | 3.0 | 22 | 260 | - | 0.9 | 1.87 | 437 | 27.8 | 9.0 | 8.8 | 4.52 | 1.50 | 0.26 | 0.45 | 3.0 |
| 0-10 | 4.6 | 4.3 | 0 | 0.17 | 0.69 | 3.1 | 22 | 120 | - | 0.8 | - | - | - | - | 9.8 | 4.74 | 2.43 | 0.35 | 0.24 | 3.6 |
| 10-25 | 5.3 | 4.6 | 0 | 0.03 | 0.17 | 0.43 | 7 | 100 | - | 0.4 | - | - | - | - | 3.2 | 0.93 | 1.17 | 0.25 | 0.10 | na |
| 25-45 | 5.2 | 4.3 | 0 | 0.05 | 0.19 | 0.25 | 4 | 110 | - | 0.7 | - | - | - | - | 4.6 | 0.65 | 1.95 | 0.38 | 0.10 | 8.2 |
| 45-100 | 5.5 | 4.8 | 0 | 0.10 | 0.62 | 0.08 | 3 | 140 | - | 0.7 | - | - | - | - | 2.5 | 0.33 | 2.40 | 0.65 | 0.11 | na |

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.