GALGOG SERIES

Established Series
PCS, JYH
5 Oct., 1978

The Galgog series are members of the fine loamy, mixed, mesic family of Typic Hapludults [Cutanic Luvisols (Profondic Chromic) classified by WRB]. These soils have dark grayish brown sandy loam Ap horizons, dark yellowish brown sandy loam BA horizons with strong brown mottles, reddish brown and strong brown sandy clay loam Bt1 horizons, brown and dark brown sandy clay loam Bt2 horizons, and reddish brown clay loam BCt horizons with red mottles. These soils are on local valleys derived from alluvial-colluvial materials.

Typifying Pedon: Galgog sandy loam-red pepper (Colors are for moist soil).

Slope: 2-7%

Elevation: 77 m above m.s.l.

Soil moisture regime: Udic

Soil temperature regime: Mesic

Parent material: Local alluvium

Diagnostic features: An ochric epipedon from a depth of 0 to 19 cm and an argillic horizon from a depth of 36 to 150 cm (An argic horizon from a depth of 36 to 150 cm by WRB).

Described by: Song, K. C., D. C. Noh, and B. K. Hyun, 19 March, 2013.

Morphological properties of typifying pedon.

Ap - 0 to 19 cm. Dark grayish brown (10YR 4/2) sandy loam; weak fine to medium subangular blocky structure; friable, slightly sticky and slightly plastic; common fine to medium roots; common medium to coarse pores; few fine micas; few worm holes; common quartz grits; clear wavy boundary.

BA - 19 to 36 cm. Dark yellowish brown (10YR 4/4) sandy loam; few medium to coarse distinct strong brown (7.5YR 5/4) mottles; weak fine to medium subangular blocky structure; friable, slightly sticky and slightly plastic; few fine roots; common fine to medium pores; common fine micas; few worm holes; few quartz grits; clear wavy boundary.

Bt1 - 36 to 55 cm. Mottled, brown (7.5YR 5/4), reddish brown (5YR 5/4), brown (7.5YR 5/2), and strong brown (7.5YR 4/6) sandy clay loam; crushed color, dark yellowish brown (10YR 4/6); weak medium to coarse platy structure; friable, sticky and plastic; thin continuous clay cutans; few fine roots; common medium to coarse pores; few fine micas; few worm holes; few quartz grits; clear wavy boundary.

Bt2 - 55 to 81 cm. Mottled, brown (7.5YR 5/4), brown (7.5YR 4/4), and dark brown (7.5YR 3/3) sandy clay loam; crushed color, brown (7.5YR 5/4); weak medium to coarse prismatic structure; slightly firm, sticky and plastic; thin continuous clay cutans; few very fine roots; common fine to medium pores; few very fine micas; few worm holes; few quartz grits; clear wavy boundary.

BCt - 81 to 145 cm. Reddish brown (5YR 4/4) clay loam; many medium to coarse distinct red (2.5YR 4/6) mottles; weak coarse subangular blocky structure; slightly firm, sticky and plastic; thin patch clay cutans; no roots; common fine to medium pores; few very fine micas; few worm holes; few quartz grits.

The typifying pedon has an ochric epipedon from a depth of 0 to 19 cm and an argillic horizon from a depth of 36 to 145 cm. It has a base saturation (by sum of cations) of less than 35% at 125 cm below the upper boundary of the argillic horizon. That can be classified as Ultisol. It has an udic soil moisture regime, and can be classified as Udult. Also it meets the requirements of Typic Hapludult.

The typifying pedon has fine loamy particle-size class and mesic soil temperature class. Therefore it can be classified as fine loamy, mixed, mesic family of Typic Hapludult.

Type Location: About 400 meters north of Gasan Yuggyo, Gasan Ri, Bubal Eub, Icheon city, Gyeonggi Do (127° 30' 39.8", 37° 14' 50.9").

Range in Characteristics: These soils have ochric epipedons and argillic horizons. The solum thickness ranges from 100 to 150 cm. Depth to hard rock is more than 3 meters. Reaction is strongly acid to neutral. Base saturation varies with depth. Ap horizons are thin brown or dark grayish brown sandy loam or coarse sandy loam. The argillic B horizons are very thick brown, yellowish brown, strong brown, or dark yellowish brown with gray or dark grayish brown mottled sandy clay loam or clay loam.

Competing Series and Their Differentiae: These are the Songjeong, Nasan, and Ugog soils. The Songjeong soils are developed in rolling to hilly areas underlaid by very deeply weathered granitic rocks and well drained. The Nasan soils are on rolling to hilly areas derived from porphyry and similar materials and well drained. The Ugog soils are developed on mountain foot slopes derived from local alluvial-colluvial materials and well drained.

Setting: The Galgog soils are on slightly concave narrow valley and foot slope positions derived from alluvial-colluvial materials.

