

YESAN SERIES

Established Series
Rev. UKT
14 May, 1971

The Yesan series are members of the coarse loamy, mixed, mesic family of Typic Dystrudepts [Haplic Cambisols (Alumic Dystric Chromic) classified by WRB]. These soils have yellowish red sandy loam A horizons, yellowish red sandy loam BA horizons, reddish brown sandy loam Bw1 horizons, reddish brown sandy loam Bw2 horizons, and yellowish red loam C horizons. They are developed in rolling to hilly areas and are derived from granitic materials.

Typifying Pedon: Yesan loam-forest (Colors are for moist soil).

Slope: 7-15%

Elevation: 43 m above m.s.l.

Soil moisture regime: Udic

Soil temperature regime: Mesic

Parent material: Residuum on granite and granite gneiss

Diagnostic features: An ochric epipedon from a depth of 0 to 21 cm and a cambic horizon from a depth of 60 to 102 cm (A cambic horizon from a depth of 60 to 102 cm by WRB).

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Morphological properties of typifying pedon.

A - 0 to 21 cm. Yellowish red (5YR 4/6) sandy loam; moderate fine to medium granular structure; friable, slightly sticky and slightly plastic; many fine to coarse roots; common fine to medium pores; few worm holes; common quartz grits; gradual wavy boundary.

BA - 21 to 60 cm. Yellowish red (5YR 4/6) sandy loam; weak fine to medium subangular blocky structure; friable, slightly sticky and slightly plastic; common fine to medium roots; few fine to medium pores; few fine micas; few worm holes; common quartz grits; clear wavy boundary.

Bw1 - 60 to 86 cm. Reddish brown (2.5YR 4/4) sandy loam; weak fine to medium subangular blocky structure; friable, slightly sticky and slightly plastic; few fine to medium roots; common fine to medium pores; few fine micas; few worm holes; common quartz grits; few fine gravels; gradual wavy boundary.

Bw2 - 86 to 102 cm. Reddish brown (2.5YR 4/4) sandy loam; weak fine to medium subangular blocky structure; friable, slightly sticky and slightly plastic; few fine to medium roots; common fine to medium pores; common fine micas; common quartz grits; clear wavy boundary.

C - 102 to 160 cm. Yellowish red (5YR 4/6) loam; structureless, massive; sticky and plastic; few fine to medium roots; few fine to medium pores; common fine micas; common quartz grits.

The typifying pedon has an ochric epipedon from a depth of 0 to 21 cm and a cambic horizon from a depth of 60 to 102 cm. That can be classified as Inceptisol. It has an udic soil moisture regime and keys out as Udept. Also it meets the requirements of Typic Dystrudept. The typifying pedon has, in the fraction less than in diameter, 15% or more particles with diameters of 0.1 to 75 mm and, in the fine-earth fraction, less than 18% clay at the particle-size control section and mesic soil temperature regime. Therefore it can be classified as coarse loamy, mixed, mesic family of Typic Dystrudept.

Type Location: About 800 meters north-east of Sujeonggol Reservoir, Sugjin Ri, Sangwol Myeon, Nonsan city, Chungcheongnam Do (127° 9', 38.5", 36° 18' 29.2").

Range in Characteristics: These soils have ochric epipedons and cambic horizons. Solum thickness ranges from 100 to 200 cm. Depth to hard rock is more than 3 meters and ranges to more than 10 meters. Base saturation is less than 60 percent. Reaction is very strongly to strongly acid. A horizons are brown or yellowish red loam, silt loam, or fine sandy loam. Cambic B horizons are yellowish red, reddish brown, reddish yellow, or red sandy loam, fine sandy loam, loam, or silt loam. C horizons are light red, red, strong brown, or yellowish red sandy loam, fine sandy loam, loam, silt loam extremely weathered granitic saprolites.

Competing Series and Their Differentiae: These soils are the Samgag, Songsan, and Songjeong series. The Samgag soils are developed in mountainous areas. The Songsan soils are developed in mountainous areas in residuum derived from metamorphic rocks such as biotite, granite-gneiss and schist. The Songjeong soils are belonged to Hapludults.

Setting: The Yesan soils are on rolling to hilly areas underlaid by very deeply and very strongly weathered coarse granitic rocks. Dominant slopes are 7 to 30 percent and range from 7 to 60 percent.

