

IRONSTONE SOIL (Vanilla soil)

General Description: *Ironstone gravelly sandy loam with a paler coloured and very gravelly A2 layer, over a yellow to brown clay with variable ironstone throughout*

Landform: Very gently undulating plains.

Substrate: Deeply weathered Tertiary clays.

Vegetation:



Type Site:	Site No.:	EL002	1:50,000 mapsheet:	6028-4 (Vanilla)
	Hundred:	Vanilla	Easting:	558850
	Section:	163	Northing:	6172900
	Sampling date:	23/03/1992	Annual rainfall:	495 mm average

Midslope of 1-2%. Hard setting surface with no gravel.

Soil Description:

Depth (cm)	Description
0-9	Very dark grey firm massive sandy loam with 2-10% ironstone concretions. Clear to:
9-15	Dark greyish brown hard massive sandy loam with 20-50% ironstone concretions. Clear to:
15-30	Greyish brown hard massive sandy loam with 80-90% ironstone concretions. Clear to:
30-40	Brown hard weakly structured sandy clay with 70% semi hard ironstone. Gradual to:
40-60	Yellowish brown hard light clay with coarse structure and 50% gritty ironstone concretions and larger fragments. Gradual to:
60-100	Yellowish brown hard light clay with 45% platy ironstone fragments. Gradual to:
100-135	Yellowish brown hard light medium clay with 45% platy ironstone fragments. Gradual to:
135-170	Yellowish brown and grey hard medium clay with lenticular structure and 25% ironstone fragments.



Classification: Ferric, Eutrophic, Brown Chromosol; thick, slightly gravelly, loamy / clayey, very deep



Summary of Properties

Drainage:	Imperfectly drained. Water may perch on the clayey subsoil for several weeks following heavy or prolonged rainfall.
Fertility:	Inherent fertility is moderately low, as indicated by the exchangeable cation data, and the amount of phosphate fixing ironstone present. Concentrations of all measured nutrient elements are satisfactory at the sampling site. Organic carbon levels are satisfactory.
pH:	Strongly acidic at the surface, neutral to slightly acidic with depth.
Rooting depth:	60 cm in pit.
Barriers to root growth:	
Physical:	The clayey subsoil restricts root growth to some extent.
Chemical:	There are no chemical limitations.
Waterholding capacity:	Approximately 35 mm in rootzone
Seedling emergence:	Fair due to hard dense surface soil.
Workability:	Fair due to poorly structured surface soil with restricted moisture range for effective working. Abrasive ironstone gravel wears equipment quicker than normal.
Erosion Potential:	
Water:	Moderately low.
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 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	
0-9	5.3	4.9	0	0.22	2.72	1.40	62	-	-	1.7	1.06	178	16.1	0.96	12.8	2.2	0.64	0.38	0.95	3
9-15	4.9	4.2	0	0.10	1.06	0.91	24	-	-	1.3	0.61	166	7.78	0.21	8.8	1.9	0.31	0.07	0.62	1
15-30	5.4	4.6	0	0.06	0.82	0.37	7.9	-	-	1.0	0.21	66	2.60	0.12	6.3	1.4	0.25	0.02	0.52	<1
30-40	5.9	5.7	0	0.04	0.74	0.30	5.0	-	-	1.5	0.13	28	0.19	0.14	8.5	2.2	0.76	0.18	0.47	2
40-60	6.6	5.7	0	0.10	0.50	0.24	3.6	-	-	2.5	0.03	9.6	0.29	0.05	18	4.5	3.6	0.56	0.76	3
60-100	6.8	5.9	0	0.09	0.44	<0.1	3.3	-	-	3.3	<0.01	2.6	0.08	0.03	21	4.9	5.0	0.85	0.80	4
100-135	6.6	5.9	0	0.09	0.38	<0.1	3.3	-	-	3.3	<0.01	2.4	0.01	0.04	17	3.9	4.0	0.80	0.49	5
135-170	6.6	5.9	0	0.10	0.50	<0.1	2.8	-	-	3.9	<0.01	2.0	0.01	0.02	17	4.0	4.5	0.96	0.43	6

Note: 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](#)

