

## CALCAREOUS LOAM

**General Description:** *Calcareous loam overlying rubbly carbonate at shallow depth, becoming softer with depth and grading to highly weathered basement rock*

**Landform:** Rises

**Substrate:** Highly weathered fine grained basement rock with abundant soft carbonate and sporadic gypsum in cleavages

**Vegetation:**



|                   |                |             |                    |                |
|-------------------|----------------|-------------|--------------------|----------------|
| <b>Type Site:</b> | Site No.:      | CU056       | 1:50,000 mapsheet: | 6533-3 (Quorn) |
|                   | Hundred:       | Pichi Richi | Easting:           | 224350         |
|                   | Section:       | 15          | Northing:          | 6412950        |
|                   | Sampling date: | 17/11/1995  | Annual rainfall:   | 330 mm average |

Upper slope of an undulating rise, with a firm surface, 2-10% surface siltstone and calcrete fragments, and a slope of 3%.

### Soil Description:

| Depth (cm) | Description                                                                                                                 |
|------------|-----------------------------------------------------------------------------------------------------------------------------|
| 0-8        | Dark brown highly calcareous weakly structured loam with 10-20% siltstone fragments. Abrupt to:                             |
| 8-15       | Reddish brown highly calcareous soft massive clay loam with 20-50% siltstone and calcrete fragments. Abrupt to:             |
| 15-25      | Platy calcrete with reddish brown very highly calcareous loam and 20-50% siltstone fragments between the plates. Abrupt to: |
| 25-80      | Massive moderately strong calcrete pan with 20-50% siltstone fragments. Gradual to:                                         |
| 80-135     | Light red massive very highly calcareous coarse sandy clay loam with 20-50% siltstone fragments. Gradual to:                |
| 135-160    | Soft highly calcareous weathering siltstone with 10-20% soft and crystalline gypsum in fissures. Clear to:                  |
| 160-180    | Partially weathered siltstone.                                                                                              |



**Classification:** Gypsic, Paralithic, Lithocalcic Calcarosol; medium, gravelly, loamy / clay loamy, deep



## Summary of Properties

|                                 |                                                                                                                                                                                                                                                                                     |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Drainage:</b>                | Rapidly drained. This soil is unlikely to remain wet for more than a few hours after rain.                                                                                                                                                                                          |
| <b>Fertility:</b>               | Good nutrient retention capacity (indicated by the CEC and favourable organic carbon), and all nutrient elements are well supplied. Surface carbonate content is not high enough to cause serious fixation of phosphorus and trace elements - a common problem on calcareous loams. |
| <b>pH:</b>                      | Alkaline at the surface, strongly alkaline with depth.                                                                                                                                                                                                                              |
| <b>Rooting depth:</b>           | Strong root growth to 25 cm, and moderate to 135 cm.                                                                                                                                                                                                                                |
| <b>Barriers to root growth:</b> |                                                                                                                                                                                                                                                                                     |
| <b>Physical:</b>                | The main physical limitation is the calcrete layer. Where it is a continuous sheet it forms a root barrier, but where rubbly, roots grow well.                                                                                                                                      |
| <b>Chemical:</b>                | High subsoil pH and sodicity, and marginal salinity and boron levels.                                                                                                                                                                                                               |
| <b>Waterholding capacity:</b>   | Approximately 65 mm (moderately low) in rootzone.                                                                                                                                                                                                                                   |
| <b>Seedling emergence:</b>      | Good.                                                                                                                                                                                                                                                                               |
| <b>Workability:</b>             | Good.                                                                                                                                                                                                                                                                               |
| <b>Erosion Potential:</b>       |                                                                                                                                                                                                                                                                                     |
| <b>Water:</b>                   | Moderately low.                                                                                                                                                                                                                                                                     |
| <b>Wind:</b>                    | Moderately low - surface soil will powder if overgrazed.                                                                                                                                                                                                                            |

## 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     | 8.1                    | 7.6                     | 1.7                  | 0.26          | 1.30        | 1.4        | 30                   | 905                  | 13                       | 2.1            | 1.2                            | 10 | 15 | 1.6 | 23.8                  | 15.33                              | 4.19 | 0.70  | 2.53 | 2.9  |
| 0-8         | 8.2                    | 7.7                     | 5.6                  | 0.25          | 1.38        | 2.5        | 54                   | 1110                 | 64                       | 2.1            | -                              | -  | -  | -   | 24.1                  | 19.45                              | 2.36 | 0.07  | 3.09 | 0.3  |
| 8-15        | 8.4                    | 7.9                     | 7.6                  | 0.21          | 1.28        | 2.0        | 29                   | 829                  | 15                       | 1.9            | -                              | -  | -  | -   | 23.9                  | 19.51                              | 2.76 | 0.08  | 2.39 | 0.3  |
| 15-25       | 8.6                    | 8.0                     | 33.0                 | 0.18          | 0.77        | 1.4        | 19                   | 410                  | 16                       | 2.1            | -                              | -  | -  | -   | 18.8                  | 16.60                              | 3.37 | 0.24  | 1.11 | 1.3  |
| 25-80       | 8.9                    | 8.2                     | 37.4                 | 0.60          | 2.87        | 0.8        | 6                    | 140                  | 88                       | 3.0            | -                              | -  | -  | -   | 15.8                  | 9.88                               | 5.16 | 3.46  | 0.17 | 21.9 |
| 80-135      | 9.5                    | 8.7                     | 18.1                 | 1.11          | 5.90        | 0.4        | 5                    | 143                  | 175                      | 13.7           | -                              | -  | -  | -   | 23.9                  | 9.22                               | 7.05 | 11.99 | 0.35 | 50.1 |
| 135-160     | 8.2                    | 8.0                     | 0.2                  | 3.26          | 7.11        | <0.1       | 7                    | 151                  | 7100                     | 9.2            | -                              | -  | -  | -   | 10.9                  | 10.18                              | 2.89 | 4.09  | 0.25 | 37.5 |
| 160-180     | -                      | -                       | -                    | -             | -           | -          | -                    | -                    | -                        | -              | -                              | -  | -  | -   | -                     | -                                  | -    | -     | -    | -    |

**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](#)

