

SHALLOW CALCAREOUS LOAM ON ROCK

General Description: *Stony calcareous loam overlying fine grained calcareous basement rock at shallow depth.*

Landform: Upper slopes of undulating to rolling rises and low hills.

Substrate: Fine grained basement rock, either inherently calcareous, or mantled by secondary carbonate.

Vegetation:



Type Site: Site No.: CM103
 1:50,000 sheet: 6629-4 (Halbury) Hundred: Upper Wakefield
 Annual rainfall: 575 mm Sampling date: 12/05/04
 Landform: Upper slope in a landscape of undulating rises, slope 3%
 Surface: Firm with 2-10% siltstone and calcrete fragments (20-200 mm)

Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-12	Dark brown friable highly calcareous loam with strong fine granular structure and 2-10% siltstone gravel (6-20 mm). Clear to:
12-30	Dark brown friable very highly calcareous loam with strong fine polyhedral structure, 20-50% calcrete fragments (60-200 mm) and 10-20% siltstone fragments (20-60 mm). Sharp to:
30-32	Strongly cemented but discontinuous laminar calcareous pan. Sharp to:
32-70	Weathering highly calcareous siltstone with 20-50% fine carbonate segregations.



Classification: Hypervescent, Paralithic / Petrocalcic, Supracalcic Calcarosol; thick, slightly gravelly, loamy / loamy, shallow

Summary of Properties

Drainage: Rapidly drained. The soil is rarely likely to remain saturated for more than a few hours at a time.

Fertility: Inherent fertility is moderate. Highly calcareous surface soils ('grey ground') tend to tie up phosphorus, manganese and zinc. Fertilizer programs need to be adjusted accordingly. Foliar applications of trace elements are needed in some situations. Note that very high exchangeable calcium values reflect high organic matter concentrations.

pH: Alkaline throughout.

Rooting depth: 30 cm in pit.

Barriers to root growth:

Physical: Basement rock at shallow depth is the over-riding restriction to root growth. Where the rock bedding planes are more or less vertically dipping, some root growth occurs into the rock layer. Thin calcrete pans which intermittently cap the rock present a potentially serious barrier. However, they are disrupted by normal pre-plant ripping.

Chemical: There are no apparent chemical barriers.

Water holding capacity: Approximately 40 mm (total available) for annual crop and pasture plants. Approximately 20 mm (readily available) in potential grape vine rootzone of 30 cm.

Seedling emergence: Satisfactory.

Workability: Calcareous loams are easily worked over a range of moisture conditions. Surface stones can cause some implement abrasion.

Erosion Potential

Water: Moderately low. Surface soil is well aggregated and resistant to erosion.

Wind: Moderately low. Heavy grazing pulverizes the surface, sometimes leading to wind erosion. Upper slopes, where these soils generally occur are at greatest risk.

Laboratory Data

Depth cm	pH H ₂ O	pH CaCl ₂	CO ₃ %	EC 1:5 dS/m	ECe dS/m	Cl mg/kg	Org.C %	Avail. P mg/kg	Avail. K mg/kg	SO ₄ mg/kg	Boron mg/kg	Trace Elements mg/kg (DTPA)				Sum cations cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
												Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
0-12	8.4	7.7	11.3	0.36	1.070	17	3.94	22	1202	75	1.1	-	-	-	-	33.0	27.6	3.40	0.27	1.72	0.7
12-30	8.4	7.7	15.4	0.30	0.652	36	3.18	9	291	119	1.0	-	-	-	-	35.6	30.8	3.82	0.33	0.71	0.9
32-70	9.1	8.0	29.8	0.26	0.481	41	0.63	4	166	72	0.4	-	-	-	-	19.4	12.3	6.10	0.77	0.24	4.0

Note: Sum of cations is an estimate of cation exchange capacity, a measure of the soil's capacity to store and release nutrient elements.

ESP (exchangeable sodium percentage) is derived by dividing the exchangeable sodium value by the sum of cations.