

Reference soil Ireland 12: Gleysol

Description

Classification

WRB 1998:

Dystri- Saprihistic Gleysol

FAO-UNESCO-ISRIC 1988:

Silti- Umbric Gleysol

FAO-UNESCO 1974:

Humic Gleysol



Site description

General information:

Names of person(s) who described the profile : Creutzberg D
General description of location of profile (e.g., town, province) : Co. Limerick, approximately 5 km E of Abbeyfeale
Climate classification according to Köppen : Cfb
Date : 1967
Latitude / Longitude : N 52.3833333° / W -9.21667°

Physiography:

The altitude of the soil profile relative to mean sea level, specified in meters : 100 m asl
Regional landform : glacial plain
Topography of the surrounding country : undulating
Physiographic Unit in the immediate surrounding of the site : almost flat part in undulating to rolling terrain
The slope refers to the inclination of the land immediately surrounding the site. The measured or estimated slope angle is specified to the nearest per cent : 2 %
The physiographic position of the site where the profile is located : upper slope
Form of the slope surrounding the site : straight
Slope Aspect of the site :

Parent material:

The main parent rock/
material over which the
soil has been formed
(1st entry) : mixed lithology and composition

Mode of Accumulation
or deposition of parent
material (1st entry) : glacial drift

Texture of parent
material (1st entry) : loamy

Weathering status of
solid rock (1st entry) : partially or moderately

Depth1 of lithological
boundary : cm

The main parent rock/
material over which the
soil has been formed
(2nd entry) : shale

Mode of Accumulation
or deposition of parent
material (2nd entry) : solid rock

Texture of parent
material (2nd entry) : loamy

Weathering status of
solid rock (2nd entry) : partially or moderately

Resistance against
weathering (solid rock)
(2nd entry) :

Soil Depth; depth to
which roots can easily
penetrate throughout the
year : 100 cm

Remarks on Parent
Materials : glacial drift and soliflucted material of
pper Carboniferous shale and
sandstone composition, mainly of
Saale age

Hydrology and drainage:

Depth of groundwater : cm
table

Groundwater Top : cm

Groundwater Bottom : cm

Kind of groundwater : no groundwater table observed
table

Top Stagnating Layer : cm

Bottom Stagnating
Layer : cm

Runoff : very slow

Flooding frequency : never

Estimated permeability : slow
(class) of least
permeable part of the
profile

Drainage Class : very poor

To Drainage Class :

Moisture conditions of : cm
the profile: dry from -to

Moisture conditions of : cm
the profile: moist from
-to

Wet From - To : cm

Land use / vegetation:

Current land use at the site : semi-natural grassland, grazed
Major crops :
Main type of irrigation :
Rotation scheme :
Vegetation Type;The natural vegetation at the site :
Status of vegetation :
Remarks on Land Use / Vegetation : Juncus acutifloris (jointed rush), J. conglomeratus, Lotus uliginosus (marsh bird's-foot trefoil), Succisa pratensis (devil's bit), Carex spp. (sedges) and other moisture demanding species are found.

Erosion and aggradation:

Soil erosion type (1st entry) :
Occurrence of soil aggradation :
Slope Stability :

Surface characteristics:

Microrelief type: small-scale differences in relief in the direct vicinity of the site :
Microrelief Height :
Rockiness : none
Stoniness : none
Average size of stones :
Shape of stones (on average) :
Slaking of aggregates by tillage, rainfall or frost : no surface slaking/crusting observed
Evidence of salt : non-saline
Evidence of alkali : non-alkaline

Nearest climate station:

Station : No representative climate station available for this site

Profile description:

