SINDAB SERIES

Established Series
UKT, JFD
17 November, 1969

The Sindab series are members of the mixed, mesic family of Typic Psammaquents [Gleyic Hydragric Anthrosols (Eutric Arenic) classified by WRB]. These soils have gray to olive brown or dark grayish brown fine gravelly loamy coarse sand Ap horizons and fine gravelly coarse sand Cg horizons. They occur on level to very gently sloping alluvial plains and are mostly in granitic areas.

Typifying pedon: Sindab fine gravelly coarse sand-paddy rice (Field description Sangju Gun profile No. 196; colors are for moist soil).

Slope: 0-2%
Elevation: m above m.s.l.
Soil moisture regime: Aquic
Temperature regime: Mesic
Parent material: Alluvium
Diagnostic features: An ochric epipedon from a depth of 0 to 12 cm (An anthaquic horizon from a depth of 0 to 40 cm and a hydragric horizon from a depth of 40 to 80 cm by WRB).

Morphological properties of typifying pedon.

Ap - 0 to 12 cm. Olive brown (2.5Y 4/4) fine gravelly coarse sand; common coarse faint grayish brown (2.5Y 5/2) mottles; structureless, single grained; loose, non sticky and non plastic; 20 percent quartz grits; common fine roots; gradual smooth boundary; pH 6.5. See remarks.

Cg1 - 12 to 40 cm. Olive gray (5Y 4/2) fine gravelly coarse sand; structureless, single grained; loose, non sticky and non plastic; 15 percent quartz grits; few fine roots; gradual smooth boundary; pH 6.0.

Cg2 - 40 to 80 cm. Light olive gray (5Y 6/2) fine gravelly coarse sand; structureless, single grained; loose, non sticky and non plastic; 10 percent quartz grits; few fine roots; diffuse smooth; pH 6.5.

Type Location: About 1 km. west of Geumgye (Ogsan village) Ri, Gongseong Myeon, Sangju Si, Gyeongsangbug Do.

Range in Characteristics: These soils have ochric epipedons. Depth over strongly contrasting layers is more than one meter and depth over hard rock is 3 to 5 meters. Base saturation is more than 60 percent. Reaction is medium to strongly acid. 10 to 35 percent quartz grit occurs throughout the profiles. Ap horizons are grayish brown, dark grayish brown, olive brown, gray, or light gray sand, loamy sand, coarse sand, or sandy loam. Cg horizons are commonly shades of gray, grayish brown, light olive gray, or dark gray fine gravelly sand, loamy sand, coarse sand, or loamy coarse sand. Thin strata of other textures may occur. In general, textures are coarser with depth.

Competing Series and Their Differentiae: These are the Hamchang, Geumji, Subug, Hwabong, Hwangryong, and Nagdong series. The Hamchang soils have coarse loamy textures. The Geumji soils are sandy skeletal texture family. The Subug soils have coarse loamy textures. The Gangdong soils are fine loamy over sandy texture family. The Hwabong soils have coarse sandy textures, lack gray colors and are somewhat excessively drained. The Hwangryong soils have sandy skeletal textures, lack gray mottles and are somewhat excessively drained. The Nagdong soils have fine sandy textures, lack gray mottles and are somewhat excessively drained.

Setting: The Sindab soils are formed in coarse textured sandy alluvium on alluvial plains, frequently in old stream channels and also in areas adjacent to dyked stream channels where the stream bed is higher than the alluvial plains. They also occur in narrow valley alluvium and below lakes commonly where seepage water and springs occur. Dominant slopes are about 1 percent and slope range is from 0 to 7 percent.

Principal Associated Soils: The Seongsan, Togye, Sangju, and Ibseog soils are associated in local alluvial positions above the Sindab soils. The Hwangryong and Hwabong soils are associated in river levee positions. The Samgag and Dosan soils are associated in residual upland positions.

Drainage and Permeability: Poorly drained. Permeability is very rapid and runoff is ponded or very slow. The ground water table is at or near the surface most of the year except where artificially controlled.

Use and Vegetation: Most areas are used for paddy rice.

Distribution and Extent: The Sindab soils are of moderate extent and are distributed along the main river and in local valley alluvial plains, mainly in granitic areas throughout the country.

Series Established: Ulju Gun, Gyeongsangnam Do, 1967.

Laboratory data sheets of typifying pedon.

Depth (cm)	Horizon	(--- Total ---) Clay LT .002	Silt .002 - .05	Sand .05 - 2	(-- Clay --) Fine .0002	Coarse LT .002	(-- Silt --) Fine .002 - .02	Coarse .02 - .05	(------- Sand -------) VF .05 - .10	F .10 - .25	M .25 - .50	C .5 - 1	VC 1 - 2
		- - - - - - - - - - - Pct of < 2mm (3A1) - - - - - - - - - - -											
0-12	Ap	2.3	7.5						6.0	15.8	27.5	23.9	17.0
12-40	Cg1	2.1	5.4						5.4	12.8	25.0	27.0	22.3
40-80	Cg2	2.1	1.0						2.0	10.1	30.2	29.1	25.5

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		
0-12						0.42						
12-40						0.23						
40-80						0.06						

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
0-12							-			13.5	9.8	2.9	
12-40							1.64			9..5	7.2	2.1	
40-80					-		1.65			4.4	4.2	1.8	

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
0-12	1.80	0.60	0.13	0.10					2.10		
12-40	1.20	0.60	0.13	0.08					2.20		
40-80	0.85	0.35	0.08	0.08					1.50		

Depth (cm)	(Base Sat) Sum	NH4-OAc	CO3 as CaCO3 <2mm	Res	Cond	(------ pH ------) NaF	KCl	CaCl2 .01M	H2O	Acid Opt Den	Oxalate Extraction 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 -		
0-12	127.6						5.1		6.3				
12-40	91.4						4.2		5.3				
40-80	90.7						3.9		4.6				

Depth (cm)	Elemental Analysis of Clay H2O	Igni	SiO2/	SiO2	Fe2O3	Al2O3	K2O	3/ CEC	Free Fe2O3	Mn
	%	loss %	R2O3	%	%	%	%	me/100g	%	ppm
0-12		10.69	2.52	49.59	3.48	29.95	0.89		0.16	10.4
12-40		10.82	2.23	46.98	5.56	32.25	1.86		0.16	12.8
40-80		-	-	-	-	-	-		-	-