GAGOG SERIES

Established Series
PCS, JYH, UKT
28 Mar., 1977

The Gagog series are members of the fine silty, mixed, mesic family of Typic Endoaquepts [Gleyic Hydragric Anthrosols (Eutric Siltic) classifed by WRB]. These soils have grayish brown silt loam Ap horizons with yellowish red mottles, dark grayish brown silty clay loam BAg horizons with strong brown mottles, grayish brown silty clay loam Bg1 horizons with strong brown mottles, dark grayish brown silty clay loam Bg2 horizons with strong brown mottles, and dark gray silty clay loam BCg horizons with dark yellowish brown mottles. They are developed on gently sloping valleys derived from porphyry rocks and similar materials.

Typifying Pedon: Gagog silt loam-paddy rice (Colors are for moist soil).

Slope: 2-7%

Elevation: 8 m above m.s.l.

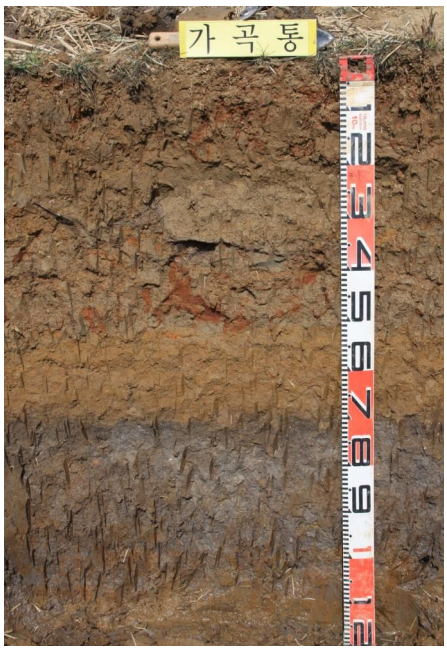
Soil moisture regime: Aquic

Soil temperature regime: Mesic

Parent material: Alluvium-colluvium from porphyry rocks

Diagnostic features: An ochric epipedon from a depth of 0 to 18 cm and a cambic horizon from a depth of 34 to 72 cm (An anthraquic horizon from a depth of 0 to 34 cm and a hydragric horizon from a depth of 34 to 72 cm by WRB).

Described by: Song, K. C., S. J. Jung, and D. C. Noh, 15 March, 2011.



Morphological properties of typifying pedon.

Ap - 0 to 18 cm. Grayish brown (2.5Y 5/2) silt loam; common fine to medium prominent yellowish red (5YR 4/6) mottles; structureless, puddled; sticky and plastic; many fine to medium roots; common fine to medium pores; few fine micas; abrupt smooth boundary.

BAg - 18 to 34 cm. Dark grayish brown (2.5Y 4/2) silty clay loam; common fine to medium prominent strong brown (7.5YR 5/6) mottles; weak medium to coarse prismatic structure; firm, sticky and plastic; thin patch clay cutans; common fine roots; common fine to medium pores; few fine micas; clear smooth boundary.

Bg1 - 34 to 50 cm. Grayish brown (2.5Y 5/2) silty clay loam; common fine to medium prominent strong brown (7.5YR 4/6) mottles; moderate fine to medium prismatic structure; firm, sticky and plastic; thin continuous clay cutans; few fine roots; common fine pores; few fine micas; common iron coatings; clear smooth boundary.

Bg2 - 50 to 72 cm. Dark grayish brown (2.5Y 4/2) silty clay loam; common fine to medium prominent strong brown (7.5YR 5/6) mottles; moderate medium to coarse prismatic structure; firm, sticky and plastic; thick continuous clay cutans; few fine roots; few fine pores; few fine micas; clear smooth boundary.

BCg - 72 to 160 cm. Dark gray (2.5Y 4/1) silty clay loam; common fine to medium prominent dark yellowish brown (10YR 4/4) mottles; weak medium to coarse prismatic structure; firm, sticky and plastic; thick continuous clay cutans; no roots; few fine pores; few fine micas.

The typifying pedon has an ochric epipedon from a depth of 0 to 18 and a cambic horizon from a depth of 34 to 72 cm. It can be classified as Inceptisol. It has aquic conditions for some time in normal years in a layer at a depth between 40 and 50 cm from the mineral soil surface, and has a layer within 50 cm of the mineral soil surface, that has, on the faces of peds, 50% or more chroma of 2 or less, and has redox concentrations. Therefore it can be classified Aquept. It has endosaturation and keys out as Endoaquept. It meets the requirements of Typic Endoaquept.

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

Type Location: About 500 meters north-east of the Daemyeong Reservoir, Geumsong Ri, Sani Myeon, Haenam Gun, Jeollanam Do (126° 29' 10.9", 34° 37' 32.3").

