CALCAREOUS CLAY LOAM ON MARL

General Description: *Black calcareous organic loam over grey highly calcareous clay*

Landform: Sub coastal swamps in swales between dunes.

Substrate: Marl

Vegetation: Sedges

Type Site: Site No.: SE093

1:50,000 sheet:	6823-1 (Robe)	Hundred:	Waterhouse
Annual rainfall:	650 mm	Sampling date:	15/10/04
Landform:	Swamp in narrow swale		
Surface:	Firm with no stones		

Soil Description:

Depth (cm)	*Description*
0-20	Black highly calcareous organic-rich loam with moderate medium size polyhedral structure. Clear boundary to:
20-35	Dark grey very highly calcareous light clay with strong medium sized polyhedral structure. Clear boundary to:
35-55	Grey very highly calcareous sandy clay loam. Gradual boundary to:
55-100	Light yellowish brown very highly calcareous sand. Water table at 95 cm.

Classification: Melanic, Calcarosolic, Oxyaquic, Hydrosol; medium, non-gravelly, loamy/clayey, moderate

Summary of Properties

Drainage: Poorly drained and frequently inundated. The soil is wet for several months or more in most seasons.

Fertility: Inherent fertility is high, but tests indicate that trace element concentrations are low. High carbonate levels suppress availability of trace elements, as well as phosphorus.

pH: Alkaline throughout.

Rooting depth: 75 cm or more in pit.

Barriers to root growth:

Physical: There are no physical barriers, other than the shallow water table.

Chemical: High carbonate concentrations prevent good root growth unless fertilizers are applied as foliar sprays or in liquid form.

Water holding capacity: Approximately 110 mm.

Seedling emergence: Satisfactory, provided water table is below surface.

Workability: Easily workable, but wetness means poor access for machinery till late in the season.

Erosion Potential

Water: low

Wind: Low

Laboratory Data

Depth cm	pH H_2O	pH $CaC1_2$	CO_3 %	EC 1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	Cl mg/kg	SO_4-S mg/kg	Boron mg/kg	Trace Elements mg/kg (EDTA)				Sum cations cmol (+)/kg	Exchangeable Cations cmol(+)/kg				Est. ESP
												Cu	Fe	Zn	Mn		Ca	Mg	Na	K	
0-20	8.6	8.0	67.2	0.27	0.84	7.5	30	128	42	14.0	3.8	0.7	30	1.5	6.9	48.2	27.9	19.4	0.6	0.3	1.2
20-35	9.1	8.1	85.1	0.27	0.89	2.5	12	97	47	12.5	4.2	0.3	19	0.6	1.4	30.0	16.1	12.7	1.0	0.2	3.2
35-55	9.2	8.1	80.6	0.71	3.65	1.2	4	44	643	132	2.8	0.4	54	0.3	1.9	22.4	12.6	7.34	2.32	0.12	10.4
55-100	9.2	8.3	60.5	0.21	1.82	1.2	2	20	132	23	0.4	0.2	47	0.2	3.3	9.4	7.77	1.14	0.41	0.05	4.4

Note: Sum of cations, in a neutral to alkaline soil, approximates the CEC (cation exchange capacity), 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, in this case the sum of cations.