JISAN SERIES

Established Series
Rev. UKT
6 May, 1971

The Jisan series are members of the fine loamy, mixed, mesic family of Typic Endoaqualfs [Gleyic Hydragric Anthrosols (Eutric Siltic) classified by WRB]. These soils have dark grayish brown loam Ap horizons with brown mottles, very dark grayish brown silt loam BAg horizons with strong brown mottles, dark grayish brown silt loam Bg horizons with dark brown mottles, dark grayish brown clay loam Btg horizons, and very dark gray clay loam BCtg horizons with brown mottles. They are developed on local valleys derived from granite, andesitic porphyry, and similar materials.

Typifying pedon: Jisan loam-paddy rice (Colors are for moist soil).

Slope: 2-7%

Elevation: 63 m above m.s.l.

Soil moisture regime: Aquic

Soi temperature regime: Mesic

Parent material: Local alluvium

Diagnostic features: An ochric epipedon from a depth of 0 to 22 cm and an argillic horizon from a depth of 62 to 145 cm (An anthraquic horizon from a depth of 0 to 48 cm and a hydragric horizon from a depth of 48 to 145 cm by WRB).

Described by: Song, K. C., D. C. Noh, and B. K. Hyun, 3 March, 2014.

Morphological properties of typifying pedon.

Ap - 0 to 22 cm. Dark grayish brown (10YR 4/2) loam; common fine to medium distinct brown (7.5YR 4/4) mottles; structureless, puddled; sticky and plastic; common fine roots; few fine pores; few very fine micas; few quartz grits; diffuse smooth boundary.

BAg - 22 to 48 cm. Very dark grayish brown (2.5Y 3/2) silt loam; common medium to coarse prominent strong brown (7.5YR 4/6) mottles; weak coarse prismatic structure; slightly firm, sticky and plastic; thin continuous clay cutans; few fine roots; common fine to medium pores; common very fine micas; few quartz grits; clear wavy boundary.

Bg – 48 to 62 cm. Dark grayish brown (2.5Y 4/2) silt loam; common medium to coarse prominent dark brown (7.5YR 3/4) mottles; weak coarse prismatic structure; slightly firm, sticky and plastic; thin continuous clay cutans; few fine roots; few medium pores; common very fine micas; few quartz grits; clear smooth boundary.

Btg - 62 to 98 cm. Dark grayish brown (10YR 4/2) clay loam; moderate medium to coarse platy structure; slightly firm, sticky and plastic; thin continuous clay cutans; no roots; common fine to medium pores; common very fine micas; few quartz grits; abrupt smooth boundary.

BCtg - 98 to 145 cm. Very dark gray (10YR 3/1) clay loam; common fine distinct brown (7.5YR 4/4) mottles; weak coarse prismatic structure; slightly firm, very sticky and very plastic; thin continuous clay cutans; few fine pores; common very fine micas; few quartz grits.

The typifying pedon has an ochric epipedon from a depth of 0 to 22 cm, an argillic horizon from a depth of 62 to 145 cm, and 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 aquic conditions for some time in normal years in one or more horizons within 50 cm of the mineral soil surface, and has redoxmorphic features in all layers between a depth of 25 and 40 cm from the mineral soil surface and within the upper 12.5 cm of the argillic horizon, 50% or more redox depletions with chroma of 2 of less on the faces of peds and redox concentrations within peds. Therefore it can be classified Aqualf. It has endosaturation and keys out as Endoaqualf. Also it meets the requirements of Typic Endoaqualf.

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 Endoaqualf.

Type Location: About 250 meters of the Bio Oline Station, Seongbug Ri, Sunseong Myeon, Dangjin city, Chungcheonhnam Do (126^{o} 40' 53.1", 36^{o} 51' 30.9").

Range in Characteristics: These soils have ochric epipedons and argillic horizons. Solum thickness ranges from 100 to 150 cm and depth to hard rock is generally more than 3 meters. Base saturation is more than 50 percent. Reaction is medium to slightly acid. Common micas are present. Ap horizons are grayish brown, dark grayish brown, light gray, or gray silt loam or loam with yellowish red, strong brown, or yellowish brown mottles. Btg horizons are gray, grayish brown, dark grayish brown, very dark grayish brown, or olive gray clay loam or silty clay loam with yellowish red, strong brown, yellowish brown, or reddish brown mottles.

Competing Series and Their Differentiae: These incluede the Jindo, Yanggog, Sinheung, and Yuga Soils. The Jindo soils are derived from porpyhritic materials. The Yanggog soils are derived from sandstone and conglomerate materials. The Sinheung soils occur on broad alluvial plains. The Yuga soils have fine silty texture class and gray shale source materials.