Principal Associated Soils: The Seongsan and Wongog soils are associated in local colluvial and foot slope positions. The Samgag soils are associated on steeper slopes. The Dalcheon and Jeonnam soils are associated with similar physiographic positions.

Drainage and Permeability: Well drained. Permeability is moderately rapid and runoff is medium to rapid depending on slopes.

Use and Vegetation: Most of areas are used for apple orchard, barley, soybean, red pepper, potato, cabbage, radish, sweet potato, and similar crops. Some small areas are used for pine forest and wild grasses.

Distribution and Extent: The Yesan soils are of large extent and are distributed in the rolling to hilly areas with coarse granitic geology throughout the country.

Series Established: Yesan Gun, Chungcheongnam Do, 1969. **Revised,** Nonsan city, Chungcheongnam Do

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	.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) -----													
0-21	A	15.4	24.0	60.6			13.0	11.0	6.6	14.5	13.8	15.1	10.6
21-60	BA	17.6	19.3	63.1			8.4	10.9	4.5	11.4	14.7	20.2	12.2
60-86	Bw1	16.4	19.4	64.2			7.3	12.1	6.1	14.2	17.0	17.9	9.1
86-102	Bw2	18.2	19.2	62.6			6.4	12.8	5.5	13.8	17.0	17.6	8.7
102-160	C	22.7	23.8	53.6			9.1	14.7	4.2	11.1	14.2	16.4	7.7

Depth (cm)	Coarse Fractions(mm)				>2mm	Orgn	Total	Extr	Total	(-- Dith -Cit --)		
	2-5	5-20	20-75	.1-75	Wt	C	N	P	S	Extractable		
	Pct of				Whole	6A1c	6B3a	6S3	6R3a	6C2b	6G7a	6D2a
	Pct of < 75mm (3B1)				Soil	Pct < 2mm		g/kg	Pct of < 2mm			
0-21						1.27						
21-60						0.12						
60-86						0.06						
86-102						0.04						
102-160						0.10						

Depth (cm)	Ratio/Clay		Atterberg		(Bulk Density)			COLE		(- Water Content -)			WRD
	CEC	1500	Limits		Field	33	Oven	Whole	Field	10	33	1500	Whole
		kPa	LL	PI	Moist	kPa	Dry	Soil	Moist	kPa	kPa	kPa	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		
0-21	0.70				1.14							20.9	
21-60	0.42				1.14							20.2	
60-86	0.36				1.28							17.8	
86-102	0.45				1.29							17.1	
102-160	0.37												

Depth (cm)	(NH4OAc Extractable Bases)					Acid-	Extr	(----- CEC -----)			Al
	Ca	Mg	K	Na	Sum	ity	Al	Sum	NH4-	Bases	Sat
	5B5a	5B5a	5B5a	5B5a	Bases			Cats	OAc	+ Al	
	6N2e	6O2d	6Q2b	6P2b		6H5a	6G9a	5A3a	5A8b	5A3b	5G1
	- - - - - meq / 100g - - - - -										Pct
0-21	0.9	0.3	0.2	0.1	1.5	11.4	3.1	12.9	10.7	4.7	67.0
21-60	0.5	0.4	0.6	0.1	1.7	8.1	3.2	9.7	7.3	4.9	66.1
60-86	0.6	0.7	0.3	0.1	1.7	6.2	2.5	7.9	5.9	4.1	59.6
86-102	0.5	0.7	0.4	0.1	1.7	6.9	3.4	8.6	8.3	5.1	66.3
102-160	0.3	0.4	0.7	0.1	1.5	8.2	4.2	9.7	8.5	5.7	73.3

Depth (cm)	(Base Sat)		CO3 as	Res	Cond	(----- pH -----)			Acid	Oxalate	Extraction		
	Sum	NH4-	CaCO3			NaF	KCl	CaCl2	H2O	Opt	Al	Fe	Si
		OAc	<2mm					.01M		Den			
	5C3	5C1	6E1g	8E1	8I	8C1d		8C1f	8C1f	8J	6G12	6C9a	6V2
	---- Pct ----		ohms	dS/m		1: 1	1: 2	1: 1		- Pct of <2mm -			
0-21	11.9	14.3				3.4	3.8	4.5					
21-60	17.0	22.6				3.7	4.1	4.9					
60-86	21.0	28.2				3.8	4.2	5.1					
86-102	19.8	20.7				3.7	4.1	5.2					
102-160	15.7	18.0				3.8	4.1	5.1					