GALJEON SERIES

Established Series
PCS, JYH
5 Jan., 1979

The Galjeon series are members of the fine loamy, mixed, mesic family of Typic Hapludalfs [Cutanic Luvisols (Humic Hypereutric Siltic Novic) classified by WRB]. These soils have dark yellowish brown gravelly silt loam A horizons, yellowish brown gravelly silt loam BA horizons, yellowish brown gravelly clay loam Bt1 horizons, yellowish brown gravelly silty clay loam Bt2 horizons, and yellowish brown silty clay loam 2Btb horizons. These soils are on mountain foot slopes in anorthosite geology.

Typifying Pedon: Galjeon gravelly loam-wild grass (Colors are for moist soil).

Slope: 7-15%

Elevation: 149 m above m.s.l.

Soil moisture regime: Udic

Soil temperature regime: Mesic

Parent material: Colluvium from anorthosite

Diagnostic features: An ochric epipedon from a depth of 0 to 15 cm and an argillic horizon from a depth of 35 to 160 cm (An argic horizon from a depth of 35 to 160 cm by WRB).

Described by: Song, K. C. S. J. Jung, and D. C. Noh, 22 June, 2010.

Morphological properties of typifying pedon.

A - 0 to 15 cm. Dark yellowish brown (10YR 4/4) gravelly silt loam; moderate fine to medium granular structure; friable, slightly sticky and slightly plastic; many fine to medium roots; common fine to medium pores; 10% gravels; clear smooth boundary.

BA - 15 to 35 cm. Yellowish brown (10YR 5/6) gravelly silt loam; moderate fine to medium subangular blocky structure; firm, sticky and plastic; thin patch clay cutans; common fine to medium roots; common fine to medium pores; 20% gravels; clear wavy boundary.

Bt1 - 35 to 68 cm. Yellowish brown (10YR 5/4) gravelly clay loam; moderate fine to medium subangular blocky structure; very firm, very sticky and very plastic; thin continuous clay cutans; few fine roots; common fine to medium pores; 25% gravels; clear smooth boundary.

Bt2 - 68 to 102 cm. Yellowish brown (10YR 5/6) gravelly silty clay loam; moderate fine to medium subangular blocky structure; very firm, very sticky and very plastic; thick continuous clay cutans; few fine roots; few fine pores; 25% gravels; abrupt smooth boundary.

2Btb - 102 to 160 cm. Yellowish brown (10YR 5/6) silty clay loam; weak medium to coarse subangular blocky structure; very firm, very sticky and very plastic; thick continuous clay cutans; no roots; few fine pores; few fine micas; brown (10YR 4/3) anorthosite saprolites.

The typifying pedon has an ochric epipedon from a depth of 0 to 15 cm and an argillic horizon from a depth of 32 to 105 cm. It has a base saturation (by sum of cations) of 35% or more at 125 cm below the upper boundary of the argillic horizon. That can be classified as Alfisol. It has an udic soil moisture regime, and can be classified as Udalf. It meets the requirements of Typic Hapludalf.

The tpifying pedon has in the fraction less than 75 mm in diameter, 15% or more particles with diameters of 0.1 to 75 mm and in the fine-earth fraction, 18 to 35% clay at the particle-size control section and has mesic soil temperature regime. Therefore it can be classified as fine loamy, mixed, mesic family of Typic Hapludalf.

Type Location: About 30 meters south of the Dongnam Oline Station, Chatan Ri, Sancheong Eub, Sancheong Gun, Gyeongsangnam Do (127° 52' 12.3", 35° 26' 16.3").

Range in Characteristics: These soils have ochric epipedons and argillic horizons. The solum thickness ranges from 100 to 200 cm and depth to hard rock is more than 2 meters. Base saturation is more than 60 percent. Reaction is medium to slightly acid. A horizons are brown or dark yellowish brown loam or silt loam with gravels. The argillic B horizons are dark yellowish brown, dark brown, or yellowish brown gravelly silty clay loam or clay loam. 2Btb horizons are yellowish brown or brown clay loam or silty clay loam.

Competing Series and Their Differentiae: These are the Heugseog, Gamgog, and Banho soils. The heugseog soils are derived from phyllite or dark colored schist materials. The Gamgog soils occur in local vallys derived from red shale materials. The Banho soils are formed on local alluvial fans in materials washed from grayish brown shale materials.

Setting: The Galjeon soils are on mountain foot slopes in anorthosite geology. The slope ranges from 7 to 30 percent. The dominant slopes are 7 to 15 percent.

Principal Associated Soils: These are the Sancheong and Hwasan soils in upper residual positions, and Geunseo soils in lower local valleys.

Drainage and Permeability: Well drained; very slow permeability; moderate runoff.

Use and Vegetation: Upland crops.

Distribution and Extent: On the south western parts of the country in anorthosite geology. These soils are inextensive.

Series Established: Sancheong Gun, Gyeongsangnam Do, 1978. Revised, Sancheong Gun, Gyeongsangnam Do, 2010.

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) - - - - - - - - - - - -											
0-15	A	22.0	56.5	21.5			34.9	21.6	8.1	5.7	3.6	3.0	1.1
15-35	BA	22.4	54.1	23.5			29.6	24.5	7.2	7.1	5.0	3.5	0.7
35-68	Bt1	27.1	43.6	29.3			20.3	27.3	10.1	10.5	4.7	2.9	1.2
68-102	Bt2	29.9	50.3	19.8			21.8	28.6	8.8	5.3	2.4	2.3	1.1
102-160	2Btb	28.1	48.8	23.1			13.2	35.6	12.1	6.4	2.1	1.9	0.6

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
	Pct of < 75mm (3B1)				Soil	6A1c	6B3a	6S3	6R3a	6C2b	6G7a	6D2a
						Pct < 2mm		g/kg		Pct of < 2mm		
0-15						4.16						
15-35						3.18						
35-68						2.70						
68-102						2.62						
102-160						2.41						

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
0-15	0.58												
15-35	0.47												
35-68	0.40												
68-102	0.54												
102-160	0.58												

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
0-15	5.0	2.0	0.2	0.1	7.3	8.4	0.5	15.7	12.7	7.8	5.9
15-35	3.3	1.4	0.1	0.1	4.9	7.4	0.6	12.3	10.5	5.5	11.3
35-68	4.1	2.0	0	0.2	6.2	6.3	0.8	12.5	10.8	7.0	10.9
68-102	17.5	8.3	0.1	0.4	26.3	7.0	0.8	33.3	16.0	27.0	2.8
102-160	20.5	9.7	0	0.5	30.7	8.4	1.1	37.1	16.4	31.8	3.4

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 -		
0-15	46.5	57.6					4.9	5.3	5.8				
15-35	39.7	46.4					4.5	5.2	5.9				
35-68	49.7	57.7					4.3	5.3	6.1				
68-102	79.0	100.0					4.2	5.9	6.6				
102-160	82.8	100.0					3.8	5.8	6.5				