

# SINEOM SERIES

Established Series  
PCS, JYH, UKT  
10 Apr., 1977

The Sineom series are members of the medial, ferrihydritic, thermic family of Acrudoxic Melanudands [Leptic Melanic Aluandic Andosols (Acroxic Siltic) classified by WRB]. These soils have black silt loam A horizons, black silt loam AB horizons, and dark yellowish brown silt loam Bw horizons underlain by consolidated basaltic hard rock. These soils are developed on lava plains derived from pyroclastic materials.

**Typifying Pedon:** Sineom silt loam-wild grass (Colors are for moist soil).

Slope: 2-7%

Elevation: 278 m above m.s.l.

Soil moisture regime: Udic

Soil temperature regime: Thermic

Parent material: Pyroclastic materials

Diagnostic features: A melanic epipedon from a depth of 0 to 42 cm, a cambic horizon from a depth of 42 to 58 cm, and an andic soil properties from a depth of 0 to 58 cm (A melanic horizon from a depth of 0 to 42 cm, a cambic horizon from a depth of 42 to 58 cm, and an andic properties from a depth of 0 to 58 cm by WRB).

Described by: Song, K. C., D. C. Noh, and S. J. Jung, 14 June, 2011.



Morphological properties of typifying pedon.

**A** - 0 to 15 cm. Black (10YR 2/1) silt loam; weak fine to medium granular structure; friable, slightly sticky and slightly plastic; many fine to medium roots; few fine pores; clear smooth boundary.

**AB** - 15 to 42 cm. Black (10YR 2/1) silt loam; weak fine to medium subangular blocky structure; firm, slightly sticky and slightly plastic; common fine to medium roots; few fine pores; clear smooth boundary.

**Bw** - 42 to 58 cm. Dark yellowish brown (10YR 4/4) silt loam; weak fine to medium subangular blocky structure; firm, sticky and plastic; common fine to medium roots; common fine pores.

**R** - 58 cm+ Dark colored hard basalt rock.

The typifying pedon contains 4.4-5.7% oxalate extractable (Al + 1/2 Fe), over 85% phosphate retention, and lower bulk density than 0.90 g/m<sup>3</sup> from the depth of 0 to 200 cm. It has andic soil properties and keys out as Andisol. The typifying pedon has an udic soil moisture regime and can be classified as Udand. A and AB horizons (0-42 cm) have a color value, moist, and chroma of 2 or less, melanic index of 1.70 or less, and 6% or more organic carbon. That meets the requirements of melanic epipedon. That keys out as Melanudand. It has a sum of extractable bases (by NH<sub>4</sub>OAc) plus 1N KCl-extractable Al totaling less than 2.0 cmol (+)/kg in the fine-earth fraction of one or more horizons with a total thickness of 30 cm or more at a depth between 25 and 100 cm from the mineral soil surface. That can be classified as Acrudoxic Melanudand.

The typifying pedon has a fine-earth fraction that has a water content at 1,500 kPa tension of 12% or more on air-dried samples and has less than 35% (by volume) rock fragments. Thus, the substitute for particle-size class is medial. It has a sum of 8 times the Si (percent by weight extracted by ammonium oxalate from the fine-earth fraction) plus 2 times the Fe (percent by weight extracted by ammonium oxalate from the fine-earth fraction) of 5 or more, and 8 times the Si is less than 2 times the Fe. It has ferrihydritic mineralogy class and thermic soil temperature class. Therefore it can be classified as medial, ferrihydritic, thermic family of Acrudoxic Melanudand.

**Type Location:** About 100 meters south-east of the Ajin Garden, Songdang Ri, Gujwa Eub, Jeju city, Jeju Do (126° 44' 39.0", 33° 25' 57.8").

**Range in Characteristics:** These soils have melanic epipedons, cambic horizons, and andic soil properties. Depth to hard rock is 50 to 100 cm. Reaction is strongly acid. Base saturation is less than 50 percent. A horizons are very dark brown or black silt loam. Bw horizons are very dark brown, very dark grayish brown, or black silt loam underlain by basaltic hard rocks.

**Competing Series and Their Differentiae:** These are the Namwon, Wimi, and Minag soils. The Namwon soils are deeper in soil depth. The Wimi soils have 10 to 35% gravels in the profiles. The Minag soils have stones and boulders.

**Setting:** The Sineom soils are developed on lava plains and are derived from pyroclastic materials. Slope ranges from 2 to 15 percent, and 2 to 7 percent slopes are dominant.

**Principal Associated Soils:** The Gimnyeong, Haengwon, Wimi, Minag, Topyeong, and Namwon soils are associated with the Sineom soils. They occur on similar physiographic positions.

**Drainage and Permeability:** Well drained, permeability is rapid, and runoff is medium.

**Use and Vegetation:** Most of these soils are used for grass land and small areas are used for cultivated upland crops such as barley and sweet potato.

**Distribution and Extent:** The Sineom soils are of small extent and are distributed on lava plains of Jeju Do.

**Series Established:** Seogwipo city, Jeju Do, 1975. **Revised,** Jeju city, Jeju Do, 2011.

**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) -----													
0-15	A	24.9	71.5	3.6			41.4	30.1	1.0	0.8	0.5	0.7	0.5
15-42	BA	22.5	63.0	14.5			32.1	30.9	4.9	5.9	3.0	1.3	0.5
42-58	Bw	15.6	60.7	23.7			27.5	33.2	8.9	10.6	3.3	0.8	0.2
58-	R												

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 < 75mm (3B1)				Whole	6A1c	6B3a	6S3	6R3a	6C2b	6G7a	6D2a
					Soil	Pct < 2mm		g/kg	Pct of < 2mm			
0-15						11.72						
15-42						12.66						
42-58						3.51						
58-												

Depth (cm)	Ratio/Clay		Atterberg		( Bulk Density )			COLE	(- Water Content -)				WRD
	CEC	1500	Limits		Field	33	Oven	Whole	Field	10	33	1500	Whole
	8D1	8D1	4P1	4P	Moist	kPa	Dry	Soil	Moist	kPa	kPa	kPa	Soil
					4A3a	4A1d	4A1h	4D1	4B4	4B1c	4B1c	4B2a	4C1
			Pct <0.4mm		- - g/cc - -			cm/cm	-- Pct of <2mm --				cm/cm
0-15	2.29				0.45				147.0				
15-42	2.42				0.57				113.0				
42-58	2.02				0.38				134.7				
58-													

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
0-15	1.2	0.6	0.3	0.2	2.3	86.6	0.1	88.9	57.0	2.4	4.2
15-42	0.1	0.1	0.1	0.1	0.5	76.5	0.5	77.0	54.5	1.0	50.0
42-58	0.2	0.1	0.1	0.1	0.5	41.6	0	42.1	31.5	0.5	0
58-											

Depth (cm)	(Base Sat)		CO <sub>3</sub>	Melani	P Ret	(----- pH -----)			Acid Oxalate Extraction				
	Sum	NH4-	as	c		NaF	KCl	CaCl <sub>2</sub>	H2O	Opt	Al	Fe	Si
	5C3	5C1	<2mm	Index		8C1d		.01M	8C1f	8C1f	8J	6G12	6C9a
	---- Pct ----				Pct	1: 1 1: 2 1: 1			- Pct of <2mm -				
0-15	2.6	4.1			98.8	4.3	4.5	5.2		3.25	2.76	0.26	
15-42	0.7	0.9			99.7	4.5	4.6	5.1		4.17	3.02	0.52	
42-58	1.2	1.6			98.8	4.9	4.9	5.3		2.94	2.93	0.63	
58-													