

GEUMCHEON SERIES

Established Series
JYH, UKT
29 September, 1974

The Geumcheon series are members of the mixed, mesic family of Aquic Udipsamments [Hydragric Anthrosols (Eutric Oxyaquic Arenic) classified by WRB]. These soils have thin dark grayish brown sandy loam Ap horizons and very deep dark yellowish brown or yellowish brown with some gray mottled sand or loamy sand C horizons. They are developed on alluvial plains, river sides, and levees and are derived from coarse textured alluvial materials.

Typifying Pedon : Geumcheon sandy loam-paddy rice (Field description Seonsan Gun profile No. 18; colors are for moist soil).

Slope: 0-2%

Elevation: m above m.s.l.

Soil moisture regime: Udic (Anthraquic)

Temperature regime: Mesic

Parent material: Alluvium

Diagnostic features: An ochric epipedon from a depth of 0 to 10 cm (An anthraquic horizon from a depth of 0 to 30 cm and a hydragric horizon from a depth of 30 to 70 cm by WRB).



Morphological properties of Geumcheon series.

Ap - 0 to 10 cm. Dark grayish brown (2.5Y 4/2) to olive brown (2.5Y 4/3) sandy loam; structureless, massive; friable, slightly sticky and slightly plastic; common very fine roots and micas; abrupt smooth boundary; pH 6.0.

C1 - 10 to 30 cm. Grayish brown to light olive brown (2.5Y 5/3) loamy sand; many fine to medium prominent strong brown (7.5YR 5/6) and yellowish red (5YR 4/6) mottles on the upper part of this horizons; structureless, single grained; loose, non sticky and non plastic; very few very fine roots; mica as above; clear smooth boundary; pH 6.5.

C2 - 30 to 70 cm. Pale brown to light yellowish brown (10YR 6/2) sand; few medium faint light brown gray (2.5Y 6/2) mottles; structureless, single grained; loose, non sticky and non plastic; micas as above; gradual smooth boundary: pH 6.5.

C3 - 70 to 120 cm. Very pale brown (10YR 7/4) sand; few medium faint light brownish gray (2.5Y 6/2) mottles; structureless, single grained; loose, non sticky and non plastic; micas as above; pH 6.7.

Type Location: Approximately 700 meters south-east of Bugog Dong, Gumi city, Gyeongsangbug Do.

Range in Characteristics: These soils have ochric epipedons. Depth to bed rock is more than 3 meters. Base saturation is more than 50 percent. Reaction is medium to slightly acid. The thickness of Ap horizons ranges from 5 to 25 cm. Ap horizons are grayish brown, dark grayish brown or olive gray loam or loamy sand with yellowish brown mottles. C horizons are stratified yellowish brown, dark yellowish brown, brownish yellow or grayish brown coarse sand, loamy sand or fine sand.

Competing Series and Their Differentiae: These include the Myeongji, Hwabong, Bonryang, Jangcheon and Sindab soils. The Myeongji soils have moderately thick dark colored A horizons. The Hwabong soils are better drained. The Bonryang soils are better drained and have coarse loamy over sandy texture. The Jangcheon soils are finer sand particles. The Sindab soils are poorly drainage.

Setting: The Geumcheon soils occur along the stream river channels and levees. They are derived from coarse textured alluvial materials. Slopes are commonly 0 to 2 percent.

Principal Associated Soils: The Geumcheon soils are associated with the Hwabong, Jungdong, Nagdong, Bonryang and Seoggye soils. These soils occur in similar physiographic positions.

Drainage and Permeability: Moderately well drained. Permeability is rapid. Runoff is very slow.

Use and Vegetation: Most of Geumcheon soils are used for rice paddy. Some areas are used for upland crops.

Distribution and Extent: The Geumcheon soils are of small extent and occur along the river sides throughout the country.

Series Established: Seonsan Gun, Gyeongsangbug Do, 1974.

Laboratory data sheets of typifying pedon.

Depth (cm)	Horizon	(--- Total ---)			(-- Clay --)		(-- Silt --)		(----- Sand -----)				
		Clay	Silt	Sand	Fine	Coarse	Fine	Coarse	VF	F	M	C	VC
		LT	.002	.05	LT	LT	.002	.02	.05	.10	.25	.5	1
		.002	- .05	- 2	.0002	.002	- .02	- .05	- .10	- .25	- .50	- 1	- 2
- - - - - Pct of < 2mm (3A1) - - - - -													
0-10	Ap	18.1	6.0					11.8	19.7	19.7	19.2	18.8	
10-30	C1	11.7	5.0					15.1	26.0	20.2	20.2	18.5	
30-70	C2	7.2	5.2					17.3	27.9	25.1	25.1	15.7	
70-120	C3	1.8	1.4					8.0	32.4	35.6	35.6	18.8	

Depth (cm)	Coarse Fractions(mm)				>2mm	Orgn	Total	Extr	Total	(-- Dith -Cit --)		
	2-5	5-20	20-75	.1-75	Wt	C	N	P	S	Extractable		
					Pct of					Fe	Al	Mn
					Whole	6A1c	6B3a	6S3	6R3a	6C2b	6G7a	6D2a
	Pct of < 75mm (3B1)				Soil	Pct < 2mm	g/kg	Pct of < 2mm				
0-10						0.45						
10-30						0.15						
30-70						0.07						
70-120						0.07						

Depth (cm)	Ratio/Clay	Atterberg		(Bulk Density)			COLE	(- Water Content -)			WRD		
	CEC	1500	Limits	Field	33	Oven	Whole	Field	10	33	1500	Whole	
		kPa	LL	PI	Moist	kPa	Dry	Soil	Moist	kPa	kPa	kPa	Soil
	8D1	8D1	4P1	4P	4A3a	4A1d	4A1h	4D1	4B4	4B1c	4B1c	4B2a	4C1
		Pct <0.4mm			- - g/cc - -		cm/cm	-- Pct of <2mm --					cm/cm
0-10									17.3	13.0	4.5		
10-30									10.9	8.1	3.0		
30-70					-				7.6	5.4	1.9		
70-120					-				4.2	3.6	1.7		

Depth (cm)	(NH4OAc Extractable Bases)					Acid-	Extr	(----- CEC -----)			Al
	Ca	Mg	K	Na	Sum	ity	Al	Sum	NH4-	Bases	Sat
	5B5a	5B5a	5B5a	5B5a	Bases			Cats	OAc	+ Al	
	6N2e	6O2d	6Q2b	6P2b		6H5a	6G9a	5A3a	5A8b	5A3b	5G1
	- - - - - meq / 100g - - - - -										Pct
0-10	2.63	0.90	0.15	0.21					5.35		
10-30	1.38	0.40	0.07	0.10					3.35		
30-70	1.75	0.40	0.06	0.09					2.45		
70-120	1.21	0.34	0.05	0.06					1.65		

Depth (cm)	(Base Sat)	CO3 as	Res	Cond	(----- pH -----)			Acid Oxalate Extraction				
	Sum	NH4-	CaCO3		NaF	KCl	CaCl2	H2O	Opt	Al	Fe	Si
		OAc	<2mm				.01M		Den			
	5C3	5C1	6E1g	8E1	8I	8C1d	8C1f	8C1f	8J	6G12	6C9a	6V2
	---- Pct ----		ohms/	dS/m		1: 1	1: 2	1: 1	- Pct of <2mm -			
0-10		72.7				5.0		6.0				
10-30		58.2				4.8		6.2				
30-70		93.9				4.6		6.4				
70-120		100.0				4.8		6.7				