H 0-28 cm	:black (10YR 2/1, dry), organic highly, weak fine crumb, slightly sticky, many fine pores highly porous (>60 vol%), many fine and medium roots, abrupt smooth boundary to,
Cg 28-65 cm	:(2.5Y 7/no, dry), silt loam slightly gravelly, porous massive, plastic, few fine distinct mottles (7.5YR 5/8), many medium continuous tubular vertical pores slightly porous (<40 vol%), common fine and medium throughout roots, common medium and coarse gravel weathered sandstone fragments, clear smooth boundary to,
2Cg 65-80 cm	:(2.5Y 7/no, dry), silt loam gravelly, porous massive, plastic, common fine distinct mottles (7.5YR 5/8), few fine continuous tubular vertical pores slightly porous (<40 vol%), few fine roots, many fine and medium gravel weathered sandstone fragments, abrupt smooth boundary to,
3Cg 80-125 cm	:very pale brown (10YR 7/3, dry), silt loam gravelly, porous massive, plastic, common medium distinct mottles (7.5YR 5/8), few fine continuous tubular vertical pores slightly porous (<40 vol%), no roots, many fine and medium gravel weathered sandstone and schist common coarse gravel and stones weathered sandstone and schist fragments,

Physical

Particle size distribution:

Depth (cm)	Grave I (%)	Very Coarse Sand (%)	Coarse Sand (%)	Medium Sand (%)	Fine Sand (%)	Very Fine Sand (%)	Total Sand (%)	Coarse Silt (%)	Fine Silt (%)	Total Silt (%)	Clay (%)	Grave I (%)	Very Coarse Sand (%)	Coarse Sand (%)	Medium Sand (%)	Fine Sand (%)	Very Fine Sand (%)	Total Sand (%)	Coarse Silt (%)	Fine Silt (%)	Total Silt (%)	Clay (%)
-1--1 :	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30-65 :	12	-	-	-	-	-	18	19.4	37.3	56.7	25.3											
65-80 :	21	-	-	-	-	-	15	37.9	33	70.9	14.1											
-1-65 :	-	-	-	-	-	-	-	-	-	-	-	39	-	-	-	-	-	30.2	24.1	32.8	56.9	12.9

Other physical data

[illegible]

Chemical characteristics:

Depth (cm)	pH H ₂ O	pH KCl	EC 1 : 2.5 (mS/cm)	CaCO ₃ (%)	Org. C (%)	Org. N (%)	C / N	Exch. Acid (cmol/kg)	Exch. Al (cmol/kg)	Ca (cmol/kg)	Mg (cmol/kg)	K (cmol/kg)	Na (cmol/kg)	Sum Cations (cmol/kg)	pH H ₂ O	pH KCl	EC 1 : 2.5 (mS/cm)	CaCO ₃ (%)	Org. C (%)	Org. N (%)	C / N	Exch. Acid (cmol/kg)	Exch. Al (cmol/kg)	Ca (cmol/kg)	Mg (cmol/kg)	K (cmol/kg)	Na (cmol/kg)	Sum Cations (cmol/kg)
-1-1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.7	4.0	-	-	60	2.00	30	-	-	-	-	-	-	-
30-65	4.4	3.4	-	-	0.83	0.07	12	-	-	0.7	1.0	0.1	0.0	1.8														
65-80	4.2	3.5	-	-	0.39	0.05	8	-	-	0.4	1.1	0.1	0.0	1.6														
-1-65	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4.7	3.5	-	-	0.20	0.04	5	-	-	0.4	1.1	0.1	0.0	1.6

Depth (cm)	CEC Soil (cmol/kg)	CEC Clay (cmol/kg)	CEC Org (cmol/kg)	ECEC (cmol/kg)	Base sat. (%)	Al sat. (%)	ESP (%)	CEC Soil (cmol/kg)	CEC Clay (cmol/kg)	CEC Org (cmol/kg)	ECEC (cmol/kg)	Base sat. (%)	Al sat. (%)	ESP (%)
-1--1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30-65	10.4	41	-	-	17	-	-							
65-80	7.7	55	-	-	21	-	-							
-1-65	-	-	-	-	-	-	-	4.6	36	-	-	35	-	-

Depth (cm)	pH NaF	P Retention (%)	OD OE	Melanin Index	Fe o (wt%)	Al o (wt%)	Si o (wt%)	Fe d (wt%)	Al d (wt%)	Fe p (wt%)	Al p (wt%)	C p (wt%)	pH NaF	P Retention (%)	OD OE	Melanin Index	Fe o (wt%)	Al o (wt%)	Si o (wt%)	Fe d (wt%)	Al d (wt%)	Fe p (wt%)	Al p (wt%)	C p (wt%)
-1--1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30-65	-	-	-	-	-	-	-	-	-	-	-	-												
65-80	-	-	-	-	0	0	0	0	0	0	0	-					0	0	0	0	0	0	0	-
-1-65	-	-	-	-	0	0	0	0	0	0	0	-	-	-	-	-	0	0	0	0	0	0	0	-