Setting: The Jisan soils occur in gently sloping to sloping local valleys in alluvium derived from granitic, andesite porphyry and similar materials. Dominant slopes are 2 to 7 percent and slope range is from 2 to 30 percent.

Principal Associated Soils: The Jisan soils are associated with the Yongji, Sachon, Songjeong, Samgag, Jeonnam and Dalcheon series. The Songjeong, Samgag, Dalcheon, and Jeonnam soils are in residual upland positions above the Jisan soils. The Yongji soils are in slightly higher local alluvial positions. The Sachon soils have coarse loamy textures and imperfect drainage.

Drainage and Permeability: Imperfectly drained. Permeability is moderate or moderately slow and runoff is controlled as all areas are level terraced and dyked for paddy rice land use.

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

Distribution and Extent: The Jisan soils are of large extent and are distributed in local valleys throughout the granite areas of the country.

Series Established: Gwangsan Gu, Gwangju city, 1966. **Revised,** Dangjin city, Chungcheonhnam Do, 2014.

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) - - - - - - - - - - - -											
0-22	Ap	20.0	47.4	32.6			27.1	20.3	5.1	9.1	7.7	7.6	3.1
22-48	BAg	18.7	54.5	26.7			29.7	24.8	4.3	7.6	6.6	6.2	2.1
48-62	Bg	18.6	55.8	25.5			29.1	26.7	4.4	6.9	6.2	6.1	1.8
62-98	Btg	24.5	43.3	32.2			19.7	23.6	4.6	8.6	8.6	8.0	2.4
98-145	BCtg	27.5	43.9	28.6			18.1	25.8	4.1	7.7	9.4	6.2	1.1

Depth (cm)	Coarse Fractions(mm) Weight 2-5	5-20	20-75	.1-75	>2mm Wt Pct of Whole Soil	Orgn C 6A1c	Total N 6B3a	Extr P 6S3	Total S 6R3a	(-- Dith -Cit --) Extractable Fe 6C2b	Al 6G7a	Mn 6D2a
	Pct of < 75mm (3B1)					Pct < 2mm		g/kg		Pct of < 2mm		
0-22						0.32						
22-48						0.20						
48-62						0.33						
62-98						0.22						
98-145						1.58						

Depth (cm)	Ratio/Clay CEC 8D1	1500 kPa 8D1	Atterberg Limits LL 4P1	PI 4P	(Bulk Density) Field Moist 4A3a	33 kPa 4A1d	Oven Dry 4A1h	COLE Whole Soil 4D1	(- Water Content -) Field Moist 4B4	10 kPa 4B1c	33 kPa 4B1c	1500 kPa 4B2a	WRD Whole Soil 4C1
			Pct <0.4mm		- - g/cc - -			cm/cm	-- Pct of <2mm --				cm/cm
0-22	0.58												
22-48	0.57												
48-62	0.55												
62-98	0.47												
98-145	0.68												

Depth (cm)	(NH4OAc Extractable Bases) Ca 5B5a 6N2e	Mg 5B5a 6O2d	K 5B5a 6Q2b	Na 5B5a 6P2b	Sum Bases	Acid-ity 6H5a	Extr Al 6G9a	(----- CEC -----) Sum Cats 5A3a	NH4-OAc 5A8b	Bases + Al 5A3b	Al Sat 5G1
	- - - - - - - - - - - - meq / 100g - - - - - - - - - - - -										Pct
0-22	4.0	1.9	0.3	0.1	6.4	8.1	0	14.5	11.5	6.4	0
22-48	3.3	1.5	0.4	0.1	5.3	8.4	0.1	13.7	10.6	5.4	2.2
48-62	3.4	1.7	0.4	0.1	5.6	7.3	0	12.9	10.2	5.6	0
62-98	3.7	1.8	0.2	0.1	5.8	9.5	0	15.3	11.5	5.8	0
98-145	7.5	3.0	0.2	0.1	10.8	12.0	0	22.8	18.8	10.8	0

Depth (cm)	(Base Sat) Sum 5C3	NH4-OAc 5C1	CO3 as CaCO3 <2mm 6E1g	Res 8E1	Cond 8I	(------ pH ------) NaF 8C1d	KCl 1: 1	CaCl2 .01M 8C1f	H2O 1: 1 8C1f	Acid Oxalate Extraction Opt Den 8J	Al 6G12	Fe 6C9a	Si 6V2
	---- Pct ----			ohms/cm	dS/m					- Pct of <2mm -			
0-22	44.0	55.7					4.6	5.4	6.0				
22-48	38.7	50.0					4.1	4.9	5.7				
48-62	43.4	54.9					4.1	5.2	5.7				
62-98	37.9	50.4					4.5	5.3	6.0				
98-145	47.3	57.4					4.7	5.3	6.1				