

## CLAY LOAM OVER BROWN CLAY

**General Description:** *Hard clay loam over a strongly structured mottled brown clay, calcareous with depth*

**Landform:** Level plain.

**Substrate:** Clay with carbonate segregations and pans (Padthaway Formation).

**Vegetation:**



**Type Site:** Site No.: SE039

1:50,000 sheet: 7024-4 (Keppoch)

Hundred: Glen Roy

Annual rainfall: 570 mm

Sampling date: 15/09/95

Landform: Flat plain, 0% slope

Surface: Hard setting with no stones

### Soil Description:

<i>Depth (cm)</i>	<i>Description</i>
0-13	Dark brown hard massive clay loam. Clear to:
13-24	Dark brown friable medium clay with strong fine polyhedral structure. Gradual to:
24-36	Dark brown and yellowish brown mottled firm medium clay with strong coarse prismatic breaking to polyhedral structure. Abrupt to:
36-39	Very highly calcareous brown clay cemented to a semi hard platy pan. Clear to:
39-64	Yellowish brown and strong brown friable massive calcareous light medium clay with 10-20% carbonate nodules (20-60 mm).
64-90	Light olive brown friable massive calcareous light medium clay with 2-10% carbonate nodules (2-6 mm). Clear to:
90-115	Very dark greyish brown and light yellowish brown friable calcareous light medium clay with 20-50% carbonate nodules (6-60 mm). Sharp to:
115-116	Calcrete pan.



**Classification:** Mottled-Sodic, Supracalcic, Brown Chromosol; medium, non-gravelly, clay loamy/clayey, deep

## Summary of Properties

<b>Drainage</b>	Imperfectly drained. The soil may remain wet for several weeks at a time following heavy or prolonged rainfall.
<b>Fertility</b>	Inherent fertility is high, as indicated by the exchangeable cation data. There is ample nutrient retention capacity throughout, concentrations of all measured nutrient elements are adequate (phosphorus is marginal), and cation ratios are satisfactory.
<b>pH</b>	Alkaline throughout.
<b>Rooting depth</b>	Not recorded. Estimate 90 cm in pit, with most roots in the upper 36 cm.
<b>Barriers to root growth</b>	
<b>Physical:</b>	The platy layer between 36 and 39 cm will impede root growth.
<b>Chemical:</b>	High carbonate concentrations in a clayey matrix (from 39 cm) restrict root growth.
<b>Water holding capacity</b>	Approximately 85 mm in the root zone.
<b>Seedling emergence:</b>	Fair, due to hard setting sealing surface.
<b>Workability:</b>	Fair. Poorly structured surface has a restricted moisture range within which cultivation is effective.
<b>Erosion Potential</b>	
<b>Water:</b>	Low.
<b>Wind:</b>	Low.

## Laboratory Data

Depth cm	pH H <sub>2</sub> O	pH CaCl <sub>2</sub>	CO <sub>3</sub> %	EC1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	SO <sub>4</sub> -S mg/kg	Boron mg/kg	Trace Elements mg/kg (DTPA)				CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
											Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
Row	8.1	7.7	0.2	0.13	0.39	1.7	22	455	7	2.2	5.9	23	4.7	1.1	19.0	11.8	3.18	0.17	1.07	0.9
0-13	8.1	7.6	0.3	0.13	0.31	1.2	12	482	11	2.2	-	-	-	-	24.8	15.7	4.67	0.19	1.53	0.8
13-24	8.0	7.4	0.1	0.12	0.20	1.0	6	592	5	3.7	-	-	-	-	41.1	25.3	8.12	1.08	2.45	2.6
24-36	8.2	7.4	0.1	0.12	0.22	0.8	<4	615	2	3.7	-	-	-	-	41.1	24.7	7.85	1.51	2.31	3.7
36-39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
39-64	8.8	8.0	26	0.18	0.30	0.5	<4	435	4	1.9	-	-	-	-	30.4	21.0	6.11	2.02	1.63	6.6
64-90	8.8	7.9	26	0.20	0.28	0.1	<4	583	5	2.1	-	-	-	-	34.2	23.3	5.21	2.58	1.84	7.5
90-115	9.0	8.0	60	0.20	0.56	0.1	<4	358	14	1.2	-	-	-	-	18.3	13.5	3.38	1.62	1.04	8.9

**Note:** Row sample bulked from 20 cores (0-10 cm) taken from along the rows 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