Range in Characteristics: These soils have ochric epipedons and cambic horizons. Solum thickness from 100 to 200 cm. Base saturation varies but generally more than 50 percent. Reaction is strongly to medium acid. Ap horizons are grayish brown, dark grayish brown, or gray silt loam, loam, or silty clay loam with very dark gray or strong brown mottles. The Bg horizons are dark gray, grayish brown, gray, or dark grayish brown silt loam, loam or silty clay loam with prominent strong brown or yellowish brown mottles.

Competing Series and Their Differentiae: These are the Bonggog, Jonggog, and Bogcheon soils. The Bonggog soils are formed in reddish brown shale areas. The Jonggog soils are derived from

phyllite and schist of Ogcheon system. The Bogcheon soils occur on fluvio-marine plains.

Setting: The Gagog soils occur on gently slopping to slopping narrow local valleys and on fans derived from porphyry rocks. Dominant slopes are 2 to 7 percent and slopes range from 2 to 15 percent.

Principal Associated Soils: The Gagog soils are associated with the Mudeung, Taehwa, Bongsan, Nasan and Bonggye soils in the higher residual positions, and Gangjin in the similar positions.

Drainage and Permeability: Imperfectly drained. Permeability is probably moderate or moderately slow. Runoff is controlled by artificially for paddy rice cultivation.

Use and Vegetation: All areas are used for paddy rice during wet summer season, for barley or wheat during dry winter season.

Distribution and Extent: The Gagog soils are of small extent and are distributed in local valleys derived from porphyry throughout the country.

Series Established: Milyang Gun, Gyeongsangnam Do, 1975. **Revised,** Haenam Gun, Jeollanam Do, 2011.

Laboratory data sheets of Gagog series.

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) - - - - - - - - - - - -											
0-18	Ap	27.7	51.8	20.5			29.6	22.2	2.0	3.7	3.8	6.0	5.0
18-34	BAg	26.1	52.9	21.0			27.6	25.3	1.9	3.6	4.0	5.9	5.6
34-50	Bg1	22.3	47.5	30.2			21.3	26.2	2.8	5.9	6.3	8.8	6.5
50-72	Bg2	25.4	50.6	24.1			20.8	29.8	2.4	4.6	5.1	6.8	5.1
72-160	BCg	27.2	55.8	17.0			23.6	32.3	1.8	3.6	3.5	4.8	3.3

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					Fe	Al	Mn
						6A1c	6B3a	6S3	6R3a	6C2b	6G7a	6D2a
	Pct of < 75mm (3B1)				Soil	Pct < 2mm		g/kg		Pct of < 2mm		
0-18						1.27						
18-34						0.56						
34-50						0.73						
50-72						0.08						
72-160						0.21						

Depth (cm)	Ratio/Clay		Atterberg Limits		(Bulk Density)			COLE	(- Water Content -)				WRD
	CEC	1500 kPa	LL	PI	Field Moist	33 kPa	Oven Dry	Whole Soil	Field Moist	10 kPa	33 kPa	1500 kPa	Whole 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
0-18	0.43				1.19				30.1				
18-34	0.41				1.42				26.7				
34-50	0.44				1.32				29.9				
50-72	0.35				1.59				21.9				
72-160	0.43												

Depth (cm)	(NH4OAc Extractable Bases)					Acid-ity	Extr Al	(----- CEC -----)			Al Sat
	Ca 5B5a 6N2e	Mg 5B5a 6O2d	K 5B5a 6Q2b	Na 5B5a 6P2b	Sum Bases	6H5a	6G9a	Sum Cats 5A3a	NH4-OAc 5A8b	Bases + Al 5A3b	5G1
	- - - - - - - - - - - - meq / 100g - - - - - - - - - - - -										Pct
0-18	4.4	1.4	0.2	0.2	6.2	7.2	0.4	13.4	11.9	6.5	5.4
18-34	3.9	1.5	0.2	0.2	5.7	7.6	0.3	13.2	10.7	6.0	5.3
34-50	3.2	1.5	0.1	0.1	5.0	6.5	0.4	11.5	9.9	5.3	6.8
50-72	3.0	1.5	0.1	0.1	4.8	6.7	0.5	11.4	8.8	5.3	10.3
72-160	4.5	2.5	0.1	0.2	7.3	7.4	0.3	14.7	11.7	7.6	3.9

Depth (cm)	(Base Sat)		CO3 as CaCO3 <2mm	Res	Cond	(------ pH ------)				Acid Oxalate Extraction			
	Sum	NH4-OAc				NaF	KCl	CaCl2 .01M	H2O	Opt Den	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 -		
0-18	46.3	51.7					4.5	5.1	5.4				
18-34	43.2	52.9					4.5	5.1	5.7				
34-50	43.4	50.2					4.3	4.9	5.5				
50-72	42.1	54.3					4.1	4.8	5.4				
72-160	49.7	62.5					4.9	5.6	6.4				