Principal Associated Soils: They are the Songsan, Osan, Samgag, and Asan soils in residual positions; Sangju, Daegog, and Baegsan soils in similar positions; Sachon, Jisan, and Ogcheon soils in lower positions.

Drainage and Permeability: Moderately well drained; moderate to slow permeability; slow runoff.

Use and Vegetation: Used for soybean and vegetables.

Distribution and Extent: The Galgog soils are of small extent distributed on narrow valleys and foot slopes throughout the country.

Series Established: Paju city, Gyeonggi Do, 1977. **Revised,** Icheon city, Gyeonggi Do, 2013.

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	.002 - .05	.05 - 2	LT .0002	LT .002	.002 - .02	.02 - .05	.05 - .10	.10 - .25	.25 - .50	.5 - 1	1 - 2
		- - - - - - - - - - - - Pct of < 2mm (3A1) - - - - - - - - - - - -											
0-19	Ap	12.9	15.7	71.4			8.3	7.4	4.1	11.3	14.6	21.6	19.9
19-36	BA	11.3	13.8	74.9			7.2	6.5	3.6	11.2	14.7	22.3	23.3
36-55	Bt1	18.1	22.1	59.8			11.4	10.8	6.1	11.2	12.4	15.8	14.3
55-81	Bt2	19.5	30.9	49.7			16.4	14.5	7.7	9.7	10.6	13.0	8.6
81-145	BCt	24.3	31.8	43.9			15.7	16.1	4.2	7.7	8.7	11.9	11.3

Depth (cm)	Coarse Fractions(mm) Weight				>2mm Wt	Orgn C	Total N	Extr P	Total S	(-- Dith -Cit --) Extractable		
	2-5	5-20	20-75	.1-75	Pct of Whole	6A1c	6B3a	6S3	6R3a	Fe 6C2b	Al 6G7a	Mn 6D2a
	Pct of < 75mm (3B1)				Soil	Pct < 2mm		g/kg		Pct of < 2mm		
0-19						1.03						
19-36						0.39						
36-55						0.40						
55-81						0.35						
81-145						0.27						

Depth (cm)	Ratio/Clay		Atterberg		(Bulk Density)			COLE	(- Water Content -)				WRD
	CEC	1500 kPa	Limits		Field Moist	33 kPa	Oven Dry	Whole Soil	Field Moist	10 kPa	33 kPa	1500 kPa	Whole Soil
	8D1	8D1	LL 4P1	PI 4P	4A3a	4A1d	4A1h	4D1	4B4	4B1c	4B1c	4B2a	4C1
			Pct <0.4mm		- - g/cc - -			cm/cm	-- Pct of <2mm --				cm/cm
0-19	0.54				1.38				19.1				
19-36	0.50				1.56				14.7				
36-55	0.35				1.63				19.0				
55-81	0.40												
81-145	0.37												

Depth (cm)	(NH4OAc Extractable Bases)					Acid-	Extr	(----- CEC -----)			Al
	Ca 5B5a 6N2e	Mg 5B5a 6O2d	K 5B5a 6Q2b	Na 5B5a 6P2b	Sum Bases	ity 6H5a	Al 6G9a	Sum Cats 5A3a	NH4-OAc 5A8b	Bases + Al 5A3b	Sat 5G1
	- - - - - - - - - - - - meq / 100g - - - - - - - - - - - -										Pct
0-19	4.9	1.4	0.2	0	6.5	3.8	0	10.3	7.0	6.5	0
19-36	4.1	1.0	0.5	0	5.7	3.4	0	9.1	5.6	5.7	0
36-55	3.8	0.9	0.6	0.1	5.5	3.1	0	8.6	6.3	5.5	0
55-81	3.4	0.9	0.5	0	4.8	4.6	0.4	9.4	7.8	5.2	7.2
81-145	2.4	0.7	0.4	0	3.6	7.0	2.7	10.6	8.9	6.2	42.5

Depth (cm)	(Base Sat)		CO3 as CaCO3 <2mm	Res	Cond	(------ pH ------)				Acid Opt Den	Oxalate Extraction		
	Sum	NH4-OAc				NaF	KCl	CaCl2 .01M	H2O		Al	Fe	Si
	5C3	5C1	6E1g	8E1	8I	8C1d		8C1f	8C1f	8J	6G12	6C9a	6V2
	---- Pct ----			ohms/cm	dS/m		1: 1	1: 2	1: 1		- Pct of <2mm -		
0-19	63.1	92.7					6.0	6.4.	7.1				
19-36	62.8	100					6.1	6.3	7.2				
36-55	63.8	86.8					5.5	6.4	7.1				
55-81	51.2	61.8					4.2	5.0	5.6				
81-145	33.9	40.5					3.6	4.3	4.9				