

## HARD CLAY LOAM OVER DISPERSIVE RED CLAY

**General Description:** *Hard sandy loam to clay loam abruptly overlying a coarsely structured dispersive red clay, calcareous with depth*

**Landform:** Gently inclined outwash fans.

**Substrate:** Gravelly clay alluvium.

**Vegetation:**

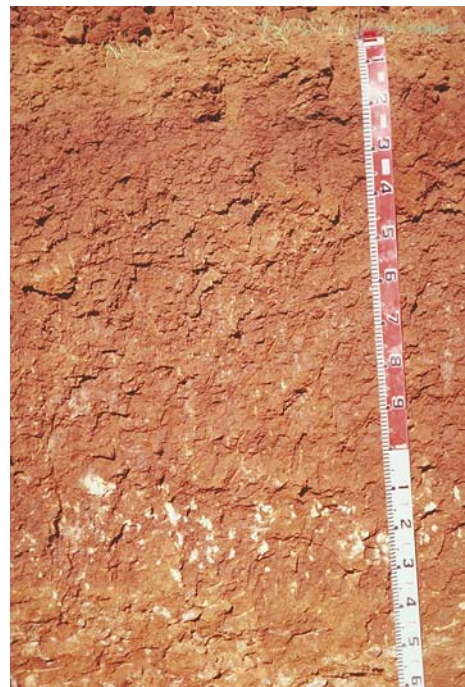


**Type Site:** Site No.: CU052

|                  |   |                |           |
|------------------|---|----------------|-----------|
| 1:50,000 sheet:  | 6532-4 (Wilmington)                                 | Hundred:       | Willochra |
| Annual rainfall: | 375 mm  | Sampling date: | 11/05/95  |
| Landform:        | Midslope of a gently inclined outwash fan, 1% slope |                |           |
| Surface:         | Hard setting with 2-10% gravel                      |                |           |

**Soil Description:**

| <i>Depth (cm)</i> | <i>Description</i>  |
|-------------------|---|
| 0-12              | Dark reddish brown firm fine sandy clay loam with coarse subangular blocky structure and minor quartzite gravel. Sharp to:  |
| 12-35             | Dark reddish brown hard medium clay with coarse prismatic breaking to subangular blocky structure. Gradual to:  |
| 35-75             | Dark reddish brown very hard slightly calcareous medium clay with coarse prismatic breaking to subangular blocky structure and 2-10% fine carbonate. Gradual to:  |
| 75-105            | As above, but below root zone. Clear to:  |
| 105-135           | Red very hard slightly calcareous medium heavy clay with coarse prismatic breaking to subangular blocky structure, and 10-20% fine gypsum segregations. Clear to: |
| 135-165           | Dark reddish brown very hard moderately calcareous sandy medium clay with 20-50% gravel.  |



**Classification:** Calcic, Mesonatric, Red Sodosol; medium, slightly gravelly, clay loamy / clayey, deep

## Summary of Properties

|                                |  |
|--------------------------------|--|
| <b>Drainage</b>                | Moderately well to imperfectly drained. Water may perch on the dispersive clayey subsoil for a week or so following heavy or prolonged rainfall.   |
| <b>Fertility</b>               | Inherent fertility is moderate, as indicated by the exchangeable cation data. Regular phosphorus applications are necessary. Nitrogen level depends on cropping history and legume status of pastures. All tested nutrients are in good supply at the sampling site. Organic carbon levels are high. |
| <b>pH</b>                      | Slightly acidic at the surface, alkaline with depth.   |
| <b>Rooting depth</b>           | 75 cm in pit, but most roots are in the top 35 cm.   |
| <b>Barriers to root growth</b> |  |
| <b>Physical:</b>               | Tight subsoil clay restricts root growth.  |
| <b>Chemical:</b>               | High sodicity, salinity and boron concentrations from 35 cm restrict deeper root growth.   |
| <b>Water holding capacity</b>  | Approximately 60 mm in the root zone.  |
| <b>Seedling emergence:</b>     | Some emergence problems will occur if the soil dries out during germination.   |
| <b>Workability:</b>            | Tilth of seed-bed will puddle if prepared when too wet. Soil will shatter if worked too dry.   |
| <b>Erosion Potential</b>       |  |
| <b>Water:</b>                  | Moderately low.  |
| <b>Wind:</b>                   | Low.   |

## Laboratory Data

| Depth<br>cm | pH<br>H <sub>2</sub> O | pH<br>CaCl <sub>2</sub> | CO <sub>3</sub><br>% | EC1:5<br>dS/m | ECe<br>dS/m | Org.C<br>% | Avail.<br>P<br>mg/kg | Avail.<br>K<br>mg/kg | SO <sub>4</sub><br>mg/kg | Boron<br>mg/kg | Trace Elements mg/kg<br>(DTPA) |    |    |    | CEC<br>cmol<br>(+)/kg | Exchangeable Cations<br>cmol(+)/kg |       |      |      | ESP  |
|-------------|------------------------|-------------------------|----------------------|---------------|-------------|------------|----------------------|----------------------|--------------------------|----------------|--------------------------------|----|----|----|-----------------------|------------------------------------|-------|------|------|------|
|             |                        |                         |                      |               |             |            |                      |                      |                          |                | Cu                             | Fe | Mn | Zn |                       | Ca                                 | Mg    | Na   | K    |      |
| Paddock     | 6.6                    | 5.9                     | 0                    | 0.09          | 0.54        | 1.7        | 30                   | 696                  | -                        | 2.5            | -                              | -  | -  | -  | 16.5                  | 8.50                               | 6.34  | 0.51 | 2.24 | 3.1  |
| 0-12        | 6.6                    | 5.5                     | 0                    | 0.10          | 1.01        | 1.0        | 10                   | 477                  | -                        | 1.5            | -                              | -  | -  | -  | 10.6                  | 5.15                               | 3.94  | 0.69 | 1.37 | 6.5  |
| 12-35       | 8.3                    | 7.6                     | <0.1                 | 0.51          | 3.43        | 0.7        | <4                   | 276                  | -                        | 5.9            | -                              | -  | -  | -  | 31.0                  | 12.16                              | 12.21 | 6.01 | 1.33 | 19.4 |
| 35-75       | 8.9                    | 8.4                     | 5.5                  | 1.62          | 8.74        | 0.2        | 5                    | 161                  | -                        | 15.2           | -                              | -  | -  | -  | 26.1                  | 7.81                               | 12.07 | 9.22 | 0.77 | 35.3 |
| 75-105      | 8.7                    | 8.3                     | 3.3                  | 2.17          | 10.49       | 0.1        | 6                    | 164                  | -                        | 16.8           | -                              | -  | -  | -  | 24.6                  | 7.15                               | 11.49 | 9.01 | 0.74 | 36.7 |
| 105-135     | 8.5                    | 8.3                     | 13.3                 | 2.53          | 12.36       | 0.1        | 6                    | 150                  | -                        | 13.1           | -                              | -  | -  | -  | 22.8                  | 8.02                               | 10.23 | 8.61 | 0.64 | 37.8 |
| 135-165     | 8.3                    | 8.2                     | 4.1                  | 2.71          | 12.12       | 0.1        | 6                    | 116                  | -                        | 4.1            | -                              | -  | -  | -  | 13.1                  | 7.59                               | 6.03  | 5.59 | 0.39 | 42.7 |

**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.