Source of analyzing procedures:

Laboratory Attribute	Description	Proc. ref
ISRIC Al d	Al; Atomic Absorption Spectrometry	12.1-1.2
ISRIC Al o	Al; Atomic Absorption Spectrometry	12-2
ISRIC Al p	Al; Atomic Absorption Spectrometry	12-3
ISRIC Base sat.	Calculation; Sum of Exchangeable Cations (Na, K, Ca, Mg) / CEC soil	labmanual
ISRIC C / N	Calculation; Organic Carbon / Organic Nitrogen	labmanual
ISRIC Ca	Exchangeable bases with 1 M ammonium acetate at pH 7; Ca by atomic absorption spectrometry	9-4 and 9-5.3
ISRIC CEC Clay	Calculation; ((CEC soil - CEC org.m.) / clay %) * 100	9-6.3
ISRIC CEC Soil	CEC; with index cation in buffered solution pH7	9-4 and 9-5.3.3
ISRIC Clay; < 0.002 mm	Fraction by Pipette analysis; after removal CaCO ₃ and organic matter, dispersion and sedimentation	3-4.7
ISRIC Fe d	Fe; Atomic Absorption Spectrometry	12-1.2

ISRIC	Fe o	Fe; Atomic Absorption Spectrometry	12-2
ISRIC	Fe p	Fe; Atomic Absorption Spectrometry	12-3
ISRIC	Gravel	Fraction from field sample, after drying, crushing, sieving	1-1
ISRIC	K	Exchangeable bases with 1 M ammonium acetate at pH 7; K by flame atomic emission spectrometry	9-6.1
ISRIC	Mg	Exchangeable bases with 1 M ammonium acetate at pH 7; Mg by atomic absorption spectrometry	9-4 and 9-5.3
ISRIC	Na	Exchangeable bases with 1 M ammonium acetate at pH 7; Na by flame atomic emission spectrometry	9-4 and 9-5.3
ISRIC	Organic Carbon	Wet combustion of organic matter by potassium dichromate and sulphuric acid at about 125 degrees Celcius. Residual dichromate is back titrated against ferrous sulphate. To compensate for incomplete destruction an emprical correction factor of 1.3 is applied	5
ISRIC	Organic Nitrogen	Organic Matter is digested in sulphuric acid (and hydrogen peroxide) with selenium as catalyst. Nitrogen is converted to ammonium sulphate. The solution is made alkaline and ammonia is distilled off. The evolved ammonia is trapped in boric acid and titrated with standardized acid solution	6
ISRIC	pH H2O	pH electrode; in supernatant suspension	4-1
ISRIC	pH KCl	In supernatant suspension; potentiometrically	4-1
ISRIC	Sand; 2.0 - 0.05 mm	Total sand fractions by sieving; after removal CaCO3 and organic matter	3-5
ISRIC	Si o	Si; Atomic Absorption Spectrometry	12-2
ISRIC	Silt; 0.02 - 0.002 mm	Fraction by Pipette analysis ; after removal CaCO3 and organic matter, dispersion and sedimentation	3-4.7
ISRIC	Silt; 0.05 - 0.002 mm	Calculation; Sum fractions Silt 0.05 - 0.02 mm	3-4.7
ISRIC	Silt; 0.05 - 0.02 mm	Fraction by Pipette analysis ; after removal CaCO3 and organic matter, dispersion and sedimentation	3-4.7
ISRIC	Sum cations	Sum of Exchangeable Cations (Ca, Mg, Na, K) with 1 M ammonium acetate at pH 7	9-

*ref: no labmanual available, link to presumable used analytical methode

Other classification

USDA-SCS (1975) : Humaquept fine-loamy mixed mesic
Classification (other) :
 Gley, Abbeyfeale Series