

BLACK CRACKING CLAY

General Description: *Strongly structured seasonally cracking black clay, becoming more clayey and coarser structured with depth, generally moderately calcareous throughout.*

Landform: Undulating rises and low hills.

Substrate: Coarsely structured red heavy clay, mantled by fine carbonate.

Vegetation:



Type Site: Site No.: CL908

1:50,000 sheet: 6629-4 (Halbury) Hundred: Alma
 Annual rainfall: 475 mm Sampling date: 07/03/91
 Landform: Lower slope of undulating low hills, 5% slope
 Surface: Self-mulching and seasonally cracking with no stones

Soil Description:

Depth (cm)	Description
0-10	Very dark greyish brown firm moderately calcareous light clay with strong medium granular structure. Gradual to:
10-65	Very dark greyish brown hard moderately calcareous heavy clay with strong coarse prismatic (breaking to coarse angular blocky) structure. Gradual to:
65-127	Brown very hard very highly calcareous heavy clay with strong coarse lenticular structure and 2-10% fine carbonate segregations. Diffuse to:
127-170	Strong brown very hard highly calcareous medium clay with strong coarse subangular blocky structure and 2-10% fine carbonate segregations.



Classification: Epicalcareous-Endohypersodic?, Self-mulching, Black Vertosol

Summary of Properties

Drainage: Imperfectly drained. Soil may remain wet for several weeks following heavy or prolonged rainfall.

Fertility: Inherent fertility is very high – a function of high clay and organic matter content, and high calcium saturation. Nutrient retention capacity is very high, but high productivity leads to nutrient depletion, especially phosphorus and zinc.

pH: Alkaline at the surface, strongly alkaline with depth.

Rooting depth: 92 cm in pit, but few roots below 65 cm.

Barriers to root growth:

Physical: Hard coarse aggregates in the subsoil reduce root length and density, but do not prevent growth.

Chemical: High pH and probably high sodicity from 65 cm restrict deeper root growth.

Water holding capacity: Approximately 110 mm in the root zone.

Seedling emergence: Satisfactory to fair. Emerging seedlings can be damaged if surface dries and cracks following germination.

Workability: The clayey surface becomes sticky and intractable when wet.

Erosion Potential

Water: Moderately low (sheet / rill erosion), but highly susceptible to gully erosion in water courses.

Wind: Low.

Laboratory Data

Depth cm	pH H ₂ O	pH CaCl ₂	CO 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 (DTPA)				CEC cmol (+)/kg	Exchangeable Cations cmol(+)/kg				ESP
											Cu	Fe	Mn	Zn		Ca	Mg	Na	K	
0-10	8.3	7.7	6	0.16	-	1.33	40	580	-	-	0.8	15	13.0	1.5	-	-	-	-	-	-
10-65	8.5	7.7	4	0.13	-	0.55	3	180	-	3	0.6	12	1.3	0.1	-	-	-	-	-	-
65-127	9.3	8.1	11	0.30	-	0.38	1	150	-	8	0.7	8.8	1.6	0.1	-	-	-	-	-	-
127-170	9.3	8.4	11	0.61	-	0.10	1	180	-	-	0.6	5.7	0.7	0.0	-	-	-	-	-	-